

SECTION 7

WATER MAIN CONSTRUCTION

SITework ON WATER MAINS

1. SCOPE: This section shall include the clearing and grubbing of all required construction areas together with disposal of materials, site preparation, and clean up as specified herein.

2. SITE PREPARATION:

A. Existing Facilities: The Contractor shall provide protection for all existing structures, buildings, and utilities against all construction activity. The Contractor shall protect and preserve the District harmless against damage and claims resulting from these activities.

B. Streets and Highways: Effective barricades, danger signals and signs on all streets and in other locations where required for the protection of the work and the safety of the public, shall be provided, erected and maintained by the Contractor. Barricades and obstructions that encroach on, or are adjacent to, public rights-of-way shall be properly lighted between the hours of sunset and sunrise. The Contractor shall conform to all city, state and local laws and regulations in the use of streets and highways. The Contractor shall be responsible for all damages occurring due to neglect or failure to meet these requirements. When dictated by conditions that might endanger the public, a watchman shall be provided to fulfill the requirements stated herein. The contractor or engineer shall secure an approved Department of Transportation Encroachment Permit before any work is to be done on road right-of-way. The District shall receive a copy of this permit for its file also.

C. Traffic Flow and Continuance of Services: The work shall be arranged in a manner that will cause a minimum of disturbance to vehicular and pedestrian traffic. Adequate ingress and egress to both private and public property shall be provided to the Contractor before and during all stages of construction. All easements shall be transferred to the District for the District to own, operate, and maintain before all approval is excepted from the Contractor. Without written approval from the District, existing services shall not be interrupted by the construction work. All work shall conform to Department of Transportation guidelines.

3. PRELIMINARY WORK:

A. Rights-of-Way: Adequate working space shall be cleared along the pipelines and space shall be provided for control stakes and hubs. Trees and permanent structures not located within the right-of-way of new streets shall be removed only as directed. All right-of-ways shall be obtained from the property owner before any construction takes place. Before any final approval is accepted from the District, all permanent right-of-ways shall be transferred to the District for the District to own, operate, and maintain.

B. Valuable Trees and Shrubs: When the construction work involves the removal of valuable trees and shrubs on existing public rights-of-way, the work shall be done in cooperation with the city, county, or state.

C. Protection of Private Property: The Contractor shall provide protection for privately owned trees and shrubs bordering the right-of-way and shall take full responsibility for any damage that occurs to them during construction.

4. CLEARING AND GRUBBING: Clearing and grubbing shall be performed in areas indicated and where required for construction. It shall include the complete removal and disposal of all brush, weeds, timber, stumps, rubbish and all other obstructions. All such material shall be removed to a depth of at least one-foot below finished grade. In clearing and grubbing areas where excavation is done, all timber, roots, or stumps removed that are exposed by said excavation shall be removed to a depth of one foot below the excavated surface.

5. DISPOSAL OF CLEARED AND GRUBBED MATERIAL: All refuse from the clearing and grubbing operation shall be disposed of either by burning or removal to a dump area that is approved by the property owner. The Contractor shall obtain a burning permit from the nearest burning official before any burning is started. Burning, if approved, shall be done in such a manner that does not create hazards such as damage to existing structures, trees and vegetation, interference with traffic and construction in progress. When the construction site is outside the city limits and burning is required, proper permits shall be obtained from the city, county or state officials. All disposal by burning shall be kept under constant supervision until all fires have been extinguished. All burning shall comply with all state and local laws relative to the building of fires.

6. PAVEMENT REMOVAL AND REPLACEMENT:

A. Removal: When pipe is to be laid in existing paved streets, the pavement shall be cut to true and neat lines as directed by the District Inspector. Power driven cutting saws are preferred; pavement breakers driven by air compressors are acceptable if approved by the District Inspector. All broken pavement shall be removed before trenching is started.

B. Replacement: The pipe trench shall be backfilled with granular select material to within 10 inches of the pavement surface. The trench shall then be filled with ABC stone to the surface and sufficiently compacted. The stone fill shall be maintained in a workmanlike manner until the asphalt surface has been replaced. The edges of the asphalt shall be neatly trimmed to a new face and mopped with asphalt cement. The asphalt surface shall be placed and thoroughly rolled to a smooth, dense surface true to adjacent areas of the street. The asphalt surface course shall consist of Type I-2 bituminous concrete surface course in accordance with South Carolina Department of Transportation Specifications.

Cut areas shall be maintained by the Contractor in a safe, passable condition until paved. Should the area create a dusty condition, the Contractor shall remedy this condition by the use of water or calcium chloride. Special care shall be given to the areas cut in traffic lanes and

intersections by placing crushed stone and maintaining in a smooth condition at the Contractor's expense.

C. Sidewalk, Driveway and Curb and Gutter Replacement: Existing sidewalks and paved driveways, including curb and gutters removed, disturbed or destroyed by construction, shall be replaced or repaired. The finished work shall be equal in all respects to the original.

D. State Highway Crossings: All construction related to state highway crossings shall be in full compliance with all requirements of the Department of Transportation Encroachment Permit and to the satisfaction of the S.C. Department of Transportation.

7. WORK IN RAILROAD RIGHTS-OF-WAY: Permits for all construction within the rights-of-way of railroads shall be obtained by the Engineer and approved by the railroad before commencing work in these areas. The proper prior notification to the railroad authority shall be given in the proper time frame.

Utility lines shall be installed in full compliance with all requirements of the railroad and to their satisfaction, including any carrier pipe and encasement pipe. The Contractor shall provide all warning and protective measures required by the railroad company. The Contractor shall pay for any and all necessary application, processing, and encroachment fees before any and all work is started.

8. RELATION OF WATER MAINS TO SEWERS:

A. Lateral Separation of Sewers and Water Mains: Water mains shall be laid at least 10 feet laterally, from existing or proposed sewers, unless local conditions or barriers prevent a 10-foot lateral separation in which case:

1. The water main is laid in a separate trench with the elevation of the bottom of the water main at least 18 inches above the top of the sewer; or

2. The water main is laid in the same trench as the sewer with the water main located at one side on a bench of undisturbed earth, and with the elevation of the bottom of the water main at least 18 inches above the top of the sewer.

B. Crossing a Water Main Over a Sewer: Whenever it is necessary for a water main to cross over a sewer, the water main shall be laid at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer, unless local conditions or barriers prevent an 18 inch vertical separation - in which case both the water main and sewer shall be constructed of ferrous materials and with joints that are equivalent to water main standards for a distance of 10 feet on each side of the point of crossing.

C. Crossing a Water Main Under a Sewer: Whenever it is necessary for a water main to cross under a sewer, both the water main and the sewer shall be constructed of ferrous materials

and with joints equivalent to water main standards for a distance of 10 feet on each side of the point of crossing. A section of water main pipe shall be centered at the point of crossing.

9. SEDIMENTATION AND EROSION CONTROL: The Contractor is instructed to control sedimentation runoff by methods approved by the Engineer or the Storm Water Management Division of SC DHEC during the course of construction of the project. The contractor is reminded that all work shall meet all applicable requirements of the rules and regulations of the most recent edition of the S.C. Stormwater Management and Sediment Control Handbook for Land Disturbing Activities as published by SC DHEC.