

(Note to User: Numbering of the following notes shall be maintained. If a note is omitted for any reason, the number shall be note with the text “Not Applicable”)

SANITARY SEWER NOTES

1. The requirements for sanitary sewer pipe for this projects shall be:
For pipe up to and including 15” diameter - Extra strength clay pipe, ASTM C-700, with compression Joints ASTM C-425, or PVC sewer pipe, ASTM D3034, SDR 35
For pipe larger than 15” diameter - Reinforced concrete pipe ASTM C-76 with joint Specifications per ASTM C-443 shall be required.
2. All sanitary sewer services shall be installed at a minimum slope of 2.08% (1/4 inch per foot).
3. The Contractor shall be a licensed sewer tapper in the City of Columbus.
4. The Contractor shall install a temporary bulkhead, where shown on the plans, prior to construction of the proposed sewers and shall maintain same in place until said sewers are accepted by the City.
5. Sanitary sewer wye-branches shall be installed during the construction of the collector sewers. If the sewer is located within the street right-of-way, service extensions shall be made to within one (1) foot of the right-of-way.
6. Service Risers, Item 914, shall be included as a part of the construction work where the sewer is more than twelve feet deep. The risers shall be brought to a point not less than ten feet below existing ground or proposed grade, whichever is higher.
7. All sanitary wye-branches and/or lateral services shall be located and marked with 2” x 2” x 10’-0” hardwood lumber wye poles prior to the acceptance of the improvements. The top 1’-0” of said wye poles shall be painted orange on four (4) sides and shall project 4’-0” above finished grade. The cost of providing wye-poles is to be included in the price bid for the various sewer items.
8. The Contractor shall place cutoff trench dams of native clay or impervious soils across and along the trench at 150 foot intervals to retard and resist the movement of groundwater through the trench granular bedding or backfill material as noted in the CMSC Item 901.11. A minimum of one (1) trench dam shall be placed between manholes.
9. Acceptance testing (deflection and leakage) of all sanitary sewers shall require a thirty day waiting period from the date of final backfilling. This shall include all laterals installed as a part of the mainline construction. Testing shall conform to the requirements of Item 901 in the current edition of the City of Columbus Construction and Materials Specifications (CMSC).
10. Prior to final acceptance of completed flexible pipe sewer lines, the Contractor shall, at his expense, perform a pipe deflection test on all main line sanitary sewers in accordance with CMSC 901.21. All lines shall be measured for vertical ring deflection no sooner than 30 days after the completion of backfilling operations, provided in the judgment of the City Engineer, sufficient settlement of the backfill has occurred. The City Engineer shall be the sole judge as to when sufficient settlement of the backfill and transference of loading to the pipe has occurred. The deflection test shall be performed by pulling a rigid ball or a mandrel with diameter equal to 95% of the inside diameter of the pipe through the sewer or camera device with laser profiler as defined in CMSC 901.21. Should the laser profile method be utilized, the

work shall be performed by a qualified operator of the equipment. Qualifications of the testing agency shall be provided to the City for review and determination of acceptance. The maximum limit of vertical deflection shall not exceed 5% of the base inside diameter of the pipe as presented in appendix XI of ASTM D3034.

11. Field leakage testing shall be performed on all sections of sanitary sewer projects (including service lines and manholes constructed under the sewer plan) in accordance with CMSC 901.20 with the following modifications: If the infiltration test is selected, each section of pipe shall be covered with no less than two feet of ground water above the top of the pipe at the highest point being tested. The infiltration will be measured by means of a V-notch weir located in the downstream manhole.
12. Infiltration/Ex-filtration limits shall not exceed 100 gallons per inch of tributary pipe diameter per 24 hours per mile of pipe length (or the computed equivalent for shorter periods of time and pipe length). All sanitary sewers shall be tested per the requirements.
13. All existing inverts along with the proposed top of casting elevations shall be verified by the Contractor prior to the construction of the sewer.
14. The Contractor shall make allowance in the bid for possible adjustment on the elevation of manhole castings and shall receive no additional compensation because of any such adjustments that are required to be made.
15. All sanitary sewer manhole covers shall conform to the current City of Groveport standard Drawings.
16. All new sanitary sewer manholes installed in the City of Groveport shall be constructed in accordance with the current City Standard Drawings.
17. The Contractor shall furnish all material, equipment and labor to make connections to existing manholes. The sewer pipe to manhole connection on all sanitary sewers shall be flexible and watertight. The sewer pipe barrel at the spring line shall not extend more than 1- inch beyond the inside wall of the manhole. To maintain the flexibility in the connection, a 1-inch space shall be left between the end of the pipe inside the manhole and the concrete channel; this space shall be filled with waterproof flexible joint filler. Any metal that is used shall be 300 series stainless steel. The connection may be made by the following types:

Rubber sleeve with stainless steel banding:

1. Kor-n-Seal as manufactured by National Pollution Control Systems, Inc.
2. Lock joint flexible manhole sleeve as manufactured by Interpace Corporation.
3. Or equal.

Rubber gasket compression:

1. Press wedge II as manufactured by Press-Seal Gasket Corporation
2. Dura Seal III as manufactured by Dura Tech Inc.
3. Link-Seal as manufactured by Thunderline Corp.
4. Or equal.

18. All precast concrete products shall be inspected at the location of manufacture. All concrete pipe and storm or sanitary sewer structures shall be stamped or have such identification noting

that said pipe and storm or sanitary structures have been inspected by the City of Columbus and meet their specifications. Pipe and structures without proper identification will not be permitted for installation.

19. The Contractor shall ensure that there is a surveyor's level and rod on the project for use in performing grade checks whenever sewer line structures or pipe are being installed. The Contractor shall make this equipment available for use by, and assist, the City Inspector in performing grade checks when requested by the Inspector. The Inspector will make all reasonable attempts to confine requests for assistance in performing grade checks to times convenient to the Contractor.

The check will be performed to ensure the following:

1. Proper placement of each structure.
2. Proper installation of initial runs of pipe from a structure.
3. Grade, after an overnight or longer shutdown.
4. Grade, at any other time the Inspector has reason to question the grade of installation.

Grade check performed by the City Inspector in no way relieves the Contractor from the ultimate responsibility of ensuring construction to the plan grade.

20. Building sewers shall not be constructed closer than three feet to any exterior wall, cellar, basement or cistern nor shall they have less than two feet of earth or stone cover.
21. In the event the trench is excavated below the required grade of the pipe, the excess space shall be filled with stone as specified by the sewer inspector. The width of the trench at the top of pipe shall not exceed two feet plus the outside diameter of the pipe nor shall the width be less than one foot plus the outside diameter of the pipe.
22. When unstable, soft or spongy conditions are encountered at the trench bottom, such material shall be removed and replaced with clean, crushed stone sufficient to stabilize the trench bottom to support the pipe to a true line and grade in accordance with CMSC 906.. Such work shall be performed as directed by the City Engineer.
23. Tamping in finely graded soil or granular material in six inch layers shall backfill the building sewer to an elevation at least twelve inches over the top of pipe. Soils containing stones larger than two inches shall not be used for any portion of the backfill.
24. No firm, person or corporation shall discharge or permit the discharge of any deleterious wastes into the sewage system. Such wastes are defined as oils, acids, cyanides, poisons and any other substances, gas or liquid which may in any way damage or interfere with the use or operation of the sanitary sewers or sewage treatment plant and may create a hazard to life or property.
25. No downspouts, surface inlets, foundation drains, sub-surface drains or any other source of ground or surface water shall be connected either directly or indirectly to discharge into any part of the public or private sanitary sewer system. Said drains, inlets and downspouts shall be constructed to drain or to be pumped into the street, gutter, ditch or the storm sewer.
26. All sanitary sewers shall be video recorded in DVD format after construction and prior to acceptance of the sewers by the City of Groveport. The DVD recording shall remain the property of the City. The DVD shall clearly identify the location of the camera within the sewer, date and time of the recording, and be of sufficient quality to determine the condition of the

sanitary sewers. An additional video recording of the sewers shall be completed just prior to the expiration of the guarantee period.