SECTION 2 – OPEN TRENCH OPERATIONS: EXCAVATION, BEDDING, BACKFILL AND RESURFACING

2-01 OPEN TRENCH OPERATIONS

Unless specified differently on the plans or as supplemented herein, open trench operations, excavation, bedding, backfill, and resurfacing shall conform to the applicable requirements of Section 306-1 of the Standard Specifications and City of Compton Standard Drawings 611, 612 and 613.

2-01.01 Permits and Licenses

See section 1-04 of these Specifications for permit and license requirements.

2-01.02 Inspection

See section 1-05 of these Specifications for inspection requirements.

2-01.03 Traffic Control

The Contractor shall conduct his operations to cause the least possible obstruction to traffic inconvenience to the public. On arterial highways, lane closures require a traffic control plan completed by a registered civil or traffic engineer subject to approval from the Engineer. Lane closures are restricted to the hours between 8:30 a.m. and 3:30 p.m. At least one lane of traffic must be maintained in each direction between these hours. All traffic lanes shall be open to traffic during all other hours. On minor residential streets, one lane of traffic shall be maintained for each direction at all times. If two travel lanes cannot be maintained, the roadway may be reduced to one 14-foot-wide lane between the hours of 8:00 a.m. and 4:00 p.m. Adequate flagmen, no less than two, whose sole duties shall consist of directing traffic, shall be provided at such times as the street is restricted to one lane of traffic. At least one 14-foot-wide lane controlled by flagmen shall be provided on all intersecting minor streets. A separate permit is required from the Public Works Department for all work in public streets.

The Engineer reserves the right to alter the above traffic conditions as required during construction.

The Contractor shall be required to provide and maintain all barricade delineators, flashers, signs, including temporary “No Parking” signs’ and other safety equipment as set forth in the latest edition of Caltrans “California Manual on Uniform Traffic Control Devices” (CA MUTCD) and the Work Area Traffic Control Handbook” (W.A.T.C.H). All necessary traffic control devices shall be in place prior to the start of work.

On all designated or striped Bicycle Routes the Contractor shall install standard warning signs per the WATCH Manual at locations approved by the Engineer.

Where traffic must cross open trenches, the Contractor shall provide suitable bridges at street intersections and driveways. Hydrants under pressure, valve pit covers, valve boxes, meter boxes, fire or police call boxes, or other utility controls shall be left unobstructed and accessible during the construction period.

2-01.04 Surveying

The contractor shall provide equipment, methods, and labor to accurately locate all proposed water facilities in accordance with Section 2-9 of the Standard Specifications and as modified herein. The Contractor shall guaranty the accuracy by constructing curb and gutter prior to the beginning of any water improvements in new developments or where the installation of curb and gutter is included as part of the work scope. The Contractor shall also be responsible for the preservation of existing survey monuments.

2-01.05 Potholing

The plans show the position of pipes, conduits, poles and other structures as they are believed to exist. The contractor, before commencing any excavation shall determine from records, potholing, uncovering, or otherwise, the existence, exact position, and ownership of these or other facilities. It is the Contractor's responsibility to protect any pipes, conduits, poles, or any other existing improvements.

Potholing shall be done a minimum of 10 working days in advance of commencing any excavation and sub-structure information forwarded to the Engineer for review.

2-01.06 Sheeting and Shoring

All trench excavations shall be adequately secured to provide safe working conditions, and protection to adjacent facilities and structures. The contractor shall comply with all rules, regulations, and orders of Occupational Safety and Health Administration (OSHA).

Prior to any trench excavation where the depth of trench is greater than five feet, the Contractor shall submit to the Engineer a detailed shoring plan prepared, stamped and signed by a Civil or Structural Engineer registered in the State of California. The shoring plan shall show the design of shoring, bracing, sloping, or other provisions to be made for the workers' protection from the hazard of trench failure. Excavation shall not begin until the Engineer has accepted the plan and received a copy of the OSHA permit.

Sheeting and shoring shall not place any undue strains on existing utilities or structures, nor on completed sections of construction. Sheeting and shoring may be removed during backfilling, provided adequate protection is provided at all times. The Contractor shall be responsible for any damages to existing utilities or structures due to placement, removal or failure of any sheeting and/or shoring system. The Contractor shall repair or have repaired any damages as soon as practical.

2-01.07 Secured Trenches

Pipe trenches or other large excavations shall be backfilled or securely covered at the close of each working day, to the satisfaction of the Engineer. The Contractor shall fence any trench excavations that are necessary to be left open at night. Any trench that is left open shall be permitted only upon review and approval by the Engineer.

Covering of trenches with steel traffic plates shall be done in accordance with City of Compton Specifications and as directed by the Engineer. All steel plate covers shall be skid resistant and shall be installed flush with adjacent pavement in accordance with City of Compton Standard Drawing 611.

No backfill material or construction equipment may be stored on any City street without prior approval from the Engineer.

2-01.08 Tie-Ins

All tie-ins shall be excavated one working day in advance and covered with traffic plates or as required by the Engineer.

2-01.09 Interruption of Water Service

No valve or other control on the existing water system shall be operated for any purposes by the Contractor without approval of the Engineer. All consumers affected by such operation shall be given a notice letter by the Contractor at least three working days before the operation advising of water service outage and the probable time when service will be restored. The notice letter shall be given to the Engineer for content approval at least 5 working days before it is distributed.

2-02 TRENCH EXCAVATION

Unless specified differently on the plans or as supplemented herein, trench excavation shall be in accordance with the details shown in the City of Compton Standard Drawings 612 and 613 and in accordance with Section 306-1.1 of the Standard Specifications.

The maximum length of open trench shall be the distance of pipe installed in one day. Shorter lengths of open trench may be necessary and may be ordered by the Engineer to meet traffic, weather, and other safety requirements.

In areas of new development, water main installation will not be permitted until the sub grade is established and the storm drain and sewer installation has been completed. Pipe shall be placed to the grade and depth specified on the plans. When not specified, pipe shall have a 42 to 48 inch cover from finished grade.

2-02.01 Removal of Surface Improvements

Unless specified differently on the plans or supplemented herein, bituminous pavement, concrete pavement, curbs, sidewalks, or driveways removed in connection with construction shall be removed in accordance with City of Compton Standard Drawings 612 and 613 and Section 306-1.1.5 of the Standard Specifications.

If the width of the remaining pavement between the final saw cut edge of the trench and the edge of the gutter is less than 36 inches, removal and new pavement shall extend to the edge of gutter.

Concrete sidewalk removal done in connection with water system work shall be saw cut to the nearest score marks. Concrete curbs, gutters and cross gutters shall be tunneled whenever possible. With prior approval of the Engineer, the concrete may be saw cut in such a manner in which there shall not be less than six feet to the nearest cold joint or expansion joint.

2-02.02 Abandoning Structures

Whenever existing pipes, culverts, or conduits are cut and abandoned, their open ends shall be securely closed by a redwood plug, a solid mechanical cap, a wall of concrete no less than six inches thick, or as directed by the Engineer.

2-02.03 Protecting and Replacing Existing Structures

Insofar as practicable during the progress of the work, the property of any owner of a public utility or pole line, pipeline, sewer, culvert, cable, conduit, or storm drain, in-line structures, or lateral and services, or any other structures, or improvements, and all fences shall not be disturbed but shall be maintained in good operating condition at the expense of the Contractor. These requirements shall apply to all structures and improvements both inside and outside the right-of-way provided by the City. Wherever in the judgment of the Contractor, the economical performance of the work requires a temporary or permanent removal of any of the property named above in this section, the Contractor shall make arrangements with the owner of the same for its temporary or permanent removal, or for other changes that may be necessary in order to perform the work more readily. All expense of maintenance, removal reconstruction, and repair of said property shall be borne by the Contractor.

Whenever the Contractor makes agreements with owners for the removal and restoration of said property, the materials furnished and the methods of making such removal and restoration shall be satisfactory to the owner and the Engineer. In the event the Contractor disturbs, disconnects, or damages any of said property prior to making the necessary arrangements with the owners thereof, the Contractor shall immediately give notice to the property owner and the Contractor shall assume all responsibilities connected therewith. All property removed shall be reconstructed or restored promptly as is reasonably possible in approximately its original location and in condition as good as when removed and subject to the inspection of the owners or governing body having jurisdiction over same.

2-02.04 Excess Excavating Material

All excavated materials in excess of that required in the finished work shall immediately be hauled away and disposed of at a legally permitted site. The Contractor shall be responsible for all damages and claims that may arise from the disposal of the excess material. The contractor shall provide a signed release from the property owner.

2-03 TRENCH BEDDING

Unless specified differently on the plans or as supplemented herein, trench bedding shall be placed in accordance with the requirement shown in City of Compton Standard Drawings 612 and 613 and in accordance with Section 306-1.2.1 of the Standard Specifications.

For water main installations, the pipe zone referenced in City of Compton Standard Drawings 612 and 613, Bedding B material shall be substituted for Bedding A material. Jetting of trench bedding may be permitted, subject to the approval of the Engineer.

2-04 TRENCH BACKFILL

Unless specified differently on the plans or as supplemented herein, trench backfill shall be placed in accordance with the requirements shown in City of Compton Standard Drawings 612 and 613 and in accordance with Section 306-1.3 of the Standard Specifications.

The Contractor shall compact the trench backfill material to the bottom of the structural section within one day after installation of the pipe. No flooding or jetting of the backfill will be allowed to achieve compaction without prior approval by the Engineer.

If the Engineer determines that the Contractor is not able to obtain the required compaction in areas under curbs, cross gutters or other structures, trench backfill underneath these structures shall be 1-sack cement sand slurry or as specified by the Engineer.

2-05 COMPACTION TEST

Unless determined otherwise, compaction tests will be taken along the pipelines, in the pipe zone, above the pipe zone, and at ground surface or subgrade at 200 foot intervals or less, or as directed by Engineer, and along all large service and fire hydrant laterals. The Engineer must be present when compaction tests are taken.

2-06 TEMPORARY RESURFACING

Unless permanent resurfacing is to be placed immediately, temporary bituminous resurfacing, a minimum of two inches thick or as otherwise specified, shall be placed and properly maintained by the Contractor as determined by the Engineer.

Temporary resurfacing shall be placed in accordance with Section 306-1.5.1 of the Standard Specifications and shall be placed as soon as trench backfill is complete and shall remain in place until permanent resurfacing is placed. Prior to permanent resurfacing, temporary resurfacing shall be removed and discarded at a legal disposal site at Contractor’s expense. Temporary asphalt paving as specified above shall be a minimum two inches thick or as specified by the Engineer.

At the end of each day, temporary striping shall be placed complying with the plans, as specified or as directed by the Engineer. Temporary striping shall conform to Section 214 of the Standard Specifications.

2-07 TRENCH RESURFACING

Unless specified differently on the plans or supplemented herein, trench resurfacing shall be placed in accordance with the requirements shown in the City of Compton Standard Drawings 612 and 613 and in accordance with Section 306-1.5.2 of the Standard Specifications.

Contractor shall place structural section other than surface course within five days of completion of backfill.

Concrete sidewalks, curbs and gutters, driveways and other structures shall be replaced in accordance with the applicable requirements in the Standard Specifications and the City of Compton Standard Drawings.