



RM of Ethelbert Replaces Critical River Crossing with Armtec BRIDGE-PLATE®

OWNER	Municipality of Ethelbert
CONTRACTOR	Tri-Core Projects LTD.
ENGINEER	Stantec
LOCATION	South Garland River, Ethelbert, MB

Following a spring flood in 2022 that washed out the existing South Garland River crossing in Ethelbert, MB, the Municipality of Ethelbert partnered with Stantec, Tri-Core Projects LTD., and Armtec to deliver a durable replacement solution for the rural crossing. Building on the success of previous installations, Stantec engaged Armtec to develop a BRIDGE-PLATE® box culvert measuring 9,080 mm span by 3,009 mm rise to meet the site's structural and hydraulic requirements. The project presented additional design challenges due to the adjacent intersection and existing drainage conditions, which were addressed through the incorporation of an 800 mm diameter corrugated steel pipe (CSP) through the steel sheet piling wingwall. Through early collaboration and comprehensive pre-construction planning, the project team successfully completed the replacement efficiently and on schedule for the municipality.



The Challenge

Increasingly severe weather events and spring flooding continue to place significant strain on aging municipal infrastructure across rural Manitoba. In 2022, heavy spring runoff washed out the existing South Garland River crossing in Ethelbert, MB, disrupting access for the surrounding community and highlighting the growing impact of climate-related events on local transportation networks. For smaller municipalities, unexpected infrastructure failures can create substantial financial and logistical challenges, particularly when emergency replacements must be completed within limited budgets and tight construction timelines. In addition to replacing the failed crossing, the project team also faced complex site-specific design challenges related to the nearby intersection and existing drainage conditions. The steel sheet piling wingwall configuration required careful coordination to accommodate local drainage requirements, including the integration of an 800 mm diameter corrugated steel pipe (CSP) projecting through the wingwall structure.

The Solution

Following the success of previous installations, Stantec engaged Armtec in February 2024 to develop a replacement crossing solution for the South Garland River site. After evaluating the project's structural and hydraulic requirements, a BRIDGE-PLATE box culvert measuring 9 m span by 3 m rise was selected.

The large-span, low-rise configuration provided the hydraulic opening required for the watercourse while maintaining the roadway profile and supporting live traffic loads with relatively low cover requirements. This was an ideal choice as the stream was wide with low rise. To further optimize the design, steel sheet pile headwalls were incorporated to create vertical retaining walls, helping reduce overall structure length, excavation, backfill quantities, and construction costs.



The wingwalls were customized to accommodate the adjacent intersection, roadway geometry, and existing drainage constraints, including the integration of an 800 mm diameter CSP projecting through the wingwall to support local drainage requirements.

As a modular structure, BRIDGE-PLATE could be transported efficiently and assembled on site. Armtec also facilitated a comprehensive pre-construction meeting with Tri-Core, helping support an efficient installation that was completed on schedule for the municipality.



To learn more about **Armtec's BRIDGE-PLATE** structures and bridge replacement solutions, explore our solutions online, or book a virtual engineering session to connect directly with our team.



Armtec is a leading national manufacturer of a comprehensive range of infrastructure products and engineered construction solutions for customers in a diverse cross-section of industries. With operations coast to coast, we are a trusted partner for transportation, public works, forestry, oil and gas, and mining operations throughout the country and abroad. Since 1908 our commitment to quality, customer service and innovation has set the benchmark in the Canadian drainage and bridge landscape.

Call **1-800-565-1152** or visit **armtec.com**