

Leslie Barns Maintenance and Storage Facility

| Challenge

The original site, historically known as a waste soil receiving site from a 1960s era treatment plant, resulted in 400,000 m3 pile of impacted “excess soil. Beneath this soil existed roughly 12+m of hydraulic fill which was highly organic, heterogeneous, and impacted with hydrocarbons and other contaminants. Initially driven piles were considered for the site with associated pile caps, grade beams and a structural floor slab, which would have created significant costs for the project. Excavation and replacement of the poor soils below grade was not feasible.

| Solution

Ultimately, the design team chose the Geopier Rammed Aggregate Pier® (RAP) system, using the Impact® method. The Impact System provided high-bearing capacity while effectively controlling settlement in the soft, highly organic soil profile. The RAP system was chosen also provided for radial drainage elements that served the dual purpose of draining the soil during preloading and for providing long-term settlement control and support to the new fill and track slabs. Grouted elements were also employed in some areas where soils were particularly poor and loads high.

| Outcome

One of the largest ground improvement projects in Ontario, the ground improvement techniques and innovative systems applied to this very difficult site, met and exceeded the desired building performance (settlement monitored). In spite of the very poor ground conditions, and difficult winters that occurred during foundation construction, the robust Geopier system was able to cost-effectively support the streetcar maintenance and storage facility.



Aerial view of the Leslie Barns Maintenance and Storage Facility

Project Team

Owner
TTC

Structural Engineer
Aecom

General Contractor
EllisDon Civil (Enabling Works)
and Pomerleau (Building)

Geotechnical Engineer
TTC

Ground Improvement - Rigid Inclusions - Piling Systems - Slope Stability - Ground Reinforcement

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