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January 9, 2014

H.T. Lam, OALA, CSLA
City of Hamilton,
Landscape Architect
Public Works Department
Landscape Architectural Services
Corporate Assets & Strategic Planning Division

Dear Sir,

RE: Feasibility Assessment
Confederation Park Boat Ramp, Hamilton
Our File: 14-2162

This letter presents our assessment of feasibility of reopening the former launch ramp in Confederation Park.

We visited the site of the former launch ramp on December 2, 2014. On that day, the average water level was 74.4 m IGLD 1985, as recorded at the Burlington gauge by the Canadian Hydrographic Service. The photographs presented in this letter were taken at that time.

The former Confederation Park boat launch ramp is located within Confederation Park, Hamilton on the south shore of Lake Ontario. A site plan of the launch ramp area is shown on Figure 1. The location of the ramp on Lake Ontario is shown on the location plan on Figure 2.

The shoreline at this location is a natural sand and gravel beach (Photos 1 and 2). Several stone mound groynes were observed along the shoreline in both directions. From a provincial planning perspective, as outlined in the Provincial Policy Statement and under the criteria given in the MNR Technical Guidelines, this site is classified as a dynamic beach. As such, the dynamic beach hazard would be applicable at this site. The default dynamic beach hazard is defined as the landward limit of the flood hazard plus a 30 metre dynamic beach allowance. We expect that the dynamic beach hazard at this site lies landward of the back of the beach. Generally, development is not permitted within the dynamic beach hazard.

The former launch ramp is enclosed between two groynes. The groynes appear to be a steel sheet pile wall caisson structure with a concrete cap (Photos 1-3). The east groyne is approximately twice as wide as the west groyne. A short nodule is located on the inner, seaward corner of each groyne (see Figure 1). On the day of the site visit, the ramp surface, if it remains, was buried beneath accumulated beach material and not visible

(Photo 3). Beach material also covered the groynes at the back of the beach (Photo 2). We were not able to carry out a detailed inspection of the steel sheet piles on the exposed side of the groynes due to wave and ice conditions at the time of our site visit. We understand that the ramp was built in 1967 and we would expect the steel piles to be substantially reduced in thickness due to sand abrasion. They are likely near the end of their design life.

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The net littoral transport along this section of Lake Ontario is from east to west. Littoral transport refers to the movement of sand and gravel along the shore. The site is on the part of the beach where gross transport (total transport in both directions) is substantial, although net transport may be relatively low. The silting-in of the ramp is due to the deposition of littoral material by wave action at the opening between the piers. It appears that some migration of beach material over the tops of the groynes at the top of the beach may also be occurring and contributing to the infill. The gross sediment transport is more critical when considering the infill potential. We understand that the ramp was closed due to the ongoing maintenance work to remove silt deposition in the ramp area. Reopening of the ramp as it exists now will demand similar maintenance as previously required. We understand, based on our discussion with you, that maintenance was required on a weekly basis prior to the closing of the ramp.

Improvements to the existing launch ramp could be designed to reduce siltation. This would likely require replacing the existing groynes with longer groynes or extending the existing groynes. The work would need to be undertaken within the dynamic beach hazard. Since development is typically not permitted within the dynamic beach hazard, gaining approval for the project would require convincing approving authorities that the structure would not impact the transport of littoral material. The structure, as it exists, appears to be already impacting sediment transport along this section of shoreline. In the aerial photo (Figure 1), the accumulation of beach material is greater on the south-east side than on the north-west (downdrift) side. Extending the groynes further into the lake would likely result in a more pronounced effect and further interruption of the littoral transport from east to west. It is for this reason that we believe it is unlikely that an approval under the Hamilton Conservation Authority would be granted.

Even if approval were to be obtained, maintenance and dredging would still be required. The amount of sediment transport is highest close to the shoreline and reduces moving offshore. Extending the groynes would likely reduce the siltation but would not eliminate it. The actual rate of silt deposition can only be predicted with a detailed sediment transport study. Such a study is beyond the scope of this assessment.

A typical launch ramp with docks in a semi-sheltered area typically costs in the order of $250,000. We expect that the cost to extend the existing piers and repair the existing boat launch at the same location would be substantially higher. The existing site is located on an exposed section of shoreline and any replacement structure would be constructed out into deeper water. We have not completed a detailed estimate, but a conceptual level assessment suggests a cost in excess of $500,000.

We do not recommend replacing or improving the existing structure at the existing location primarily on the basis of potential impact on the downdrift shore and the need for ongoing maintenance.

Fisherman's Pier, on the Burlington Bay Channel, provides an alternative launch location. Boaters need to traverse the 800 m long canal to reach open Lake Ontario.

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In summary, based on our site review and assessment, we do not recommend reopening the existing launch ramp. We would also advise against replacing or undertaking improvements to reduce the siltation of the ramp at the existing location.

We trust these comments will assist you. Please do not hesitate to call us if you have any questions about this letter.

Yours truly

Shoreplan Engineering Limited

M. Sturm, P. Eng.

Figures 1 - 2 and Photos 1 – 3, follow

References

MNR (2001), *Great Lakes, St. Lawrence River System and Large Inland Lakes: Technical Guides for Flooding, Erosion and Dynamic Beaches in Support of the Natural Hazards Policies 3.1 of the Provincial Policy Statement*, Ontario Ministry of Natural Resources, 2001.

Figure 1: Site Plan (not to scale)

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Figure 2: Location Plan (not to scale)

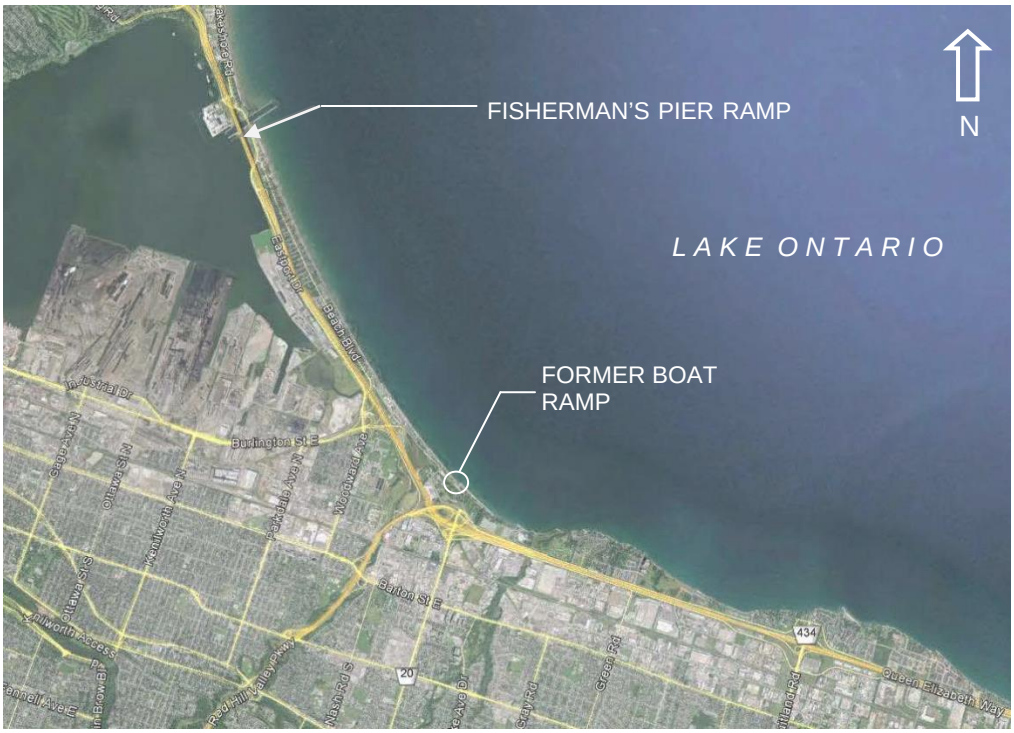

Photo 1: Boat ramp, looking north-west along shoreline

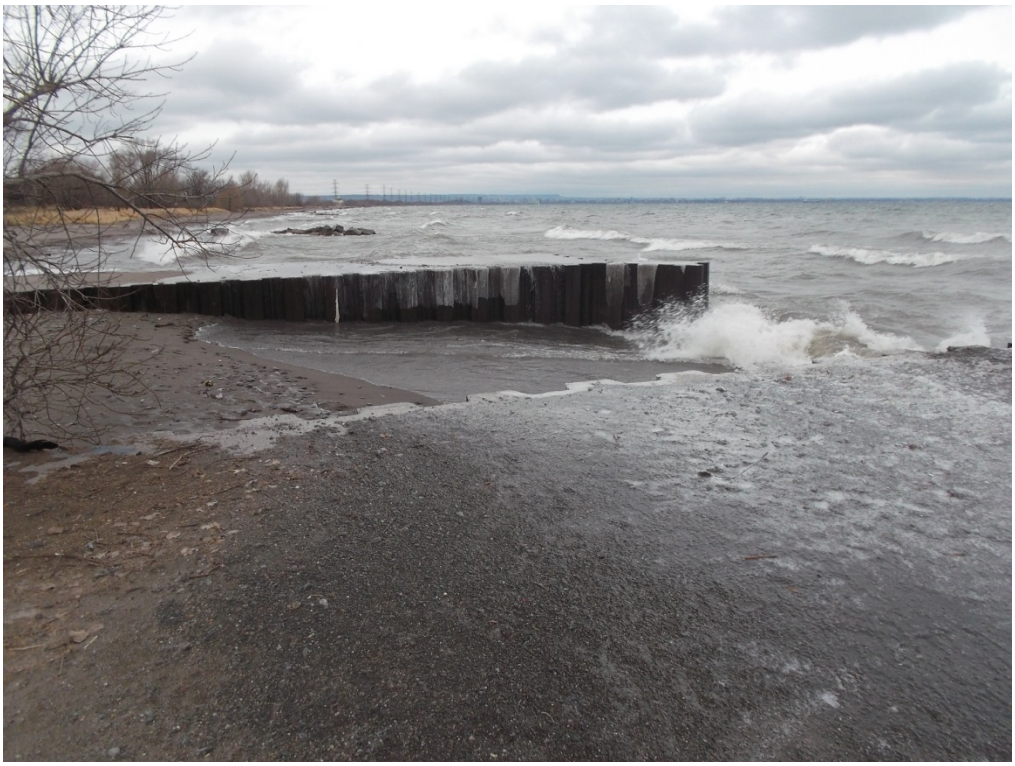

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Photo 2: Former launch ramp, looking south-east along shoreline

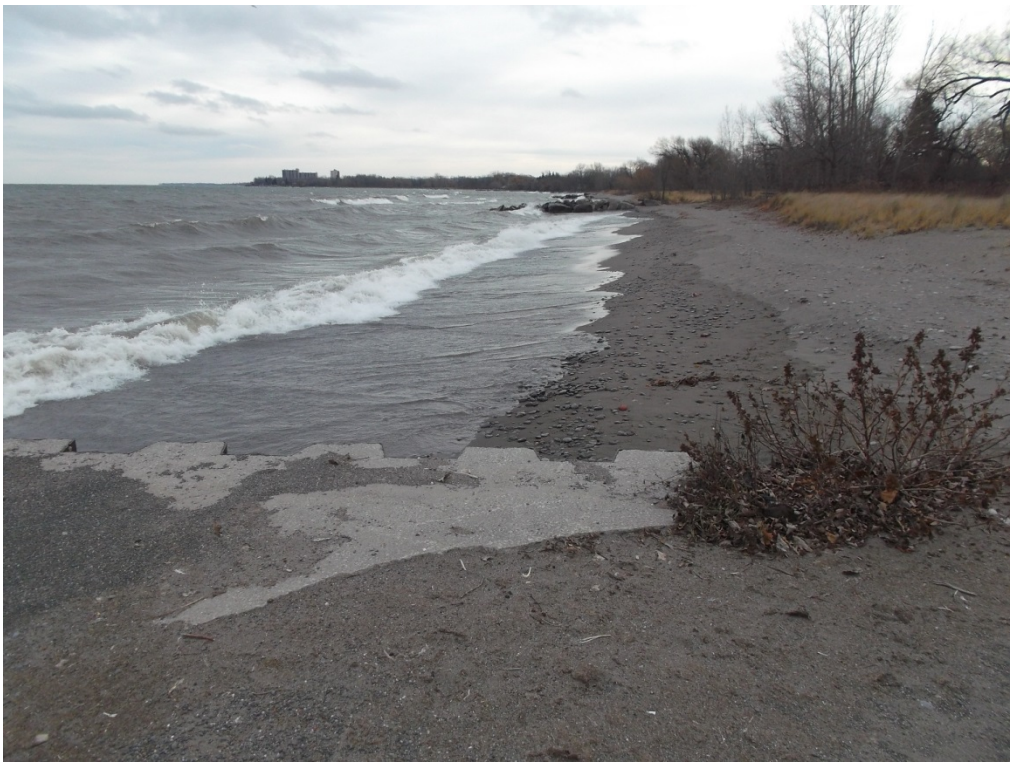

Photo 3: Boat ramp

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