



Study for Reliability Assessment considering the Sedimentation in Urban Sewer Networks

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In this study, analysis of reliability of sewer network was progressed with the number of overflow nodes and overflow volume simultaneously for urban areas considering sedimentation.

Reliability analysis shows that it is possible to quantify the difference in the phenomenon of the destruction of sedimentation in urban sewer system under the same design frequency. This study focuses on the release to bed of sedimentations having being accumulated inside a urban sewer network.

It is proposed as one of the indicators evaluated as full reliability for sewer system. To analyze detailed changes in conduit designs in urban sewer networks, tried to reduction of sedimentation in sewer networks using modified pipe slope in Bujeon-dong catchment, Busan. The various sewer designs were applied and then, the most effective improvement of reliability over 10%.

Suggested reliability process can produce the quantitative evaluations about sewer systems using the results of the system simulations and use of possible the objective function for the sewer network designed with a relative evaluation.

Sewer network is designed to pass the inflow rate depending on the design frequency smoothly. However, taking a look at the example of flooding generated in urban area shows that an increase in the generation and damage of flooding can be often caused by the deposition of sediment in the sewer.

This is a problem in the maintenance of sewers, but this implies that the effect of sediment deposition should be considered to some degree for the design of a conduit itself in another aspect. Thus, it is necessary to realize design in a direction to reduce flood damage pursuant to it by considering the deposition aspect of sediment in a conduit when designing a storm sewer.