



Project Title: PDA Testing, Kakisa River Bridge, MacKenzie Highway 1, NWT

Client: ATCON Construction

Project Description:

GEMTEC Limited was retained by ATCON Construction to undertake dynamic pile testing for a new bridge structure on the MacKenzie Highway No. 1 in the Northwest Territories. This new three-span bridge will replace the existing structure crossing the Kakisa River.

The bridge abutments and piers are founded on HP 360X132 piles. There are 27 piles per pier and 18 piles per abutment. All piles required a structural ULS load in axial compression of 1030 kN. Using an appropriate resistance factor of 0.5 for dynamically tested piles, the required ultimate geotechnical resistance in axial compression was 2060 kN.

All piles were driven and finalized into the dense glacial till using a PILECO D19-42 diesel hammer. Pile finalization depths were about 10 metres below foundation grade.

Four piles were tested at the site using our Pile Driving Analyzer (PDA) in July and August of 2008. Piles PDA tested demonstrated an ultimate geotechnical capacity in compression of about 2200 kN. Due to the nature of the soils, about 70% of the pile capacity was developed in skin friction resistance.

Pile driving was complete in the fall of 2008.

