SECTION 1 – GENERAL INFORMATION:
No changes.

SECTION 2 – DESIGN STANDARDS:
Revise as Follows:

2.1 GENERAL INFORMATION
No changes.

2.2 DEVELOPMENT REQUIREMENTS
No changes.

2.3 DESIGN CRITERIA FOR GRAVITY SEWERS

2.3.15 Manholes:

All public manholes shall have all-weather, 24/7 drivable access as required by the Agency capable of supporting an H20 vehicle loading and at least 20-feet wide for sewer maintenance purposes. All manholes shall have only one outlet pipe unless, no inlet piping is possible, such as a terminal manhole, or a specialized hydraulic structure is approved to mitigate Agency's concerns. All manholes shall be located to prevent the inflow of storm water runoff from adjacent surfaces. Manholes and manhole components shall conform to Agency's approved materials list.

Should the sanitary sewer system require multiple outlets, a specialized hydraulic structure shall be provided in lieu of a standard manhole. This structure shall be configured to optimize sewer flow hydraulics, minimize deposition of solids and facilitate maintenance.

A. Standard Manholes:

Standard manholes are manholes having a depth from top of rim to top of pipe between 4 feet and 20 feet. Standard manholes shall be designed in accordance with Standard Drawing No. SD-1. All standard manholes ~~**over sewer pipes 8 to 12 inches in diameter shall have single manhole cover openings in accordance with Standard Drawing No. SD-3. All standard manholes over sewer pipes larger than 12 inches in diameter**~~ shall have dual concentric manhole cover openings in accordance with Standard Drawing No. SD-2, or as required by Agency.

B. Shallow Manholes:

Shallow manholes are manholes having a depth from top of rim to top of pipe less than 4 feet. Shallow manholes shall only be used when permitted by the Agency only as a last resort when sewer depths and configurations cannot be modified to utilize standard manholes. Shallow manholes shall be designed in accordance with Standard Drawing SD-13.

C. Deep Manholes:

Deep manholes are manholes having a depth from top of rim to top of pipe greater

E. Additional Requirements for Pre-Cast Concrete Section and Grade Ring Joints:

1. Manhole joints shall be sealed and grade rings shall be grouted in accordance with Sections 3.16.2.C and 3.16.6.

F. Frames and Covers:

Manhole frames and covers shall conform to Agency's approved materials list. The "Standard Concentric Dual Cover and Frame" shown in Standard Drawing SD-2 shall be used for all manholes ~~**where the pipe diameter is greater than 12-inches. Where the pipe diameter is 12-inches or less, the "Standard Concentric Single Cover and Frame" shown in Standard Drawing SD-3 shall be used.**~~ Locking manhole covers, as shown in Standard Drawing SD-6, shall be used as directed by the Agency.

G. Connections to Manholes:

New manholes shall be designed such that all flexible connectors required for new sewers are factory-installed and conform to Agency's approved materials list. A reinforcing bar as shown in Standard Drawing SD-9 shall be placed above each pipe connections in new pre-cast manholes to facilitate final grouting of the pipe connections into the manholes. The spaces between the protruding pipe ends entering the manholes shall be grouted in accordance Section 3.16.4 to form a smooth interior surface to prevent the accumulation of sewer solids and to fully support the upper projection of the sewer pipe into the manhole. Elevations of connections shall be designed in accordance with Section 2.3.8.

Connections of new sewers to existing manholes and existing sewers to new manholes shall be made using field-installed flexible connections conforming to elevation requirements of Section 2.3.8 and the installation requirements of Section 3.16.8. Field-coring of holes into new manholes for installing connections for new sewers is not permitted, except with the prior approval of the Agency.

H. Corrosion Protection:

Corrosion Projection meeting Agency requirements and conforming to Sections 3.16.8, and Agency's approved materials list, shall be provided in all locations where it may be reasonably anticipated that odors and/or corrosive gases may be released in the sewer as a result of turbulence or other factors. The Engineer shall contact the Agency as early as possible in the Project design process to identify any additional requirements for design and installation of corrosion protection. As a minimum corrosion protection shall be provided in the following locations:

1. All manholes for sewers 15-inches in diameter and larger;

2. All manholes where the pipe slope decrease between upstream and downstream sewers greater than 4-percent;

3. All manholes for sewers 10 inches and larger where there are changes in horizontal direction greater than 45 degrees or there are more than one inlet connection to the manholes;

manhole base construction for Agency approval. Flow channels shall conform to Section 2.2.10.b, Section 2.2.17 and Standard Drawing SD-9.

11. The pipe(s) through the manhole base shall be connected to the existing upstream and downstream sewer pipes outside the new manhole using correctly sized flexible, water-tight couplings conforming to Agency's AML to match the existing sewer line in which the manhole is being installed.

12. Contractor shall provide the Agency's Representative all concrete mix tickets upon delivery to the site of the work.

3.16.5 Frame and Cover Installation:

1. Manhole and structure frames and covers shall conform to Agency's AML and as shown in Standard Drawings SD-2 ~~**and SD-3**~~.

2. All machined surfaces on the frame and cover shall be such that the cover will lie flat in any position in the frame and have a uniform bearing through its entire circumference.

3. Any frame and cover which creates any noise when passed over by automobiles shall be replaced.

4. Frames shall be set firmly in a bed of cement grout conforming to Agency's AML and shall be set true to finish grade as shown on the Construction Documents and as called for in these Standards. The grout shall extend across the full width of the base of the frame such that there are no voids under the frame. After the frame is placed and prior to the grout taking a "set", any excess grout that extruded into the manhole or structure shall be removed flush with the interior of the frame and top of the cone section.

5. Bolts shall be installed in the cover where required by Agency.

3.16.9 Debris Trap:

Following completion of the first manhole(s) upstream of the new connection(s) to the Agency's existing sanitary sewer system, a debris trap shall be installed in the manhole(s) per ***3.14.5*** and SD-27.

3.17 LATERAL SEWER CONNECTIONS
No changes.

3.18 ABANDONMENT OF EXISTING FACILITIES
No changes.

3.19 TESTING
No changes.

3.20 FINAL ACCEPTANCE
No changes.