The Bulking and Tiering Wetland Systems: A Shoreline Protection System

Paul Lerin

Bulking & Tiering Wetland System Bionautics, Inc.; bionautics@gmail.com

Where as the banks of Kearny Riverbank Park and other portions of the lower Passaic are so severely polluted, that American Rivers, a Washington, D.C. Based conservation group, has named the Passaic River on the nation’s 20 most endangered rivers in 1998 because it contains more dioxin than any river in the nation. Existing conditions and accumulating toxic sediments on the Rivers banks have deterred Citizens from fully obtaining access to the River and the recreational and educational benefits that other waterfront communities with suitable conditions enjoy. And, where as the patented waterfront design trade marked “Bulking & Tiering Wetland Systems” would be particularly appropriate for safely capping sediments that are considerably contaminated or which may otherwise remain exposed and a source of contaminants to fish and other waterways in the area. The system can help recreate the unique ecosystem and beautify our troubled waterway by stabilizing the banks of the River with sustainable construction material, creating safe wetland habitat, promoting public access, and providing a field for education. The innovation of constructing multiple bulkheads in a tiered fashion can help recreate the unique ecosystem of a troubled waterway; especially, estuarine tidal banks that have been heavily encroached upon and dredged for commerce. The installation would be surveyed according to the fluctuation of the inter tidal zone to create “a green belt in the littoral.” Bulking & Tiering Systems provide the ideal grade that is necessary in establishing saltmarsh foundation species. In addition, the aforementioned technology provides a platform for phyto-remediation, or the cover for Combine Sewer Overflow abatement. The method of installing a Bulking & Tiering Wetland System would be constructed of interlocking sheet pilings that are impervious to the harsh marine environment. These sheet pilings are specially formulated and can also be post- industrial recycled vinyl. They are attractive in appearance, durable, and more affordable than conventional retaining walls. Unaffected by sunlight, salt water, or marine borers, this sustainable design material has been specified for its ability to contain toxins. The System would be particularly appropriate for sediments that are considerably contaminated and which may be a source of contaminants to other water ways in the area. Establishing a bulkhead and capping the existing sediments would specify significant amounts of beneficial uses material to achieve the proper elevation. A layer of sand or recycled glass aggregate (RGA) must be applied to establish a root zone where seeding takes place and any modifications for proper drainage can be applied. It has been resolved by the Town Council of Kearny, New Jersey and the Town Council of Harrison New Jersey that it does hereby support the implementation of the Bulking & Tiering Wetland Systems on a trial basis along a portion of the Passaic River in their community because throughout much of their history, salt marshes have been little regarded and often destroyed. They have been filled in as dumps and valued only when drained and developed. In the last several decades, we have only begun to understand that wetlands are a fertile and precious nursery. Besides nurturing millions of species -many endangered- wetlands replenish the Earth’s water supply, blunt the ravages of nature and provide sanctuary and serenity for humans.