

DIAPHRAGM WALLS



Common Uses:

- *Structural support and earth retention for the construction of building basements with underground parking.*
- *Add stability to landslides, highway cuts and deep building excavations including circular shafts.*
- *Provide retaining walls in areas where severe limitations may be posed by noise, vibration, geology, water table and schedule.*
- *Provide deep diaphragms where geometric precision and continuity at depth are vital for structural and hydraulic reasons.*

Since the 1980s Nicholson Construction Company has been constructing diaphragm walls to create permanent foundations and temporary earth retention walls for deep basements. Nicholson's long standing expertise in this technique was greatly enhanced when it became a part of the Soletanche Bachy Group.

Diaphragm walls are also used as earth retention schemes for highway and tunnel projects, as permanent walls for deep shafts for tunnel access, and as permanent cutoff walls through the core of earth dams. As construction in areas with dense and historic urban infrastructure becomes increasingly common and difficult, diaphragm walls are a logical, cost-effective foundation choice. Diaphragm walls are utilized for projects where movement control is critical, where groundwater is present and makes conventional shoring difficult, or where dewatering is not practical.

Diaphragm walls (also known as slurry walls) are basically deep trenches excavated in the soil into which reinforced concrete is placed. Excavation is accomplished using mechanical or hydraulic clamshell grabs, while the trench stability is maintained using bentonite slurry. Once excavated, reinforcement is set in the trench and followed by the placement of structural grade concrete using tremie pipes. The result is a structural wall system that provides ground restraint when excavation proceeds. The trenches are usually 2 to 4 feet thick and can extend beyond 150 feet. The walls are formed in individual panels from 8 to 25 feet long, and when contiguously completed can total thousands of feet in length or perimeter.