

## SECTION 19 - SUBSURFACE GROUNDWATER COLLECTION SYSTEMS

### A. Standards

1. Subsurface Groundwater Collection Systems shall be required for all proposed developments in which any part is located in the Designated Dipping Bedrock Overlay District if a crawl space and/or basement is proposed. (reloc. 07-12-05; am. 10-25-05)
2. Subsurface Groundwater Collection Systems shall be required for all proposed developments based on the findings in the Geological/Geotechnical Report. (orig. 10-25-05)
3. All subsurface groundwater collection systems shall meet the following requirements unless an alternative design is approved by the County Engineering Geologist. (reloc. 07-12-05, am. 10-25-05)

#### a. Location

Subsurface groundwater collection lines or systems located within a public right-of-way shall be located in the same trench as the sanitary sewer system in accordance with The Sanitary Sewer with Underdrain Figure. If the Water and Sanitation District will not permit the co-location, the lines or systems may be located in a separate trench as determined by the County Engineering Geologist. (reloc. 07-12-05; am. 10-25-05)

#### b. Dimensions

All lines shall be of sufficient size and adequate slope to discharge projected volume. No line shall be smaller than 4 inches in diameter and no slope shall be less than 0.5 percent. If topographical constraints limit the slope to less than 0.5 percent, the County Engineering Geologist may require use of the next largest pipe size. (orig. 10-25-05)

#### c. Stubouts

- (1) Provisions for service line connection stubouts, at each lot boundary, of individual lot foundation drains or sumps to the subsurface groundwater collection system shall be provided. (reloc. 07-12-05)
- (2) Service lines for residential lots shall be stubbed to the lot boundary. (reloc. 07-12-05)

#### d. Drainage/Discharge

- (1) All segments of the subsurface groundwater collection pipe and the gravel bedding shall have positive drainage. This includes segments dammed by manhole bases, or the gravel bedding shall be continuous beneath manhole bases. (reloc. 07-12-05)
- (2) All individual lot foundation drain or sump connections shall be to the groundwater collection system main lines and not to the gravel bedding or sanitary sewer. (reloc. 07-12-05)
- (3) All segments of the subsurface groundwater collection pipe and the gravel bedding shall discharge to a daylight point(s) and not to the sanitary sewer system. (reloc. 07-12-05; am. 10-25-05)
- (4) Water collected from individual lots or central subsurface groundwater collection systems shall not discharge directly or indirectly onto a street surface or curb and gutter located within a public right-of-way. (reloc. 07-12-05)

e. Maintenance

- (1) All subsurface groundwater collection systems shall have a maintenance plan(s). All maintenance plan(s) for subsurface groundwater collection systems shall be recorded with the Jefferson County Clerk and Recorder. (reloc. 07-12-05; am. 10-25-05)
- (2) Cleanouts shall be placed at bends or junctions in the main collection lines and at least every 400 feet along the main collection lines. The cleanouts shall be of sufficient size to allow for proper maintenance. When allowed by the applicable sanitation district, such cleanouts shall be placed in the sewer system manholes. (reloc. 07-12-05)
- (3) The main collection lines from daylight points to lot boundaries shall be inspected at least once every five years. In order to ensure the system has positive drainage, the entire length of the main collection lines shall be inspected with a camera system to detect pipe failure and clogged pipes. Documentation of the inspections shall be kept for review by Jefferson County. If inspection shows blockage and/or repairs are necessary, maintenance and repairs shall be completed. Appropriate permits shall be obtained to make repairs. (orig. 10-25-05)

4. Dipping Bedrock Overlay District

All developments, where any portion of the site is located in the Dipping Bedrock Overlay District and any portion of the collection system is located within 5 feet of the top of claystone bedrock, shall be subject to the following additional restriction(s): (reloc. 07-12-05; am. 10-25-05)

- a. Pipe materials shall be constructed of solid wall AWWA C-900 Class 200 polyvinyl chloride (PVC) or pipe material of equivalent or better strength characteristics. Perforated pipe may be used for main collection lines, if approved by the applicable sanitation district. Perforated pipe may also be used for the service line from the lot boundary to the structure. (reloc. 07-12-05)

**B. Subsurface Groundwater Collection System Plan(s)**

1. Preparation

- a. The Subsurface Groundwater Collection System Plan(s) shall be prepared and signed by a professional engineer qualified in the field of civil engineering. (am. 07-12-05; am. 10-25-05)
- b. The Subsurface Groundwater Collection System Plan(s) shall be required, as determined by the Planning and Zoning Division. The County Engineering Geologist shall evaluate the findings in the Geological/Geotechnical Report to determine the necessity of the Subsurface Groundwater Collection System Plan(s). (orig. 10-25-05)

2. Content

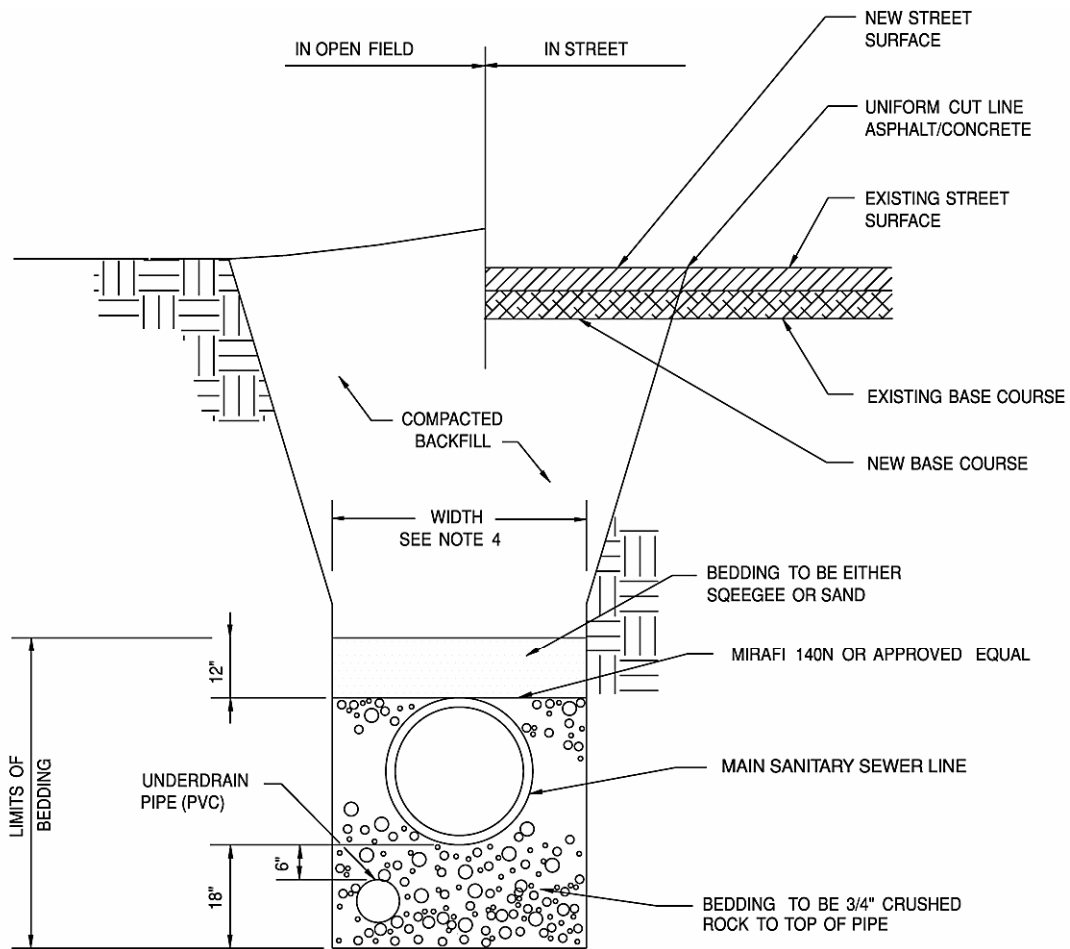
The Subsurface Groundwater Collection System Plan(s) shall include, but not be limited to, the following: (am. 07-12-05; am. 10-25-05)

- a. Designs, maintenance plans, standards and specifications for clean out ports, discharge points, bedding materials, pipe materials and grade. (reloc. 07-12-05; am. 10-25-05)
- b. The entity/entities that will implement the plan, construct the required improvements, and be responsible for the maintenance of the improvements and appropriate easements. (reloc. 07-12-05)

3. Approval

- a. The Subsurface Groundwater Collection System Plan(s) shall be approved by the Planning and Zoning Division prior to the development's approval. (am. 07-12-05; am. 10-25-05)
- b. Where subsurface groundwater collection systems are located in the same trench as the sewer system, the construction plans for repairs or modifications after initial installation, shall be approved by the applicable sanitation district prior to issuance of a permit. (reloc. 07-12-05)

**SANITARY SEWER WITH UNDERDRAIN FIGURE**



TYPICAL TRENCH SECTION

NOTES:

1. MINIMUM COVER TO BE 4.5' BELOW OFFICIAL STREET GRADE.
2. TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMAN AND PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS.
3. PIPE SHALL BE BEDDED FROM 18" BELOW THE BOTTOM OF THE PIPE TO 12" ABOVE THE TOP OF THE PIPE.
4. TRENCH WIDTH SHALL NOT BE MORE THAN 16" NOR LESS THAN 12" WIDER THAN THE LARGEST OUTSIDE DIAMETER OF THE PIPE.
5. COMPACTION SHALL BE AS FOLLOWS: PIPE ZONE BEDDING 18" UNDER AND 12" OVER PIPE WILL REQUIRE 90% S.P.D OR 70% RELATIVE. TRENCH ZONE ABOVE BEDDING MATERIALS, FULL TRENCH SECTION IN ROADWAY OR STREET R.O.W. LIMITS WILL REQUIRE 95% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, OUTSIDE OF STREET R.O.W. WILL REQUIRE 90% S.P.D.