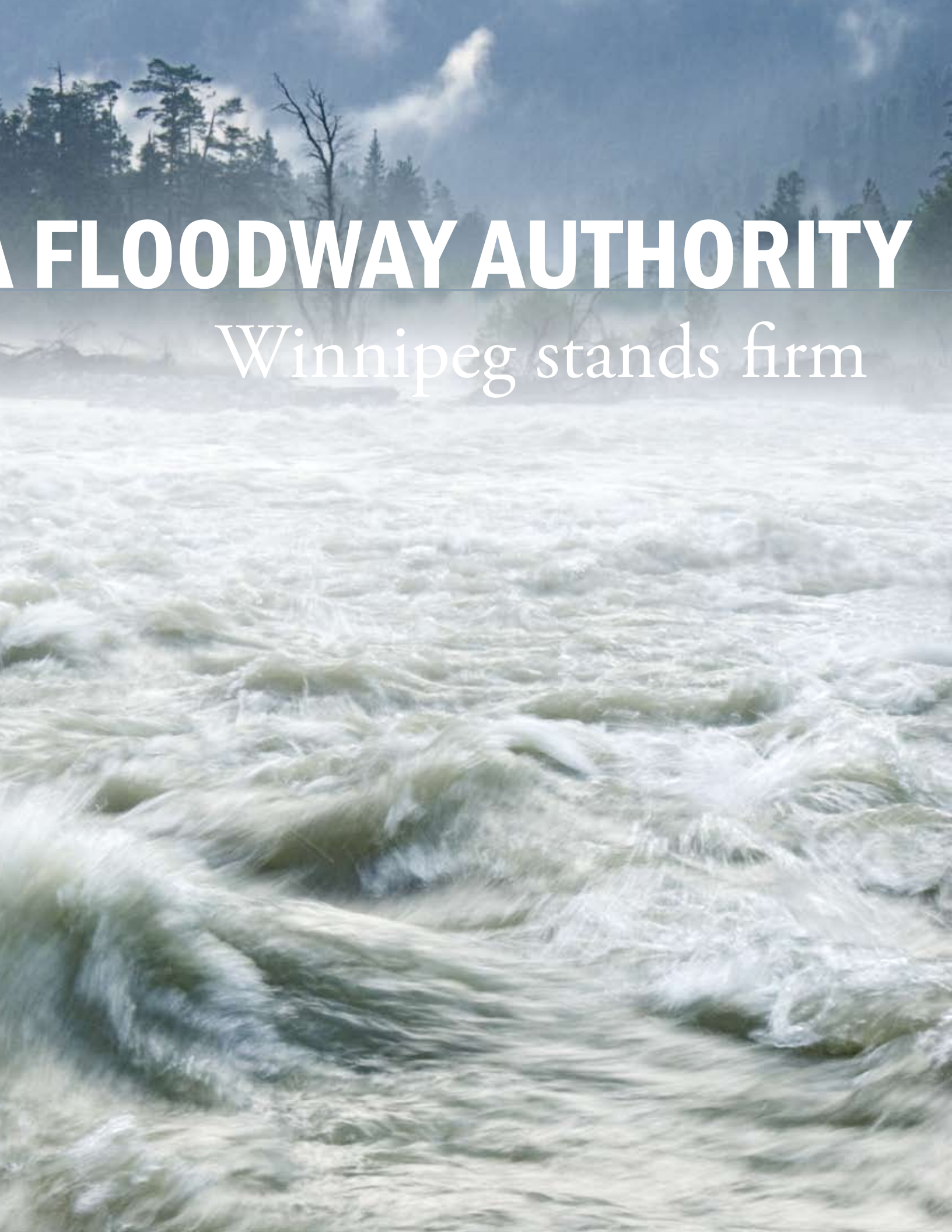
MANITOBA FLOODWAY AUTHORITY

www.floodwayauthority.mb.ca

002 MANITOBA



A FLOODWAY AUTHORITY

Winnipeg stands firm

Winnipeg is situated at the bottom of the Red River Valley, where the Assiniboine River flows into the Red River (known to locals as The Forks). As a city built on a low-lying plain with flat topography and surrounded by water, Winnipeg is a prime location for flooding.

OVER THE DECADES, Winnipeg has endured devastating floods, in which citizens have been evacuated and damage costs have surpassed the billion-dollar mark. Most Canadians can recall footage from the 1997 "Flood of the Century," after extreme temperatures melted a heavy snowfall, inundating virtually everything in both Winnipeg and Grand Forks, North Dakota.

Fortunately, Manitoba had already built an artificial flood control waterway—the Red River Floodway—30 years prior (after a severe flood in 1950), thanks to Premier Duff Roblin. The floodway was made to divert flood waters around the city and flow back into the Red River near Lockport. While the 1997 flood came close to reaching the floodway's capacity, in the end, it came through and saved Winnipeg from the complete destruction.

The close call, however, was enough to get Manitoba's attention. Following the "Flood of the Century," the International Joint Commission (IJC) reviewed flood protection measures and found if the floodway was ever exposed to the same conditions again, it would likely fail. The IJC recommended that the existing infrastructure should be expanded to increase flood security and improve the quality of life.

It was in 2003 that provincial and federal governments finally announced the project's budget and mandates. That same year, Manitoba created a corporation, the Manitoba Floodway Authority (MFA), whose sole purpose is to manage the floodway expansion project.

Ernie Gilroy is the CEO of the MFA, responsible for ensuring all three objectives are met in the five-year project, which officially began construction in 2005. First, the expanded floodway must provide 1-in-700-year protection (as opposed to the current 1 in 90). Second, the project must fall within a $665-million budget. Third, the floodway

PROUD PARTICIPANTS
WINNIPEG FLOODWAY EXPANSION

HUGH MUNRO CONSTRUCTION LTD.

"MORE THAN AN EARTMOVING EXPERIENCE"

www.hmcl.ca

must be engineered in such a way that does not interrupt Canada's transportation in the event of a flood.

More about the expansion

What may sound like a simple enough project (i.e. digging a bigger ditch) turns out to be quite complex. The first consideration is that floods are unpredictable. We know if they occur, it will be in the spring, but apart from that, sudden weather changes are just that: sudden.

"Part of organising the expansion project was scheduling all of our work so that, by the end of March in every year, our contractors are out of the floodway channel, so it's available for flood protection," says Gilroy. "The bridges built across the channel have to be scheduled so the pier blocks are done in the winter, so if there's a flood in the spring, workers can continue construction on the bridges from the shoulders." Scheduling is just one part of the pie. Gilroy adds: "On the engineering side, the floodway involves many important and varied elements, such as earth moving (27 million cubic metres to be exact), redesigning and building highways and railway bridges, modifications to hydro and sewer lines, and the protection of water quality—not to mention the actual mechanisms that lift the gates to divert flood water."

Once complete, the floodway channel will have the capacity to hold 4,000 cubic metres per second. This will increase flood protection for residents of the City of Winnipeg, East St. Paul and West St. Paul, shielding more than 450,000 Manitobans, 140,000 homes, 8,000 businesses, and preventing more than $12 billion in damages.

A project to be proud of

When the MFA experienced budgeting problems a few years ago, the organization requested more funds. Not surprisingly, both governments told them to go back and reengineer the project to meet the original budget. Not only was the MFA able to reorganise and meet the target, but they were also able to incorporate some environmental solutions in the process.

"The floodway is an environmental mitigation project and we're quite proud of that," Gilroy smiles. "Originally, we were going to widen and deepen the floodway. We held a series of public hearings related to our environment licensing, and the people north-east of the floodway were concerned about groundwater issues. When we reengineered the project, we designed it to avoid the risk of damaging the aquifer. Rather than deepening the floodway, we only widened it, at considerable benefit to the environment."

Along with being environmentally conscious,

KGS GROUP
CONSULTING ENGINEERS

Congratulations to the MFA for implementing the Floodway Expansion Project

As the Project Lead Consultants, KGS Group is proud to have provided the following services from the conceptual to construction phases:

IJC Studies (1999)

St. Agathe & Floodway Expansion Study (SAFE STUDY 2001)

Project Definition & Environmental Assessment 1 (PDEA 1 – 2003-2004)

Project Definition & Environmental Assessment 2 (PDEA 2 – 2004-2005)

Floodway Expansion Final Design

Floodway Expansion Contract Administration

ENGINEERING INDUSTRY LEADERS IN:

- HYDROELECTRIC
- WATER RESOURCES
- HYDROGEOLOGICAL
- GEO-ENVIRONMENTAL
- GEOTECHNICAL
- STEEL DETAILING
- INDUSTRIAL FACILITIES
- COMMERCIAL / INSTITUTIONAL
- MUNICIPAL INFRASTRUCTURE

WINNIPEG • TORONTO • THUNDER BAY • REGINA

www.kgsgroup.com

the MFA also remains socially conscious. Wanting proportionate representation from First Nations' communities, the MFA implemented an aboriginal set-aside—an initiative that is reserved for members of the aboriginal population. The set-aside was intended to create employment and economic opportunities for First Nations people and businesses. "Close to 10 per cent of the all of the work was done by aboriginal groups," says Gilroy, which is approximately $53 million worth of work."

If those features weren't enough to make Manitobans proud, this next accolade adds the cherry atop the proverbial sundae. In July 4, 2008, the original floodway and the expansion were recognized by the International Association of Macro-Engineering Societies (IAMES) as one of the world's great engineering achievements. The floodway was in a class with the Eiffel Tower, Stonehenge, the Channel Tunnel and the Three Gorges Dam.

"The IAMES has listed 16 significant engineering projects throughout the history of the world," Gilroy remarks. "And we are one of them. We're really proud of it. There was more dirt removed for the original floodway than there was for the Suez

Canal. It was the second-largest earth moving project in history, besides the Panama Canal."

Progress

With only months left to finish the project, Gilroy is confident it will be complete on-time and on-budget. "We have two bridges left that will be finished by next fall; six of the eight are already complete," he maintains. "As for the floodway channel itself, it is pretty much complete now, with the exception of some repair work over the winter time. We have also achieved 1-in-700-year flood protection, as of last spring."

"Work on the inlet control structures will continue for another year, but it doesn't impact the floodway protection—in fact, we had a major flood in 2009 and the floodway diverted billions in damage," Gilroy adds. "There are some complementary projects as well, such as walking trails, but those will be done within the year."

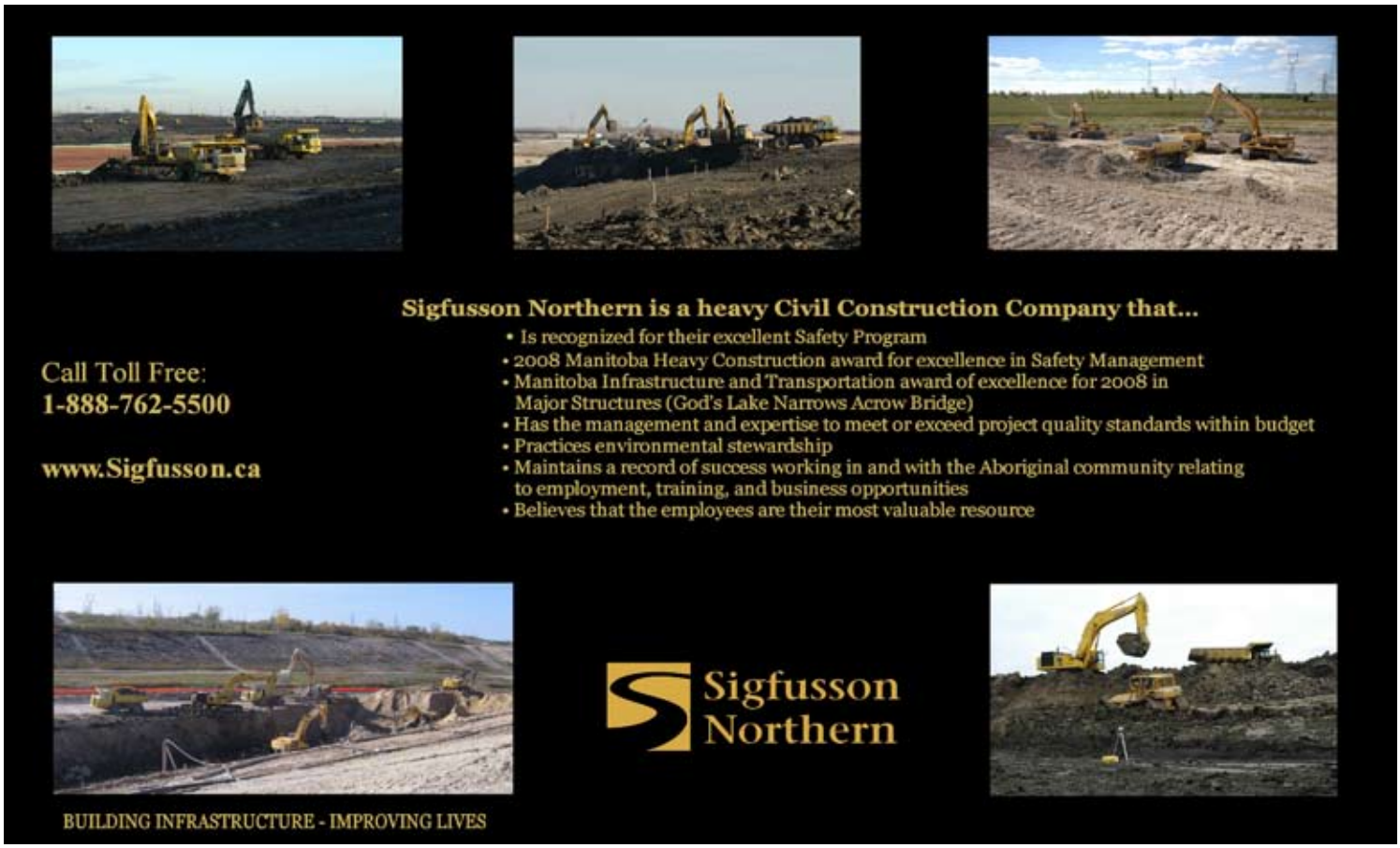
As for transportation, the TransCanada highway goes over the floodway and it will remain open, as will the main lines of the CP and CN railroads. "We have rebuilt all those bridges to withstand the height of a 1-in-700-year flood," says Gilroy. "The new infrastructure should last about

Camster Construction Ltd.

We provide excavation, earth moving, flood protection and quarry preparations. We also offer heavy equipment transporting and rentals.

Sterling Ducharme
P.O. Box 246
St. Laurent
R0C 2S0

Phone: 204 646-2049
Fax: 204 646-2966
Email: sterlingducharme38@hotmail.com



MORE EXPERTS,
THINKING MORE INNOVATIVELY,
DESIGNING MORE INTELLIGENTLY,
MANAGING MORE PRODUCTIVELY,
PARTNERING MORE POWERFULLY.

Proud to be part of the Red River Floodway Project.

www.aecom.com

AECOM

75 years, with minor renovations in the interim—unless they want to expand it again."

The (East Side) road ahead

For the MFA's future, they have another project to attend to once the floodway expansion is complete. "As we're winding down the floodway project, the government has made a decision to keep the MFA around to undertake another major project," says Gilroy, happily.

"We will be overseeing the construction of a road on the east side of Lake Winnipeg," he adds. "There are 16 First Nations communities with no road access. They fly in the summer and drive over the lake in the winter. Manitoba wants to link these remote communities, so we have started the East Side Transportation Initiative. The government has expanded the mandate of the MFA to be the Manitoba Floodway and East Side Road Authority (MFESRA). So we'll be doing that for the next few years."

Judging by the enormous success of the Manitoba floodway expansion project, the MFA will do just fine. **CBJ**

WWW.FLOODWAYAUTHORITY.MB.CA

AS SEEN IN THE FEBRUARY 2010 ISSUE
OF THE CANADIAN BUSINESS JOURNAL