Highway A20/A73 Interchange (Canada)

Project description

A new highway viaduct was constructed in 2013, serving the city of Levis in Quebec, Canada. The viaduct, at an interchange between Highways 20 and 73, was constructed adjacent to an existing structure in order to increase highway capacity.

The viaduct has steel girder deck and six spans which range between 131 ft (40 m) and 197 ft (60 m), and has a total length of 984 ft (300 m). With a horizontal radius of 886 ft (270 m), the structure exhibits a prominent curve which increases the risk of serious damage during an earthquake and thus increases the need for its deck to be seismically isolated from its supports. A planning phase lasting several years was needed to identify the best solution for integrating the new bridge into the protected and sensitive local environment with minimal impact. The new 5.7 mi (9.3 km) bypass shortened the old route by 7.9 mi (12.8 km).

mageba scope

While the end spans of the deck are supported by conventional pot bearings, the central spans, which are more prone to damage from movements, are supported by mageba LASTO®LRB Lead Rubber Bearings (LRB). These LRBs will protect the structure during an earthquake by isolating it from destructive ground movements.

Each interior pier carries six LRBs, one supporting each of the deck's main girders. Each LRB has a vertical load capacity of approximately 3,200 kN. Due to the structure's location, the LRBs were designed for extreme temperatures from 104 °F (40 °C) to –22 °F (–30 °C).

Highlights & Facts

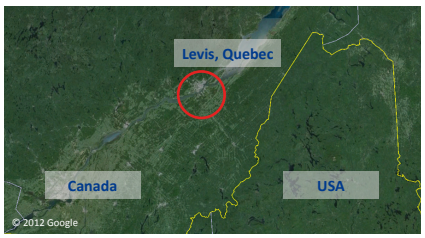
mageba products:

Type:	LRB seismic isolators
Features:	For temperatures as low as –30 °C (–22 °F)
Installed:	2013

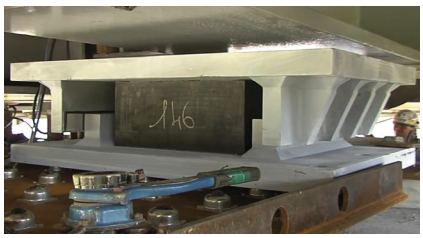
Structure:

City:	Levis, Quebec
Country:	Canada
Built:	2013
Type:	Steel girder deck
Length:	317 m

The highway viaduct serves the city of Levis, Quebec



Lead rubber bearing installed in the bridge – guided type, allowing longitudinal movements



Lead rubber bearing installed in the bridge – multi-directional type, allowing all movements

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