

HAYWARD NATURE BASED SOLUTIONS (NBS) LEVEE AND TREATMENT WETLAND CONCEPT DESIGN



PROJECT OBJECTIVES

IMPROVE WATER QUALITY:

Transform 120 acres of former oxidation ponds into treatment wetlands that reduce nitrogen discharges to the San Francisco Bay, enhancing water quality while creating and supporting valuable wetland habitat.

PROTECT COMMUNITIES FROM SEA LEVEL RISE AND FLOODING:

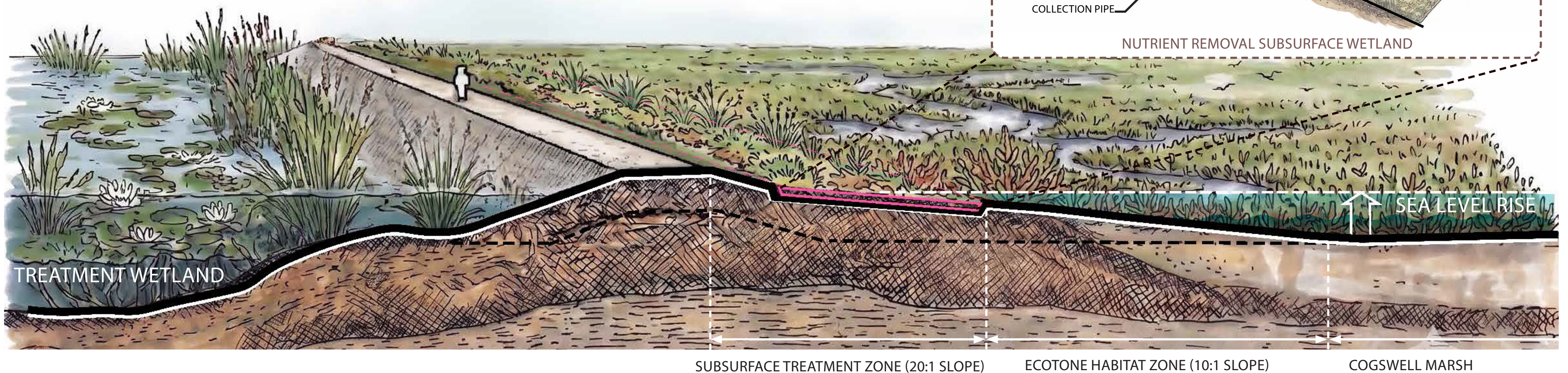
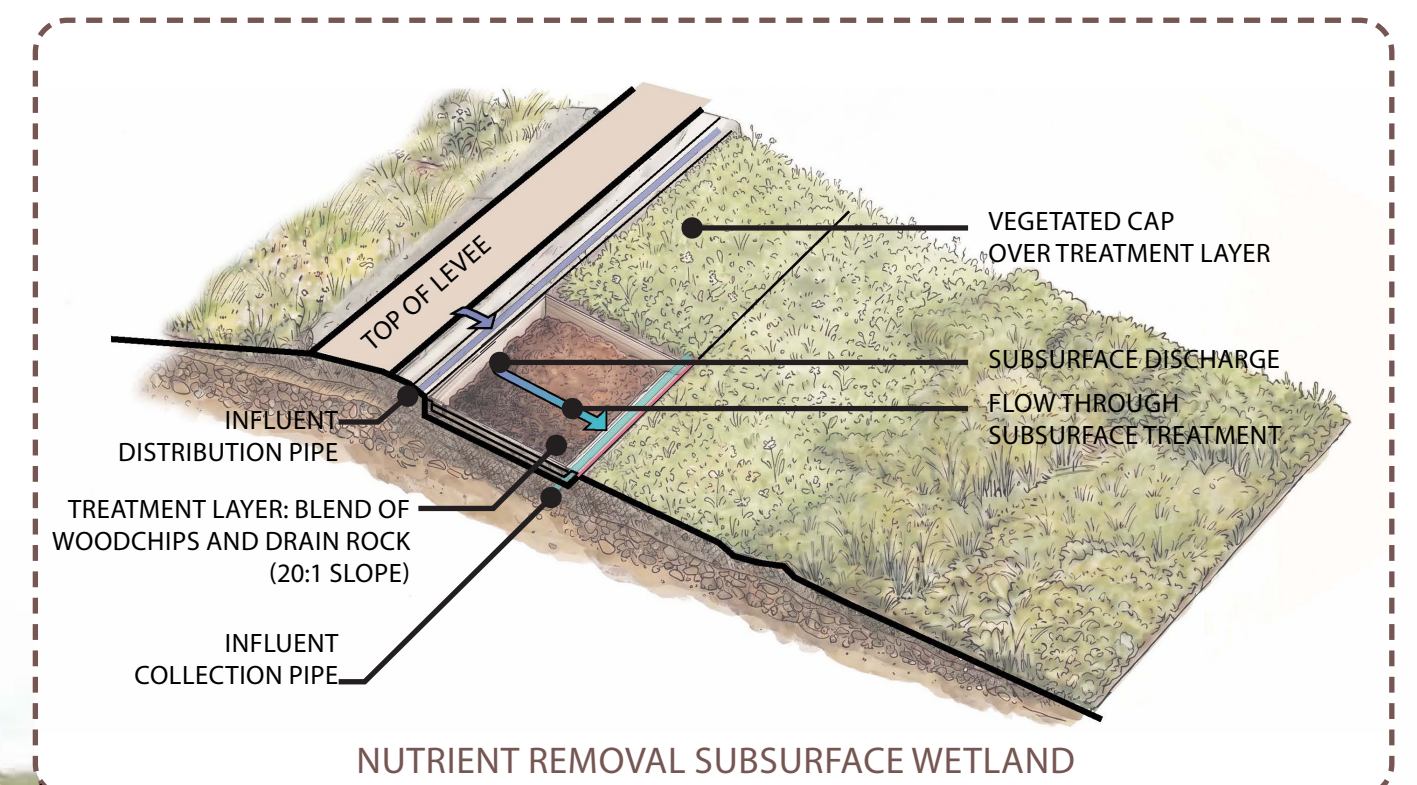
Construct a new levee along the bayward edge of the treatment wetlands to improve resilience to sea level rise and coastal flooding. A portion of the levee will function as a horizontal levee, featuring a gradual transition to the adjacent marsh. This design supports nutrient removal through subsurface wetlands and creates ecotone habitat that allows plants and wildlife to adapt and migrate as sea levels rise.

EXPAND RECREATIONAL ACCESS:

Enhance public access and recreation opportunities by rerouting the East Bay Regional Parks District Bay Trail to the crest of the horizontal levee, with future connections to adjacent levee and shoreline trail projects.

HORIZONTAL LEVEE - NUTRIENT REMOVAL

The City of Hayward is evaluating a horizontal levee design that includes an integrated subsurface flow wetland for treatment of reverse osmosis concentrate. As water flows through engineered soil and plant root zone, nutrients and other pollutants are reduced through microbial processes, plant uptake, filtration, and adsorption before discharge. This nature-based strategy combines water quality improvements with habitat creation and shoreline resilience to sea-level rise.



HORIZONTAL LEVEE

The proposed levee will protect the shoreline from flooding and inundation as the sea level rises. In the first phase of construction, the levee crest will reach an elevation approximately 5-feet higher than the present-day Bay Trail pathway through Cogswell Marsh. The horizontal levee segment will connect directly to the marsh, expanding the area available for upland transition habitat creation. East Bay Regional Parks District manages both the habitat in Cogswell Marsh as well as the Bay Trail. The Hayward Levee design team is coordinating closely with the District to protect existing habitats and plan for recreational access atop the levee.

