

SECTION 02150**REMOVAL OR ABANDONMENT OF EXISTING
UTILITIES AND UNDERGROUND STRUCTURES****02150.01 GENERAL****A. Description**

Removal or abandonment of existing utilities and underground structures shall include, but not necessarily be limited to, the removal, salvage, demolition in place, abandonment, or other disposition of existing utilities, underground structures, or other facilities shown on the Plans, encountered in the course of the work, and/or as directed by the Engineer and in accordance with the Contract Documents.

B. Related Work Included Elsewhere

1. Trench excavation, backfill, and compaction; Section 02250.
2. Unit masonry; Section 04200.

C. Quality Assurance

The Engineer will inspect all materials and work to ensure compliance with the Contract Documents.

D. Submittals

None.

E. Standards

In accordance with Standard Details unless otherwise shown on the Plans.

02150.02 MATERIALS**A. Materials Furnished by the County**

The County will not furnish any materials for the removal or abandonment of existing utilities and underground structures.

B. Contractor's Options

The Contractor may construct brick or concrete bulkheads in existing pipes or structure openings, unless otherwise noted.

C. Detailed Material Requirements

1. Borrow material for backfilling the space left by removal of facilities or backfilling abandoned structures shall meet the requirements specified in Section 02240.02 for Type II Borrow.
2. Pipe plugs and caps for water main abandonment shall be as specified in Section 02551.03.
3. Portland cement concrete for abandonment of utility pipelines, manholes and other structures shall be Mix No. 1 or Mix No. 3 as specified in Section 03310.
4. Mortar shall be as specified in Section 01400.02.
5. Brick for pipeline and structure bulkheads shall be sewer brick as specified in Section 04200.02.
6. Waterproofing for exterior of manhole bulkheads shall be as specified in Section 07130.02.

02150.03 EXECUTION

A. General

1. The area over the existing facility to be removed or abandoned shall be excavated and, after removal or abandonment as specified, backfilled and compacted in accordance with Section 02250.03.
2. Brick construction shall be as specified in Section 04200 and as specified herein.
3. Removed materials shall remain the property of the County, unless otherwise noted, and shall be stored on-site or transported to another location as directed by the Engineer.

B. Removal

Where indicated on the Plans, or directed by the Engineer, existing utility pipelines, conduits, and/or appurtenances shall be removed by the Contractor.

C. Abandonment

1. Storm Sewers 15-inch Diameter and Smaller

The Contractor shall expose and cut the pipeline where shown or directed and construct a minimum 9-inch thick bulkhead at the cut ends.
2. Sanitary Sewers 15-inch Diameter and Smaller
 - a. The Contractor shall expose and cut the pipeline at a manhole unless

otherwise noted, set a mechanic plug in the pipe and construct a minimum 20-inch thick brick or concrete bulkhead or plug at the cut end of the pipeline.

- b. The Contractor shall plug the pipeline opening in the manhole with a brick and mortar or concrete and shall construct a concrete plug in the existing pipe on the outside of the mechanical plug and coat the exterior of the concrete plug with two coats of waterproofing. Existing manhole channels and benches shall be reconstructed as necessary to provide a smooth, safe transition within the manhole.

3. Storm and Sanitary Sewers 18-inch Diameter and Larger

The Contractor may abandon storm and sanitary sewers 18-inch diameter and larger by one of the following methods:

- a. Remove the pipeline completely as specified in Section 02150.03, Article A. Construct a brick or concrete bulkhead or plug at pipe opening in an existing manhole or other structure of a minimum 20-inch thickness. For sanitary sewers, the plug shall be waterproofed with 1/2-inch thick layer of mortar and two coats of waterproofing on the exterior of the plug. Mortar the inside of the plug so that it is smooth with the wall.
- b. Expose the pipeline at a manhole or structure and remove at least 2 feet of pipe beginning a minimum of 20-inches from the outside face of the structure. Construct a minimum 9-inch thick brick bulkhead at the pipe opening in the manhole then fill remainder of pipe stub with concrete. For sanitary sewer the bulkhead shall be waterproofed with 1/2-inch thick layer of mortar and 2 coats of waterproofing on the exterior. Mortar the inside of the bulkhead so that it is smooth with the wall and reconstruct the existing manhole channel and bench to provide a smooth, safe transition.
- c. Plug both ends of the pipeline to be abandoned at manholes or structures with a minimum 9-inch thick brick or concrete bulkhead. Mortar the inside of the plug so that it is smooth with the wall, and pump the pipeline full with a lean mixture of sand and cement. Reconstruct existing manhole or structure channel and bench to provide a smooth, safe transition.

4. Storm and Sanitary Manholes and Structures

- a. The Contractor shall remove the frame and cover or grate and salvage and transport to Department of Public Works or Bureau of Utilities Store Yard.
- b. The Contractor shall remove the structure to at least 2 feet below finished grade, break or perforate the bottom of the structure to provide drainage, and backfill the structure with compacted borrow backfill or fill entire structure with concrete without perforation of bottom.

5. Water Mains and Appurtenances

Where indicated on the Plans, or directed by the Engineer, the Contractor shall abandon existing water mains and/or appurtenances as follows:

- a. Expose, cut, and cap ends of water mains where shown, place concrete blocking behind cap to bear between the cap on the pressurized main and undisturbed earth in accordance with the Standard Details, and backfill excavation to finished grade as shown on the Standard Details.
- b. Where water mains are to be abandoned and removed to a tee or valve, expose, cut, and plug the pipeline at the fitting, remove all abandoned valves and valve boxes within the limits of the abandonment shown, place concrete blocking behind plug to bear on undisturbed earth in accordance with the Standard Details, and backfill excavation to finished grade.
- c. For water mains 20-inch diameter and larger being abandoned, expose and construct a 9-inch thick brick bulkhead or install a plug or cap on the pipeline to be abandoned at each location where the pipeline was cut or valve removed.
- d. For water mains smaller than 20-inch diameter, install bulkheads, plugs, or caps at each end of the abandoned sections.
- e. Abandon water services by exposing the corporation stop at the main, turning stop off, disconnecting the service line from the corporation stop, inserting a plug or cap on the exposed end of the corporation stop, and backfill excavation to finished grade.
- f. Remove frames and covers from vaults and other structures. Remove the top slab and walls to a minimum depth of 2 feet below finished grade, break or drill holes in the bottom of the structure to provide drainage, and backfill the structure as specified in Section 02250.03.

02150.04 METHOD OF MEASUREMENT

A. Removal

Measurement for removal of existing utilities and appurtenances will be made of the length, end to end, of the conduit or pipeline removed.

No additional measurement will be made of appurtenances which are removed as a part of the conduit or pipeline removal.

B. Abandonment

Measurement for abandonment of existing utilities and underground structures will be made on the basis of the count or number of pipelines and/or structures abandoned.

02150.05 BASIS OF PAYMENT

A. General

1. Payment will be made at the unit prices bid. The prices bid shall include furnishing all labor, tools, equipment, and materials necessary to satisfactorily complete the work as shown, specified, and in strict accordance with the Contract Documents, and accepted by the Engineer.
2. The price bid for removal or abandonment of existing utilities and underground structures shall include the following:
 - a. Excavation, backfill, and compaction as specified in Section 02250.
 - b. Furnishing and installing borrow material for backfilling the space left by removed facilities, initial excavation, and or abandoned structures as required by the Contract Documents.
 - c. Storage of materials to be retained by the County, and disposal of those materials, which the County does not want to retain.
 - d. Furnishing materials for and constructing or installing caps, plugs, and/or bulkheads and appropriate concrete blocking on pressurized mains.
 - e. Furnishing materials for and reconstructing channels or benches in existing manholes and/or structures.
3. Payment will be made for contingent items when ordered by the Engineer. Payment will be as specified in Sections 02951, 02952, 02953, 02954, 02955, 02956, and 02957.

B. Removal

Payment for removal of existing utilities will be made at the unit price bid per linear foot of pipe or conduit removed, irrespective of size. The price bid shall include all work, including surface restoration and maintenance of traffic, required to satisfactorily remove the existing utility.

C. Abandonment

Payment for abandonment of existing utilities and underground structures will be made at the unit price bid per each utility and structure abandoned. The price bid shall include all work, including surface restoration and maintenance of traffic, required to satisfactorily abandon the existing utility or underground structure.

END OF SECTION