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Shore work begins for Petitcodiac River restoration

Engineers use modern take on old technology to protect agricultural land from higher tides when causeway gates are opened in 2010

Alan Cochrane

The tranquil shoreline of the Petitcodiac River above the causeway is turning into a construction zone this fall as engineers use centuries-old technology to prevent flooding of agricultural land once the causeway gates are opened.

Many dikes along the Petitcodiac River above the causeway are being replaced or upgraded under the plan to prepare for the opening of the causeway. This work is near the junction of Coverdale Road and Turtle Creek Road. In some places along the river, there are dikes and water gates that date back more than a century. And now, these old structures are being upgraded or replaced under a provincial government work order in preparation for reopening of the causeway. Water levels in the river are expected to rise when the causeway gates are opened and the work is being done to protect the agricultural land along the banks.

Some of the work has already begun on the south side of the river. Heavy machinery can be seen digging and moving earth along the cow pastures near the Turtle Creek church.

"There are some pretty old dikes along the banks and most of them haven't been necessary since the causeway was built in the 1960s. They have deteriorated over time or been removed by property owners," engineer Jacques Paynter of AMEC Earth and Environmental of Fredericton said yesterday.

Over the coming months, AMEC will oversee a project along the river that will see the placement of about 100,000 tonnes of shoreline protection, 25 kilometres of dikes and aboiteaux, storm and sewer work, and relocation of water mains and construction of a 280-metre long bridge.

AMEC will hold an information session tomorrow for contractors and suppliers interested in working on the project. The session will be held from 1 to 3 p.m. at the Moncton Lions Club at 55 Mark Avenue.

The work is part of the first stage of preparations leading up to the opening of the Petitcodiac causeway gates in the spring of 2010. The first stage has been funded by the provincial government to the tune of $20 million.

Scott Gibson, a project engineer with the Department of Supply and Services, said yesterday phase one includes erosion control and beefing up the banks of the Petitcodiac headpond above the causeway. It also includes work around the traffic circle which connects West Main Street, Wheeler Boulevard and Salisbury Road to the causeway.

While the provincial government has committed to the project, it will take many millions of dollars from Ottawa to begin stage two -- design and construction of a bridge that will replace the causeway. Federal funding for the project became a topic of discussion during the recent federal election. Moncton MP Brian Murphy has said he will do what it takes to secure the funding, working from the disadvantage that he is a Liberal member in a Conservative minority government.

Gibson said federal funding is still a big question mark, but the province will likely begin pre-design work next

year. This will include core sample drilling to determine where the bridge piers will be placed. Gibson said the plan will be to construct the new bridge first, and then remove the causeway.

Paynter said there are many old dikes and aboiteaux along the river above the causeway. Dikes are mainly large beams made of clay, mud and other materials that prevent the water from going onto agricultural land. An aboiteau is a wall built with one-way gates that allow water to drain off the land at low tide. The gates shut from the outside, preventing sea water to flow onto the land.

The aboiteaux have a centuries-old legacy in eastern Canada. Acadian settlers along the Bay of Fundy used them to drain marshland to convert it into farmland.

The Acadian dikes or levees (from the French word lever, to elevate) were built to hold back the salt water tides. The large banks of earth and rock were equipped with an aboiteau. The pioneer version of this technology used large hollowed-out logs to form a trough and a hanging wooden flap on the outer wall to serve as a gate. At high tide, the flap would slam shut to prevent the sea water from entering. At low tide, the flap would open to drain off excess fresh water. After a few years, the fresh water would dilute the salt water and make the fertile ground hospitable for growing crops. Following the expulsion of the Acadians in the 1700s, the technology was taken to the Mississippi where levees and aboiteaux helped the Cajuns convert swampland of New Orleans into farmland.

Today, many dikes and aboiteaux can be seen along the Petitcodiac River. Paynter said many of them were constructed long before the causeway was built in the 1960s.

Gibson said the technology for new draining systems is essentially the same, except that today they are made with steel rather than wood. Gibson said any old aboiteaux that are found will be left untouched and respected for their historical significance.

He said work crews will make use of existing service roads on agricultural land to move heavy equipment to the shoreline. While the soil along the shore is generally quite strong and workable, he said work crews will have to beware of working in the rain.

The river restoration project and the opening of the causeway gates continues to be a controversial and divisive issue among people in Metro Moncton.

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