



Benson East Gateway Bioretention Garden

58th & Maple St, Omaha, NE

City of Omaha Stormwater Program, Omaha by Design, University of Nebraska, Nebraska Statewide Arboretum

SITE AND PROJECT SUMMARY

In the spring of 2013, the intersection of NW Radial Hwy, Maple, and 58th Streets was renovated to improve traffic flow and create the East Gateway into Benson. The original design called for 58th Street to be removed, replaced with turf and a new curb inlet installed to catch runoff from the neighborhood. Omaha by Design and the Omaha Stormwater Program applied and received a grant from the Nebraska Statewide Arboretum's Waterwise Grant Program to create a beautiful landscape that filters, slows, and infiltrates stormwater runoff before it reaches the combined sewer system.

Runoff from 58th Street and the adjacent homes enters the garden through two forebays that catch sediment and debris. The water then flows through layers of aggregate in the dry stream bed to slowly move down into the bioretention garden. Once full, excess stormwater enters a grated over structure to reach the combined sewer. A variety of native and adapted flowers, grasses and shrubs were used throughout the garden, providing year-round interest. Plants in the bioretention include

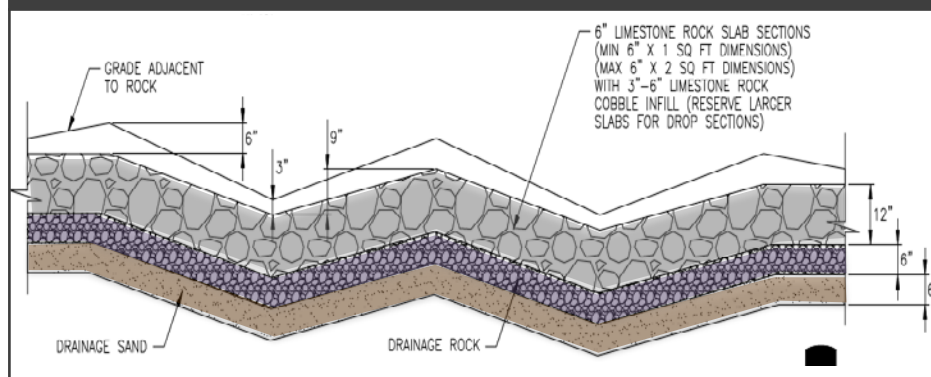
Gayfeather, Virginia Mountain Mint, Pink Turtlehead, Palm Sedge, Ninebark, and Gro-low Sumac.

The 58th and Maple demonstration project has provided excellent insights into how Omaha's bioretention systems work. Slower than expected drainage rates through the infiltration cell were observed immediately after installation. A road gravel was used around the flexible, slotted underdrain, which clogged the slots and significantly reduced drawdown. New PVC pipe with 1/2" perforations on the bottom and 3/4" washed limestone was installed. However, the geotextile fabric was laid flat over the limestone & returned up the sides of the trench, creating a 'perched water table' immediately within the cell. The fabric was removed, the rock was mounded, and burlap from recycled coffee bean sacks were laid only over the aggregate for separation. The system performed as intended with these modifications and they were incorporated into the current Omaha Regional Stormwater Design Manual details for bioretention systems.

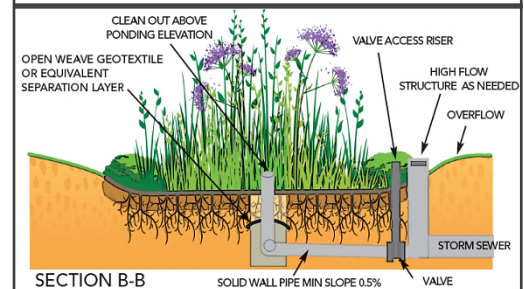
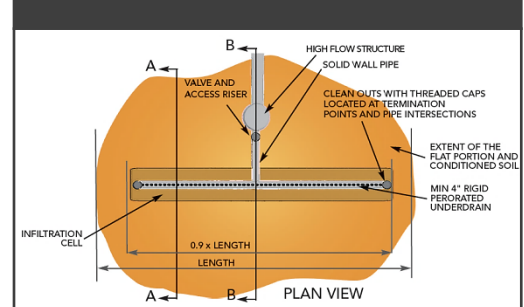
PROJECT DETAILS	BIORETENTION SYSTEM
System Footprint	1,225 ft ² (3,500 ft ² entire garden area)
Underdrain	4" PVC, 1/2" perforations on bottom
Pre-Treatment System	2 Forebays & Dry Creek Bed
Outlet Control	4" Slide-Gate Valve
Design Volume	740 ft ³ (5,535 gallons)
Contributing Area	1.0 acre
Predominant Land Use	Residential
Percent Impervious (%)	Approximately 40%
Predominant Soil Types	Silty Clay

COSTS	
Design	\$19,272.00
Construction	\$57,748.00
Plants	\$2,702.00
Total	\$79,727.00

CONVEYANCE SYSTEM (DRY CREEK BED)



PROJECT DETAILS

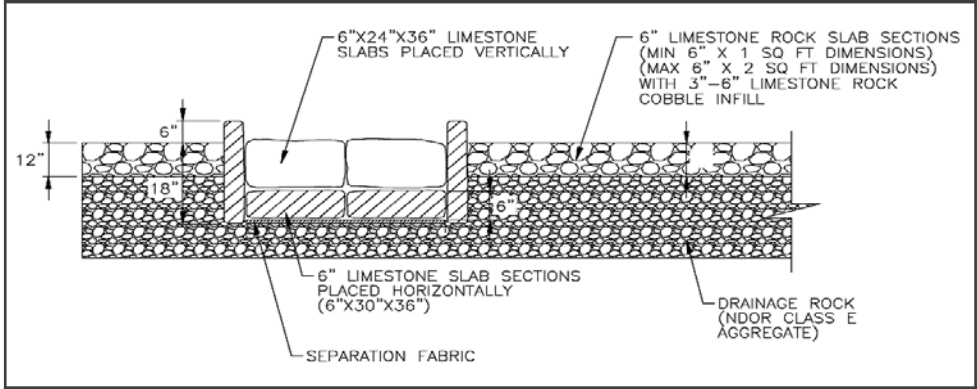


DESIGNED BY	PLANTING DESIGN BY	CONSTRUCTED BY	MONITORING/ ASSESSMENT BY	MAINTENANCE BY
Felsburg Holt & Ullevig	Steve Rodie, UNO	Dostal's Construction Company, Inc.	City of Omaha Stormwater Program	Benson Improvement District

SITE LOCATION



FOREBAY DETAIL



PHOTOS



PROJECT LAYOUT

