

SOURCE ZONE ISOLATION

FORMER WOOD PRESERVER SITE

Case History, No. 28

November, 2000

Problem

Located around and underneath the loading pier at a wood preservation company in Thunder Bay, Ontario, was a deposit of creosote contamination. During the initial phase of the remediation plan, a rock berm was constructed in the lake, along the outer perimeter of the pier to facilitate the dredging activities of the contaminated sediment adjacent to the pier. The second phase of the remediation program required the installation of a containment system to isolate and to prevent the remaining contaminated sediment, located directly beneath the pier, from migrating beyond the previously dredged areas.

Solution

The Waterloo Barrier[®] cutoff wall was selected to act as the containment system due to its low permeability (maximum hydraulic conductivity of 10^{-7} cm/sec) and its



Figure 1: Barrier Along the Pier (Right)



Figure 2: Reclaimed Land from Lake Superior

structural properties. The containment system is a 3 sided continuous cutoff wall that was terminated at the existing clay berm located up gradient of the pier. Four penetrations through the cutoff wall accommodated a 900mm storm sewer line and a 100mm cooling water line (see Figure 3 for a 900mm penetration). A custom corner was fabricated to accommodate any future extension to the barrier wall. To provide the highest level of quality assurance, a submersible fibre optic camera was used to inspect the integrity of approximately 1 in 50 joints. All of the joints were sealed using WBS 301 cementitious based grout because of its strength and resistivity to degradation. Over 1,000 Waterloo Barrier® sheet piles were installed and sealed, and upon completion of the installation, the barrier was buried along its entire length. The project resulted in the reclamation of a substantial amount of land from Lake Superior for use by the wood preservation company. Fish habitats were also constructed outside the barrier to improve the rehabilitation of the shoreline.



Figure 3: 900mm Penetration



Figure 4: Fibre-Optic Video Inspection

SITE SUMMARY

Barrier: 65,000 square feet of Waterloo Barrier® WEZ95
Depth: Between 23 and 41 feet below grade

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