State of Ohio Environmental Protection Agency

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November 14, 2008

Ohio University
Cutler Hall
Athens, OH 45071-2979

CERTIFIED MAIL

Director's Final Findings & Orders

Dear Sir or Madam:

Transmitted herewith are Final Findings & Orders of the Director concerning the matter indicated.

Sincerely,

Kimberly Reese
Systems Management Unit
Division of Solid & Infectious Waste Management

cc: Janine Maney, CO, Legal
Jeff Hurdley, CO, Legal
Steve Rine, SEDO, DSIWM
Athens City-County Health Department

BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY

In the Matter Of:

Ohio University Cutler Hall Athens, Ohio 45701-2979	: : :	Director's Final Findings and Orders
Respondent		

PREAMBLE

It is agreed by the Parties hereto as follows: By: _____ Date: 11.14.08

I. JURISDICTION

These Director's Final Findings and Orders ("Orders") are issued to Respondent, Ohio University, pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency ("Ohio EPA") under Ohio Revised Code ("ORC") Sections 3734.02(H), 3734.13, 6111.03, and 3745.01 and Ohio Administrative Code ("OAC") Rule 3745-27-13.

II. PARTIES BOUND

These Orders shall apply to and be binding upon Respondent and its successors in interest liable under Ohio law. No change in ownership of the Respondent or of the Property (as herein after defined) shall in any way alter Respondent's obligations under these Orders.

III. DEFINITIONS

Unless otherwise stated, all terms used in these Orders shall have the same meaning as defined in ORC Chapters 3734. and 6111. and the rules promulgated thereunder.

IV. FINDINGS

The Director of Ohio EPA has determined the following findings:

1. Respondent owns the property upon which Ohio University's Southern Campus is located, (the "Property"). Respondent has owned the Property since 1982. The Property is located at 1804 Liberty Avenue, Ironton, Lawrence County, Ohio.

2. Historical records indicate that beginning around 1950 and continuing through the 1970s, Respondent's Property had been used as a disposal site for foundry wastes and other wastes. During the disposal period, the Property was known as the 9th Street Pit.

3. ORC Section 3734.02(H) provides, in part, "[n]o person shall engage in filling, grading, excavating, building, drilling, or mining on land where a hazardous waste facility, or a solid waste facility, was operated without prior authorization from the director, who shall establish a procedure for granting such authorization by rules adopted in accordance with Chapter 119. of the Revised Code."

4. OAC Rule 3745-27-13(A) (effective June 12, 1989), as amended by OAC Rule 3745-27-13(A) (effective August 15, 2003), states, in part, "[n]o person shall, without authorization from the director, engage in filling, grading, excavation, building, drilling, or mining on land where a hazardous waste facility or solid waste facility was operated. Any person proposing to engage in these activities on land where a hazardous waste facility or solid waste facility was operated shall comply with the requirements of this rule."

VIOLATIONS OF ORC SECTION 3734.02(H) AND OAC RULE 3745-27-13

5. To date, Respondent has constructed several buildings on the Property, all without prior authorization from the Director, in violation of ORC Section 3734.02(H) and OAC Rule 3745-27-13(A).

6. On April 14, 2003, Ohio EPA issued Final Findings and Orders ("April 14, 2003 Orders") that required Respondent to engage in sampling and analysis to delineate the extent and composition of the solid waste underlying the Property. Respondent has investigated the horizontal limits of waste placement, obtained samples regarding the composition of the solid waste underlying the Property, and on October 14, 2003, submitted a Fill Characterization Report ("the Report") to Ohio EPA. The Report summarized the results of the soil borings performed on the Property, and revealed the presence of volatile organic compounds, semi-volatile organic compounds, polychlorinated biphenols, and RCRA metals.

7. On January 31, 2005, Ohio EPA received a Fill Characterization Report Addendum that contained information regarding explosive gas monitoring events in which two explosive gas monitoring wells exceeded methane's lower explosive limit.

8. On April 1, 2005, Ohio EPA issued Orders to Respondent to address the migration of explosive levels of methane being generated from the solid waste disposed on the Property. Following the issuance of the April 1, 2005 Orders, Respondent installed passive gas vents on the Property.

9. Respondent performed four rounds of quarterly ground water sampling at the Property beginning in July of 2003. Results of the ground water sampling indicate that a release to ground water has occurred at the Property. The results of quarterly monitoring conducted at the Property are summarized in the table below:

Range in Ground Water Monitoring Results (mg/L)

	MW-1	*MW-2*	*MW-3*	*MW-4*	*MCL*	*Mean Ambient*	*Max Ambient*
As	0.009 - 0.182	<0.25 - 0.091	<0.005 - <0.20	<0.005 - <0.30	*0.01*	0.007	0.095
Ba	0.112 - 1.77	0.07 - 0.751	0.053 - 4.94	0.045 - 2.93	*2.0*	0.192	2.16
Cd	<0.001 - 0.011	<0.001 - 0.006	<0.001 -<0.025	<0.001 - 0.015	*0.005*	0.00022	0.005
Cr	0.01 – 0.226	0.011 - 0.172	0.004 - 0.596	0.003 - 0.171	*0.1*	0.027	0.05
Pb	0.034 - 0.908	0.029 - 0.857	0.009 - 1.71	0.039 - 1.75	*0.015 (AL)*	0.0025	0.101
Hg	<0.0002 - 0.0005	<0.0002 - 0.0009	<0.0002 - 0.0021	<0.0002 - 0.0011	*0.002*	-	-
Se	<0.005 - 0.008	<0.005 - 0.02	<0.005	<0.005 - 0.006	*0.05*	0.0027	0.10

10. Pursuant to Order No. 7 of the April 14, 2003 Orders, Respondent and Ohio EPA agreed to develop a remedial plan to address the OAC Rule 3745-27-13 violations in a manner that is protective of human health, safety and the environment and to memorialize the remedial plan through issuance of Orders that prescribe the appropriate remedy, the procedures used, and a schedule for implementation. Ohio EPA and Respondent have agreed to enter into these Orders to address the environmental conditions associated with the Property.

V. ORDERS

The Director hereby issues the following Orders:

1. Respondent shall comply with the provisions of OAC Rule 3734-27-10(B)-(D) (effective August 15, 2003) to address the impacts to waters of the State from the Property.

2. Within thirty (30) days after the effective date of these Orders, Respondent shall commence implementation of the attached groundwater monitoring plan and shall conduct the plan in accordance with the schedule of implementation contained therein.

3. Respondent shall maintain all soil cover and asphalt pavement areas on the Property in good repair to minimize infiltration of precipitation and potential human contact with the waste materials.

4. Respondent shall comply with OAC Rule 3745-27-13 (effective August 15, 2003) with regard to all filling, grading, excavating, building, drilling, or mining on the Property. Horticultural and landscaping activities that do not significantly disturb the soil cover or involve the planting of trees on the area of waste placement may be conducted without the prior approval of the Director.

VI. TERMINATION

Respondent's obligations under these Orders shall terminate when Respondent certifies in writing and demonstrates to the satisfaction of Ohio EPA that Respondent has performed all obligations under these Orders and the Enforcement Coordinator of Ohio EPA's Division of Solid and Infectious Waste Management acknowledges, in writing, the termination of these Orders. If Ohio EPA does not agree that all obligations have been performed, then Ohio EPA will notify Respondent of the obligations that have not been performed, in which case Respondent shall have an opportunity to address any such deficiencies and seek termination as described above. The certification shall contain the following attestation: "I certify that the information contained in or accompanying this certification is true, accurate and complete." This certification shall be submitted by Respondent to Ohio EPA and shall be signed by a responsible official for Respondent.

VII. OTHER CLAIMS

Nothing in these Orders shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership or corporation, not a party to these Orders, for any liability arising from, or related to, the operation of the Property.

VIII. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to these Orders shall be undertaken in accordance with the requirements of all applicable local, state and federal laws and regulations. These Orders do not waive or compromise the applicability and enforcement of any other statutes or regulations applicable to Respondent.

IX. MODIFICATIONS

These Orders may be modified by agreement of the parties hereto. Modifications shall be in writing and shall be effective on the date entered in the journal of the Director of Ohio EPA.

X. NOTICE

All documents required to be submitted by the Respondent pursuant to these Orders hall be addressed to:

Ohio Environmental Protection Agency
Southeast District Office,
Division of Solid and Infectious Waste Management
Attn: Unit Supervisor, DSIWM
2195 Front Street
Logan, Ohio 43138

or to such persons and addresses as may hereafter be otherwise specified in writing by Ohio EPA.

XI. RESERVATION OF RIGHTS

Ohio EPA reserves the right to seek legal and equitable relief to enforce the terms and conditions of these Orders, including penalties against Respondent for noncompliance with these Orders.

Ohio EPA specifically reserves the right to revoke any authorization issued under ORC Section 3734.02(H) and OAC Rule 3745-27-13 related to the Property. Furthermore, any authorization issued under ORC 3734.02(H) and OAC Rule 3745-27-13 shall not be construed as implying in any way those additional authorizations under ORC Section 3734.02(H) and OAC Rule 3745-27-13 will be issued for activities at the Property.

Ohio EPA specifically reserves the right to pursue claims for past violations of OAC 3745-27-13, including legal and equitable relief.

In order to resolve disputed claims, without admission of fact, violation or liability, and without making any concession on any issue of law by entering into these Orders, including, but not limited to, whether OAC Rule 3745-27-10 should be applied to the Property, Respondent consents to the issuance of the Orders and agrees to comply with these Orders.

XII. WAIVER

In order to resolve disputed claims, without admission of fact, violation or liability, and without making any concession on any issue of law by entering into these Orders, including, but not limited to, whether OAC Rule 3745-27-10 should be applied to the Property, Respondent consents to the issuance of the Orders and agrees to comply with these Orders.

Respondent hereby waives the right to appeal the issuance, terms and conditions, and service of these Orders, and Respondent hereby waives any and all rights Respondent may have to seek administrative or judicial review of these Orders either in law or equity. Respondent expressly waives any and all claims and defenses of res judicata, collateral estoppel, waiver, laches, statute of limitations, issue preclusion, claim splitting and other claims and defenses based upon any contention that the actions taken or claims raised by Ohio EPA or the State of Ohio in a subsequent proceeding were or should have been raised, brought or resolved in these Orders or any previously issued final action of the Director of Ohio EPA.

Notwithstanding the preceding, Ohio EPA and Respondent agree that if these Orders are appealed by any other party to the Environmental Review Appeals Commission, or any court, Respondent retains the right to intervene and participate in such appeal. In such an event, Respondent shall continue to comply with these Orders notwithstanding such appeal and intervention unless these Orders are stayed, vacated or modified. Nothing in these Orders shall be construed to limit the authority of Ohio EPA to seek relief for violations not addressed in these Orders.

XIII. EFFECTIVE DATE

The effective date of these Orders is the date these Orders are entered into the Ohio EPA Director's journal.

XIV. SIGNATORY AUTHORITY

Each undersigned representative of a party to these Orders certifies that he or she is fully authorized to enter into these Orders and to legally bind such party to these Orders.

IT IS SO ORDERED AND AGREED:
Ohio Environmental Protection Agency

Chris Korleski
Director

IT IS SO AGREED:
Ohio University

APPROVED FOR SIGNATURE
Nicoliete Diogiardi
Legal Affairs
Date 11-10-08

Signature

11/10/08
Date

William R. Decatur
Vice President For Finance and Administration

REVISED
GROUNDWATER MONITORING PLAN
FOR
OHIO UNIVERSITY SOUTHERN CAMPUS

IRONTON, OHIO

Prepared By:

Foppe Technical Group, Inc.
11415 Century Boulevard
Cincinnati, Ohio 45246

October 30, 2008

Project No. 06234A-18

TABLE OF CONTENTS

LIST OF FIGURES

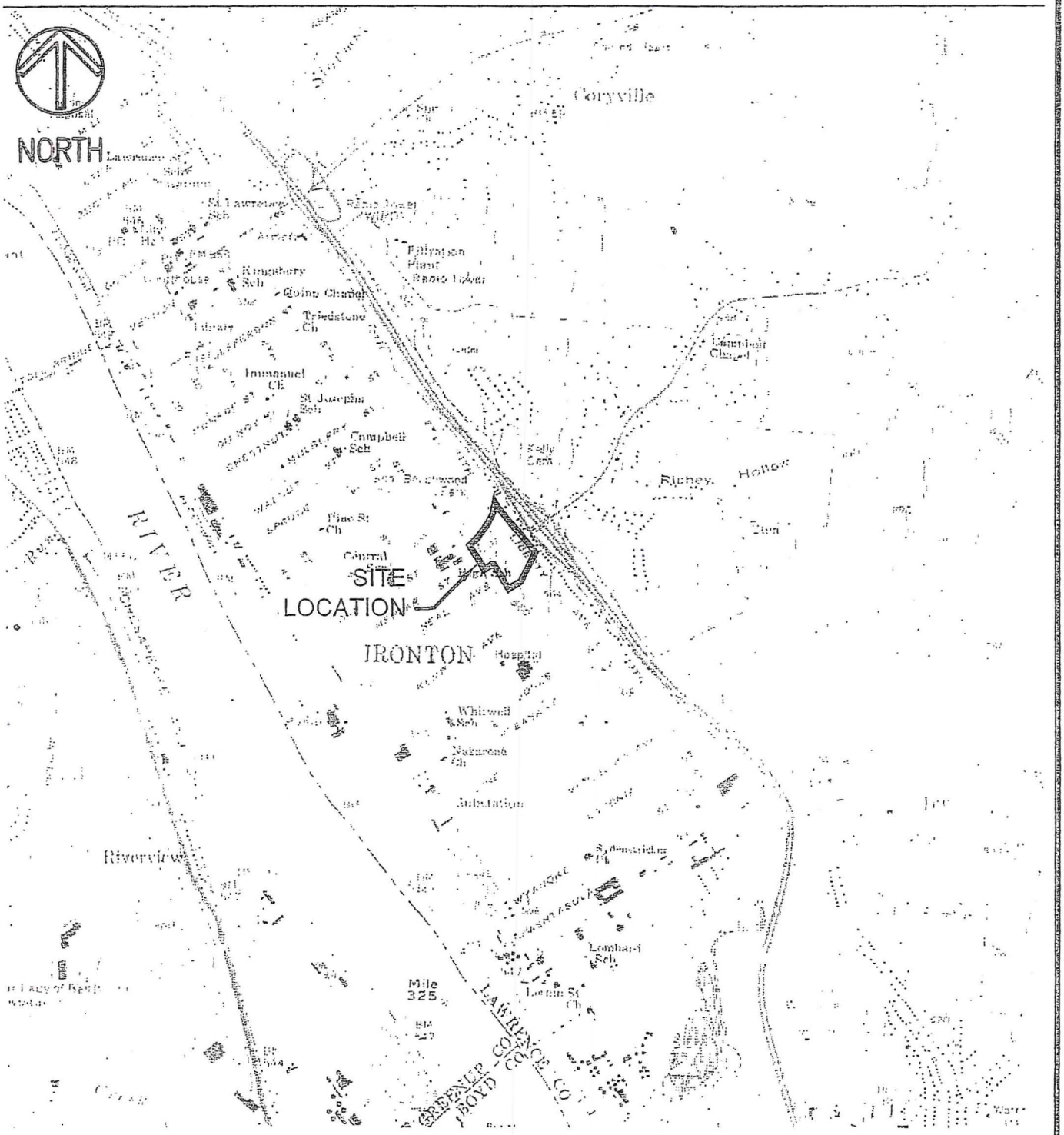
LIST OF TABLES

1.0 SITE DESCRIPTION

The subject site is the Ironton, Ohio branch campus of Ohio University. The site is approximately 11 acres, and is located along the southwest side of Liberty Avenue and northeast of Ninth Street, southwest of U.S. Route 52 and northeast of the Ohio River in Ironton, Ohio (Figure 1). The site is located at approximate map coordinates: North 38.525296' Latitude and West 82.665826' Longitude at an approximate elevation of 540 to 560 feet above mean sea level. This area of Lawrence County is predominately older residential buildings mixed with older industrial buildings. The main campus today consists of four buildings surrounded mostly by asphalt parking and landscaped areas.

Boring logs obtained from geotechnical reports completed by the H.C. Nutting Company indicate the soils at the site consist of silty, sandy clay at the southern end of the property with increasing sand and gravel content to the north. These natural soils appear to be alluvial and are characterized by a fining upward sequence. A 'fill material', ranging in depths from the ground surface to approximately 42 feet below surface grade, was also encountered. This fill material consists of cinders, foundry sand, coal fragments, rock fragments, gravel and organic material. A weathered shale/siltstone was encountered at depths ranging from 65 feet to 70 feet below surface grade. The general configuration of the fill area is depicted on the Site Plan presented as Figure 2.

Based on the information reviewed, ground water is present under unconfined conditions at depths ranging from 40 to 45 feet below ground surface. However, ground water flow in the site vicinity is expected to be influenced by the Ohio River and several local tributaries. The localized direction of ground water flow will vary with seasonal fluctuations in rainfall and river levels. Generally, groundwater flow under normal river level conditions is expected to flow toward the Ohio River to the southwest, with overall flow trending downstream toward the west.



SOURCE:
7.5 MINUTE USGS TOPOGRAPHIC MAP
IRONTON, OHIO 1972, REVISED 1985

Project Manager	LEF
Drawn By	TJB
Scale	1"=2000'
DATE	DEC. 2005
Project No	05234A-17

FIGURE 1
SITE LOCATION MAP
OHIO UNIVERSITY
SOUTHERN CAMPUS
IRONTON, OHIO

Site Development Engineering
FOPPE Technical Group

CINCINNATI OFFICE
11415 CENTURY BOULEVARD
CINCINNATI, OHIO 45246
Tele: (513) 671-8144 Fax: (513) 671-8150

NORTHERN KENTUCKY OFFICE
7900TANNERS GATE DRIVE, SUITE 120
FLORENCE KENTUCKY 41042
Tele: (859) 538-1163 Fax: (859) 538-1970

Y:\FOPPE\03024A\10\FIGURE1.DWG

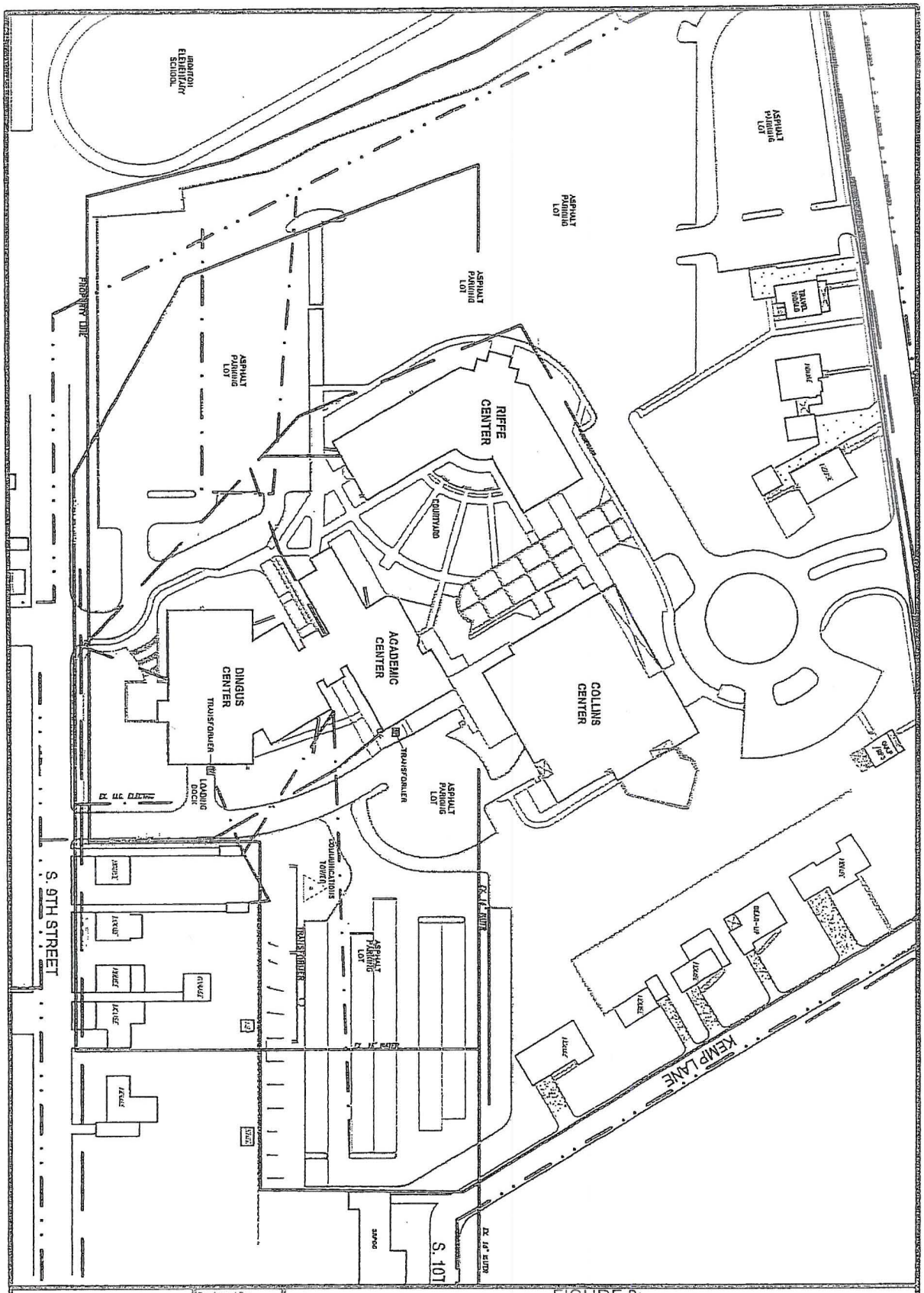


FIGURE 2:
SITE PLAN
OHIO UNIVERSITY SOUTHERN CAMPUS
IRONTON, OHIO

Designed By:	LEF
Drawn By:	TJB
Scale:	1"=80'
Date:	10/31/2007
Project No.:	03024A-10

REVISIONS

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2.0 DATA QUALITY OBJECTIVES

The overall objective of this Groundwater Sampling Plan is to monitor the groundwater beneath and around the Ohio University Ironton Campus to evaluate what, if any, impacts the former landfill operations may have had on groundwater quality. The assessment of impact will be based on a comparison of site water quality measurements with up gradient and off site measurements.

For the purpose of this Groundwater Sampling Plan the following data quality objectives have been identified:

1. Utilize the four (4) existing groundwater wells previously installed on site as sample locations.

2. Install two (2) additional wells in "up gradient" locations and sample those wells. Installation of well GW-6 is contingent upon obtaining permission from the property-owner to install and operate the well.

3. Collect sufficient data for assessment of potential inorganic groundwater contaminates as follows:

    a. Collect data on a quarterly basis for two (2) years from all six (6) sampling locations.
    b. Analyze all collected samples for selected inorganic parameters shown in Table 1 herein.

4. After two years, statistically compare the data from the four on-site groundwater monitor wells to the two (2) upgradient wells using procedures consistent with OAC 3745-27-10(c)(6) and (7).

5. Submit quarterly groundwater elevation (potentiometric surface map) and water quality data (including laboratory data sheets, field data forms, chain-of-custody forms and QA/QC data sheets per OAC 3745-27-10 (c)(10)) within 75 days of each sampling event.

6. Submit a Final Assessment Report within 180 days of the 8th and final quarterly sampling event.

3.0 SITE SAMPLING PLAN

The following sampling plan is designed to produce data to address and evaluate the previously defined data quality objectives:

3.1 Up-Gradient Well Installation

Two new groundwater wells will be installed at the locations shown on Figure 3. The well locations were selected to provide up gradient data in both high and low river conditions.

The wells will be constructed as follows:

- The wells will be drilled using hollow-stem auger methods to depths of 35 – 45 feet, or until groundwater is encountered;
- Split-spoon samples will be collected in advance of the augers to characterize soil conditions at these locations;
- The wells will be constructed of 2-inch PVC casing with 0.010-slot screen. The wells will be constructed with 15 feet of screen to straddle the water table to allow for seasonal fluctuations in the water elevations;
- A No. 5 sand pack will be placed around the screened portion and 2 feet above the screened portion of the well. A 24-inch bentonite seal will be placed aove the sand pack with a bentonite/grout slurry seal to the surface.
- The wells will be developed by pumping and/or surging until the water is clear;

3.2 Groundwater Monitoring

Groundwater monitoring will be conducted to evaluate groundwater conditions directly around the fill materials. This monitoring will be conducted as follows:

- Foppe will utilize the four (4) existing groundwater monitoring wells that have been previously installed and the two (2) new up gradient wells. The approximate locations of these well are shown on Figure 3 of this report. The locations of these wells are outside of the area believed to contain fill material and have been chosen based on previous geothechnical borings and the previous geophysical survey.
- The previous wells were installed using hollow-stem auger techniques and split-spoon sampling. The estimated depth to ground water is 35-40 feet.
- The wells have been constructed of 2-inch polyvinyl chloride (PVC) blank casings and 0.010-inch slotted screens.
- The wells used a 15-foot screened interval, straddling the upper groundwater interface (5-feet above and 10-feet below) with the sand pack rising 18-24 inches above the top of the screen. The remaining annulus was sealed to the ground surface with bentonite/grout slurry.

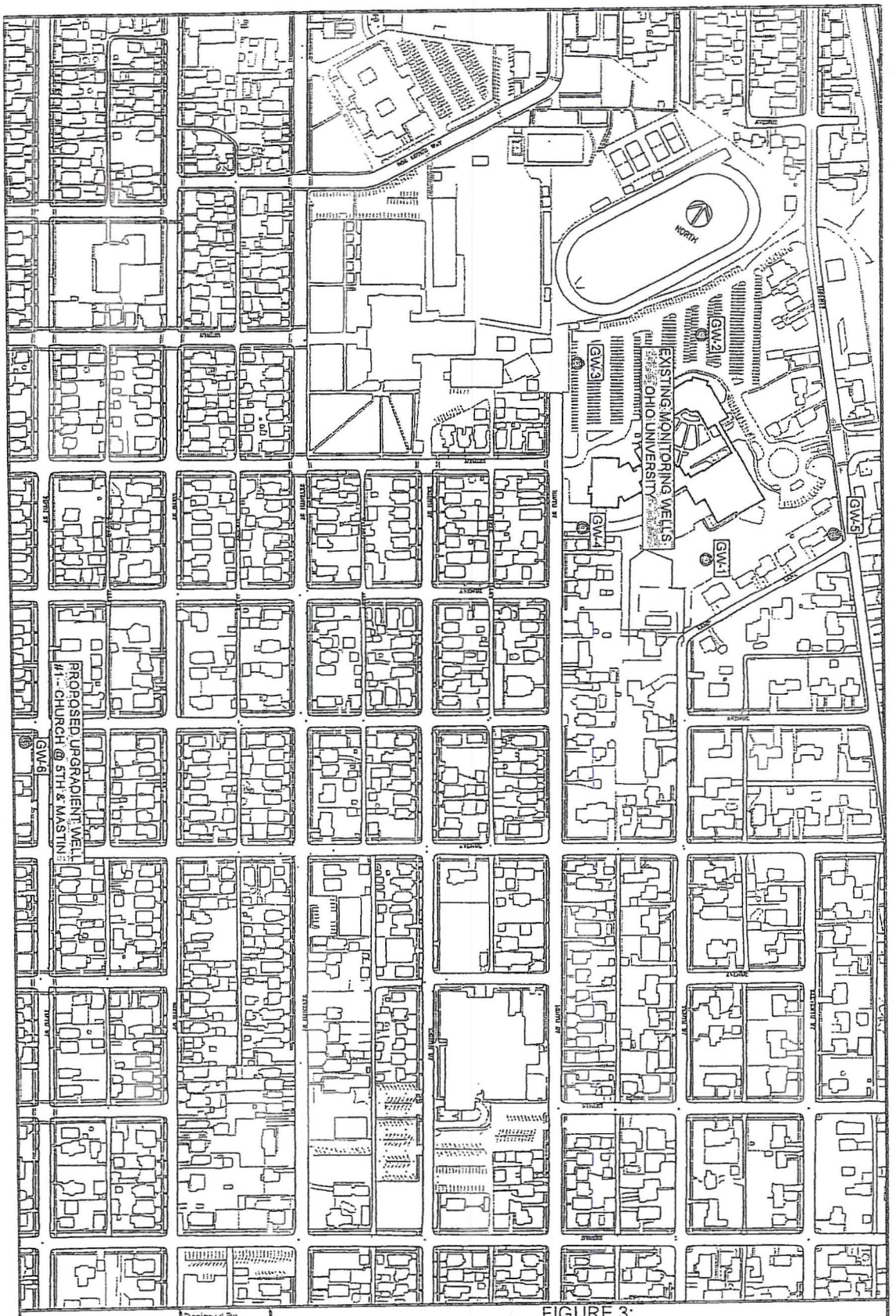

FIGURE 3:
GROUNDWATER MONITORING WELL LOCATIONS
OHIO UNIVERSITY GAS WELL MONITORING
CITY OF IRONTON, LAWRENCE CO., OHIO

Designed By:	
Drawn By:	T.BRANDT
Scale:	1" = 250'
Date:	10/14/2008
Project No.	05234A-18

REVISIONS

Site Development Engineering
OPPE

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Y:\DFOPPE\05024A\1D\DWG\DB007A_NEWWELLS.DWG

- The existing wells were developed by pumping and surging.
- Prior to sampling, each well will be purged by pumping the well until measurements of turbidity, temperature, specific conductivity and dissolved oxygen show less then 10% variance.
- Each well will be sampled quarterly using Teflon bailers.
- One (1) additional water sample (i.e. duplicate) will be collected each quarter for QA/QC.
- All collected samples will be tested for inorganic parameters found in Table 1 herein.
- Temperature, specific conductivity, turbidity, pH and dissolved oxygen will be measured from each well during each sampling event.
- Prior to gauging and sampling the wells, water elevations will be measured from each well during each sampling event. Additionally, groundwater elevations will be collected during each gas-sampling event to provide a total of eight (8) sets of water elevations per year.
- OU will notify OEPA 48 hours in advance of each sampling event and give OEPA the opportunity to collect split samples during each sampling event.

4.0 LABORATORY ANALYSIS PLAN

The following laboratory analysis plan is designed to produce analytical data for the previously defined DQO's. All collected samples will be tested for the parameters shown below in Table 1.

TABLE 1:

LABORATORY TESTING PARAMETERS AND METHODS
Unfiltered Samples – SW 846 Methods

Sample Type	No. of Samples	Test Parameters*	Test Method
Groundwater (including 1 QA/QC duplicate per event)	56	6010 Series Metals (As, Ba, Cd, Cr, Cu, Fe, Pb, Mg, Mn, Na, and Zn)	SW 846 6010 Series
		Temperature (field)	
		Specific Conductance (field)	EPA 120.1
		pH (Field)	EPA 150.1
		Fluoride	EPA 340.2
		Phenol (Including Cresols)	EPA 420.2
		Sulfate	EPA 375.4
		Total Dissolved Solids	EPA 160.1
		Ammonia (as N)	EPA 350.1
		Chloride	EPA 325.2
		Turbidity (48 Hr Hold) and (field)	EPA 180.1

5.0 DELIVERABLES

A summary report will be prepared within 75 days after each quarterly sampling event to compile the findings of the executed sampling and analysis plan. The report will include:

(a) A site map showing the location of all sampling wells located on site with references;
(b) Tabulated laboratory groundwater sampling results;
(c) Tabulated groundwater measurements including elevation data and well purging data;
(d) Representation of all sampling and water elevation data for the 24 month sampling interval;
(e) Potentiometric diagrams for groundwater elevation data after each quarterly measurement event (Ohio River water elevations obtained from the US Army corps. of Engineers Ashland Kentucky Ohio River Gagging Station (03216000) will be noted on each diagram);

After two years, OU will statistically compare the data from the four on-site groundwater monitor wells to the two (2) upgradient wells using procedures consistent with OAC 3745-27-10(c)(6) and (7).

A Final Assessment Report will be prepared within 180 days of the 8th and final quarterly sampling event.