**CITY OF BILOXI**

**SPECIAL PROVISION NO. 907-603-1 CODE: (SP)**

**DATE: 06/26/2017**

**SECTION 603 - CULVERTS AND STORM DRAINS**

**Subsection 603.01- Description**

Add the following sentence to the end of the first paragraph of Subsection 603.01:

The work also includes, but is not limited to, clearing, grubbing, trenching, pipe laying, backfilling and testing/inspection required for installation of the culverts and storm drains.

# Subsection 603.02 - Materials

Add the following material to the list contained in Subsection 603.02:

Smooth Wall Corrugated High Density Polyethylene (HDPE) Pipe 708.17

After the last paragraph of Subsection 603.02 add the following paragraph:

Corrugated Polyvinyl chloride (PVC) drain pipe shall be A-2000 as manufactured by Contech or approved equal. PVC pipe shall be corrugated outside with a smooth interior and shall conform to the requirements of ASTM Designation F949 (latest revision). Pipe and fittings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions or other injurious defects. Pipe shall be manufactured to 46 pounds per square inch (PSI) stiffness when tested in accordance with ASTM Test Method D2412. There shall be no evidence of splitting, cracking or breaking when the pipe is tested per ASTM Test Method D2412 at 60 percent flattening. The pipe shall be made of PVC compound having a minimum cell classification of 12454B as defined in ASTM Specification D1784. All fittings for PVC corrugated sewer pipe with a smooth interior shall conform to ASTM F949, Section 5.2.3. To insure compatibility, the pipe manufacturer shall provide all fittings. All joints shall be made with integrally-formed bell and spigot gasketed connections. The manufacturer shall provide documentation showing no leakage when gasketed pipe joints are tested in accordance with ASTM Test Method D3212. Elastomeric seals (gaskets) shall meet the requirements of ASTM Designation F477.

Bedding shall be “Size II Stabilizer Aggregate” in accordance with Section 907-304-1, “Granular Courses” or “Borrow Excavation” in accordance with Section 203, Excavation and Embankment” as directed by the City Engineer or his authorized representative.

Geotextile fabric shall be non-woven, needle punched as manufactured by Terratex Construction Fabrics, “NO8”, or approved equal. All geotextile fabric shall weigh a minimum of eight ounces (8 oz.) per square yard.

Concrete pipe shall be in accordance with the standards specified. In addition, concrete pipe shall **not** be accepted for any of the following reasons:

1. If the pipe has been repaired in any way prior to being offloaded at the project site.
2. If any portion of the reinforcing wire is exposed.
3. If there is any visible cracking or breakage in the barrel of the pipe.
4. If the “x” and “y” dimensions of any crack or breakage exceed the allowable dimensions as shown on the “Bell and Spigot Pipe Repair” detail.
5. If cracking or breakage occurs in more than one (1) area for each end of the pipe.
6. If the cracking or breakage is within the acceptable limits, but is not repaired in accordance with the repair procedures listed below.

All pipe repairs shall be repaired in accordance with the following procedure:

1. The procedure for the pipe repair shall be submitted to the City Engineer or his authorized representative for approval prior to the repair.
2. The pipe repair method and repair material shall be as recommended by the pipe manufacturer. The pipe manufacturer’s recommendations concerning repair materials and methods shall be submitted in writing to the City Engineer or his authorized representative.
3. The City Engineer or his authorized representative shall be present for all pipe repairs.

# Subsection 603.03.1 - Excavation

Delete the first paragraph of Subsection 603.03.1 and insert the following:

Except for conduit to be installed by jacking and boring, trenches shall be excavated to a width sufficient to allow for proper jointing of the conduit and thorough compaction of the bedding and backfill material under and around the conduit. Where feasible, trench walls shall be vertical.

Trenches shall be dug so that the existing pipe can be removed and the new pipe can be laid to the alignment and depth required, and shall be excavated only so far in advance of pipe removal and laying as to reveal obstructions. The trench shall be so braced and drained that workmen may work therein safely and efficiently. Discharge from dewatering pumps shall be conducted to natural drainage channels, drains or storm drains. No water shall be discharged in the sanitary sewer system. Bell holes shall be excavated at each joint to permit the proper joining of pipe sections.

The width of the trench shall be ample to permit the existing pipe to be removed and the new pipe to be laid and jointed properly and the backfill to be placed and compacted as specified. The trench shall be excavated to the depth required so as to remove the existing pipe and to provide a uniform and continuous bearing and support for the pipe on solid and undisturbed ground at every point between bell holes.

Where trench conditions are such that adequate support for the pipe cannot be obtained on the native material, aggregate bedding shall be used only with the approval of the City Engineer or his authorized representative.

No greater length of trench shall be opened in advance of a completed pipeline nor left unfilled to the rear than shall seem proper to the City Engineer or his authorized representative. No trench shall be left without being backfilled at the end of a workday.

# Subsection 603.03.2 - Bedding

Delete Subsection 603.03.2 in its entirety and insert the following:

Bedding shall be installed at the direction of the Engineer or his authorized representative. When directed, the bedding material shall be installed in accordance with the Details and as directed by the City Engineer or his authorized representative.

# Subsection 603.03.3 – Laying Conduit

Add the following paragraph after the last paragraph of Subsection 603.03.3:

Corrugated PVC pipe shall be installed in accordance with ASTM D 2321, Standard Practice for Underground Installation of Thermoplastic Pipe. Pipe shall be installed true to line and grade, and free from cracks or defects. The interior of the pipe shall be free from all dirt, excess water, and other foreign materials as the pipe laying progresses, and left clean at the completion of the installation. The pipe shall be laid with the groove or bell upstream.

# Subsection 603.03.4.1 - Storm Drainage

Delete the first paragraph of Subsection 603.03.4.1 and insert the following:

Rigid conduits shall be bell and spigot design. The method of joining conduit sections shall be such that the ends are fully entered, and the inner surfaces are reasonably flush and even. Joints shall be sealed with rubber type gaskets. Lift holes in concrete pipe will not be permitted.

Delete the fifth, sixth, and seventh paragraphs.

After the last paragraph of Subsection 603.03.4.1 add the following paragraph:

Coupling bands for joining corrugated polyethylene pipe shall be in accordance with AASHTO Designation: M 294 and shall meet or exceed the soil tightness requirements of the AASHTO Standard Specifications for Highway Bridges, Section 23, paragraph 23.3.1.5.4 (e).

Joints for corrugated PVC pipe shall be constructed so that they are watertight. The “tongue and groove” or band shall be clean and washed with water, if necessary, before the joints are made.

All storm drain pipe joints shall be wrapped with geotextile fabric in accordance with the standard details.

# Subsection 603.03.7 - Backfilling

Add the following paragraphs after the last paragraph of Subsection 603.03.7:

All backfill shall be compacted in 6 to 8 inch lifts to 95% density in accordance with ASTM D 1557, unless approved otherwise by the City Engineer or his authorized representative in non-paved areas. The Contractor shall take random density tests in the trench lines and around all four sides of all structures to assure that proper compaction has been achieved.

Existing/native material shall be utilized as backfill wherever possible. In the event that existing material is unsuitable for backfill, borrow material may be used. This borrow material must be from a pre-approved source. The placement of borrow material must be approved by the City Engineer or his authorized representative. The excavation and disposal of unsuitable material shall be measured and paid for as Excess Excavation.

After Subsection 603.03.9.3 add the following subsection:

**Subsection 603.03.10 -** **Sheathing and Shoring.** The Contractor shall place such sheathing and shoring in the trenches or utilize a trench box as may be necessary to properly support the trench walls and any adjacent structures. The type and amount of sheathing and shoring shall be such as the nature of the ground and attendant condition may require. It shall be the sole responsibility of the Contractor to provide such sheathing, shoring and bracing as may be required for the safe conduct of the work. The City Engineer or his authorized representative may, however, order the placement of sheathing, shoring or bracing if, in his opinion, it is required to properly execute the work in accordance with these specifications. No additional compensation will be allowed for this operation.

No actions or instructions by the City Engineer or his authorized representative shall be regarded as his responsibility for the security of the trench or protection of workmen. The full responsibility shall remain with the Contractor.

**Subsection 603.03.11 -** **Dewatering.** The Contractor shall keep all excavations free from water at his own expense while pipe laying is in progress and to such extent as may be necessary while excavation work alone is being carried on. He shall provide for the disposal of the water removed from excavations in such manner as shall not cause injury to the public health, to public or private property, or to any portion of the work completed or in progress, or any impediment to the use of the streets by the public. No water shall be discharged into the sanitary sewer system.

# Subsection 603.03.12 - Storm Drain Inspection. All new storm drain lines will be “lamped” between junction boxes, inlets, etc. The Contractor shall provide mirrors, adequate battery operated lights and other necessary equipment and personnel to make this inspection.

Upon completion of “lamping”, the Contractor shall video all new round storm drain lines 42” and smaller and all new arch storm drain lines 65” x 40” and smaller installed on the project after a minimum of thirty (30) calendar days from installation. The Contractor shall give a copy of the video to the Engineer or his authorized representative for review and approval of the new storm drain lines prior to the installation of road subbase. The Contractor shall make arrangements for the Engineer or his authorized representative to be present to witness the “lamping” and the making of the video.

In the event that any imperfection in any of the new storm drain lines is discovered during the “lamping or review of the video, the Contractor shall correct the problem(s) immediately at his own expense. Once the Contractor believes the problem(s) has been corrected, the entire section(s) of pipe (i.e. drainage structure to drainage structure) containing the imperfection(s) shall be re-lamped and re-videoed following all the same requirements as imposed for the original testing. This procedure shall be repeated until the pipe segment(s) are approved for acceptance by the City Engineer or his authorized representative. All cost incurred for correcting problems and re-testing shall be the responsibility of the contractor.

# Subsection 603.04 - Method of Measurement

Delete the last two paragraphs of subsection 603.04 and add the following paragraphs:

Excavation, clearing, grubbing, backfill (utilizing native material), compaction, geotextile fabric, and other related miscellaneous items will not be measured for separate payment. The cost thereof shall be included in the unit price bid for this item.

Aggregate for pipe bedding, if ordered by the City Engineer or his authorized representative, will be measured by volume in cubic yards in accordance with Section 907-304-1 or Section 203.

If existing/native material is used as backfill, there shall be no additional payment for excavation and backfill. If existing material is unsuitable for backfill, borrow material may be used. This borrow material must be from a pre-approved source.

Approved placement of borrow will be measured by volume in cubic yards in accordance with Pay Item 907-203-EX. The excavation and disposal of the unsuitable material shall be paid for as Excess Excavation and measured by volume in cubic yards in accordance with Pay Item 203-G.

“Lamping” and making video of new storm drain lines shall not be measured for separate payment. The cost thereof shall be absorbed in the bid price per linear foot of new storm drain line.

Perforated pipe shall be measured and paid in accordance with Section 907-605-1, “Underdrains”.

# Subsection 603.05 - Basis of Payment

Following the phrase “Payment will be made under” add the following pay item numbers:

907-603-PE-A: \_\_\_” Smooth Wall Corrugated High Density

Polyethylene (HDPE) Pipe -per linear foot

907-603-PE-B: \_\_\_” Smooth Wall Corrugated High Density

Polyethylene (HDPE) Flared End Section -per linear foot

907-603-T-A: \_\_\_” Corrugated PVC Drain Pipe -per linear foot