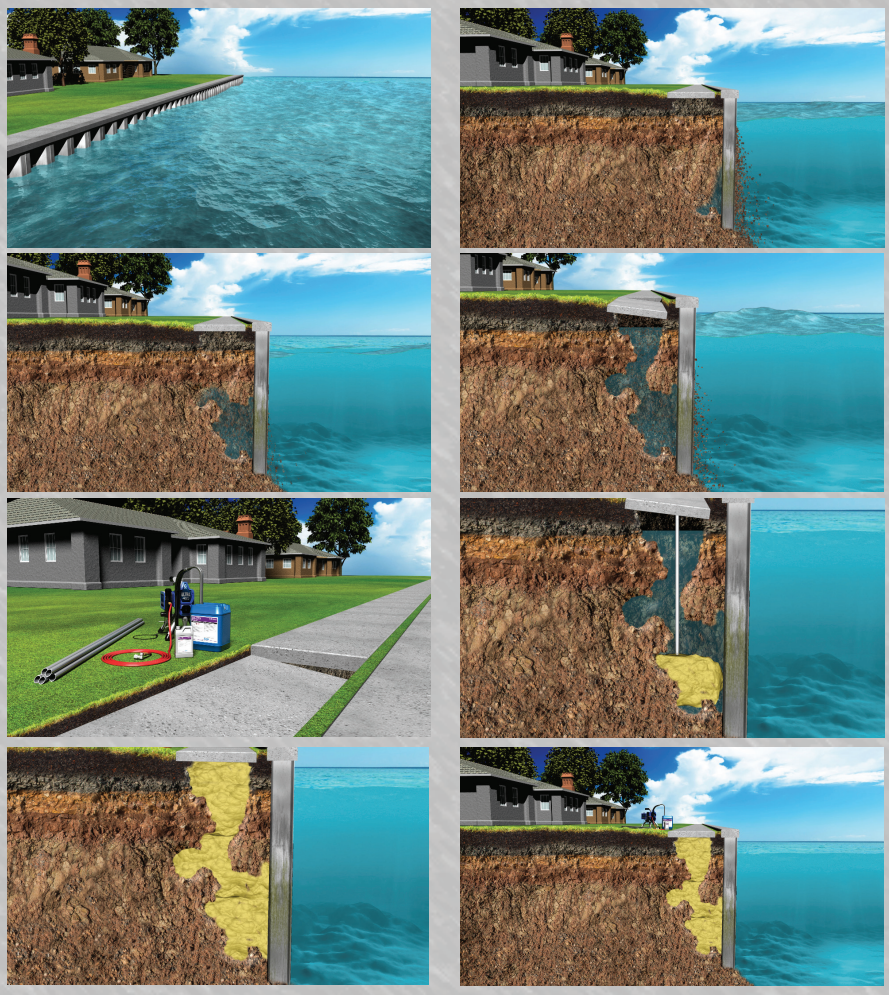
Seawall Rehabilitation
with Urethane Grouts

Seawalls are found throughout the world along lakes, rivers, and coastlines. Although they all serve a similar purpose, there are different types of seawall configurations and designs, such as block walls, concrete walls, or steel sheet pilings. Regardless of construction type and composition, all seawalls are subject to the effects of water, limiting their effective lifespan.



Due to factors such as fluctuating tides, and thermal expansion and contraction, seawalls begin to develop small defects over time. Initially these defects do not create cause for concern, but overtime, water from the positive side of the seawall begins to infiltrate the defects, contacting the reinforcing steel within the concrete, or through the joints of steel sheet piles, and making its way into the soils behind the wall. Once behind the wall, water saturates the soil on the negative side of the seawall, thus weakening the soil's ability to provide vertical and lateral support. As water levels fall due to low tide, a vacuum is created causing water to travel from the negative side of the seawall towards the positive side body of water. This vacuum easily pulls the saturated soil from behind the seawall, ultimately leading to voids, settlement, depressions, and sinkholes, and overall structural instability that can manifest and become obvious at surface.

By injecting a low-viscosity, urethane resin into the soil, a solidified mass is created. The urethane resin which reacts with existing moisture, effectively permeates the saturated soil, expands up to 3,000% and forms a rigid solid. While the resin is being pumped into the soil behind the seawall, it finds its way into the same defects in the seawall that allowed for the onset of the issue. As the resin makes its way into the defects of the seawall, it reacts with moisture, expands to fill voids, seals the defects, stabilizes the structure, and eliminates the ability of water to pass through - permanently.

AV-275 Soilgrout™

AV-275 Soilgrout is a low viscosity, moisture activated, MDI-based polyurethane resin whose chemical reaction is catalyzed by using AV-276 Soilcat. Injected as a single component, AV-275 is designed to react with moisture to bind together and waterproof loose granular soils, and fill voids on the exterior of below-grade structures. AV-275 permeates well and reacts quickly with water to form a dense, impermeable, rigid soil/grout matrix that withstands wet/dry cycles. AV-276 is used exclusively with AV-275. Depending on the desired reaction time, AV-276 may be doubled.

Applications:
- Fills voids on the exterior of below-grade structures
- Stops high flows in below-grade structures
- Stabilizes soil to prevent soil erosion, sink holes, sinking foundations, and infiltration of water and silty soils

Features and Benefits:
- Low viscosity for excellent permeation
- Expands up to 3,000%
- Pumped as a single component
- Controllable reaction time by adjusting AV-276 volume
- Withstands wet/dry cycles
- NSF/ANSI 61 - Drinking Water System Components Certified

Grouting Techniques:
- Curtain Grouting
- Probe Grouting
- Pressure Injection