

SPECIFIC SEWER SYSTEM NOTES:

1. In regards to sanitary sewer improvements, the terms COUNTY, DEPARTMENT, or ENGINEER, as used in these plans and notes, refer to the Director of the Placer County Department of Public Works and Facilities, the Environmental Engineering Division, or an authorized agent appointed by the Director.
2. Only the approximate locations of the existing sanitary sewers are shown. The Contractor shall verify the exact locations in the field and immediately notify the project engineer if said locations are significantly different from that shown on these plans.
3. All gravity sewer pipes shall be ASTM C700 extra strength vitrified clay pipe, ASTM D3034 SDR26 (Solid Wall) PVC, or AWWA C151 ductile iron pipe class 50.
4. PVC Pipe - In addition to the applicable ASTM & AWWA specifications, PVC pipe shall also meet the following: the pipe shall be homogeneous throughout, free from voids, cracks, inclusions, surface undulations, and other defects, and reasonably uniform in color, density, and other physical properties. The pipe surfaces, including the joining surfaces of spigots and bells, shall be free from nicks, gouges, severe scratches, and other such blemishes. PVC pipe shall be green or white unless otherwise approved by the ENGINEER.
5. Wherever the sewer line radius is less than 400 feet, the Contractor shall use pipe lengths of 10 linear feet or less in order to have sufficient joints to make up the curve. Shorter pipe lengths may be used only if necessary to attain the required minimum 200 feet radius.
6. All sewer lines and services shall be inspected after backfill by means of an in-line sewer TV camera. All sewer services shall be inspected from the property line cleanout to the public sewer line for detecting defects such as offset joints, sags, etc. Public sewer mains from manhole to manhole shall be inspected from the downstream to the upstream manhole. Prior to commencing the inspection of the sewer, a sufficient amount of water, as determined by the COUNTY, shall be placed in the sewer system in order to show any sag in the sewer vertical alignment. The cost of providing this inspection shall be the responsibility of the Contractor. Private forces and not Placer County shall do the work. All records and videos are to be submitted to Placer County and shall become the property of Placer County. Any irregularities in construction or grade exceeding allowable tolerances, as specified in Section 71 of the Placer County General Specifications and as noted below, shall be corrected at the Developer's expense prior to acceptance of the project.
 - (a) The Contractor shall submit still images captures on JPEG or TIFF format on a flash drive, CD or DVD.
 - (b) The Contractor shall submit CCTV inspection digital color video files in MPG-1 format compatible with Windows XP.
 - (c) The Contractor's CCTV equipment shall include video camera with transporter, a color video monitor, video recording equipment with voice recording capabilities, cables, power sources, and all other equipment necessary to perform a CCTV inspection in accordance with this Specification.
 - (d) The CCTV camera shall be specifically designed for the sanitary sewer. The camera shall be waterproof and shall have O-ring sealed windows and double-sealed body. The camera shall be a solid state color TV unit with a panning and rotational camera head with three hundred sixty (360°) degrees scan of the circumference, and tilt to allow viewing up to one hundred thirty-five (135°) degrees back from the axis of the camera. The camera will provide: remote adjustable optical focus and automatic light compensation iris with remote override; camera controller with remote focus, iris and auto centering control; minimum total zoom capability of twenty (20X) times; and an adjustable lighting system to provide clear visual of surface fractures and defects without glare. The camera shall produce an image with no geometrical distortion of the image. The camera and monitor shall be able to produce a minimum four hundred sixty (460) lines of horizontal resolution and four hundred (400) lines of vertical resolution. Camera focal distance shall be adjustable through a range of 1/2-inch to infinity. The camera shall be mounted on a tractor suitably sized for each pipe diameter to be inspected. The camera shall be equipped with a sufficient cable to allow video inspection for each manhole to manhole pipe segment in a single setup.
 - (e) The camera transport drive assembly shall be specifically manufactured for the pipe material and diameters being inspected. Distance shall be measured in both forward and reverse and shall be to the nearest 0.1 feet.
 - (f) The Contractor shall utilize a computerized data logging and retrieval system capable of recording, indexing and processing data and printing CCTV Inspection Reports and graphics in accordance with these Specifications and the Contract. The system shall be capable of recording, storing and playing video, and shall be capable of capturing still images of defects and other significant visual information with associated screen text identifiers. The system shall be capable of recording color video in high-resolution standard MPG-1 digital format

on a CD or DVD. The digital video files shall be compatible with Windows XP. The system shall be able to produce CCTV inspection data and reports in accordance with these specifications.

(g) CD's or DVD's shall be new, and labeled with the project name, date of CCTV inspection, and CD or DVD number. The CD's or DVD's shall be sequentially numbered in the order CCTV inspections were performed. Each CD or DVD shall be submitted in a plastic protective case.

7. The Contractor shall note that all sewer lines and services are also subject to an inspection with a TV camera by Placer COUNTY personnel. Any deviations from the plans or specifications exceeding allowable tolerances, as specified in Section 71 of the Placer County General Specifications and as noted below, that are identified by said inspection shall be corrected at the Developer's expense prior to acceptance of the project.

8. Precast manhole bases will be allowed only when the horizontal alignment of a sewer line at the manhole exactly matches the precast base within a tolerance of +/- 4 degrees.

9. The Contractor (including all corporate officers) and employees shall not enter existing Placer County facilities requiring confined space entry unless all such entries comply with applicable U.S. and California OSHA confined space requirements. All entries into active sanitary sewer manholes are considered confined space entries. The Contractor is responsible to ensure that their personnel engaged in Confined Space Entries are adequately trained for this procedure. The Entry Supervisor shall complete a Confined Space Entry Permit prior to confined space entry, and shall keep the originals of each completed Confined Space Entry Permit on the project site. These permits shall be provided to the ENGINEER at the end of every week. Information regarding training for this procedure, certification of the Entry Supervisor, and the Confined Space Entry can be obtained by calling the Cal/OSHA Headquarters at (510) 286-7000 or visiting their web site at www.dir.ca.gov.

10. The Contractor's attention is directed to the following sewer requirements:

(a) No offset joints will be accepted in any sewer lines or services that are not within the following tolerances: DIP & PVC – Equal to or less than the pipe wall thickness; VCP – Equal to or less than one-half the pipe wall thickness. Any such joints discovered shall be repaired to the satisfaction of the ENGINEER before such facilities are accepted.

(b) No sags (standing water) shall be present in any services. All services shall be installed at a minimum 2% slope. Any services that are discovered to have sags shall be repaired to the satisfaction of the ENGINEER before such facilities are accepted.

11. Sanitary Sewer Testing - COUNTY shall observe all required testing of the sanitary sewer system. Contractor shall make an appointment with the COUNTY a minimum of two (2) working days prior to such testing.

12. Backfill material around sewer manholes and other sanitary sewer structures that must remain watertight shall be compacted with rammer compactors ("whacker" type). Heavy equipment shall not be used to compact around these structures unless specifically approved by the District Sanitary Engineer in writing. Backfill shall be placed uniformly around the circumference of the structure in 8-inch lifts. In the event heavy equipment is used without ENGINEER approval, the ENGINEER may require that any sanitary sewer structures may be replaced at the contractor's expense if perceived damage has occurred.

13. In manholes with a 10-inch or larger pipe flowing through, the invert elevation of all side connecting pipes, (4-inch services and laterals, 6-inch and 8-inch laterals) shall match the crown elevation of the larger pipe at its entrance into the manhole. The same shall apply to the invert elevation of all side connecting services (4-inch and 6-inch services) in manholes with an 8-inch or 6-inch (6-inch shall only allow 4-inch service connections) pipe flowing through. A channel shall be provided with a constant slope from these laterals/services from the manhole barrel to the flow line of the larger pipe. Laterals/services that will be drop-connection shall not come in lower than 2-feet above the base of the manhole. In the event a survey was not completed and the contractor comes in too low, the contractor shall be responsible to replace the manhole at the contractor's expense.

14. Submittals – Prior to the installation of any sanitary sewer facilities, the Contractor shall provide to the Design Engineer for review and approval material submittals for the components verifying that they meet Placer County requirements and specific project requirements. The material submittals shall include, but not be limited to, manholes, piping, lift station components, underground storage tanks and appurtenances, etc. They shall properly identify which facility the item pertains to on the project plans (e.g. manhole by station and number) and shall include shop drawings as required (e.g. from the precast manufacturer for all precast manhole bases). After Design Engineer review and approval of the submittals, a copy shall be sent to the COUNTY for final review and acceptance. Once the COUNTY accepts the submittals, copies shall be returned to the Contractor. The Contractor shall not start installation of the applicable sanitary sewer facilities until the COUNTY Inspector has verified all components delivered to the project site conform to the approved material submittals.

15. All manholes on existing trunk sewer lines (10-inch diameter and larger), force-main discharge manholes, and other manholes required by the ENGINEER which could generate hydrogen sulfide shall be coated with an acid resistant coating as follows:

SewperCoat, Strong-Seal, Permacast CR-9000 or an approved equal furnished under this Specification shall be a prepackaged mortar mix, including all cement, aggregates and any required additives. The Contractor shall add the proper amount of potable water so as to produce concrete suitable for spray application. Contractor shall not add Portland Cement, other aggregates, or any admixtures whatsoever to SewperCoat, Strong-Seal, Permacast CR-9000 or an approved equal. Typical package weights shall not be less than 50 lbs and shall be identical for all material furnished on this project.

16. Provide a minimum of 12-inches of vertical clearance between the joint trench utilities and the sanitary sewer line and sanitary sewer services at utility crossings. If site conditions preclude the minimum vertical clearance required, construct utility crossing per Placer County Plate 424. A minimum of one full length DIP sleeve is required over the proposed utility centered over the crossing.

17. Provide a minimum of 66 inches of cover for all sanitary sewer services at the end of an easement or right-of-way line when crossing under a joint trench. Provide a minimum of 30 inches of cover at the right-of-way or easement line if the sanitary sewer service does not cross any other utilities.

18. All projects are required to reference the current Placer County Standard Design Detail Plates for identifying sections of public sewer lines, private sewer service lines, etc. All plates are available on the COUNTY website.