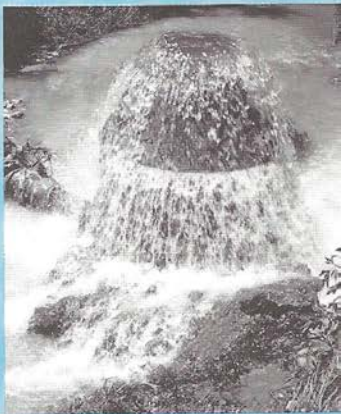


Smoke, Dye, and Television

Ways and
Reasons to
Fix Sewer
Defects
On Private
Property



Sewer overflows and backups can cause health hazards, constrain economic growth, and result in long-term environmental damage. These problems can be prevented by finding and fixing sewer defects on private property.

Sanitary Sewer Systems

Construction of sanitary sewer systems in the United States began in the mid 1800s. Sanitary sewers are built to carry domestic wastewater away from private properties. In more recent years, with the deterioration of systems and inadequate transport ability due to growth, systems have begun experiencing separate sanitary sewer overflows (SSOs) both on public and private property.

SSOs are generally caused by:

- Infiltration and inflow; (I/I)
- Inadequate pipe sizes; or
- Maintenance problems.

Infiltration occurs when groundwater enters the sanitary sewer system through defects in the system. Inflow occurs when stormwater/rainwater enters the sanitary sewer system through defects and illegal connections in the system.

The inability of the system to transport these flows will result in:

- Insufficient service to customers, thus complaints;
- Sewer backups into buildings; and
- Sanitary sewers overflowing into waterways.

Sewer overflows, whether into private residences and buildings, into parks and streets, or into waterways, are potential health hazards and might be violations of the Clean Water Act.

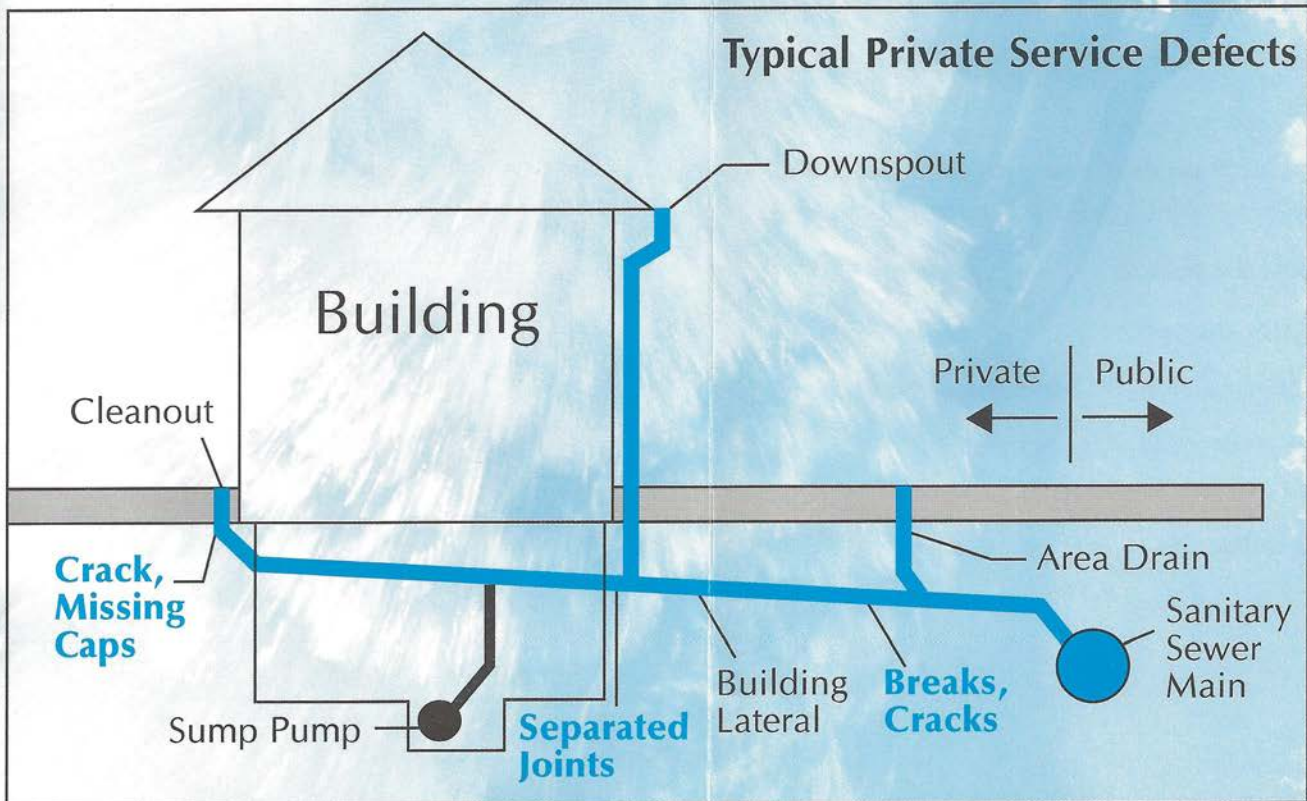
If owners and communities continue to ignore the deterioration of the sanitary sewer system, the system will continue to deteriorate and the cost of repair will increase. Ignoring the sewer system may force constraints on economic development and cause long-term damage to the environment.

How a Sewer System Works

Most sanitary sewer systems are constructed as a network of manholes and pipes that flow from each building that generates sewage to a wastewater treatment plant. Private services are pipes from the building to the sewer main.

Defects on private services include:

- Missing cleanout caps;
- Broken cleanouts and cleanout caps;
- Broken service lines;
- Sump pump flows; and
- Stormwater flow from downspouts, area drains, basement drains, stairwell and window well drains.



Locating Defects On Private Services

Private service defects are found using:

- Smoke testing;
- Dyed water flooding;
- Internal television inspection; or
- Building inspection.

Eliminating Private Service Defects

Eliminating private service I/I defects can be as simple as replacing a cleanout cap. Other defect repairs may require an entire service lateral to be replaced and may require hiring a licensed plumber. Cost of repairs can range from \$2.00 - \$2,000.00.

Typical Programs to Eliminate Private Service Defects

Many agencies are developing programs to eliminate private service I/I defects. Programs include:

- Locating the defects;
- Educating the public;
- Providing assistance to repair the defects;
- Hiring contractors with agency funds to repair defects; and
- Using ordinances to enforce the repair.

This brochure is provided by the Water Environment Federation and U.S. Environmental Protection Agency, Cooperative Agreement Assistance I.D. No. CX824505. For more information about sanitary sewer systems, contact the following:

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601 Wythe Street
Alexandria, VA 22314-1994, USA
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- Technical and Educational Services Program—1 (703) 684-2406
- Technical books, manuals, and special publications—1 (800) 666-0206

U.S. Environmental Protection Agency
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