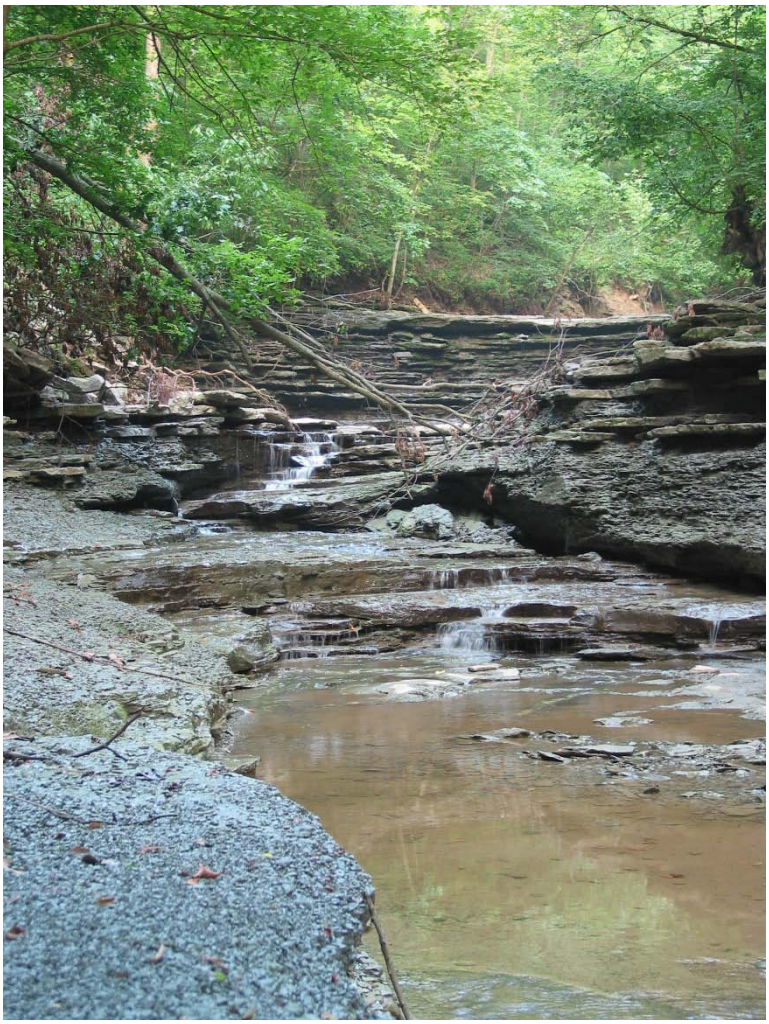
Level 3 Project Study Plan

for the

Clermont County, Ohio

2009 Water Quality Sampling Program



Backbone Creek

April 3, 2009

TABLE OF CONTENTS

LIST OF FIGURES iii
1.OBJECTIVES 1
1.1 Diurnal Dissolved Oxygen (D.O.) Profiles 1
1.2 Ambient Sampling 1
1.3 Habitat Assessment 1
2. POINT AND NONPOINT SOURCE ISSUES 3
2.1 Diurnal D.O. Profiles 4
2.2 Ambient Sampling 10
2.3 Habitat Assessment 20
3. PARAMETERS FOR EACH SAMPLING LOCATION 25
4. IDENTIFICATION OF FIELD AND LABORATORY METHODS 25
5. EXPLANATION OF PLANNED SAMPLING LOCATIONS 25
5.1 Diurnal D.O. Profiles 27
5.2 Ambient Sampling 29
5.3 Habitat Assessment 31
6. SCHEDULE OF PLANNED SAMPLING ACTIVITIES 33
6.1 Diurnal D.O. Profiles 33
6.2 Ambient Sampling 33
6.3 Habitat Assessment 33
7. QUALITY ASSURANCE/QUALITY CONTROL PLAN 33
8. WORK PRODUCTS 33
9. LIST OF QUALITY DATA COLLECTORS AND OTHER PERSONELL 34
10. DOCUMENTATION OF LEVEL 3 QDC STATUS 35
11. IDENTIFICATION OF CONTRACT LABORATORY 37
12. SCIENTIFIC COLLECTOR'S PERMIT 37
13. DIGITAL PHOTO CALALOG 38
14. VOUCHER SPECIMENS 38
15. STATEMENT REGARDING CRIMINAL TRESPASSING 38

LIST OF TABLES

Table 1. List of sample identifications and field and laboratory parameters for each sampling location 2

Table 2. Summary of point and nonpoint sources of pollution for each sampling location 3

Table 3. Georeferencing Data for Sampling Locations 26

Table 4. Georeferencing data for figures 27

LIST OF FIGURES

Figure 1. Batavia WWTP Diurnal D.O. Sampling Locations 5

Figure 2. Middle East Fork WWTP Diurnal D.O. Sampling Locations 6

Figure 3. Lower East Fork WWTP Diurnal D.O. Sampling Locations 7

Figure 4. Milford WWTP Diurnal D.O. Sampling Locations 8

Figure 5. O'Bannon WWTP Diurnal D.O. Sampling Locations 9

Figure 6. Ambient Sampling Locations: EFLMR46.7, Grassy Fork, & Howard Run 12

Figure 7. Ambient Sampling Locations: EFLMR44.1 & 41.0, Five Mile Creek, Pleasant Run, & Four Mile Creek 13

Figure 8. Ambient Sampling Locations: EFLMR & Crane Run 14

Figure 9. Ambient Sampling Locations: Four Mile Run 15

Figure 10. Ambient Sampling Locations: EFLMR13.6 & Backbone Creek 16

Figure 11. Ambient Sampling Locations: EFLMR9.1 17

Figure 12. Ambient Sampling Locations: Dry Run Creek, Sugarcamp Run, & Wolfpen Run 18

Figure 13. Ambient Sampling Locations: EFLMR2.0 19

Figure 14. Habitat Assessment Lucy Run 21

Figure 15. Habitat Assessment Backbone Creek 22

Figure 16. Habitat Assessment Shayler Run 23

Figure 17. Habitat Assessment Hall Run 24

Figure 18. Diurnal D.O. Monitoring Locations Scale Map 28

Figure 19. Ambient Sampling Locations Scale Map 30

Figure 20. Habitat Assessment Scale Map 32

Figure 21. QDC Documentation: McManus 35
Figure 22. QDC Documentation: McManus 36
Figure 23. QDC Documentation: Lubbers 37
Figure 24. Certification Letter 39

LIST OF APPENDICES

Appendix A: Quality Assurance Plan

Appendix B: Field Standard Operating Procedures

Appendix C: Laboratory Standard Operating Procedures

1. OBJECTIVES

As it has for the past 13 years, the Clermont County Office of Environmental Quality (OEQ) will be conducting a multi-faceted water quality sampling program in 2009. The program will involve collecting field data and water samples from a number of locations around the County in support of various initiatives, and analyzing those samples for parameters specific to those initiatives (Table 1). Data will be used for estimation purposes, i.e. to ascertain contaminant concentrations at various locations and within various watersheds, and are not being collected in support of any specific regulatory decision-making processes. According to the latest U.S. EPA guidelines, projects generating newly-collected data require a set of performance criteria that are of sufficient quality and quantity to address the project's goals (EPA/240/B-06/001). Clermont County OEQ has developed such performance criteria in the form of Data Quality Objectives for laboratory accuracy, laboratory precision, field accuracy, and field precision (See attached Quality Assurance Project Plan).

1.1 Diurnal Dissolved Oxygen (D.O.) Profiles

Data collected from multi-parameter water quality sondes for periods of 24 hours (diurnal profiles) and from grab water quality samples will be used to determine impacts of wastewater treatment plant effluent and habitat on stream dissolved oxygen concentrations.

1.2 Ambient Sampling

Ambient grab sampling from tributaries and the main stem of the East Fork of the Little Miami River (EFLMR) will be used to obtain a better understanding of phosphorus loadings to the EFLMR both upstream and downstream of Harsha Lake.

1.3 Habitat Assessment

Habitat will be assessed in Lucy Run, Backbone Creek, Hall Run, and Shayler Run by performing a Headwater Habitat Evaluation Index (HHEI) in Lucy Run and a Qualitative Habitat Evaluation Index (QHEI) in the remaining streams. Assessments will be used to monitor habitat improvements in future or ongoing projects in these streams.

Table 1. List of sample identifications and field and laboratory parameters for each sampling location

Location	Sample ID	Field Parameters	Laboratory Parameters
Diurnal DO Profiles			
EFLMR Upstream Batavia WWTP--riffle	USBAT14.3R, USBAT13.5R	Dissolved Oxygen (D.O.)	ortho-P, TP, $CBOD_5$
EFLMR Upstream Batavia WWTP---pool	USBAT13.9P, USBAT13.6P	Dissolved Oxygen (D.O.)	N/A
EFLMR Downstream Batavia WWTP--riffle	DSBAT12.6R[1]	Dissolved Oxygen (D.O.)	ortho-P, TP, $CBOD_5$
EFLMR Downstream Batavia WWTP--pool	DSBAT12.7P[2]	Dissolved Oxygen (D.O.)	N/A
EFLRM Upstream Middle East Fork WWTP--riffle	USMEF12.6R[1]	Dissolved Oxygen (D.O.)	ortho-P, TP, $CBOD_5$
EFLMR Upstream Middle East Fork WWTP--pool	USMEF12.7P[2]	Dissolved Oxygen (D.O.)	N/A
EFLMR Downstream Middle East Fork--riffle	DSMEF11.9R, DSMEF11.2R	Dissolved Oxygen (D.O.)	ortho-P, TP, $CBOD_5$
EFLMR Downstream Middle East Fork--pool	DSMEF12.0P, DSMEF11.1P	Dissolved Oxygen (D.O.)	N/A
EFLMR Upstream Lower East Fork WWTP--riffle	USLEF5.2R	Dissolved Oxygen (D.O.)	ortho-P, TP, $CBOD_5$
EFLMR Upstream Lower East Fork WWTP--pool	USLEF5.3P	Dissolved Oxygen (D.O.)	N/A
EFLMR Downstream Lower East Fork WWTP--riffle	DSLEF4.1R, DSLEF3.6R	Dissolved Oxygen (D.O.)	ortho-P, TP, $CBOD_5$
EFLMR Downstream Lower East Fork WWPT--pool	DSLEF4.0P, DSLEF3.7P	Dissolved Oxygen (D.O.)	N/A
Upstream Milford WWTP--riffle	USMIL2.1R	Dissolved Oxygen (D.O.)	ortho-P, TP, $CBOD_5$
EFLMR Upstream Milford WWTP--pool	USMIL2.2P	Dissolved Oxygen (D.O.)	N/A
EFLMR Downstream Milford WWTP--riffle	DSMIL0.8R	Dissolved Oxygen (D.O.)	ortho-P, TP, $CBOD_5$
EFLMR Downstream Milford WWTP--pool	DSMIL0.7P	Dissolved Oxygen (D.O.)	N/A
EFLMR Downstream Milford WWTP--pool	DSMIL0.2P	Dissolved Oxygen (D.O.)	ortho-P, TP, $CBOD_5$
O'Bannon Creek Upstream O'Bannon WWTP--riffle	USOB3.1R	Dissolved Oxygen (D.O.)	ortho-P, TP, $CBOD_5$
O'Bannon Creek Upstream O'Bannon WWTP--pool	USOB3.2P	Dissolved Oxygen (D.O.)	N/A
O'Bannon Creek Downstream O'Bannon WWTP--riffle	DSOB2.4R, DSOB1.9R	Dissolved Oxygen (D.O.)	ortho-P, TP, $CBOD_5$
O'Bannon Creek Downstream O'Bannon WWTP--pool	DSOB2.0P, DSOB2.5P	Dissolved Oxygen (D.O.)	N/A
Ambient Sampling--Upstream from Lake			
Grassy Fork RM 0.2 at Glancy Corner-Marathon Road	GRSSY0.2	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP
Howard Run RM 0.4 at Burdsall Road	HWRD0.4	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP
Five Mile Creek RM 0.5 at Bluesky Pkwy	5MILECR0.5	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP
Pleasant Run RM 0.2 at Hutchinson Property	PLEAS0.2	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP
Four Mile Creek RM 0.5 at Jackson Pike	4MILECR0.5	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP
Crane Run RM 0.2 at McKeever Road	CRANE0.2	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP
EFLMR RM 46.7 at Burdsall Road	EFRM46.7	level, D.O., specific conductance, temperature, pH	ortho-P, TP
EFLMR RM 44.1 at Blue Sky Pkwy	EFRM44.1	level, D.O., specific conductance, temperature, pH	ortho-P, TP
EFLMR RM 41.0 at Jackson Pike	EFRM41.0	level, D.O., specific conductance, temperature, pH	ortho-P, TP
EFLMR RM 34.8 at Main St.	EFRM34.8	level, D.O., specific conductance, temperature, pH	ortho-P, TP
EFLMR RM 28.7 at Park Boat Ramp	EFRM28.7	level, D.O., specific conductance, temperature, pH	ortho-P, TP
Ambient Sampling--Downstream from Lake			
Four Mile Run RM 2.0 d/s of BMW WTP pond	4MIRN2.0	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP
Four Mile Run RM 0.2 at Elklick Road d/s of golf course	4MIRN0.2	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP
Backbone Creek RM 0.2 at SR 132	BKBN0.2	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP
Dry Run Creek RM 0.1 at Dry Run Road	DRYRN0.1	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP
Sugar Camp Run RM 0.2 at US 50	SUGAR0.2	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP
Wolfpen Run RM 0.1 at US 50	WLFPN0.1	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP
EFLMR RM 13.6 at Haskell Lane	EFRM13.6	level, D.O., specific conductance, temperature, pH	ortho-P, TP
EFLMR RM 9.1 at Stonelick-Olivebranch Road	EFRM9.1	level, D.O., specific conductance, temperature, pH	ortho-P, TP
EFLMR RM 2.2 at Milford Ballfields	EFRM2.2	level, D.O., specific conductance, temperature, pH	ortho-P, TP
Habitat Assessment			
Lucy Run RM 2.8	LUCY2.8	HHEI	N/A
Backbone Creek RM 0.5	BKBN0.5	QHEI	N/A
Shayler Run RM 2.4	SHYLR2.4	QHEI	N/A
Hall Run RM 1.5	HALL1.5	QHEI	N/A

2. POINT AND NONPOINT SOURCE ISSUES

Table 2 provides a summary of the point and nonpoint sources of pollution in the watersheds of each sampling location.

Table 2. Summary of point and nonpoint sources of pollution for each sampling location

Sample ID	Figure No.	Point Source Issues	Non-Point Source Issues
Diurnal DO Profiles			
USBAT14.3R, USBAT13.5R, USBAT13.9P, USBAT13.6P	1	Harsha Lake	I/I, urban stormwater, agriculture, wildlife
DSBAT12.6R*, DSBAT12.7P*	1	WWTP, Harsha Lake	I/I, urban stormwater, agriculture, wildlife
USMEF12.6R*, USMEF12.7P*	2	WWTP, Harsha Lake	I/I, urban stormwater, agriculture, wildlife
DSMEF11.9R, DSMEF11.2R, DSMEF12.0P, DSMEF11.1P	2	WWTP, Harsha Lake	I/I, urban stormwater, agriculture, wildlife
USLEF5.2R, USLEF5.3P	3	WWTP, Harsha Lake	HSTSs, gravel mining, agriculture, urban stormwater, wildlife
DSLEF4.1R, DSLEF3.6R, DSLEF4.0P, DSLEF3.7P	3	WWTP, ESF, Harsha Lake	HSTSs, gravel mining, agriculture, urban stormwater, wildlife
USMIL2.1R, USMIL2.2P	4	MHP WWTP, WWTP, ESF, Harsha Lake	HSTSs, gravel mining, agriculture, urban stormwater, wildlife
DSMIL0.8R, DSMIL0.7P, DSMIL0.2P	4	MHP WWTP, WWTP, ESF, Harsha Lake	HSTSs, gravel mining, agriculture, urban stormwater, wildlife
USOB3.1R, USOB3.2P	5	N/A	HSTSs, I/I, agriculture, construction, golf courses, wildlife
DSOB2.4R, DSOB1.9R, DSOB2.0P, DSOB2.5P	5	WWTP	HSTSs, I/I, agriculture, construction, golf courses, wildlife
Ambient Sampling--Upstream from Lake			
GRSSY0.2	6	N/A	agriculture, HSTSs, wildlife
HWRD0.4	6	N/A	agriculture, HSTSs, wildlife
5MILECR0.5	7	N/A	agriculture, HSTSs, livestock, wildlife
PLEAS0.2	7	HW landfill	agriculture, HSTSs, livestock, wildlife
4MILECR0.5	7	N/A	agriculture, HSTSs, wildlife
CRANE0.2	8	N/A	agriculture, HSTSs, wildlife
EFRM46.7	6	WWTPs	agriculture, HSTSs, wildlife
EFRM44.1	7	WWTPs	agriculture, HSTSs, wildlife
EFRM41.0	7	WWTPs	agriculture, HSTSs, wildlife
EFRM34.8	8	WWTPs	agriculture, HSTSs, wildlife
EFRM28.7	8	WWTPs	agriculture, HSTSs, wildlife
Ambient Sampling--Downstream from Lake			
4MIRN2.0	9	BMW WTP	golf course, storm water, HSTSs, sewer exfiltration, wildlife
4MIRN0.2	9	BMW WTP	urban storm water, HSTSs, agriculture, wildlife
BKBN0.2	10	limestone quarry	I/I, HSTSs, agriculture, wildlife
DRYRN0.1	12	N/A	agriculture, HSTSs, wildlife
SUGAR0.2	12	N/A	I/I, HSTSs, urban stormwater, wildlife
WLFPN0.1	12	MHP WWTP, package plant	HSTSs, urban stormwater, wildlife
EFRM13.6	10	WWTP, Harsha Lake	I/I, urban stormwater, agriculture, wildlife
EFRM9.1	11	WWTP	HSTSs, gravel mining, agriculture, urban stormwater,
EFRM2.0	13	MHP WWTP, WWTP	urban stormwater, HSTSs, wildlife
Habitat Assessment			
LUCY2.8	14	N/A	I/I, HSTS, urban stormwater, wildlife
BKBN0.5	15	limestone quarry	I/I, HSTSs, agriculture, wildlife
SHYLR2.4	16	N/A	I/I, HSTSs, urban stormwater, wildlife
HALL1.5	17	N/A	I/I, HSTSs, urban stormwater, wildlife

2.1 Diurnal D.O. Profiles

In 2007 and 2008, OEQ monitored DO profiles upstream and downstream from WWTPs that discharge to the East Fork of Little Miami River to record the effect, if any, nutrient loading or organic enrichment from the plants may have had on DO levels in the river (visit www.oeq.net for reports). These sites were monitored during summer low-flow conditions to maximize the effect from WWTP loads and temperature on DO concentrations. Regardless of weather conditions, flow in the EFLMR downstream of the Harsha Lake Dam (River Mile 20.5) is maintained at a minimum of 30 cubic feet per second (c.f.s.) by the Army Corp of Engineers (ACOE) in order to support aquatic life. In 2008, DO concentrations upstream and downstream of the WWTPs' outfalls always remained above the 5 mg/l in-stream criteria values for Exceptional Warm water Habitats (EWH) and were typically around 6 mg/l.

In 2009, OEQ plans to continue this DO monitoring mentioned above, while expanding upon the sampling design and monitoring locations. Because the lowest DO concentrations observed in 2008 were monitored in a pool habitat, in 2009 OEQ will monitor DO in the EFLMR and O'Bannon Creek just upstream of riffle habitats and in pool habitats, both upstream and downstream of the outfalls from the Batavia (BAT), Middle East Fork (MEF), Lower East Fork (LEF), Milford (MIL), and O'Bannon (OB) WWTPs. Two models of YSI data sondes with internal memory will be used, the 600 XLM and the 600 XLM V2, to monitor stream DO concentrations over 24-hours at each sampling location.

The downstream DO sites are all situated downstream of a WWTP, however some upstream DO sites are situated downstream from WWTPs located further upstream. For example the USLEF and USMIL sites are downstream from the Batavia and Middle East Fork WWTPs and the USMIL site is also downstream from the LEF WWTP. Royal Hills and Orchard Lake Mobile Home Park WWTPs also contribute pollutants to the USMIL and DSMIL. Other point and nonpoint sources for the EFLMR DO sites are listed in section 2.2 below. Table 2 summarizes the possible point and nonpoint sources of pollution in the watersheds of each sampling location.

Agriculture is the dominant nonpoint source in the O'Bannon Creek watershed, however sites may also be susceptible to some residential storm water and construction site runoff. Much of the watershed is also serviced by HSTSs, which may be contributing additional nutrient loadings. Three golf courses, the O'Bannon Creek Golf Club, Hickory Woods Golf Course, and Eagles Nest Golf Course, are located in the watershed as well. During rain events O'Bannon Creek could be receiving sewage associated pollutants from Inflow and infiltration (I/I) from the sewer line that runs parallel to the stream, however we may not see effects from these events as DO monitoring will be conducted during summer base flow.

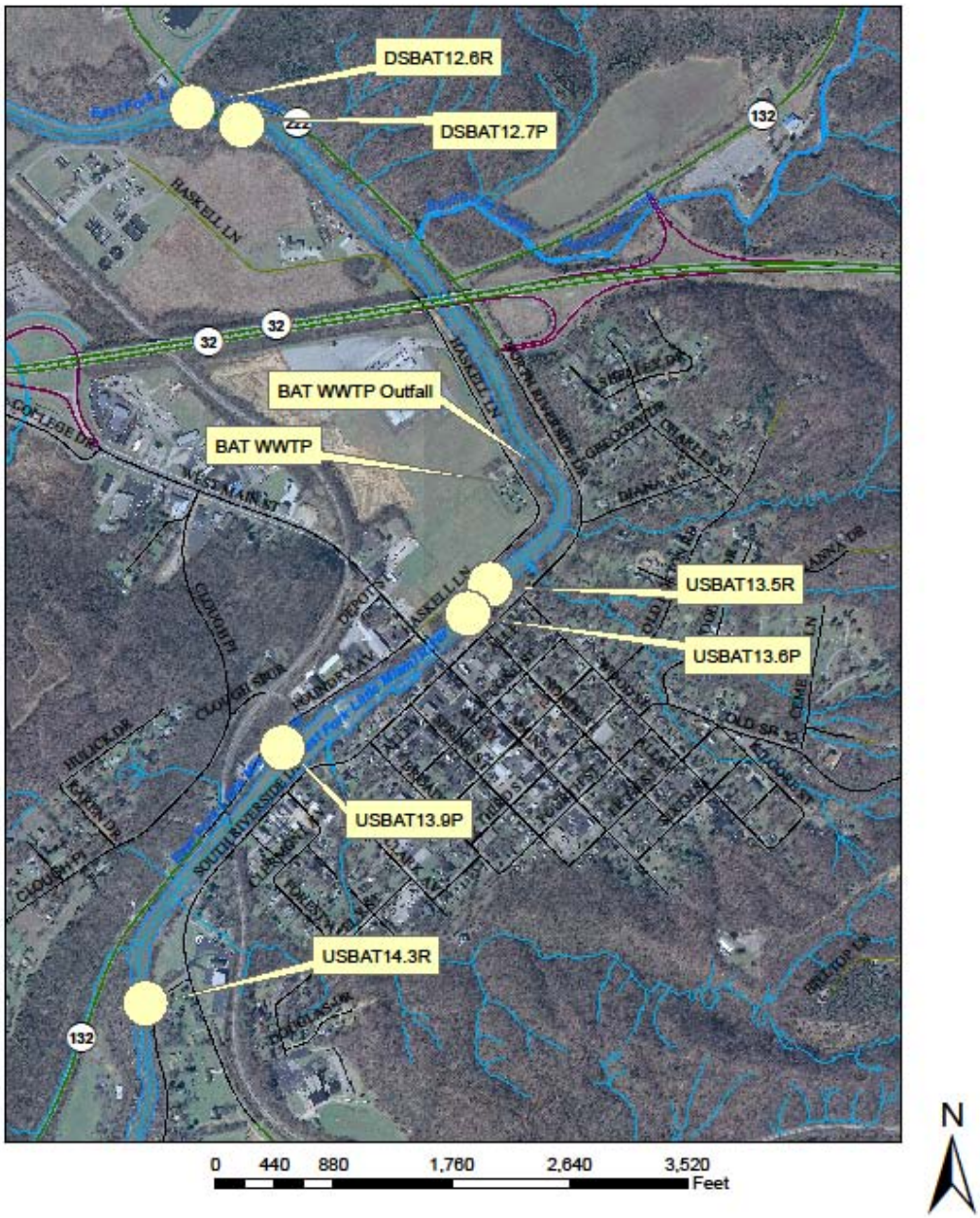


Figure 1.

2009 WQ Monitoring Program
24-Hour D.O. Profiles
Upstream and Downstream of BAT WWTP

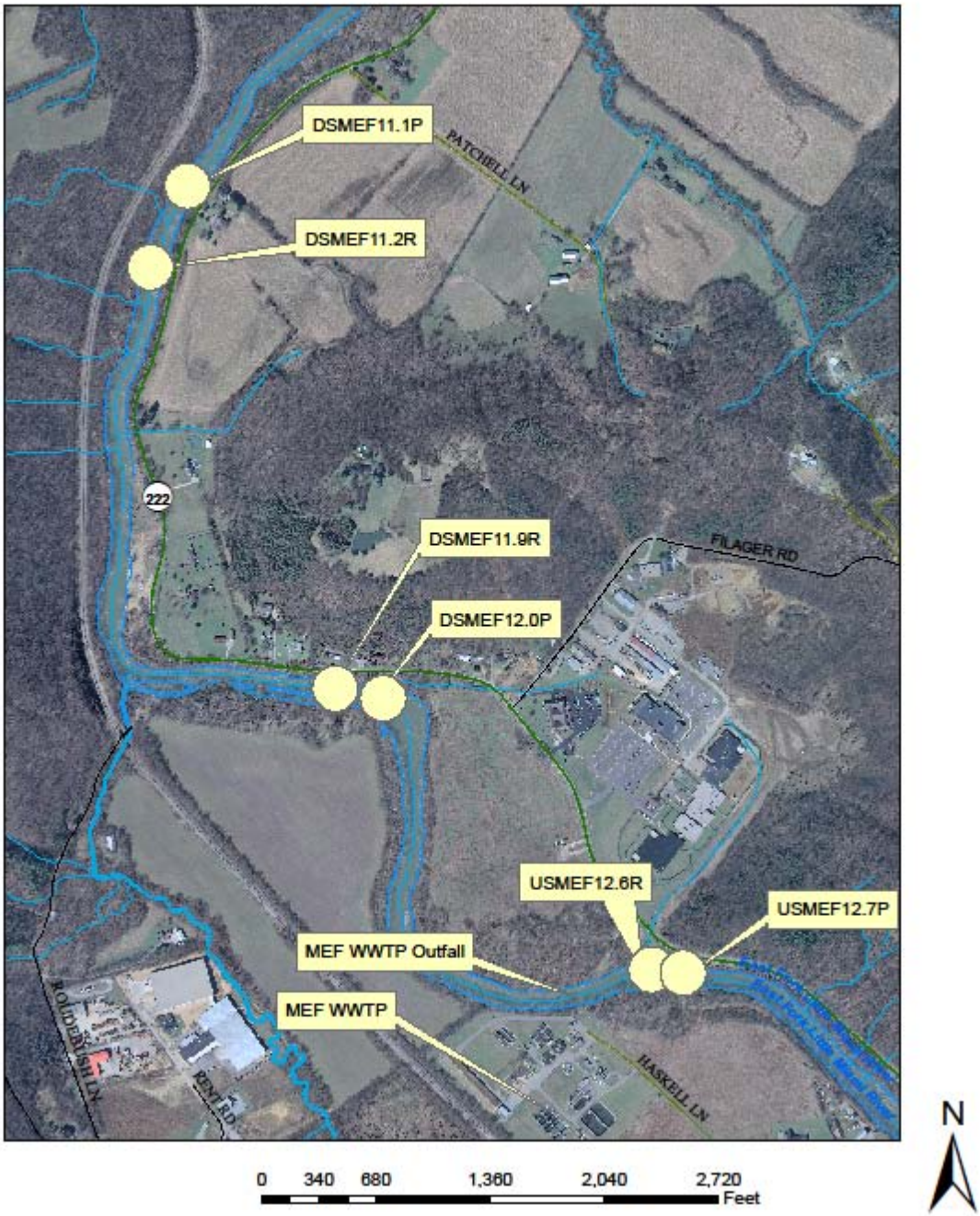


Figure 2.

2009 WQ Monitoring Program
24-Hour D.O. Profiles
Upstream and Downstream of MEF WWTP

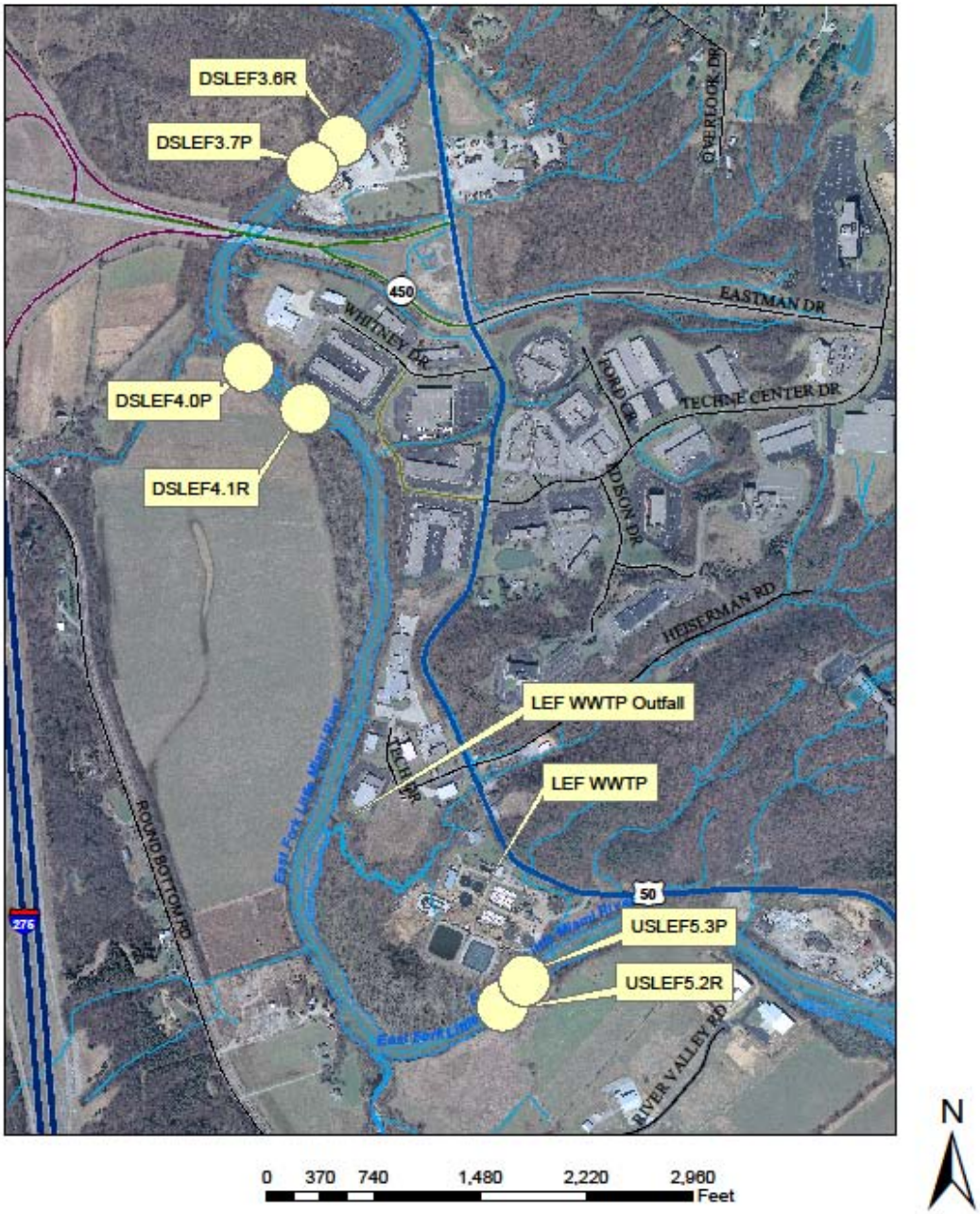


Figure 3.

2009 WQ Monitoring Program
24-Hour D.O. Profiles
Upstream and Downstream of LEF WWTP

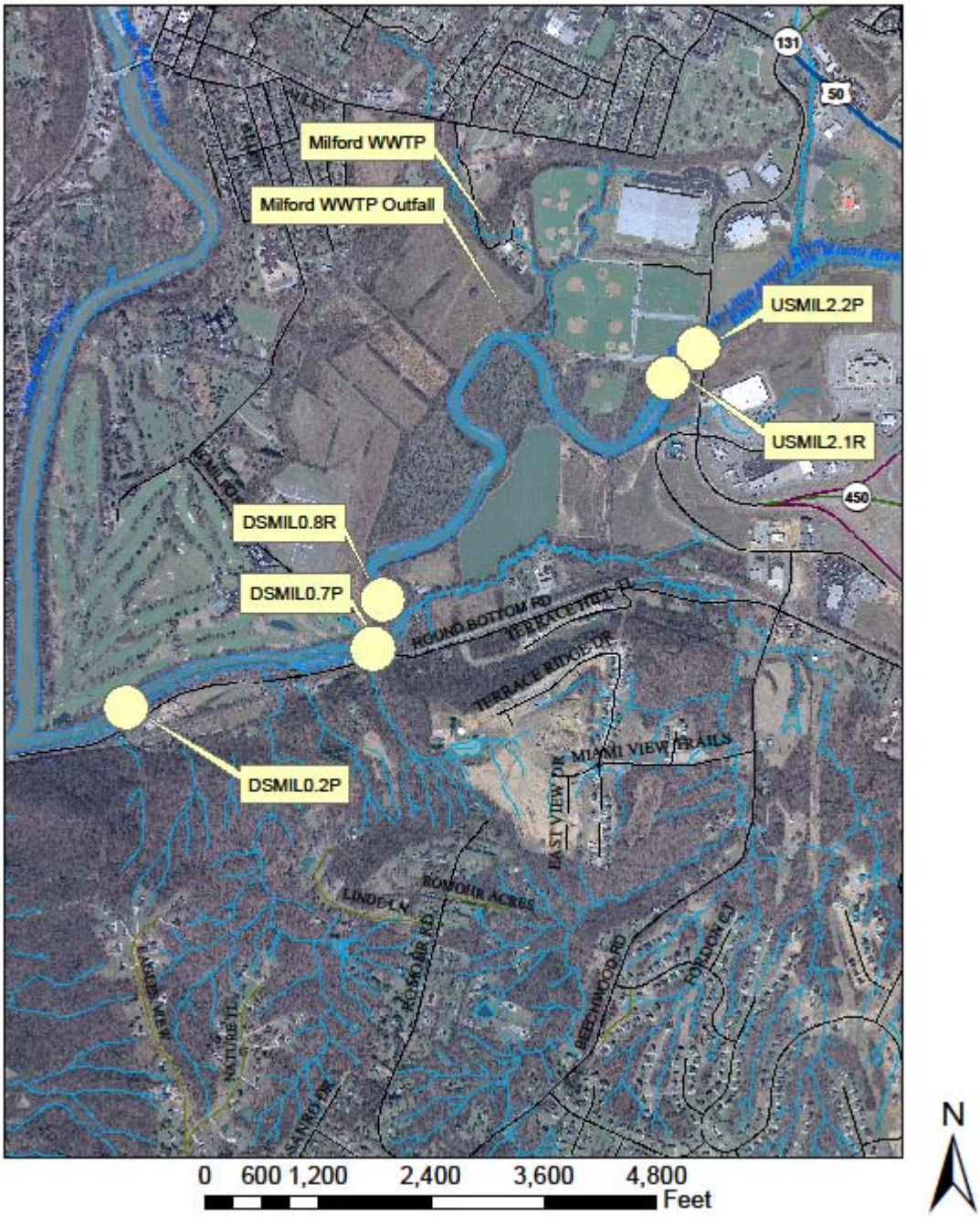


Figure 4.

2009 WQ Monitoring Program
24-Hour D.O. Profiles
Upstream and Downstream of MIL WWTP

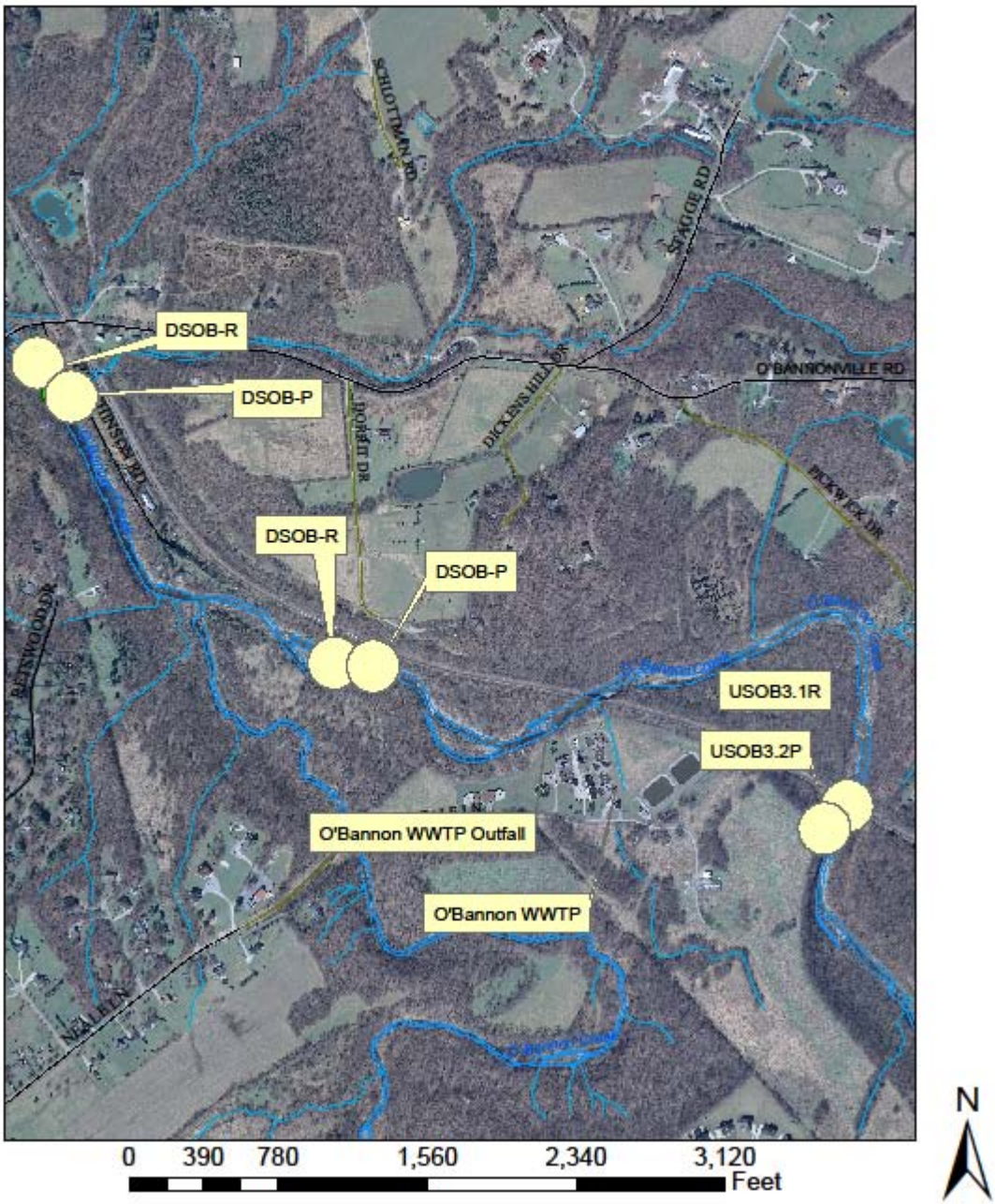


Figure 5.

2009 WQ Monitoring Program
24-Hour D.O. Profiles
Upstream and Downstream of OB WWTP

2.2 Ambient Sampling

Since 1996, OEQ has made a proactive effort to understand the sources and causes of chemical, physical, and biotic impairment in the County's surface waters. Extensive monitoring of chemical, physical, and biological parameters has been conducted by various agencies interested in the EFLMR watershed, including OEQ and the USEPA Experimental Stream Facility (ESF). Previous data collected from OEQ and ESF have shown concentrations of phosphorus above the 0.1 mg/l OEPA in-stream criteria for EWH in the EFLMR both upstream and downstream of Harsha Lake. To better understand point and nonpoint sources of phosphorus loads to the EFLMR, OEQ will be collecting phosphorus data in tributaries and the main stem of the EFLMR once per month from May through July of 2009. With the use of a current meter OEQ will collect discharge data in all of the sampling tributaries and the EFLMR (where wading measurements are possible) immediately after collection of water samples to calculate nutrient loads (see Appendix B for velocity SOP).

Sites located within the main stem of the East Fork of the Little Miami River (EFRM46.7, EFRM44.1, EFRM41.0, EFRM34.8, and EFRM28.7) upstream of Harsha Lake have a wide variety of point and nonpoint sources in the watershed as these sites drain catchments over 200 square miles. Table 2 summarizes the possible point and nonpoint sources of pollution in the watersheds of each sampling location. The upper East Fork watershed is primarily rural and receives runoff from agriculture, livestock, and Home Sewage Treatment Systems (HSTSs). There is some urban storm water runoff from villages such as the Village of Williamsburg where the EFRM34.8 sampling site is located. Grassy Run, Howard Run, Pleasant Run, Four Mile Creek, Five Mile Creek, and Crane Run all receive runoff from agriculture and may drain failing HSTSs. Five Mile Creek and Pleasant Run are also susceptible to pollution from livestock facilities.

Point sources in the upper EFLMR watershed include discharge from four WWTPs (New Vienna, Lynchburg, St. Martin, and Fayetteville-Perry), one package WWTP (Snow Hill Country Club), and a water treatment plant (New Vienna). Additionally, sites EFRM34.8, and EFRM 28.7 are downstream from the Village of Williamsburg's WWTP. Sites PLEAS0.2, EFRM41.0, EFRM34.8, and EFRM 28.7 are all downstream from Pleasant Run which receives effluent from the storm water pond at the CECOs hazardous waste landfill and possibly other contaminants associated with this facility.

The lower East Fork watershed is a mix of commercial, residential, and rural land uses and therefore sampling sites may receive pollutants associated with urban storm water runoff, agricultural activities, or HSTSs. Additional nonpoint sources include The Elk Run Golf Course in the Four Mile Run watershed and Kipp's Gravel Company, which is located along the EFLMR around river mile 9.0. SUGAR0.2 and sampling locations in the EFLMR are also subject to pollutants from inflow and infiltration (I/I) since sewer lines run parallel to Sugarcamp Run and most of the EFLMR.

There are four WWTPs that discharge to the EFLMR. The Batavia WWTP discharges at RM13.3, the Middle East Fork WWTP discharges at RM 12.5, the Lower East Fork WWTP discharges to an unnamed tributary that enters the EFLMR at RM 4.8, and the Milford WWTP discharges to an unnamed tributary that enters the EFLMR at RM 1.6. The EFRM9.1 and EFRM2.2 sites are situated downstream of the BAT and MEF WWTP outfalls and the EFRM2.2 site is also located downstream of the LEF WWTP. Additional point sources include the The Bob McEwen Water Treatment Plant, which discharges to Four Mile Run, Arch Materials (limestone quarry), which discharges to Backbone Creek, and the USEPA Experimental Stream Facility, which discharges to an unnamed tributary that enters the EFLMR at river mile 4.8.

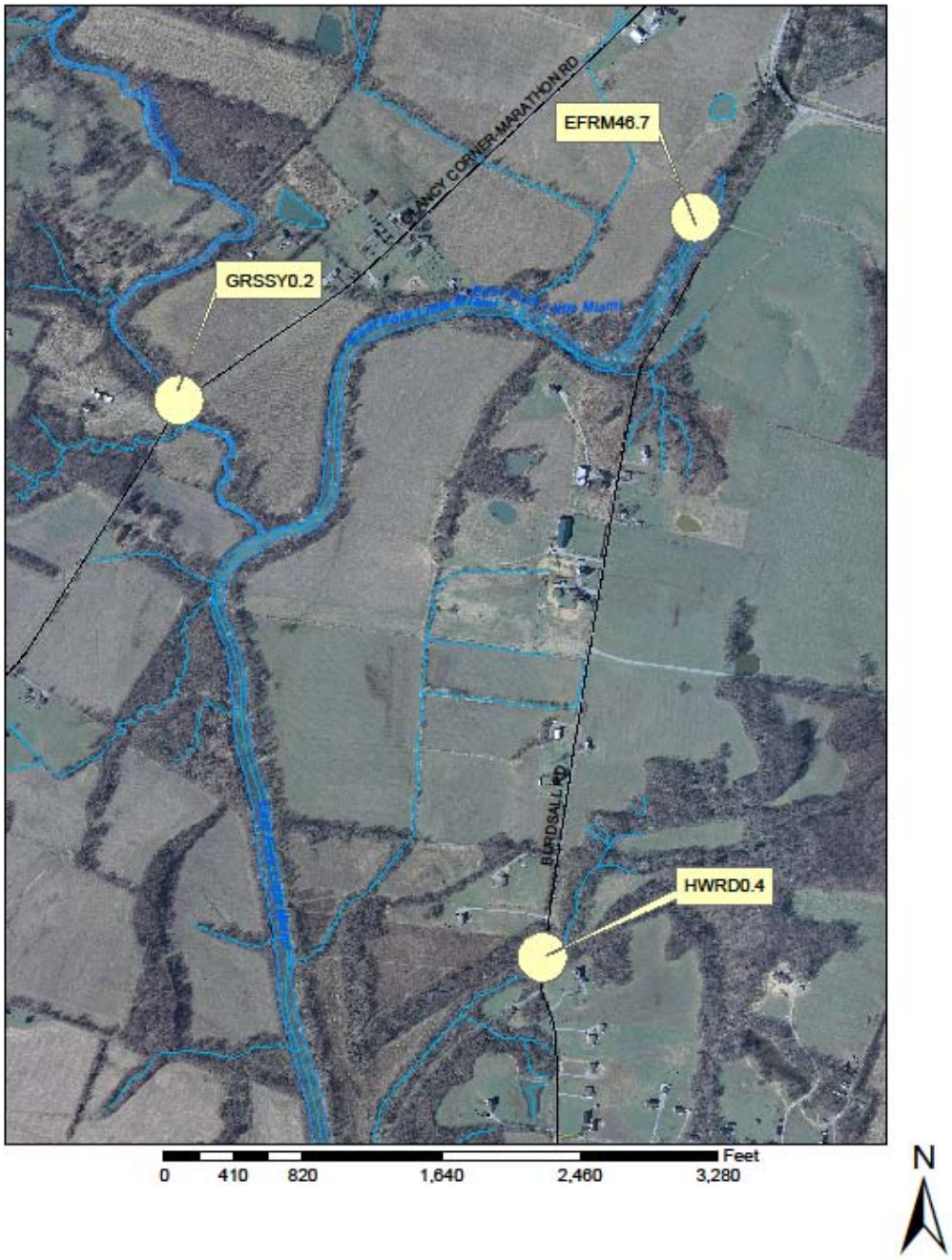


Figure 6.

2009 WQ Monitoring Program
Ambient Sampling Locations
EFLMR, Grassy Fork, & Howard Run

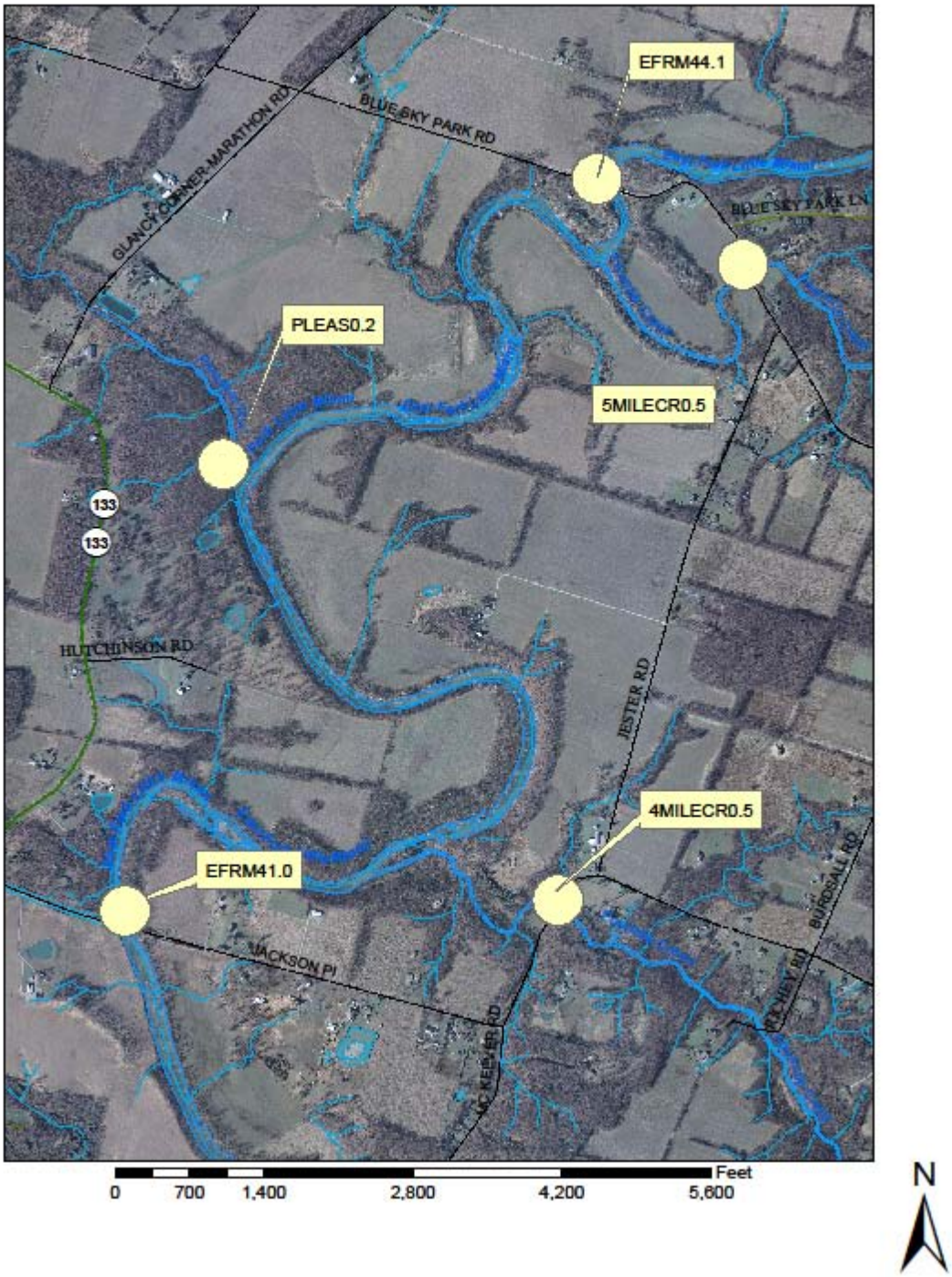


Figure 7.

2009 WQ Monitoring Program
Ambient Sampling Locations
EFLMR & Five Mile Creek, Pleasant Run, & Four Mile Creek

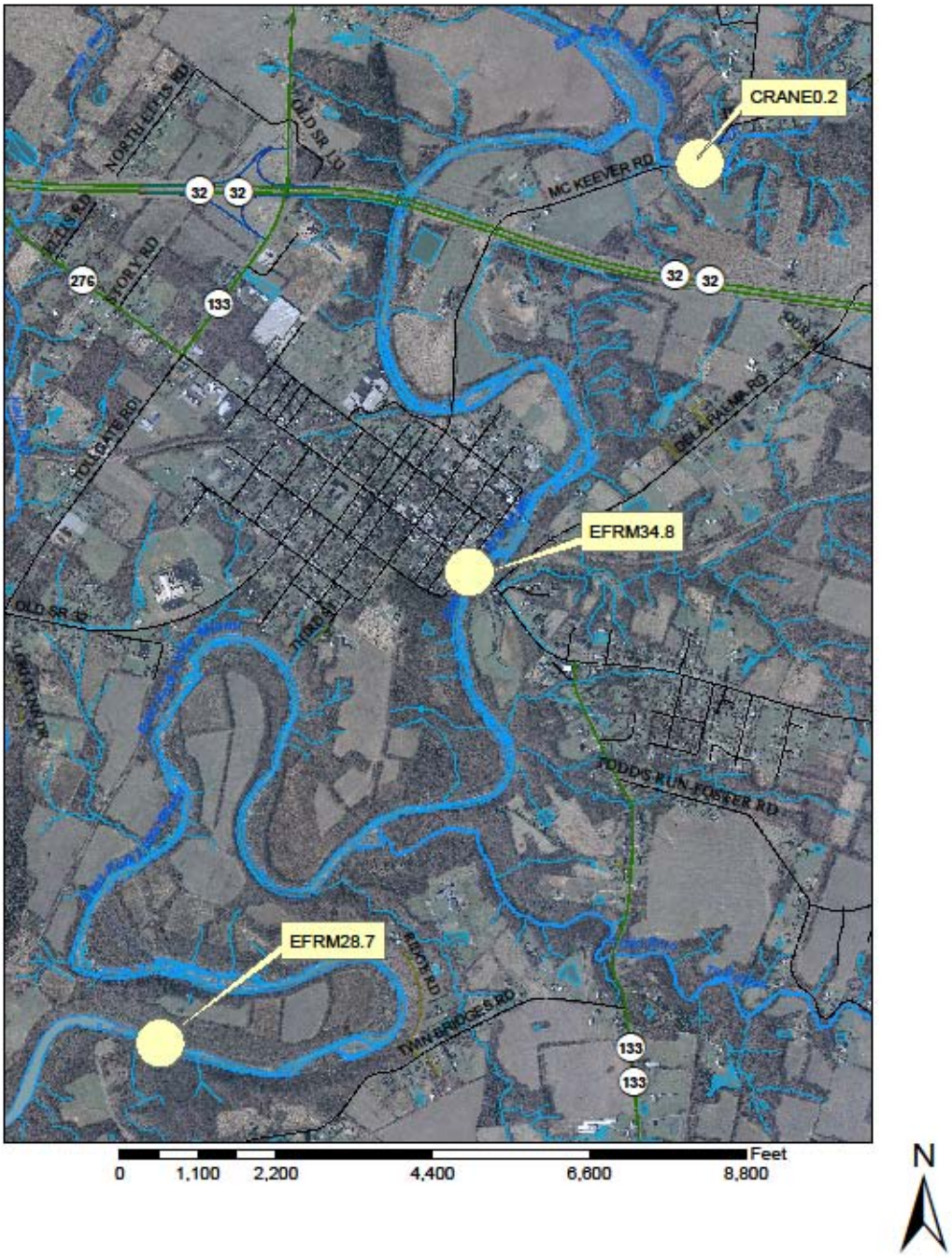


Figure 8.

2009 WQ Monitoring Program
Ambient Sampling Locations
Crane Run & EFLMR

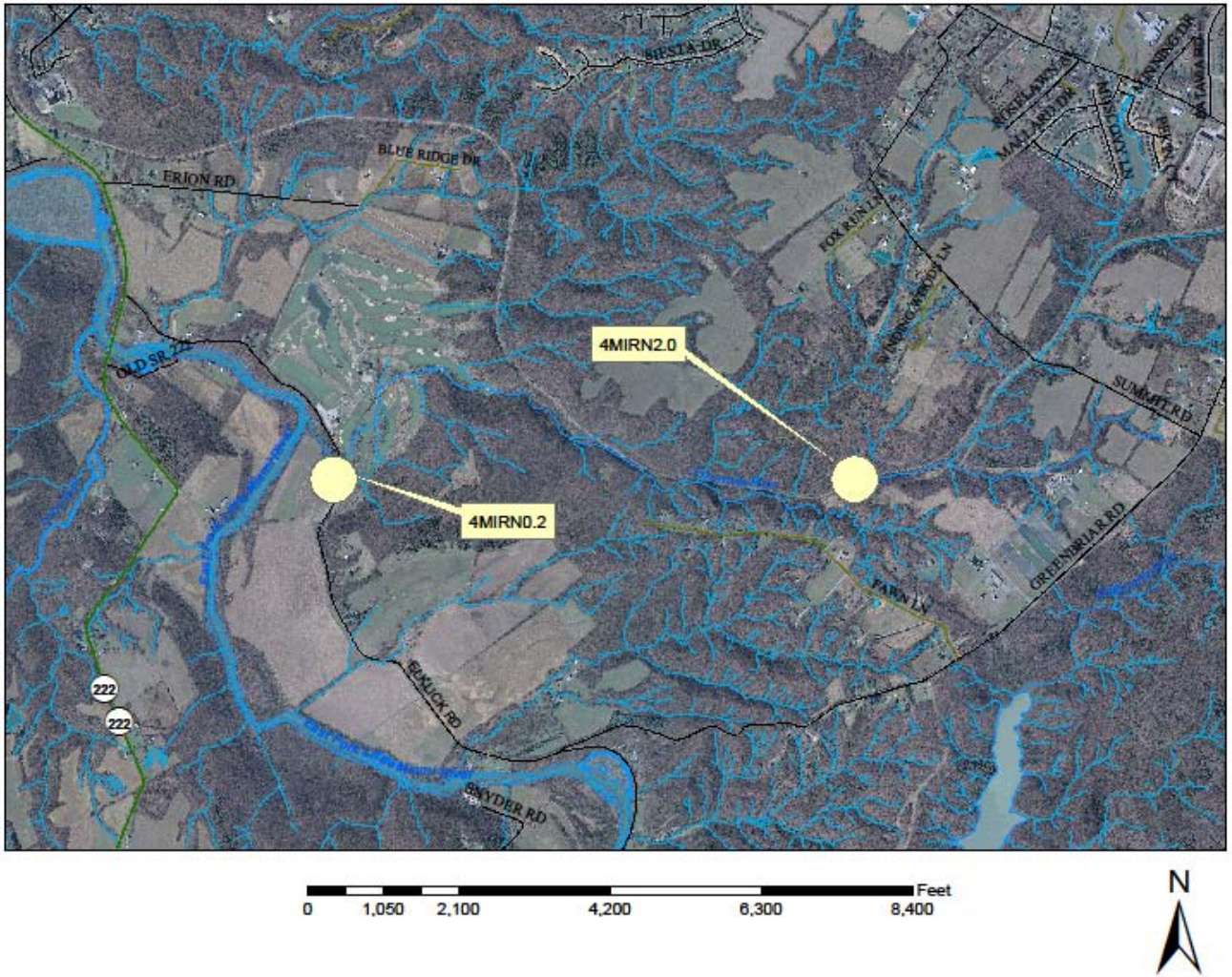


Figure 9.

2009 WQ Monitoring Program
Ambient Sampling Locations
Four Mile Run

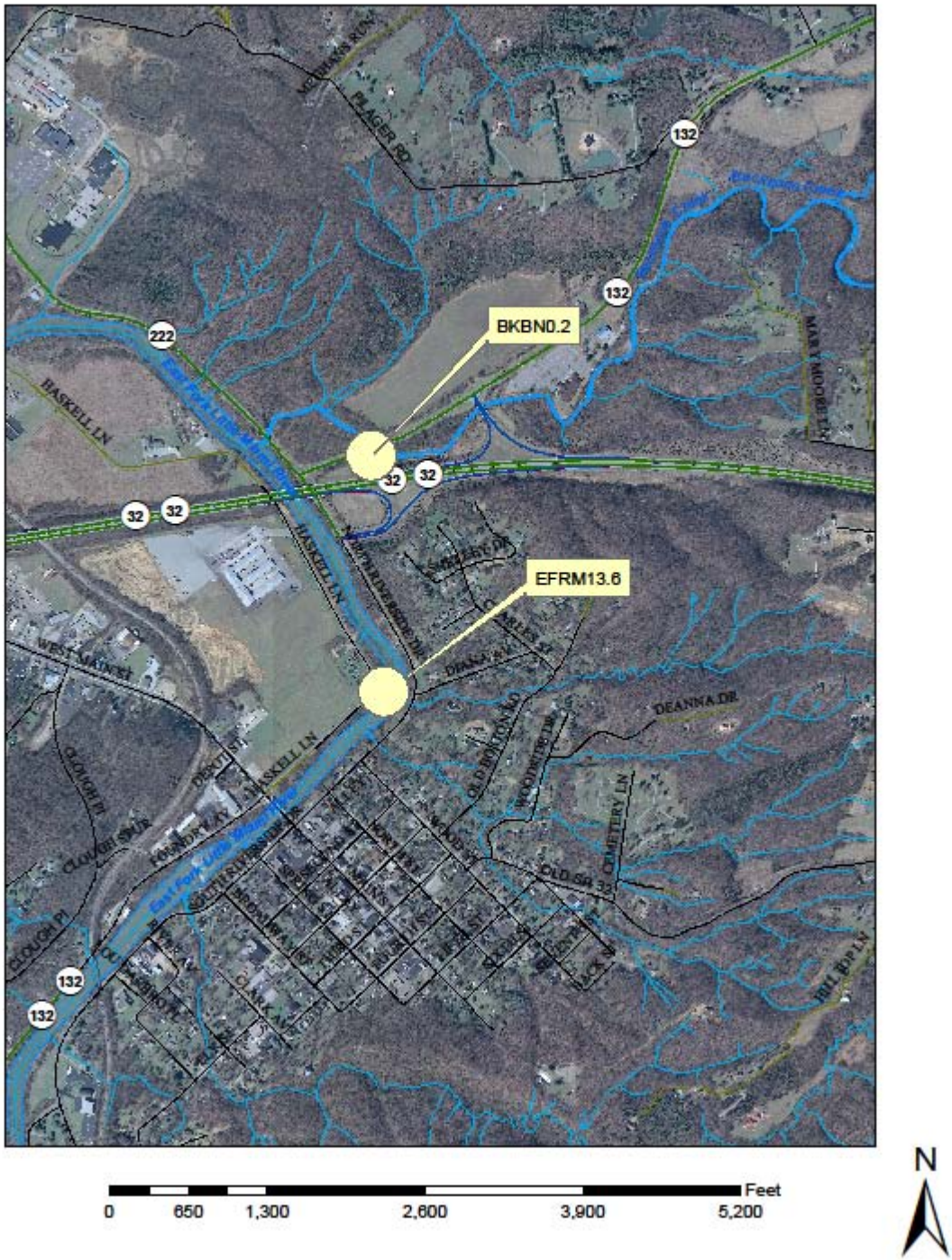


Figure 10.

2009 WQ Monitoring Program
Ambient Sampling Locations
EFLMR & Backbone Creek

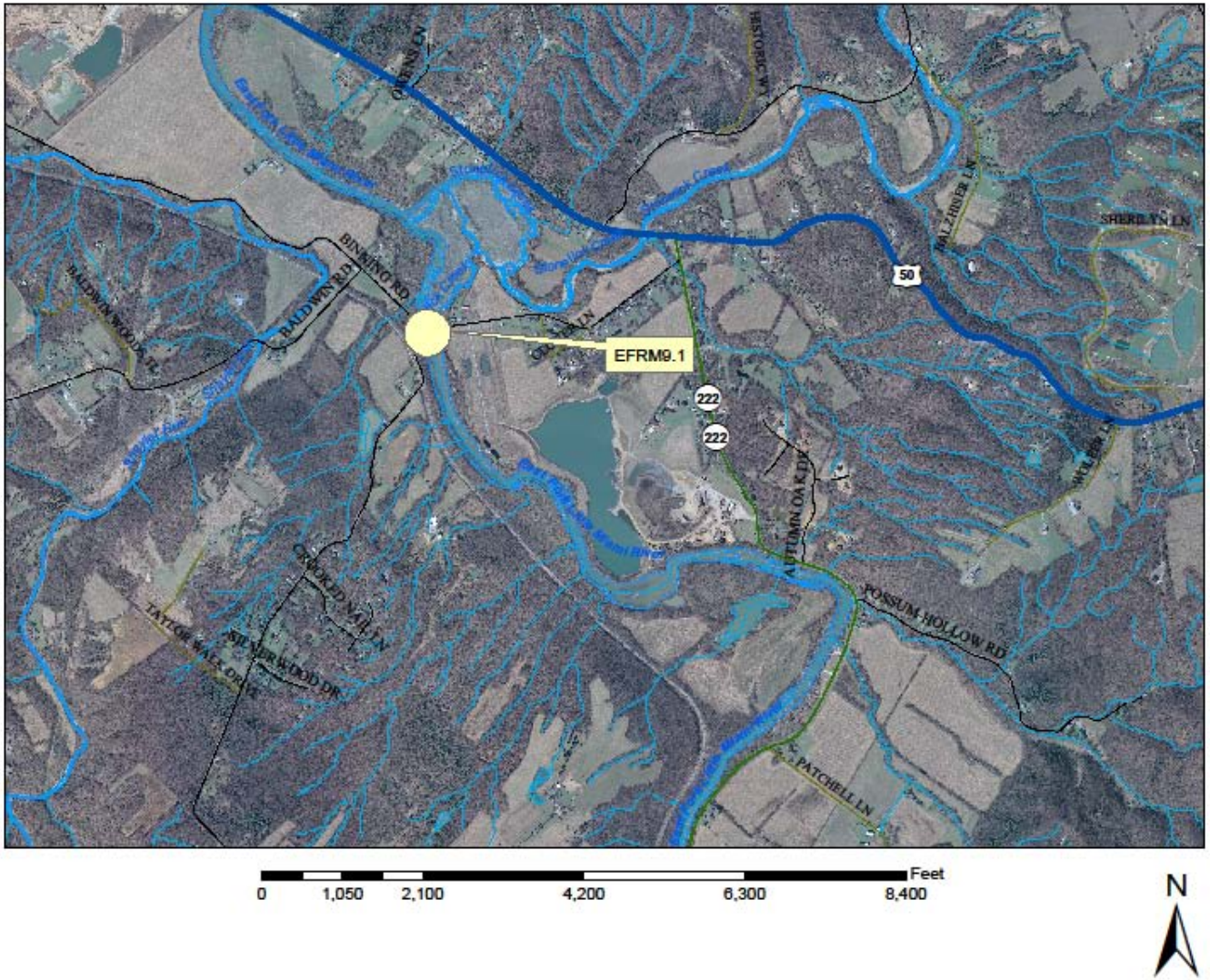


Figure 11.

2009 WQ Monitoring Program
Ambient Sampling Locations
EFLMR

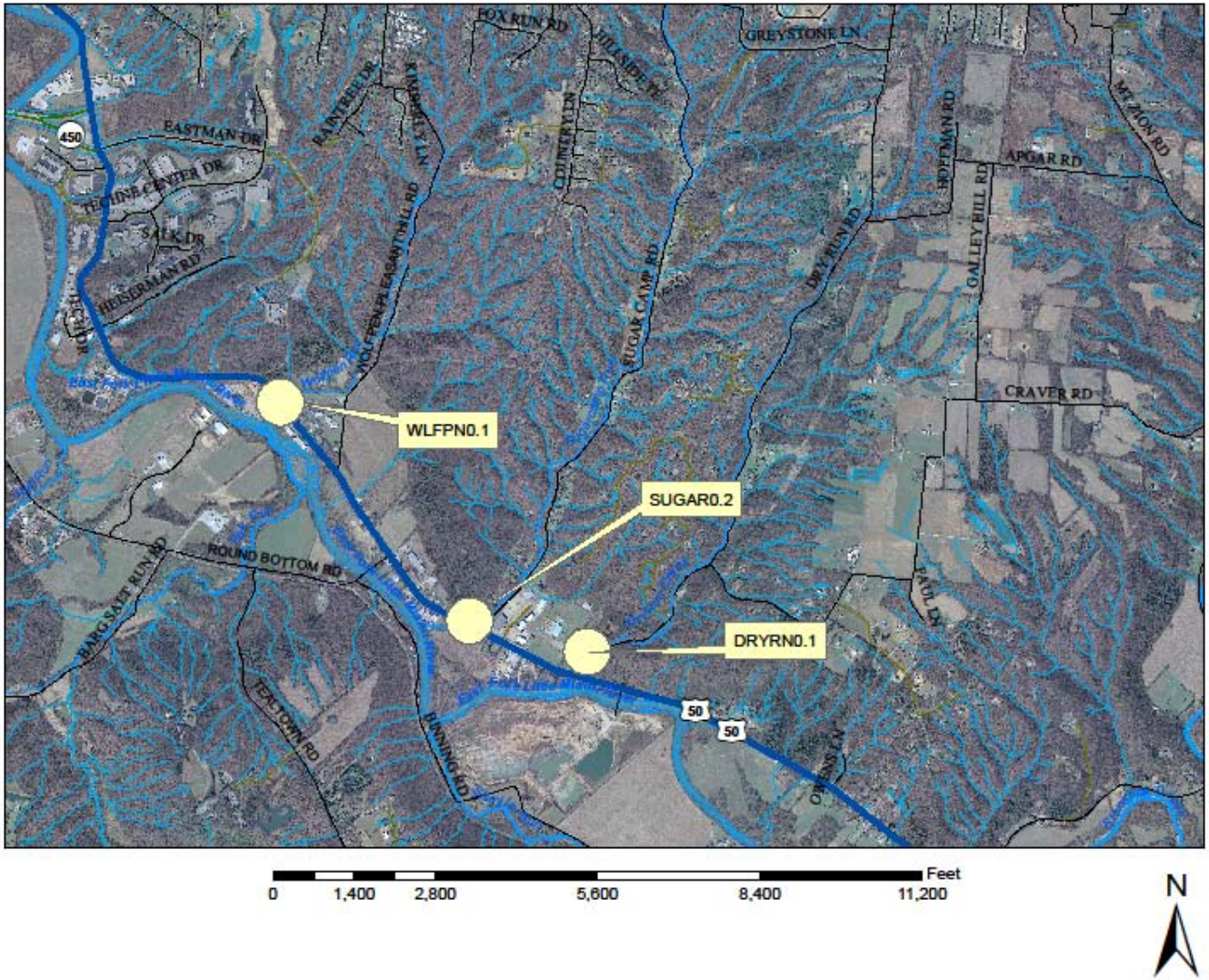


Figure 12.

2009 WQ Monitoring Program
Ambient Sampling Locations
Dry Run Creek, Sugarcamp Run & Wolfpen Run

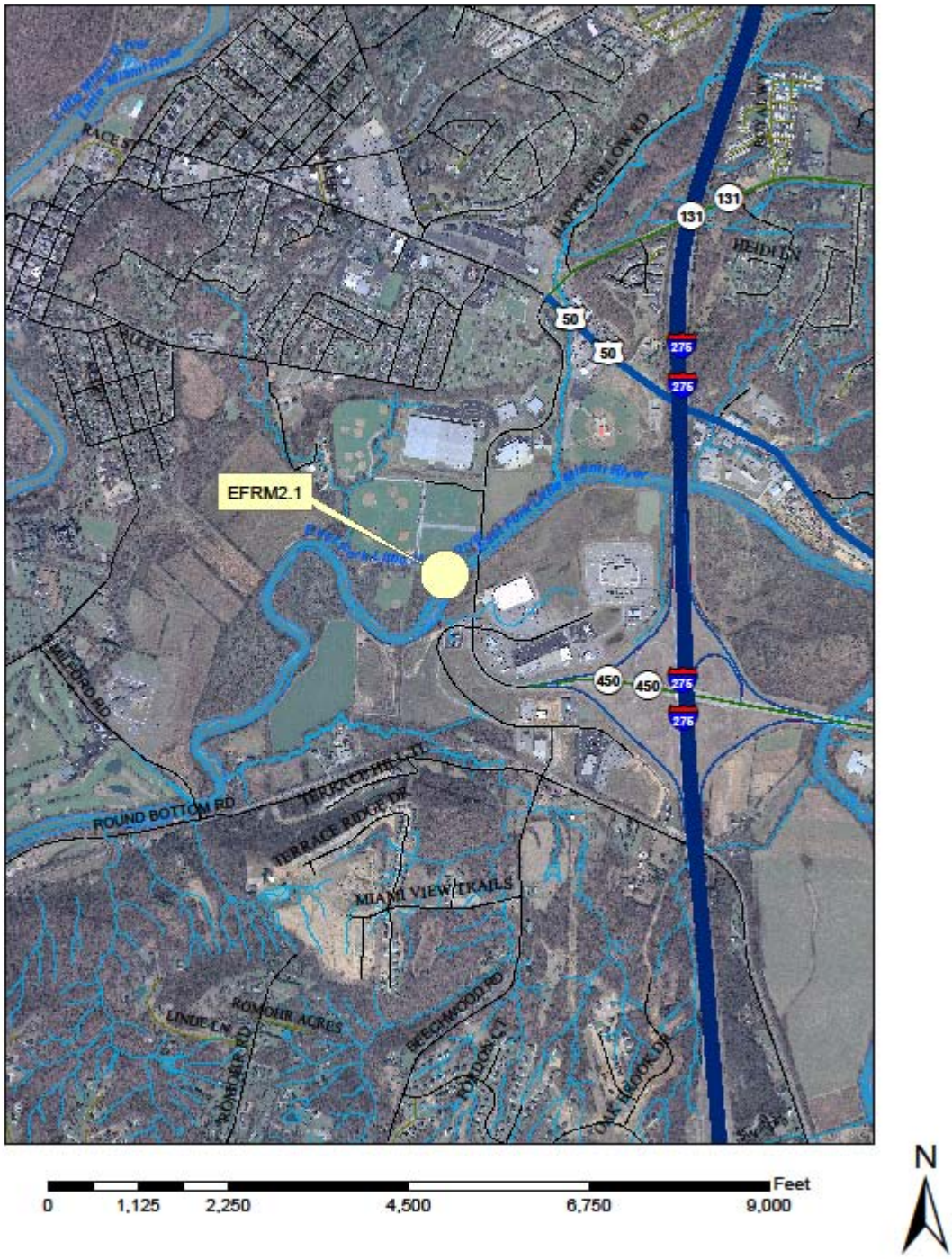


Figure 13.

2009 WQ Monitoring Program
Ambient Sampling Locations
EFLMR

2.3 Habitat Assessment

Based on the locally led TMDL report for the EFLMR, *An Innovative Approach to Indentifying Key Priorities for Improving Water Quality in the East Fork Little Miami River Watershed* (www.oeq.net), habitat and flashiness are the primary stressors inhibiting biotic communities. Therefore, improvements to in-stream habitat must be made to meet biological criteria. Clermont OEQ will assess habitat in Backbone Creek, Lucy Run, Hall Run, and Shayler Run to monitor progress of current and possible future stream restoration projects in these streams. If the Clermont County OEQ assesses any other sites for habitat in 2009, the Level 3 Project Study Plan will be amended accordingly and resubmitted to the Ohio EPA.

Table 2 summarizes the possible point and nonpoint sources of pollution in the watersheds of each sampling location. Backbone Creek is susceptible to pollution from HSTSs and agriculture associated activities. Lucy Run has a mix of urban development and agriculture in its watershed and is therefore susceptible to a variety of pollutants from agriculture, urban storm water runoff, HSTSs, and wildlife. Hall Run and Shayler Run are primarily residential with forested reaches in the sections of the streams. Both sites are susceptible to urban storm water and effluent from HSTSs. All of these sites are susceptible to I/I related pollutants, as a sanitary sewer line runs parallel to each stream.

Arch Materials, in the Backbone Creek watershed, is currently in the application process for an NPDES permit at their limestone quarry. Runoff from their storm water pond could alter pH in Backbone Creek. There are no point sources in Lucy Run, Hall Run, or Shayler Run.

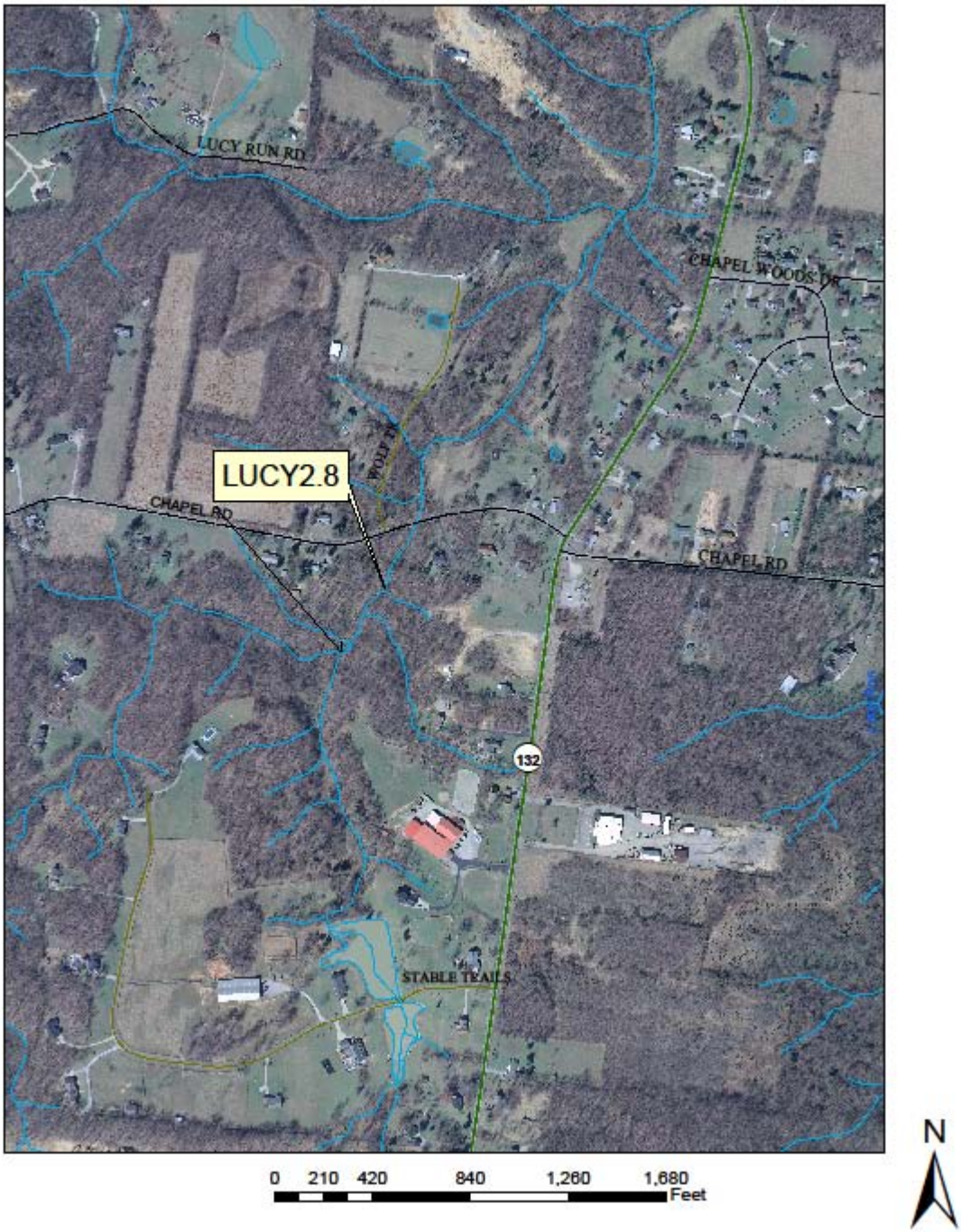


Figure 14.

2009 WQ Monitoring Program
Habitat Assessment Reach
Lucy Run

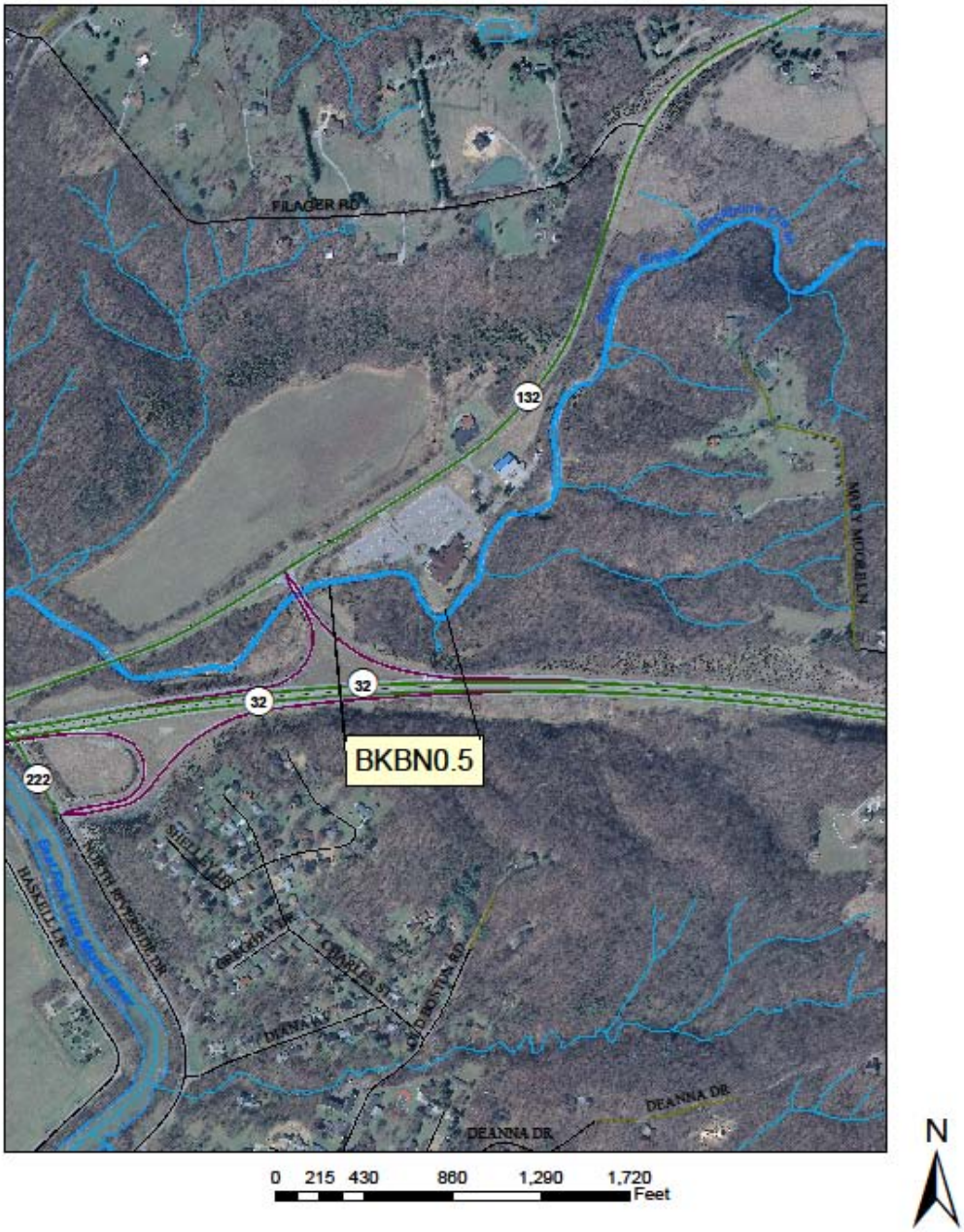


Figure 15.

2009 WQ Monitoring Program
Habitat Assessment Reach
Backbone Creek

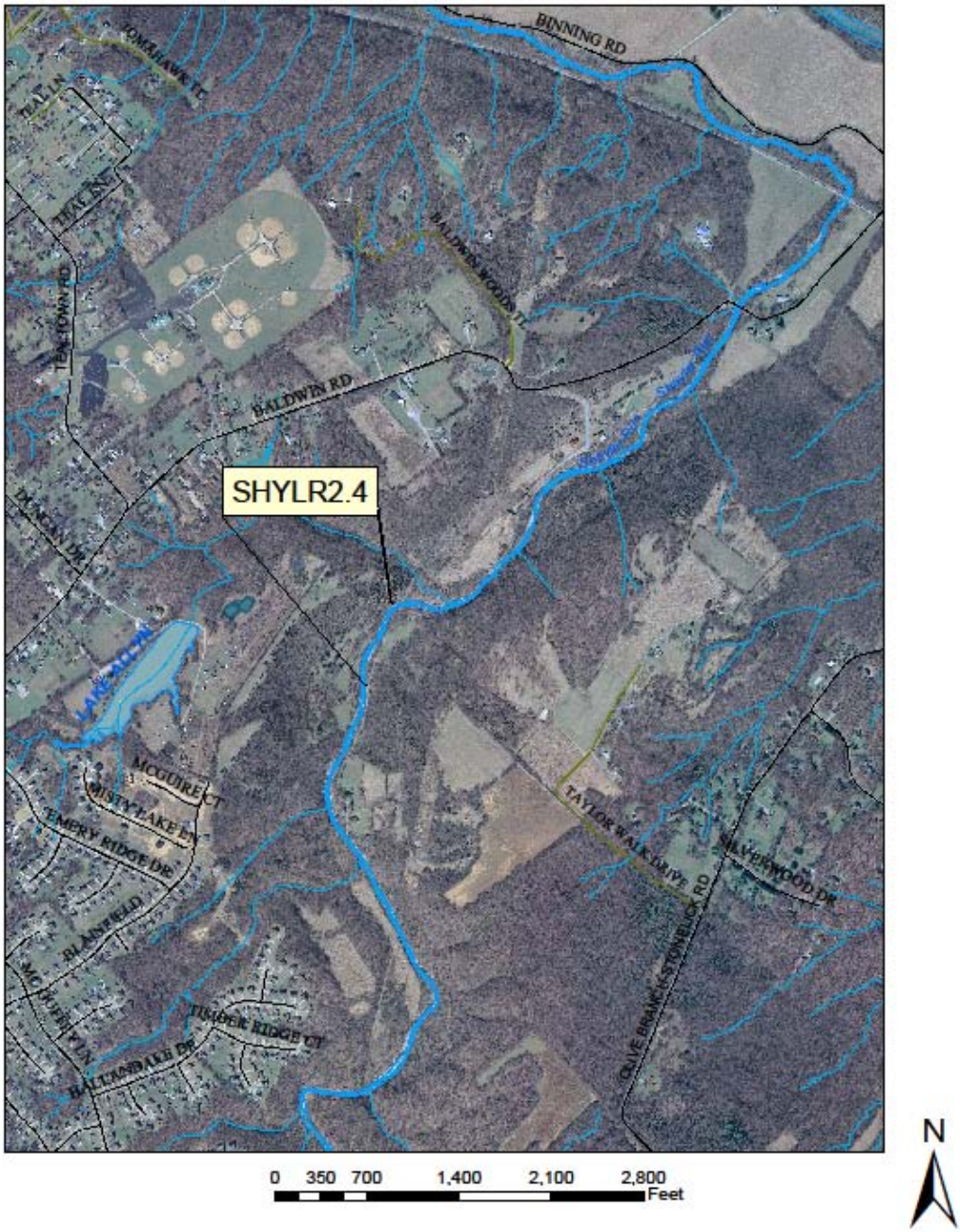


Figure 16.

2009 WQ Monitoring Program
Habitat Assessment Reach
Shayler Run

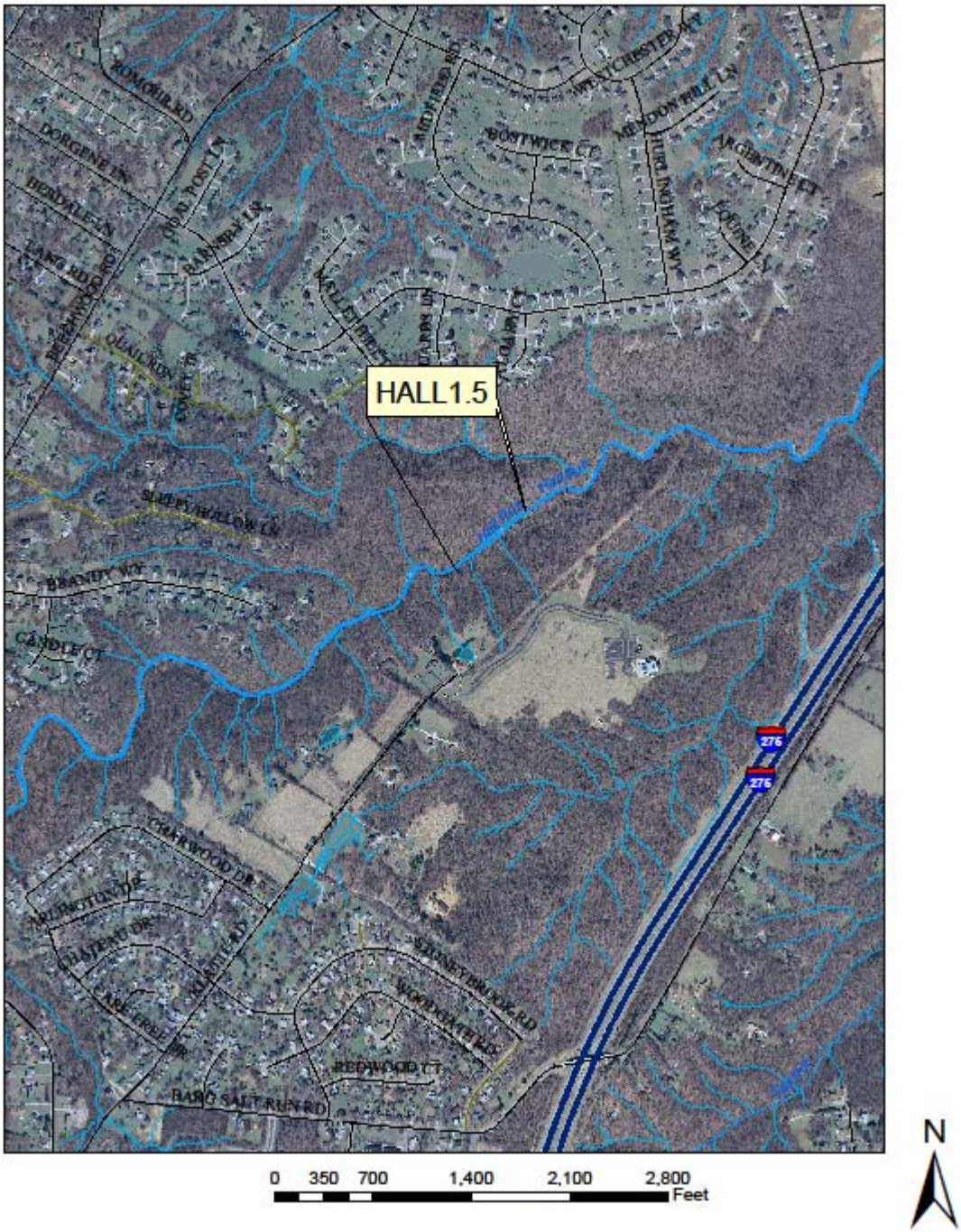


Figure 17.

2009 WQ Monitoring Program
Habitat Assessment Reach
Hall Run

3. PARAMETERS FOR EACH SAMPLING LOCATION

A list of field measurements and analytes for each sampling location is presented in Table 1.

4. IDENTIFICATION OF FIELD AND LABORATORY METHODS

Standard Operating Procedure (SOP) documents have been developed for all of the field sampling and data collection activities associated with this study. These SOPs are included in Appendix B of this Study Plan, along with a Quality Assurance Plan that lists all of the analytical methods used by the laboratory, including detection limits (Appendix A). All parameters will be analyzed by the Clermont County Water and Sewer District laboratory, which is also responsible for NPDES permit testing for all of the County's Waste Water Treatment Plants. The laboratory has a complete set of SOPs on file for all laboratory procedures (Appendix C). The Headwater Habitat Evaluation Index (HHEI) will be used to assess habitat in the headwaters of Lucy Run. Clermont County understands that this assessment will not be level 3 quality data as there is currently no training for level 3 headwater habitat assessments.

5. EXPLANATION OF PLANNED SAMPLING LOCATIONS

A detailed explanation of planned sampling locations for 2009 is provided in Section 2 and Table 3. Detailed maps of the sampling locations are provided in Figures 1-17. Georeferencing data, i.e. boundaries for each map (north and south latitudes and east and west longitudes) are provided in Table 4. Figures 18, 19, and 20 are maps of the scale in Figures 1-5, Figure 6-13, and Figure 14-17 respectively.

Table 3. Georeferencing Data for Sampling Locations

SampleID	Waterbody	River Mile	Latitude			Longitude			USGS	Township
			Degrees	Minutes	Seconds	Degrees	Minutes	Seconds		
D.O. Sampling										
USBAT14.3R	East Fork LMR	14.3	39	4	15.98	-84	11	12.19	Batavia	Batavia
USBAT13.5R	East Fork LMR	13.5	39	4	46.85	-84	10	40.36	Batavia	Batavia
USBAT13.9P	East Fork LMR	13.9	39	4	34.02	-84	10	59.08	Batavia	Batavia
USBAT13.6P	East Fork LMR	13.6	39	4	45.83	-84	10	41.31	Batavia	Batavia
DSBAT12.6R	East Fork LMR	12.6	39	5	22.12	-84	11	9.26	Batavia	Batavia
DSBAT12.7P	East Fork LMR	12.7	39	5	24.41	-84	11	6.34	Batavia	Batavia
USMEF12.6R	East Fork LMR	12.6	39	5	22.12	-84	11	9.26	Batavia	Batavia
USMEF12.7P	East Fork LMR	12.7	39	5	24.41	-84	11	6.34	Batavia	Batavia
DSMEF11.9R	East Fork LMR	11.9	39	5	37.60	-84	11	33.49	Batavia	Batavia
DSMEF11.2R	East Fork LMR	11.2	39	6	2.75	-84	11	48.94	Batavia	Batavia
DSMEF12.0P	East Fork LMR	12.0	39	5	36.89	-84	11	30.25	Batavia	Batavia
DSMEF11.1P	East Fork LMR	11.1	39	6	6.58	-84	11	45.48	Batavia	Batavia
USLEF5.2R	East Fork LMR	5.2	39	8	40.55	-84	15	12.54	Madeira	Miami
USLEF5.3P	East Fork LMR	5.3	39	8	38.68	-84	15	13.14	Madeira	Miami
DSLEF4.1R	East Fork LMR	4.1	39	9	19.41	-84	15	32.80	Madeira	Miami
DSLEF3.6R	East Fork LMR	3.6	39	9	22.03	-84	15	38.07	Madeira	Miami
DSLEF4.0P	East Fork LMR	4.0	39	9	22.20	-84	15	38.08	Madeira	Miami
DSLEF3.7P	East Fork LMR	3.7	39	9	35.96	-84	15	32.35	Madeira	Miami
USMIL2.1R	East Fork LMR	2.1	39	9	48.16	-84	16	38.91	Madeira	Miami
USMIL2.2P	East Fork LMR	2.2	39	9	50.23	-84	16	34.98	Madeira	Miami
DSMIL0.8R	East Fork LMR	0.8	39	9	23.54	-84	17	17.90	Madeira	Miami
DSMIL0.7P	East Fork LMR	0.7	39	9	18.57	-84	17	18.37	Madeira	Miami
DSMIL0.2P	East Fork LMR	0.2	39	9	11.71	-84	17	51.03	Madeira	Miami
USOB3.1R	O'Bannon Creek	3.3	39	15	29.87	-84	13	0.02	South Lebanon	Goshen
USOB3.2P	O'Bannon Creek	3.4	39	15	29.46	-84	13	1.19	South Lebanon	Goshen
DSOB2.0P	O'Bannon Creek	2.4	39	15	50.88	-84	13	53.27	South Lebanon	Goshen
DSOB1.9R	O'Bannon Creek	1.9	39	15	51.65	-84	13	54.47	South Lebanon	Goshen
DSOB2.5P	O'Bannon Creek	2.5	39	15	36.58	-84	13	31.59	South Lebanon	Goshen
DSOB2.4R	O'Bannon Creek	2.4	39	15	36.82	-84	13	33.28	South Lebanon	Goshen
Ambient Sampling--upstream from lake										
GRSSY0.2	Grassy Fork	0.2	39	7	58.44	-84	0	55.43	Newtonsville	Jackson
HWRD0.4	Howard Run	0.4	39	7	25.18	-84	0	27.18	Wiliamsburg	Jackson
5MILECR0.5	Five Mile Creek	0.5	39	6	48.08	-84	1	14.70	Williamsburg	Jackson
PLEAS0.2	Pleasant Run	0.2	39	6	29.31	-84	2	16.72	Williamsburg	Jackson
4MILECR0.5	Four Mile Creek	0.5	39	5	49.92	-84	1	34.25	Williamsburg	Jackson
CRANE0.2	Crane Run	0.2	39	4	6.24	-84	2	22.38	Williamsburg	Williamsburg
EFRM46.7	East Fork LMR	46.7	39	8	8.76	-84	0	15.48	Newtonsville	Jackson
EFRM44.1	East Fork LMR	44.1	39	6	57.12	-84	1	31.99	Williamsburg	Jackson
EFRM41.0	East Fork LMR	41.0	39	5	47.50	-84	2	25.47	Williamsburg	Jackson
EFRM34.8	East Fork LMR	34.8	39	3	8.35	-84	3	2.83	Williamsburg	Williamsburg
EFRM28.7	East Fork LMR	28.7	39	2	2.22	-84	3	54.83	Williamsburg	Williamsburg
Ambient Sampling--downstream from lake										
4MIRN2.0	Four Mile Run	2.0	39	3	19.47	-84	8	30.58	Batavia	Batavia
4MIRN0.2	Four Mile Run	0.2	39	3	17.57	-84	10	2.63	Batavia	Batavia
BKBN0.2	Backbone Creek	0.2	39	5	11.28	-84	10	35.79	Batavia	Batavia
DRYRN0.1	Dry Run	0.1	39	8	1.24	-84	13	29.37	Goshen	Miami
SUGAR0.2	Sugar Camp	0.2	39	8	6.31	-84	13	54.66	Goshen	Miami
WLFPN0.1	Wolfpen	0.1	39	8	41.58	-84	14	38.17	Goshen	Miami
EFRM13.6	East Fork LMR	13.6	39	4	51.72	-84	10	33.71	Batavia	Batavia
EFRM9.1	East Fork LMR	9.1	39	7	7.14	-84	12	30.05	Batavia	Stonelick
EFRM2.2	East Fork LMR	2.2	39	9	47.24	-84	16	38.66	Madeira	Miami

Table 4. Georeferencing data for figures

	North			South			East			West		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Figure 1	39	5	29	39	4	6	-84	10	1	-84	11	24
Figure 2	39	6	17	39	5	11	-84	10	52	-84	11	58
Figure 3	39	9	46	39	8	30	-84	14	41	-84	15	59
Figure 4	39	10	25	39	8	25	-84	16	9	-84	18	8
Figure 5	39	16	10	39	15	12	-84	12	56	-84	13	56
Figure 6	39	8	21	39	7	15	-84	0	2	-84	11	7
Figure 7	39	7	12	39	5	27	-84	0	58	-84	2	40
Figure 8	39	4	27	39	1	50	-84	1	52	-84	4	24
Figure 9	39	4	23	39	2	28	-84	7	28	-84	11	1
Figure 10	39	5	47	39	4	15	-84	9	43	-84	11	13
Figure 11	39	7	49	39	6	1	-84	10	23	-84	13	40
Figure 12	39	9	51	39	7	28	-84	11	15	-84	15	36
Figure 13	39	10	57	39	8	38	-84	15	34	-84	17	49
Figure 14	39	2	29	39	1	41	-84	11	33	-84	12	20
Figure 15	39	5	43	39	4	48	-84	9	48	-84	10	42
Figure 16	39	7	27	39	6	1	-84	12	45	-84	14	9
Figure 17	39	8	31	39	7	11	-84	16	5	-84	17	24
Figure 18	39	16	55	38	59	20	-84	0	47	-84	19	51
Figure 19	39	17	56	39	0	15	-83	59	6	-84	18	22
Figure 20	39	10	7	39	0	27	-84	8	48	-84	18	17

5.1 Diurnal D.O. Profiles

The purpose of conducting the diurnal DO studies is to determine if habitat or nutrients and organic loads from WWTPs have an impact on DO concentrations in the East Fork River or O'Bannon Creek. Sondes will be placed just upstream of riffles (from here on referred to as riffle sites) or in pools to determine if diurnal DO patterns vary by habitat. To determine if organic enrichment and nutrient loading from WWTPs affect stream diurnal DO concentrations, 24-hour DO profiles will be monitored simultaneously upstream and downstream from each WWTP and water samples to be analyzed for $CBOD_5$, total phosphorus, and ortho-phosphorus will be collected at the time of sonde deployment and sonde retrieval at each riffle DO site. Water samples are only being collected at riffle sites because pool site water quality is not expected to differ significantly from riffle sites since the two sites are in close proximity.

The typical monitoring design will consist of one riffle and one pool site upstream of each WWTP, and two riffle and two pool sites downstream of each WWTP. The sites upstream and downstream of the Milford and Batavia WWTPs are exceptions to this design. Downstream of the Milford WWTP, riffle habitats are uncommon and therefore only one riffle site will be monitored downstream of the plant. Only one riffle and one pool site were included downstream of the Batavia WWTP because of the close proximity between the Batavia and Middle East Forks' outfalls. Because of this, we decided to monitor DO at two riffle and two pool habitats upstream of the Batavia WWTP, at a riffle and pool site downstream of the Batavia lowhead dam and at a riffle and pool site upstream of the Batavia lowhead dam. Sites were monitored upstream of the dam in order to have a comparison to the highly aerated sites downstream of the dam and to begin collecting data in support of a future lowhead dam removal project.

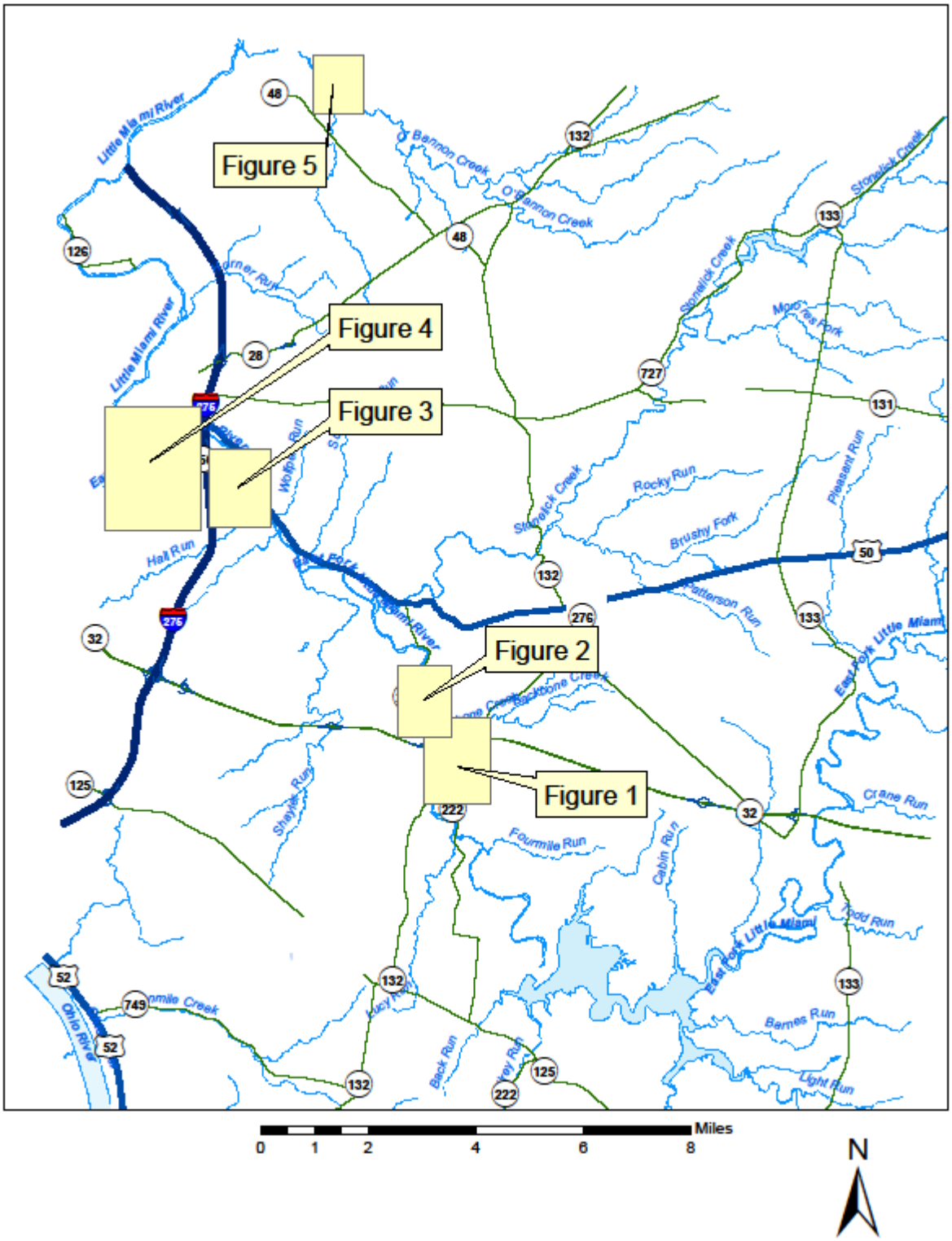


Figure 18.

2009 WQ Monitoring Program
24-Hour D.O. Profiles

5.2 Ambient Sampling

Past monitoring in the East Fork of the Little Miami River has revealed high phosphorus concentrations in the river. High levels of phosphorus enter Harsha Lake and the Lake acts as a sink for phosphorus, releasing large loads during lake turn over. Data collected in the EFLMR near the mouth to the LMR, indicate phosphorus is coming from other sources between the lake's outlet and the mouth of the EFLMR. OEQ will monitor various tributaries and sections of the EFLMR main-stem both upstream and downstream of Harsha Lake where there are gaps in phosphorus data collected by OEQ and ESF. The specific locations of these sites are given in Tables 1 and 3. To obtain background data on sources of phosphorus in the EFLMR, OEQ will monitor each location once per month during May, June, and July. If data indicate high concentrations of phosphorus in a particular section that cannot be explained, further monitoring may be conducted and updates to the Study Plan will be made accordingly.

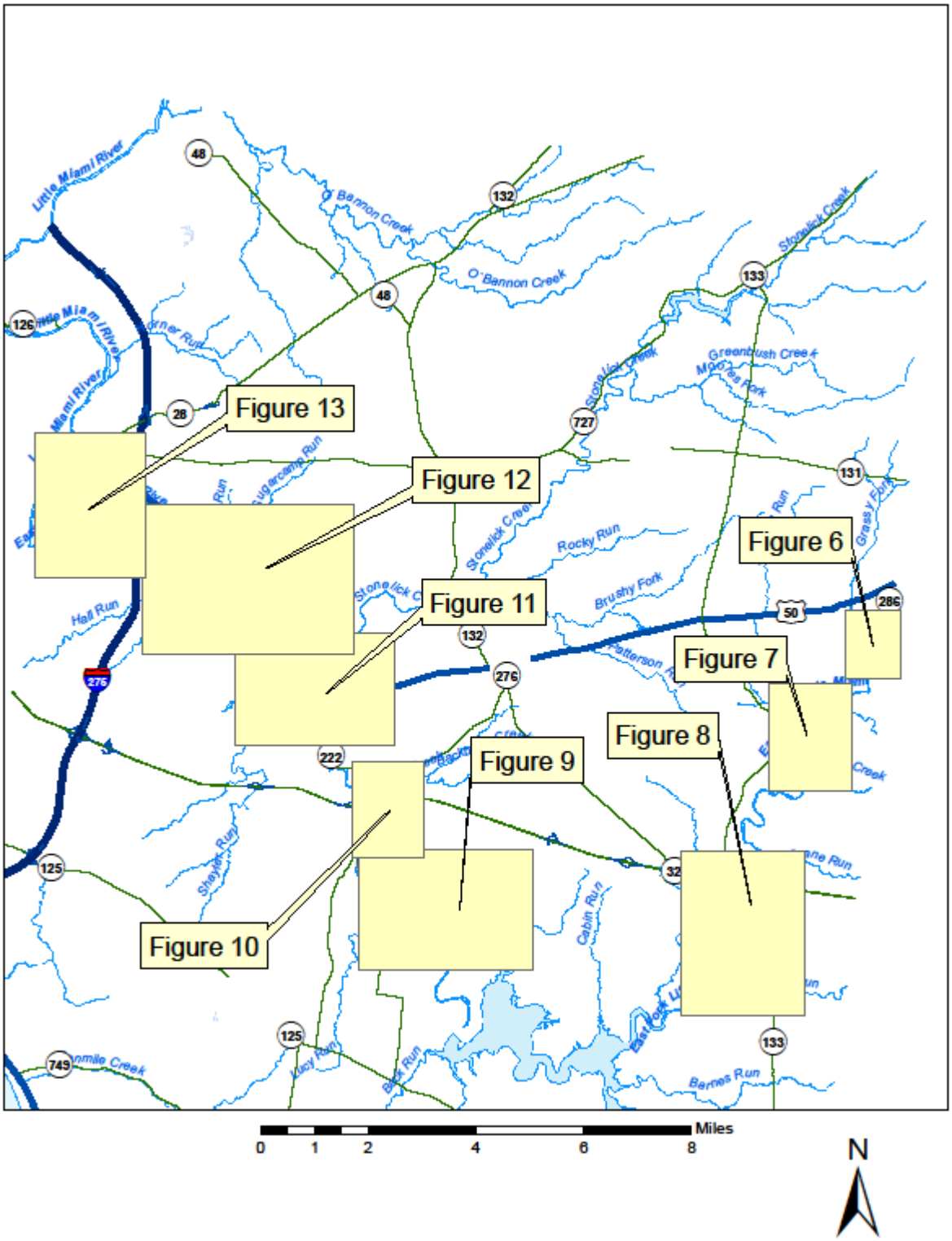


Figure 19.

2009 WQ Monitoring Program
Ambient Sampling Locations

5.3 Habitat Assessment

Habitat in Lucy Run headwaters is being assessed because biological impairments in Lucy Run are thought to be linked to habitat impairment in the headwaters. Specifically, this reach has migrated towards the sanitary sewer line and now has a manhole situated in the middle of the stream. An HHEI of a 60-meter reach will be conducted here to provide data for support of any future habitat restoration.

A QHEI on a 200-meter reach of Backbone Creek is being conducted because this stream has never been assessed for habitat, chemistry, or biology by Ohio EPA, Clermont County OEQ, or the USEPA ESF. This reach was chosen because there is significant bank failure and exposed sewer lines, an indication that this reach may be a candidate for stream restoration.

Shayler Run is being assessed for habitat in this 200-meter reach because the channel has migrated to run along the sanitary sewer line. Because this section of sewer line is exposed to the stream, the Clermont County Sewer District is constructing the Shayler Run Microtunnel and will abandon this line once construction of the Microtunnel is complete. The QHEI will provide habitat data to support any stream restorations done after this sewer line is abandoned.

The Clermont County Storm Water Management Department is planning to restore in-stream habitat in a segment of Hall Run. The QHEI done here will document the habitat condition prior to stream restoration.

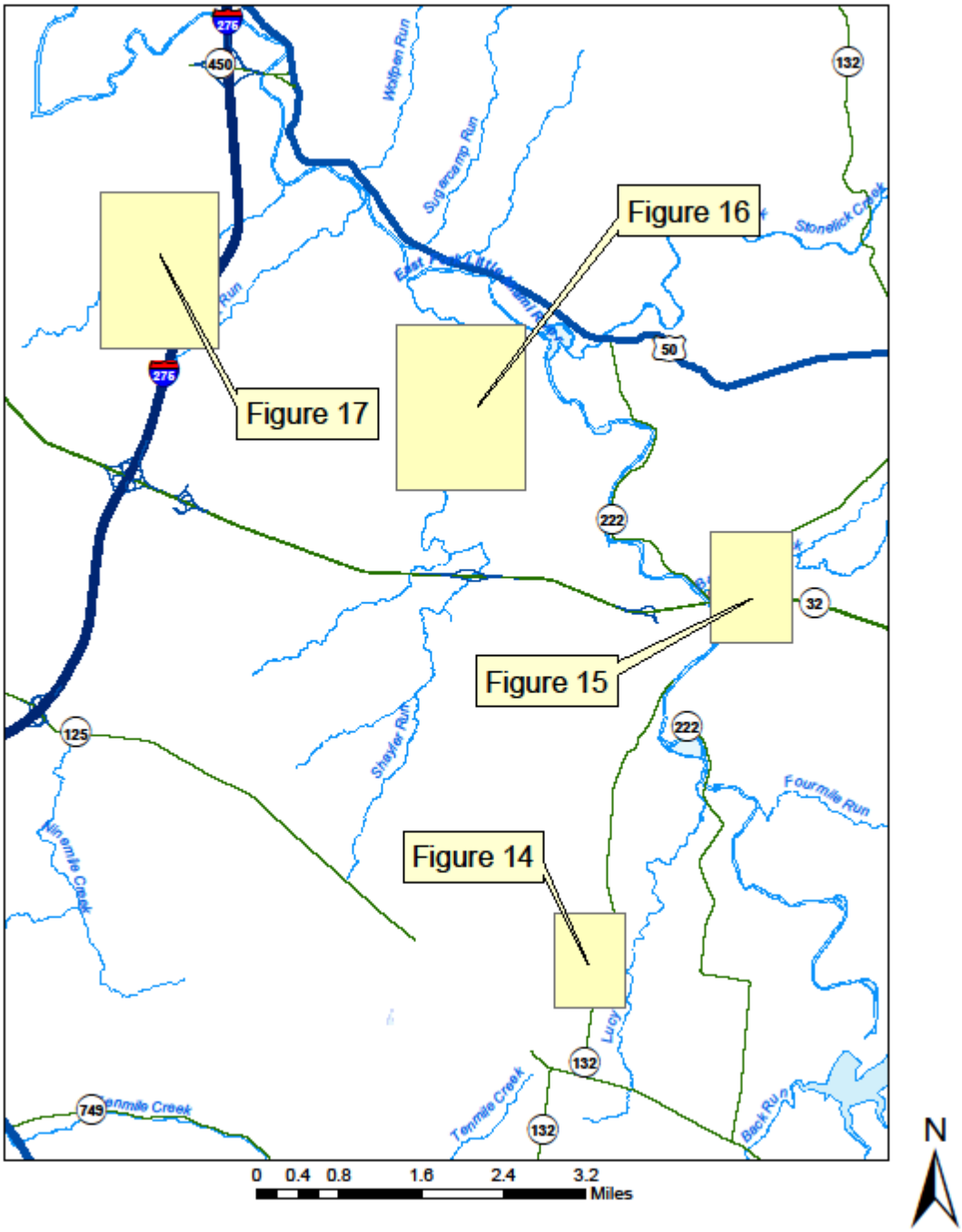


Figure 20.

2009 WQ Monitoring Program
Habitat Assessment

6. SCHEDULE OF PLANNED SAMPLING ACTIVITIES

6.1 Diurnal D.O. Profiles

Diurnal dissolved oxygen profiles will be collected during summer, low-flow conditions. The O'Bannon Creek DO profiles will be collected in June as this stream typically dries completely during the summer months. While a continuous discharge from the Harsha Lake dam of a minimum of 30 cubic feet per second (c.f.s) might prevent the East Fork Little Miami River from reaching true "low-flow" conditions, care will be taken to avoid sampling within 72 hours of any rain events, to avoid rainwater runoff from tributaries below the dam or releases from the lake above the 30 c.f.s. minimum that are occasionally made by the Corp of Engineers after significant rain events to maintain pool in the lake.

6.2 Ambient Sampling

Field parameters (pH, temperature, specific conductance, and dissolved oxygen), will be recorded prior to sample collection. Samples will be collected once per month from May through July. Samples will be collected midmonth starting on the 19th of May, 16th of June, and the 20th of July. Samples from the lower watershed will be collected on the first day and the upper watershed samples will be collected on the second day. Samples will be analyzed for total phosphorus and ortho-phosphorus. After each grab sample has been collected, cross sections, level, and velocity will be measured, where possible, in each sampling location. For the mainstem of the EFLMR, Stage and/or discharge data will be recorded from the Clermont County OEQ monitoring station in the East Fork LMR at river mile 34.8 or the USGS Perintown or East Fork Dam Stations (Appendix A).

6.3 Habitat Assessment

Habitat assessments will be made once in 2009, between the months of April and August. QHEIs or HHEIs will not be performed within 72 hours of a rain event (24 hours for HHEI) or during exceptionally cloudy days to ensure accurate visual assessments of habitat. Habitat assessments will be conducted in Lucy Run and Backbone Creek before July to ensure presence of water during assessment.

7. QUALITY ASSURANCE/QUALITY CONTROL PLAN

A detailed Quality Assurance Plan for this study is included in Appendix A of this Study Plan.

8. WORK PRODUCTS

Results of Clermont County's 2009 sampling program will be summarized in a "2009 Water Quality Sampling Final Report". This report is produced annually and posted on the OEQ website (www.oeq.net). The report will present 2009 sampling data relative to existing or proposed OEPA water quality standards in an effort to identify and quantify the extent of water quality problems in

the sampled watersheds. A copy of this report will be submitted to OEPA upon request. Eventually, data from the 2009 sampling may be used in conjunction with other data in the development of loading models for the East Fork TMDL.

9. LIST OF QUALITY DATA COLLECTORS AND OTHER PERSONELL

John McManus, a Program Manager for the Clermont County Stormwater Department, has been certified by the Ohio EPA as a Level 3 Quality Data Collector for Chemical Water Quality Assessment (QDC No. 079), effective June 13, 2007 and for Stream Habitat Assessment (QDC No. 236), effective September 10, 2008. He will be the lead project manager, responsible for all data collection activities associated with Clermont County's 2009 sampling program, either by personally collecting samples or supervising those individuals involved in sample collection activities. These individuals may include personnel from the Clermont County Office of Environmental Quality, the Clermont County Soil and Water Conservation District, the Clermont County General Health District, and/or the Clermont County Stormwater Department. Contact information for Mr. McManus is provided below:

John McManus, Program Manager
Clermont County Stormwater Department
4400 Haskell Lane
Batavia, Ohio 45103
Phone: (513) 732-7880
Email: jmcmanus@co.clermont.oh.us

Hannah Lubbers, Project Manager for Clermont County OEQ, has been certified by the Ohio EPA as a Level 3 Quality Data Collector for Stream Habitat Assessment (QDC No. 274), effective December 2, 2008. She will assist in development of the Project Study Plan and Quality, Assurance Plan, and Field Standard Operating Procedures.

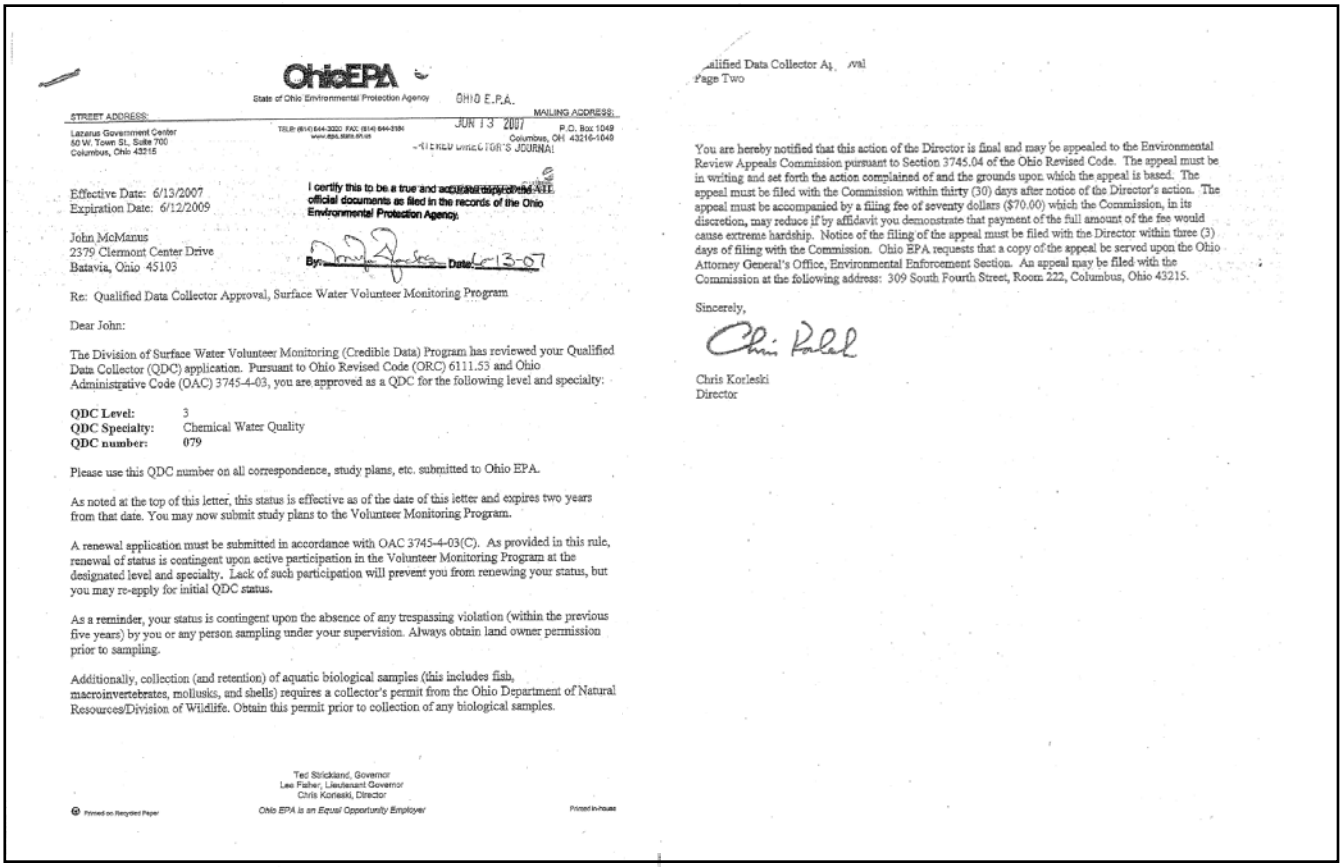
Supervision of non-Level 3 QDCs will include the following:

- A thorough review of the Project Study Plan and the sampling locations prior to any sample collection activities. Each sample site will be visited once before sampling by both the Level 3 QDC project manager and any non-level 3 QDC sample collectors.
- A thorough review of all relevant Standard Operating Procedures by the Level 3 QDC project manager with any non-level 3 QDC sample collectors prior to any sample collection activities
- Training of the non-level 3 QDCs by the Level 3 QDC project manager in the use of all sampling equipment, including, but not limited to, the YSI data sondes and current meter, prior to any sample collection activities. One training will be conducted in the office and in the field.
- Direct supervision by the Level 3 QDC project manager of the individual's initial sample collection activities during the first sample round to ensure compliance with the SOPs and Study Plan.
- The Level 3 QDC will also perform a subsequent field audit of non-QDC personnel performing sample collection activities once during the sampling season.

10. DOCUMENTATION OF LEVEL 3 QDC STATUS

Figures 21 & 22 are copies of the certified letters from OEPA Director Chris Korleski to John McManus approving Mr. McManus as a Level 3 Quality Data Collector for Chemical Water Quality Assessment and Stream Habitat Assessment.

Figure 23 is a copy of the certified letter from OEPA Director Chris Korleski to Hannah Lubbers approving Ms. Lubbers as a Level 3 Quality Data Collector for Stream Habitat Assessment.



OhioEPA

State of Ohio Environmental Protection Agency

OHIO E.P.A.

STREET ADDRESS:
Lazarus Government Center
50 W. Town St., Suite 700
Columbus, Ohio 43215

TELE: (614) 644-3020 FAX: (614) 644-3184
www.epa.state.oh.us

JUN 13 2007
ENTERED DIRECTOR'S JOURNAL

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

Effective Date: 6/13/2007
Expiration Date: 6/12/2009

I certify this to be a true and accurate copy of the official documents as filed in the records of the Ohio Environmental Protection Agency.

By: Date: 6-13-07

John McManus
2379 Clermont Center Drive
Batavia, Ohio 45103

Re: Qualified Data Collector Approval, Surface Water Volunteer Monitoring Program

Dear John:

The Division of Surface Water Volunteer Monitoring (Credible Data) Program has reviewed your Qualified Data Collector (QDC) application. Pursuant to Ohio Revised Code (ORC) 6111.53 and Ohio Administrative Code (OAC) 3745-4-03, you are approved as a QDC for the following level and specialty:

QDC Level: 3
QDC Specialty: Chemical Water Quality
QDC number: 079

Please use this QDC number on all correspondence, study plans, etc. submitted to Ohio EPA.

As noted at the top of this letter, this status is effective as of the date of this letter and expires two years from that date. You may now submit study plans to the Volunteer Monitoring Program.

A renewal application must be submitted in accordance with OAC 3745-4-03(C). As provided in this rule, renewal of status is contingent upon active participation in the Volunteer Monitoring Program at the designated level and specialty. Lack of such participation will prevent you from renewing your status, but you may re-apply for initial QDC status.

As a reminder, your status is contingent upon the absence of any trespassing violation (within the previous five years) by you or any person sampling under your supervision. Always obtain land owner permission prior to sampling.

Additionally, collection (and retention) of aquatic biological samples (this includes fish, macroinvertebrates, mollusks, and shells) requires a collector's permit from the Ohio Department of Natural Resources/Division of Wildlife. Obtain this permit prior to collection of any biological samples.

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

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Qualified Data Collector Approval
Page Two

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of seventy dollars ($70.00) which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal must be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Commission at the following address: 309 South Fourth Street, Room 222, Columbus, Ohio 43215.

Sincerely,

Chris Korleski
Director

Figure 21.

Documentation for Level 3 Qualified Data Collector

McManus: Chemical Water Quality

OhioEPA

State of Ohio Environmental Protection Agency

STREET ADDRESS:
Lazarus Government Center
50 W. Town St. Suite 700
Columbus, Ohio 43215

TELE: (614) 644-2920 FAX: (614) 644-3184
www.epa.state.oh.us

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216 1049

I certify this to be a true and accurate copy of the official documents as filed in the records of the Ohio Environmental Protection Agency.

Effective Date: September 10, 2008
Expiration Date: September 9, 2010

CERTIFIED MAIL

John McManus
Clermont Co. Stormwater Dept
4400 Haskel Lane
Batavia, Ohio 45103

By: _____ Date: 9-10-08

OHIO E.P.A.
SEP 10 2008
ENVIRONMENTAL ENFORCEMENT SECTION

Re: Qualified Data Collector Approval, Surface Water Volunteer Monitoring Program

Dear John:

The Division of Surface Water Volunteer Monitoring (Credible Data) Program has reviewed your Qualified Data Collector (QDC) application. Pursuant to Ohio Revised Code (ORC) 6111.53 and Ohio Administrative Code (OAC) 3745-4-03, you are approved as a QDC for the following level and specialty:

QDC Level: 3
QDC Specialty: Stream Habitat Assessment (QHEI)
QDC number: **236**

Please use this QDC number on all correspondence, study plans, etc. submitted to Ohio EPA.

As noted at the top of this letter, this status is effective as of the date of this letter and expires two years from that date. You may now submit study plans to the Volunteer Monitoring Program.

A renewal application must be submitted in accordance with OAC 3745-4-03(C). As provided in this rule, renewal of status is contingent upon active participation in the Volunteer Monitoring Program at the designated level and specialty. Lack of such participation will prevent you from renewing your status, but you may re-apply for initial QDC status.

As a reminder, your status is contingent upon the absence of any trespassing violation (within the previous five years) by you or any person sampling under your supervision. Always obtain land owner permission prior to sampling.

Additionally, collection (and retention) of aquatic biological samples (this includes fish, macroinvertebrates, mollusks, and shells) requires a collector's permit from the Ohio Department of Natural Resources/Division of Wildlife. Obtain this permit prior to collection of any biological samples.

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

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Qualified Data Collector Approval
Page Two

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of seventy dollars ($70.00) which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal must be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Commission at the following address: 309 South Fourth Street, Room 222, Columbus, Ohio 43215.

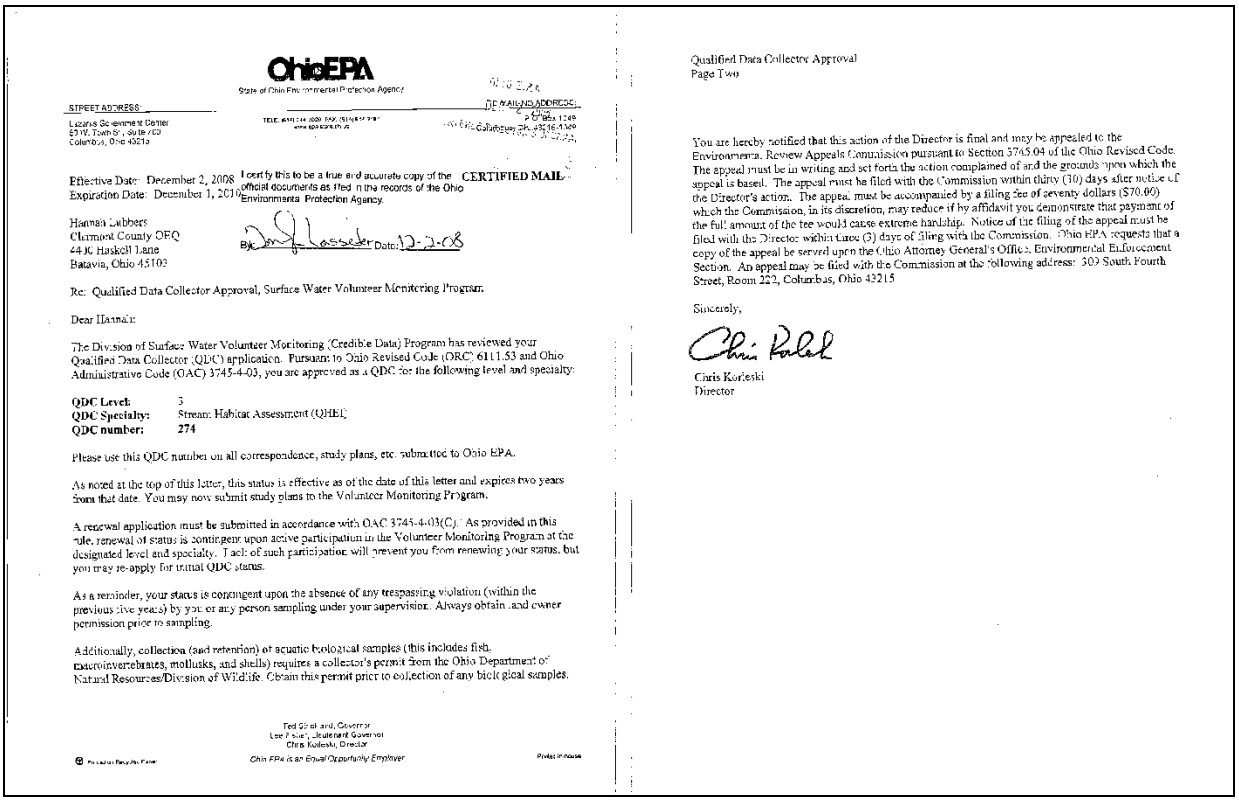
Sincerely,

Chris Korleski
Director

Figure 22.

Documentation for Level 3 Qualified Data Collector

McManus: Stream Habitat Assessment



OhioEPA

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50 W. Town St., Suite 700
Columbus, Ohio 43215

TELE: (614) 644-3020 FAX: (614) 644-3184
www.epa.ohio.gov

MAILING ADDRESS:

P.O. Box 1049
Columbus, OH 43216-1049

Effective Date: December 2, 2008
Expiration Date: December 1, 2010

I certify this to be a true and accurate copy of the official documents as filed in the records of the Ohio Environmental Protection Agency.

CERTIFIED MAIL

By: Date: 12-2-08

Hannah Lubbers
Clermont County OEQ
4400 Haskell Lane
Batavia, Ohio 45103

Re: Qualified Data Collector Approval, Surface Water Volunteer Monitoring Program.

Dear Hannah:

The Division of Surface Water Volunteer Monitoring (Credible Data) Program has reviewed your Qualified Data Collector (QDC) application. Pursuant to Ohio Revised Code (ORC) 6111.53 and Ohio Administrative Code (OAC) 3745-4-03, you are approved as a QDC for the following level and specialty:

QDC Level: 3
QDC Specialty: Stream: Habitat Assessment (QHEI)
QDC number: **274**

Please use this QDC number on all correspondence, study plans, etc. submitted to Ohio EPA.

As noted at the top of this letter, this status is effective as of the date of this letter and expires two years from that date. You may now submit study plans to the Volunteer Monitoring Program.

A renewal application must be submitted in accordance with OAC 3745-4-03(C). As provided in this rule, renewal of status is contingent upon active participation in the Volunteer Monitoring Program at the designated level and specialty. Lack of such participation will prevent you from renewing your status, but you may re-apply for initial QDC status.

As a reminder, your status is contingent upon the absence of any trespassing violation (within the previous five years) by you or any person sampling under your supervision. Always obtain land owner permission prior to sampling.

Additionally, collection (and retention) of aquatic biological samples (this includes fish, macroinvertebrates, mollusks, and shells) requires a collector's permit from the Ohio Department of Natural Resources/Division of Wildlife. Obtain this permit prior to collection of any biological samples.

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

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Qualified Data Collector Approval
Page Two

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Sincerely,

Chris Korleski
Director

Figure 23.

Documentation for Level 3 Qualified Data Collector

Lubbers: Stream Habitat Assessment

11. IDENTIFICATION OF CONTRACT LABORATORY

All laboratory analyses, except for DOC, associated with Clermont County's 2009 water quality sampling program will be performed by the Clermont County Water and Sewer District laboratory, under the supervision of Mr. William Johnson.

William D. Johnson, Laboratory Manager
Clermont County Water and Sewer District
1003 U.S. Route 50
Milford, Ohio 45150
Phone: (513) 965-4800
Email: wdjohnson@co.clermont.oh.us

12. SCIENTIFIC COLLECTOR'S PERMIT

Not applicable.

13. DIGITAL PHOTO CALALOG

See Figures 18-20.

14. VOUCHER SPECIMENS

Not applicable.

15. STATEMENT REGARDING CRIMINAL TRESPASSING

See Figure 24.

BOARD OF COUNTY COMMISSIONERS

CLERMONT COUNTY, OHIO

ROBERT L. PROUD R. SCOTT CROSWELL III EDWIN H. HUMPHREY

March 13, 2009

Jeff Reynolds
Ohio EPA, Division of Surface Water
Standards and Technical Support Section
P.O. Box 1049
122 S. Front Street
Columbus, Ohio 43216-1049

Dear Mr. Reynolds,

Pursuant to the requirements outlined in Appendix A of Section 3745-4-06 of the Ohio Administrative Code describing the requirements of a Level 3 Study Plan, the purpose of this letter is to certify that the Clermont County Office of Environmental Quality will create a digital photo catalog of all sampling locations in its 2009 water quality sampling program, and maintain that catalog for ten years. The catalog will include photos of the specific sampling location, riparian zone adjacent to the sampling location, and general land use in the vicinity of the sampling location.

This letter further certifies that I have never been convicted of or pleaded guilty to a violation of Section 2911.21 of the Ohio Revised Code (criminal trespass) or a substantially similar municipal ordinance.

Sincerely,

John McManus

John McManus, Program Manager
Clermont County Stormwater Department

OFFICE OF ENVIRONMENTAL QUALITY
4400 HASKELL LANE BATAVIA, OHIO 45103
TELEPHONE: (513) 732-7745 FAX: (513) 732-7310

Figure 24.

Certification Letter