

Highway 69 Reconstruction

Estaire, Ontario, Canada



Plasti-Fab® GeoSpec® lightweight fill material simplifies Ontario bridge construction

In the Summer of 2008, the Ontario Ministry of Transportation began a massive construction project to widen Highway 69, a major north-south thoroughfare in northeastern Ontario. Between Estaire and Sudbury, the highway intersects the Canadian National Railway, causing engineers to construct a 300-meter long bridge over the railroad tracks. In order to achieve maximum durability and stability of the bridge structure, highway design engineers AECOM specified expanded polystyrene (EPS) fill material at the bridge abutments.

"The benefits associated with the use of EPS in embankment construction include the improvement of foundation stability, reduction of long-term settlement and reduction of the overall construction schedule," said Jason Lee, a geotechnical engineer at Thurber Engineering, who worked as a geotechnical consultant for AECOM on the project.

Plasti-Fab GeoSpec lightweight fill material can be designed to withstand high compressive loads, but has a density less than one percent of traditional earth fill materials. The design properties of GeoSpec fill material are stable and very little lateral load is induced on adjacent structures when vertical load occurs. Earth

fill material, in comparison, shifts and settles over time, meaning additional stress can be induced on bridge abutments and other concrete structures.

"Due to schedule constraints, the bridge structure was completed first and the approach fills constructed later," said Lee. "The use of EPS in this project aimed at reducing the differential settlements (between the approach fill and bridge abutments) and limiting the lateral pile movements in the foundation of the bridge."

O.C.P. Construction Supplies, a distributor for Plasti-Fab, provided more than 10,000 cubic meters of GeoSpec fill material for the bridge abutments. The material was installed by Teranorth Construction, a subcontractor of Pioneer Construction, who served as general contractor on the project.

"GeoSpec provides a unique solution for a lot of geotechnical engineering applications," said Roland Bélanger, Senior Representative and GeoFoam Specialist for Plasti-Fab in Ontario and Quebec. "It was able to speed up the construction time of the Highway 69 bridge, provide a stable base for long-term durability, and reduce the stress against the structure itself."

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