

3.3.2 CARMICAL LANDFILL

Facility Name: Carmical Landfill

A.K.A: N/A

Location: 5451 East Miami River Road. Situated north of East Miami River Road, approximately 0.5-mile west of the Gum Run Road intersection in Miami Township, Ohio.

Parcel(s): 57001300008

Lat/Long: 39.200205 -84.709686

Region: Cleves (Miami Township), OH 45002

Owners: Hamilton County Park District

Operation (yrs): 1970's-1993 (*based on records and aerial photography*)

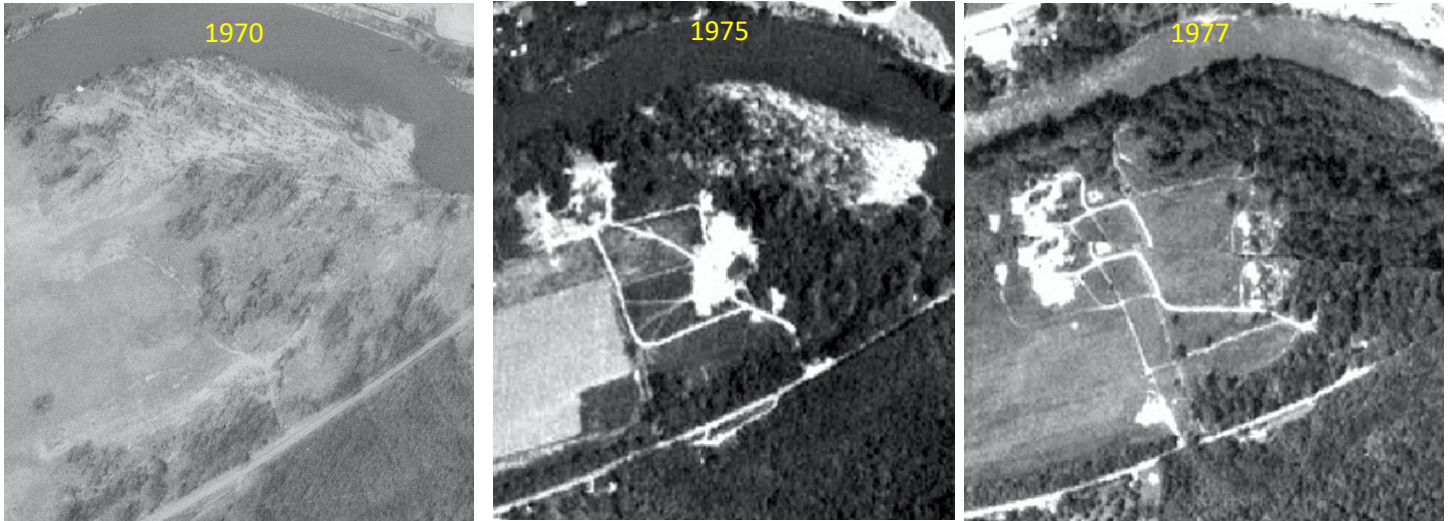


FACILITY OVERVIEW

Carmical Landfill is located in Miami Township, Hamilton County, Ohio, situated north of East Miami River Road, approximately 0.5-mile west of Gum Run Road intersection. Hamilton County Auditor records address the property as 5451 East Miami River Road, Cleves, Ohio 45002. Topography of the former landfill is primarily flat, with gentle north to northeast slopes. The property is bordered to the north and east by the Great Miami River. The property is bordered to the south by East Miami River Road. A former gravel pit (currently being filled) is located west of the landfill. The former Miamitown C&DD landfill (3.13.2) is located west on the north bank of the Great Miami River as shown in Figure 3.3.2-C.

Based on records obtained from the Hamilton County Auditor website, the property was purchased by a sand and gravel company in 1975. Mining of the property likely occurred after the property changed hands and the aerals in figure 3.3.2-A support this. The figure shows aerial photographs from 1970 to 1977. It does not appear as though filling or mining activities are occurring in the 1970 photograph. Activities are occurring on the central and northwest portions of the property in the 1975 and 1977 photographs. This suggests that filling began sometime between 1970 and 1975. Based on records, filling of the gravel pit likely occurred both during the operation of the gravel pit and after.

FIGURE 3.3.2-A

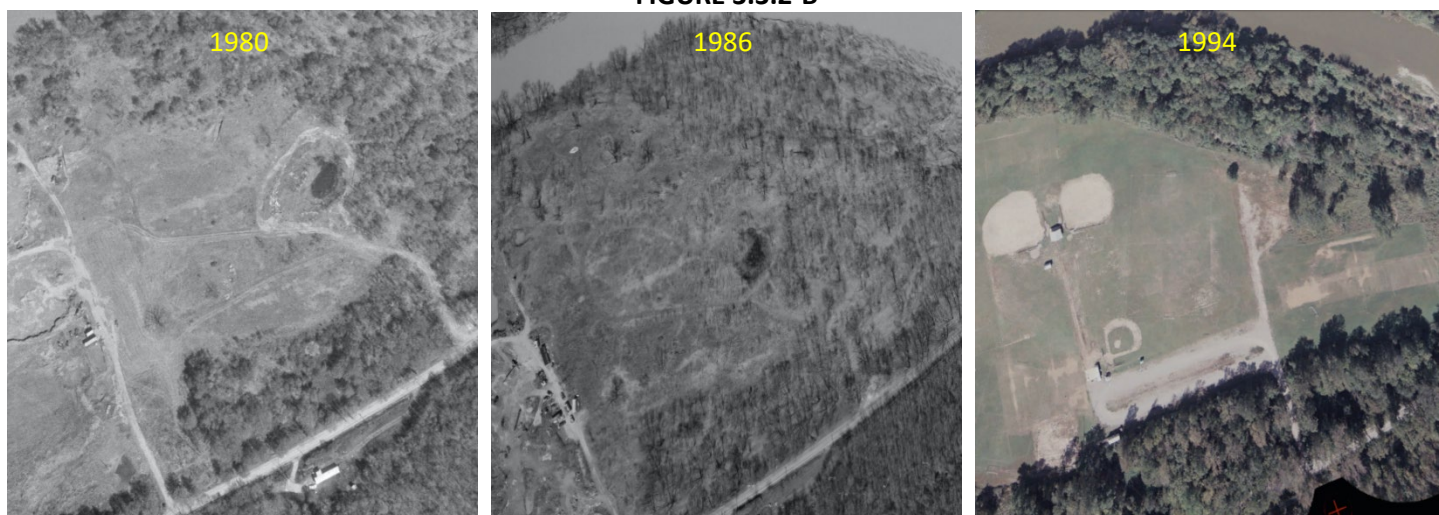


Mining likely continued until 1987 when the property was sold to the Monfort Heights Athletics Association. An Ohio EPA letter dated June 24, 1986, and a Hamilton County letter dated May 15, 1986, outlined specific guidelines that the then operating landfill was to only accept earth, rock, stone, brick, concrete, pavement, tree debris, material from construction and demolition operations such as brick, concrete, stone, glass, wallboard, framing and finishing lumber, roofing materials, plumbing, plumbing fixtures, wiring, and insulation materials.

A Hamilton County letter dated May 1, 1987, indicated that proper control and restrictions were not being adequately maintained to prevent open dumping of solid waste materials, which should be put only in a licensed sanitary landfill. Some items observed in an April 29, 1987, inspection included concrete, timbers, metal tubing, electric, boxes, bedding, water heaters, furniture, insulation, metal cabinets, trees, tires, and roofing. Control measures were recommended by Hamilton County to avoid potential violations and/or prohibiting the landfill's operation.

Two additional letters indicating guidelines that the landfill could only accept construction and demolition debris were sent by Hamilton County on February 12, 1992 and May 19, 1992. No closure records of the landfill are available. Figure 3.3.2-B shows aerals from 1980, 1986, and 1994. It appears as though filling is occurring on the property in both 1980 and 1986. In the 1994 aerial it appears as though filling has ceased and the property has been converted to athletic fields.

FIGURE 3.3.2-B

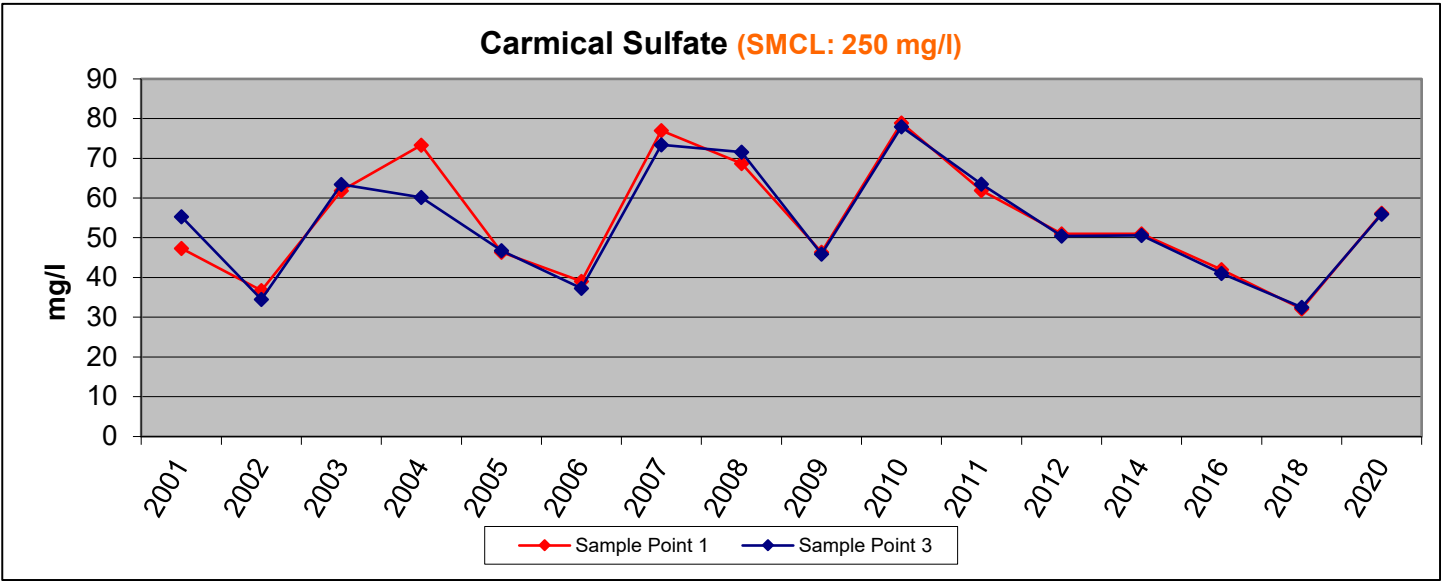
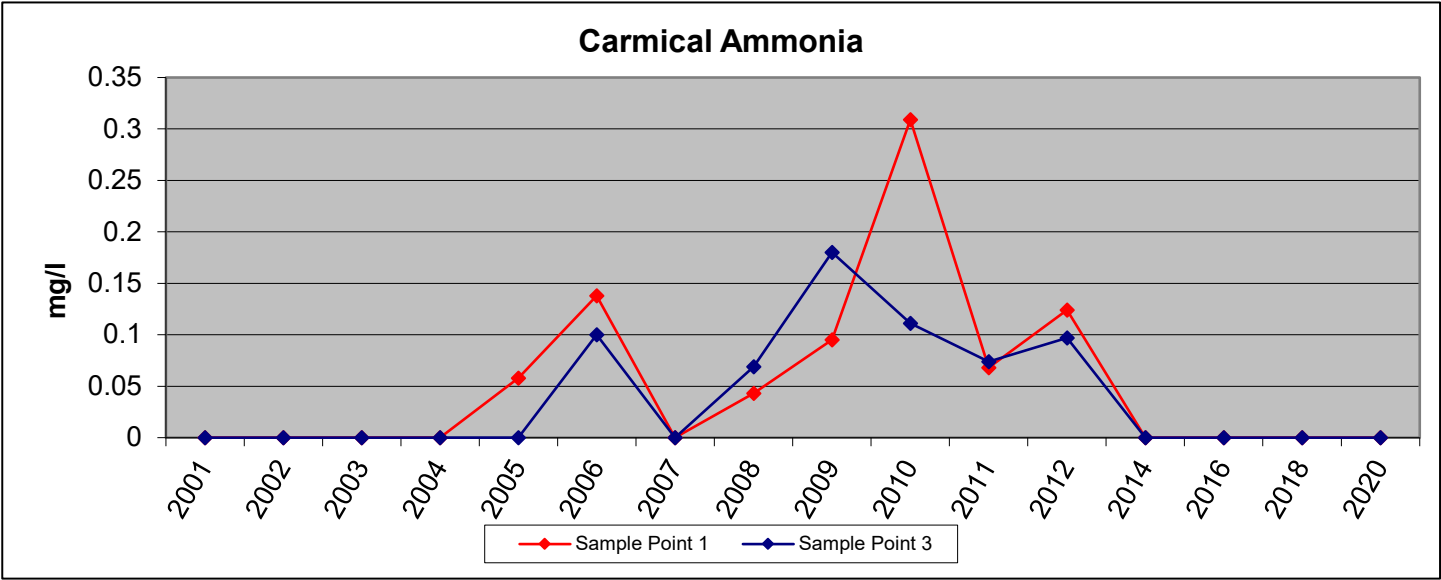
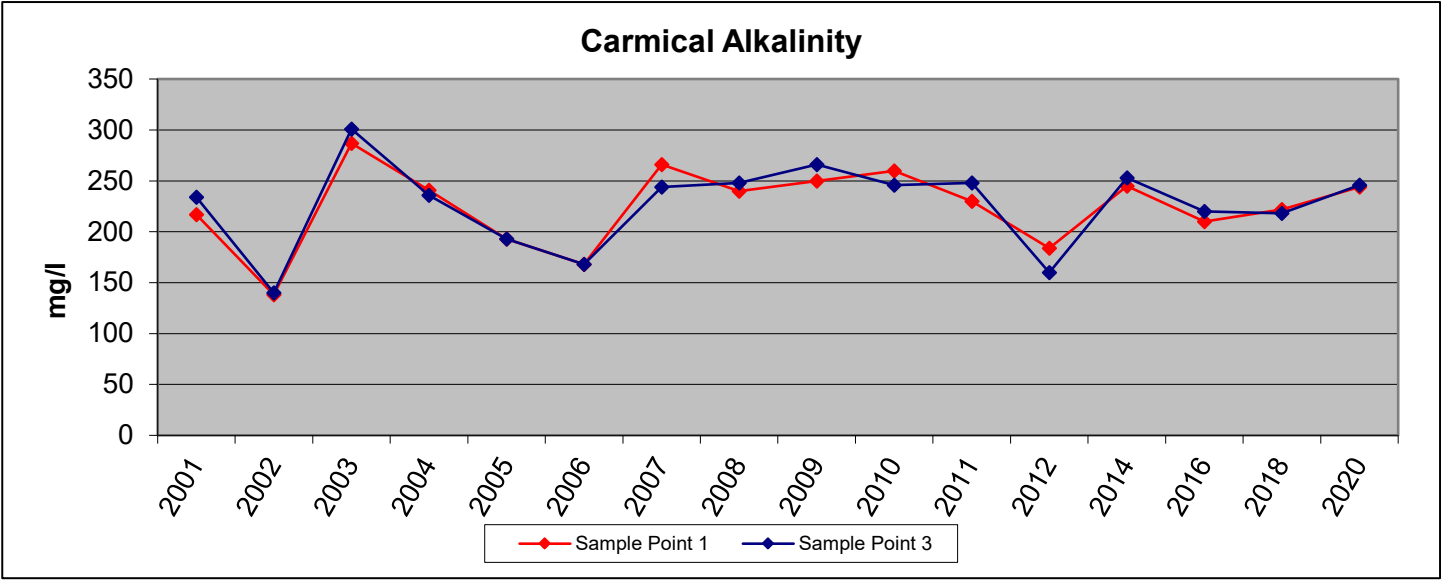


Until 2011, the property had been used by the Monfort Heights Athletic Association as recreational baseball and soccer fields with gravel parking areas and a gazebo. In 2011, the recreational ball fields and gravel parking areas were removed, and the property is now vacant green space owned by the Hamilton County Park District.

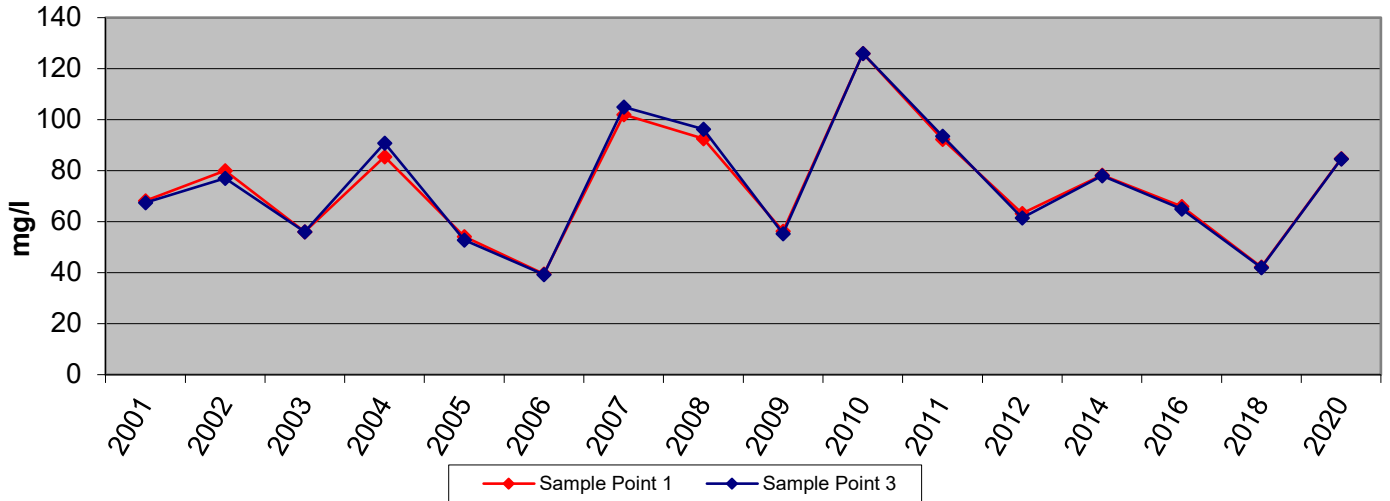
SAMPLING RESULTS

The Great Miami River runs along the north side of the Carmical Landfill. Samples are taken above and below the landfill. Historically, stream samples have been taken above (S-1), next to (S-2), and below (S-3) the landfill (Appendix A). Given the steady findings of S-2 and that both upstream and downstream samples are collected around Carmical landfill, sample site S-2 was removed from the sampling protocol in 2007. Samples around Carmical Landfill were collected on October 13, 2020. The upstream sample was in shallow (1'), gravelly, rocky riffle area of the river. The shallow area had rapid flow across the rocks. The downstream sample was taken in a pool about 2 to 3 feet deep with a rocky, silty bottom. The flow at the downstream location was slow. It was noted during the 2010 and 2011 sampling that the riverbank had been significantly reshaped by the owner for recreational use since the 2009 sampling. The referenced locations are shown on Figure 3.3.2-C.

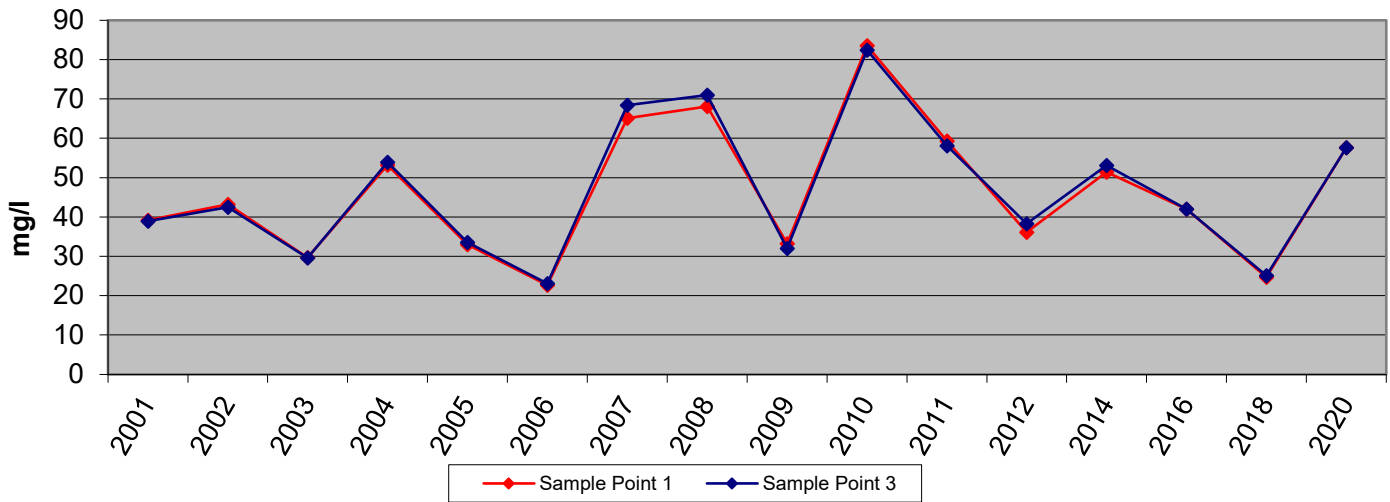
Except for a decrease observed at both sampling locations during 2012 alkalinity has been consistent for the last 9 sampling events at both the upstream and downstream sample points. Similarly, TDS has been relatively consistent for the last 8 sampling events outside of an elevated result at the upstream location in 2012. Since 2010 sulfate, sodium, and chloride had been on a downward trend. During 2020 sampling however, all three increased in concentration although the results remain within the historical ranges seen during past sampling events. 2020 concentrations of iron decreased significantly at both sampling locations when compared to the historical highs for both locations observed during 2018. The SMCL pH range was exceeded at both sampling locations in 2014. However, during 2016, 2018, and 2020 sampling results for both locations have been below the 8.5 upper limit of the SMCL. Both S-1 and S-2 have consistently shown pH levels near or above the high end (8.5) of the pH range for SMCL. Similarly, manganese was observed slightly above the SMCL of 0.05 mg/L at both sample locations during 2014 sampling. During the three sampling events completed in 2016, 2018, and 2020 manganese concentrations have fallen below the SMCL at both sample locations. All other parameters were below their respective SMCL or MCL in both the upstream and downstream samples. Surface water chemical data is illustrated for Carmical Landfill in the graphs on the subsequent pages.



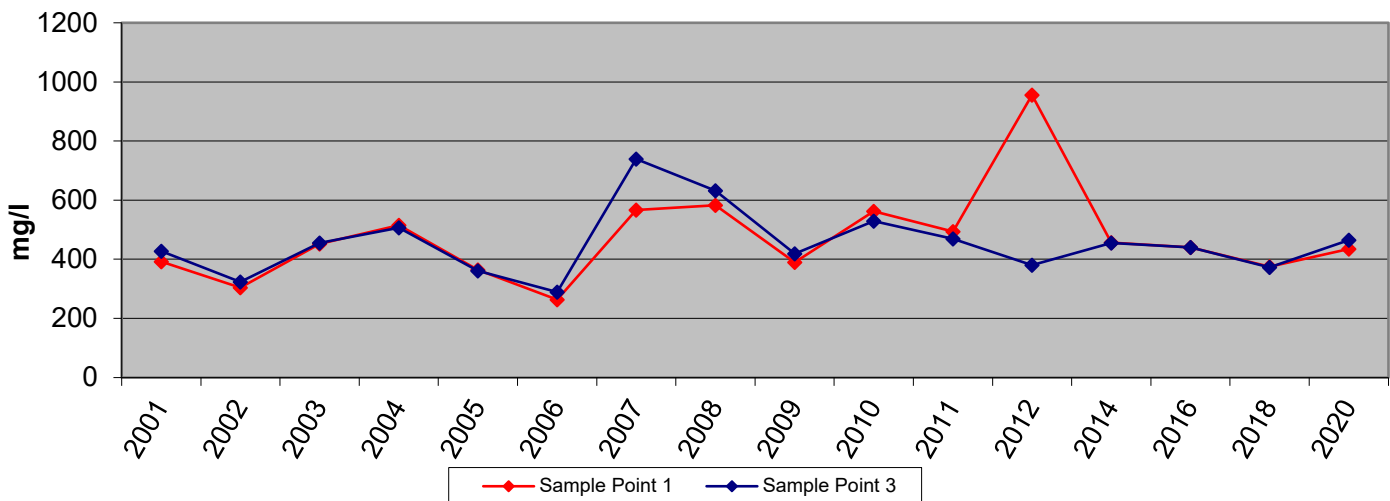
Carmical Chloride (SMCL: 250 mg/l)



Carmical Sodium (SMCL: 250 mg/l)



Carmical TDS (SMCL: 500 mg/l)



Mayfly, crayfish, snails, damselfly, and minnows have historically and continue to be dominant organisms at both sample locations (Table 3.3.2-A). Riffle beetles, caddisfly, and flat worms have also been common at the upstream sampling site. Historically, the number of types of organisms has been higher at the upstream sample (S-1) than the downstream sample (S-3) due to the differing habitats present at the sampling locations. This continued in 2020, with the number of upstream organisms being 7 and the number of downstream organisms being 5. Diversity and total numbers of organisms was similar to what has been found during previous years in both the upstream and downstream sample locations. Generally, the results indicate good environmental conditions were present and agreed with water quality results.

Table 3.3.2-A

	GROUP 1 (Higher Quality)														GROUP 2 (Moderate Quality)														GROUP 3 (Lower Quality)										Non-indicative											
	Micropterus	Notropis	Etheostoma	Amphibia	Gastropoda	Gastropoda	Coleoptera	Coleoptera	Coleoptera	Coleoptera	Trichoptera	Ephemeroptera	Plecoptera	Plecoptera	Chelydra	Dorosoma	Pimephales	Amphibia	Amphibia	Pelecypoda	Pelecypoda	Diptera	Diptera	Diptera	Hemiptera	Odonata	Odonata	Odonata	Odonata	Isopoda	Amphipoda	Decapoda	Turbellaria	Nematoda	Annelida	Annelida	Gastropoda	Diptera	Diptera	Diptera	Diptera	Diptera	Diptera	Hemiptera	Natricinae	Hemiptera	Hemiptera	Hemiptera		
	Bass	Shiner	Darter	Plethodontinae (Salamander)	Lymnea (Snail)	Planorbidae (Snail)	Dytiscidae (Crawling Water Beetle)	Hydrophilidae (Beetle Larva)	Psephenidae (Water Penny)	Elmidae (Adult Riffle)	Caddis Fly	Mayfly	Stonefly Nymph	Stonefly Adult	Turtle	Gizzard Shad	Minnow	Ranidae (Frogs)	Tadpoles	Fingernail Clam	Other Clams	Crane Fly Pupae	Crane Fly Adult	Ptychopteridae (Phantom Crane Fly)	Sialidae (Alderfly)	Dragonfly Nymph	Dragonfly Adult	Damselfly Nymph	Damselfly Adult	Sow Bug	Scud	Crayfish	Flat Worm	Round Worm	Oligochaeta (Aquatic Worm)	Hirudinea (Leech)	Physa (Pouch Snail)	Simuliidae (Blackfly)	Tendipedidae Tendipes (Midge)	Tendipedidae Psychoda (Northfly)	Culex (Mosquito Larva)	Culex (Mosquito)	Unknown Larva	Gerridae (Water Strider)	Water / Garter Snake	Notonectidae (Back Swimmer)	Corixidae (Water Boatman)	Belostomatidae (Giant Water Bug)		
Location S-1																					1							1			2*	*			1			2		1			*			13				
9/10/2004										4*	56	27					*				1											2*	*			1			2		1			*			13			
9/22/2005								3		3*	14	54				*	1*															*	*			5*		15		1			*							
9/15/2006		7										8	34				*													1		*			*			13						1		1	*			
10/9/2007										3	52	22					6			5								7				1					5		5									13		
10/30/2008					1						>100	23					9*			10								11			*	3	1				5		10									>100		
11/5/2009											12	>50					2															1	8	1		6												>100		
9/16/2010										1	1	>30					>100		1									>30			2	>30				10							>30			1				
9/15/2011										10	>12	>30					>50											6			2	12	1		12		10						5							
9/13/2012										>50	12	>50					*											1				3				12							*							
9/10/2014											>100	>100					*			3											5	30										>100	1		>100					
9/15/2016					2			4		10	30						*														*	2																		
10/1/2018									1		55						*														*																			
10/13/2020					5						7						*			2								1					62			9														
Location S-3																																																		
9/10/2004				1	1							2*																4			1*	3*					1		5			*				104	1			
9/22/2005												6				1											1					3*										*					7*			
9/15/2006		11					2					*				*																				3*		4				*					106			
10/9/2007																	8			3									19								2		2									15		
10/30/2008					1						1	10								5		1							8		1	*	34			22	>100									>100				
11/5/2009																	>25																4			12											30			
9/16/2010																			1								2	3									8		10								>100			
9/15/2011																	>50											>25									10										5			
9/13/2012										7		5					*												3				>50																	
9/10/2014								1				25					*												5															*			50			
9/15/2016												15					*																																	
10/1/2018												5					*																												*					
10/13/2020					3							1				*	*															*																		

* - Observed while sampling

The Great Miami River borders the Carmical Closed Landfill (Figure 3.3.2-C) to the north and east. The adjacent property to the west has a gravel pit pond along much of the west boundary of the landfill. A drainage ditch runs along the southern edge of the landfill. No gas monitoring is conducted at this location.

FACILITY INSPECTIONS

The site was inspected by HCPH on December 27, 2021. No violations or nuisance conditions were observed on the site.

SITE PRESENT DAY

Today the site is open space owned by the Hamilton County Park District. The site is completely covered by grass and weeds with trees around the perimeter of the former landfill. A locked gate blocks vehicle entry to the area.



Figure 3.3.2-C
Carmical Closed Landfill
East Miami River Road

- ◆ = Surface Water Sampling Location
- = Approximate Limits of waste (Carmical)
- = Approximate Limits of waste (Miamitown)

