DESIGN OF OPEN SEWER AT KALIDAMI CANAL
SURABAYA

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Abstract
Kalidami channel is a primary drainage channel located parallel East-West with Kertajaya Road, Surabaya. It has 7.315 m length and ranges between 18 and 40 meters width. This channel is used to convey runoff in addition to its main function to convey rain water. Channel is planned to convey runoff from areas with high rainfall. At dry season, the channel is only occupied by wastewater which has relative small discharge compared to the runoff from the same catchment area. This imbalance makes Kalidami channel become shallow and tardy in the dry season, which triggers the problem of sediment deposition, odor, and waterborne diseases. The purpose of this final project is to design the open sewer system for Kalidami Channel Surabaya.

The design of open sewer is based on the existing drainage channel design. The study was conducted by calculating the area of catchment area, projected population, calculate the discharge of waste water, determine the channel base, then plan the pumps needed at the open sewer system. The base at the Kalidami Sea Gate is higher than the Low Water Lever (LWL), means that the channel is still able to flow by gravity when the sea water is lower. But if the high tide happens, pumps will be required to assist the system.

The planned discharge \( Q \) of open sewer system is 0.197 m\(^3\)/s. The designed open sewer has 0.5-0.8 m width and 0.2-3.9 m depth. It needs two pumps with 0.16 and 0.197 m\(^3\)/s discharge. Open sewer can flow easily by gravity into the sea at high tide.
when the water level is less than 1.56 M LLWL. The estimated cost required is Rp 14,814,672,000,-

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