

## Residential Foundation Stabilization – Bolton, Ontario

September 1996

### The Problem:

- Three residences constructed on a structural fill that had been placed to raise the grade on the lots that backed onto a wooden drainage ravine
- Structural fill placed over the native soil
- Fill placement ranged in depth below the foundation of 0 m at the front of the house to 1.8 m below the foundation at the rear of the house
- Homes were completed and cracking was first noticed three months later
- Based on the geometry and history of the cracks, it was determined that movement was occurring in the structures, both horizontally and vertically
- Investigation showed there was a soft fill zone at the rear of the residences



### The Solution:

- Due to horizontal and vertical movement, both vertical and horizontal stabilization were necessary
- **Chance® Helical Piers** were the most economical and least disruptive option as the home owners were not required to move out during construction



**Product Used:** (45) **Chance® Helical Piers** for vertical loads  
(5) **Chance® Tieback Anchors** for horizontal loads

**Depth:** 6.0 to 9.0 m (20 to 30 ft)

**Loads:** 150 to 220 kN vertical allowable load (300 kN to 440 kN ultimate load)  
180 kN horizontal allowable load (360 kN ultimate load)



**Geotechnical Engineer:** Soil-Mat Engineers and Consultants Limited,  
Hamilton

**Chance® Helical Pier Installer:** EBS Engineering and Construction Limited