Florence Streetscape Urban Bioretention Gardens

North 30th Street, Willit to Clay Streets

City of Omaha Stormwater Program

SITE AND PROJECT SUMMARY

The Florence Streetscape Project, a two block stretch along North 30th Street from Willit Street to Clay Street, features seven bioretention gardens. The bioretention gardens were completed in September 2012 by the City of Omaha Stormwater Program with additional funding from the Nebraska Statewide Arboretum WaterWise Grant Program. This demonstration project builds on previous green infrastructure projects to improve their performance in a variety of urban soils and conditions.

The bioretention gardens are designed to capture and treat the first ½ inch of rain from the surrounding street and sidewalk. These urban street-side gardens utilizes the City of Omaha standard bioretention design while incorporating a simple pretreatment feature that mimics a window well. Water enters into a sump created by a stainless steel box secured to the back of the street curb. Sediment and debris then settles out and water flows over the box into the bioretention garden. The base of the sump has 12" x 12" stepping stones as base with a one-inch gap around it to allow water to infiltrate into a perforated pipe that is connected to the underdrain.

The bioretention underdrain runs the length of the system and is a perforated pipe with wash aggregate around it. A two-inch curb-stop valve is installed on the downstream side to regulate the flow out of the system. The infiltration cell, the area directly above the perforated underdrain, has a limited footprint that is only one-foot wide and is a blend of 50/50 fine sand and compost. The remaining area in the system utilizes existing soils amended with compost.

In total, the bioretention gardens have a designed storage volume of approximately 5,000 gallons.

The plant selection for the bioretention systems include a variety of native and adaptive plants, including Switchgrass, Sedges, and Red Twig Dogwoods. These plants have demonstrated excellent performance in a variety of conditions. Sedges also have many varieties to choose from with varying colors and textures.

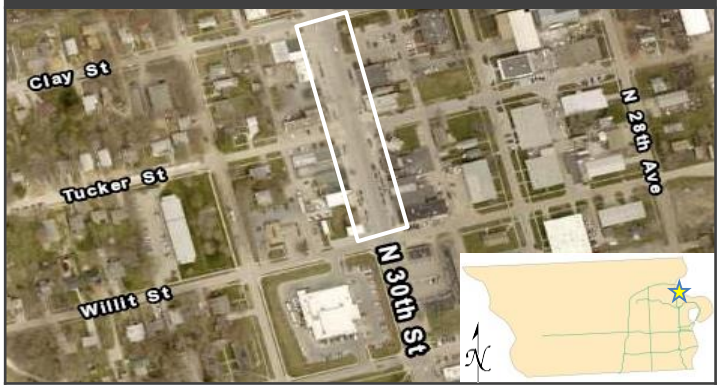
PROJECT DETAILS

	BIORETENTION SYSTEMS
Total System Footprint	1,300 ft^2
Underdrain	4" Perforated, Dual-wall HDPE Pipe
Pre-Treatment System	Stainless Steel Sediment Trap w/Permeable Base
Outlet Control	2" Brass Curb-Stop Valve
Contributing Area	1.8 acres
Predominant Land Use	Commercial
Percent Impervious (%)	Approximately 95%
Predominant Soil Types	**Native**: Silty Clay, Loam to Silty Clay **Growing Media**: Native w/2" Compost, tilled 6" deep **Infiltration Cell**: 50/50 Fine Sand/Compost

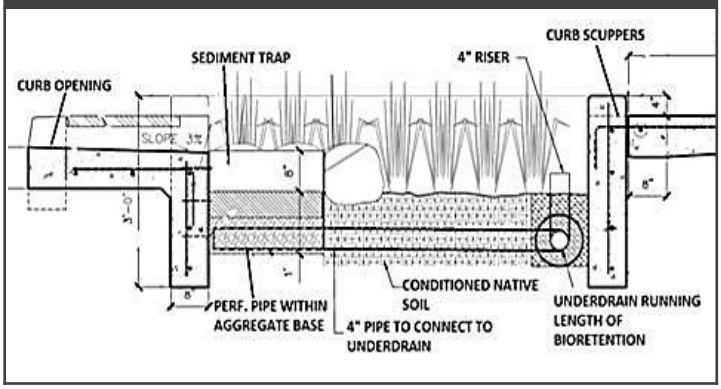
COSTS	
Design	$6,500.00
Construction	$83,709.00
Plants	$1,690.00
Total	$91,899.00

DESIGNED BY	CONSTRUCTED BY	MONITORING/ ASSESSMENT BY	MAINTENANCE BY
Vireo	Swain Construction, Yano's Landscape	City of Omaha Stormwater Program	City of Omaha Stormwater Program

SITE LOCATION – N 30th St & Tucker St



BIORETENTION CROSS SECTION VIEW



PHOTOS

PROJECT LAYOUT (NORTH BLOCK)