



Atlantic Industries Limited

# PROJECT PROFILE



April 13, 2019

## AIL Geotextile Reinforced Soil (GRS) Bridge perfect for northern BC stream crossing

**No need for large concrete spread footings and/or a piled foundation — a significant advantage in terms of cost and speed of installation**

About half a day's drive northwest of MacKenzie, BC, the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the Ministry) was upgrading a single lane resource road to a widened and realigned two-lane configuration. At km 58, a curved road section needed to cross an 11-m-deep stream gully — quite possibly the perfect setting for an AIL GRS Bridge to show what it can do.

### **GRS Bridges are fast, economical**

That's because an AIL GRS Bridge can fill that void and follow the road's grade and curve with economy and speed, using locally available crews, equipment and backfill materials. It's a combination that is hard

### **Project at a glance:**

**Name:** Finlay Chunamon GRS Arch at km 58, Site 710

**Location:** 162 km N-NW of MacKenzie, BC

**Owner:** The Ministry of Forests, Lands, Natural Resource Operations and Rural Development

**Engineers:** Terratech Consulting Limited

**Contractor:** W6 Ranch Contracting Limited

**Sector:** Northern, Transportation

**Application:** Stream Crossing

**Product:** Geotextile Reinforced Soil (GRS) Bridge

**Dimensions:** Span 8.29 m, Rise 4.41 m, Length 32.84 m, Thickness 6.23 mm

**Installation Time:** Two months





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to beat, especially in remote locations. Although the BC Ministry allowed bidders to offer alternatives such as clear span bridges, none were offered.

## **A patented, pre-engineered system that “puts the dirt to work”**

AIL's GRS technology is a patented, pre-engineered buried bridge system originally developed for the forestry and resource industry sectors. It uses steel anchor rods to connect a Super•Cor structural plate arch to the layered backfill/geotextile composite and “puts the dirt to work” by transferring the dead and live loads into the surrounding GRS mass.

## **No need for concrete or pile foundations**

The watercourse's approximate channel width was 5 to 6 m. Given that the Ministry's Standard Drawings require a GRS arch span to be sized at a minimum of 1.2 times the natural stream width, Terratech Consulting selected an 8.3 m span arch. This ensured a wide enough opening to install large rock along the arch to offer scour protection and convey design peak flows within a relatively shallow depth range (approximately 1 m).

The Super•Cor Arch was fitted with 175 mm standard-width base channels bearing on a compacted boulder layer with the voids infilled with sand and gravel. This foundation detail eliminated the need for large concrete spread footings and/or a piled foundation — a significant advantage in terms of cost and speed of installation on this remote site. Also, without large footings, the streambed could be maximized to convey peak flows, woody debris and sediment through the crossing unimpeded.

To ensure on-time delivery to the site, the Ministry pre-ordered all the materials and stored them in our Armstrong, BC yard. The Super•Cor Arch components, anchors and wall components were shipped on two trucks to a staging area near the proposed crossing.

## **On-site assistance provided**

The assembly crew did not have any formal experience in assembling deep corrugated structural plate, so AIL staff traveled to the site and spent three days delivering hands-on assistance and training.

### **Head Office:**

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AIL, Terratech and Ministry staff traveled to the site near the end of construction to check on the contractor's progress and the as-built condition — all parties were happy with the results.

*“We were pleased that it was easy to work with your company in ordering the materials and delivery of the product to the site was on time with no issues. Phil Carroll's on-site presence to assist the contractor with the assembly of the arch was extremely beneficial in getting the project off to a good start. Also, the follow-up on the project for any issues with the arch and what AIL could do better was greatly appreciated. Great product and great service!”*

— Gary Zsombor, RFT, Engineering Program Specialist, BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development

The new crossing is hardly even visible from the road as drivers pass over at speed and unimpeded. Plus, there are no bridge surfaces and joints to maintain over the life of the crossing.



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