Design of Wastewater Treatment Plants - DHV Carrousel® System

Client

John MacKay, P.Eng.
Director, Engineering & Operations
District of North Cowichan
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Location

Chemainus & Crofton, Vancouver Island, British Columbia, Canada

Services

- Technology Selection
- Detailed Design
- Construction Services

Date

1996 – 1998

Key Personnel

John Blanchet, P.Eng.
Project Manager
Clay Reitsma, P.Eng.
Design Manager
Dave Renard
Construction Manager

Contract Value

$7.0 Million

Scope of Services

The communities of Chemainus and Crofton are located in the District of North Cowichan on Vancouver Island, British Columbia. The population of Chemainus and Crofton is 5,000 and 2,200 respectively. Delcan was retained to design two wastewater treatment plants.

Project Description

The plants were designed and constructed simultaneously to reduce costs. The objective was to improve the quality of the effluent and to accommodate a growing population. The plants use the DHV Carrousel® system of extended aeration, oxidation ditch-type treatment and aerobic digesters. The Chemainus plant has a dewatering facility to serve both treatment plants. The Chemainus plant has a 6,600m^3/d off-site wastewater pump station with a 1.7kilometre forcemain and 1.7kilometres of gravity sewers. The Crofton plant has a 4,200m^3/d wastewater pump station. The average daily design flows for the Chemainus and Crofton plants were 2,000m^3/d and 1,200m^3/d, respectively. Delcan was fully responsible from conceptual engineering design to construction management and start-up.

Results

The effluent meets 10mg/L BOD, 15mg/L TSS, and 1.0 mg/L ammonia. The plants were designed to accommodate future biological nutrient removal.