

Connecting Houston's Urban Cityscape with Native Coastal Prairie

PROJECT STAKEHOLDERS

- Memorial Park Standards Committee, Project Owner
- Memorial Park Conservatory, Project Owner
- Nelson Boyd Woltz, Landscape Architects, Designer
- Tellepsen, General Contractor
- Jody Kirgan, K4 Environmental, Installation Subcontractor (Contractor of the Year, IECA 2022)
- Shooter & Lindsey, Landscape Contractor
- Stormwater Structures, Distributor

CHALLENGE

- Steep banks and poor soil quality on the land bridge, a key component for the restoration of the ecologically battered coastal prairie.

RESULTS

- Successful erosion control and establishment of native plant life on a critical corridor to a healthy habitat for pollinators, birds and other wildlife.

PRODUCTS USED

- ProGanics® Biotic Soil Media: 4,500 lb/ac (5,044 kg/ha)
- GreenArmor® System
 - Futerra® R45 HP-TRM
 - Flexterra® HP-FGM®: 3,500 lb/ac (3,923 kg/ha)

Memorial Park, Houston's largest urban wilderness, has been negatively affected by several years of city expansion and hard surfaces that hinder its ability to handle stormwater. Hurricane Ike in 2010, followed by a drought in 2011, destroyed 90% of the man-made forest canopy and further exacerbated the issues. By 2018, it was clear the park needed to be revitalized and the natural coastal prairie restored. The city came together with the help of many ecological and environmental experts to create a plan that would emphasize the area's native vegetation and feature a land bridge for humans and animals that connects the two sides of the park, once divided by Memorial Drive.

AN EDUCATED APPROACH TO EROSION CONTROL AND REVEGETATION

Prior to digging in, the Memorial Park team used Profile Products' Soil Solutions Software (PS³) to identify the soil's quality. The tests showed low organic matter of just 0.6% as well as poor cation exchange capacity and solvita respiration. With that knowledge, the conservation team researched soil amendments and chose to run a test plot in December 2019 with ProGanics® Biotic Soil Media (BSM) against data from other wood compost products. The ProGanics proved to be the best option because it can effectively introduce organic material and biological components the soil was lacking.

In Spring 2021, workers hydraulically applied ProGanics to the site. ProGanics is a compost and topsoil alternative that accelerates the development of depleted soils and substrates with low organic material, low nutrient levels and limited biological activity.

VEGETATION SELECTION AND IMPLEMENTATION

The next step in the project was selecting the correct blend of native plant species to restore the coastal prairie and promote regional biodiversity. After thoroughly researching seed types, root depths, seasonal components and aesthetics, more than 90 native species were selected to vegetate the land bridge as well as the rest of the park.

Due to the steep banks surrounding the tunnels of the land bridge, the conservation team implemented Profile's GreenArmor® System. The system begins with a hydraulic application of ProGanics, followed by a Futerra® R45 High Performance-Turf Reinforcement Mat (HP-TRM) infilled with Flexterra® High Performance-Flexible Growth Medium® to hold seed and soil in place and encourage vegetative establishment. The GreenArmor System not only enabled successful vegetation and erosion control on steep banks, but improved overall stormwater management of the area.

RESULTS YOU CAN SEE

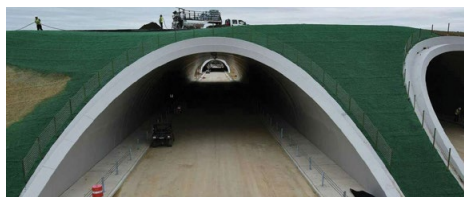
In August 2020, additional soil tests were taken from the test plots to determine if the soil amendment improved conditions. The new tests revealed a 116% increase in organic matter, a 148% increase in cation exchange capacity and a 423% increase in respiration. More detailed results also showed a 15% increase in bacterial populations and a 24% increase in fungal populations, both of which will contribute greatly to overall soil health.

ProGanics will continue to improve soil conditions over time, as it is designed to introduce key components during the early stages as well as throughout the growth cycle, naturally and sustainably raising those percentages over time.

Lush grasses and flora blanket the land bridge and surrounding prairie, proving success of the selected erosion control and revegetation methods. The project won the *Stormwater Solutions 2022 Top Project of the Year* award. February 11, 2023, marked the Kinder Land Bridge grand opening, however ongoing maintenance will further the project's restoration efforts. New areas throughout the park will continue to be stabilized with a similar approach and is estimated to restore more than 75 acres of coastal prairie upon project completion.



Construction of the Memorial Park Land Bridge



Hydraulic application of Flexterra® HP-FGM® to the Kinder Land Bridge



Lush vegetation on the Memorial Park Land Bridge after successful application of the GreenArmor® System