

Bioretention Area Inspection and Maintenance Checklist

Facility: MLK-Carnegie Bioretention Cell			
Location/Address: Intersection of Martin Luther King Jr. Drive and Carnegie Ave			
Date: 5/24/21	Time: 10 a.m.	Weather Conditions: Sunny, dry	Date of Last Inspection: October 2020
Inspector: Julie Ross, CESSWI, OIM18013		Title: Civil Associate, Michael Baker	
Rain in Last 48 Hours <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, list amount and timing:			
Pretreatment: <input type="checkbox"/> vegetated filter strip <input type="checkbox"/> swale <input type="checkbox"/> turf grass <input type="checkbox"/> forebay <input type="checkbox"/> other, specify: <input checked="" type="checkbox"/> none			
Site Plan or As-Built Plan Available: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			

Inspection Item	Comment	Action Needed
1. PRETREATMENT		
Sediment has accumulated.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Trash and debris have accumulated.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. DEWATERING		
Standing water is present after 24 hours. If yes, describe sheen, color, or smell.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3. INLETS		
Inlets are in poor structural condition.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sediment has accumulated and/or is blocking the inlets.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Erosion is occurring around the inlets.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3. VEGETATION		
Vegetation is wilting, discolored, or dying due to disease or stress.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Some vegetation outside of the bioretention cell appears to be dying. Continue to monitor. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Vegetation needs to be controlled through mowing or manual removal.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
4. BIORETENTION MAIN INFILTRATION AREA		
Trash and debris have accumulated.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Minimal debris. To be removed by landscaping crew. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sediment has accumulated at the surface.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Crews will remove weeds and plants from grass bioretention area. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Topmost layer is caked or crusted over with sediment.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Erosion is evident.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	No erosion. Sediment is exposed in some places along embankment. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Mulch is compacted.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sinkholes or animal borrows are present.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. SIDE SLOPES AND EMBANKMENT		
Erosion is evident.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Sediment is exposed on embankment. More mulch will be furnished on the embankment. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sinkholes or instability is evident.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. OUTLETS AND OVERFLOW STRUCTURE (i.e., catch basin)		
Outlets or overflow structures in poor structural condition.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Outlet pipe in trap will be further inspected to determine if joint is water tight <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sediment, trash or debris is blocking the outlets or overflow structure.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Erosion is occurring around the outlets or overflow structure.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Height from surface of practice to top of overflow structure is insufficient to allow for ponding during rain events.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Additional Notes

Overall, bioretention area appears to be in good condition along with the associated educational signage.
See attached photos for further documentation.

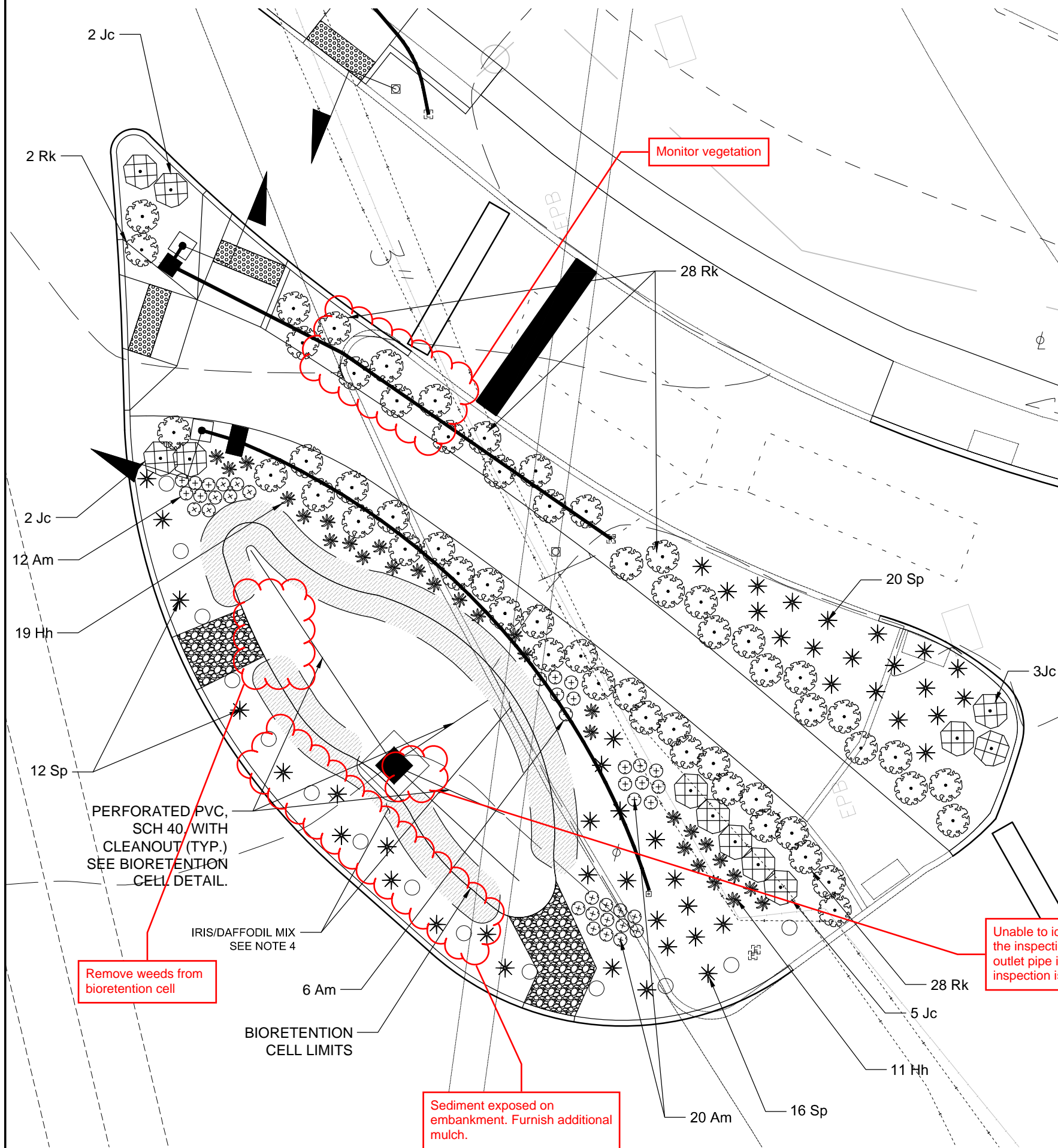
Inspection attendees included: Julie Ross and Douglas Blank, Michael Baker; Don Tereba and Matthew Zimmerman, RTA; and Elise Yablonsky, University Circle Inc.

Wet weather inspection needed ☐ Yes ☒ No

Site Sketch:

See attached.

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NOTES:

1. COMPLETED LANDSCAPE SHALL CONFORM TO THIS PLAN THROUGH EITHER A COMBINATION OF NEW AND TRANSPLANTED PLANTS OR ALL NEW PLANTS. WARRANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE YEAR PER ODOT CM&S 661 AND PROVIDE OWNER WITH A MAINTENANCE GUIDE AT COMPLETION OF PROJECT.
2. IF TRANSPLANT IS USED, VERIFY PHYSICAL CONDITION OF ALL EXISTING PLANT MATERIAL AND TO PREPARE A STORAGE AND TRANSPLANTING STRATEGY BASED UPON SITE EVALUATION. FORWARD THE PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL BEFORE BEGINNING ANY WORK ON THE SITE. IF EXISTING PLANTS ARE FOUND TO BE IN AN UNFAVORABLE CONDITION FOR TRANSPLANTING ADD APPROPRIATE PLANTS TO AUGMENT THOSE ANTICIPATED TO BE REUSED.
3. UPROOT EACH PLANT AND REMOVE FROM CONSTRUCTION ZONE, STORE AND WATER APPROPRIATELY AND TRANSPLANT IN SUCH A MANNER TO ENCOURAGE RAPID REESTABLISHMENT OF ROOT SYSTEM.
4. CENTER IRIS/DAFFODIL PLANT MIX ON OVERFLOW ELEVATION CONTOUR. BLEND PLANT TYPES IN AN INFORMAL MANNER ALONG THE LENGTH OF THE FOUR FOOT WIDE BED
5. WITHIN BIORETENTION CELL LIMITS, CONTRACTOR SHALL INSTALL BIORETENTION CELL PER BIORETENTION CELL DETAIL WITH ITEM 671 - EROSION CONTROL MATTING. SEED BIORETENTION CELL LIMITS WITH EMERGENT WETLAND SEED MIX (TYPE 5 SEED MIX). NO COMMERCIAL FERTILIZER OR LIME SHALL BE APPLIED TO TYPE 5 SEED MIX.
6. ON ISLAND, OUTSIDE OF BIORETENTION CELL LIMITS, INSTALL 6" OF ITEM 653 - TOPSOIL FURNISHED & PLACED AND 3" OF ITEM 661 - MULCH. MULCH SHALL BE DOUBLE SHREDDED HARDWOOD.
7. FOR ALL OTHER DISTURBED AREAS, INSTALL 3" OF ITEM 653 - TOPSOIL FURNISHED & PLACED AND SEED WITH LAWN MIX (TYPE 1 SEED MIX).

PLANT LIST

KEY	NUM	BOTANICAL NAME	COMMON NAME	SIZE AND CONDITION
NEW OR RELOCATED PLANTS				
Rk	58	Rosa 'Rainbow Knockout'	Rainbow Knockout Rose	Existing
Jc	12	Juniperous chinensis 'Kallay's Compact'	Kallay's Compact Pfitzer Juniper	Existing
Hh	30	Hemrocallis 'Happy Returns'	Happy Returns Daylily	Existing
N/IV	100	NarcisiSp sp.	Daffodils	Existing
NEW PLANTS				
Am	38	Armeria maritima	Sea Pinks	#2 Cont.
Iv	50	Iris versicolor	Blueflag Iris	#2 Cont.
Sp	48	Spartina pectinate	Prairie Cordgrass	#2 Cont.
N/IV	100	NarcisiSp sp.	Daffodils	Bulbs

NO.	REVISIONS	DESCRIPTION	DATE

1" = 10'
PLAN AND HORIZONTAL SCALE IN FEET

Checked By: KMB	Drawn By: MKS	Approved By: DAB	Date: 2017-05-23
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Michael Baker
INTERNATIONAL
1111 SUPERIOR AVE. EAST, STE. 2300 CLEVELAND, OH 44114

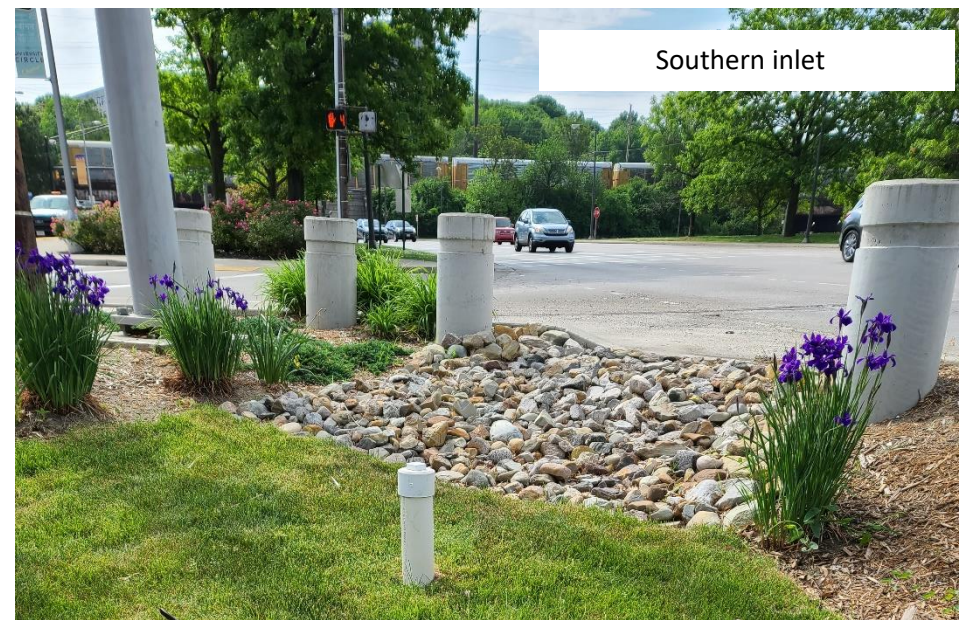
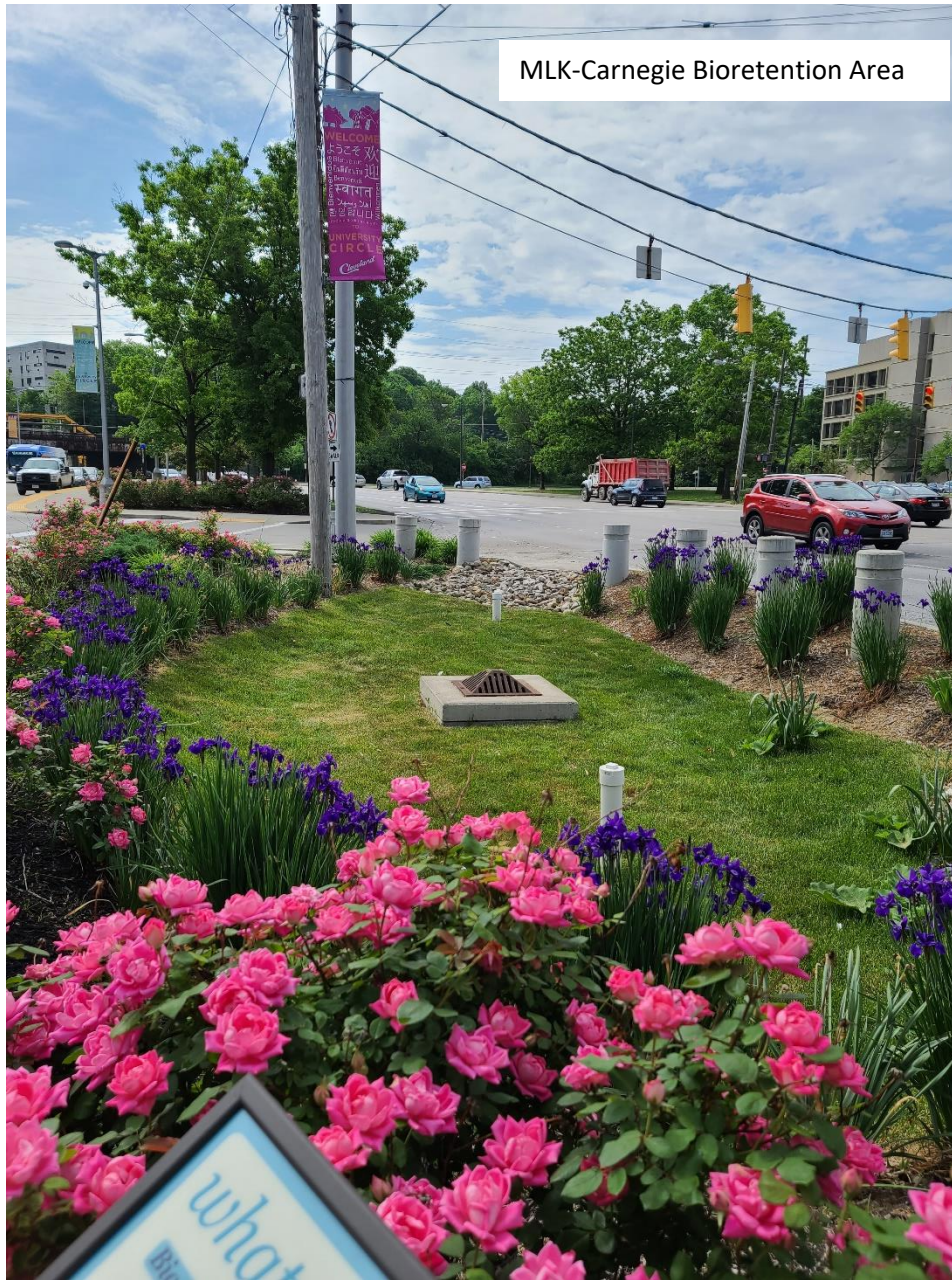
GREATER CLEVELAND
REGIONAL TRANSIT
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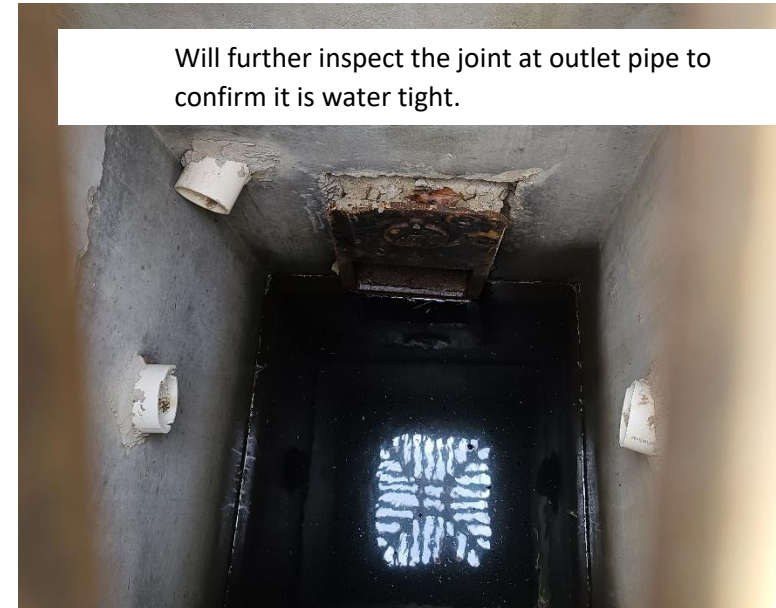
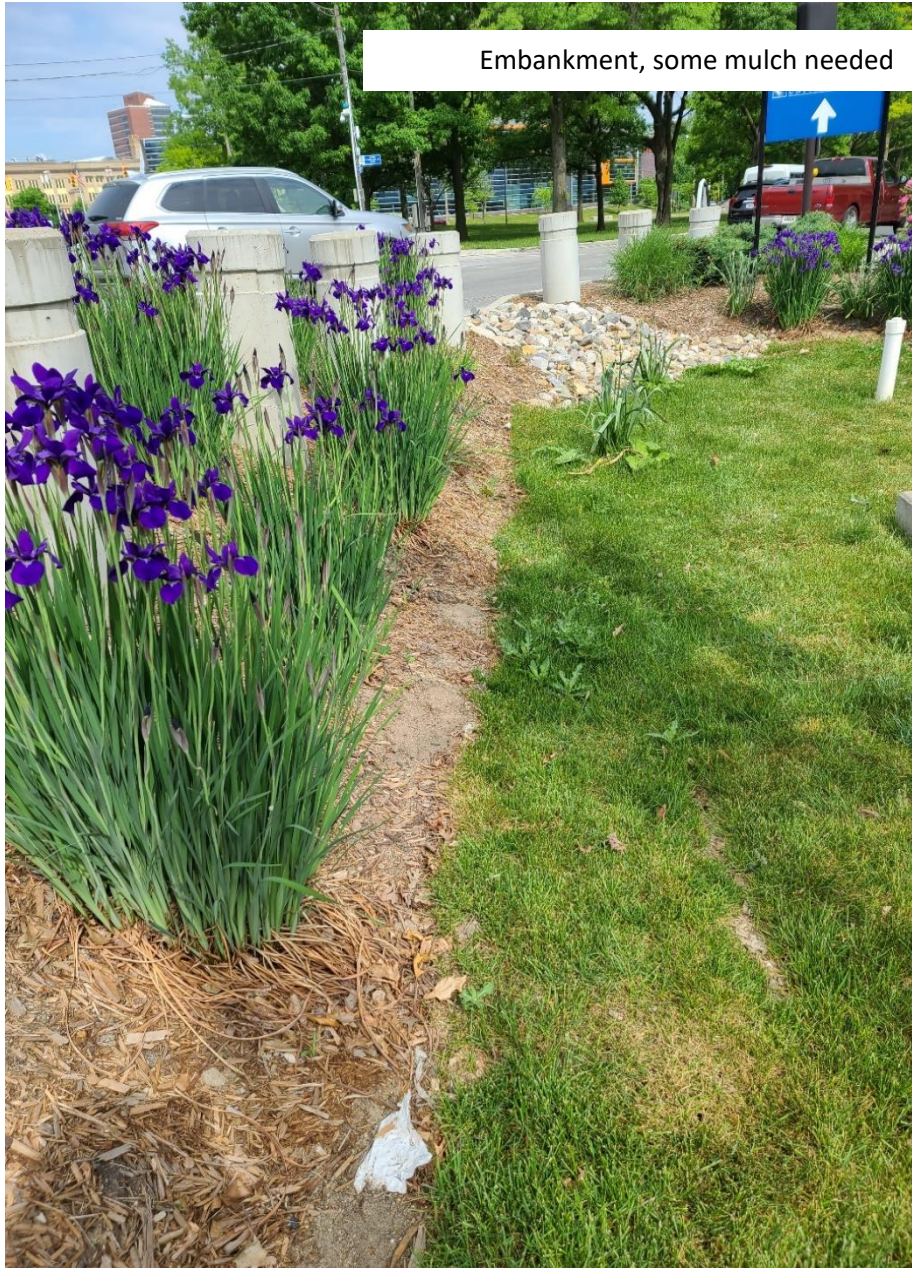
MICHAEL BAKER INTERNATIONAL
PROFESSIONAL ENGINEER
STATE OF OHIO
NO. 10014
E-0014

LANDSCAPE PLAN
CARNEGIE AVENUE/MLK JR. DRIVE
INTERSECTION IMPROVEMENTS

RTA PROJ
24K (c)

BID PAC
C1100





NEORSRD educational signage in good condition



what is bioretention?

Bioretention areas

Best runoff and improve water quality for small drainage areas. They give runoff a place to go so it doesn't overflow the storm sewer system, contribute to local flooding, or damage streams and other aquatic ecosystems.

Key features

They are the length of a stormwater pipe

These features reduce stormwater runoff volume, filter out sediment, and support the natural growth of the region through the use of native plants.

They provide a natural habitat for wildlife

Installing a bioretention area in a stormwater pipe helps slow down runoff and filter out sediment. The natural growth of the region through the use of native plants.

Water quality is improved

Water quality is improved by filtering out sediment and other pollutants. The natural growth of the region through the use of native plants.

Plant choices

Native plants are recommended for bioretention areas because they are adapted to local conditions and require less maintenance. The natural growth of the region through the use of native plants.

Pretreatment area

Before the stormwater enters the bioretention area, it passes through a pretreatment area. This area is designed to filter out large debris and sediment.

Landscaped ponding area

This area is designed to hold stormwater for a short period of time, allowing it to infiltrate the ground. The natural growth of the region through the use of native plants.

Filter layer (6")

A 6-inch layer of sand and gravel that filters out sediment and other pollutants. The natural growth of the region through the use of native plants.

Mulch and soil layers

A layer of mulch and soil that helps retain moisture and filter out sediment. The natural growth of the region through the use of native plants.

Gravel layer and underdrain system

A layer of gravel and an underdrain system that collects and removes stormwater. The natural growth of the region through the use of native plants.

Stormwater pipe

The pipe that carries stormwater away from the bioretention area. The natural growth of the region through the use of native plants.

Northeast Ohio
Regional Sewer District

CITY OF CLEVELAND
Department of Public Works

UNIVERSITY CIRCLE 90

RTA