



DENVER

THE MILE HIGH CITY

CITY AND COUNTY OF DENVER

DEPARTMENT OF PUBLIC WORKS | ENGINEERING DIVISION

Storm Drainage and Sanitary Sewer Construction Detail and Technical Specifications

3.0 Existing Facilities

3.0.1 General

The Contractor shall at all times take extreme and proper precautions for the protection of utility lines, the presence of which are known or can be determined by the examination of appropriate utility maps, exploratory excavations, etc. The Contractor shall be responsible for the repair of any damaged service or utility lines, and any utility line damaged by construction operations shall be repaired at the Contractor's expense.

The Contractor shall notify the Denver Water Board, Xcel Energy, telephone, cable and fiber optic companies, as well as all other interested parties, prior to commencement of work in order to insure that there will not be interruptions of these services during construction. Existing utility lines and utility poles, trees, shrubbery, fences, water mains, gas mains, sewers, cables, conduits, curb, gutter, walks, and other structures in the vicinity of the work not authorized to be removed, shall be supported and protected from damage by the Contractor until all construction and related work is complete. The Contractor shall be liable for all damages done to existing facilities, structures, and property.

3.0.2 Utilities

Utilities, underground and above-ground, shall include but not be limited to: fiber optics, gas, telephone, electric, steam, water, sanitary and storm sewers, telegraph lines, conduits, fiber optics (including empty ducts), all abandoned utilities, etc., and their accessories, appurtenances and service connections. The type, size, location, and number of all known above-ground and underground utilities have been shown on the drawings, however, no guarantee is made as to the true, size, location or number of such utilities. It shall be the responsibility of the Contractor to verify the existence and location (vertically and

horizontally) of all underground utilities along the route of the work, to ensure construction as shown in the Contract Documents. The omission from or the inclusion of existing or abandoned utility locations on the drawings is not to be considered as the nonexistence of, or a definite location of, said utilities.

3.0.3 Exploratory Excavations

When provided for in the Contract Documents, exploratory excavations shall only be paid at locations designated in the Contract Documents or as specifically approved by the Project Construction Engineer, in writing.

In addition to those areas as may be designated in the Contract Documents, it shall be the Contractor's responsibility to excavate and locate all utilities and appurtenances which may affect construction of the sewer utilities. All exploratory excavations shall occur far enough in advance to permit any necessary relocation or adjustment without delaying the project. All costs incurred by the Contractor in making exploratory excavations shall be considered to be included in the unit price bid for constructing each section of sewer line, structures, laterals and/or appurtenances.

3.0.4 Relocation and Adjustment

If it is determined prior to, or during construction that any underground or aboveground utilities (as defined under Section 3.0.2) are required to be relocated or adjusted, the Contractor shall notify the owner well in advance of his approach of such utility so that arrangements with the owner or owners of the affected utility can be completed without delaying construction. It is the Contractor's responsibility to coordinate all utility relocations and adjustments required to complete the scope of work designated within the construction plans and documents. All utilities requiring relocation and/or adjustment shall be constructed in accordance with each specific owner's requirements, standard specifications, and applicable agreements. The costs associated with utility coordination, relocations, adjustments; and/or construction delays due to improper planning, scheduling or advance notification of utility owners by the Contractor, shall be included within the related pipe segments, structures and appurtenances.

Unless otherwise provided for in the Contract Documents or specified elsewhere, the responsibility of relocating both underground and aboveground utilities within the project limits, shall be borne by the Contractor. However, if excessively wide excavations, cave-ins, improper shoring of trenches, or other unauthorized operations by the Contractor, damage any utilities lying outside of the prescribed maximum trench width, the Project Construction Engineer may order the utility to be adequately protected or relocated at the sole expense of the Contractor.

3.0.4.1 Water Services

The type, size and location of water services are not shown on the construction plans and it shall be the Contractor's responsibility to identify and locate the services affected during construction.

The Contractor is required to maintain service and adjust all water service taps and/or connections encountered during construction. Service adjustments and reconnections for homeowners, businesses, and facilities with special circumstances will be completed during a timeframe which accommodates their needs. All work will be performed by a licensed plumber or journeyman drainlayer and shall be in accordance with the Denver Water Board Standard Construction Specifications. No separate payment will be made for any of the work involved for this item and all costs incurred will be considered to be included in the applicable unit price bid for the associated pipe segments, structures and appurtenances.

3.0.4.2 Gas Services

The type, size and location of gas services are not shown on the construction plans, and it shall be the Contractor's responsibility to identify and locate the services affected during construction. The Contractor is required to coordinate all gas service relocations with the utility owner, well in advance of approach. All work involved and costs incurred for this item will be included within the applicable unit price bid for the associated pipe segments, structures and appurtenances.

3.0.4.3 Sewer Services

1. Adjusting

All storm and sanitary sewer services and/or connections crossed during construction shall be adjusted by the Contractor as required to maintain service. A licensed plumber or a licensed drainlayer shall perform all such work. Unless otherwise provided for in the Contract Documents, no separate payment will be made for any of the work involved for this item and all costs incurred will be considered to be included in the applicable unit price bid for the associated pipe segments, structures and appurtenances.

2. Reconnection

Where existing sanitary and storm sewer lines with service and/or lateral connections are being replaced, reconnection will be required at the locations shown in the Contract Documents, in addition to those located in the field by the Contractor and identified by the Project Construction Engineer as active connections. The foregoing is applicable to all Division Contracts including storm sewer, gulch work, sanitary sewer, and emergency work of any nature. The connections shall be reconnected by the Contractor utilizing standard tee or wye fittings, factory manufactured saddle taps, applicable pipe and reinforced concrete collars, adjustable repair couplings, etc. as specifically approved for construction by the Project Construction Engineer. All service connections on PVC lines shall be constructed in accordance with Section 10.6 of these Detail and Technical Specifications. Connections to sewer lines and structures shall be made using coring machines, keyhole saws, or other methods approved by the Project Construction Engineer; jack-hammering is not permitted. The Contractor will perform this work utilizing a licensed plumber or journeyman drain layer. All connections must be reconnected to the new sewer line within twelve hours of discontinuance of service.

3. Location and Verification

All sewer services and/or lateral connections shall be located and verified by the Contractor prior to construction (both vertically and horizontally). The Contractor shall notify owner well in advance of access to mainline sewers to allow coordination and planning with the pertinent maintenance groups. All costs associated with delays and maintenance of mainline facilities will be incurred by the Contractor. The Project Construction Engineer shall be notified immediately of any information acquired from locates and verifications which may effect the design or original scope of work.

Unless provided for elsewhere in the Contract Documents or specified elsewhere, no separate payment will be made for any of the work involved for these items and all costs incurred will be included in the applicable unit price bid for the associated pipe segments, structures and appurtenances.

3.0.5 Abandonment

All existing sewer facilities to be plugged and abandoned in place are specifically shown on the Construction Drawings. Unless otherwise specified in the Contract Documents or elsewhere in the Special Conditions, the procedures and methods for the abandonment of said facilities shall conform to the following.

3.0.5.1 Manholes/Inlets/Structures

Manholes, inlets or miscellaneous structures to be abandoned in place shall have all pipes entering or exiting the structure plugged with lean concrete. Manhole tops or cone sections shall be removed to the first full barrel diameter section, and/or to a point not less than 24-inches below final grade. The structure shall then be backfilled and compacted in accordance with Backfill Method B as specified in Section 5.0, Backfilling. Backfill material may be either: select backfill, clean suitable excavated material, or controlled low strength material approved by the Project Construction Engineer. Surface restoration for the surrounding area shall be done in accordance with Section 6.0.

Manhole rings, covers, inlet grates, frames, precast flat tops, cone sections, or other salvageable items shall be salvaged, stored and delivered to such location as prescribed by the Project Construction Engineer.

The payment for abandoning manholes, inlets, and/or miscellaneous structures as described above; along with the materials, equipment and labor necessary to complete all surface restoration associated with these items shall be included within the appropriate bid item (regardless of the size or depth of item abandoned). Refer to applicable Measurement and Payment description for specific item inclusions.

3.0.5.2 Sewer Lines

Sewer lines to be abandoned in place shall be plugged with lean concrete and standard manufactured plugs or caps at both upstream and downstream ends of the abandoned section. If the manholes, inlets, etc. are also abandoned in place, or if the structure is to be removed

completely, all sewer lines shall be plugged upstream and downstream of the removed structure following removal.

Sewer lines with an internal diameter of 24-inches or larger shall be filled with sand, pumped grout mixtures, or flowable fill, prior to final plugging. Unless otherwise noted in the Contract Documents, sewer lines with an internal diameter of 21-inches and smaller shall be plugged at entrance and exit ends with approved grout mixtures or concrete.

Unless provided for elsewhere in the Contract Documents or specified elsewhere, no separate payment will be made for any of the work involved for these items and all costs incurred will be included in the applicable unit price bid for the associated pipe segments, structures and appurtenances.

3.0.6 Crossing of Existing Utilities

See Standard Detail S-350, for requirements and general notes.