

Biotechnical Engineering with the Use of Propagated Wetland Mats in the Lake Tahoe Basin, USA

Julie Etra, MS, CPESC¹

ABSTRACT

Since 1996, Western Botanical Services Inc. has pioneered the development and implementation of various vegetated mats and coir (coconut) logs in the Lake Tahoe Basin. They have been used to provide instant bank and shorezone revetment and erosion control for riparian and wetland restoration, but have also provided erosion control at culvert outlets for an extra level of biotechnical stormwater treatment versus standard engineering. The methods for growing herbaceous wetland and riparian species have evolved over time with the selection of coir products of various densities and lofts. Species selection along with propagule type continues to be site specific, differing with project conditions, objectives, material availability, and contract and construction constraints. Work in the 1990s began with the use of a hydroseeded biodegradable coir silt fence. These materials were used for culvert outlets at storm drains, sediment basins, and new channel construction; they were very easy to transport and install. Most recently, two projects were built - one constructed in place at culvert outlets on the beach at Kings Beach in the spring of 2014, and the other propagated off site and installed in the fall of 2014 as part of an emergency sewer repair project in the Upper Truckee Marsh. Each of these projects had different objectives and used different materials, as well as presented unique solutions and challenges. This paper will briefly examine the history and technical components of earlier propagation methods but will focus on the design and outcome of the two most recent projects.

¹ Western Botanical Services Inc., 5859 Mt. Rose Highway, Reno, NV 89511.
Mza 1, Lote 15, Res. Conejos, Bahias de Huatulco, Oaxaca, Mexico. www.wbsinc.us