

Appendix A.

HUCs and Ohio EPA Sample Stations

1. HUCs

Ohio EPA revised the hydrologic unit codes (HUCs) throughout the state of Ohio in 2008 and the agency revised its methodology for listing impaired waterbodies on Ohio’s 303(d) list. Prior to 2008, listings were made at the 11-digit HUC level and the 11-digit HUCs were delineated into 14-digit HUCs. The 11-digit HUC was the watershed assessment unit (WAU). Since 2008, Ohio EPA listed by 12-digit HUC and now the 12-digit HUC is the WAU.

The lower Grand River watershed currently consists of two 10-digit HUCs and 10 12-digit HUCs. At the time of the 2003 to 2004 field survey and the publication of *Biological and Water Quality Study of the Grand River Basin 2003-2004. Hydrologic Units 04110004 050 and 04110004 060* (Ohio EPA 2006a), the lower Grand River consisted of two 11-digit HUCs and nine 14-digit HUCs. Crosswalks from the 11-digit and 14-digit HUCs to the 10-digit and 12-digit HUCs are presented in Table A-1 and Table A-2.

Table A-1. HUC crosswalk for the Mill Creek watershed

HUC-14 I.D. (old)	HUC-14 Narrative (old)	HUC-12 I.D. (new)	HUC-12 Narrative (new)
04110004 050 010	Headwaters to above Griggs Creek	04110004 04 02	Peters Creek-Mill Creek
04110004 050 020	Griggs Creek	04110004 04 01	Griggs Creek
04110004 050 030	Below Griggs Creek to Grand River	04110004 04 03	Town of Jefferson-Mill Creek

Table A-2. HUC crosswalk for lower Grand River watershed below Mill Creek

HUC-14 I.D. (old)	HUC-14 Narrative (old)	HUC-12 I.D. (new)	HUC-12 Narrative (new)
04110004 060 010	Grand River below Mill Cr. to below Coffee Cr.	04110004 06 01	Coffee Creek-Grand River
04110004 060 020	Grand River below Coffee Cr. to above Mill Cr.	04110004 06 03	Village of Mechanicsville-Grand River
04110004 060 030	Mill Creek	04110004 06 02	Mill Creek
04110004 060 040	Grand River below Mill Cr. to above Paine Cr.	04110004 06 05	Talcott Creek-Grand River
04110004 060 050	Paine Creek	04110004 06 04	Paine Creek
04110004 060 060	Big Creek (except Kellogg Creek)	04110004 06 06	Big Creek
04110004 060 070	Kellogg Creek		
04110004 060 080	Grand River below Paine Cr. to Lake Erie (except Big Cr.)	04110004 06 07	Red Creek-Grand River

2. Ohio EPA Sample Stations

Ohio EPA sampled the Grand River and its tributaries for bacteria, common ions, metals, nutrients, and such in 2000, 2003, and 2004. The locations of Ohio EPA's sample stations are presented in *Biological and Water Quality Study of the Grand River Basin 2003-2004. Hydrologic Units 04110004 050 and 04110004 060* (Ohio EPA 2006a). Summaries of the locations of these sample stations are presented in Table A-3 and Table A-4.

Table A-3. Ohio EPA sample stations in the Griggs Creek – Mill Creek 10-digit HUC (04110004 04)

Waterbody name	RM ^a	WAU ^b	Name	Alternate name	STORET ID	DA (mi ²)
Askue Run	0.1	04 02	@ Denmark RD	SE of Jefferson	200614	5.6
Cemetery Creek	2.1/2.4	04 03	@ OH-46	Just UPST of Jefferson WWTP	G02S09	4.7
	1.2/1.3		@ Poplar ST	DST of Jefferson WWTP	G02S08	4.9
	0.1		@ Hickok RD	DST of Jefferson	G02S07	5.5
Griggs Creek	2.0	04 01	@ Poplar Street	--	G02G12	14.6
Mill Creek	25.6/25.7	04 02	@ Clay RD	--	G02G13	21.6
	18.2		@ Netcher RD	--	G02S04	47
	10.0	04 03	@ Doyle RD	--	G02S05	80
	6.5		@ Mill Creek RD	@ Calpin RD	G0SG17	87
	3.7/4.1		@ Forman RD	--	G02G11	92
	3.5		@ OH-45	West of Jefferson	G02P07 (G02G18)	101
Peters Creek	0.2	04 02	@ Clay RD	NW of Dorset	200615	3.7

DA = drainage area; DST = downstream; RD = road; RM = river mile; ST = street; UPST = upstream; WAU = watershed assessment unit; WWTP = wastewater treatment plant

a. When two river miles are reported, one river mile is for the location of fish sample collection and the other river mile is for the location of macroinvertebrate sample collection.

b. All assessment units are located in the Grand River watershed 8-digit HUC 04110004.

Table A-4. Ohio EPA sample stations in the Big Creek – Grand River 10-digit HUC (04110004 06)

Waterbody name	RM ^a	WAU ^b	Name	Alternate name	STORET ID	DA (mi ²)
Bates Creek	3.3	06 04	@ OH-166	SW of Thompson	G02G36 (200600)	11.4
	2.2		@ Radcliffe RD	SW of Thompson	200599	12.7
	0.3		@ Leroy-Thompson RD	@ OH-86	G02G40 (200598)	14.5
Big Creek	16.2	06 06	@ US-6	USTP Chardon WWTP	G02S16	1.2
	16.0		DST Chardon WWTP	--	G02W21	1.2
	14.0		@ Woodin RD	N of Chagrin	G02S15	5.9
	9.3		@ OH-308	--	G02G16	14.9
	4.9		@ Williams RD	--	G02W22	28
	2.5		@ Fay RD	--	G02W23	36
Coffee Creek	2.2	06 01	@ College ST	near Austinburg	G02W02	9.3
	1.9		@ OH-307	near Austinburg	G02W01	9.3
	1.3		UPST Austinburg WWTP	--	G02G02	10.0
	1.2		DST Austinburg WWTP	--	G02G01 (200610)	10.1
	0.1/0.2		@ Lampson RD	SW of Austinburg	G02W03	12.0
Cutts Creek	1.2	06 06	@ Cutts RD	--	G02G33 (G99Q11)	0.9
East Creek	1.2	06 06	@ Callow RD	--	G02G32 (G99Q10)	4.4
Ellison Creek	3.7	06 06	Upst Golf Course	--	Ec2 (200592)	2.3
	2.3		@ River Run DR	--	Ec1 (200591)	3.7
	1.2/1.3		@ Pinehill RD	S of Painesville	G02G39 (200590)	5.6
	0.3/0.6		@ Prouty RD	SW of Painesville	G02P10	5.8
Jenks Creek	0.1	06 06	ADJ Robinson RD	near mouth	G02W24	2.8
Jordan Creek	1.1	06 06	@ Alexander RD	near Camp Klein	G02G21 (G99Q09)	3.3
Kellogg Creek	5.7	06 06	@ Button RD	@ Brenel Rd	G99Q07 (G02G25)	2.8
	3.3		upstream Morley Road		200593	5.2
	3.1		--	--	--	11.6
	2.5/2.6		0.5 miles from OH-44		G099Q06	11.8
	0.2		@ OH-86	near mouth	G02G23 (G99Q04)	13.1
Mill Creek	5.0	06 02	@ Aitkins RD	--	G02G26 (G99Q08)	4.8
	1.3/1.4		@ Doty RD	--	G02G10	20.3
UT to Mill Creek RM 4.34	1.6/2.0	06 02	@ Mosely RD and Short RD	E of Thompson	G02G27 (200608)	5.2/ 3.6
Paine Creek	5.6/6.2	06 04	@ road @ Hells Hollow	W of Thompson RD	G99Q12 (G02G35)	20.8
	3.0		@ Paine RD	--	G02P02	26.0
	0.5		@ Seely RD		G02P01	27.7
UT to Paine Creek RM 7.17	0.4	06 04	@ Leroy Thompson RD	--	G02G38 (200597)	2.8

Waterbody name	RM ^a	WAU ^b	Name	Alternate name	STORET ID	DA (mi ²)
Phelps Creek	0.1	06 04	@ Leroy Thompson RD	@ mouth	G02G37 (300941)	3.1
Red Creek	0.5	06 07	@ Mantle RD	--	G02G21 (G02W09)	9.5
Talcott Creek	1.5	06 05	UPST of Ford RD	S of Madison	200604	5.2
	0.2		@ Stoney Glen Camp	& W. Loveland RD	G02G29 (200602)	5.9

DA = drainage area; DST = downstream; RD = road; RM = river mile; ST = street; UPST = upstream; WAU = watershed assessment unit; WWTP = wastewater treatment plant

a. When two river miles are reported, one river mile is for the location of fish sample collection and the other river mile is for the location of macroinvertebrate sample collection.

b. All assessment units are located in the Grand River watershed 8-digit HUC 04110004.

In this report, data collected by Ohio EPA are identified by the STORET code, rivermile, or narrative site description. For example, the sample site located on Bates Creek at RM 0.3, which is at Leroy-Thompson Road, is identified as site 200598. It is important to note that Ohio EPA has issued multiple STORET codes for some sites and created more than one narrative site description. For example, the previously mentioned site at Bates Creek at RM 0.3 is also known as site G02G40 and also described as at state route 86. Finally, different types of data were usually collected at different locations that are all considered to be the same sample site. Typically, water quality samples are collected at a bridge or road-crossing. Fish and macroinvertebrate sampling and QHEI analysis may occur at locations upstream or downstream of the road-crossing. For example, at site G02G13 on Mill Creek (HUC 04110004 04 02) at Clay Road, fish were sampled at RM 25.6 and macroinvertebrates were sampled upstream at RM 25.7. Rarely were all four types of data (in-stream water quality, fish, macroinvertebrate, and habitat) data collected at the exact same location. Thus, the rivermiles and geographic coordinates associated with certain samplings may vary while the STORET code and narrative site description are the same. Considerable effort was spent to standardize the presentation of locations in this report. If these site locations are compared to the raw data or other documents (e.g., *Biological and Water Quality Study of the Grand River Basin 2003 - 2004*, *Hydrologic Units 04110004 050 and 04110004 060* [Ohio EPA 2006a]), then the various types of identification may differ from the other sources.