

Omaha Vehicle Impound Facility Bioswale

7809 F Street, Omaha, NE

City of Omaha Stormwater Program

SITE AND PROJECT SUMMARY

The City of Omaha Vehicle Impound Facility provides storage and disposal of vehicles towed by the Omaha Police Department and the Douglas County Sheriff's Department. Located at 7809 F Street, the Omaha Vehicle Impound Facility sits on roughly 16.25 acres adjacent to the Big Papillion Creek.

The goal of this project was to remove existing stone rubble and rip-rap within a hard to maintain, established drainage swale on the south end of the property and convert it to a bioswale. Three drop structures and a concrete reinforcement mat, Fleximat, installed below each structure, were incorporated into the bioswale to manage the overall velocity of stormwater runoff and prevent erosion. These features also create pooling areas allowing sediment to settle out and increase infiltration into the surrounding soil. The newly designed vegetative swale was seeded with a grass mix incorporating native and wet tolerant plant species that include Fox Sedge, Switchgrass, Western Wheatgrass, Big Bluestem, Prairie Cordgrass, Smooth Brome, etc. This vegetation will help with bank stabilization, sediment trapping, and reduction in erosion and stormwater flow velocity.

In addition to the installation of a vegetated swale, a hydrodynamic separator was installed just "upstream"

of the bioswale to capture sediment from an aggregate parking lot and prevent flow from eroding an adjacent property. Hydrodynamic separators are used to reduce sediment concentrations and other pollutants from stormwater by creating a vortex motion to runoff flow, causing pollutant particles to settle out of the water and into a storage area that can be



PROJECT DETAILS

	VEGETATED SWALE	
Project Footprint	9, 300 ft ²	
Length of Channel	295 ft	
Mean Width of Channel	12 ft	
Pre-Treatment System	Hydrodynamic Separator	
Contributing Area	2.5 acres	
Percent Impervious (%)	99%	
Predominant Land Use	Industrial & Commercial	
Predominant Soil Types	Silty clay loam; Parent material: disturbed fine-silty loess	



DESIGNED BY	CONSTRUCTED BY	MAINENTANCE BY
VIERO, RW Engineering & Survey	Midwest Excavating	City of Omaha Stormwater Program & Sewer Maintenance

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PROJECT LAYOUT AND SIGNAGE DOUBLE VANE DROP "RIFFLES' SECTION STRUCTURE AND SCOUR MITIGATION FLOW Hydrodynamic 'EMERGENT MARSH SEDGE, RUSH, AND GRASS Separator VEGETATION POST EVENT AND LOW FLOW INFILTRATION VEGETATED RESTORATION TO EXISITING SLOPE TOE OF BIG PAPIO CREEK LEVY EXISTING PAVING BIOSWALE OUTFALL SCOUR MITIGATION 'RIFFLE' COBBLE SHOULDER DROP STRUCTURE (DOUBLE VANE) WITH SCOUR MITIGATION 'RUN EXISTING 36" PIPE OUTFALL, F.E.S. AND SCOUR MITIGATION PLAN CITY OF OMAHA, VEHICLE IMPOUND FACILITY (VIF) NORTH **BIOSWALE CONVERSION** 15 300' DRAINAGE SWALE AND SIDE SLOPES CURRENTLY FABRIC AND RIP-RAP COVERAGE TO BE MODIFIED TO dropseed VEGETATED AND SYNTHETIC STABLILIZATION PRODUCT RW ENGINEERING STORMWATER CONVEYANCE

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