



## Ashbridges Bay Wastewater Treatment Plant

### Challenge:

The Ashbridges Bay plant is one of Toronto's four wastewater treatment plants which services the metropolitan area. According to an annual report, it was determined that the plant was ready for several upgrades. The proposed foundation consisted of large diameter pipe piles with conical tips. GRL Engineers provided static load testing onsite and high strain dynamic testing both onsite and remotely from Ohio.

### Method:

GRL conducted testing and collected data for [large static compressive and lateral load tests](#). GRL's reaction frame, rated for 1000 tons, was used for the compression load test. (Figure 1) A [Pile Driving Analyzer®](#) (PDA) was used to acquire field process measurements taken on the dynamically tested piles. 100% of the approximately 150 production piles were monitored during initial driving and several piles were chosen for restriking or re-driving. The piles tested were 762 mm (30 inch) O.D. pipe piles with a wall thickness of 19 mm (0.75 inches). (Figure 2) Pile top force and velocity traces were evaluated for data quality, pile integrity, and aspects of soil resistance. [CAPWAP analyses](#) were performed using the collected data to evaluate the resistance distribution and refine the overall pile capacity estimates.

### Results:

According to the project documents, the required pile capacity was 8,000 kN (1800 kips) in compression. The piles were to be installed at minimum of 5 meters (16 feet) into dense sand and to practical refusal criteria established in the project documents.

As requested, pre-production static load testing and dynamic testing were performed. All production piles were dynamically tested during initial driving and during selected restrike events. The flexibility to monitor pile driving remotely saved significant costs and travel related time delays.

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### Project Details

**Client:** Southland Holdings

**Location:** Toronto, Canada

**GRL Office:** Ohio

### GRL Services

- Static Load Testing
- Remote High Strain Dynamic Testing
- CAPWAP® Analyses





Figure 1. – Static Load Test 1000 ton reaction frame



Figure 2. – Driven Pile Piles