

Highway Approaches of the New Champlain Bridge Corridor

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Abstract

The New Champlain Bridge project corridor extends over a length of approximately 8.5 km.

The highway approaches of the bridge corridor include the reconstruction of two major interchanges in Montreal and the widening and reconstructing of both Highways 15 and 10 over 4.5-kilometers in highly urbanized neighbourhoods within Montreal and its suburbs. Highways are equipped with aesthetically pleasing retaining walls, EPS walls as well as noise barriers to satisfy the needs of the community. Furthermore, the construction of a new 470-metre bridge connecting Montreal Island to Ile des Sœurs (Nuns' Island) represents one of the highlights of the highway approach corridor structures.

Both cyclists and pedestrians will be able to safely travel over the project corridor on a multiple-use path and stop at one of the many belvederes to gain an exceptional view of the city.

Durability is also a key design consideration, with a 125-year design life set as design criteria.

Keywords: Champlain; highway interchanges; aesthetically; noise barriers; retaining walls; nun's island bridge; multiple use path; durability.

1 Introduction

The New Champlain Bridge including its approaches is one of the largest infrastructure projects in Canada. With an overall length of approximately 8.5 km, the project covers the New Champlain Bridge proper extending over a total length of 3.4 km, the 470 m new Nuns' Island Bridge (IdS Bridge) and the improvement and reconstruction of its approaches (Hwy 15 in Montreal and HWY 10 in Brossard) over a length of some 4.5 km.

The works are being carried out within a dense urban setting and in close proximity to residents. Winter conditions and important environmental constraints also generate important challenges. The presence of a very narrow right-of-way and

the presence of CN tracks very close to the works add to the complexity of the project.

The highway engineering joint venture (HEJV) was responsible for the design of all elements of the project, with the exception of elements related to the New Champlain Bridge structural design.

The description below starts with the highway (HWY) geometry and the major improvements compared to the current situation. A discussion concerning the different type of structures on the HWY portion of the project as well as geotechnical considerations, drainage, lighting, Intelligent Transportation System (ITS) and architectural aspect of this complex and challenging project are also addressed.