

CASE STUDY

# Calgary Zoo

## Cofferdam Flood Mitigation Project – Calgary, AB

### History

The Calgary Zoo is located in the Bridgeland neighborhood of Calgary in Alberta, Canada, just east of the city's downtown. It is accessible via light rail system, car, and bicycle/foot via the Bow River pathway. A large portion of the zoo is located on St. George's Island in the Bow River. The zoo, a world-class facility, is home to almost 800 animals and 130 different species. The 120-acre zoo is organized into six distinct zones: Destination Africa, Canadian Wilds, Penguin Plunge, Dorothy Harvie Botanical Gardens and ENMAX Conservatory, Eurasia, and Prehistoric Park.

### Problem

In June of 2013, a massive slow-moving weather system dumped over 4 inches of rain on the region in a 24-hour period. The national forecaster predicted that rainfall could double within the next few days, forcing a state of emergency to be declared in at least a dozen communities. The storm, aided in part by springtime run-off, brought the Bow River to 100 year-flood levels and sent the administration, veterinarians, zookeepers, and various other zoo personnel scrambling to remove the majority of the 215 animals that inhabited the 23-acre portion of the zoo located on St. George's Island. With the river levels well above normal levels, there was little doubt that the animals had to be evacuated for their protection, as well as the safety of the surrounding communities. During a 12-hour period as river waters rose rapidly, more than 140 animals were relocated to safer habitats, either off-site or to higher ground within the zoo. Water depths on the island during the flood ranged from one to six feet, causing more than \$50 million in damages. Over 40 buildings, animal enclosures, and botanical exhibits were damaged during the 48 plus-hour deluge.

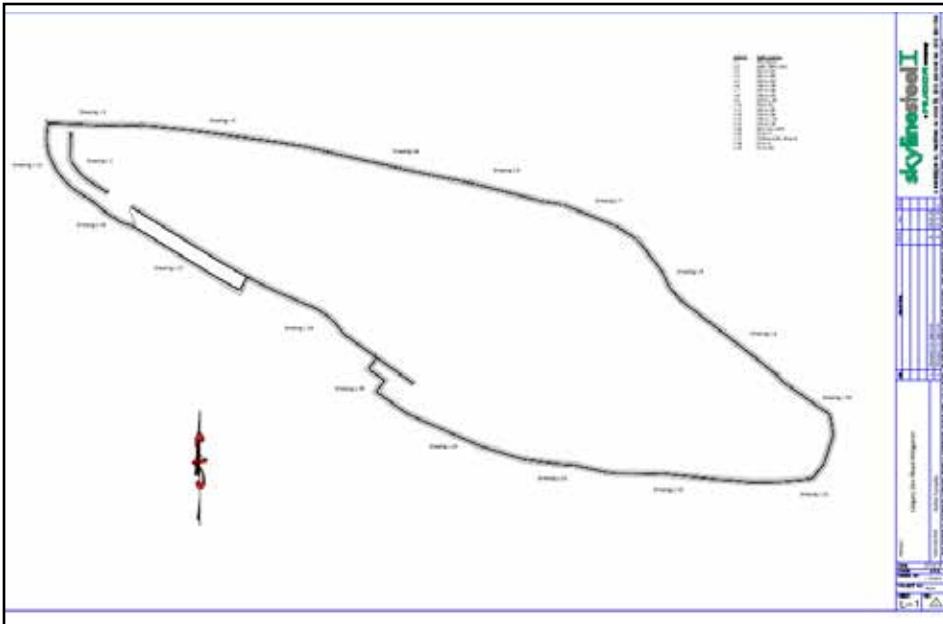


*“Keller Canada is extremely thrilled that we selected Skyline Steel as our sheet pile supplier for the Calgary Zoo Flood Mitigation project. Skyline provided exceptional and timely service as promised by the sales team. The material arrived ahead of schedule and met all the required specifications. With a North American manufacturing plant, Keller also had the ability to make adjustments to our order when the conditions onsite changed, without impacting our schedule. Keller also benefited from the assistance of the engineering and drafting services in the early stages of the project. Our experience with Skyline has been great, and we look forward to working with their team on future projects.”*

– George Power, Project Manager, Keller Canada

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**Solution**

Once the floodwaters receded, engineers were brought in to evaluate the situation. Several options, including moving the zoo to another site, were discussed. In the end, it was decided the best overall option was to build a sheet pile wall around the island for flood protection. "We did a lot of cost-benefit analysis around, 'Is it cheaper to fortify the island or is it cheaper to move the zoo?' And it's actually much cheaper to fortify the island," said Calgary Mayor Naheed Nenshi.

The massive flood mitigation project included the construction of a major floodwall around the Calgary Zoo. The official bid called for the installation of up to 23,000 square-meters of sheeting around the entire perimeter of St. George's Island. The cofferdam project is part of a much larger plan to preserve Calgary Zoo's multi-million dollar investment.

The zoo typically sees in excess of one million visitors per year, and in order to minimize the disruption to patrons, the work had to be completed during the off-peak seasons of spring and fall. With these parameters in mind, the customer required that the steel be delivered within six weeks.

As a project partner, Skyline Steel supplied 5,000 tons of NZ 26 sheet pile. Working as a ONE NUCOR team, our Sales, Manufacturing, Pairing, and Transportation teams, were able to cut the standard delivery time by 50%. The first 3,000 tons of NZ 26 sheet piling were delivered to Alberta just 5 weeks from the order date; a deadline our overseas competitors were unable to fulfill.

Nucor has invested \$115 million in the NZ sheet pile line, which is wider, lighter, and made in the USA.

**Project Partners**

Owner

The Calgary Zoo – Calgary, Alberta

General Contractor

PCL Construction – Edmonton, Canada

Engineer

ISL Engineering and Land Services – Calgary, Alberta

**Product**

NZ 26, 5,000 tons (12-18 meters in length/40-60 feet in length)

**Project Time Frame**

May to November, 2013