

CASFM STORMWATER QUALITY FIELD TRIP 2012 BARNUM PARK CONSTRUCTED WETLANDS

by WHPacific, Inc. and The Restoration Group, Inc.

The City and County of Denver and the Colorado Department of Transportation (CDOT) are constructing improvements to Federal Boulevard between Alameda Avenue and 5th Avenue. The improvements include a new storm sewer system that culminates with a 54-inch storm sewer outfall in Barnum Park. In order to protect the lake and provide water quality enhancement for discharges from the storm sewer, Denver Parks and Wastewater Departments contracted with WHPacific and The Restoration Group to design a constructed wetlands basin to treat stormwater runoff from Federal Boulevard prior to discharge to Barnum Lake. These two companies previously teamed to design passive treatment wetlands in Commons Park (Denver) for filtering road runoff prior to discharge into the South Platte River and a wetlands area for Ketring Lake (South Suburban Park and Recreation District) to actively filter nutrient rich waters in a large offstream pond.



The constructed wetlands in Barnum Park serve a drainage area of 40 acres and provide 1.06 AF of water quality storage and 0.65 acres of wetlands and shallow pool areas where “first flush” runoff discharges are captured, treated, and released over a 24 hour period. The wetlands basin has a concrete-lined forebay accessed by a reinforced concrete grassed pavement maintenance road designed to support the City’s maintenance vehicles, which include a 66,000 lb Vac truck.



The vegetation selected for the treatment wetlands is dominated by three species which should tolerate elevated salinities expected with street runoff. After filling and then drawing down water in the wetlands area, the wetland plants were installed. For the next 6 weeks the water level was fluctuated to encourage establishment of the wetland vegetation. The site was fenced to exclude water fowl for the first year to reduce plant losses. The shore edge fence on Barnum Lake has been left in place to limit “walk-in” waterfowl access until the newly planted sandbar willows along the lake margin can develop more fully.



A trail system was installed to permit passive recreational access and reduce trampling of the site. Areas between the wetland and Barnum Lake have been planted with native grasses, wildflowers, trees and shrubs typical of regional riparian areas. The west facing lawn above the wetlands was planted to an alternative drought tolerant turf of fine fescue species.



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