

## Innovative Means and Methods for the New Champlain Bridge

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### Abstract

Signature on the Saint Lawrence Construction (SSLC), a consortium comprised of SNC-Lavalin inc., Flatiron Constructors Canada, Dragados USA and EBC, is mandated to build the New Champlain Bridge Corridor Project (NCBCP). Significant challenges include:

- 1) Construction schedule: The Bridge must be in service by December 2018.
- 2) Navigation restrictions: The Seaway traffic must be maintained during the main span's construction.

This paper discusses the following innovative construction methods used for the New Champlain Bridge (NCB):

- i) A custom-built gantry to install the precast footings/pier starters in the river;
- ii) The delivery system for the segments to the tip of the deck in the main span.

These erection systems were developed and selected to suit the specific challenges of the project, including speed of construction, maintenance of shipping and environmental protection areas.

**Keywords:** Champlain, heavy-lifting, precast, footing, survey, cable-stayed, gantry, Seaway, erection.

### 1 Introduction

The existing Champlain Bridge was opened to traffic on June 28, 1962. Its construction duration was 5 years, with a budget of \$35M [1]. The 284 meters main span consists of 2 cantilever arms of 49 meters and a suspended span of 117.5 meters (see Figure 1.) The anchor (or transition) spans have a 117.5 meters span length [2].

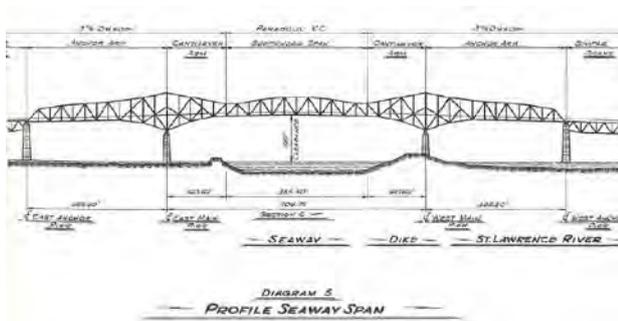


Figure 1. Elevation View of Existing Champlain Bridge [1].

The East and West Approach Bridges were designed and built with pre-stressed concrete girders with a concrete top slab. The main span is a steel truss supporting a concrete deck spanning over the Seaway; subsequently, the concrete deck was replaced in the 1990s by a steel orthotropic deck.

The construction of the New Champlain Bridge (NCB) began by SSLC in June, 2015, in Montréal. This Public-Private Partnership (P3) Project will replace the existing Champlain Bridge which provides access to the city of Montréal from the South Shore.

The current status of the existing Champlain Bridge, and above all, the continuous and costly maintenance operations, obliged Infrastructure Canada to initiate the bidding process in 2014 for a new bridge to be completed before December 2018.

The new bridge also crosses over both the St. Lawrence River and the Seaway Channel (see Figure