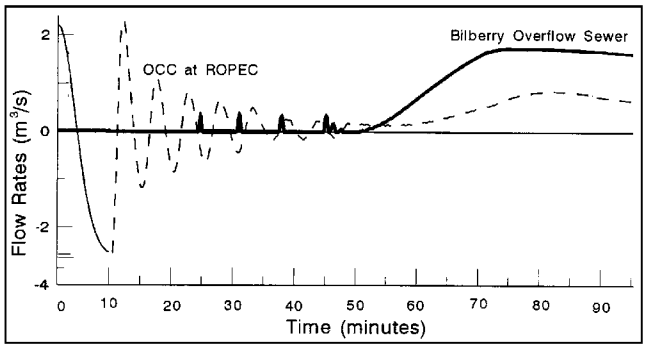
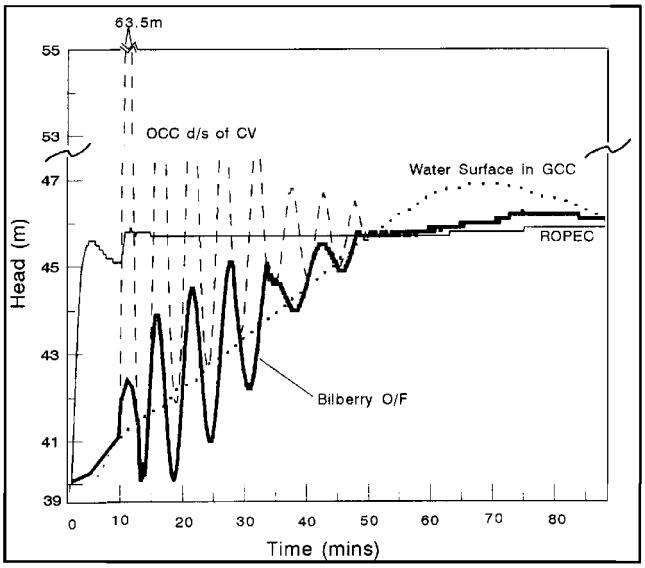
Environmental Hydraulics Group Hydraulic Design & Analysis - Water & Sewage	Project:	Impact of Hydraulic Transients on the Orleans-Cumberland Collector	1997-591
	Location:	Region of Ottawa-Carleton (ROC), Ontario	
	Client:	Region of Ottawa-Carleton	
	Completed:	April 2000	



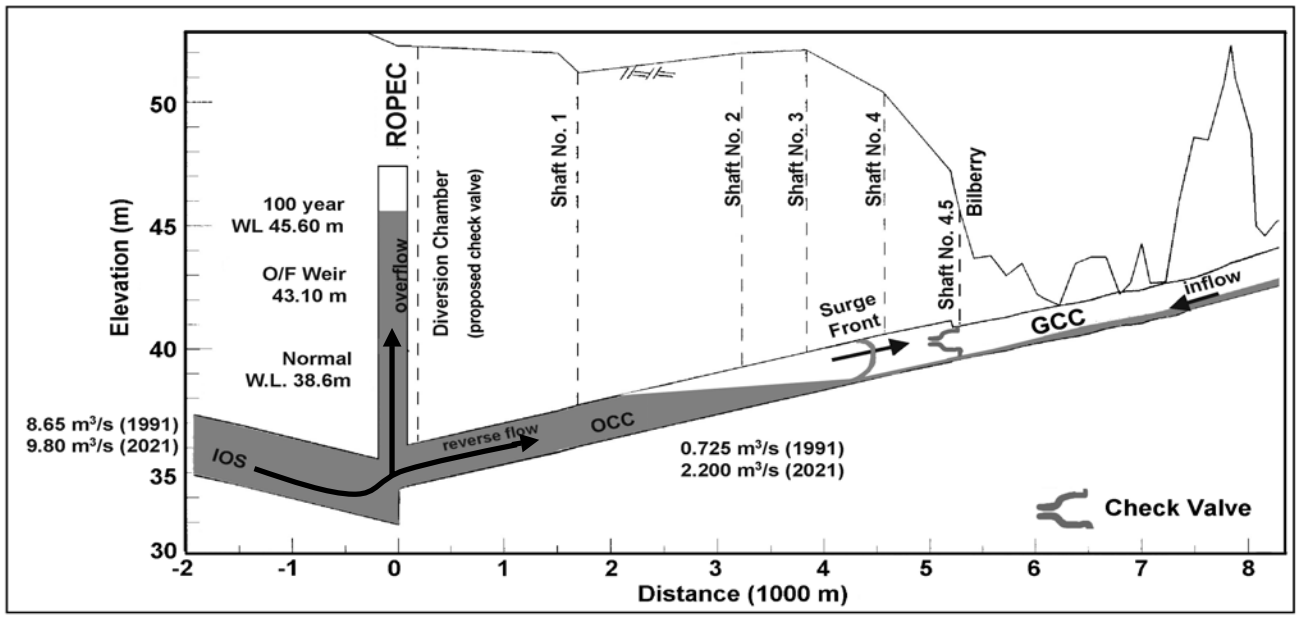


Description: The ROC operates a large network of sanitary collector and trunk sewers. The 1650 mm Orleans-Cumberland Collector (OCC) accepts inflows from the Gloucester-Cumberland Collector (GCC) and three others; routing them over 7 km to a wet-well at the ROPEC regional sewage pump station.

A power failure caused a flow reversal in the OCC, lifting MH covers and causing surface flooding in a low-lying area on the GCC. To prevent surface flooding, a permanent bulkhead was constructed to isolate the GCC from flows reversing in the OCC.

EHG was asked to identify causes and risk of transients in Phase I and to support detailed design for surge protection in Phase II. Hydraulic transients in deep sewers can range from mass oscillations or flow reversals (due to uneven tunnel filling) up to explosive waterhammer pressures (due to the release of trapped air and/or water columns rejoining).

Benefit to the Client: A check valve was provided (inside the diversion chamber near ROPEC) to protect the upstream Bilberry area from flow reversals, surges, basement flooding and surface spills. EHG also assisted the municipal engineer during the detailed design.



600 Cochrane Drive, Suite 500, Markham, Ontario, Canada L3R 5K3.
www.ehg-inc.com
www.genivar.com