Under the Sink Demonstration Project

4001 South 120th St, Omaha, NE

City of Omaha Stormwater Program

SITE AND PROJECT SUMMARY

Under the Sink is a city operated facility that collects and disposes household hazardous waste. Located at 4001 South 120th Street, the site occupies 5.1 acres with a primary recycling building, parking lots, drive lanes, and turf lawns. In 2008, a total of 15 bioretention gardens were installed on the property with the majority of them adjacent to South 120th Street. In addition to the bioretention gardens, multiple bioswales, a dry stream bed, a level spreader, and a rain barrel were installed on the property. The Under the Sink facility is one of the city's earliest demonstration projects showcasing green infrastructure (GI) practices.

The design concept for the bioretention gardens at Under the Sink followed a more traditional route with the excavation of the garden to 2.5' deep. This method incorporates a larger footprint of amended soils and aggregate. At the bottom of each bioretention garden the underdrain consists of a flexible corrugated, perforated pipe installed in an oval configuration with a valve to help regulate flow out of the system. Today's designs for bioretention gardens include the use of an infiltration cell, a limited area of amended soils.

An often under utilized stormwater practice that was used for this demonstration project was a level spreader. Level spreaders are designed to capture high flow / concentrated runoff and spread it out over a larger area, also known as sheet flow. This sheet flow is released in a uniform manner onto areas that are stabilized by vegetation, thus reducing erosion and allowing runoff to better infiltrate into the soil. Installed on the west side of the property, the level spreader dissipates the parking lot runoff. Excess is directed towards the bioretention gardens to the North through a dry stream bed.

On-going education and outreach also continues through the interpretive educational signs that have been installed on site. One sign explains the rain barrel collection system and another sign explains stormwater runoff. A larger sign is attached to the building for participants to read as they drive through the drop off area of the facility.

Continuing monitoring efforts include use of double-ring and Modified Phillip Dunne (MPD) infiltrometers to study rates of infiltration within the bioretention systems in comparison with adjacent turf lawns. Visual assessments have provided a useful tool to monitor plant health and growth while also documenting overall system function and condition.

PROJECT DETAILS

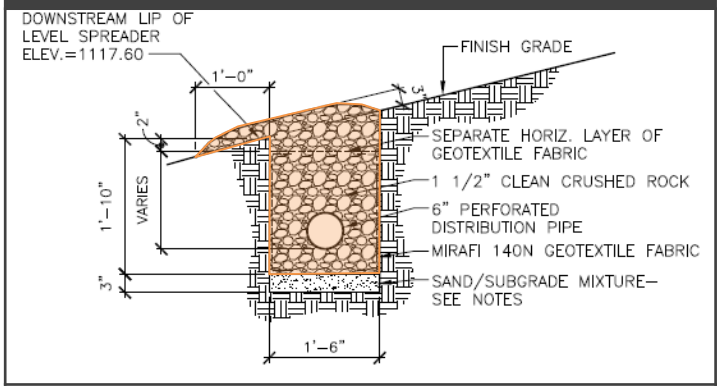
	BIORETENTION GARDENS	LEVEL SPREADER
Total System Footprint	1,180 ft^2	80 ft^2
Underdrain	4" perforated HDPE pipe	6" perforated HDPE pipe
Pre-Treatment System	Bioswale	Drain Basin
Outlet Control	4" Polly-ball Valve	None
Total Contributing Area	Approximately 3.45 acres	Approximately 0.25 acres
Predominant Soil Types	**Growing Media:** 50/35/15 Sand/Oma-Gro/Topsoil **Parent material:** Silty Clay Loam	**Infiltration Cell:** 1 ½" Clean Crushed Rock **Parent material:** Silty Clay Loam

MONITORING	METHOD
Infiltration	Double-ring infiltrometer, Modified Phillip Dunne (MPD) infiltrometers
Plant Assessment	Visual Assessment

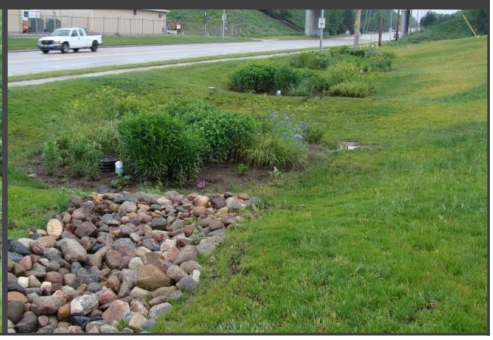
DESIGNED BY	CONSTRUCTED BY	MONITORING/ ASSESSMENT BY	MAINTENANCE BY
The Big Muddy Workshop, Inc.	Dostals Construction	City of Omaha Stormwater Program	City of Omaha Stormwater Program

SITE LOCATION - 4001 SOUTH 120th St

LEVEL SPREADER PROFILE



PHOTOS



PROJECT LAYOUT