

THE CHAMPLAIN BRIDGE ICE CONTROL STRUCTURE

Introduction

The Champlain Bridge Ice Control Structure was built in 1964-1965 in order to control ice jams and flooding in the Laprairie Bassin and to reduce erosion on the islands in the Montreal region, most particularly the islands of Expo '67.

Historic

Construction (1964-1965)

The risk of ice jams and flooding in the Montreal region grew after the Expo 67 islands were built because they reduced the width of the arms of the St. Lawrence River.

To solve the problem, the Champlain Bridge Ice Control Structure was built downstream of the Laprairie Basin. It was completed in 1965 and the federal Department of Transport took over ownership of the structure in August 1966, placing it under the management of Fisheries and Oceans Canada.

Main Reasons for Building the Ice Control Structure

- To enable an ice cover to form early over the Laprairie Basin.
- To gather and store ice that forms continuously throughout the winter in the open water of the Lachine Rapids and downstream of Lake St. Louis.
- To decrease the size of open water areas where new ice is produced.
- To control the spring ice breakup.

The Champlain Bridge Ice Control Structure is no longer in use since ice breakers now carry out the work.

Management Transfer (December 2, 1999)

Previously called the *Jetée McKay*, the Champlain Bridge Ice Control Structure's management was transferred from Transport Canada to the Jacques Cartier and Champlain Bridges Incorporated on the terms of the C.P. 1999-2136 Counsel Decree dated December 2, 1999.

The Structure

Geographic Situation

The ice control structure runs parallel to the Champlain Bridge about 1,000 feet (305 m) upstream of the bridge. It is 6,700 feet (2,043 m) long and extends west-east between Nuns' Island and the St. Lawrence Seaway.

Circulation

Presently, pedestrians and cyclists may wonder through the structure.

A bicycle path was placed on the ice boom to connect existing paths on Nuns' Island and the South Shore.

Study for Public Transportation Use

In order to help reduce traffic congestion on the bridges, The Jacques Cartier and Champlain Bridges Incorporated and the Province of Quebec have been studying the possibility of transforming the Champlain Bridge Ice Control Structure for public transportation use between the South Shore and the Island of Montreal.

The ice control structure may get a new lease on life.

Technical Data

It is made up of 72 concrete piers and two abutments resting on rock. The floating booms or stop logs that held back the ice in the 88-foot (27-m) spans moved up and down in heated grooves in the piers.

The three 175-foot (53-m) spans over the deep-water channel were equipped with booms that floated with the current. They were retained to the piers and could be detached in the spring to allow an ice evacuation channel to form.

The top of the structure is a bridge made of prestressed girders and a concrete deck, and supported the machinery that manoeuvred the booms. In spring, the 88-foot (27-m) booms were stored on specially designed supports on the piers.

-
- Length of bridge: 2,040 m
 - Width of deck: 8.5 m
 - Ice Control Structure's total Width: 18.0 m
 - Number of piers: 72
 - Dimensions of piles of 10.5 m in height:
 - . 4 of 5 m in width x 19.5 m in length
 - . 68 of 3.7 m in width x 16 m in length
 - Height of caissons under the piles: de 2.0 m to 8.5 m
 - Water depth: varies from 2 to 10 m
 - Beams and floating floodgates between piles: 1.5 m in height
 - Length of the approaches:
 - . West side: 400 m
 - . East side: 80 m

Construction Cost

It cost approximately \$18,000,000 to build the ice boom in 1965.
