Operational Controls in Theory and Practice

Designers and modellers are frequently required to put control devices into sewerage systems to modify the normal flow pattern. These include: penstocks, gate valves, flap valves, cloughs, baffles, backdrops, dropshafts, cascades, siphons, inverted siphons, weir overflows, stilling pond overflows, orifice plates. throttle pipes, hydrobrakes, venturi flumes, flow monitors, storm storage tanks and attenuation tanks.

These are essentially static, if adjustable, devices and so the list stops short of pumping stations or other powered sewage treatment plant elements which present their own design challenges. It is quite normal for such devices to be designed purely for their hydraulic characteristics and sometimes with buildability in mind. It is much rarer to have the operational aspects for such devices considered. This has often resulted in considerable difficulties for operators when problems occur as they frequently do, especially in larger sewers with heavy flows.

The talk will illustrate some of the problems experienced by the author over many years carrying out repairs and maintenance in various parts of London's trunk sewers. Overall this should demonstrate the value of considering operational design for such structural elements in future sewerage schemes.

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