

An educational document from the American Concrete Pipe Association for users and specifiers

It may be said that while time is the universal healer, it is people who keep generating that which needs to be healed. Such is the application of fiberglass reinforced polymer (FRP) pipe on projects that would be better served by other pipe materials, like concrete pipe. There may indeed be industrial uses for FRP pipe, but applications for sanitary sewers may not be appropriate, especially in deep fills. Recent history strongly suggests that FRP pipe sanitary sewer installations may fail prematurely along the crown of the installation.



Brookings, S.D.

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Sections of Brighton Road in Brookings, S.D. caved in twice in 1996 because of a cracked FRP sewer line that had been installed in 1979. Both cave-ins caused craters, the first resulting in personal injury. It was determined that prematurely cracked pipes leaked (infiltration / exfiltration), causing erosion of the backfill which resulted in a road collapse. Subsequent to the road closures, the sewer line was examined with a mini-camera. Cracks appeared on the top of the FRP pipes and allowed earth and gravel to infiltrate into the sewage that was pumped to the city's wastewater treatment plant. About 4,500 feet of FRP pipe had to be replaced by the City at a cost of about \$600,000.

New Hanover County N.C.

Some history appears to be repetitive. Failures along a 9,000-foot section of the 36-inch diameter FRP Ogden Interceptor sanitary sewer in New Hanover County N.C. (Cape Fear Public Utility Authority), occurred in 2008, 2009 and 2010.² The interceptor was built in the late 1990s to help ease demands on the Northeast Interceptor by drawing flow from the line and the City's Southside wastewater treatment plant, thereby increasing overall capacity to allow more development. The failing line carried two million gallons a day. Some spilled into Smith Creek when emergency bypass pumps failed.



After assuming responsibility for the repair and replacement project, The Cape Fear Public Utility Authority had to cut funding or delay millions of dollars' worth of projects to pay for the emergency repairs and replacement. This affects several projects, including new sewer pipes in unserved areas, rehabilitation of old sewer pipes, and construction of new water lines. In addition, \$8 million had to be set aside in a reserve fund in case of other emergencies. The emergency replacement with ductile iron pipe cost \$7 million.

Many types of fiberglass pipe under various names and manufactured by different companies have come and gone in the last 30 years. Some manufacturers have discontinued production due to performance issues found in the field. So, what is the real expected service life of fiberglass pipe? How many times does this lesson have to be learned? How long will municipalities be taken advantage of by the marketing of fiberglass pipe?

References

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