

DSD R&D Report No. RD 1092

Selection and Trial of Advanced Technologies for Inspection Survey and R&R Works

Executive Summary

Background

This R&D item no. RD1092 is to explore advanced technologies available in the worldwide market for inspection surveys and R&R works and to conduct trials of selected technologies for assessing the practicability of application in local environment. It is covered under a Consultancy Agreement No. CE 56/2011 (DS) – Enhanced Management of Underground Sewer and Drain Networks by Black & Veatch Hong Kong Limited (B&V). The Assignment is to carry out a Feasibility Study (FS) on enhanced management of sewer and drain networks in Hong Kong.

The R&D Study

The Study comprise two stages. Stage 1 covers the following research and development studies on inspection surveys and R&R works:

Part 1: Working Paper No. 5 – “Working Paper on Advanced Technologies of Inspection Survey Methods”

The objective of this Working Paper is to identify and review the advanced inspection survey technologies available in the worldwide market which would address the difficulties experienced by the district divisions in inspection survey.

Advanced inspection survey technologies are searched based on the desirable functions identified from the current methods. A number of the advanced inspection survey technologies, such as the Intelligent PIF for wall thickness detection, Linear Polarization Resistance Test, Electric Current Leak Detection, etc. as well as their limitations are introduced in the Paper. Trials for some advanced technologies to assess their practical feasibility in Hong Kong are recommended. It is also noted that the inter-use of the advanced survey technologies may be able to fulfill the desirable functions and enhance DSD’s maintenance efficiency.

Part 2: Working Paper No. 6 – “Working Paper on Advanced Technologies of R&R Works” of the Study”

The objective of this Working Paper is to identify and review advanced rehabilitation technologies

available in the worldwide market which would address the difficulties experienced by the district divisions in the current R&R works.

19 different advanced rehabilitation or replacement methods, considered to be capable of addressing the problem at hand, have been introduced in this paper, which include UV/LED light cured CIPP, Sliplining, Spiral Wound, Geopolymer, etc. Most of them have been used extensively overseas while some have just been developed. For some technologies, there is still a lack of sufficient data to allow for a full understanding of their performance and how to specify the rehabilitation works so that different technologies can compete to the same performance-based requirement. In this context, trials for some advanced technologies to assess the practicality of their applications in Hong Kong are recommended.

Stage 2 comprises the trial of 5 different advanced technologies for inspection surveys and R&R works. Post-trial notes are prepared to discuss on the merits and limitations of each trial technology and provide necessary local job experience and cost data for future reference.