

The Study of Stormwater pumping station Network equipments

Whole term

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(Purpose)

In this study, practical application of stormwater pumping station network is described. It is assumed that the trunk line of stormwater pumping station network is built deep underground. This study examines especially high-head pumps and machine equipments, construction, operation, and maintenance of electric equipments about large depth stormwater pumping stations, among systems composing the network. This study also examines wide area operation and maintenance control systems of multi-stormwater pumping stations that utilize weather information systems, and drafts the guideline.

(Content)

(1) Machine equipments

Specifications about equipments constituting the large depth pumping station were examined.

- ① Pumping equipments: Model of high-head pump, Application of early standby driving, Pump driving method, Correspondence to narrow space, Water hammer prevention measures, Restriction by Fire Defense Law.
- ② Incidental equipments: Flood measures, Necessity of detritus tank, Management methods (making to dry), grit remove method, Carrying out method.

Specifications of the large depth pumping stations are shown in Figure 1.

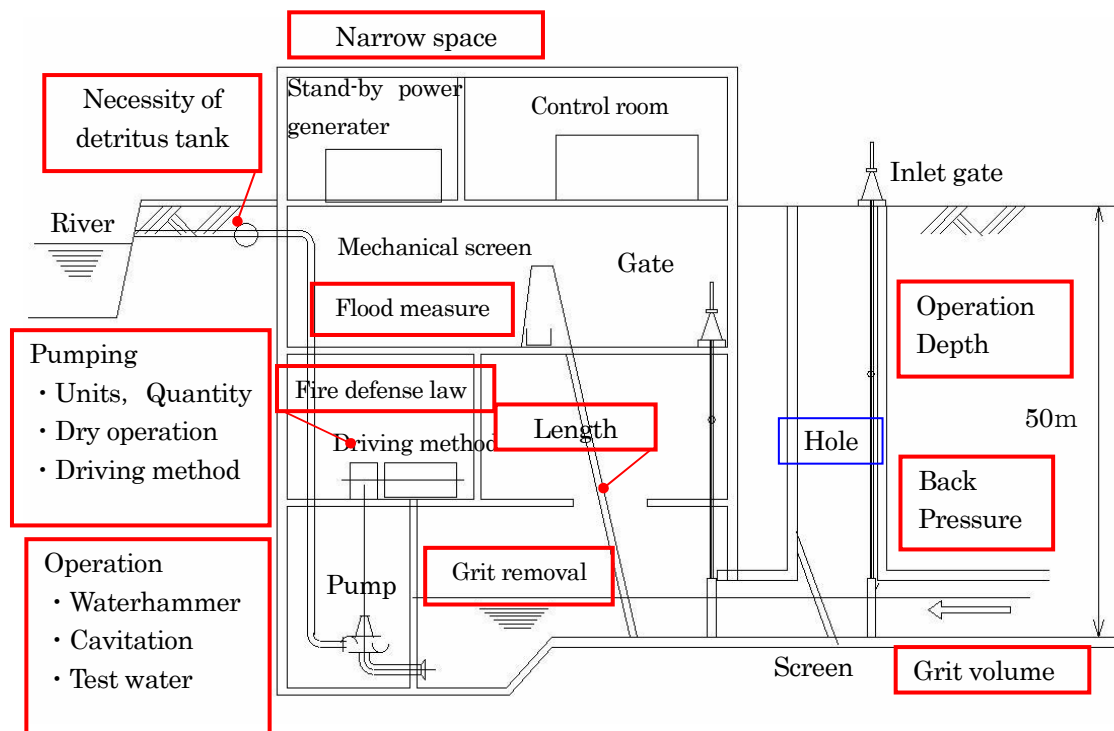


Figure 1 Specifications of the large depth pumping stations

(2) Electric equipments

① Substation Equipments, and Stand-by Power Generation Equipments

As pumps that are set up in large depth become high head, the electric equipments including motive energy are planned and examined.

② Global System

The joint research about the Precipitation Radar system for sewage has been executed before. Since then, that system is introduced and used effectively in various local governments. In this study, the configuration of the equipment and system about the global system based on this Precipitation Radar technology (Precipitation Radar, Rainfall prediction model, Inflow prediction model of pumping stations, Wide area monitoring, control, and operation system of pumping stations) were arranged when the stormwater pumps were made a network.

Block diagram of the global system is shown in Figure 2.

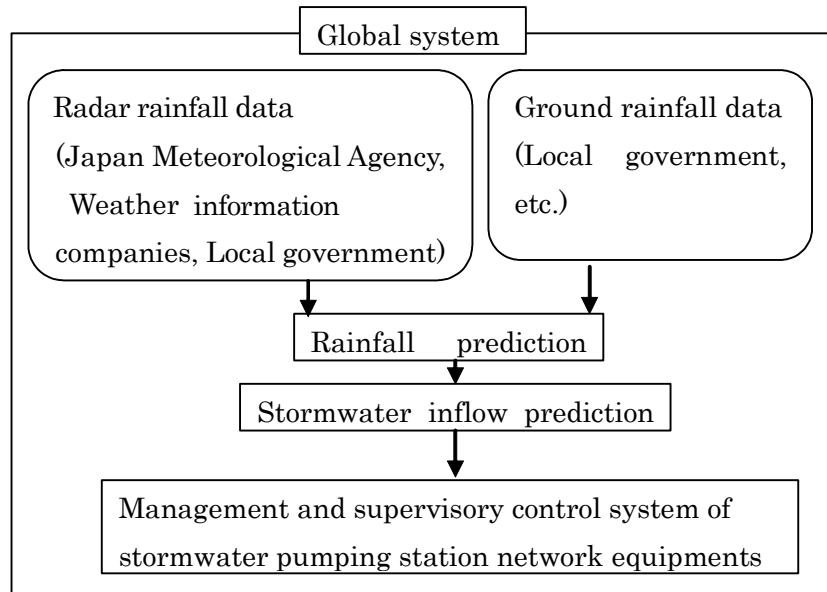


Figure 2. Functional configuration of global

(Research plan)

- The cavitation measures and the pump control methods responding to the water supply destinations (river) switching are examined.
- Some examples of composing stormwater pumping station network equipments are shown as cases and described to the manual.
- Research direction about the stormwater pumping station network equipments(Equipment edition) is shown.

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Key words

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