

Project Background

Mackworth-Enviro designed and fabricated a bottom-sealing filter barrier to contain suspended sediments, contaminants, and sheen during dredging as part of a Peekskill Harbor remediation project.

The project consisted of remediating a former manufactured gas plant at Pemart Avenue and removing contaminated sediments in the Peekskill Bay area of the Hudson River. Contaminants of concern in the sediments were coal tar dense non-aqueous phase liquid (DNAPL), lesser amounts of petroleum related NAPL, and polyaromatic hydrocarbons (PAHs).

Design

The barrier needed be effective in controlling turbidity during maximum anticipated tidal flow of the Hudson and exclude Shortnose Sturgeon as well as other finfish. The possibility of icing conditions also had to be taken into consideration based on the projected project duration.

Due to the longevity of the project and potential encounter with equipment, machinery and waterborne debris, the barrier was fabricated with three geotextile layers. The interior layer was comprised of a nonwoven geotextile while the outer layers were woven. The layers were sewn together and structurally supported by sewn nylon strapping.

Two skirts will extend to the shoreside and riverside to provide sealing of the barrier to the river. The bottom of the filter curtain and the extended bottom of the sealing skirts will be ballasted with chain. The impermeable woven hood will enclose a continuous flotation of LDPE-shrink-wrapped polystyrene billets.

Turbidity will be measured using real continuous monitoring at two stations 200 ft upstream, and two stations 200 ft downstream of project site. The threshold is not to exceed 100 ppm for TSS or 50 NTU for turbidity.

Barrier performance will be included once project has concluded and data is available.

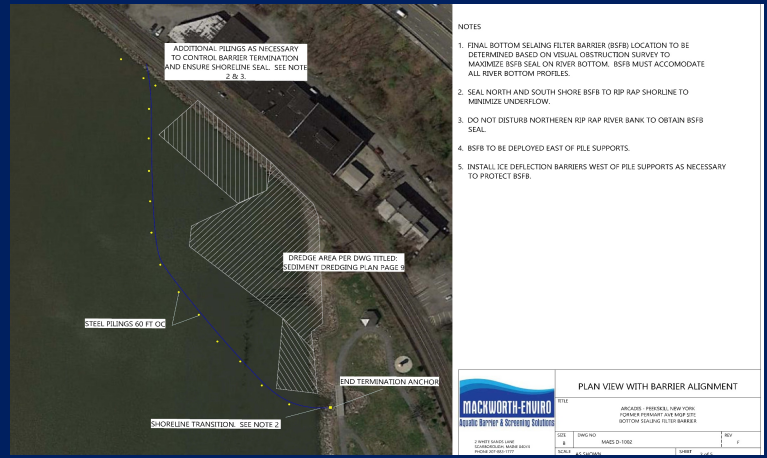


Figure 1. Plan view with barrier alignment and notes

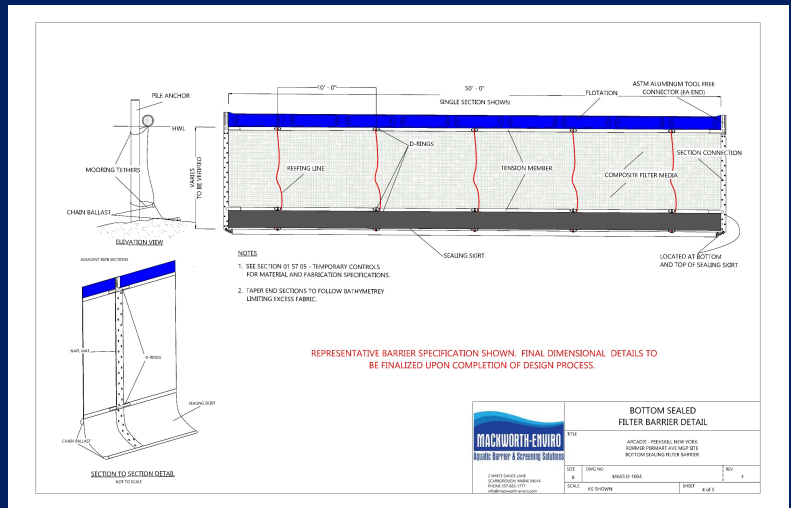


Figure 2. Barrier specification detail

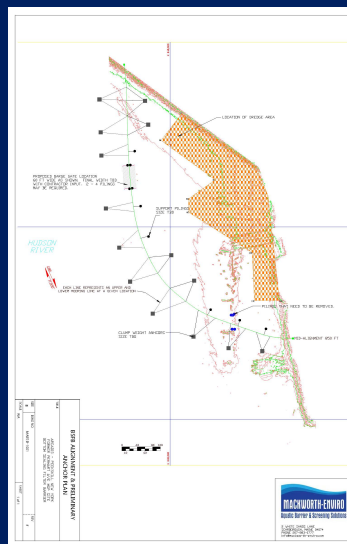


Figure 3. Anchor plan

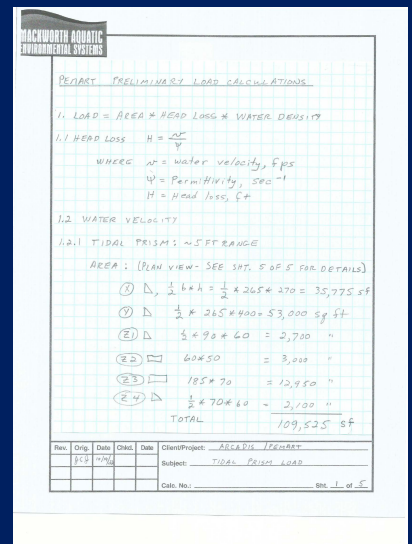


Figure 4. Engineer loading calculations

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