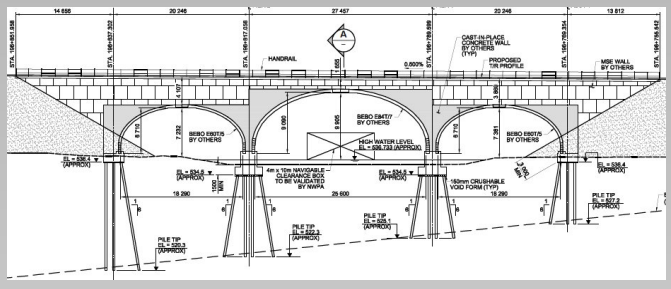
# Case Study

**Bloom Lake (Canning River & Walsh River); Labrador City, Canada** **August 2009**

## Original Client‘s Request

The construction of a new iron ore rail line connecting Labrador City with the Bloom Lake area in the west called for two stream crossings over Canning- as well as Walsh River.



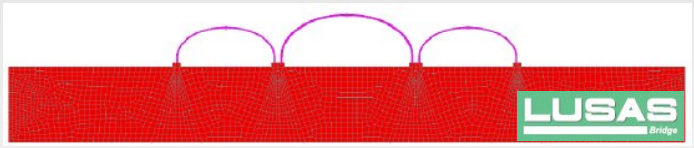
The layout and Submission drawings for the two structures were prepared by AECOM in close collaboration with the local Canadian BEBO Representative **SHAW PRECAST SOLUTION**. BEBO Arch International AG provided input for the structure selection based on the technical specifications.

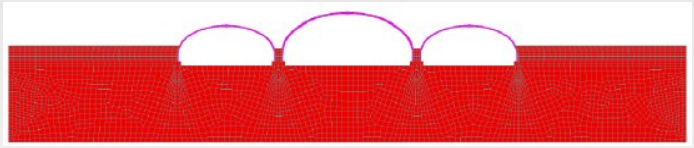
- Canning River: E84T/7 flanked by 2 x E60T/5 (pictures at the bottom)
- Walsh River: E60T/0 flanked by 2 x E30/5

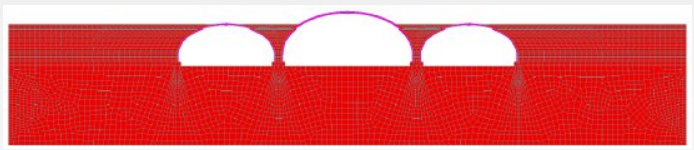
## Structural Design by BEBO and AECOM

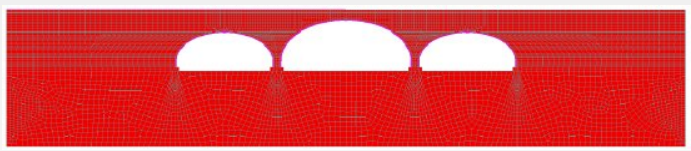
The structural design of the BEBO arches was carried out by BEBO Arch International AG according to AREMA Design Standards. The technical specifications for Live Loads included Cooper E90 train loads (E90 representing a 12.5% load increase over E80 and axle layout and spacing as shown below). The design model was based on the FEA Software LUSAS and included the substructure arrangement as per the geotechnical Engineer‘s recommendations.

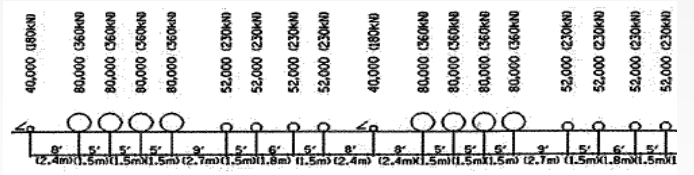
Besides Live Loads, the structural design included the modelling and analysis of all the back- and overfill load cases as per the BEBO Backfill specifications.

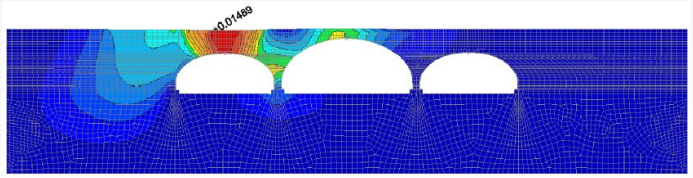








The foundation/pile design was carried out by AECOM. A compliance check of the resulting pile loads confirmed the validity of both the BEBO and AECOM design approach. Head- and wingwalls were built with modular-type MSE System.

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## Production and Installation





## Completed Structure (Canning River)

BEBO® Arch Systems