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Civil Engineering

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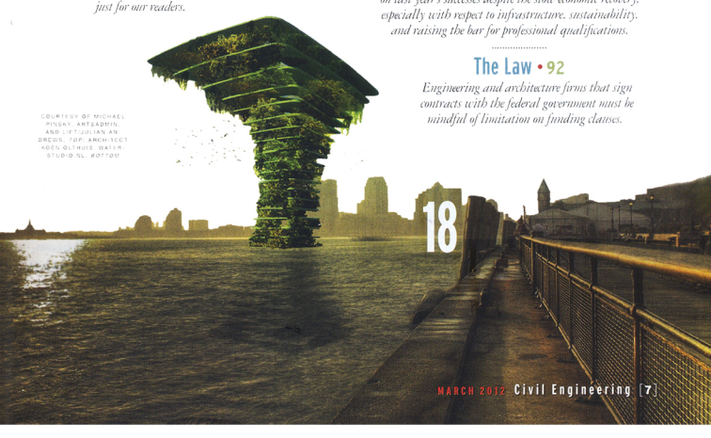


COURTESY OF MICHAEL PINSKY, ARTSADMIN, AND LITTLEJOHN ARCHITECT

18

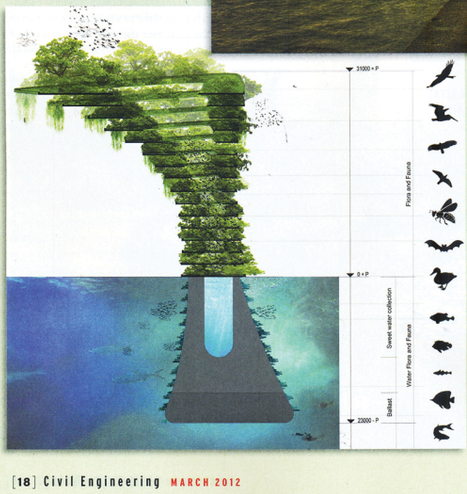
Civil Engineering NEWS

its sinuosity and removing much of the woody vegetation along its banks. All told, the changes in flow regime, sediment load, and channel layout have significantly altered the riparian areas within the project location.

To address these problems, the enhancement plan for the portion of the river passing through South Platte Park calls for implementing a variety of measures, including reducing the stream bank-full, or active channel, width. "What we're trying to do is generate a stream corridor that is in balance" with current flow conditions, Thompson says. To this end, the plan calls for regrading the channel to restore such natural features as riffles, pools, and glides—that is, the segments between pools and the next riffle downstream. The channel will be formed with a distinct thalweg to keep the water within a demarcated zone during periods of low flow. To facilitate fish migration, riffles will maintain minimum flow depths during dry periods and will be used to eliminate the

THE SEA TREE, proposed by the architecture firm Waterstudio.NL, of Rijswijk, the Netherlands, is a floating structure that can be anchored in the harbors of large cities or in rivers, lakes, and other offshore sites. Designed as a high-density, vertically arranged habitat for various flora and fauna—including bats, birds, bees, and other small animals—the Sea Tree is not intended for use by humans. The architects have designed various structures of this type in sizes that will vary depending on the depth of the water where they are constructed, the smallest versions intended for shallow rivers and the largest ones for the open sea. The largest version will reach

31 m into the air and feature a series of dramatically cantilevered and stacked upper levels, a design that Waterstudio.NL compares to the shape of a tree with a large crown of branches and leaves. Extending as much as 23 m below the waterline, the underwater portion of the structure will provide a habitat for small water creatures and, in certain locations, artificial coral reefs. The structure of the Sea Trees will incorporate offshore technology similar to that in oil storage towers and will feature steel and concrete framing as well as polystyrene foam in the floating "foundations." Moored to the seabed or riverbed via cables, Sea Trees will have a low center of gravity and will be stabilized with ballast. The larger versions will also feature an internal space in which rainwater can collect for use by the plants. The cables will enable the structures to move up and down slightly, and in some cases this movement will be regulated by the amount of water in the collection space. Although any city, group, or corporation will be able to sponsor a Sea Tree, Waterstudio.NL is trying to encourage oil companies with experience in the construction and operation of offshore facilities to undertake such projects on the basis of their expertise with floating structures and as a gesture of environmental stewardship. Because the design of the Sea Tree utilizes existing and proven technology, Waterstudio.NL expects to have the first structure in place by January 2014.



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