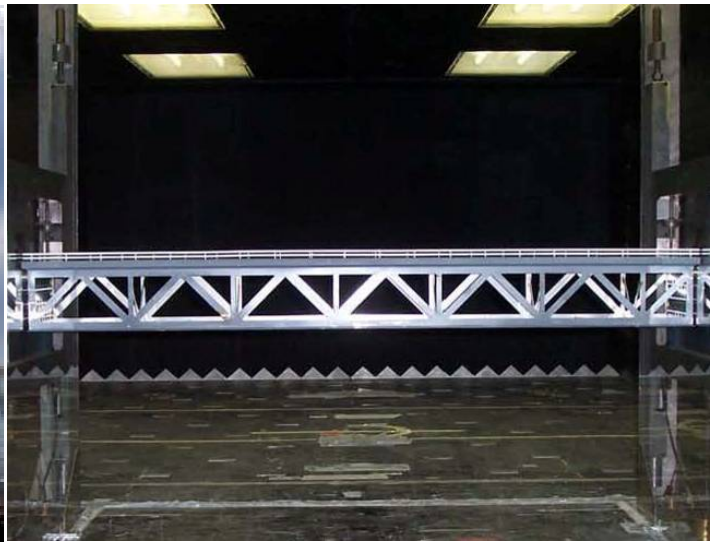
Deh Cho Bridge, Fort Providence, Northwest Territories

Wind Engineering Study



Client Infinity Engineering Group Ltd. Vancouver	*Span* 1045 m	*Shipping Clearance* 30 m
Deck Width 11.5 m	*Year Tested* 2004	*Model Scale* Section Model: 1:30

The Project

The Deh Cho Bridge is located in Canada's Northwest Territories over the Mackenzie River near Fort Providence. The bridge is a 1045m long structure with a main span of 190m. The superstructure is of composite construction with two steel trusses and precast concrete deck panels. The trusses are 4.5m deep with a horizontal width of 7m. The main span is supported by three pair of cables anchored to the deck at approximately the 1/3 points, to delta-shaped pylons. A similar cable arrangement is present in the side spans with the cables extending to the midpoint. The width of the basic deck section is 11.5m.

The Wind Tunnel Studies

The wind engineering study of the Deh Cho Bridge was conducted using the section model method. The aim of the study was:

a) to provide basic aerodynamic information to confirm the deck section design;

b) to investigate the overall stability of the deck section and its buffeting response in turbulent wind;

c) to develop the equivalent static loads to assist in the design of the bridge deck;

d) to determine the wind load factor used in ULS (ultimate limit state) design methodology utilized in the Canadian Highway Bridge Design Code.

The Boundary Layer Wind Tunnel Laboratory

Western

The Boundary Layer Wind Tunnel Laboratory
The University of Western Ontario
Faculty of Engineering, London, Ontario
Canada, N6A 5B9 Tel: (519) 661-3338 Fax: (519) 661-3339
Internet: www.blwtl.uwo.ca E-mail: info@blwtl.uwo.ca

FSBR/ 41 / October 2010 / LK
Last Printed: October 2010