

## EXECUTIVE SUMMARY

This report summarizes the results of the scour investigation performed at Piers 2, 3, 4 and 5 of the Peace Bridge over the Niagara River between Fort Erie, Ontario and Buffalo, New York. The purpose of this report is to investigate and determine the possible presence of scour at the Peace Bridge river piers.

Scour is the hole left behind when sediment (silt, sand and rock) is washed away from the bottom of a river. Although scour may occur at any time, scour action is especially prevalent during flood events. Scour is also typical in waterways with swift flowing currents. Turbulent waters, such as found near irregularities in waterways, are also a major cause of scour. Swiftly flowing and turbulent waters have more energy than calm water, which can lift and carry sediment down river.

The scour investigation for Piers 2, 3, 4 and 5 was performed by Ocean Surveys, Inc (OSI) of Old Saybrook, Connecticut. The investigation was performed during the period May 24-27, 2005. The results of the investigation consist of series of river bottom elevation data points adjacent to Piers 2 through 5. This information was used to construct cross sections, contour maps, and 3-D models of the river bottom surface.

Due to the shallow water depths around Pier 6 OSI could not deploy their vessel in order to determine the presence of scour. Parsons performed visual inspections to determine riverbed conditions for locations along the pier. The observation of soil overburden at elevations above the footing indicated that scour has not occurred at Pier 6. Given the slow flowing current found at Pier 6 scour is not considered a concern along that foundation.

The conclusions of this report are based on comparison of the results stated above with the results of the 1968, 1987 and 1991 Foundation Evaluations prepared by Golder Associates of Mississauga, Ontario, as well as the original design plans for the Peace Bridge.

Based on this investigation, there is no evidence to indicate the presence of scour conditions that would adversely affect the stability of the river piers (Piers 2 through 6) of the Peace Bridge. Parsons recommends that the Peace Bridge continue to conduct underwater surveys of the river piers every 5 years (at a minimum) as established by NYSDOT. Survey methods should have the same level of, or greater accuracy for contour and elevation data collection than was currently performed.