



Corporate Report

NO: R108

COUNCIL DATE: June 23, 2008

REGULAR COUNCIL

TO: Mayor & Council

DATE: June 20, 2008

FROM: General Manager, Engineering

FILE: 5650-30

SUBJECT: Siltation in the Lower Nicomekl River

RECOMMENDATION

The Engineering Department recommends that Council:

1. Receive this report as information; and
2. Authorize staff to forward a copy of this report to appropriate officials at Transport Canada, the Canadian Coast Guard, the Fraser River Estuary Management Plan, Fisheries and Oceans Canada (DFO) and the Ministry of Environment, with a view to providing information to these agencies that will assist in motivating them to undertake appropriate approvals and works to re-establish a reasonable channel depth along the lower stretches of the Nicomekl River to allow reasonable use and navigation of this waterway.

BACKGROUND

Silt build-up in the Lower Nicomekl River has been a longstanding issue for local navigation and marina facilities in the area. Currently, many vessels moored in the marina are unable to access the Bay during certain tidal periods due to the accumulation of sediment in the channel and in the marina. This report is intended to provide some background on the sedimentation issue and to provide information as to how the City can assist in establishing enhanced conditions for navigation in the channel.

DISCUSSION

Historic Lower Nicomekl Sedimentation

The River is generally shallow and very wide with only a small portion of the main channel deep enough to allow navigation. An aerial view of the Lower Nicomekl River is presented in Appendices I and II. Flow velocities in the Lower Nicomekl River are

influenced by tides. Generally, when the tides are going out (ebb tide), the water velocities in the channel are at their highest. When the tides are coming in, velocities decrease and silt deposition occurs in the channel. The accumulation of sediments in the lower reaches of the river has occurred for centuries by virtue of the nature of its geography (i.e., an estuary influenced by the ocean tides). It is not a new situation nor is it attributable to new development in the River's catchment.

In the past, Public Works Canada regularly dredged the Nicomekl River downstream of the sea dams to help maintain navigability. On the Serpentine River, the practice of dredging was undertaken to provide navigation access for river transport, which enabled local farmers to ship their produce to Vancouver. Dredging of both the Nicomekl and Serpentine Rivers appears to have been undertaken as early as the 1920s.

Public Works Canada stopped dredging the Nicomekl River in the 1980s. Since that time, fine silts have been depositing within its lower reach.

The wetted channel area of the Nicomekl River system falls under Provincial and Federal jurisdictions, with the City having no right-of-way or jurisdiction to manage the River. Any work in the River would require both Federal (DFO) and Provincial (MOE) approval.

Environmental Significance of the Area

The Lower Nicomekl River, Mud Bay and Boundary Bay form part of a larger estuary ecosystem designated as the most significant Important Bird Area (IBA BC017) out of 597 sites in Canada and is also designated as a Hemispheric Site in the Western Hemisphere Shorebird Reserve Network Program. The Lower Nicomekl River and Boundary Bay estuary forms one of the richest and most important ecosystems for migrant and wintering water birds in Canada. During the fall and early winter, one-day counts of greater than 100,000 waterfowl are made regularly. This area also provides critical habitat for fish, including five salmon species, herring, coastal cut-throat trout, bottom fish and forage fish species. Eel grass beds, which occur within the shallow bottom of the Lower Nicomekl River and the estuary, form an integral part of this sensitive habitat.

FREMP (Fraser River Estuary Management Program) strictly monitors activities in the inter-tidal region. FREMP is comprised of representatives from Federal and Provincial ministries having permitting requirements in the inter-tidal areas.

Current Works Underway by the City

The City has retained Golder & Associates to investigate the existing dyke network of the Mud Bay Dyking District system. Staff has expanded their scope of work to include a review of the Lower Nicomekl River siltation concerns. This work is underway with completion and recommendations expected by the fall of 2008.

Staff is also intending to engage CRA Canada Surveys Inc. to conduct a bathymetric survey of the Lower Nicomekl River from the sea dams to just downstream of the BNR railway trestle. This information will be useful for assessing the conveyance capacity of

the River channel and the dyking requirements along the Lower Nicomekl. This information will also be shared with the operators of the Crescent Beach Marina and their consultant. The last time the River was completely surveyed was about 1996, for the Ministry of Environment's floodplain mapping work. The survey that is being undertaken this year is intended to establish if the River is naturally meandering and if sediment is accruing in the primary navigational channel.

Oysters

Oysters that have accumulated in the Nicomekl system are a result of a historic oyster farming industry originally located near the mouth of the River. The oysters used in the farming industry were not native to the area. It is thought that these oysters have now colonized in the local reaches of the river system and are contributing to some extent to the siltation problem. The removal of the oysters would significantly impact other native aquatic species and, as such, their removal as part of any dredging operation would have to be authorized by FREMP.

Permits & Approvals

Obtaining permits for full dredging of the River could be very challenging due to the environmental significance of the area. Any works in the channel may require construction of significant compensation works elsewhere to offset potential impacts. Potential sites for this type of compensation are very limited and the habitat is very expensive to construct. Dredging of the channel would require permits through FREMP as follows:

- DFO (Fisheries & Oceans Canada) to address Fisheries Act and Species at Risk Legislation;
- Canadian Wildlife Association due to the important bird habitat in the area;
- Transport Canada due to the navigable waters regulations;
- Ministry of Environment due to the Water Act, Fish Act and Wildlife Acts; and
- Archaeology Branch due to historic significance of the area.

The Crescent Beach Marina is being compelled by one agency (the Coast Guard) of the Federal Government to dredge parts of their operation for navigation purposes, while another agency (the DFO) is making that work difficult to achieve.

Next Steps

City staff met with the owners of the Marina, and provided information to their consultants as generally described above and will assist them in their discussions with the Federal and Provincial governments regarding issues of navigation and sedimentation of the Marina berths.

City staff will also assist the Marina in attempting to secure external funding for river dredging and river "training" opportunities to reduce the sediment accumulation issues.

CONCLUSION

Based on the above it is recommended that Council:

1. Receive this report as information;
2. Authorize staff to forward a copy of this report to appropriate officials at Transport Canada, the Canadian Coast Guard, the Fraser River Estuary Management Plan, Fisheries and Oceans Canada (DFO) and the Ministry of Environment, with a view to providing information to these agencies that will assist in motivating them to undertake appropriate approvals and works to re-establish a reasonable channel depth along the lower stretches of the Nicomekl River to allow reasonable use and navigation of this waterway.

Vincent Lalonde, P.Eng.
General Manager, Engineering

VL/CAB/SG:kd/brb

Appendix I: Aerial View of Lower Nicomekl River
Appendix II: Aerial View of Lower Nicomekl River

APPENDIX I



PRODUCED BY ENGINEERING, GIS SECTION: June 19, 2008, CS

Date of Aerial Photography: April 2007



LOWER NICOMEKL RIVER

ENGINEERING
DEPARTMENT

The data provided is compiled from various sources and IS NOT warranted as to its accuracy or sufficiency by the City of Surrey.
This information is provided for information and convenience purposes only.
Lot sizes, Legal descriptions and encumbrances must be confirmed at the Land Title Office.

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APPENDIX II



PRODUCED BY ENGINEERING, GIS SECTION: June 19, 2008, CS

Date of Aerial Photography: April 2007



LOWER NICOMEKL RIVER

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