



**Mike DeWine**, Governor  
**Jon Husted**, Lt. Governor  
**Laurie A. Stevenson**, Director

September 29, 2020

Highland Park  
Transportation LLC  
6675 Parkland Blvd., Suite 100  
Solon, Ohio 44139

**Re: Highland Park Transportation, LLC  
Director's Final Findings and Orders (DFFO)  
DFFO  
Municipal Solid Waste Landfills  
Cuyahoga County  
MSWL019394**

**Subject:** Final Findings and Orders of the Director

Dear Sir or Madam:

Transmitted herewith are the Final Findings and Orders of the Director concerning the matter regarding **Highland Park Transportation, LLC.**

If you have any questions, please contact Teri Finrock at (614) 644-3037.

Sincerely,

*Jeri Main*

Jeri Main, Administrative Professional Unit  
Division of Materials & Waste Management

Enclosure

cc: Bruce McCoy, DMWM, CO  
Carl Mussenden, DMWM, CO  
Karen Naples, DMWM, NEDO  
Jarnal Singh, DMWM, NEDO  
Teri Finrock, Legal  
Todd Davis, Hemisphere Development  
CJones@Calfree.com

9/29/2020

**BEFORE THE  
OHIO ENVIRONMENTAL PROTECTION AGENCY**

In the Matter Of:

Highland Park Transportation LLC  
6675 Parkland Boulevard, Suite 100  
Solon, Ohio 44139

:  
:  
:

Director's Final Findings  
and Orders

Respondent

**PREAMBLE**

It is agreed by the parties hereto as follows:

**I. JURISDICTION**

These Director's Final Findings and Orders ("Orders") are issued to Highland Park Transportation LLC ("Respondent") pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency ("Ohio EPA") under Ohio Revised Code ("ORC") Sections 3734.02(G) and (H), 3734.13, and Ohio Administrative Code ("OAC") Section 3745.01.

**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, the Property or the Landfills (as hereinafter 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 Chapter 3734 and the rules promulgated thereunder.

### **IV. FINDINGS**

The Director of Ohio EPA has determined the following findings:

1. Respondent is acquiring the Property, as defined herein, through foreclosure, as a successor to the property interest owned by City View Center, LLC, and will become the current “owner” and “operator”, as those terms are defined under OAC Rule 3745-27-01(O)(7) and (5), of certain portions of two closed municipal solid waste disposal landfills, the R&B Development Landfill and the Matousek Landfill (collectively, the “Landfills”) located south of the intersection of Antennucci Blvd. and Transportation Blvd., in Garfield Heights, Cuyahoga County, Ohio (the “Property”).

The Property consists of approximately 60.6299 acres of the two Landfills, identified as Parcels 4B, 4C, 5A, 5B, and 6A of the Heritage/Boyas Subdivision No. 4, as shown by the recorded plat in Volume 348, Page 47 of Cuyahoga County Map Records, and Split Parcel “F-2”, recorded in Volume 340, Page 83 of Cuyahoga County Map Records. A legal description and figure more particularly identifying the Property is attached hereto and incorporated herein as Attachment 1. The Landfills include eight (8) parcel numbers: 543-01-001, 543-01-002, 543-03-002, 543-06-001, 543-03-001, 542-16-003, 542-27-003, and 543-06-002 (See the figure generally identifying the Landfills in

Attachment 2). Respondent has not acquired and is not an "owner" or "operator" of the portion of the Landfills located on parcel number 542-27-003, also known as the "Northeast Mound" (See Finding No. 6).

2. Respondent is a person as that term is defined in ORC Section 3734.01(G) and OAC Rule 3745-27-01(P)(3).
3. The R&B Development Landfill and the Matousek Landfill are both closed "solid waste disposal facility" as that term is defined in OAC Rule 3745-27-01 (S)(23) and historic facility as defined in OAC Rule 3745-513-.02(H) The Landfills are not considered to be in the post-closure care period.
4. On March 18, 2005, the Director of Ohio EPA entered into Director's Final Findings and Orders ("DFFOs") with McGill Property Group, LLC, Garfield Land Development, LLC, GHLFP, LLC, C.J. Natale, Inc., and the City of Garfield Heights for violations of, *inter alia*, OAC Rule 3745-27-13, conditions of the OAC Rule 3745-27-13 authorization, and the May 25, 2004 Emergency Orders issued by the Director of Ohio EPA. The March 18, 2005 DFFOs stated McGill Property Group, LLC, Garfield Land Development, LLC, GHLFP, LLC were the "owners" or "operators" of portions of the R&B Development Landfill and the Matousek Landfill.

Among other things, the March 18, 2005 DFFOs required McGill Property Group, LLC, Garfield Land Development, LLC, and GHLFP, LLC, as the initial developers of the Property and portions of the larger Landfills, to perform activities in compliance with the OAC Rule 3745-27-13 authorization and associated application submittals, establish

financial assurance, operate and maintain the explosive gas monitoring, collection, and extraction system, operate and maintain any leachate collection system, maintain the landfill cap system, and record a deed notice and environmental covenant for the Property with the Cuyahoga County Recorder.

5. On April 18, 2005, Garfield Land Development, LLC and GHLFP, LLC recorded an environmental covenant for the Property with the Cuyahoga County Recorder.
6. On December 28, 2006, the Director of Ohio EPA and City View Center, LLC entered into DFFOs, in which City View Center, LLC purchased the Property and agreed to assume certain obligations under the March 18, 2005 DFFOs for the Property, that City View Center, LLC acquired through a limited warranty deed from Garfield Land Development, LLC. Garfield Land Development, LLC and GHLFP, LLC had retained ownership of parcel number 542-27-003, which is a part of the larger Landfills also known as the Northeast Mound, until March 1, 2018.
7. On December 2, 2008, the State of Ohio entered into a judicial consent order (CV 08 664197) (the "2008 Judicial Consent Order") with McGill Property Group, LLC, Garfield Land Development, LLC, GHLFP, LLC, John McGill (collectively "Defendants McGill") and City View Center, LLC. The City of Garfield Heights was not a party to the 2008 Judicial Consent Order. Under the 2008 Judicial Consent Order, the Defendants McGill were ordered to, among other things: design, install, and maintain a main facility active gas extraction system (the "Main Facility Gas System"); perform monitoring of landfill gas migration; correct future leachate outbreaks; seal all underground structures;

perform landfill cap repair and maintenance; and establish financial assurance. The 2008 Judicial Consent Order applied to both the Property and to the portions of the Landfills owned by the parties, respectively. The Property currently is operated by a court appointed federal receiver appointed through foreclosure. The Main Facility Gas System was installed by Ohio EPA when Defendants McGill failed to comply with the 2008 Judicial Consent Order and is identified generally on Attachment 3 hereto.

8. On March 1, 2018, parcel number 542-27-003, the Northeast Mound, was forfeited to the State of Ohio. Ohio EPA currently has access to this parcel to perform operation and maintenance of the Main Facility Gas System located on this parcel.
9. On August 28, 2018, Cuyahoga County ordered a sheriff's sale for parcel number 543-06-002, at which time this parcel was acquired by the Cuyahoga County Land Bank, which, in turn, transferred the parcel to the City of Garfield Heights. A portion of the Main Facility Gas System is located on parcel number 543-06-002.
10. A portion of the Main Facility Gas System is located on parcel number 542-16-001, currently owned by Garfield Land Development, LLC.
11. A portion of the Main Facility Gas System is also located on parcel number 543-09-005., currently owned by Garfield Land Partners LLC.
12. A portion of the Main Facility Gas System is also located on parcel number 543-09-004.

13. Pursuant to Section 82 of the 2008 Judicial Consent Order, after the foreclosure action is completed and Respondent becomes an owner/operator of the Property, Respondent will have access to the "City View Center Facilities," as defined in the 2008 Judicial Consent Order, to perform any operation and maintenance activities in compliance with applicable laws, rules and regulations, including operation and maintenance activities to the Main Facility Gas System located on parcel numbers 542-27-003, 543-06-002, 542-16-001, 543-09-004, and 543-09-005, as reasonably necessary, to maintain the Main Facility Gas System fully-functional and in good operation, in connection with the Property and the Northeast Mound. Ohio EPA acknowledges Respondent shall have no other control, responsibility or liability for the Northeast Mound or other property under these Orders, except as reasonably necessary to maintain the Main Facility Gas System fully functional and in good operation, as specifically provided herein.
14. As of the effective date of these Orders, Ohio EPA received an Operation and Maintenance Plan ("O&M Plan") from Respondent. The O&M Plan details, among other things, the operation and maintenance of the following systems and certain other requirements at the Property to satisfy applicable environmental regulatory requirements: (a) the Main Facility Gas System; (b) building-specific active gas extraction systems; (c) methane monitoring requirements; (d) leachate collection requirements; (e) cap maintenance requirements; and (f) monitoring and repair requirements for a 54" storm sewer pipe under the Property.

15. As of the time Respondent acquires the Property, Respondent will not have caused or created any of the environmental conditions on the Property which existed at the time Respondent acquired the Property, and which may require remediation, rehabilitation or improvement. Further, at the time Respondent acquires the Property, Respondent will not have violated any of the DFFOs, the 2008 Judicial Consent Order or any environmental laws, rules or regulations applicable to the Property or to the Landfills. Respondent is voluntarily acquiring the Property in an effort to redevelop the Property as a Bona Fide Prospective Purchaser pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 USC §9601 et seq. ("CERCLA") and in accordance with applicable environmental laws, rules and regulations and the Orders described below.
16. Due to the significant alterations made to the Property as a result of the previous development of the retail shopping center on and adjacent to the Property, protection of the public health, safety and the environment would benefit from a site-wide remedial approach to address historical deficiencies and violations identified by Ohio EPA by Defendants McGill and as otherwise applicable to City View Center, LLC and the City of Garfield Heights. Further, no provision of these Orders modifies the liabilities or obligations of Defendants McGill, City View Center, LLC, or the City of Garfield Heights under any previous orders, unless explicitly provided in such orders, or applicable laws, rules or regulations.

17. The Property being acquired is located on portions of historic solid waste facilities no longer requiring additional closure or post-closure obligations under ORC Chapter 3734 or the rules promulgated thereunder, provided the Respondent complies with the Orders identified herein. Therefore, the Property is presumptively eligible for participation in the Ohio Voluntary Action Program, ORC Chapter 3746 and the rules promulgated thereunder (the "Ohio VAP"). In the event the Director of Ohio EPA issues a Covenant Not To Sue for the Property pursuant to the Ohio VAP, the Respondent may transfer all obligations under the approved O&M Plan identified herein, to an Operations and Maintenance Plan, subject to an Operations and Maintenance Agreement, approved by the Director of Ohio EPA in the Covenant Not To Sue.
18. On March 20, 2020, Respondent submitted an exemption request to Ohio EPA pursuant to ORC Section 3734.02(G) (the "Exemption Request"), which includes the O&M Plan described in Finding 14 above, requesting an exemption from certain requirements of ORC Chapter 3734 and the rules promulgated thereunder. Pursuant to the terms of the Exemption Request, in lieu of compliance with ORC 3734 and the rules promulgated thereunder, Respondent shall comply with the terms of these Orders.
19. The Exemption Request requested an exemption from the requirements of OAC Section 3745-27-12, which regulates explosive gas migration monitoring for sanitary landfills due to Respondent's development and agreement to implement detailed requirements to address the potential for explosive gas issues at the Property through the O&M Plan. Additionally, in the Exemption Request, Respondent requested an

exemption, pursuant to ORC Section 3734.02(G), from the requirements to submit environmental background information to Ohio EPA and to the Ohio Attorney General, pursuant to ORC Sections 3734.41 to 3734.47, in connection with Respondent's proposed acquisition of the Property.

20. On August 28, 2020, Respondent submitted a "Supplemental Request for Exemptions Pursuant to Ohio Revised Code §3734.02(G)" (the "Supplemental Request"), which seeks two (2) additional exemptions.
21. The Supplemental Request seeks exemptions from the requirements of OAC §§ 3745-27-11 (closure requirements) and 3745-27-14 (post-closure care requirements). Although the Landfills have been closed for well over thirty (30) years, neither has ever completed a formal "closure" pursuant to OAC § 3745-27-11. As a practical matter, closure pursuant to OAC § 3745-27-11 and compliance with the post-closure care requirements of the OAC § 3745-27-14 is no longer possible. To the extent that any closure of post-closure care requirements remain, they will be addressed as a part of the O&M Plan.
22. Pursuant to ORC Section 3734.02(G), the Director of Ohio EPA may, by order, "exempt any person generating, collecting, storing, treating, disposing of, or transporting solid wastes ... under such circumstances that, in the determination of the director are unlikely to adversely affect the public health or safety or the environment from any requirement ... of this chapter."



23. The Director finds that granting Respondent an exemption from certain of the requirements of ORC Chapter 3734 and the rules promulgated thereunder, as set forth in the Exemption Request and as otherwise provided in these Orders, is unlikely to adversely affect the public health or safety or the environment within the meaning of ORC Section 3734.02(G), provided Respondent complies with these Orders.

## **V. ORDERS**

Pursuant to the Findings set forth above, Respondent is granted an exemption pursuant to ORC Section 3734.02(G), from the requirements to submit environmental background information to Ohio EPA and to the Ohio Attorney General, pursuant to ORC Sections 3734.41 to 3734.47, in connection with Respondent's proposed acquisition of the Property. Further, Respondent is granted an exemption from the requirements in OAC Rules 3745-27-12, 3745-27-11 and 3745-27-14, except as set forth in the numbered paragraphs below. The purpose of these Orders is to clarify Respondent's prospective regulatory obligations under applicable environmental laws, rules, and regulations, including ORC Chapter 3734 and the rules promulgated thereunder, following Respondent's acquisition of the Property. These Orders hereby supersede any obligations Respondent would have under the March 18, 2005 DFFOs, the May 25, 2005 DFFOs (which modified the March 18, 2005 DFFOs), the December 28, 2006 DFFOs, and any other orders applicable to the Property as of the date of these Orders, and require Respondent to comply with the following:

1. Respondent shall notify Ohio EPA in writing within 3 days of it acquiring ownership of any of parcel numbers: 543-01-001, 543-01-002, 543-03-002, 543-06-001, 543-03-001, 542-16-003, 542-27-003, and 543-06-002. Respondent's notice shall include the date(s) in which it acquired any of these parcels.
2. Upon the effective date of these Orders, Respondent shall comply with the O&M Plan submitted herewith, as approved by Ohio EPA, attached hereto as Attachment 3, including any subsequent modifications to the O&M Plan approved by Ohio EPA after the effective date of these Orders. These O&M Plans, including any modifications thereto, are hereby incorporated by reference into these Orders. [Modifications to the O&M Plan may be approved in writing by the Ohio EPA Northeast District Office, Supervisor of the Division of Materials and Waste Management.] Respondent is only exempt from the requirements of OAC 3745-27-12 for as long as it implements and complies with the O&M Plan as approved by Ohio EPA, including the prompt and diligent pursuit of any remedy for an alleged violation thereof.
3. Upon the effective date of these Orders, Respondent shall conduct all onsite activities in compliance with all applicable state and federal laws and regulations pertaining to environmental protection, including, but not limited to, the control of air pollution, leachate, surface water run-on and run-off, and protection of ground water. Where performance of any activities set forth under these Orders requires a permit or other approval, Respondent shall submit applications in a timely manner and take all other actions necessary to obtain such permits or approvals prior to the initiation of work.

These Orders shall not be construed to be a permit issued pursuant to any statute or regulation.

4. Upon the effective date of these Orders, Respondent shall not create a nuisance and shall not adversely affect the public health or safety or the environment.
5. Upon the effective date of these Orders, Respondent shall collect and securely store all liquids, semi-solids, industrial wastes, and other wastes regulated by ORC Chapter 6111, including leachate, that are removed during intrusive activities, until these materials are properly evaluated and disposed of in accordance with ORC Chapter 6111 and the rules promulgated thereunder. Respondent shall evaluate and dispose of all hazardous waste in accordance with ORC Chapter 3734 and the rules promulgated thereunder.
6. Upon the effective date of these Orders, for purposes of erosion control during activities, Respondent shall use best management practices and standards as specified in the National Resources Conservation manual titled *Rainwater and Land Development*.
7. Within sixty (60) days after the effective date of these Orders, Respondent shall submit to Ohio EPA an executed and funded financial assurance instrument in the amount of \$325,000. A financial assurance instrument in this amount shall be maintained until these Orders are terminated. The funded financial assurance instrument must comply with the requirements of OAC 3745-27-15 (F), (G), (H), or (I), except that the instrument shall allow that the funds be used for any of the activities specified in the approved O&M Plan. The financial assurance instrument shall specify that the surety or financial

institution providing the financial assurance instrument shall be liable for the amount of \$325,000.00 upon written notice from Ohio EPA that Respondent has failed to perform any of the activities specified in the approved O&M Plan.

8. Within sixty (60) days of any repairs to engineered components at the Property, Respondent shall submit a certification report to Ohio EPA in accordance with OAC Rule 3745-27-08(H).
9. Within fourteen (14) days after the effective date of these Orders for existing tenants at the Property, or fourteen (14) days after occupancy for new tenants at the Property, as applicable, Respondent shall provide a copy of the most current, approved O&M Plan to any respective tenant.

## **VI. ADDITIONAL WORK**

Ohio EPA or Respondent may determine that in addition to the work required under these Orders, additional work may be necessary to prevent landfill peak levels from reaching 25% LEL (lower explosive limit) or greater in all underground structures at the Property, address subsidence at the Property, address damage to engineered components at the Property, address leachate outbreaks at the Property through the installation of temporary or permanent leachate collection systems, including but not limited to, the installation of a perimeter leachate collection system, address the repair of the 54" storm sewer line at the Property, and/or protect human health or safety and the environment.

Within sixty (60) days of receipt of written notice from Ohio EPA that additional work is necessary, unless otherwise specified in writing by Ohio EPA, Respondent shall submit a work plan and schedule the performance of the additional work. To the extent Respondent desires to dispute that additional work is necessary, Respondent reserves the right to appeal any determination by Ohio EPA that additional work is necessary.

Upon approval of the work plan and schedule by Ohio EPA, Respondent shall implement the approved work plan for additional work in accordance with the approved schedule.

## **VII. ACCESS**

Ohio EPA shall have access at all reasonable times to the Property and any other property to which access is required for the implementation of these Orders, to the extent access to the property is controlled by Respondent. Access under these Orders shall be for the purposes of conducting any activity related to these Orders including but not limited to the following:

- a. Monitoring the work;
  - b. Conducting sampling, including at wells;
  - c. Inspecting and copying records, operating logs, contracts, and other documents related to the implementation of these Orders;
  - d. Conducting investigations and tests related to the implementation of these Orders;
- or

- e. Verifying any data and/or other information submitted to Ohio EPA.

To the extent that the Property or any other property to which access is required for the implementation of these Orders is owned or controlled by persons other than Respondent, Respondent shall use reasonable efforts to secure from such persons access for Respondent and Ohio EPA as necessary to effectuate these Orders. Copies of each access agreement obtained by Respondent shall be provided to Ohio EPA upon execution of the access agreement. If any access required to implement these Orders is not obtained within thirty (30) days after the date Ohio EPA notifies Respondent in writing that additional access is necessary, Respondent shall promptly notify Ohio EPA in writing of the steps Respondent has taken to attempt to obtain access. Ohio EPA may, as it deems appropriate, assist Respondent in obtaining access.

Notwithstanding any provision of these Orders, the State of Ohio retains all of its access rights and authorities, including enforcement authorities related thereto, under any applicable statute or regulation.

#### **VIII. 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 Respondent, the Property and/or the Landfills.

## **IX. 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 and/or the Property.

## **X. NOTICE**

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

Ohio Environmental Protection Agency  
Northeast District Office  
Division of Materials and Waste Management  
2110 East Aurora Road  
Twinsburg, Ohio 44087-1969  
Attn: Supervisor, DMWM

and to:

Cuyahoga County General Health District  
5550 Venture Drive  
Parma, Ohio 44130  
Attn: Dane Tussell or his successor

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

## **XI. TERMINATION**

Respondent's obligations under these Orders shall only terminate upon the Director's issuance of a Covenant Not to Sue ("CNS") for the Property pursuant to the Ohio VAP. In the event that the CNS for the Property is revoked or otherwise voided, Respondent's obligations under these Orders shall immediately be reinstated

## **XII. INDEMNIFICATION**

Respondent agrees to indemnify, save, and hold harmless Ohio EPA from any and all claims or causes of action arising from, or related to, any acts or omissions of Respondent or Ohio EPA, its officers, employees, receivers, trustees, agents, or assigns arising from or related to the Property and/or work required under these Orders. Said indemnification shall not apply to acts or omissions of the State of Ohio, its employees, agents or assigns at, on, upon, or related to the Property if said acts are negligent, performed outside the scope of employment or official responsibilities, or performed with malicious purpose, in bad faith, or in a wanton or reckless manner. Ohio EPA agrees to provide notice to Respondent within thirty (30) days after receipt of any claim that may be the subject of indemnity as provided in this Section, and to cooperate with Respondent in the defense of any such claim or action against Ohio EPA. Ohio EPA shall not be considered a party to and shall not be held liable under any contract entered into by Respondent in carrying out the activities pursuant to these Orders.



### **XIII. RESERVATION OF RIGHTS**

Ohio EPA and Respondent each reserve all rights, privileges and causes of action, except as specifically waived in Section XIV. of these Orders.

### **XIV. WAIVER**

In order to clarify Respondent's regulatory obligations on or after the date Respondent becomes the owner/operator of the Property, Respondent consents to the issuance of these 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.

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.

### **XV. MODIFICATION**

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.

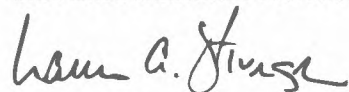
## **XVI. EFFECTIVE DATE**

The effective date of these Orders shall be the latter of the date these Orders are entered into the Ohio EPA Director's journal, or the date Respondent acquires the Property.

## **XVII. 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. The parties acknowledge and agree that this Order may be executed by electronic signature, which shall be considered as an original signature for all purposes and shall have the same force and effect as an original signature. Without limitation, "electronic signature" shall include faxed versions of an original signature or electronically scanned and transmitted versions (e.g., via pdf) of an original signature.

**IT IS SO ORDERED AND AGREED:**  
**Ohio Environmental Protection Agency**



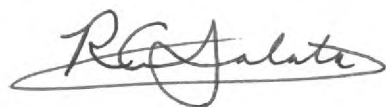
\_\_\_\_\_  
Laurie Stevenson  
Director

09/29/2020

\_\_\_\_\_  
Date

**IT IS SO AGREED:**

**Highland Park Transportation LLC**



\_\_\_\_\_  
Signature

\_\_\_\_\_  
Chris Salata  
Printed or Typed Name

\_\_\_\_\_  
Chief Operating Officer  
Title

9/28/2020  
\_\_\_\_\_  
Date

**Attachment I**

**(Legal Description and Survey Figure Identifying the "Property")**



**DONALD G. BOHNING & ASSOCIATES, INC.**

CIVIL ENGINEERING & SURVEYING

7979 HUB PARKWAY • VALLEY VIEW, OHIO 44125 • (216) 642-1130

FAX • (216) 642-1132

Heritage/Boyas Subd. No. 4  
Parcel 4B

November, 2006

LEGAL DESCRIPTION

Situated in the City of Garfield Heights, County of Cuyahoga, and State of Ohio, and known as being Parcel 4B in the Heritage/Boyas Subdivision No. 4 as shown by the recorded plat in Volume 348, Page 47 of Cuyahoga County Map Records, and bounded and described as follows:

Beginning at the central radius point of the Vista Way cul-de-sac as shown by the recorded plat of the Heritage/Boyas Subdivision No. 1 in Volume 328, Pages 53-57 of Cuyahoga County Map Records;

Thence North 49 degrees 57 minutes 06 seconds West along the southeasterly prolongation of the northeasterly line of Parcel 4A in said subdivision, and along said northeasterly line, 426.66 feet to an iron pin set, and the principal place of beginning of the parcel herein described;

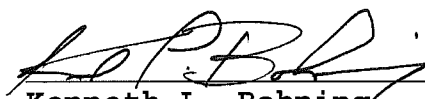
Thence South 40 degrees 02 minutes 54 seconds West, 201.04 feet to a nail set;

Thence North 49 degrees 57 minutes 06 seconds West, 177.27 feet to a nail set;

Thence North 47 degrees 19 minutes 12 seconds East, 202.67 feet to an iron pin set;

Thence South 49 degrees 57 minutes 06 seconds East, 151.62 feet to the principal place of beginning, and containing 33,060 square feet or 0.7590 acres of land as described by Donald G. Bohning & Associates, Inc. in November, 2006.

The courses used in this description are referenced to an assumed meridian and are used to indicate angles only.

  
Kenneth L. Bohning  
Registered Surveyor No. 6720



**DONALD G. BOHNING & ASSOCIATES, INC.**

CIVIL ENGINEERING & SURVEYING

7979 HUB PARKWAY • VALLEY VIEW, OHIO 44125 • (216) 642-1130

FAX • (216) 642-1132

Heritage/Boyas Subd. No. 4  
Parcel 4C

November, 2006

LEGAL DESCRIPTION

Situated in the City of Garfield Heights, County of Cuyahoga, and State of Ohio, and known as being Parcel 4C in the Heritage/Boyas Subdivision No. 4 as shown by the recorded plat in Volume 348, Page 47 of Cuyahoga County Map Records, and bounded and described as follows:

Beginning at the central radius point of the Vista Way cul-de-sac as shown by the recorded plat of the Heritage/Boyas Subdivision No. 1 in Volume 328, Pages 53-57 of Cuyahoga County Map Records;

Thence North 9 degrees 10 minutes 37 seconds East, 27.79 feet to an iron monument reference found in the centerline of Vista Way;

Thence South 80 degrees 49 minutes 23 seconds East along the centerline of Vista Way, 107.24 feet to a point;

Thence South 9 degrees 10 minutes 37 seconds West, 31.42 feet to an iron pin set in the southerly line of Vista Way, and the principal place of beginning of the parcel herein described;

Thence easterly along the curved southerly line of Vista Way, being the arc of a curve deflecting to the right, 11.93 feet to an iron pin set at a point of tangency, said arc having a radius of 50.00 feet, a central angle of 13 degrees 39 minutes 54 seconds, and a chord which bears South 87 degrees 39 minutes 20 seconds East, 11.90 feet;

Thence South 80 degrees 49 minutes 23 seconds East along the southerly line of Vista Way, 160.13 feet to an iron pin set;

Thence South 9 degrees 10 minutes 37 seconds West, 42.68 feet to an iron pin set;

Thence South 44 degrees 07 minutes 05 seconds West, 159.17 feet to an iron pin set;



**DONALD G. BOHNING & ASSOCIATES, INC.**

CIVIL ENGINEERING & SURVEYING

7979 HUB PARKWAY • VALLEY VIEW, OHIO 44125 • (216) 642-1130

FAX • (216) 642-1132

Heritage/Boyas Subd. No. 4  
Parcel 4C

Thence North 45 degrees 52 minutes 55 seconds West, 9.76  
feet to an iron pin set;

Thence South 44 degrees 07 minutes 05 seconds West, 40.51  
feet to an iron pin set;

Thence South 11 degrees 12 minutes 40 seconds West, 22.99  
feet to an iron pin set;

Thence South 47 degrees 19 minutes 12 seconds West, 89.55  
feet to an iron pin set;

Thence North 45 degrees 53 minutes 04 seconds West, 162.30  
feet to a nail set;

Thence North 44 degrees 06 minutes 56 seconds East, 243.75  
feet to the principal place of beginning, and containing  
48,779 square feet or 1.1198 acres of land as described by  
Donald G. Bohning & Associates, Inc. in November, 2006.

The courses used in this description are referenced to an  
assumed meridian and are used to indicate angles only.

Kenneth L. Bohning  
Registered Surveyor No. 6720

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**DONALD G. BOHNING & ASSOCIATES, INC.**

CIVIL ENGINEERING & SURVEYING

7979 HUB PARKWAY • VALLEY VIEW, OHIO 44125 • (216) 642-1130

FAX • (216) 642-1132

Heritage/Boyas Subd. No. 4  
Parcel 5A

November, 2006

LEGAL DESCRIPTION

Situated in the City of Garfield Heights, County of Cuyahoga, and State of Ohio, and known as being Parcel 5A in the Heritage/Boyas Subdivision No. 4, recorded in Volume 348, Page 47 of Cuyahoga County Map Records, and bounded and described as follows:

Beginning at a point in the centerline of Transportation Boulevard, 80 feet wide, at its intersection with the centerline of Antenucci Boulevard, variable width, and from which point an iron monument found bears South 86 degrees 18 minutes 52 seconds West, 0.12 feet;

Thence South 3 degrees 38 minutes 38 seconds East along the centerline of Transportation Boulevard, 231.31 feet to an iron monument found at a point of curvature in the centerline of Transportation Boulevard Extension, 90 feet wide;

Thence southeasterly along the curved centerline of Transportation Boulevard Extension, being the arc of a curve deflecting to the left, 214.70 feet to an iron monument reference found at a point of tangency, said arc having a radius of 300.00 feet, a central angle of 41 degrees 00 minutes 16 seconds, and a chord which bears South 24 degrees 08 minutes 46 seconds East, 210.15 feet;

Thence South 45 degrees 21 minutes 06 seconds West, 45.00 feet to an iron pin set in the southwesterly line of Transportation Boulevard Extension, and the principal place of beginning of the parcel herein described;

Thence South 44 degrees 38 minutes 54 seconds East along the southwesterly line of Transportation Boulevard Extension, 326.20 feet to an iron pin set;

Thence South 44 degrees 07 minutes 05 seconds West, 445.48 feet to a nail set;

Thence South 44 degrees 06 minutes 00 seconds West, 476.33 feet to an iron pin set;



**DONALD G. BOHNING & ASSOCIATES, INC.**

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Heritage/Boyas Subd. No. 4

Parcel 5A

Thence North 45 degrees 53 minutes 04 seconds West, 54.68 feet to an iron pin set at a point of curvature;

Thence northwesterly along the arc of a curve deflecting to the right, 11.18 feet to an iron pin set at a point of tangency, said arc having a radius of 62.00 feet, a central angle of 10 degrees 20 minutes 09 seconds, and a chord which bears North 40 degrees 42 minutes 59 seconds West, 11.17 feet;

Thence North 35 degrees 32 minutes 55 seconds West, 67.14 feet to an iron pin set at a point of curvature;

Thence northwesterly along the arc of a curve deflecting to the left, 6.86 feet to an iron pin set at a point of tangency, said arc having a radius of 38.00 feet, a central angle of 10 degrees 20 minutes 09 seconds, and a chord which bears North 40 degrees 42 minutes 59 seconds West, 6.85 feet;

Thence North 45 degrees 53 minutes 04 seconds West, 572.96 feet to an iron pin set;

Thence North 44 degrees 06 minutes 56 seconds East, 164.69 feet to an iron pin set;

Thence South 42 degrees 40 minutes 48 seconds East, 22.92 feet to a nail set;

Thence North 47 degrees 19 minutes 12 seconds East, 191.07 feet to an iron pin set;

Thence North 11 degrees 12 minutes 40 seconds East, 22.99 feet to an iron pin set;

Thence North 44 degrees 07 minutes 05 seconds East, 40.51 feet to an iron pin set;

Thence South 45 degrees 52 minutes 55 seconds East, 9.76 feet to a nail set;

Thence North 44 degrees 07 minutes 05 seconds East, 159.17 feet to an iron pin set;





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Parcel 5A

Thence North 9 degrees 10 minutes 37 seconds East, 42.68 feet to an iron pin set in the southerly line of Vista Way, 60 feet wide;

Thence South 80 degrees 49 minutes 23 seconds East along the southerly line of Vista Way, 216.76 feet to an iron pin set at a point of curvature;

Thence easterly along the curved southerly line of Vista Way, being the arc of a curve deflecting to the left, 88.28 feet to an iron pin set at a point of tangency, said arc having a radius of 230.00 feet, a central angle of 21 degrees 59 minutes 34 seconds and a chord which bears North 88 degrees 10 minutes 50 seconds East, 87.74 feet;

Thence North 77 degrees 11 minutes 03 seconds East along the southerly line of Vista Way, 112.31 feet to an iron pin set at a point of curvature;

Thence easterly along the curved turnout to Transportation Boulevard Extension, being the arc of a curve deflecting to the right, 64.98 feet to an iron pin set at a point of reverse curvature, said arc having a radius of 60.00 feet, a central angle of 62 degrees 03 minutes 17 seconds, and a chord which bears South 71 degrees 47 minutes 18 seconds East, 61.85 feet;

Thence southeasterly along the curved southwesterly line of Transportation Boulevard Extension, being the arc of a curve deflecting to the left, 23.41 feet to the principal place of beginning, said arc having a radius of 345.00 feet, a central angle of 3 degrees 53 minutes 14 seconds, and a chord which bears South 42 degrees 42 minutes 17 seconds East, 23.40 feet, and containing 13.2992 acres of land as described by Donald G. Bohning & Associates, Inc. in November, 2006.



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Heritage/Boyas Subd. No. 4  
Parcel 5A

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assumed meridian and are used to indicate angles only.

Kenneth L. Bohning  
Registered Surveyor No. 6720

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Heritage/Boyas Subd. No. 4  
Parcel 5B

November, 2006

LEGAL DESCRIPTION

Situated in the City of Garfield Heights, County of Cuyahoga, and State of Ohio, and known as being Parcel 5B in the Heritage/Boyas Subdivision No. 4, recorded in Volume 348, Page 47 of Cuyahoga County Map Records, and bounded and described as follows:

Beginning at a point in the centerline of Transportation Boulevard, 80 feet wide, at its intersection with the centerline of Antenucci Boulevard, variable width, and from which point an iron monument found bears South 86 degrees 18 minutes 52 seconds West, 0.12 feet;

Thence South 3 degrees 38 minutes 38 seconds East along the centerline of Transportation Boulevard, 231.31 feet to an iron monument found at a point of curvature in the centerline of Transportation Boulevard Extension, 90 feet wide;

Thence southeasterly along the curved centerline of Transportation Boulevard Extension, being the arc of a curve deflecting to the left, 214.70 feet to an iron monument reference found at a point of tangency, said arc having a radius of 300.00 feet, a central angle of 41 degrees 00 minutes 16 seconds, and a chord which bears South 24 degrees 08 minutes 46 seconds East, 210.15 feet;

Thence South 45 degrees 21 minutes 06 seconds West, 45.00 feet to an iron pin set in the southwesterly line of Transportation Boulevard Extension;

Thence South 44 degrees 38 minutes 54 seconds East along the southwesterly line of Transportation Boulevard Extension, 326.20 feet to an iron pin set, and the principal place of beginning of the parcel herein described;

Thence South 44 degrees 38 minutes 54 seconds East along the southwesterly line of Transportation Boulevard Extension, 251.37 feet to a nail set;



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Heritage/Boyas Subd. No. 4  
Parcel 5B

Thence South 44 degrees 07 minutes 05 seconds West, 196.50  
feet to a nail set;

Thence South 45 degrees 52 minutes 55 seconds East, 10.64  
feet to a nail set;

Thence South 44 degrees 07 minutes 05 seconds West, 243.55  
feet to a nail set;

Thence North 45 degrees 52 minutes 55 seconds West, 64.13  
feet to a nail set;

Thence South 44 degrees 06 minutes 00 seconds West, 311.05  
feet to a nail set;

Thence South 45 degrees 52 minutes 55 seconds East, 195.02  
feet to a nail set;

Thence South 44 degrees 07 minutes 05 seconds West, 46.35  
feet to an iron pin set;

Thence northwesterly along the arc of a curve deflecting to  
the left, 25.29 feet to an iron pin set at a point of  
tangency, said arc having a radius of 63.00 feet, a central  
angle of 22 degrees 59 minutes 59 seconds, and a chord  
which bears North 66 degrees 01 minute 53 seconds West,  
25.12 feet;

Thence North 77 degrees 31 minutes 52 seconds West, 192.61  
feet to an iron pin set at a point of curvature;

Thence northwesterly along the arc of a curve deflecting to  
the right, 34.25 feet to an iron pin set at a point of  
tangency, said arc having a radius of 62.00 feet, a central  
angle of 31 degrees 38 minutes 49 seconds, and a chord  
which bears North 61 degrees 42 minutes 28 seconds West,  
33.81 feet;

Thence North 45 degrees 53 minutes 04 seconds West, 172.72  
feet to an iron pin set;

Thence North 44 degrees 06 minutes 00 seconds East, 476.33  
feet to a nail set;



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Heritage/Boyas Subd. No. 4  
Parcel 5B

Thence North 44 degrees 07 minutes 05 seconds East, 445.48 feet to the principal place of beginning, and containing 5.2275 acres of land as described by Donald G. Bohning & Associates, Inc. in November, 2006.

The courses used in this description are referenced to an assumed meridian and are used to indicate angles only.

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Kenneth L. Bohning  
Registered Surveyor No. 6720

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Heritage/Boyas Subd. No. 4

Parcel 6A

November, 2006

LEGAL DESCRIPTION

Situated in the City of Garfield Heights, County of Cuyahoga, and State of Ohio, and known as being Parcel 6A in the Heritage/Boyas Subdivision No. 4, recorded in Volume 348, Page 47 of Cuyahoga County Map Records, and bounded and described as follows:

Beginning at a point in the centerline of Transportation Boulevard, 80 feet wide, at its intersection with the centerline of Antenucci Boulevard, variable width, and from which point an iron monument found bears South 86 degrees 18 minutes 52 seconds West, 0.12 feet;

Thence South 3 degrees 38 minutes 38 seconds East along the centerline of Transportation Boulevard, 231.31 feet to an iron monument found at a point of curvature in the centerline of Transportation Boulevard Extension, 90 feet wide;

Thence southeasterly along the curved centerline of Transportation Boulevard Extension, being the arc of a curve deflecting to the left, 214.70 feet to an iron monument reference found at a point of tangency, said arc having a radius of 300.00 feet, a central angle of 41 degrees 00 minutes 16 seconds, and a chord which bears South 24 degrees 08 minutes 46 seconds East, 210.15 feet;

Thence South 45 degrees 21 minutes 06 seconds West, 45.00 feet to an iron pin set in the southwesterly line of Transportation Boulevard Extension;

Thence South 44 degrees 38 minutes 54 seconds East along the southwesterly line of Transportation Boulevard Extension, 577.57 feet to a nail set, and the principal place of beginning of the parcel herein described;

Thence South 44 degrees 38 minutes 54 seconds East along the southwesterly line of Transportation Boulevard Extension, 927.28 feet to an iron pin set at a point of curvature;



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Heritage/Boyas Subd. No. 4

Parcel 6A

Thence southeasterly along the curved southwesterly line of Transportation Boulevard Extension, being the arc of a curve deflecting to the left, 264.42 feet to an iron pin set at a point of reverse curvature, said arc having a radius of 645.00 feet, a central angle of 23 degrees 29 minutes 17 seconds, and a chord which bears South 56 degrees 23 minutes 33 seconds East, 262.57 feet;

Thence southeasterly along the curved southwesterly line of Transportation Boulevard Extension, being the arc of a curve deflecting to the right, 116.24 feet to an iron pin set, said arc having a radius of 555.00 feet, a central angle of 12 degrees 00 minutes 01 second, and a chord which bears South 62 degrees 08 minutes 11 seconds East, 116.03 feet;

Thence South 44 degrees 06 minutes 56 seconds West, 250.21 feet to a nail set;

Thence South 45 degrees 53 minutes 04 seconds East, 110.00 feet to a nail set;

Thence North 44 degrees 06 minutes 56 seconds East, 259.40 feet to an iron pin set in the southwesterly line of Transportation Boulevard Extension;

Thence South 47 degrees 01 minute 28 seconds East along the southwesterly line of Transportation Boulevard Extension, 203.23 feet to an iron pin set;

Thence South 44 degrees 06 minutes 56 seconds West, 397.09 feet to a nail set;

Thence South 40 degrees 18 minutes 00 seconds West, 567.01 feet to an iron pin set in the northeasterly line of land conveyed to The Cleveland Electric Illuminating Company by deed recorded in Volume 12701, Page 963 of Cuyahoga County Records;



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Heritage/Boyas Subd. No. 4  
Parcel 6A

Thence North 51 degrees 11 minutes 54 seconds West along the northeasterly line of said land conveyed to The Cleveland Electric Illuminating Company, 239.36 feet to an iron pin set at its intersection with the southeasterly line of Split Parcel "B" as shown by the recorded plat in Volume 336, Page 34 of Cuyahoga County Map Records;

Thence North 38 degrees 48 minutes 06 seconds East along the southeasterly line of said Split Parcel "B", 10.00 feet to an iron pin set at its intersection with the northeasterly line of said Parcel;

Thence North 51 degrees 11 minutes 54 seconds West along the northeasterly line of said Split Parcel "B", 600.00 feet to an iron pin set at its intersection with the northwesterly line of said Parcel;

Thence South 38 degrees 48 minutes 06 seconds West along the northwesterly line of said Split Parcel "B", 10.00 feet to an iron pin set;

Thence North 51 degrees 11 minutes 54 seconds West along the northeasterly line of said land conveyed to The Cleveland Electric Illuminating Company, 485.41 feet to an iron pin set at an angle point, therein;

Thence North 0 degrees 53 minutes 20 seconds West along the northeasterly line of said land conveyed to The Cleveland Electric Illuminating Company, 6.50 feet to an iron pin set at an angle point, therein;

Thence North 51 degrees 11 minutes 54 seconds West along the northeasterly line of said land conveyed to The Cleveland Electric Illuminating Company, 140.37 feet to an iron pin set at its intersection with the southeasterly line of Split Parcel "D" in said plat recorded in Volume 336, Page 34 of Cuyahoga County Map Records;

Thence North 38 degrees 48 minutes 06 seconds East along the southeasterly line of said Split Parcel "D", 45.00 feet to an iron pin set at an angle point, therein;





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Heritage/Boyas Subd. No. 4

Parcel 6A

Thence North 51 degrees 11 minutes 54 seconds West along the northeasterly line of said land conveyed to Split Parcel "D", 125.00 feet to an iron pin set at an angle point, therein;

Thence South 86 degrees 48 minutes 57 seconds West along the northerly line of said Split Parcel "D", 67.27 feet to an iron pin set;

Thence North 51 degrees 11 minutes 54 seconds West along the northeasterly line of said land conveyed to The Cleveland Electric Illuminating Company, 153.21 feet to an iron pin set at a point of curvature, therein;

Thence northwesterly along the curved northeasterly line of said land conveyed to The Cleveland Electric Illuminating Company, being the arc of a curve deflecting to the right, 221.59 feet to an iron pin set at its intersection with the easterly line of Split Parcel "F" in said Plat, said arc having a radius of 5674.65 feet, a central angle of 2 degrees 14 minutes 14 seconds, and a chord which bears North 50 degrees 04 minutes 47 seconds West, 221.57 feet;

Thence North 0 degrees 41 minutes 59 seconds West along the easterly line of said Split Parcel "F", 87.52 feet to an iron pin set;

Thence northwesterly along the curved northeasterly line of said Split Parcel "F", being the arc of a curve deflecting to the right, 219.39 feet to an iron pin set, said arc having a radius of 5609.65 feet, a central angle of 2 degrees 14 minutes 27 seconds, and a chord which bears North 47 degrees 14 minutes 44 seconds West, 219.37 feet;

Thence South 89 degrees 47 minutes 01 second West along the northerly line of said Split Parcel "F", 85.75 feet to an iron pin set;



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Heritage/Boyas Subd. No. 4

Parcel 6A

Thence northwesterly along the curved northeasterly line of said land conveyed to The Cleveland Electric Illuminating Company, being the arc of a curve deflecting to the right, 256.96 feet to an iron pin set, said arc having a radius of 5669.65 feet, a central angle of 2 degrees 35 minutes 48 seconds, and a chord which bears North 44 degrees 12 minutes 15 seconds West, 256.94 feet;

Thence North 44 degrees 06 minutes 56 seconds East, 159.76 feet to an iron pin set;

Thence South 45 degrees 53 minutes 04 seconds East, 572.96 feet to an iron pin set at a point of curvature;

Thence southeasterly along the arc of a curve deflecting to the right, 6.86 feet to an iron pin set at a point of tangency, said arc having a radius of 38.00 feet, a central angle of 10 degrees 12 minutes 09 seconds, and a chord which bears South 40 degrees 42 minutes 59 seconds East, 6.85 feet;

Thence South 35 degrees 32 minutes 55 seconds East, 67.14 feet to an iron pin set at a point of curvature;

Thence southeasterly along the arc of a curve deflecting to the left, 11.18 feet to an iron pin set at a point of tangency, said arc having a radius of 62.00 feet, a central angle of 10 degrees 20 minutes 09 seconds, and a chord which bears South 40 degrees 42 minutes 59 seconds East, 11.17 feet;

Thence South 45 degrees 53 minutes 04 seconds East, 227.40 feet to an iron pin set at a point of curvature;

Thence southeasterly along the arc of a curve deflecting to the left, 34.25 feet to an iron pin set at a point of tangency, said arc having a radius of 62.00 feet, a central angle of 31 degrees 38 minutes 49 seconds, and a chord which bears South 61 degrees 42 minutes 28 seconds East, 33.81 feet;

Thence South 77 degrees 31 minutes 52 seconds East, 192.61 feet to an iron pin set at a point of curvature;



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Parcel 6A

Thence southeasterly along the arc of a curve deflecting to the right, 25.29 feet to an iron pin set, said arc having a radius of 63.00 feet, a central angle of 22 degrees 59 minutes 59 seconds, and a chord which bears South 66 degrees 01 minute 53 seconds East, 25.12 feet;

Thence North 44 degrees 07 minutes 05 seconds East, 46.35 feet to a nail set;

Thence North 45 degrees 52 minutes 55 seconds West, 195.02 feet to a nail set;

Thence North 44 degrees 06 minutes 00 seconds East, 311.05 feet to a nail set;

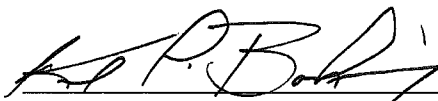
Thence South 45 degrees 52 minutes 55 seconds East, 64.13 feet to a nail set;

Thence North 44 degrees 07 minutes 05 seconds East, 243.55 feet to a nail set;

Thence North 45 degrees 52 minutes 55 seconds West, 10.64 feet to a nail set;

Thence North 44 degrees 07 minutes 05 seconds East, 196.50 feet to the principal place of beginning and containing 38.5122 acres of land as described by Donald G. Bohning & Associates, Inc. in November, 2006.

The courses used in this description are referenced to an assumed meridian and are used to indicate angles only.

  
Kenneth L. Bohning  
Registered Surveyor No. 6720

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**DONALD G. BOHNING & ASSOCIATES, INC.**

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Split Parcel "F-2"

DGB 3475-8C

November, 2006

LEGAL DESCRIPTION

Situated in the City of Garfield Heights, County of Cuyahoga, and State of Ohio, and known as being Split Parcel "F-2", recorded in Volume 340, Page 83 of Cuyahoga County Map Records, and bounded and described as follows:

Beginning at a point in the centerline of Transportation Boulevard, variable width, at its intersection with the centerline of Antenucci Boulevard, variable width, from which an iron monument found bears South 86 degrees 18 minutes 52 seconds West, 0.12 feet;

Thence South 3 degrees 38 minutes 38 seconds East along the centerline of Transportation Boulevard, 231.31 feet to an iron monument found at a point of curvature;

Thence southeasterly along the curved centerline of Transportation Boulevard (Extension), being the arc of a curve deflecting to the left, 214.70 feet to an iron monument reference found at a point of tangency, said arc having a radius of 300.00 feet, a central angle of 41 degrees 00 minutes 16 seconds, and a chord which bears South 24 degrees 08 minutes 46 seconds East, 210.15 feet;

Thence North 45 degrees 21 minutes 06 seconds East, 45.00 feet to a point in the northeasterly line of Transportation Boulevard (Extension) 90 feet wide;

Thence South 44 degrees 38 minutes 54 seconds East along the northeasterly line of Transportation Boulevard (Extension), 118.17 feet to an iron pin set, and the principal place of beginning of the parcel herein described;



**DONALD G. BOHNING & ASSOCIATES, INC.**

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Split Parcel "F-2"

DGB 3475-8C

Thence northwesterly along the curved northeasterly line of Transportation Boulevard (Extension), as widened, being the arc of a curve deflecting to the right, 133.71 feet to an iron pin set, said arc having a radius of 592.00 feet, a central angle of 12 degrees 56 minutes 28 seconds, and a chord which bears North 38 degrees 10 minutes 40 seconds West, 133.43 feet;

Thence northeasterly along the arc of a curve deflecting to the right, 28.51 feet to an iron pin set at a point of tangency, said arc having a radius of 25.00 feet, a central angle of 65 degrees 20 minutes 45 seconds, and a chord which bears North 45 degrees 40 minutes 05 seconds East, 26.99 feet;

Thence North 78 degrees 20 minutes 28 minutes East, 18.65 feet to an iron pin set at a point of curvature;

Thence easterly along the arc of curve deflecting to the right, 71.52 feet to an iron pin set at a point of tangency, said arc having a radius of 371.00 feet, a central angle of 11 degrees 02 minutes 45 seconds, and a chord which bears North 83 degrees 51 minutes 50 seconds East, 71.41 feet;

Thence North 89 degrees 23 minutes 13 seconds East, 63.42 feet to an iron pin set at a point of curvature;

Thence easterly along the arc of a curve deflecting to the right, 56.96 feet to an iron pin set at a point of reverse curvature, said arc having a radius of 371.00 feet, a central angle of 8 degrees 47 minutes 51 seconds, and a chord which bears South 86 degrees 12 minutes 52 seconds East, 56.91 feet;

Thence easterly along the arc of a curve deflecting to the left, 8.55 feet to an iron pin set at a point of tangency, said arc having a radius of 54.00 feet, a central angle of 9 degrees 04 minutes 11 seconds, and a chord which bears South 86 degrees 21 minutes 02 seconds East, 8.54 feet;



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Split Parcel "F-2"


DGB 3475-8C

Thence North 89 degrees 06 minutes 53 seconds East, 98.57 feet to an iron pin set in the westerly line of Parcel "E2" in a plat recorded in Volume 331, Page 11 of Cuyahoga County Map Records;

Thence South 1 degree 15 minutes 01 second East along the westerly line of said Parcel "E2", 398.47 feet to an iron pin set at its intersection with the northeasterly line of Transportation Boulevard Extension;

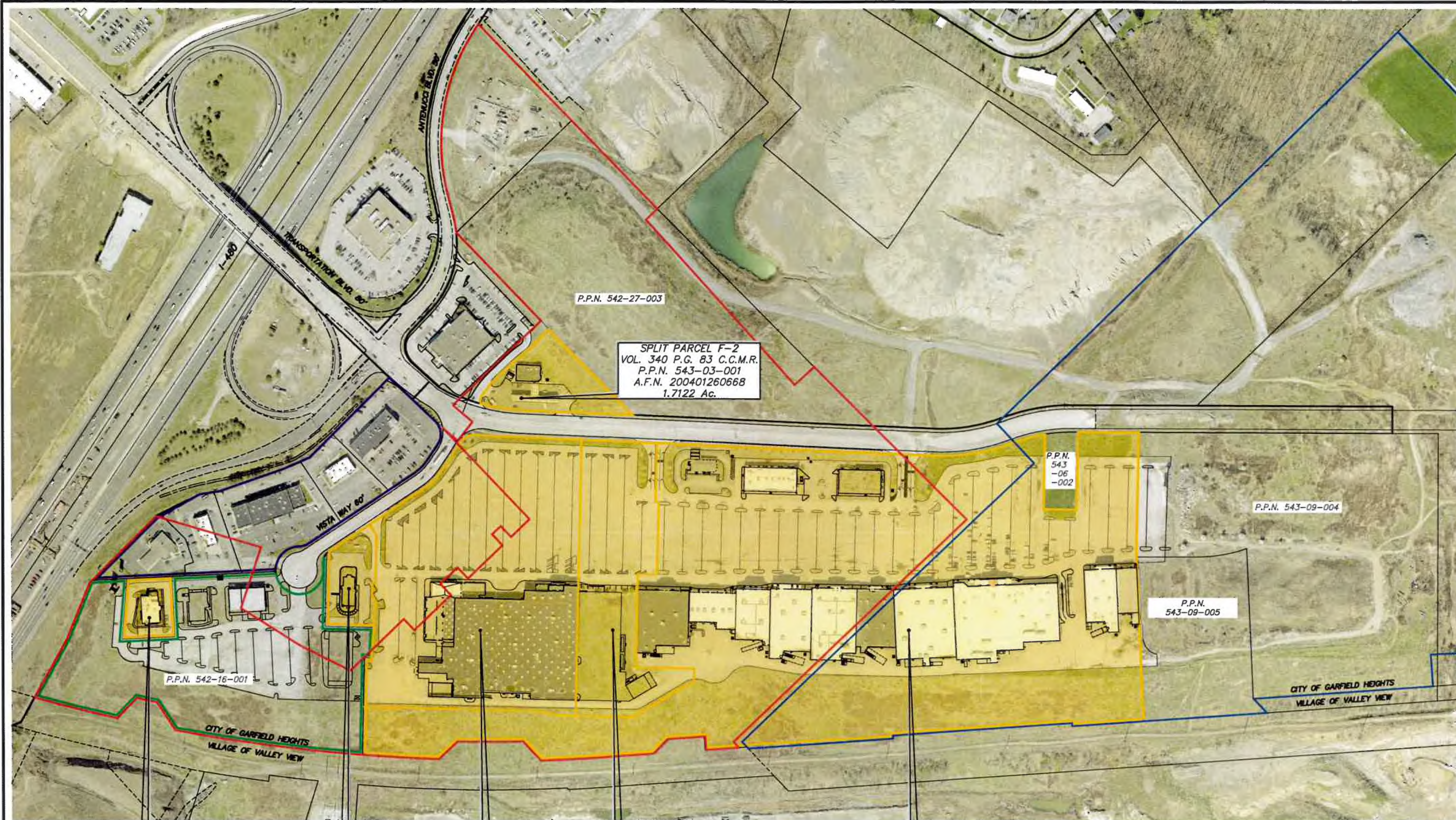
Thence North 44 degrees 38 minutes 54 seconds West along the northeasterly line of Transportation Boulevard Extension, 372.94 feet to the principal place of beginning, and containing 74,586 square feet or 1.7122 acres of land as described by Donald G. Bohning & Associates, Inc. in November, 2006.

The courses used in this description are referenced to an assumed meridian and are used to indicate angles only.

  
Kenneth L. Bohning  
Registered Surveyor No. 6720

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PARCEL 4B  
P.P.N. 542-16-003  
0.7590 Ac.

PARCEL 4C  
P.P.N. 543-01-001  
1.1198 Ac.

PARCEL 5A  
P.P.N. 543-01-002  
13.2992 Ac.

PARCEL 5B  
P.P.N. 543-03-002  
5.2275 Ac.

PARCEL 6A  
P.P.N. 543-06-001  
38.5122 Ac.

P.P.N. 542-27-003

SPLIT PARCEL F-2  
VOL. 340 P.G. 83 C.C.M.R.  
P.P.N. 543-03-001  
A.F.N. 200401260668  
1.7122 Ac.

P.P.N.  
543-06-002

P.P.N. 543-09-004

P.P.N.  
543-09-005

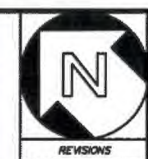
P.P.N. 542-16-001

CITY OF GARFIELD HEIGHTS  
VILLAGE OF VALLEY VIEW

CITY OF GARFIELD HEIGHTS  
VILLAGE OF VALLEY VIEW

# LEGEND

- MATOUSEK LANDFILL BOUNDARY
- R & B LANDFILL BOUNDARY
- HIGHLAND PARK TRANSPORTATION LLC PARCEL DELINEATION
- GARFIELD LAND DEVELOPMENT, LLC PROPERTY
- VISTA WAY PARTNERS, LLC PROPERTY
- HIGHLAND PARK TRANSPORTATION LLC PROPERTY



REVISIONS

ATTACHMENT 1  
HIGHLAND PARK TRANSPORTATION LLC  
FIGURE DEPICTING THE APPROX. 60.6299-ACRE PROPERTY  
CITY OF GARFIELD HEIGHTS  
CUYAHOGA COUNTY, OHIO

DONALD G. BOHANN & ASSOCIATES, INC.  
CIVIL ENGINEERING & SURVEYING  
7075 HUB PARKWAY • VALLEY VIEW, OHIO 44125  
PHONE: (216) 642-1130 FAX: (216) 642-1132  
as authorized by 3475-21 (0001) 3/1/2020 - 2/1/2021



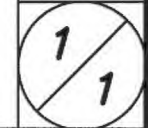
GRAPHIC SCALE  
0' 75' 150'

HORIZ. SCALE  
1"=150'

VERT. SCALE  
1"=150'

DATE  
JAN., 2020

ORDER NO.  
3475-21

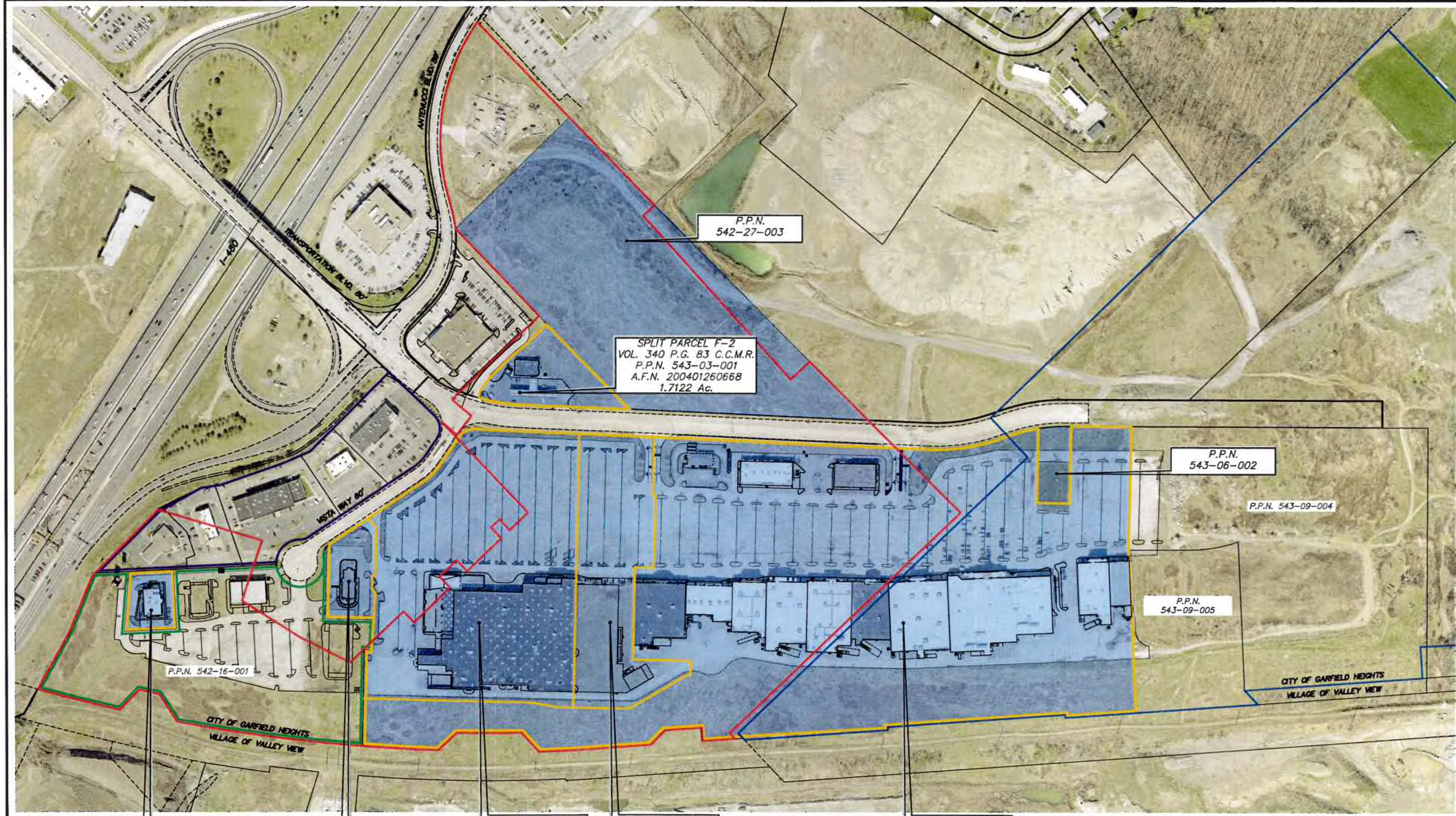




**Attachment 2**

**(Figure Identifying the "Landfills")**





PARCEL 4B  
P.P.N. 542-16-003  
0.7590 Ac.

PARCEL 4C  
P.P.N. 543-01-001  
1.1198 Ac.

PARCEL 5A  
P.P.N. 543-01-002  
13.2992 Ac.

PARCEL 5B  
P.P.N. 543-03-002  
5.2275 Ac.

PARCEL 6A  
P.P.N. 543-06-001  
38.5122 Ac.

SPLIT PARCEL F-2  
VOL. 340 P.G. 83 C.C.M.R.  
P.P.N. 543-03-001  
A.F.N. 200401260668  
1.7122 Ac.

P.P.N.  
542-27-003

P.P.N.  
543-06-002

P.P.N. 543-09-004

P.P.N.  
543-09-005

P.P.N. 542-16-001

### LEGEND

- MATOUSEK LANDFILL BOUNDARY
- R & B LANDFILL BOUNDARY
- HIGHLAND PARK TRANSPORTATION LLC PARCEL DELINEATION
- GARFIELD LAND DEVELOPMENT, LLC PROPERTY
- VISTA WAY PARTNERS, LLC PROPERTY
- LANDFILL PROPERTY



REVISIONS

ATTACHMENT 2  
HIGHLAND PARK TRANSPORTATION LLC  
FIGURE DEPICTING THE "LANDFILLS"  
CITY OF GARFIELD HEIGHTS  
CUYAHOGA COUNTY, OHIO

DAVID G. BOWING & ASSOCIATES, INC.  
CIVIL ENGINEERING & SURVEYING  
7875 HUB PARKWAY • VALLEY VIEW, OHIO 44125  
PHONE: (216) 842-1130 FAX: (216) 842-1132  
AS PREPARED BY: JAMES J. BOWING, P.E., J.E.S. 10000 - 20000



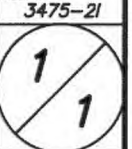
GRAPHIC SCALE  
0' 150'

HORIZ. SCALE  
1"=150'

VERT. SCALE  
1"=150'

DATE  
JAN., 2020

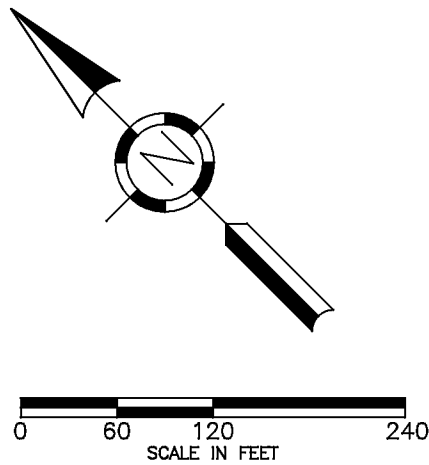
ORDER NO.  
3475-21





**Attachment 3**

**(Figure Identifying Main Facility Gas System)**



LEGEND

- FAC-1

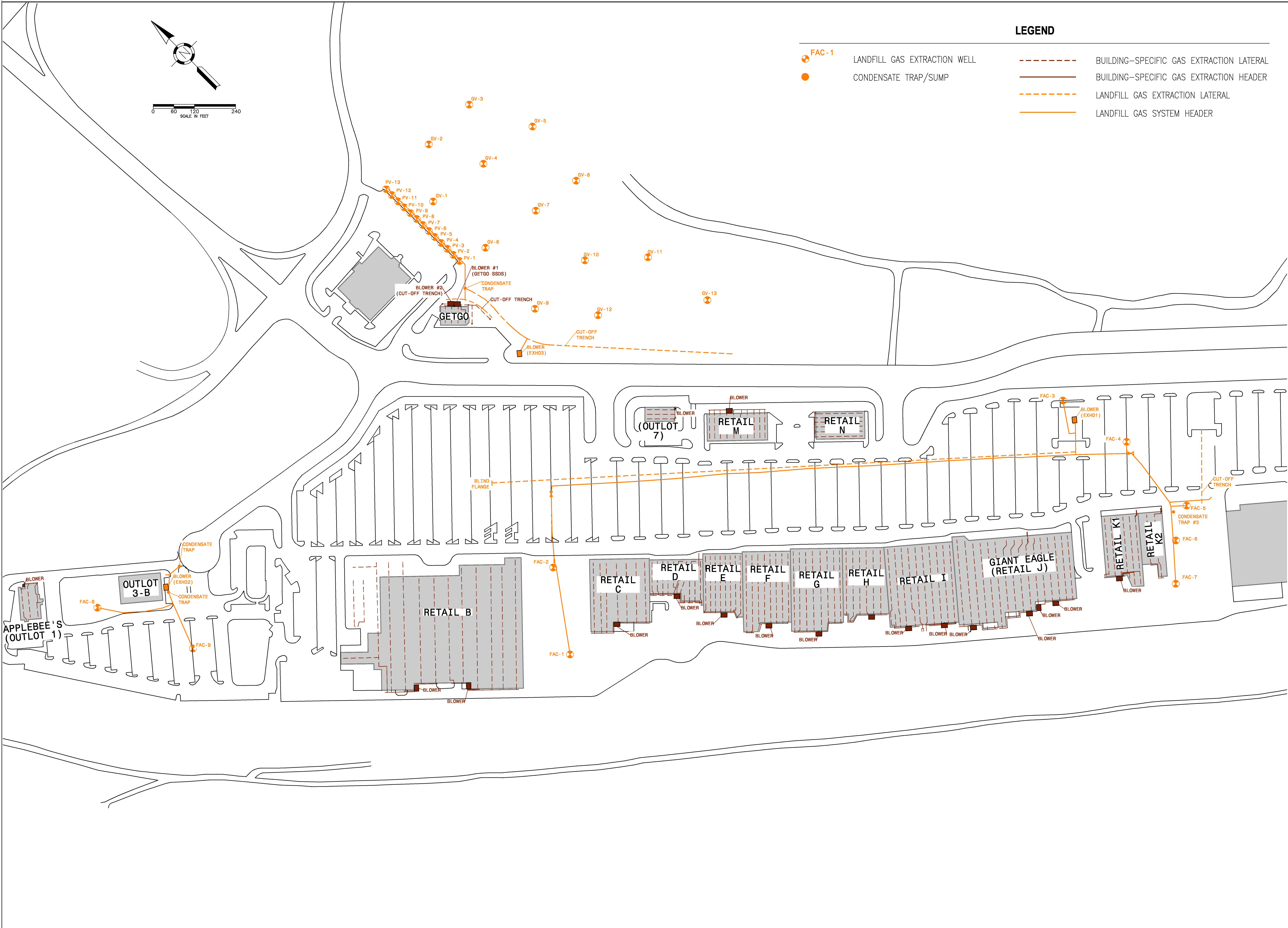
LANDFILL GAS EXTRACTION WELL

CONDENSATE TRAP/SUMP
- BUILDING-SPECIFIC GAS EXTRACTION LATERAL

BUILDING-SPECIFIC GAS EXTRACTION HEADER

LANDFILL GAS EXTRACTION LATERAL

LANDFILL GAS SYSTEM HEADER



Project Title:

OPERATION AND MAINTENANCE PLAN

HIGHLAND PARK PROPERTY

TRANSPORTATION BLVD. AND VISTA WAY

GARFIELD HEIGHTS, CUYAHOGA COUNTY, OHIO

PREPARED FOR:

INDUSTRIAL COMMERCIAL  
PROPERTIES, LLC

6675 PARKLAND BLVD, SUITE 100  
SOLON, OH 44139

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Mark	Description	Date

Project No.:	ICP021
Plot Date:	9/1/20
Layout By:	LP
Drawn By:	LP
Check By:	TS
Scale:	AS NOTED
Issue Date:	MARCH 2020
Sheet Title:	

GENERAL AREAS  
SUBJECT TO O&M  
ACTIVITIES

**Attachment 4**

**(O&M Plan)**

# **OPERATION AND MAINTENANCE PLAN**

**FOR THE:  
HIGHLAND PARK PROPERTY**

**LOCATED AT:  
5642 TRANSPORTATION BOULEVARD,  
GARFIELD HEIGHTS, CUYAHOGA COUNTY, OHIO 44125**

**PREPARED FOR:  
HIGHLAND PARK TRANSPORTATION, LLC  
6675 PARKLAND BOULEVARD, SUITE 100  
OLON, OHIO 44139**

**PREPARED BY:  
HULL & ASSOCIATES, LLC  
4 HEMISPHERE WAY  
BEDFORD, OHIO 44146**

**SEPTEMBER 2020**

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## **LIST OF ACRONYMS AND TERMS**

<b>Facilities</b>	Landfills and/or components installed within the Landfills on permanent parcel numbers 542-16-001, 542-16-003, 542-27-003 (Northeast Mound), 543-01-001, 543-01-002, 543-03-001, 543-03-002, 543-06-001, 543-06-002, 543-09-005 and 543-09-004 (Former Home Depot Property)
<b>CCBH</b>	Cuyahoga County Board of Health
<b>CVC</b>	City View Center, LLC
<b>DFFOs</b>	Director's Final Findings and Orders of even date herewith
<b>GHLRP</b>	Garfield Heights Land Reutilization Program property previously described as Home Depot Property permanent parcel number 543-09-004.
<b>GLD</b>	Garfield Land Development, Ltd.
<b>GHLFP</b>	Garfield Heights Landfill Property where the Northeast Mound is located on permanent parcel number 542-27-003. This property was forfeited to the State of Ohio on March 1, 2018 pursuant to Board of Revision Case Number 18010053.
<b>GLD Property</b>	Garfield Land Development properties identified as (i) permanent parcel number 542-16-001 and located off of Vista Way and along 1-480 adjacent to the Applebee's Building owned by CVC identified as permanent parcel number 542-16-003, which has a blower which services MFGS1-480; and (ii) permanent parcel number 543-06-002 located in the parking lot of the Shopping Center and has a blower which services the MFGS-Shopping Center and which has been forfeited to the State of Ohio on September 6, 2006 pursuant to Board of Revision Case Number BR 11 003650.
<b>Landfills</b>	Portions of either the R&B Development Landfill or Matousek Landfill located in the City of Garfield Heights, on properties identified by permanent parcel numbers 542-16-001, 542-16-003, 542-27-003, 543-01-001, 543-01-002, 543-03-001, 543-03-002, 543-06-001, 543-06-002, and 543-09-004.
<b>LEL</b>	Lower explosive limit (Note: All LEL references herein refer to the LEL for methane gas)
<b>MFGS</b>	Main Facility Active Gas Extraction System means the active Landfill gas extraction system installed at the City View Center Facilities. The MFGS consists of three sub-systems installed at the Landfills: MFGS-I-480, MFGS-Shopping Center, MFGS- Get-Go.
<b>MFGS-1-480</b>	Portion of the Main Facility Active Gas Extraction System located on part of the GLD Property on permanent parcel number 542-16-001 and services property owned by both CVC, as identified by permanent parcel numbers 542-16-003, 543-01-001 and the GLD Property.

## **LIST OF ACRONYMS AND TERMS**

<b>MFGS – Shopping Center</b>	Portion of the Main Facility Active Gas Extraction System located within the Shopping Center on property owned by GLD on permanent parcel 543-06-002, on property owned by CVC on permanent parcels 543-01-002, 543-03-002, and 543-06-001, on permanent parcel 543-09-005 and on the GHLRP Property.
<b>MFGS-GetGo</b>	Portion of the Main Facility Gas System located adjacent to the Get-Go Gas Station on the property owned by GHLFP on permanent parcel 542-27-003, and on the property owned by CVC on permanent parcel 543-03-001, and services properties owned by CVC and GHLFP.
<b>Ohio EPA Owner</b>	Ohio Environmental Protection Agency Highland Park Transportation, LLC and fee simple title Owner to real property and personal property on Cuyahoga County permanent parcel numbers 542-16-003, 543-01-001, 543-01-002, 543-03-001, 543-03-002, and 543-06-001, and its successors or assigns.
<b>Property</b>	The approximately 60.6299-acre property consisting of Cuyahoga County permanent parcel numbers 542-16-003; 543-01-001; 543-01-002; 543-03-001; 543-03-002; and 543-06-001.
<b>Property Management Team</b>	The Property Management Team consists of the Owner or any Property manager, system operators or agents thereof with responsibility for performing operation and maintenance activities under this Operation and Maintenance Plan.

## **1.0 PURPOSE OF THE OPERATION AND MAINTENANCE PLAN**

The purpose of this operation and maintenance plan (O&M Plan) is to ensure that the Highland Park Property located at 5642 Transportation Boulevard, Garfield Heights, Cuyahoga County, Ohio 44125 (Property) maintains compliance with the new Director's Final Findings and Orders (DFFOs) of even date herewith. The Ohio EPA and Legal Counsel for Highland Park Transportation, LLC (Highland Park) are currently negotiating the DFFOs for the Property. The purpose of the new DFFOs is to clarify Highland Park's prospective regulatory obligations under applicable environmental laws, rules, and regulations, including ORC Chapter 3734 and the rules promulgated thereunder, following Highland Park's acquisition of the Property.

The general location of the Property is shown on Figure 1. The Property consists of approximately 60.6299 acres and consists of an area occupied by portions of the two closed municipal solid waste disposal landfills, the R&B Development Landfill and the Matousek Landfill (collectively, the "Landfills") located south of Antenucci Blvd. and Transportation Blvd., as shown on Figure 2. Figure 3 shows Property ownership limits, as well as surrounding properties. Pursuant to the new DFFOs, Highland Park has agreed to operate the Main Facility Active Gas Extraction System, as defined herein, including portions of the Main Facility Active Gas Extraction System located on Cuyahoga County permanent parcel numbers 543-01-002, 542-16-001 and 543-09-005 currently not owned by Highland Park. Highland Park will be entitled access to operate the Main Facility Active Gas Extraction System located on parcel numbers 543-01-002, 542-16-001 and 543-09-005 pursuant to Section 82 of the terms of the Consent Order and Final Judgment Entry on Plaintiff's Complaint entered between the State of Ohio and McGill Property Group, LLC et al., Cuyahoga County Court of Common Pleas, Case No. 08664197, Judge Kenneth R. Callahan, dated December 2, 2008 (the "2008 Judicial Consent Order.")

All monitoring and maintenance activities conducted at the Property prior to the new DFFOs followed an Operation, Monitoring and Maintenance Manual (OM&M) pursuant to previously issued DFFOs. However, in connection with the new DFFOs, Highland Park has submitted an exemption request to Ohio EPA pursuant to ORC Section 3734.02(G) (the "Exemption Request"), requesting an exemption from certain of the requirements of ORC Chapter 3734 and the rules promulgated thereunder. This O & M Plan addresses all of Ohio EPA's comments and deficiencies associated with the July 19, 2019 OM&M as presented in Ohio EPA's comment letter dated September 27, 2019, as well as all prospective operations and maintenance obligations outlined in the new DFFOs.

This O&M Plan provides general information regarding the operations and maintenance of necessary remedial systems and/or engineering controls at the Property. The O&M Plan will be updated with detailed information upon completion of additional data collection, pilot testing, and evaluations, as detailed herein. The remedial activities contained in this O&M Plan are to:

- ☒ [ X ] Operate and monitor an active remedial system/remedy
- ☒ [ X ] Maintain and monitor an engineering control
- ☒ [ X ] Monitor passive remediation via sampling/observation events
- ☐ [ ] Other(s) (describe:\_\_\_\_\_)

All persons retained to perform activities in connection with the O&M Plan shall: (1) be thoroughly familiar with the requirements of the O&M Plan; and (2) have appropriate educational background, training and experience regarding the specific activities for which that person has been retained to perform designated activities under this O&M Plan.

## 2.0 IDENTIFICATION OF REMEDIAL ACTIVITIES SUBJECT TO THE O&M PLAN

Remedial activities subject to this O&M Plan include the operation and maintenance of the following systems and certain other requirements at the Property to satisfy applicable regulatory requirements of the new DFFOs of even date herewith:

1. Main Facility Active Gas Extraction System Monitoring/Management;
2. Building-Specific Active Gas Extraction System Monitoring/Management;
3. Building-Specific Indoor Air and Sub-Slab Methane Monitoring;
4. Leachate Monitoring and Management;
5. Landfills' Cap and Pavement Monitoring/Management; and
6. Underground Structure Monitoring and 54" Storm Sewer Pipe Monitoring.

Figure 4 shows the general boundary location of the closed Landfills, as well as the location of the operation and maintenance activities identified above at the Property that are subject to this O&M Plan.

### ***Main Facility Active Gas Extraction System Monitoring/Management***

The Main Facility Active Gas Extraction System (MFGS) is the active Landfill gas extraction system which was installed at the Former City View Center Facilities. The MFGS consists of three sub-systems that were installed at the Landfill: MFGS-I-480, MFGS-Shopping Center, and MFGS-Get-Go. The location of each sub-system is displayed on Figure 4.

### ***Building-Specific Active Gas Extraction System Monitoring/Management***

The Building-Specific Active Gas Extraction System is a sub-slab ventilation system that provides vacuum below each of the buildings at the Property to actively ventilate methane gas and prevent intrusion into each building. The term "active gas extraction system" is used in the DFFOs to describe the building-specific systems; however, the building-specific systems are ventilating vapors from the sub-slab below the buildings and not actively extracting gas directly from the Landfills. For consistency with the DFFOs, the term "Building-Specific Active Gas Extraction System" is used throughout this document.

### ***Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring System***

The Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring System consists of monitoring ports, sensors and alarms located within each of the buildings to detect methane gas concentrations and provide alarms/notifications at specified methane levels, as detailed herein. **The applicable standards for methane gas LELs to be maintained at the Property will be 10% LEL for indoor air inside buildings and 25% under floor slabs or other underground structures at the Property, as further described herein.**

***Leachate Monitoring and Management***

The Leachate Monitoring System currently involves the observation of areas of potential leachate outbreaks but could potentially involve active leachate management or the implementation of active remediation, such as enhancement of cover material to prevent future outbreaks.

***Landfills' Cap and Pavement Monitoring and Management***

The closed Landfills are covered by a 2-foot minimum clay cap and pavement, which require ongoing monitoring and maintenance to ensure structural integrity.

***Underground Structure Monitoring and 54" Storm Sewer Pipe Monitoring***

Monitoring of subsurface utility structures (storm and sanitary sewer manholes, catch basins and vaults, electric and telephone manholes) is required to ensure structural integrity of these features. In addition, monitoring of the 54" storm sewer pipe located beneath the Property will be performed.

### **3.0 DESCRIPTION AND PURPOSE OF THE REMEDIAL ACTIVITIES SUBJECT TO THE O&M PLAN**

The remedial activities subject to this O&M Plan include:

1. Main Facility Active Gas Extraction System Monitoring and Management;
2. Building-Specific Active Gas Extraction System (i.e., sub-slab ventilation system) Monitoring and Management;
3. Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring;
4. Leachate Monitoring and Management;
5. Landfills' Cap and Pavement Monitoring and Management; and
6. Underground Structure Monitoring and 54" Storm Sewer Pipe Monitoring.

#### **3.1 Main Facility Active Gas Extraction System Monitoring and Management**

The MFGS is the active Landfill gas extraction system which was installed at the City View Center Facilities. Pursuant to the new DFFOs, in accordance with access provided in accordance with Section 82 of the 2008 Judicial Consent Order, Highland Park agrees to operate and maintain the MFGS, including components of the MFGS on parcels not currently owned by Highland Park. The MFGS consists of three sub-systems installed at the Landfills: MFGS-I-480, MFGS-Shopping Center and MFGS-Get-Go, as depicted on Figure 4. The major components contained within each sub-system include the following:

- Vertical Gas Extraction Wells;
- Gas Collection Headers;
- Gas Collection Laterals;
- Horizontal Gas Collection Pipes;
- Gas Control Valves;
- Skid-Mounted Blower Facility; and
- Control Panels/alarm system.

The MFGS is an active gas extraction system that provides vacuum to the vertical landfill gas collection wells and horizontal collector pipe installed in the closed municipal solid waste Landfills. The MFGS consists of a network of perforated and solid pipes connected to the three blower systems providing the vacuum to draw landfill gas from below the surface of the Landfills and from the space between the cap barrier layer and the surface in the parking lots. The nine vertical gas extraction wells consist of 6-inch sch. 80 PVC and are screened within the waste at varying depths from 15 to 80 feet below the final cover. The piping system has valves placed at strategic locations within the network to allow for adjustment of airflow into the zone covered by each extraction well. The blower systems are capable of moving the design flow rate of 100 standard cubic feet per minute (scfm) per the SCS Engineer's Design Drawings approved by the Ohio EPA.



The blowers provide the vacuum at the wellheads of the extraction wells and the horizontal collector. Design plans for the MFGS are included in Appendix C.

Except for maintenance, the blower systems are designed to run continuously to maintain constant airflow from the closed municipal Landfills. The existing blowers comprising the MFGS will be upgraded with an automatic telemetry system, which will provide the ability for real-time remote monitoring of the blower systems. The telemetry system will be programmed to send automatic electronic notifications to an external device, such as a smartphone or computer, to notify maintenance personnel of a potential malfunction or alarm condition when a blower is not operating correctly or has experienced a shut-down.

The piping network consists of 6-inch diameter perforated well piping and various sized header lines and lateral piping spaced across the surface of the Landfills. Intersections where lateral and/or header lines meet contain a valve to permit flow adjustments to the MFGS for optimum performance of the collection system. The well heads are equipped with control valves to adjust the vacuum to each of the extraction wells individually.

Monitoring ports are located at each of the wellheads for use in balancing the system. The MFGS should be balanced both upon start-up and on a periodic basis to maintain the correct balance. The MFGS should be balanced in general accordance with the procedures described in the SWANA LFG O & M Manual of Practice (SWANA, 1997.)<sup>1</sup>

The **MFGS-Shopping Center** Landfill Gas (LFG) blower is located on Cuyahoga County permanent parcel No. 543-06-002, on a grassy area located in the shopping center parking lot between Giant Eagle and Transportation Blvd. The 6-inch diameter horizontal collector pipe for the MFGS-Shopping Center system is connected to a header line that runs north/south through the old 98<sup>th</sup> Street corridor, adjacent to the utility trunk lines that serve the Property. Several connections with valves are made from the header line to the horizontal collector to allow for flow and vacuum adjustments to the MFGS-Shopping Center system.

The **MFGS-I-480** out-lot vertical extraction wells are connected to their own LFG blower that vents to the atmosphere. The MFGS-I-480 is a stand-alone system with no interconnection with either the MFGS-Shopping Center system or the MFGS-Get-Go system. The MFGS-I-480 LFG blower is located on Cuyahoga County permanent parcel No. 540-16-001, to the west of the termination of Vista Way and adjacent to the southeast of a currently vacant building shell. This LFG blower, like the others, will run continuously, except during maintenance. Valves at the wellheads provide for adjustments in flow and vacuum delivered to each

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<sup>1</sup> Solid Waste Association of North America (SWANA).1997. *Landfill Gas Operation and Maintenance Manual of Practice*. March 1997 Edition.

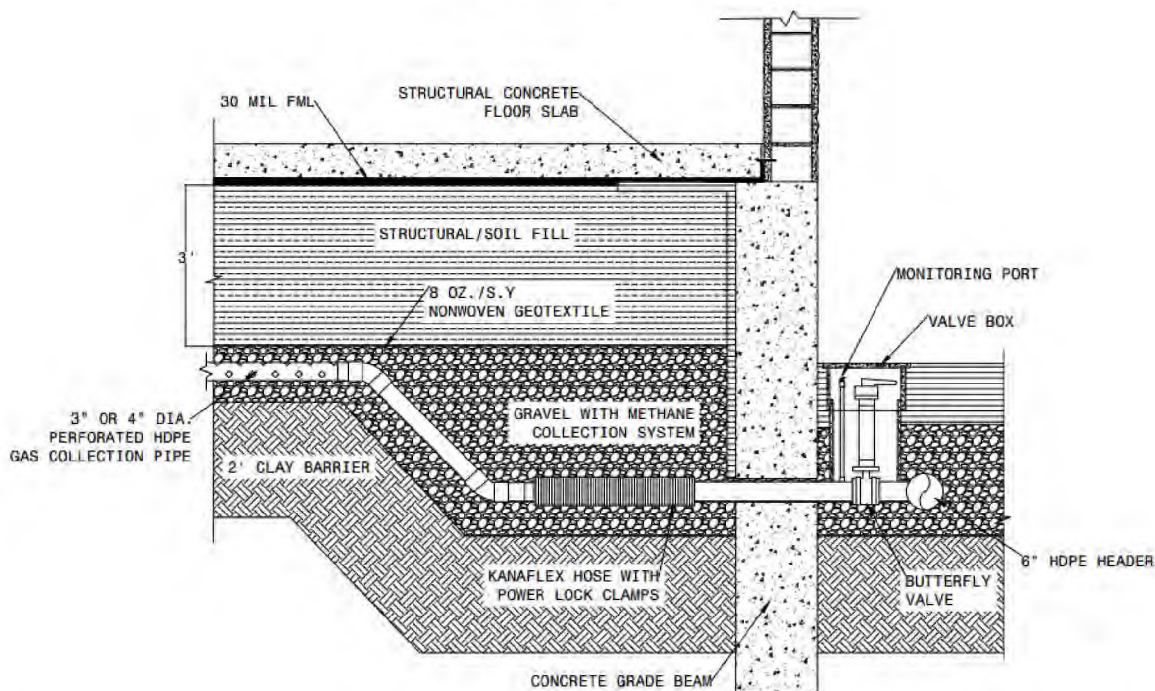
of the vertical extraction wells to provide a balance in the MFGS-I-480 system. The new DFFOs provide the Owner's agreement to operate the MFGS-I-480 system located off the Property, as specified in the DFFOs. The **MFGS-Get-Go** vertical extraction wells are connected to their own LFG blower that vents to the atmosphere. The MFGS-Get-Go is a stand-alone system with no interconnection with either the MFGS-Shopping Center system or the MFGS-I-480 system. The MFGS-Get-Go LFG blower is located on Cuyahoga County permanent parcel No. 543-03-001, adjacent to the northeast of Transportation Blvd. and adjacent to the southeast of the Get-Go parking lot. This LFG blower, like the others, will run continuously, except during maintenance. Valves at the wellheads provide for adjustments in flow and vacuum delivered to each of the vertical extraction wells to provide a balance in the MFGS-Get-Go system.

The MFGS-Get-Go system also services the area adjacent to the Northeast Mound, which is not located on the Property. The new DFFOs provide the Owner's agreement to operate the MFGS-Get-Go system components, a portion of which is located off the Property, as specified in the DFFOs.

### **3.2 Building-Specific Active Gas Extraction System Monitoring and Management**

The Building-Specific Active Gas Extraction Systems were installed in 2005 at the Property and were designed to prevent landfill gas from migrating into the indoor air space of each of the occupied buildings. The Building-Specific Active Gas Extraction Systems incorporated several layers of protection below the building slabs. The initial layer of protection was the certified landfill cap, consisting of a minimum 2-foot thick clay barrier and prepared subgrade. A 12-inch-thick granular ventilation layer was placed on top the certified landfill cap, and approximately 3 feet of compacted soil/structural fill was installed above the gas collection layer. A flexible membrane layer (FML) was installed above the compacted fill, directly below the building slab. A network of perforated lateral extraction pipes was installed in the 12-inch granular layer. The sub-slab perforated extraction lines transitioned to solid-walled pipes near the perimeter of the buildings. Initially, each lateral line penetrated the perimeter concrete grade beams and connected to exterior headers (i.e., manifold lines) to convey sub-slab gas to blowers located on the outside of the buildings, although some repairs were made in which the connections were placed below the grade beam. The blowers ventilated gas to above the roofline of the buildings. The figure below displays a typical design for an original Building-Specific Active Gas Extraction System.

## ORIGINAL DESIGN



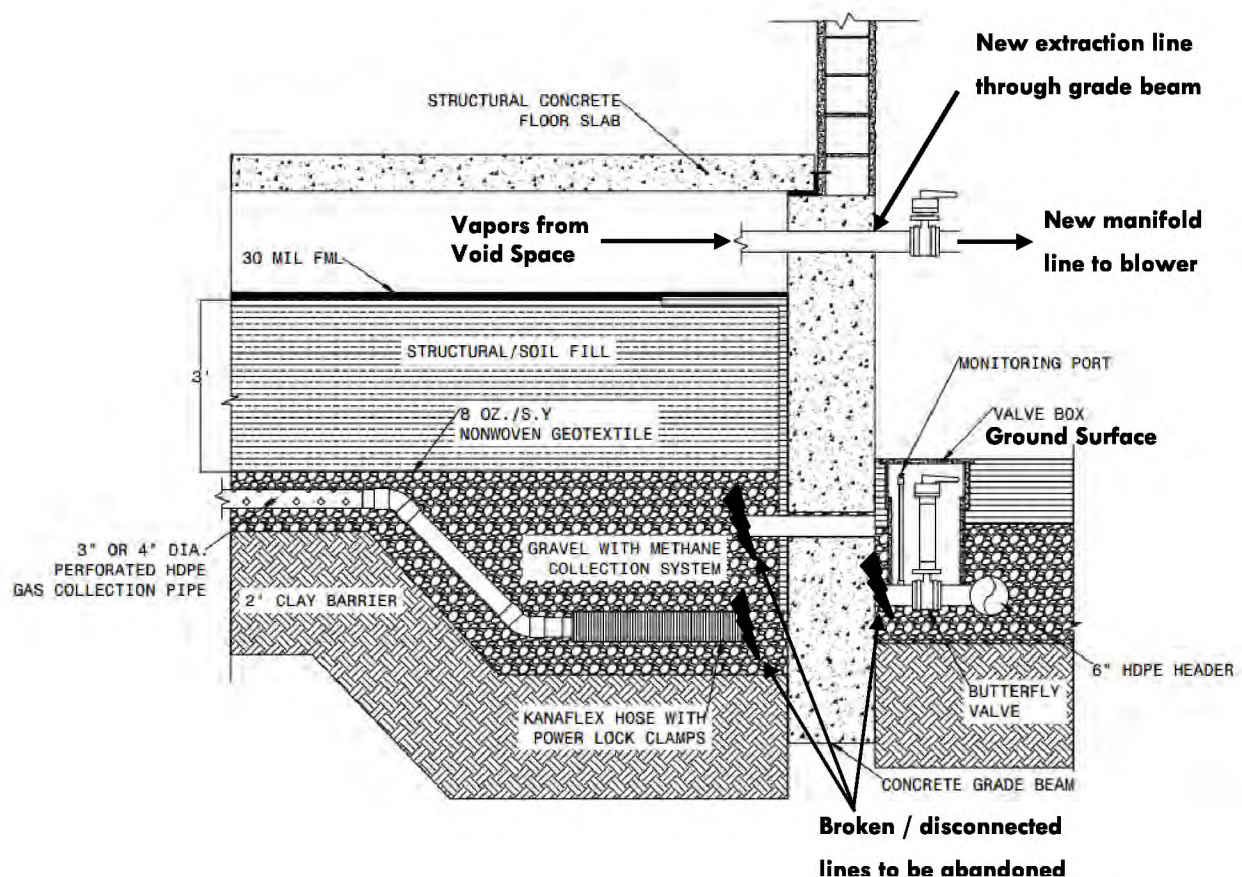
A preliminary review of the existing Building-Specific Methane Gas Monitoring Systems was completed in March 2020, including a camera survey of sub-grade extraction piping at select locations across the Property. The preliminary review indicated that the original subgrade ventilation piping was damaged for many of the buildings due to settlement that occurred at the Property over the years. At the locations initially evaluated, the solid-walled extraction piping near the perimeter of the buildings had become disconnected from the perforated extraction lines that extend beneath the buildings. The disconnections occurred beneath the buildings, several feet inside the grade beams, where flexible hose fittings were originally installed near each grade beam penetration to connect the solid-walled piping to the perforated extraction lines. In addition to the disconnected piping beneath the buildings, the solid-walled sub-grade piping outside of the buildings had also become damaged due to settlement. The external lines became damaged and/or disconnected from the manifold piping within or near the valve vaults on the outside of the grade beams. The original sub-slab barrier and ventilation systems settled over time, resulting in a void space below the slabs. Monthly sub-slab measurements from on-Property buildings indicate elevated concentrations of methane gas are present, at times, in this sub-slab space for several of the buildings. **Notably, baseline indoor air sampling within the buildings did not indicate any exceedances of applicable standards for methane or volatile organic compounds (VOCs), despite the fact that existing systems may have been damaged or were not operating at the time baseline indoor air sampling activities were conducted.**

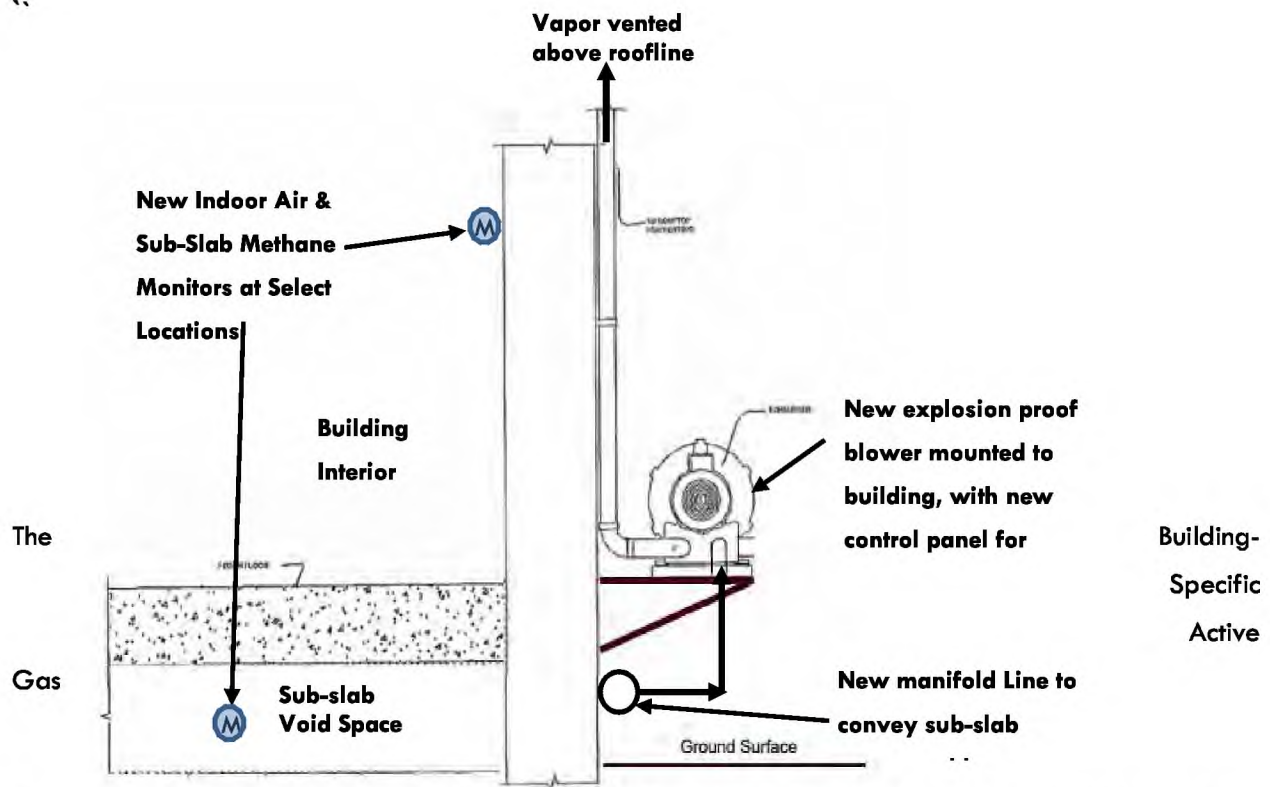
Each of the existing buildings will be evaluated to determine the condition of the original sub-slab piping, and a building-specific design for upgrades will be created and included for each building as Addenda to



this report. For buildings where settlement has resulted in the original sub-slab piping becoming damaged and disconnected, resulting in a void space below the slab, the sub-slab extraction system will be upgraded to include ventilation of the sub-slab void space to prevent accumulation of methane gas below the slabs above 25% of the lower explosive limit (LEL). This approach will provide an added layer of protection by extracting and ventilating any gas that migrates beyond the existing sub-slab barrier system. Gas will be drawn from the void space by external blowers mounted to the buildings and ventilated to above the roofline of the buildings. The upgraded ventilation systems will also include cross-connections between blowers to allow continued ventilation in the event a single blower was to fail, or if a blower is down for maintenance. Figures depicting the prototypical design for the Building- Specific Active Gas Extraction System for each building requiring upgrades or repairs are included below.

### PROTOTYPICAL DESIGN UPGRADE





Extraction Systems (i.e., sub-slab ventilation systems) will be designed to provide the necessary vacuum and flow beneath the buildings to prevent accumulation of vapors that could result in potential intrusion of landfill gas into the occupied space. Depending on the size of the building, the Building-Specific Active Gas Extraction System may require multiple blowers to apply the required vacuum. All potential improvements or upgrades described herein must be approved by the Property Management Team before implementation. The ventilation system for each building will include a control panel with a hand-off-auto (HOA) switch and alarm lights to provide an indication of potential system malfunctions. The existing ventilation systems will be upgraded with a telemetry system to allow remote, real-time monitoring and control of the blowers. The telemetry system will provide the following capabilities:

- Real-time, continuous remote monitoring of the operational status each blower for the sub-slab ventilation system.
- Automatic notification to the Property Management Team of a blower alarm or shutdown.
- Data logging of the system operational parameters and alarm history.
- Ability to remotely restart the blower or make system adjustments (i.e., increase the speed of a blower).
- Submittal of automatic status reports to the Property Management Team.

The telemetry system will provide system operators the ability to remotely monitor the blowers via a secured web-based interface, to perform remote troubleshooting and to evaluate operational trends in support of preventative maintenance.

Pilot testing is currently being conducted to collect requisite data to design the upgraded building-specific ventilation systems, such as flow rate and vacuum data to determine the location and size of the ventilation blowers. The final design will include detailed specifications for the ventilation blowers, extraction piping, and control systems (including telemetry) for each individual building. This information will be provided in Addenda to this O & M Plan.

### **Giant Eagle Active Gas Extraction System**

The Giant Eagle building is the only existing building at the Property constructed with a crawl space. The crawl space provides accessibility to evaluate the condition of the original extraction piping and may also provide space to implement repairs to the piping, if needed. The condition of the Giant Eagle ventilation system will be evaluated to determine if modifications or repairs are required to the existing sub-slab extraction piping, and/or to incorporate additional ventilation of the crawl space, if needed. Details regarding any modifications to the existing Giant Eagle ventilation system will be provided in Addenda to this O & M Plan.

### **3.3 Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring System**

All buildings located within the Property footprint will include a Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring System to monitor for methane gas that may migrate to the building from the underlying Landfills. These Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems will include two layers of monitoring, consisting of both sub-slab sensors and indoor air sensors, as described in the following sections.

#### **3.3.1 Indoor Air Monitoring System**

Methane monitors were installed within existing buildings as part of the original methane gas monitoring system installed in 2005. The monitors were strategically placed throughout all buildings to monitor indoor air in areas where combustible gas would tend to concentrate if the gas barrier and ventilation systems fail to prevent the migration of the methane gas into the building. The existing methane monitors provide a single-point LEL measurement and are programmed to provide an alarm when the LEL concentration reaches an alarm setpoint. The alarm setpoint was originally set for 25% LEL for methane gas and will be reset to an indoor air concentration of 10 % LEL for methane gas in accordance with recent Ohio EPA guidance released in March 2020 (Ohio EPA, 2020)<sup>2</sup>. As described in Section 5.2.3, the existing single-point methane monitors for occupied buildings will be upgraded with methane sensors that provide a real-time, actual measurement of the methane LEL level within the buildings (i.e., not a single point alarm). The action level alarm set point for the methane gas monitors will be 10 % of the methane LEL. The sensors will also be

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<sup>2</sup> Ohio Environmental Protection Agency (Ohio EPA). 2020. Sample Collection and Evaluation of Vapor Intrusion to Indoor Air for Remedial Response, Resource Conservation and Recovery Act and Voluntary Action Programs. Division of Environmental Response and Revitalization March 2020.

programmed to provide an initial warning alarm when the methane concentrations are greater than 5% of the methane LEL, to provide a notification to the Property Management Team prior to reaching the 10% action level in indoor air. Flowcharts 5-3A and 5-3B in Section 5.2.3 of this O&M Plan provide monitoring and response flowcharts based on indoor air LEL measurements conducted prior to and after the installation of the upgraded telemetry system.

All methane sensors will be calibrated at the time of installation, and re-calibrated based on manufacturer recommendations. The sensors will be wired to a building control panel where LEL measurements and alarms, if present, will be displayed. The control panel will be incorporated into the buildings telemetry system to provide remote monitoring and automated alarm notifications. The new indoor air methane gas monitoring systems will be designed in concert with the new, upgraded gas ventilation systems. The specific details of the new methane gas monitoring systems for each individual building, including operation and maintenance requirements, will be provided in Addenda to this O & M Plan.

### **3.3.2 Sub-Slab Monitoring System**

For each building, floor ports are currently installed for manual measurement of LEL concentrations beneath the slab. As part of the upgraded Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems, methane sensors will be installed at select locations beneath the floor slab of occupied buildings, to monitor the LEL concentration in the void space beneath the slab. The alarm set point will remain set for 25% LEL for methane gas, consistent with Section IX, Paragraph 24, of the applicable 2008 Judicial Consent Order.<sup>3</sup> The sensors will be tied into a telemetry system to provide remote monitoring of the sub-slab methane concentrations. Until the automated sub-slab sensors are installed, the existing building floor ports for each occupied building will continue to be manually monitored on a monthly basis, as described in Section 5.2.3. Once the sub-slab sensors are installed, manual measurements may be reduced according to the monitoring plan outlined in Table 5-6. After the baseline evaluation is completed, the use of existing vs. the need for new floor ports will be evaluated and sampling outlined in an O&M Plan addendum. The sub-slab sensors will provide an additional layer of protection by providing an initial alarm notification to the Property Management Team if there is any rise in methane levels above 10% LEL beneath the building. Flowcharts 5-4A and 5-4B in Section 5.2.3. of this O&M Plan provide monitoring and response flowcharts based on sub-slab LEL measurements conducted prior to and after the installation of the upgraded telemetry system, respectively.

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<sup>3</sup> See Section IX, Additional Work, Paragraph 24 of the December 2, 2008 Judicial Consent Order (CV08 064197) entered between the State of Ohio, McGill Property Group, LLC, Garfield Land Development, LLC, GHLFP, LLC, John McGill and City View Center, LLC (the "2008 Judicial Consent Order").

### **3.4 Leachate Monitoring and Management**

The Leachate Monitoring System currently involves observation of potential leachate outbreaks. The Leachate Contingency Plan, provided in Appendix B hereto, details a staged approach to be used upon discovery of a leachate outbreak.

The Leachate Contingency Plan follows methods established by OAC 3745-27-1, Post-Closure of Sanitary Landfill Facilities and OAC 3745-27-19, Operational Criteria for a Sanitary Landfill Facility. In general, the Leachate Contingency Plan involves a staged approach to address a leachate outbreak upon discovery. Upon discovery of a leachate outbreak, leachate will be properly contained, managed, treated, and disposed of according to the steps outlined in the Leachate Contingency Plan. The location of the leachate outbreak will be addressed following a series of stages, with the anticipation that Stage 1 will likely remediate the outbreak. In the event that Stage 1 (i.e., Install Soil Plug) does not remediate the problem, subsequent stages (i.e., Stage 2: Install Straws, Stage 3: Install Storm Water Diversion, Stage 4: Install Horizontal Trench or Vertical Extraction well) will be initiated until the outbreak is fully addressed. Contingency measures implemented to control leachate outbreaks will be discontinued if the outbreak has disappeared from the surface after four-weekly inspections, as outlined in the Leachate Contingency Plan.

### **3.5 Landfills' Cap and Pavement Monitoring and Management**

The Landfill's Cap and Pavement Monitoring and Management Plan will be included in an addendum to the O&M Plan once an initial evaluation of the Landfills' cap has been completed. Monthly visual inspections of the cap and pavement will be completed and documented in monthly reports by the 21<sup>st</sup> day of the following month. The monthly report of the Landfill's Cap and Pavement Monitoring and Management Plan findings is to be submitted to the Ohio EPA and the Cuyahoga County Board of Health (CCBH). The monthly report presents information about significant settlement issues, includes a detailed description of actions that will be taken to repair areas of concern and includes a timeline for the repairs to be implemented.

### **3.6 Underground Structure Monitoring and 54" Storm Sewer Pipe Monitoring**

Subsurface utility structures (such as storm and sanitary sewer manholes, catch basins and vaults, electric and telephone manholes) will be monitored for methane levels. In addition, on-going monitoring of the 54" storm sewer pipe located beneath the Property is required to ensure potential leachate infiltration underneath the Property does not result in exceedances of applicable National Pollutant Discharge Elimination System (NPDES) Permit Discharge Standards.



#### **4.0 APPLICABLE STANDARDS SUBJECT TO THE O&M PLAN**

In the event that the Property proceeds through the Ohio Voluntary Action Program (VAP) in pursuit of a No Further Action (NFA) or Covenant Not to Sue (CNS), the VAP applicable standards subject to the O&M Plan will be further evaluated in the context of applicable laws, rules, regulations, and the 2008 Judicial Consent Order .

## **5.0 EVALUATING THE EFFECTIVENESS OF THE REMEDIAL ACTIVITIES**

As part of its pre-acquisition diligence of the Property, Highland Park is evaluating the existing remedial systems to identify both short-term and long-term repairs and/or upgrades to the existing remedial systems (e.g., automation). Initially, the effectiveness of the remedial activities will be evaluated through manual monitoring and inspections. As the remedial systems are evaluated, repaired, and upgraded to incorporate automation and telemetry, the real-time data and alarm notification provided by the automated telemetry systems will be relied upon as the primary method for monitoring the effectiveness of the remedial activities. Physical inspections and manual measurements will continue to be conducted at reduced frequencies, as appropriate. Table 5 provides a summary of the initial evaluations that are being conducted by Highland Park prior to acquisition of the Property and presents an overall summary of short-term and long-term upgrades and associated monitoring and reporting that will be implemented for the Property. Section 5.1 provides the purpose and general description of the activities that will be used to evaluate the remedial activities. Section 5.2 summarizes data collection activities, schedules and flowcharts for the initial period following Highland Park's acquisition of the Property and for the longer-term period following system upgrades and automation as approved by the Property Management Team.

### **5.1 Purpose and General Description of the Activities to Evaluate the Effectiveness of the Remedial Activities**

#### **5.1.1 Main Facility Active Gas Extraction System Monitoring and Management**

Routine monitoring and maintenance of the MFGS will be conducted to ensure the system operates in accordance with design specifications. Table 5-1 provides a description of the maintenance and monitoring activities for each component of the MFGS, including the frequency of the activities. The purpose of these activities is to ensure, that, except during necessary maintenance or repairs, the MFGS remains in continuous operation to capture methane gas generated by the Landfills, to prevent migration of methane gas off the Property or the potential accumulation of methane gas within structures on the Property.

#### **5.1.2 Building-Specific Active Gas Extraction System Monitoring and Management**

Routine monitoring and maintenance of the Building-Specific Active Gas Extraction Systems will be conducted to ensure the systems operate in accordance with design specifications. An evaluation of the effectiveness of the Building-Specific Active Gas Extraction Systems will be conducted for each building, as follows: (1) For occupied buildings, within 30 days of acquisition; (2) For vacant buildings, before building occupancy with enough time to allow for necessary repairs and certification by a qualified consultant, that the system is functioning as designed.

Table 5-2 provides a description of the maintenance and monitoring activities for each component of the Building-Specific Active Gas Extraction Systems, including the frequency of the operation, monitoring, and maintenance activities. The purpose of these activities is to ensure that the Building-Specific Active Gas

Extraction Systems remain in continuous operation, except during necessary maintenance or repairs, to intercept and ventilate methane gas and other potential volatile organic compounds (VOCs) that may accumulate beneath buildings and potentially migrate into the indoor air.

#### **5.1.3 Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring and Management**

Regular monitoring and maintenance of the Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems will be conducted to ensure the systems operate in accordance with design specifications. An evaluation of the effectiveness of the Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems will be conducted for each building, as follows: (1) For occupied buildings, within 30 days of acquisition; (2) For vacant buildings, before occupancy with enough time to allow for necessary repairs and certification by a qualified consultant, that the system is functioning as designed.

Table 5-2 provides a description of the maintenance activities and includes the frequency of the operation, monitoring, and maintenance activities. The purpose of these maintenance activities is to ensure the Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems effectively monitor the concentration of methane gas, and to provide appropriate notification if gas accumulates within buildings or sub-slab spaces.

#### **5.1.4 Leachate Monitoring and Management**

To ensure that potential leachate outbreaks are managed and controlled, regular observation and inspection activities will be conducted. Leachate inspection activities will be conducted as described in Table 5-3 and outbreaks will be addressed according to the Leachate Contingency Plan presented in Appendix B hereto. The purpose of these leachate monitoring and management activities is to ensure that leachate outbreaks at the surface do not adversely impact environmental media above applicable standards.

#### **5.1.5 Landfills' Cap and Pavement Monitoring and Management**

To ensure that the Landfills' Cap and Pavement structural integrity are monitored, and managed, regular observation and inspection activities will be conducted. Landfills' Cap and Pavement monitoring activities at the Property will be conducted as described in Table 5-4 and issues will be addressed accordingly. The purpose of these Landfills' Cap and Pavement Monitoring and Management activities is to ensure that the structural integrity of these features remain intact for the effective control of potential methane gas emissions from the Landfills at the Property.

#### **5.1.6 Underground Structure Monitoring and 54" Storm Sewer Pipe Monitoring**

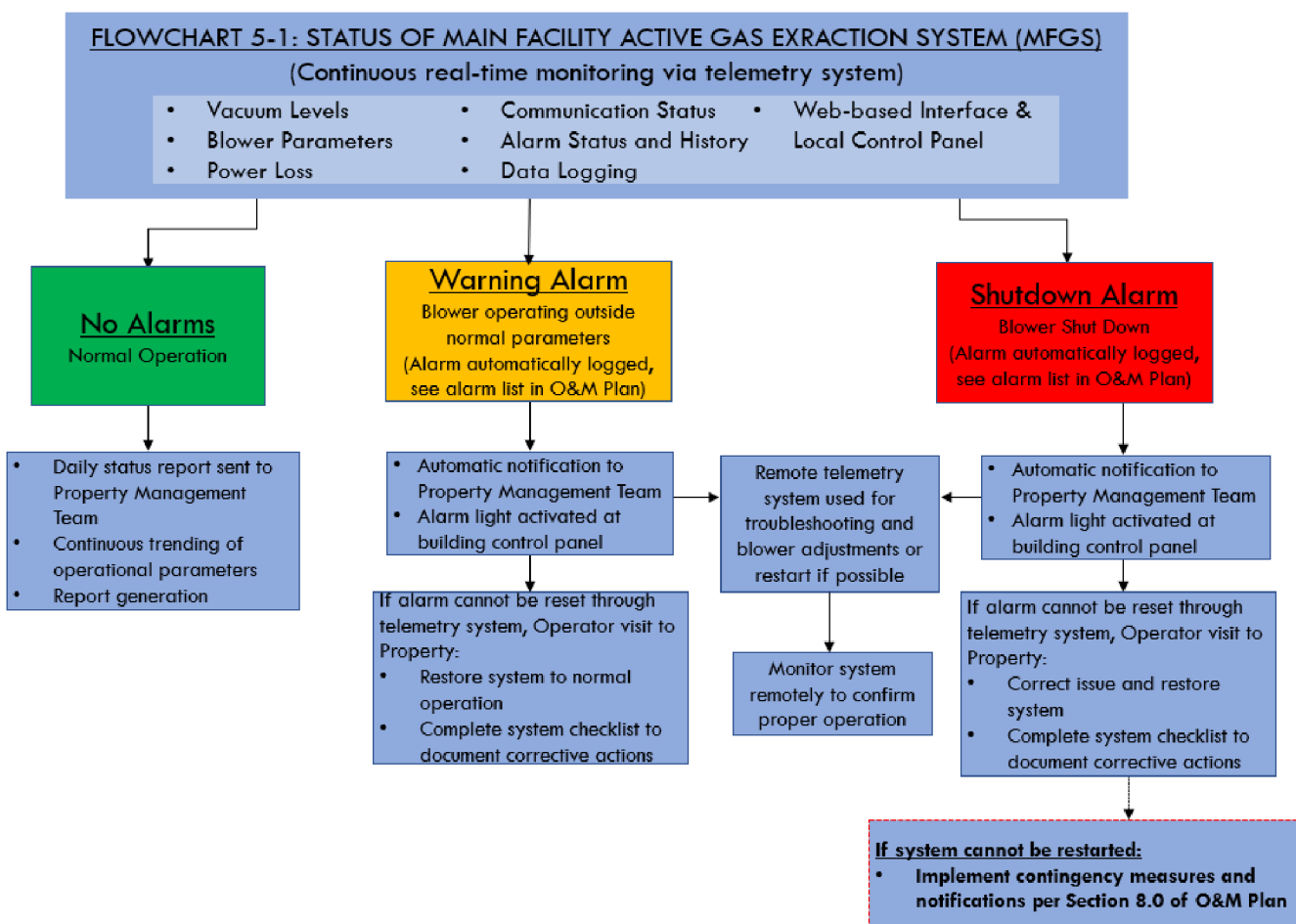
To ensure that the underground structures (i.e., storm and sanitary sewer manholes, catch basins and vaults, electric, telephone conduit manholes), and the 54" storm sewer pipe under the Property, function properly, regular observation and inspection activities will be conducted. The underground structures for monitoring methane gas are listed in Table 5-5A and shown on Figures 6A, 6B, and 6C. The underground structure monitoring activities are described in Table 5-6 and issues will be addressed according to Flowchart 5-6.

The purpose of these underground structure monitoring and management activities is to ensure that the structural integrity of these features remain intact for the effective control of potential methane gas emissions from underground structures and with respect to the 54" Storm Sewer under the Property, to address potential leachate emanating from the Landfills through sewer infiltration.

## 5.2 Monitoring and Data Collection Activities and Response Flowcharts

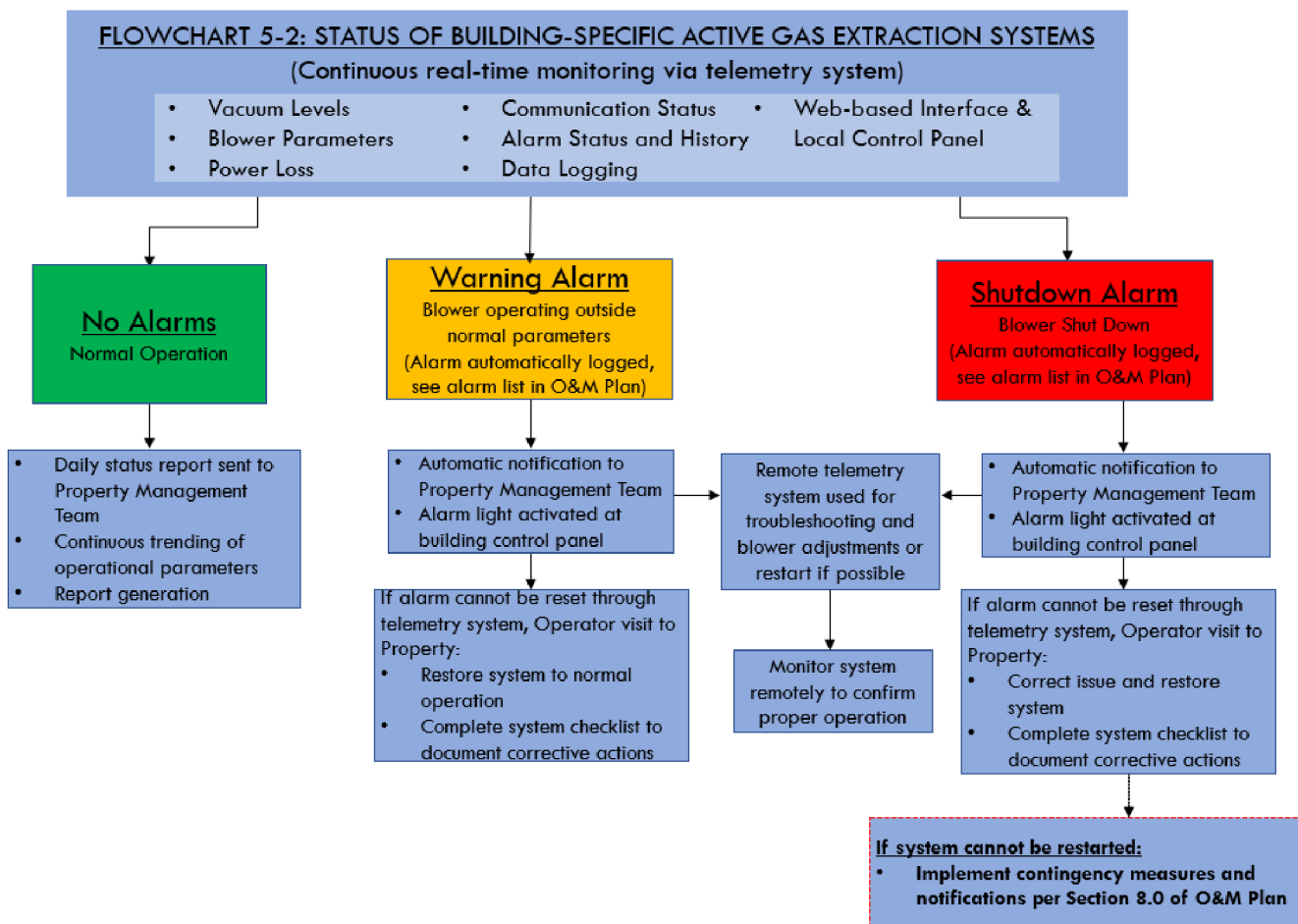
### 5.2.1 Main Facility Active Gas Extraction System Monitoring and Management

Table 5-1 provides a summary of monitoring and data collection activities for the MFGS, including the frequency of activities prior to and after installation of the automated telemetry upgrades. Real-time data provided by the telemetry system, as well as periodic on-Property system checks, will provide the data necessary to perform preventative and scheduled maintenance, troubleshooting, and system adjustments. Flowchart 5-1 summarizes the monitoring and alarm notification that will be provided by the telemetry system, along with response activities to ensure the effectiveness is maintained for the MFGS.



## 5.2.2 Building-Specific Active Gas Extraction System Monitoring and Management

Table 5-2 provides a summary of maintenance and inspection activities for the Building-Specific Active Gas Extraction Systems, including the frequency of activities prior to and after installation of the automated telemetry upgrades. **Building-Specific Active Gas Extraction System Monitoring and Management will commence on a building-by-building basis once each building is occupied by a tenant or immediately upon Property acquisition for buildings currently occupied by tenants, as detailed in Table 5.** The real time data provided by the telemetry system, as well as periodic on-Property system checks, will provide the data necessary to perform preventative maintenance, troubleshooting, and system adjustments. Flowchart 5-2 summarizes the monitoring and alarm notification that will be provided by the telemetry system, along with response activities to ensure the effectiveness is maintained for the Building-Specific Active Gas Extraction Systems.

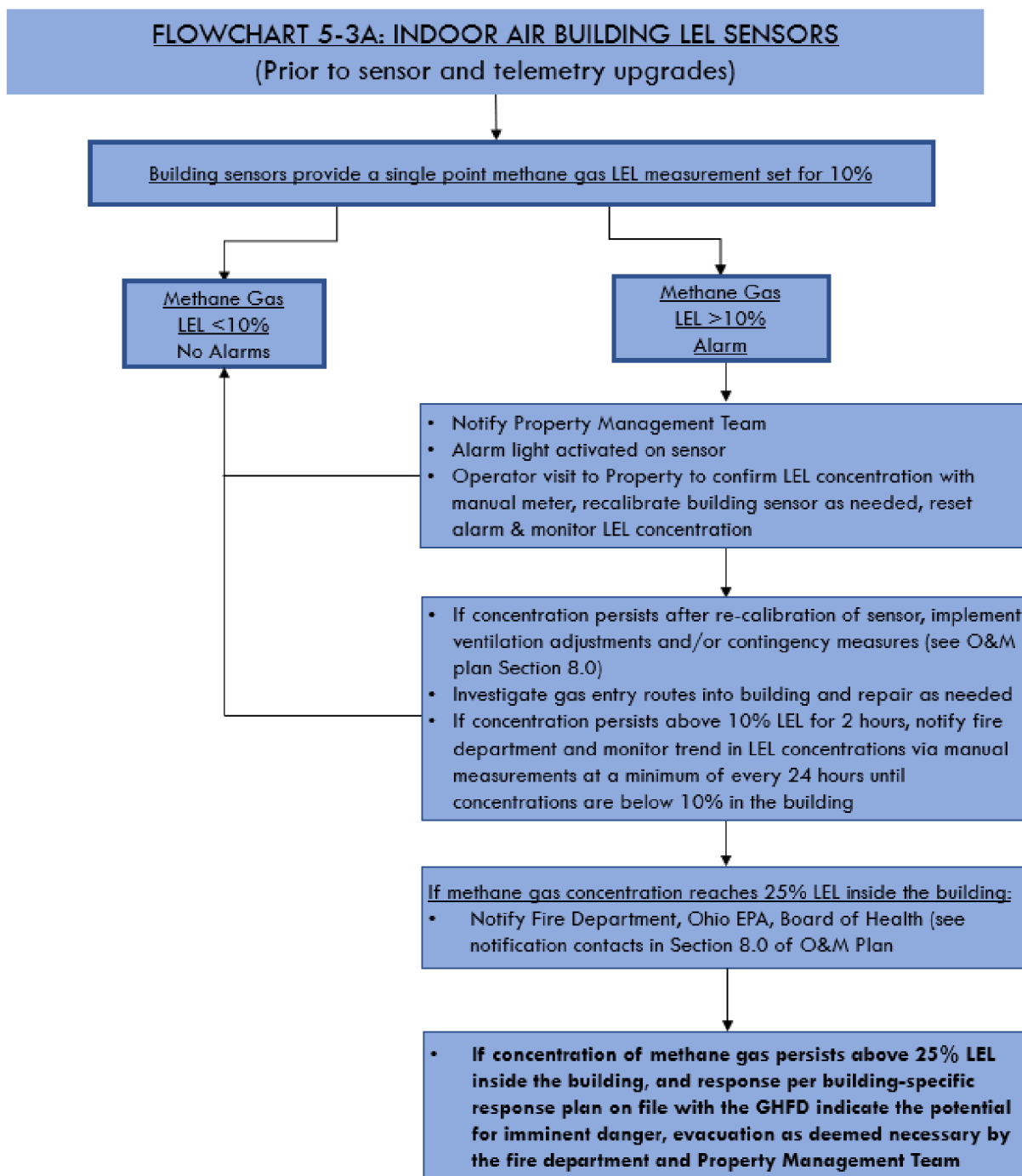


### **5.2.3 Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems**

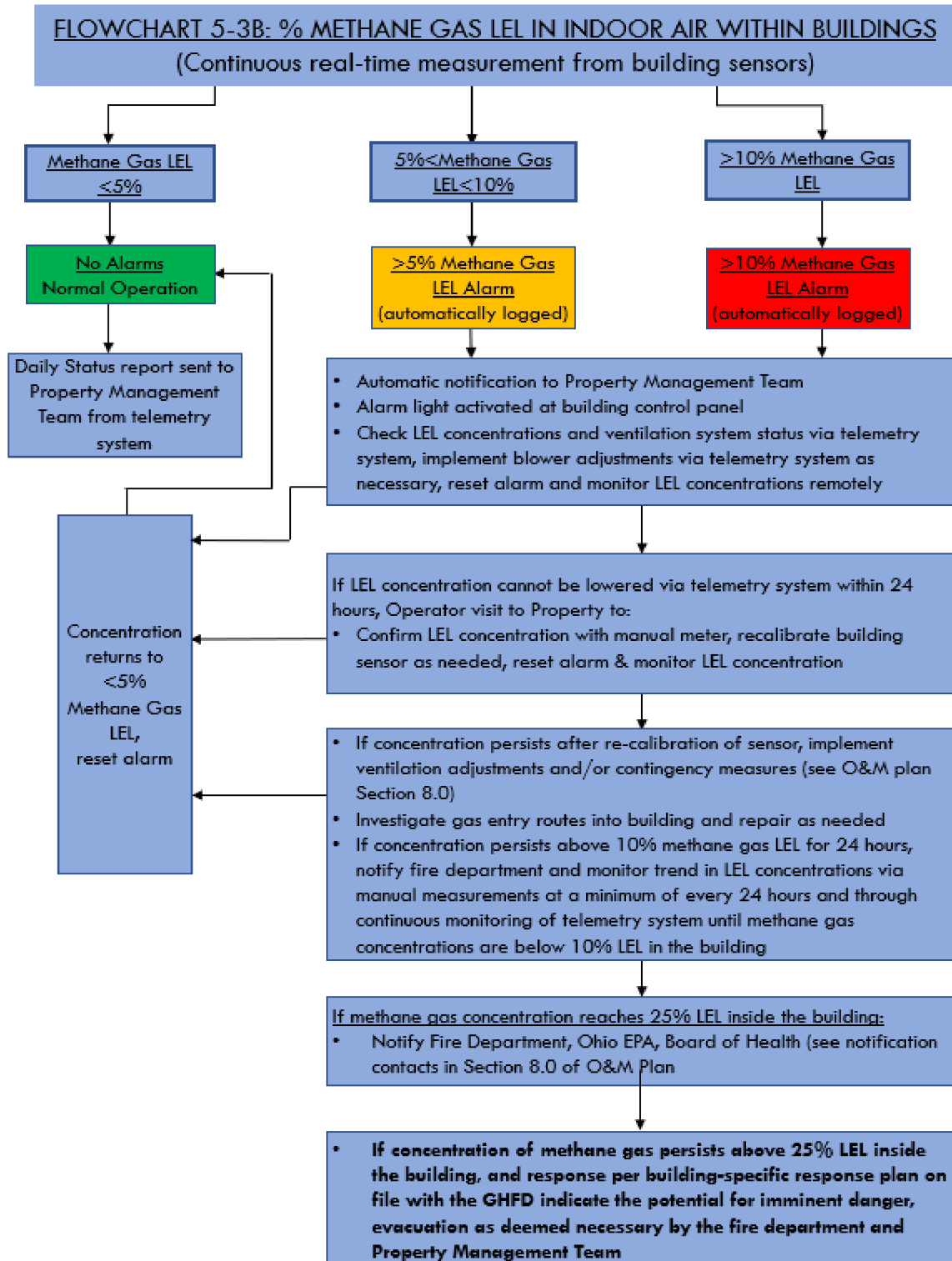
Table 5-2 provides a summary of maintenance activities for the Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring System. **Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring activities will commence on a building-by-building basis once each building is occupied by a tenant or immediately upon Property acquisition for buildings currently occupied by tenants.** For buildings currently occupied, the methane sensors already installed for the original building monitoring systems will initially be utilized to provide an alarm notification if the methane LEL concentration is greater than 10% in the indoor air inside a building. Following an initial evaluation (see Section 6.1.3), the methane sensors within occupied buildings will be upgraded, and an automated telemetry system will be installed to provide real-time, remote viewing of methane LEL concentrations across designated buildings to the Property Management Team.

The upgraded Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems will include methane gas LEL concentration measurements from the indoor air sensors, as well as measurements from sub-slab sensors. The sub-slab sensors will be located at select locations based on a building-specific evaluation and will be incorporated into the telemetry system for buildings that are occupied. Data from gas sensors located in the sub-slab will help provide early warnings to the Property Management Team if methane gas concentrations in the void space beneath the building slabs start to increase, allowing system operators to make system adjustments or conduct needed maintenance to help prevent methane from potentially entering any particular building. Manual methane measurements taken in the existing floor ports (see Figure 5) will be conducted according to Table 5-6 and will provide an additional level of monitoring for the buildings.

Flowchart 5-3A summarizes monitoring and response activities associated with methane gas LEL measurements from indoor air within the buildings **prior to upgrading the methane sensors and installing a telemetry system.**

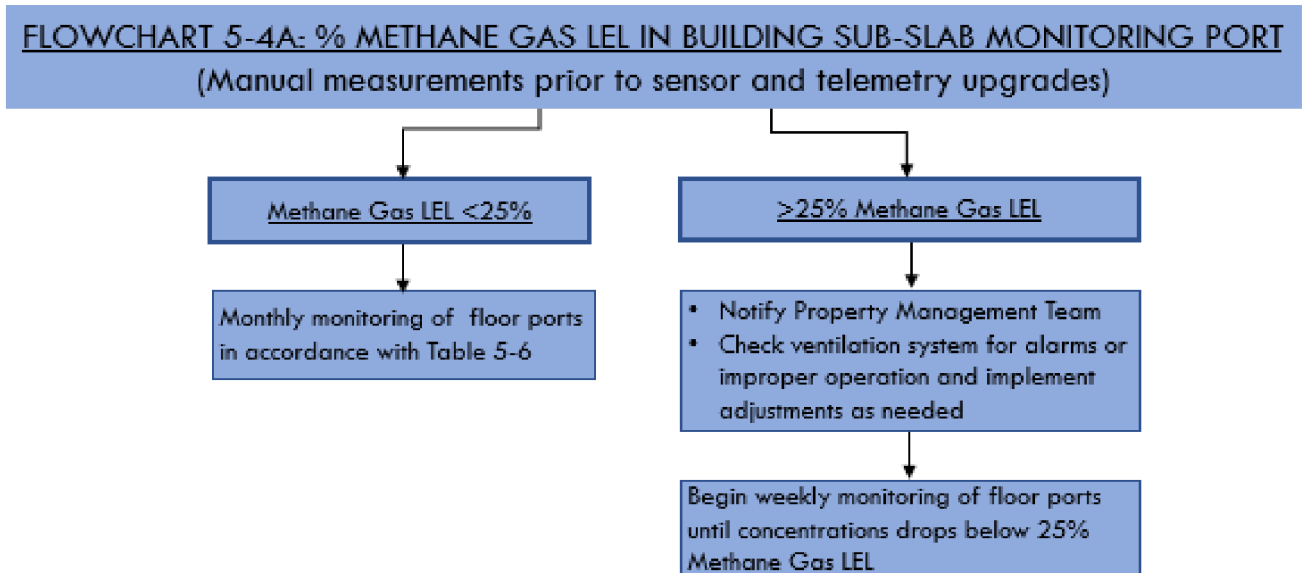


Flowchart 5-3B summarizes monitoring and response activities associated with methane gas LEL measurements from indoor air within the buildings **following upgrades to the methane sensors and installing a telemetry system.**

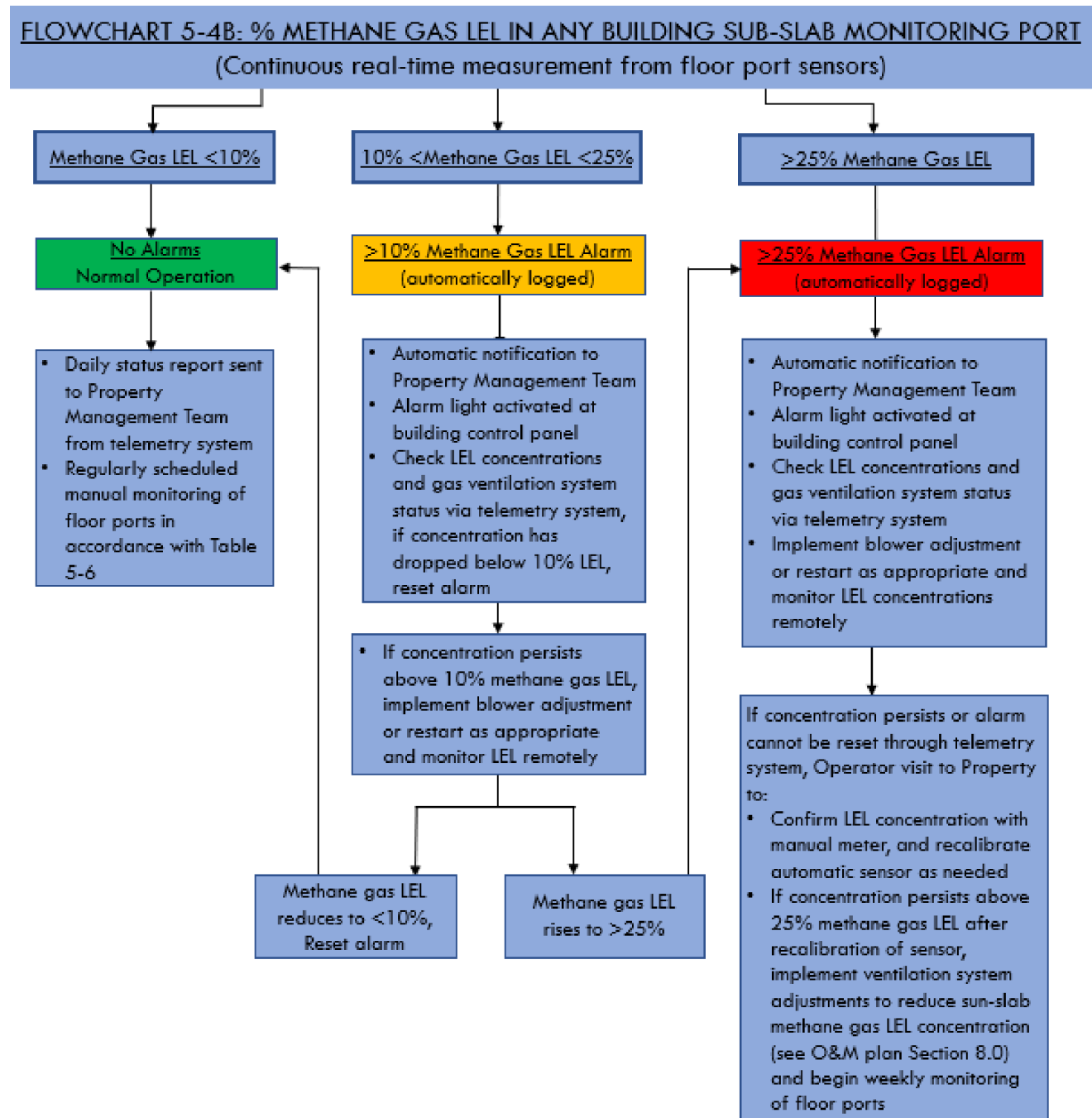




Flowchart 5-4A summarizes monitoring and response activities associated with methane gas LEL measurements from the building sub-slab **prior to upgrading the methane sensors and installing a telemetry system.**



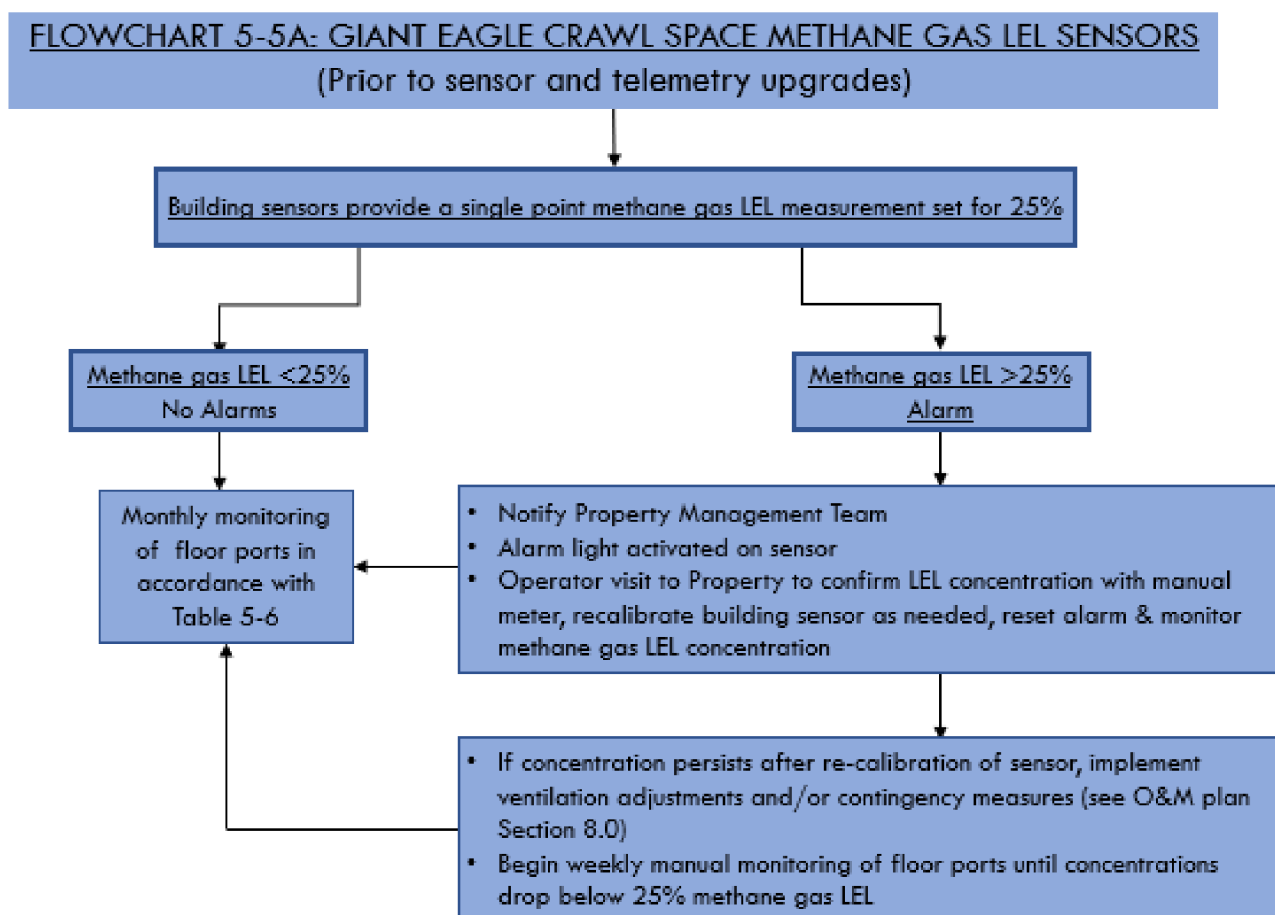
Flowchart 5-4B summarizes monitoring and response activities associated with methane gas LEL measurements from the building sub-slab following upgrades to the methane sensors and installing a telemetry system.



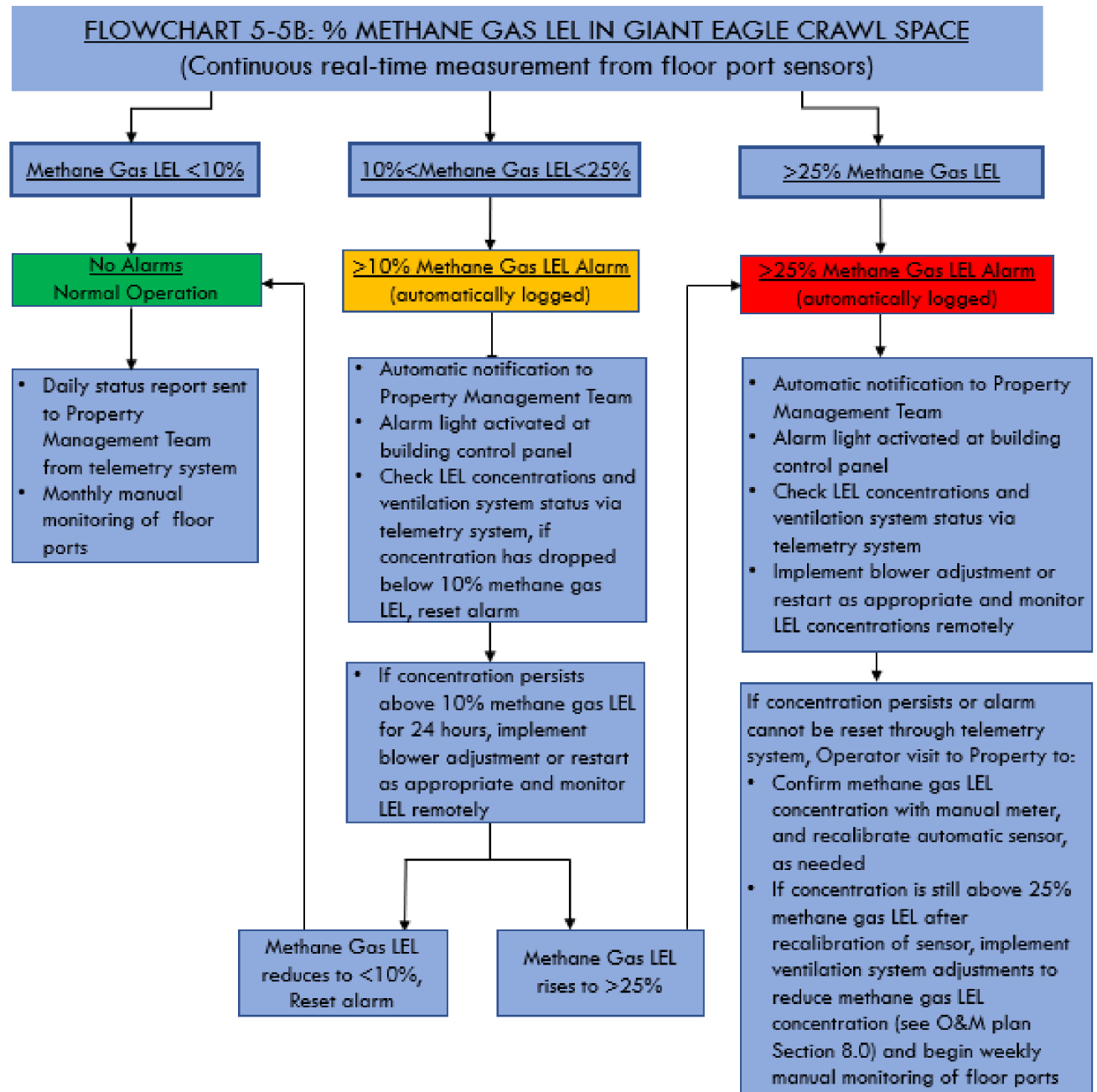
### **Giant Eagle-Specific Monitoring and Response**

Indoor air monitoring of the Giant Eagle building will be conducted in the same manner as the other existing buildings at the Property as outlined in Section 5.2.3. As previously mentioned, the Giant Eagle building is the only existing building at the Property with a sub-slab crawl space. Methane Gas LEL sensors were installed in the crawl space as part of the methane gas monitoring system originally installed for the building. These LEL sensors are the same type of sensors (i.e., single-point measurement) as the indoor air sensors and will initially be utilized for monitoring the crawl space. The methane gas sensors will be upgraded when the telemetry system is installed for the building.

Flowchart 5-5A summarizes monitoring and response activities associated with methane gas LEL measurements from the Giant Eagle crawl space **prior to upgrades to the methane sensors and installing a telemetry system.**



Flowchart 5-5B summarizes monitoring and response activities associated with methane gas LEL measurements from the Giant Eagle crawl space **following upgrades to the methane sensors and installing a telemetry system.**



#### 5.2.4 Leachate Monitoring and Management

Quarterly inspection (4 times each year) of the contingent leachate management system will be performed and a written summary submitted to the Ohio EPA Northeast District office (Twinsburg), no later than twenty-one days after the quarterly reporting period, detailing the results of the inspection and a schedule of any actions to be taken.

Based on historical analytical results for the Landfills, a leachate collection system is not required. However, a contingency plan is necessary to provide direction for the management of leachate in the event of a leachate outbreak to the surface. This Leachate Contingency Plan details the approach to be used upon the discovery of a leachate outbreak on the Property. The Leachate Contingency Plan adopts a staged approach to the management of leachate associated with an outbreak. The procedure outlined herein will be used for all leachate outbreaks discovered at the Property.

### **Leachate Contingency Plan**

The complete Leachate Contingency Plan is provided in Appendix B hereto.

The results of the leachate inspections shall be documented on the applicable leachate monitoring and management forms included in Appendix A. Table 5-3 summarizes the leachate monitoring and maintenance activities schedules.

#### **5.2.4.1 Discontinuation of Leachate Contingency Plan Measures After an Outbreak**

As discussed in the Leachate Contingency Plan, contingency measures implemented to control leachate outbreaks will be discontinued if the leachate outbreak has disappeared from the surface after the four-weekly inspections.

Submittal of records and written authorization from the Ohio EPA will be received prior to discontinuation of contingency measures for the identified leachate outbreak.

### **5.2.5 Landfills' Cap and Pavement Monitoring and Management**

Monthly visual inspection(s) of the Facilities cap and pavement at the Property will be conducted. A monthly written report of findings will be submitted to the Ohio EPA and the CCBH by the 21<sup>st</sup> day of following month. Areas of concern and significant settlement will be identified and a detailed description of the actions that will be taken to repair all areas of concern will be provided, along with a timeline for the repairs to be implemented.

In addition, as part of the annual landfill report, an annual settlement report will be completed (due by January 31 of each year for the previous calendar year) and submitted to the Ohio EPA and the CCBH summarizing any material settlement identified during inspections along the Property's western slope.

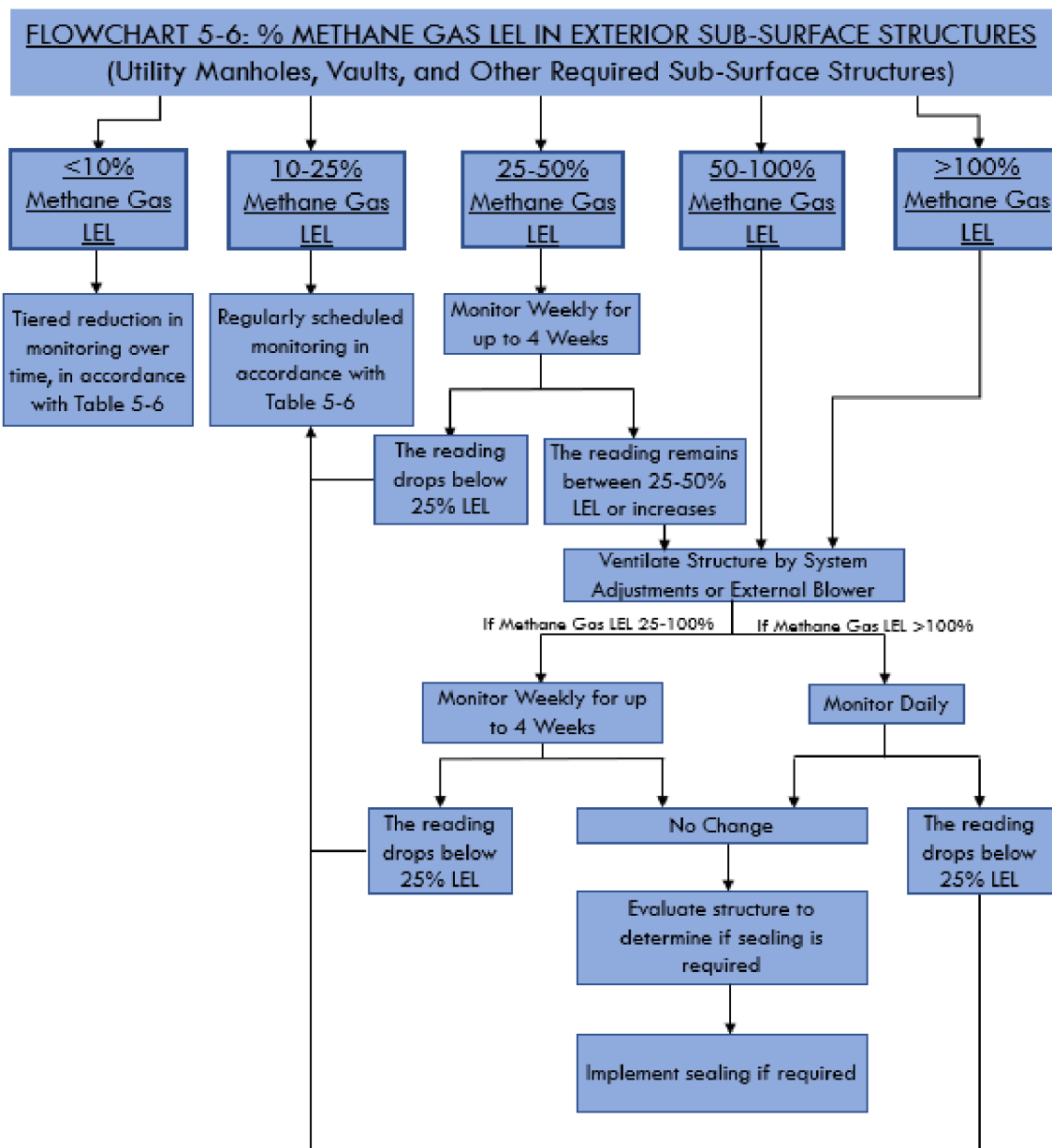
### **5.2.6 Underground Structure Monitoring**

#### **5.2.6.1 Exterior Sub-Surface Structures Methane Monitoring**

The subsurface utility structures, including storm and sanitary sewer manholes and catch basins, electric and telephone manholes and underground vaults, will be monitored for methane gas LEL concentrations. Monitoring of the exterior sub-surface utility structures within 200 feet north, south, east or west of any occupied space, initially will be performed monthly and monitoring of sub-

surface structures outside of 200 feet initially will be performed quarterly. For the purpose of this O&M Plan, manual methane gas LEL measurements will be recorded on field forms, as shown in Appendix A. Monitoring data will be summarized in a quarterly report submitted to the Ohio EPA and CCBH by the 21<sup>st</sup> day of the month following the end of the quarter. Approximately 300 sub-surface structures will be monitored, as summarized in Table 5-5A. Figures 6A through 6C depict the locations of all sub-surface structures that will be monitored.

Historical LEL monitoring data indicates that most of the sub-surface monitoring locations have low or non-detect methane gas concentrations. While monthly measurements are initially proposed, a tiered reduction in the monitoring frequency will be implemented based on data trends at individual locations, as summarized in Table 5-6 and as approved by the Ohio EPA. The action level for the underground structures shall be 25% of the methane gas LEL peak reading during any monitoring event. If an underground structure exceeds the 25% LEL peak reading during the monitoring events, the Property Management Team will follow the activities to address the elevated levels of methane gas as depicted on Flowchart 5-6 hereafter.



Continuous monitoring sensors may be installed in select subgrade structures in the future based on methane gas LEL concentration trends (e.g., locations regularly exceeding 25% methane LEL) at the discretion of the Property Management Team. If installed, the sensors will be integrated into telemetry system to automatically report LEL concentrations to the Property Management Team. For these locations, utilization of the telemetry system will allow for a reduction in manual sampling as real-time monitoring is being conducted. A notification will be sent to the Property Management Team from the telemetry system if an LEL concentration from a sub-slab sensor is >25% methane gas LEL.

## **6.0 OPERATION AND MAINTENANCE OF THE REMEDIAL ACTIVITIES SUBJECT TO THE O&M PLAN**

### **6.1 Operation Tasks and Schedules**

Section 6.0 of this O&M Plan identifies certain activities Highland Park will undertake, including but not limited to a baseline system evaluation, to be conducted within 30 days after Property acquisition.

Highland Park will provide Ohio EPA with a copy of the final baseline system evaluation report within 7 days from receipt thereof.

#### **6.1.1 Main Facility Active Gas Extraction System Monitoring and Management**

The Main Facility Active Gas Extraction System consists of three extraction blowers, nine extraction wells, and system piping as detailed in Section 3.1. Except during maintenance and repairs, the blower facilities are designed to run full-time to maintain constant airflow from the closed municipal Landfills. The blowers will operate at all times, except when undergoing maintenance, repairs, or replacement. A detailed discussion of the repairs and upgrades, on-going operation, monitoring and maintenance, reporting, internal and external notifications is discussed within Table 5.

##### **6.1.1.1 Repairs and Upgrades**

An evaluation of the MFGS will be conducted to identify both short-term and long-term repairs and/or upgrades to the systems, and a report will be prepared as described in Table 5. Based upon recommendations for system upgrades, the existing controls for the MFGS blowers will be upgraded with an automatic telemetry system, which will provide the ability for real-time remote monitoring of the blower systems, as discussed in Table 5. The telemetry system will be programmed to send automatic electronic notifications to an external device, such as a smartphone or computer, to notify maintenance personnel of a potential malfunction or alarm condition when a blower is not operating correctly or has experienced a shut down.

##### **6.1.1.2 Operation**

Except for maintenance and repairs, all blowers for the MFGS will be operated continuously. Operation of the system will be monitored as described in Section 5.2.1 of this O&M Plan. Actions identified to manage the MFGS will be followed if the system is operating outside normal conditions (i.e., a system alarm) as identified within Flow Chart 5-1 included herein. The Owner reserves the right to equitably allocate operating costs for the MFGS to future beneficiaries of the MFGS, or to modify the MFGS consistent with the DFFO.



#### **6.1.1.3 Monitoring and Maintenance**

All system components will be or are currently being inspected during the comprehensive system evaluation prior to change of ownership for the Property. Following the initial system evaluation, monitoring and maintenance of the MFGS will be implemented as described in Table 5 and 5-1 to ensure all components are operating in accordance with design and manufacturer specifications.

#### **6.1.1.4 Reporting**

A report will be provided to the Property Management Team within 30 days after the baseline system evaluation, conducted upon ownership change, to summarize results of system inspections, including recommendations for repairs or upgrades. Following the initial system evaluation, reporting will be conducted as described in Table 5.

#### **6.1.1.5 Property Management Team Notifications**

Following the initial system evaluation, the Property Management Team will be notified of recommendations for system repairs or upgrades within 30 days after the system evaluation. Any alarm, damage or malfunction identified during on-Property system inspections will be immediately reported to the Property Management Team as described in Table 5. After the telemetry system has been installed and implemented, MFGS alarms will be automatically reported to the Property Management Team as described in Table 5. Any alarm, damage or malfunction identified during on-Property system inspections will be immediately reported to the Property Management Team during the inspections as detailed in Table 5.

#### **6.1.1.6 Reporting Agency Notifications**

If a blower is to be shut down for longer than 1 week for repairs, the Ohio EPA, the CCBH and the GHFD will be notified of the shutdown and actions being taken to repair and restart the system as described in Table 5.

### **6.1.2 Building-Specific Active Gas Extraction System Monitoring and Management**

Prior to Highland Park's acquisition of the Property, evaluation of the Building-Specific Active Gas Extraction Systems is being conducted to identify both short-term and long-term repairs and/or upgrades to the systems for each building, as follows: (1) For occupied buildings, within 30 days of acquisition; (2) For vacant buildings, before occupancy with enough time to allow for necessary repairs and certification by a qualified consultant, that the system is functioning as designed. Existing buildings will be evaluated to determine the condition of the original sub-slab piping and a building-specific design for upgrades or repairs will be created and included, on a building-by-building basis, as Addenda to this report. A report will be prepared to summarize results of the system evaluation, including recommendations for repairs or upgrades, as needed, as detailed in Table 5.

#### **6.1.2.1 Repairs and Upgrades**

For occupied buildings, short-term repairs or upgrades identified during the initial evaluation will be implemented within 1 to 6 months of the evaluation as detailed in Table 5; provided a material health & safety (H&S) concern is not identified during the system evaluation. In the event a material H&S concern is identified, repairs or upgrades will be expedited and made as soon as practicable, or contingency measures will be implemented. For buildings where the original sub-slab piping is damaged and disconnected, it is anticipated that the sub-slab extraction system will be upgraded to include ventilation of the sub-slab void space to prevent accumulation of methane gas below the slabs above 25% of the methane LEL. This approach will provide an added layer of protection by extracting and ventilating any gas that migrates beyond the existing sub-slab barrier system. Gas will be drawn from the void space by external blowers mounted to the buildings and ventilated to above the roofline of the buildings. Additionally, the control systems will be upgraded to provide automated, real-time remote monitoring, reporting and data logging. Once new designs are generated, pilot studies have been completed, and new Building-Specific Active Gas Extraction (i.e., sub-slab ventilation) Systems installed, specific details regarding the operation of each individual building system will be provided in Addenda to this O & M Plan for each building.

#### **6.1.2.2 Operation**

All Building-Specific Active Gas Extraction System components located within occupied buildings will be inspected during the initial comprehensive evaluation completed within 30 days of change of ownership. For buildings that are not currently occupied, a comprehensive evaluation will be conducted for each building before occupancy with sufficient time to allow for necessary repairs. For each occupied building, the Building-Specific Active Gas Extraction System will be operated continuously, except during maintenance or repair. Operation of the Building-Specific Active Gas Extraction Systems will be monitored as described in Section 5.2.2 of this O&M Plan. Actions identified to manage the system will be followed if the system is operating outside normal conditions (i.e., a system alarm) as identified within Flow Chart 5-2 included herein.

#### **6.1.2.3 Monitoring and Maintenance**

All system components located within occupied buildings will be inspected during the comprehensive evaluation conducted within 30 days of change of ownership for the Property. For buildings that are not currently occupied, the comprehensive evaluation will be conducted for each building before occupancy with sufficient time to allow for necessary repairs. Inspections will be implemented as required following the Building-Specific Active Gas Extraction Systems evaluation as described in Table 5. Following the initial system evaluation, monitoring and maintenance of the Building-Specific Active Gas Extraction Systems will be implemented as described in Table 5 and 5-2 to ensure all components are operating in accordance with design and manufacturer specifications.

#### **6.1.2.4 Reporting**

For each building that is currently occupied, a report will be prepared within 30 days of the baseline system evaluation to be conducted upon ownership change. The report will be provided to the Property Management Team to summarize results of Building-Specific Active Gas Extraction Systems inspections, including recommendations for repairs or upgrades, as needed. For buildings that are not currently occupied, a report will be prepared and recommendations for repairs or upgrades will be provided to the Property Management Team to allow necessary repairs to be made prior to building occupancy. Following the initial system evaluation, quarterly reports will be prepared to document system O&M, and a comprehensive annual system evaluation report will be prepared and submitted to the Ohio EPA, as described in Table 5.

#### **6.1.2.5 Property Management Team Notifications**

Following the initial system evaluation, the Property Management Team will be notified of recommendations for system repairs or upgrades within 30 days after the system evaluation. Any alarm, damage or malfunction identified during on-Property system inspections will be immediately reported as detailed in Table 5. After the telemetry system has been installed, reporting and notifications will be completed as detailed in Table 5. Any alarm, damage or malfunction identified during on-Property system inspections will be immediately reported, as detailed in Table 5.

#### **6.1.2.6 Reporting Agency Notifications**

If the initial Building-Specific Active Gas Extraction System inspection or any subsequent Building-Specific Active Gas Extraction System requires a blower to be shut down for longer than 1 week for repairs, the Ohio EPA, the CCBH and the GHFD will be notified of the shutdown and actions being taken to repair and restart the system, as detailed in Table 5.

### **6.1.3 Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring and Management**

Prior to Highland Park's acquisition of the Property, an evaluation of the Building-Specific Indoor Air and Sub-Slab Methane Gas Extraction Systems will be conducted to identify both short-term and long-term repairs and/or upgrades to the systems for each building, as follows: (1) For occupied buildings, within 30 days of acquisition; (2) For vacant buildings, before occupancy with sufficient time to allow for necessary repairs and certification by a qualified consultant, that the system is functioning as designed. Once new designs are generated and new Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems have been installed, specific details regarding the operation of each individual building system will be provided, on a building-by-building basis, in Addenda to this O & M Plan.

#### **6.1.3.1 Repairs and Upgrades**

After completing the baseline system evaluation, a report will be prepared within 30 days for each occupied building, conducted upon ownership change, to summarize results of system inspections,

including recommendations for repairs or upgrades, as detailed in Table 5. For existing buildings that are occupied at the time of change of ownership, the indoor air sensors will be upgraded with sensors that display actual LEL measurements, and telemetry equipment will be installed for real-time LEL monitoring, data logging, and alarm notification within approximately three to six months of ownership change. For buildings that are currently unoccupied and will be occupied in the future, upgraded LEL sensors will be installed within the buildings and at select sub-slab locations prior to occupancy. The locations of sensors will be based on the building-specific layout and tenant operations, as well as square footage for the tenant space. Telemetry equipment will be installed for real-time LEL monitoring, data logging, and alarm notification.

#### **6.1.3.2 Operation**

Following ownership transition, the existing indoor air sensors for occupied buildings will be in continuous operation, except during maintenance or repairs, and will provide an alarm if the LEL concentration for methane gas is 10% or greater for each occupied building. After installation of the telemetry system, indoor air sensors for occupied buildings will provide real-time measurement of LEL concentrations. The sensors will include an initial alarm if the methane gas is greater than 5% LEL and will include a second alarm if the methane gas LEL is greater than 10% for each occupied building.

#### **6.1.3.3 Monitoring and Maintenance**

All system components located within occupied buildings will be inspected during the comprehensive evaluation to be conducted within 30 days of change of ownership for the Property. For buildings that are not currently occupied, the comprehensive evaluation will be conducted for each building prior to occupancy. Existing LEL sensors will be repaired and/or re-calibrated, as required, following the system evaluation. LEL monitoring from building floor ports will be conducted from occupied and unoccupied buildings, as detailed in Table 5. Sampling locations are identified in Table 5-5B and depicted on Figure 5. If an LEL measurement exceeds an alarm level in the indoor air or sub-slab, Flowcharts 5-3A and 5-4A located in Section 5.2.3 of the O&M Plan will be followed, respectively, in response to the alarm. Routine maintenance will be completed in accordance with Table 5-2.

After the installation of the telemetry system, actual methane LEL concentrations of occupied buildings will be monitored continuously via automated sensors and reported in real-time by the telemetry system. Manual LEL monitoring from building floor ports will be conducted from occupied buildings and unoccupied buildings as detailed in Table 5. Monitoring locations are identified in Table 5-5B. When concentrations are <10% LEL for 6 consecutive months (including data prior to baseline event) at a sub-slab location, the monitoring frequency will be reduced at that location according to Table 5-6. If an LEL measurement exceeds an alarm level in the indoor air or sub-slab, Flowcharts 5-3B

and 5-4B of the O&M Plan will be followed, respectively, in response to the alarm. Routine maintenance will be completed in accordance with Table 5-2.

#### **6.1.3.4 Reporting**

A report will be provided to the Property Management Team within 30 days after the baseline system evaluation conducted upon ownership change for each building that is currently occupied. The report will summarize results of system inspections, including the baseline LEL concentrations measured in all building floor ports, and will provide recommendations for repairs or upgrades as needed. For buildings that are not currently occupied, a baseline evaluation and accompanying report will be prepared prior to occupancy. Following the baseline system evaluation, floor port monitoring data along with a summary of operation and maintenance activities for Building-Specific Indoor Air and Sub-Slab Methane Monitoring and Management will be reported, as detailed in Table 5.

#### **6.1.3.5 Property Management Team Notifications**

Following the initial system evaluation, the Property Management Team will be notified of recommendations for system repairs or upgrades, as detailed in Table 5. A notification will be sent to the Property Management Team if the LEL concentrations from an indoor air sensors or sub-slab floor ports exceed specified methane gas LEL levels, as detailed in Flowcharts 5-3A and 5-4A, respectively, in Section 5.2.3.

After the telemetry system has been installed and implemented, Building-Specific Indoor Air Methane Gas Monitoring System alarms will be reported as detailed in Table 5. A notification will be sent to the Property Management Team if the LEL concentrations from indoor air sensors or sub-slab floor ports exceed specified methane gas LEL levels, as detailed in Flowcharts 5-3B and 5-4B, respectively, located in Section 5.2.3.

Any alarm, damage or malfunction identified during on-Property system inspections will be reported, as identified in Table 5.

#### **6.1.3.6 Reporting Agency Notifications**

As summarized in Table 5, if the LEL concentration in the building's indoor air is >10%, the GHFD will be notified by electronic mail within 48 hours to report the reading and actions being taken. If the LEL concentration in the building's indoor air is >25%, a notification will be provided to the Ohio EPA, the CCBH, and the GHFD by electronic mail within 8 hours of Highland Park's discovery to report the reading and actions being taken. If an indoor air sensor is offline for longer than 1 week for repairs, the Ohio EPA, the CCBH and the GHFD will be notified of the actions taken to repair the sensor, as detailed in Table 5.

#### **6.1.4 Leachate Monitoring and Management**

Prior to Highland Park's acquisition of the Property, a comprehensive baseline evaluation will be conducted to evaluate for leachate outbreaks. The evaluation will be conducted to identify both short-term and long-term repairs. Field inspection activities, including walking and observing for potential leachate outbreaks at the surface and documentation and reporting of observations, as well as implementation of activities to address outbreaks at the surface, will be performed. These activities are outlined in the Leachate Contingency Plan included within Appendix B.

##### **6.1.4.1 Repairs and Upgrades.**

A report will be prepared, as detailed in Table 5, of the baseline system evaluation, conducted upon ownership change, to summarize results of system inspections, including recommendations for repairs or upgrades as needed. Periodic inspections of the Property will be completed in order to identify necessary repairs and upgrades. A summary of operation, maintenance and monitoring activities will be provided, as detailed in Table 5.

##### **6.1.4.2 Operation**

This Property does not currently have an active leachate management system and based on discussions with the Ohio EPA, a leachate collection system is not anticipated to be necessary for the Property.

##### **6.1.4.3 Monitoring and Maintenance**

The Leachate Monitoring System currently involves observation of potential leachate outbreaks. Maintenance tasks are not required for the Leachate Monitoring and Management program at the Property. Quarterly inspections will be performed to look for the presence of leachate at the surface of the Property. Any leachate outbreaks will be addressed according to the Leachate Contingency Plan within 60 days of discovery. If repairs cannot be completed within 60 days, the Ohio EPA will be notified, and a repair schedule will be issued. Following an identified leachate outbreak, weekly inspections will be performed and will continue for a minimum of four weeks upon completion of repair activities.

##### **6.1.4.4 Reporting**

A report will be prepared within 30 days after the baseline system evaluation, conducted upon ownership change, to summarize results of system inspections, including recommendations for repairs or upgrades, as needed, and will be provided to the Property Management Team. A summary of operation, maintenance and monitoring activities will be provided, as detailed in Table 5.

#### **6.1.4.5 Property Management Team Notifications**

Following the initial system evaluation, as well as the quarterly evaluations, the Property Management Team will be notified of recommendations for leachate outbreak repairs and/or maintenance, as detailed in Table 5.

#### **6.1.4.6 Reporting Agency Notifications**

The Property Management Team will provide written reports to the Ohio EPA and the CCBH, as detailed in Table 5. The Ohio EPA will also be notified if any necessary repairs cannot be completed within 60 days of discovery.

### **6.1.5 Landfills' Cap and Pavement Monitoring and Management**

Prior to Highland Park's acquisition of the Property, an evaluation of the Landfills' Cap and Pavement will be conducted to identify both short-term and long-term repairs and/or upgrades needed. Field inspection activities, including walking and observing the Landfills' Cap and Pavement, and documentation and reporting of observations, are necessary to implement the Landfills' Cap and Pavement Monitoring and Management program at the Property.

#### **6.1.5.1 Repairs and Upgrades.**

A report will be prepared within 30 days of ownership change, to summarize results of Landfill Cap and Pavement evaluation, including recommendations for repairs or upgrades, as needed. Periodic inspections of the Property will be completed in order to identify necessary repairs and upgrades. A summary of operation, maintenance and monitoring activities will be provided, as detailed in Table 5.

#### **6.1.5.2 Operation**

No activities are necessary to operate the Landfills' Cap and Pavement systems at the Property.

#### **6.1.5.3 Monitoring and Maintenance**

All system components will be inspected during the comprehensive evaluation conducted within 30 days of change of ownership for the Property. Maintenance will be implemented, as required, following the system evaluation. To ensure that the structural integrity of the Cap and Pavement is monitored, and managed, monthly visual inspections of the Landfills' Cap and Pavement will be conducted. Further, an annual settlement inspection will also be completed to ensure the structural integrity of the Landfills' Cap and Pavement at the Property. Any structural issues with the Cap and Pavement at the Property will be addressed within 60 days of discovery. If repairs cannot be completed within 60 days, the Ohio EPA will be notified, and a repair schedule will be issued.

#### **6.1.5.4 Reporting**

A report will be prepared within 30 days after the baseline evaluation, conducted upon ownership change, to summarize results of system inspections, including recommendations for repairs or upgrades, as needed, and will be provided to the Property Management Team. A summary of operation, maintenance and monitoring activities and the annual settlement evaluation report will be provided, as detailed in Table 5.

#### **6.1.5.5 Property Management Team Notifications**

Following the initial evaluation, as well as the annual evaluations, the Property Management Team will be notified of recommendations for cap and/or pavement repairs or maintenance, and/or any damage or malfunction identified during on-Property inspections, as detailed in Table 5.

#### **6.1.5.6 Reporting Agency Notifications**

The Property Management Team will provide any written reports and summaries to the Ohio EPA and the CCBH, as detailed in Table 5. The Ohio EPA will also be notified if any necessary repairs cannot be completed within 60 days of discovery. Decisions regarding the termination of the Landfills' Cap and Pavement monitoring systems will be completed in conjunction with the Ohio EPA.

### **6.1.6 Underground Structure Monitoring**

Field inspection activities, including walking, observing, documenting methane gas LEL measurements, and reporting the methane LEL measurements are necessary to implement the Underground Structure Monitoring. Prior to Highland Park's acquisition of the Property, a comprehensive Baseline Monitoring event will be implemented to measure LEL concentrations in all exterior subsurface structures.

#### **6.1.6.1 Repairs and Upgrades**

A report will be provided to the Property Management Team within 30 days after the Baseline Monitoring evaluation, conducted upon ownership change, to summarize LEL concentrations in exterior subsurface structures and to summarize the results of inspections, including recommendations for repairs, as needed.

#### **6.1.6.2 Operation**

No activities are necessary to operate the Underground Structure Monitoring.

#### **6.1.6.3 Monitoring**

LEL monitoring will be conducted, as detailed in Table 5, at all locations defined in Table 5-5A. When concentrations are <10% LEL for 6 consecutive months at a location, the monitoring frequency will be reduced at that location according to Table 5-6. If a concentration is >25% LEL at a location,



the monitoring frequency at that location will be increased, according to Flowchart 5-6 located in Section 5.2.6 of the O&M Plan.

#### **6.1.6.4 Reporting**

A report will be provided to the Property Management Team within 30 days after the Baseline Monitoring evaluation, conducted upon ownership change, to summarize LEL concentrations in exterior and subsurface structures and the results of inspections, including recommendations for repairs or upgrades, as needed. A summary of the LEL monitoring data will be provided to the Ohio EPA in quarterly reports, as detailed in Table 5.

#### **6.1.6.5 Property Management Team Notifications**

Following the initial Baseline Monitoring evaluation, the Property Management Team will be notified of recommendations for repairs or upgrades within 30 days after the evaluation. A notification will be sent to the Property Management Team if the LEL concentration from a subsurface structure is >25% LEL, and response actions taken according to Flowchart 5-6. Any damage or malfunction identified during on-Property inspections will be immediately reported to the Property Management Team during the monthly and/or quarterly inspections.

Continuous monitoring sensors connected to the telemetry system may be placed in subgrade structures based on LEL concentrations, the initial evaluation to be completed upon ownership change, and at the discretion of the Property Management Team. After the telemetry system has been installed and implemented, subgrade structure alarms will be automatically reported immediately to the Property Management Team via the telemetry system in real time from subgrade structures where continuous monitoring is necessary. A notification will be sent to the Property Management Team from the telemetry system if an LEL concentration from a sub-slab sensor is >25%, and response actions taken according to Flowchart 5-6. Any alarm, damage or malfunction identified during on-Property inspections will be immediately reported to the Property Management Team, as detailed in Table 5.

#### **6.1.6.6 Reporting Agency Notifications**

If inspection of the subgrade structures indicates LEL concentration at a location is >25% during the Baseline Monitoring event or during any subsequent monitoring event, a notification will be provided according to Table 5.

### **6.1.7 54" Storm Sewer System**

The 54" Storm Sewer was installed before the operation of the Landfills. The 54" Storm Sewer traverses the Property from north to south, carrying stormwater from a drainage area north of the Property and discharging to the south, on property not controlled by the Owner. Two manholes are located on the Property

that allow shallow storm sewers that drain the existing parking lot to connect to the deep 54" Storm Sewer pipe. The off-Property outfall discharges stormwater that originates off-Property, as well as on-Property.

#### **6.1.7.1 54" Storm Sewer Pipe Evaluation**

A video survey of the 54" Storm Sewer will be conducted no later than 30 days after ownership change, and in addition, the on-Property manholes connected with the 54" Storm Sewer located within the paved surface area of the Property will be inspected for signs of cracking, leakage, or differential settlement. A Baseline Inspection Report will be prepared and submitted to the Property Management Team within 30 days after completion of the inspection and change in ownership. The report shall include recommendations for any necessary repairs and a schedule of future inspection frequencies and reporting requirements.

#### **6.1.7.2 Initial Water Quality Monitoring and Reporting**

Access to sample points at both upstream and downstream headwalls will be pursued to allow for water sampling to determine the presence of stormwater water quality exceedances of applicable standards potentially associated with leachate infiltration to the 54" Storm Sewer at the Property. Sampling of the water at both upstream and downstream at the headwalls will be conducted within 30 days of access being obtained by the Property Management Team. Surface water will be sampled to evaluate the potential influence of the Landfills on the 54" Storm Sewer that traverses the Property. Sampling of water at both the upstream and downstream points (at the inlet and outfall locations) of the 54" Storm Sewer will be conducted at low-flow and high-flow events to help determine the relative impacts of potential Property discharges to the quality of the stormwater discharging at the off-Property outfall.

#### **6.1.7.3 Initial Manhole Methane Monitoring and Reporting**

Field inspection activities, including documenting methane gas LEL measurements at the manholes located on the Property, will be conducted and reports of the methane gas LEL measurements prepared. Within 30 days of change of ownership, methane gas LEL monitoring will be conducted within the on-Property manholes connecting to the 54" Storm Sewer, to determine baseline methane gas LEL concentrations near the surface of the manholes. Methane gas LEL monitoring will be conducted monthly within the manholes until data is available for 6 consecutive months. When concentrations are <10% methane gas LEL for 6 consecutive months at an individual manhole, the monitoring frequency will be reduced at that manhole according to Table 5-6 of the O&M Plan.

#### **6.1.7.4 Ongoing Property Management Team Notifications – Storm Water Quality**

A report will be submitted by the Property Management Team within 30 days of the receipt of laboratory results of the sampling of the stormwater at the Property influent and outfall headwalls summarizing the sampling results and commenting on any observed trends or impacts and

recommending next steps. Evidence of any spills or inadvertent discharges will be immediately reported to the Property Management Team during inspections. Any on-Property spills that may occur which could reach the on-site stormwater system will be reported in accordance with other Clean Water Act program provisions.

#### **6.1.7.5 Ongoing Property Management Team Notifications – Methane Gas**

Following the initial scheduled system evaluations, the Property Management Team will be periodically notified of results of the methane gas LEL sampling. In any event, a notification will be sent to the Property Management Team if the methane gas LEL concentration from the 54" Storm Sewer On-Property Manholes is >25% methane gas LEL, and response actions will be taken according to Flowchart 5-6 located in Section 5.2.6.

#### **6.1.7.6 Reporting Agency Notification – Storm Water Quality**

If sample results indicate that concentrations of constituents of concern exceed permit requirements or upward trends are observed in the discharge outfall, a report will be prepared, as detailed in accordance with Table 5. The report will compare the results to the samples taken at the upstream headwall and, if appropriate, a work plan for additional sampling and investigatory activities will be prepared. Additional investigative activities may include sample collection at interior manholes or video inspection of sections of the sewer and manholes to determine if elevated parameter levels are the result of discharges into the 54" Storm Sewer line or manholes, and if new repair activities need to be taken. Reporting will be prepared as detailed in Table 5.

#### **6.1.7.7 Reporting Agency Notifications – Methane Gas**

If the methane gas LEL concentration within the 54" Storm Sewer On-Property Manholes are >25% during the Baseline Monitoring event, the area will be vented and resampled after 2 hours. If the levels remain >25%, a notification will be provided to the Property Management Team and if the levels remain above 25% LEL of the methane gas during this initial period, notification will be provided to the Ohio EPA by email within 48 hours to report the reading and actions being taken to address the elevated methane gas levels. In the event emergency responses are required, a report of remedial activities conducted and proposed future remedial activities, including changes to the monitoring schedule, will be submitted to the Property Management Team and Ohio EPA within 30 days from the initial notification.

## **6.2 Maintenance Tasks and Schedules**

### **6.2.1 Main Facility Active Gas Extraction System Monitoring and Management**

In order to ensure the effective operation of the MFGS systems, regular maintenance activities will be conducted. Regular maintenance activities will be conducted on components associated with the MFGS as described in detail in Table 5-1. Table 5-1 also includes the frequency of maintenance activities (i.e., weekly

(52 times per year), bi-weekly (26 times per year), monthly (12 times per year), quarterly (4 times per year), semi-annually (2 times per year), and annually (1 time per year). A brief summary of the maintenance activities associated with the MFGS system components are as follows:

- System Alarms: testing, calibration, and maintenance;
- Electrical components: annual inspections by a qualified electrician;
- Extraction Blower: testing and recording of key operation parameters, regular maintenance activities including flow adjustments, lubricate blowers and electrical motor bearings per Manufacturer's specifications and notification of proper authorities of malfunctions;
- Extraction Wells: adjustments of total gas flow for odor control and recording key parameters; balancing of wellheads according to SWANA LFG O & M Manual of Practice; recording of key parameters including flow rate, LFG temperature, wellhead vacuum and header vacuum, concentrations of methane, oxygen and carbon dioxide at each Extraction well;
- Knock-out Tanks: Inspections and pump out when needed;
- LFG Condensate Collection System: check system for efficiency, observe condensate traps and sumps and record air supply air pressures;
- Property Visits: log and record all Property visits, inspections, meteorological conditions, deficiencies, and measures taken to remedy deficiencies; and
- MFGS reporting: preparation of a detailed report for the Property Management Team containing the data collected and a summary of activities performed during the quarterly reporting periods.

Once upgraded controls and telemetry systems are installed, specific details regarding the individual MFGS sub-systems including inspection forms and checklists, will be provided in Addenda to this O & M Plan.

### **6.2.2 Building-Specific Active Gas Extraction System Monitoring and Management**

Regular maintenance activities will be conducted on critical system components associated with the Building-Specific Active Gas Extraction Systems, as described in Table 5-2. Table 5-2 also includes the frequency of maintenance activities (i.e., weekly (52 times per year), bi-weekly (26 times per year), monthly (12 times per year), quarterly (4 times per year), semi-annually (2 times per year), and annually (1 time per year). A brief summary of the maintenance activities associated with the Building-Specific Active Gas Extraction System components are as follows:

- System Alarms: testing, calibration, and maintenance;
- Electrical components: annual inspections by a qualified electrician; and
- Blowers: testing and recording of key operation parameters, regular maintenance activities including flow adjustments, lubricate blowers and electrical motor bearings per Manufacturer's specifications and notification of proper authorities of major malfunctions.

Once new designs are generated, pilot studies have been completed and new Building-Specific Active Gas Extraction (i.e., sub-slab ventilation) systems have been installed, specific details regarding each individual building system, including inspection forms and checklists, will be provided in Addenda to this O & M Plan.

#### **6.2.3 Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring and Management**

In order to ensure the effective operation of the Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems, regular maintenance activities as listed in Table 5-2 will be conducted in accordance with the manufacturer's recommendations. A brief summary of the maintenance activities associated with the Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems components are as follows:

- Methane Detection System: recording of automatic methane detection system readouts and alarm status and calibrating methane gas detection sensors per manufacturer's specifications.

Once new designs are generated, pilot studies have been completed and new Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems installed, additional details regarding each individual building system, including inspection forms and checklists, will be provided in Addenda to this O & M Plan.

#### **6.2.4 Leachate Monitoring and Management System**

Maintenance tasks are not required for the Leachate Monitoring and Management program at the Property. Field inspection activities, as listed in Table 5-3, include walking and observing for leachate outbreaks at the surface and documentation and reporting of observations, as well as implementation of activities to address outbreaks at the surface, as outlined in the Leachate Contingency Plan included within Appendix B hereto. For purposes of clarity, the Leachate Monitoring and Management program includes the Property's western slope, where leachate outbreaks are most likely to occur.

#### **6.2.5 Landfills' Cap and Pavement Monitoring and Management**

Maintenance tasks are not required for the Landfill's Cap and Pavement Monitoring and Management program at the Property. Field inspection activities, as listed in Table 5-4, include walking and observing the Landfills' Cap and Pavement and documentation and reporting of observations are necessary to implement the Landfills' Cap and Pavement Monitoring and Management program at the Property.

#### **6.2.6 Underground Structure Monitoring and 54" Storm Sewer Pipe Monitoring**

Maintenance tasks are not required for the Underground Structure Monitoring and/or 54" Storm Sewer Monitoring at the Property. Field inspection activities, as listed on Table 5-6, include walking, observing, documenting methane gas LEL measurements, and reporting the methane LEL measurements are necessary to implement the Underground Structure Monitoring. In the event monitoring equipment is placed permanently

in underground structure, the equipment will be tied to the telemetry system and monitoring reporting detailed as described in Flowchart 5-6.

## **7.0 ADJUSTMENTS TO NORMAL OPERATION AND MAINTENANCE**

Amendments or revisions to this O&M Plan will be made, as necessary, subject to and in accordance with Ohio EPA's written approval. In the event this Property pursues an NFA through the Ohio VAP, amendments to this O&M Plan will be made in accordance with OAC 3745-300-11(F).

## **8.0 IDENTIFYING AND ADDRESSING POTENTIAL PROBLEMS WITH THE REMEDIAL ACTIVITIES SUBJECT TO THE O&M PLAN**

Inspection and routine maintenance activities described in previous sections will be utilized to detect any potential problems with the Main Facility Active Gas Extraction System, Building-Specific Active Gas Extraction Systems, Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems, Leachate Monitoring and Management System, Landfills' Cap and Pavement Monitoring System and Underground Structure Monitoring and 54" Storm Sewer Pipe Monitoring. The following sections outline response actions to problems identified. The Property Management Team will address any identified problems with the remedial activities within thirty (30) days of problem identification or such longer period as necessary to fully resolve the identified problem, provided the Property Management Team continues to diligently pursue a remedy therefor. Highland Park will provide Ohio EPA with a summary of any identified problems with the remedial activities, as well as the anticipated timeframes associated with completing the remedial activities.

### **8.1 Main Facility Active Gas Extraction System**

Any mechanical failures to the MFGS extraction blowers and other system components will be repaired/replaced, as soon as practically possible, to minimize disruption to the MFGS system. If the MFGS system will be off-line for an extended period of time (more than 48 hours), increased monitoring of sub-surface structures in the area of influence of the system will be conducted. If concentrations persist above the 25% LEL, a temporary blower will be installed at the MFGS within the blower enclosure until the MFGS system can be repaired and restarted. Ohio EPA will be notified in the event that the blower is shut down for longer than 1 week and repairs cannot be completed within 60 days, and a repair schedule will be provided. If the LEL is measured above 25% in the exterior subsurface utility structures, the steps and actions outlined in Flowchart 5-6 contained in Section 5.2.6 should be followed to address the exceedance.

### **8.2 Building-Specific Active Gas Extraction System**

Any mechanical failures to the blowers and other system components will be repaired/replaced, as soon as practically possible, to minimize system downtime and potential accumulation of methane gas. In the event that a blower cannot be restarted, the extraction piping for that blower will be temporarily connected to an adjacent or back-up blower to maintain sub-slab ventilation while the primary blower is being repaired (as described in Section 3.2). Methane concentrations in the specific building impacted by the blower malfunction will be monitored as outlined in the flowcharts (5-3 to 5-5) for indoor air and sub-slab (including crawl space) explosive gas monitoring in Sections 5.2.3.



### **8.3 Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring System**

Any failures to the Building-Specific Indoor Air and Sub-Slab Methane Gas Monitoring Systems will be repaired/replaced, as soon as practically possible, to minimize disruption to the systems. Response flow charts for indoor air and sub-slab methane measurements are included in Section 5.2.3. The methane gas sensors will be programmed to activate alarms based on the LEL readings. When one of these alarms is activated, notifications will be sent to the Property Management Team, as well as activating an alarm light at the building control panel. The system operator will visit the Property and follow the procedures outlined in the respective response flow chart. These procedures include manual measurements to confirm the sensor reading, checking sensor calibration, investigating gas entry routes into the relevant building if there is needed repair, and ventilation system adjustments. Ventilation system adjustments may include increasing the speed of the blower(s) to increase the applied flow rate and/or vacuum or balancing the flowrate of the extraction system by adjusting the manual flow valves to increase flow to the location with elevated LEL readings.

Following the measures described above, if the LEL levels remain above 10% in the indoor air and persists in the indoor air, the Property Management Team should implement contingency measures: 1) Physically monitor LEL concentrations at a minimum of every twenty-four hours while the building is occupied prior to automation. After telemetry upgrades, the LEL48 should be monitored closely via the telemetry system, with manual measurements taken at a minimum of every 24 hours, 2) Install explosion proof portable fans to ventilate the area, 3) Closely monitor the alarms and sensors for increases in methane gas concentrations , 4) Inspect the impacted area for methane gas entry routes and seal/repair any identified locations. If LEL levels persist above 10% in the indoor air for longer than 24 hours, the Property Management Team should contact the fire department to provide initial notification of the situation being monitored (contact information listed below). If LEL levels in indoor air inside any building reach 25%, the Fire Department, the Ohio EPA, and the CCHB should be notified (contact information listed below). If the LEL levels in indoor air persist above 25%, and response per building-specific response plan on file with the GHFD indicate the potential for imminent danger, the building should be evacuated as deemed necessary by the fire department and Property Management Team.

#### **Contact Information for Notifications**

Garfield Height Fire Department: Station #1  
5515 Turney Road  
Cleveland, Ohio 44125

Garfield Height Fire Department: Station #2  
4585 East 131<sup>st</sup> Street  
Cleveland, Ohio 44125

Emergencies: 911  
Non-Emergencies: (216) 475-8040  
Fax: (216) 475-8389  
Website: <http://www.garfieldhhs.org/>

Cuyahoga County Board of Health  
5550 Venture Drive  
Parma, Ohio 44130  
Phone: (216) 201-2000  
Fax: (216) 676-1311  
Website: <https://www.ccbh.net/>

Ohio EPA Northeast District Office  
2110 East Aurora Road  
Twinsburg, Ohio 44087  
Phone: (330) 963-1200  
Fax: (330) 487-0769  
Website: <http://web.epa.ohio.gov/map/nedo.html>

#### **8.4 Leachate Monitoring and Management System**

Any identified leachate outbreaks will be addressed according to the Leachate Contingency Plan contained within Appendix B within 60 days of discovery. If the repairs cannot be completed within 60 days (i.e., inclement weather conditions during winter, etc.), Ohio EPA will be notified, and a repair schedule will be provided.

#### **8.5 Landfills' Cap and Pavement Monitoring and Management System**

Any Landfill's Cap and Pavement structural issues at the Property will be addressed within 60 days of discovery. If the repairs cannot be completed within 60 days (i.e., inclement weather conditions during winter, etc.), Ohio EPA will be notified, and a repair schedule will be provided.

#### **8.6 Underground Structure Monitoring**

Any methane gas exceedances of the 25% LEL within the underground structures at the Property will be addressed as soon as practically possible. Additional monitoring will be conducted according to Flowchart 5-6 in Section 5.2.6. If concentrations of methane gas are >25% LEL in the underground structure, ventilate the underground structure with adjustments to the MFGS or by installing a temporary external blower. If concentrations continue to increase above 100% LEL in the underground structure, the structure should be evaluated to determine if sealing is required, and appropriate sealing measures implemented.

## **9.0 RECORD KEEPING**

The inspection forms in Appendix B of this O&M Plan will be completed as applicable. Records will be retained for a minimum of 10 years to coordinate with the record keeping requirements of a Certified Professional related to NFA Letter records, as described in the Ohio Revised Code (ORC) Section 3746.11(D) and OAC 3745-300-05(H). This Section of the O&M Plan will only apply to the extent this O&M Plan becomes subject to an NFA Letter under the Ohio Voluntary Action Program.

## **10.0 REPORTING ON OPERATION AND MAINTENANCE PLAN ACTIVITIES**

In the event a No Further Action letter under the VAP is issued by a Certified Professional for the Property, Highland Park Transportation, LLC will submit a report annually to the director, under affidavit, on March 1<sup>st</sup>, or as otherwise required in accordance with Ohio VAP. The report will include the following:

1. Results from all remedy effectiveness evaluation activities;
2. A demonstration of the performance of all remedial activities subject to the O&M Plan;
3. A demonstration of how compliance with applicable standards is being met or maintained, including the measures used to maintain the remedy's protectiveness of public health and safety and the environment until the property achieves compliance with applicable standards through a permanent remedy within five years, or other time frame as agreed upon by the director in an operation and maintenance agreement; and
4. Confirmation that the remedial activities remain necessary to achieve or maintain applicable standards at the property, or verification conducted in accordance with OAC 3745-300-11(E) that the remedial activities are no longer needed for the property to comply with applicable standards.

## **11.0    TERMINATION OF THE OPERATION AND MAINTENANCE PLAN**

O&M Plan activities described herein may only be terminated, in whole or in part, when they are no longer necessary for the Property, as approved in writing by the Ohio EPA.

## **TABLES**

**OPERATION AND MAINTENANCE PLAN  
HIGHLAND PARK PROPERTY  
5642 TRANSPORTATION BOULEVARD  
GARFIELD HEIGHTS, OHIO 44125**

**TABLE 5  
OVERALL SUMMARY OF OPERATION, MAINTENANCE & MONITORING**

	Immediate Actions upon assuming Ownership	O&M Initial Period (first 1 to 6 months)	O&M Long-term (after 6 months or following automation)
<b>Exterior Subsurface Structures</b>			
<u>LEL Monitoring</u>	<ul style="list-style-type: none"> <li>A comprehensive <b>Baseline Monitoring Event</b> will be implemented to measure LEL concentrations in all exterior subsurface structures.</li> </ul>	<ul style="list-style-type: none"> <li>LEL monitoring will be conducted <b>monthly</b> at all locations defined in <b>Table 5-5A</b> until data is available for 6 consecutive months at each location.</li> <li>If the LEL concentration is &gt;25% at a location, the monitoring frequency at that location will be increased, and response actions will be taken if needed, according to <b>Flowchart 5-6</b> of the O&amp;M Plan.</li> </ul>	<ul style="list-style-type: none"> <li>When concentrations are &lt;10% LEL for 6 consecutive months (including data prior to baseline event) at a location, the monitoring frequency will be reduced at that location according to <b>Table 5-6</b>.</li> <li>If a concentration is &gt;25% LEL at a location, the monitoring frequency at that location will be increased, and response actions taken if needed, according to <b>Flowchart 5-6</b> of the O&amp;M Plan.</li> </ul>
<u>Reporting</u>	<ul style="list-style-type: none"> <li>A report will prepared and submitted to the Property Management Team within 30 days of the baseline event to summarize results of baseline LEL measurements, including a comparison to past LEL measurements for each location.</li> </ul>	<ul style="list-style-type: none"> <li>A <b>quarterly</b> report will be prepared and submitted to the Ohio EPA by the 21st day of the month following the end of each quarter to summarize LEL monitoring data for the quarter.</li> </ul>	<ul style="list-style-type: none"> <li>A <b>quarterly</b> report will be prepared and submitted to the Ohio EPA by the 21st day of the month following the end of each quarter to summarize LEL monitoring data for the quarter.</li> </ul>
<u>Internal Notifications</u>	<ul style="list-style-type: none"> <li>If the LEL concentration at a location is &gt;25% during the baseline event, the Property Management Team will be immediately notified and response actions taken according to <b>Flowchart 5-6</b> of the O&amp;M Plan.</li> </ul>	<ul style="list-style-type: none"> <li>If the LEL concentration at a location is &gt;25% during a monitoring event, the Property Management Team will be immediately notified and response actions taken according to <b>Flowchart 5-6</b> of the O&amp;M Plan.</li> </ul>	<ul style="list-style-type: none"> <li>If the LEL concentration at a location is &gt;25% during a monitoring event, the Property Management Team will be immediately notified and response actions taken according to <b>Flowchart 5-6</b> of the O&amp;M Plan.</li> </ul>
<u>External Notifications</u>	<ul style="list-style-type: none"> <li>If the LEL concentration at a location is &gt;25% during the baseline event, a notification will be provided to the Client, Ohio EPA, CCBH &amp; the GHFD by electronic mail within 48 hours to report the reading and actions being taken.</li> </ul>	<ul style="list-style-type: none"> <li>If the LEL concentration at a location is &gt;25% during a monitoring event, a notification will be provided to the Ohio EPA, CCBH &amp; the GHFD by electronic mail within 48 hours to report the reading and actions being taken.</li> </ul>	<ul style="list-style-type: none"> <li>If the LEL concentration at a location is &gt;25% during a monitoring event, a notification will be provided to the Ohio EPA, CCBH &amp; the GHFD by electronic mail within 48 hours to report the reading and actions being taken.</li> </ul>

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**TABLE 5  
OVERALL SUMMARY OF OPERATION, MAINTENANCE & MONITORING**

	Immediate Actions upon assuming Ownership	O&M Initial Period (first 1 to 6 months)	O&M Long-term (after 6 months or following automation)
<b>Main Facility Gas System</b>			
<u>Repairs &amp; Upgrades</u>	<ul style="list-style-type: none"> <li>A comprehensive evaluation will be completed for the main facility gas system components to identify short-term and long-term repairs and/or upgrades.</li> </ul>	<ul style="list-style-type: none"> <li>Repairs or upgrades identified during the system evaluation will be implemented within 3 to 6 months of the evaluation.</li> </ul>	<ul style="list-style-type: none"> <li>The control system for the (3) MFGS blowers will be upgraded to provide automated, real-time remote monitoring, reporting and data logging.</li> </ul>
<u>Operation</u>	<ul style="list-style-type: none"> <li>All blowers for the MFGS will be operated continuously, except during repair.</li> <li>Operation of the system will be monitored and <b>Flowchart 5-1</b> of the O&amp;M plan will be followed if the system is operating outside normal conditions (i.e., a system alarm).</li> </ul>	<ul style="list-style-type: none"> <li>All blowers for the MFGS will be operated continuously, except during repair.</li> <li>Operation of the system will be monitored and <b>Flowchart 5-1</b> of the O&amp;M plan will be followed if the system is operating outside normal conditions (i.e., a system alarm).</li> </ul>	<ul style="list-style-type: none"> <li>All blowers for the MFGS will be operated continuously, except during repair.</li> <li>Operation of the system will be monitored and <b>Flowchart 5-1</b> of the O&amp;M plan will be followed if the system is operating outside normal conditions (i.e., a system alarm).</li> </ul>
<u>Monitoring &amp; Maintenance</u>	<ul style="list-style-type: none"> <li>All system components will be inspected during the comprehensive evaluation. Maintenance will be implemented as required following the system evaluation.</li> </ul>	<ul style="list-style-type: none"> <li>MFGS inspections and documentation of operational parameters will be completed on a minimum of a <b>weekly</b> basis</li> <li>Maintenance will be completed in accordance with <b>Table 5-1</b></li> </ul>	<ul style="list-style-type: none"> <li>Remote monitoring will be conducted via the telemetry system and <b>daily</b> status reports will automatically prepared and submitted to the Property Management Team.</li> <li>On-Property system inspections and documentation of operational parameters will be completed on a minimum of a <b>quarterly</b> basis</li> <li>Maintenance will be completed in accordance with <b>Table 5-1</b></li> </ul>
<u>Reporting</u>	<ul style="list-style-type: none"> <li>A report will be prepared within 30 days of the system evaluation to summarize results of system inspections, including recommendations for repairs or upgrades as needed.</li> </ul>	<ul style="list-style-type: none"> <li>A summary of operation, maintenance and monitoring activities will be provided in the <b>quarterly</b> facility report submitted to the Ohio EPA by the 21st day of the month following the end of each quarter.</li> </ul>	<ul style="list-style-type: none"> <li>A summary of operation, maintenance and monitoring activities will be provided in the <b>quarterly</b> facility report submitted to the Ohio EPA by the 21st day of the month following the end of each quarter</li> <li>An <b>annual</b> comprehensive system evaluation report will be submitted to the Ohio EPA by January 31st for each year.</li> </ul>
<u>Internal Notifications</u>	<ul style="list-style-type: none"> <li>Following the system evaluation, the Property Management Team will be notified of recommendations for system repairs or upgrades.</li> </ul>	<ul style="list-style-type: none"> <li>Any alarm, material damage or significant malfunction identified during on-Property system inspections will be immediately reported to the Property Management Team.</li> </ul>	<ul style="list-style-type: none"> <li>System alarms will be automatically reported immediately to the Property Management Team via the telemetry system.</li> <li>Any alarm, material damage or significant malfunction identified during on-Property system inspections will be immediately reported to the Property Management Team.</li> </ul>
<u>External Notifications</u>	<ul style="list-style-type: none"> <li>If the system inspection requires a blower to be shut down for longer than 1 week for repairs, the Ohio EPA, CCBH &amp; the GHFD will be notified of the shutdown and actions being taken to repair and restart the system.</li> </ul>	<ul style="list-style-type: none"> <li>If a blower experiences downtime for longer than 1 week, the Ohio EPA, CCBH &amp; the GHFD will be notified of the shutdown and actions being taken to repair and restart the system.</li> </ul>	<ul style="list-style-type: none"> <li>If a blower experiences downtime for longer than 1 week, the Ohio EPA, CCBH &amp; the GHFD will be notified of the shutdown and actions being taken to repair and restart the system.</li> </ul>



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**TABLE 5  
OVERALL SUMMARY OF OPERATION, MAINTENANCE & MONITORING**

	Immediate Actions upon assuming Ownership	O&M Initial Period (first 1 to 6 months)	O&M Long-term (after 6 months or following automation)
<b>Building-Specific Methane Gas Extraction Systems</b>			
<u>Repairs &amp; Upgrades</u>	<ul style="list-style-type: none"> <li>A comprehensive evaluation will be completed for each building-specific extraction system to identify short-term and long-term repairs and/or upgrades as follows: (1) For occupied buildings (within 30 days of acquisition) (2) For vacant buildings before occupancy with enough time to allow for necessary repairs and certification by a qualified consultant, that the system is functioning as designed prior to tenant occupancy.</li> </ul>	<ul style="list-style-type: none"> <li>For occupied buildings, repairs or upgrades identified during the initial evaluation will be implemented within 3 to 6 months of the evaluation.</li> <li>If a health &amp; safety (H&amp;S) concern is identified during the system evaluation, repairs/upgrades will be expedited and/or contingency measures will be implemented.</li> </ul>	<ul style="list-style-type: none"> <li>The control systems for the building-specific extraction systems will be upgraded to provide automated, real-time remote monitoring, reporting and data logging.</li> </ul>
<u>Operation</u>	<ul style="list-style-type: none"> <li>For each occupied building, the building-specific extraction systems will be operated continuously, except during repair.</li> <li>For buildings that are not currently occupied a comprehensive evaluation will be conducted for each building prior to occupancy.</li> <li><b>Flowchart 5-2</b> of the O&amp;M plan will be followed if the system is operating outside normal conditions (i.e., a system alarm).</li> </ul>	<ul style="list-style-type: none"> <li>For each occupied building, the building-specific extraction systems will be operated continuously, except during repair.</li> <li>For buildings that are not currently occupied, a comprehensive evaluation will be conducted for each building prior to occupancy.</li> <li><b>Flowchart 5-2</b> of the O&amp;M plan will be followed if the system is operating outside normal conditions (i.e., a system alarm).</li> </ul>	<ul style="list-style-type: none"> <li>For each occupied building, the building-specific extraction systems will be operated continuously, except during repair.</li> <li>For buildings that are not currently occupied, a comprehensive evaluation will be conducted for each building prior to occupancy.</li> <li><b>Flowchart 5-2</b> of the O&amp;M plan will be followed if the system is operating outside normal conditions (i.e., a system alarm).</li> </ul>
<u>Monitoring &amp; Maintenance</u>	<ul style="list-style-type: none"> <li>All system components will be inspected during the comprehensive evaluation. Maintenance will be implemented as required following the system evaluation.</li> <li>For buildings that are not currently occupied the comprehensive evaluation will be conducted for each building prior to occupancy.</li> </ul>	<ul style="list-style-type: none"> <li>On-Property system inspections and documentation of operational parameters will be completed on a minimum of a <b>weekly</b> basis</li> <li>Maintenance will be completed in accordance with <b>Table 5-2</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Remote monitoring will be conducted via the telemetry system and automatic <b>daily</b> status reports will automatically prepared Property Management Team.</li> <li>On-Property system inspections and documentation of operational parameters will be completed on a minimum of a <b>quarterly</b> basis</li> <li>Maintenance will be completed in accordance with <b>Table 5-2</b>.</li> </ul>
<u>Reporting</u>	<ul style="list-style-type: none"> <li>A report will prepared within 30 days of the baseline event to summarize results of baseline LEL measurements, including a comparison to past LEL measurements for each location.</li> </ul>	<ul style="list-style-type: none"> <li>A <b>quarterly</b> report will be prepared and submitted to the Ohio EPA by the 21st day of the month following the end of each quarter to summarize LEL monitoring data for the quarter.</li> </ul>	<ul style="list-style-type: none"> <li>A <b>quarterly</b> report will be prepared and submitted to the Ohio EPA by the 21st day of the month following the end of each quarter to summarize LEL monitoring data for the quarter.</li> <li>An <b>annual</b> comprehensive system evaluation report will be submitted to the Ohio EPA by January 31st for each year.</li> </ul>
<u>Internal Notifications</u>	<ul style="list-style-type: none"> <li>Following the system evaluation, the Property Management Team will be notified of recommendations for system repairs or upgrades.</li> </ul>	<ul style="list-style-type: none"> <li>Any alarm, material damage or significant malfunction identified during on-Property system inspections will be immediately reported to the Property Management Team.</li> </ul>	<ul style="list-style-type: none"> <li>System alarms will be automatically reported immediately to the Property Management Team via the telemetry system.</li> <li>Any alarm, material damage or significant malfunction identified during on-Property system inspections will be immediately reported to the Property Management Team.</li> </ul>
<u>Regulatory Agency Notifications</u>	<ul style="list-style-type: none"> <li>If the system inspection requires a blower to be shut down for longer than 1 week for repairs, the Ohio EPA, CCBH &amp; the GHFD will be notified of the shutdown and actions being taken to repair and restart the system.</li> </ul>	<ul style="list-style-type: none"> <li>If a blower experiences downtime for longer than 1 week, the Ohio EPA, CCBH &amp; the GHFD will be notified of the shutdown and actions being taken to repair and restart the system.</li> </ul>	<ul style="list-style-type: none"> <li>If a blower experiences downtime for longer than 1 week, the Ohio EPA, CCBH &amp; the GHFD will be notified of the shutdown and actions being taken to repair and restart the system.</li> </ul>

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**TABLE 5  
OVERALL SUMMARY OF OPERATION, MAINTENANCE & MONITORING**

	Immediate Actions upon assuming Ownership	O&M Initial Period (first 1 to 6 months)	O&M Long-term (after 6 months or following automation)
<b>Building-Specific Indoor Air and Sub-Slab Methane Monitoring Systems</b>			
<u>Repairs &amp; Upgrades</u>	<ul style="list-style-type: none"> <li>For occupied buildings, existing LEL sensors will be inspected and repairs will be implemented immediately if needed.</li> <li>For vacant buildings, existing LEL sensors will be inspected prior to tenant occupancy with enough time to allow for necessary repairs.</li> <li>The LEL alarm setpoint for existing indoor air sensors will be reset from 25% LEL to 10% LEL.</li> <li>Existing sub-slab monitoring ports will be evaluated to determine if repairs are required.</li> <li>Sub-slab extraction system will be evaluated and if necessary upgraded to include gas ventilation of the sub-slab void space to prevent accumulation of methane gas below the slabs above 25% LEL.</li> </ul>	<ul style="list-style-type: none"> <li>For occupied buildings at the time of ownership change, the indoor air sensors will be upgraded with sensors that display actual LEL measurements, and telemetry equipment will be installed for real-time LEL monitoring, data logging, and alarm notification.</li> <li>For buildings that are currently unoccupied, and will become occupied in the future, upgraded LEL sensors will be installed within the buildings and at select sub-slab locations prior to tenant occupancy. The location of sensors will be based on the building-specific layout and tenant operations. Telemetry equipment will be installed for real-time LEL monitoring, data logging and alarm notification.</li> </ul>	<ul style="list-style-type: none"> <li>For buildings that are currently unoccupied and will be occupied in the future, upgraded LEL sensors will be installed within the buildings and at select sub-slab locations prior to occupancy. The locations of sensors will be based on the building-specific layout and tenant operations. Telemetry equipment will be installed for real-time LEL monitoring, data logging, and alarm notification.</li> </ul>
<u>Operation</u>	<ul style="list-style-type: none"> <li>Indoor air sensors for occupied buildings will be in continuous operation and will provide an alarm if the LEL concentrations is 10% or greater for each occupied building.</li> </ul>	<ul style="list-style-type: none"> <li>Indoor air sensors for occupied buildings will provide an alarm if the LEL concentrations is 10% or greater for each occupied building.</li> </ul>	<ul style="list-style-type: none"> <li>Indoor air sensors for occupied buildings will provide real-time measurement of LEL concentrations, and will provide alarms when the LEL concentration is greater than 5% and when the LEL concentration is 10% or greater for each occupied building.</li> </ul>
<u>Monitoring &amp; Maintenance</u>	<ul style="list-style-type: none"> <li>Existing LEL sensors will be repaired if required following the system evaluation.</li> <li>LEL monitoring from building floor ports will be initiated <b>monthly</b> from occupied buildings, and <b>quarterly</b> from non-occupied buildings. Locations are identified in <b>Table 5-5B</b>.</li> </ul>	<ul style="list-style-type: none"> <li>LEL monitoring from building floor ports will be conducted <b>monthly</b> from occupied buildings, and <b>quarterly</b> from non-occupied buildings. Locations are identified in <b>Table 5-5B</b>.</li> <li>If an LEL measurement exceeds an alarm level in the indoor air or sub-slab, <b>Flowcharts 5-3A and 5-4A</b> of the O&amp;M plan will be followed, respectively, in response to the alarm.</li> <li>If an LEL measurement exceeds an alarm level in the crawl space of Giant Eagle, <b>Flowchart 5-5A</b> of the O&amp;M plan will be followed in response to the alarm.</li> <li>Routine maintenance will be completed in accordance with <b>Table 5-2</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Sub-slab LEL monitoring of occupied buildings will be continuous via automated sensors and reported in real-time by the telemetry system.</li> <li>Manual LEL monitoring from building floor ports will be conducted <b>monthly</b> from occupied buildings, and <b>quarterly</b> from non-occupied buildings. Locations are identified in <b>Table 5-5B</b>.</li> <li>When concentrations are &lt;10% LEL (including data prior to baseline event) at a sub-slab location, the monitoring frequency will be reduced at that location according to <b>Table 5-6</b>.</li> <li>If an LEL measurement exceeds an alarm level in the indoor air or sub-slab, <b>Flowcharts 5-3B and 5-4B</b> of the O&amp;M plan will be followed, respectively, in response to the alarm.</li> <li>If an LEL measurement exceeds an alarm level in the crawl space of Giant Eagle, <b>Flowchart 5-5B</b> of the O&amp;M plan will be followed in response to the alarm.</li> <li>Routine maintenance will be completed in accordance with <b>Table 5-2</b>.</li> </ul>
<u>Reporting</u>	<ul style="list-style-type: none"> <li>Baseline LEL concentrations will be measured in all building floor ports and results will be included in the Baseline Monitoring Report described above for subsurface structures.</li> </ul>	<ul style="list-style-type: none"> <li>Floor port monitoring data along with an operation and maintenance activities for the Building-Specific Indoor Air and Sub-Slab Methane Monitoring Systems will be provided in the <b>quarterly</b> facility report submitted to the Ohio EPA by the 21st day of the month following the end of each quarter.</li> </ul>	<ul style="list-style-type: none"> <li>Floor port monitoring data along with operation and maintenance activities for the Building-Specific Indoor Air and Sub-Slab Methane Monitoring Systems will be provided in the <b>quarterly</b> facility report submitted to the Ohio EPA by the 21st day of the month following the end of each quarter.</li> <li>Remote monitoring will be conducted via the telemetry system and automatic daily status reports will automatically prepared and submitted to the Property Management Team.</li> </ul>

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**TABLE 5  
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	Immediate Actions upon assuming Ownership	O&M Initial Period (first 1 to 6 months)	O&M Long-term (after 6 months or following automation)
<b>Building-Specific Indoor Air and Sub-Slab Methane Monitoring Systems</b>			
<u>Internal Notifications</u>	<ul style="list-style-type: none"> <li>Following evaluation of the existing indoor air sensors, the Property Management Team will be notified of recommendations for system repairs or upgrades</li> </ul>	<ul style="list-style-type: none"> <li>A notification will be sent to the Property Management Team if the LEL concentration from an indoor air sensor is &gt;10% LEL, and response actions taken according to <b>Flowchart 5-3A</b> of the O&amp;M Plan.</li> <li>An LEL concentration &gt;25% from a building floor port (manual monitoring) will be reported immediately to the Property Management Team, and response actions taken according to <b>Flowchart 5-4A</b> of the O&amp;M Plan.</li> <li>A notification will be sent to the Property Management Team if the LEL concentration from a sub-slab sensor in the crawl space of Giant Eagle is &gt;25% LEL, and response actions taken according to <b>Flowchart 5-5A</b> of the O&amp;M Plan.</li> </ul>	<ul style="list-style-type: none"> <li>A notification will be sent to the Property Management Team from the telemetry system if the LEL concentration from an indoor air sensor is &gt;5% LEL, and when the LEL is 10% or greater, and response actions taken according to <b>Flowchart 5-3B</b> of the O&amp;M Plan.</li> <li>A notification will be sent to the Property Management Team from the telemetry system if an LEL concentration from a sub-slab sensor is &gt;10%, and when the LEL is 25% or greater, and response actions taken according to <b>Flowchart 5-4B</b> of the O&amp;M Plan.</li> <li>A notification will be sent to the Property Management Team from the telemetry system if the LEL concentration from a sub-slab sensor in the crawl space of Giant Eagle is &gt;10% LEL, and when the LEL is 25% or greater, and response actions taken according to <b>Flowchart 5-5B</b> of the O&amp;M Plan.</li> </ul>
<u>External Notifications</u>	<ul style="list-style-type: none"> <li>If inspection of the indoor air sensors requires any sensor to be offline for longer than <b>1 week</b> for repairs, the Ohio EPA, CCBH &amp; the GHFD will be notified of the actions taken to repair the sensor, and monitoring to be implemented until the sensor is repaired.</li> </ul>	<ul style="list-style-type: none"> <li>If the LEL concentration in the indoor air is &gt;10% the GHFD will be notified by email within 48 hours to report the reading and actions being taken. If the LEL concentration in the indoor air is &gt;25%, a notification will be provided to the Ohio EPA, CCBH, &amp; the GHFD to report the reading and actions being taken.</li> </ul>	<ul style="list-style-type: none"> <li>If the LEL concentration in the indoor air is &gt;10% the GHFD will be notified by email within 48 hours to report the reading and actions being taken. If the LEL concentration in the indoor air is &gt;25%, a notification will be provided to the Ohio EPA, CCBH, &amp; the GHFD to report the reading and actions being taken.</li> </ul>
<b>Leachate Monitoring and Management</b>			
<u>Repairs &amp; Upgrades</u>	<ul style="list-style-type: none"> <li>A comprehensive evaluation will be completed to identify existing leachate outbreaks on the Property.</li> </ul>		
<u>Operation</u>	<ul style="list-style-type: none"> <li>This Facility does not have an active leachate management system and there are currently no plans to implement.</li> </ul>		
<u>Monitoring &amp; Maintenance</u>	<ul style="list-style-type: none"> <li>Quarterly inspections (4 times a year) will be performed.</li> <li>Any leachate outbreaks will be addressed according to the Leachate Contingency Plan within 60 days of discovery. If repairs cannot be completed within 60 days, Ohio EPA will be notified.</li> <li>Weekly inspections will be performed if an outbreak is identified and will continue for a minimum of four weeks upon completion of repair activities.</li> </ul>		
<u>Reporting</u>	<ul style="list-style-type: none"> <li>A written summary submitted to the Ohio EPA Northeast District Office and CCBH no later than 21 days after the inspection date.</li> </ul>		
<u>Internal Notifications</u>	<ul style="list-style-type: none"> <li>Following inspections, the Property Management Team will be notified of recommendations for leachate outbreak repairs or maintenance.</li> </ul>		
<u>External Notifications</u>	<ul style="list-style-type: none"> <li>Any written reports and summaries will be provided to the Ohio EPA and CCBH no later than 21 days after the inspection date.</li> <li>The Ohio EPA will be notified if repairs cannot be completed within 60 days of discovery.</li> </ul>		

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**TABLE 5  
OVERALL SUMMARY OF OPERATION, MAINTENANCE & MONITORING**

	Immediate Actions upon assuming Ownership	O&M Initial Period (first 1 to 6 months)	O&M Long-term (after 6 months or following automation)
<b>Landfills' Cap and Pavement Monitoring</b>			
<u>Repairs &amp; Upgrades</u>	<ul style="list-style-type: none"> <li>A comprehensive evaluation will be completed for the cap and pavement components to identify short-term and long-term repairs and/or upgrades.</li> </ul>	<ul style="list-style-type: none"> <li>Periodic inspections will be completed in order to identify necessary repairs and upgrades.</li> </ul>	
<u>Operation</u>	<ul style="list-style-type: none"> <li>No activities are necessary to operate the Landfill's Cap and Pavement systems.</li> </ul>		
<u>Monitoring &amp; Maintenance</u>	<ul style="list-style-type: none"> <li>Monthly visual inspections of the Landfills' Cap and Pavement will be conducted.</li> <li>A settlement inspection will be completed once a year.</li> <li>Any material cap and pavement structural issues will be addressed within 60 days, of discovery. If the repairs cannot be completed within 60 days, Ohio EPA will be notified and a proposed repair schedule will be provided.</li> </ul>		
<u>Reporting</u>	<ul style="list-style-type: none"> <li>A <b>monthly</b> written report of findings will be submitted to Ohio EPA and Cuyahoga County Board of Health (CCBH) by the 21st day of the following month.</li> <li>An <b>annual</b> settlement report will be completed and submitted to the Ohio EPA and CCBH by January 31st of each year.</li> </ul>		
<u>Internal Notifications</u>	<ul style="list-style-type: none"> <li>Following inspections, the Property Management Team will be notified of recommendations for cap and/or pavement repairs or maintenance.</li> </ul>		
<u>External Notifications</u>	<ul style="list-style-type: none"> <li>Decisions regarding the termination of the Landfills' Cap and Pavement monitoring systems will be completed in conjunction with Ohio EPA. The Ohio EPA will be notified if repairs cannot be completed within 60 days of discovery and a proposed repair schedule will be provided.</li> <li>Any written reports and summaries will be provided to the Ohio EPA and CCBH no later than the 21st day of the following month, excluding the annual settlement report which will be submitted by January 31st of each year.</li> </ul>		

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**TABLE 5  
OVERALL SUMMARY OF OPERATION, MAINTENANCE & MONITORING**

	Immediate Actions upon assuming Ownership	O&M Initial Period (first 1 to 6 months)	O&M Long-term (after 6 months or following automation)
<b>54" Storm Sewer</b>			
<u>Repairs &amp; Upgrades</u>	<ul style="list-style-type: none"> <li>Complete a video survey of the 54" storm sewer within 30 days after Ownership Change</li> </ul>	<ul style="list-style-type: none"> <li>Achieve access for the upstream and downstream headwalls for the storm sewer for monitoring.</li> </ul>	
<u>Monitoring &amp; Maintenance</u>	<ul style="list-style-type: none"> <li>Sample stormwater at the headwalls both upstream and downstream of the 54 " storm sewer</li> </ul>	<ul style="list-style-type: none"> <li>Sample water at the headwalls both upstream and downstream of the 54 " storm sewer on an annual basis.</li> </ul>	
<u>Reporting</u>	<ul style="list-style-type: none"> <li>A summary of the status of the sewer will be prepared and submitted to the Property Management Team including results of the stormwater sampling.</li> </ul>	<ul style="list-style-type: none"> <li>An <b>annual</b> report will be submitted to the Ohio EPA by January 31st for each prior year for results of the stormwater sampling.</li> </ul>	
<u>Internal Notifications</u>	<ul style="list-style-type: none"> <li>A Baseline Inspection Report will be submitted to the Property Management Team within 30 days of the completion of inspection of the 54" Storm Sewer to evaluate for significant cracking, leakage, or differential settlement.</li> <li>A report will be submitted to the Property Management Team within 30 days of the sampling of the stormwater at the upstream and downstream headwalls summarizing sampling results.</li> </ul>	<ul style="list-style-type: none"> <li>An <b>annual</b> report will be submitted to the Ohio EPA by January 31st for each prior year for results of the stormwater sampling.</li> </ul>	
<u>External Notifications</u>	<ul style="list-style-type: none"> <li>A report will be submitted to the Property Management Team within 30 days of the sampling of the water at the upstream and downstream headwalls summarizing sampling results.</li> </ul>	<ul style="list-style-type: none"> <li>If stormwater constituents of concern exceed applicable requirements or upward trends are observed in the discharge outfall, a report will be prepared and submitted to the Property Management Team and Ohio EPA within 30 days of receipt of laboratory results, or in accordance with any appropriate requirements.</li> <li>An <b>annual</b> report will be submitted to the Ohio EPA by January 31st for each prior year for results of the water sampling.</li> </ul>	



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**TABLE 5-1  
MAIN FACILITY ACTIVE GAS EXTRACTION SYSTEM OPERATION AND MAINTENANCE ACTIVITIES AND SCHEDULE**

Feature	Inspection and Maintenance Activity	Minimum Frequency (in times per Year)						
		Daily	Weekly (52 per Year)	Monthly (12 per Year)	Quarterly (4 per Year)	Semi-Ann. (2 per Year)	Annually (1 per Year)	As Needed
Main Facility Gas System								
Skid-Mounted Extraction System	Monitor system operational reports and system alarms from Telemetry System	X (post-automation)						
	Manually inspect system components, including blower, enclosure, piping, knockout tank, and controls. Document operational parameters, record maintenance activities, deficiencies, and actions taken to remedy identified issues on the System Inspection Form.		X (pre-automation)		X (post-automation)			
	Record concentrations of methane, oxygen and carbon dioxide at blower effluent using a Landfill Gas (LFG) GEM meter, or equivalent.		X (pre-automation)	X (post-automation)				
	Simulate all system alarm signals to confirm proper operation, inspect all electrical components by a qualified professional, and calibrate sensors if needed in accordance with manufacturer recommendations.					X (pre-automation)	X (post-automation)	
	Conduct maintenance on system blowers (bearing lubrication, etc.) in accordance with Manufacturer's Recommendations.							X
	Replacement of in-line particulate filter element when differential pressure >10" H2O							X
	Perform corrective actions in response to a system alarm.							X
	Drain condensate from Knock-out tank and properly dispose offsite							X
(9) Extraction Wells	Adjust the LFG extraction wells and blower total flow to control LFG migration and odor. Balance wellheads according to SWANA LFG O & M Manual of Practice, and record adjustments to the wellheads.							X
	Inspect extraction wells for material damage, record LFG wellhead temperature, wellhead vacuum, and header vacuum			X				
	Record Concentrations of methane, oxygen and carbon dioxide at each extraction well using a Landfill Gas GEM meter, or equivalent.			X				
	Record pressure and flowrate at monitoring locations.			X				
Condensate Collection and System Piping	Check LFG condensate collection system to maximize efficiency and disposal of all collected condensate.			X				
	Inspection of condensate traps and sumps for condensate level and proper operation.			X				
	Inspection of system above ground piping and fittings for material wear or material damage					X		

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**TABLE 5-2  
BUILDING-SPECIFIC EXTRACTION SYSTEM OPERATION AND MAINTENANCE ACTIVITIES AND SCHEDULE**

Feature	Inspection and Maintenance Activity	Minimum Frequency						
		Daily	Weekly (52 per Year)	Monthly (12 per Year)	Quarterly (4 per Year)	Semi-Ann. (2 per Year)	Annually (1 per Year)	As Needed
Building-specific Extraction Systems								
Sub-Slab Extraction System	Monitor system operational reports and system alarms from Telemetry System	X (post-automation)						
	Manually inspect system components, including blower, enclosure, blower piping, and controls. Document operational parameters, record maintenance activities, deficiencies, and actions taken to remedy identified issues on the System Inspection Form.		X (pre-automation)		X (post-automation)			
	Record concentrations of methane, oxygen and carbon dioxide at blower effluent using a Landfill Gas (LFG) GEM meter, or equivalent.		X (pre-automation)	X (post-automation)				
	Inspect system above ground extraction piping and fittings for material wear or material damage					X		
	Simulate all system alarm signals to confirm proper operation, inspect all electrical components by a qualified professional, and calibrate sensors if needed in accordance with manufacturer recommendations.					X (pre-automation)	X (post-automation)	
	Conduct maintenance on system blowers (bearing lubrication, etc.) in accordance with Manufacturer's Recommendations.							X
	Replacement of in-line particulate filter element when differential pressure >10" H2O							X
	Perform corrective actions in response to a system alarm.							X
Building-Specific Indoor Air and Sub-Slab Methane Monitoring System								
Indoor Air Methane Sensor	Calibrate sensors in accordance with Manufacturer's Specifications							X
Sub-Slab Methane Sensor	Calibrate sensors in accordance with Manufacturer's Specifications							X
Control Panel and Alarm Simulation	Simulate all system alarm signals to confirm proper operation, inspect all electrical components by a qualified professional.						X	
Building Inspections								
Building Slab & Foundation	Inspect building floor for material cracks or material damage, or for modifications to the slab that may effect operations of the building-specific extraction systems.					X		
	Inspect for material damage to the external foundations (associated with significant settlement or otherwise) that may effect operations of the building-specific extraction systems					X		
Floor Ports	Inspect building floor ports for material damage.					X		

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**TABLE 5-3  
LEACHATE MONITORING AND MANAGEMENT ACTIVITIES AND SCHEDULE**

Feature	Inspection and Maintenance Activity	Quarterly (4 per Year)
Leachate Outbreaks	Inspect the Property for leachate outbreaks and implement the Leachate Contingency Plan as presented in the O&M Plan.	X



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**TABLE 5-4  
LANDFILLS' CAP AND PAVEMENT MONITORING AND MANAGEMENT ACTIVITIES AND SCHEDULE**

Feature	Inspection and Maintenance Activity	Monthly (12 per Year)	Annually (1 per Year)
Landfill Cap	Visual Inspections of the Landfills' Cap and Pavement on the Property.	X	
Settlement	Evaluate and complete settlement report as part of the Annual Landfill Report.		X

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**TABLE 5-5A  
SUMMARY OF EXTERIOR SUB-SURFACE STRUCTURES FOR METHANE  
MONITORING**

Type of Sub-surface Utility	Monitoring Location	Measurement Point within Location
<b>Stormwater</b>	A-10	18" Below Lid
	A-11	18" Below Lid
	A-12	18" Below Lid
	A-13	18" Below Lid
	A-14	18" Below Lid
	A-15	18" Below Lid
	A-17	18" Below Lid
	A-17A	18" Below Lid
	A-18	18" Below Lid
	A-19	18" Below Lid
	A-19A	18" Below Lid
	A-20	18" Below Lid
	A-21	18" Below Lid
	A-22	18" Below Lid
	A-23	18" Below Lid
	A-24	18" Below Lid
	A-25	18" Below Lid
	A-26	18" Below Lid
	A-27	18" Below Lid
	A-28	18" Below Lid
	A-29	18" Below Lid
	A-30	18" Below Lid
	A-30A	18" Below Lid
	A-31	18" Below Lid
	A-32	18" Below Lid
	A-33	18" Below Lid
	A-33S	18" Below Lid
	A-34	18" Below Lid
	A-35	18" Below Lid
	A-36	18" Below Lid
	A-36A	18" Below Lid
	A-36B	18" Below Lid
	A-36C	18" Below Lid
	A-36D	18" Below Lid
	A-39	18" Below Lid
	A-40	18" Below Lid
	A-42	18" Below Lid
	A-43	18" Below Lid
	A-44	18" Below Lid
	A-45	18" Below Lid
	A-46	18" Below Lid
	A-48	18" Below Lid
	A-49	18" Below Lid
	A-50	18" Below Lid
	A-52	18" Below Lid
	A-53	18" Below Lid
	A-54	18" Below Lid
	A-55	18" Below Lid
	A-56	18" Below Lid

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**TABLE 5-5A  
SUMMARY OF EXTERIOR SUB-SURFACE STRUCTURES FOR METHANE  
MONITORING**

Type of Sub-surface Utility	Monitoring Location	Measurement Point within Location
<b>Stormwater</b>	A-57	18" Below Lid
	A-58	18" Below Lid
	A-59	18" Below Lid
	A-60	18" Below Lid
	A-61	18" Below Lid
	B-2	18" Below Lid
	B-3	18" Below Lid
	B-4	18" Below Lid
	B-5	18" Below Lid
	B-6	18" Below Lid
	B-7	18" Below Lid
	B-8	18" Below Lid
	B-9	18" Below Lid
	B-10	18" Below Lid
	B-10A	18" Below Lid
	B-10B	18" Below Lid
	B-10C	18" Below Lid
	B-11	18" Below Lid
	B-12	18" Below Lid
	B-13	18" Below Lid
	B-13A	18" Below Lid
	B-14	18" Below Lid
	B-15	18" Below Lid
	B-16	18" Below Lid
	B-17	18" Below Lid
	B-18	18" Below Lid
	B-19	18" Below Lid
	B-20	18" Below Lid
	B-20A	18" Below Lid
	B-21	18" Below Lid
	B-22	18" Below Lid
	B-23	18" Below Lid
	B-24	18" Below Lid
	B-25	18" Below Lid
	B-26	18" Below Lid
	B-27	18" Below Lid
	B-28	18" Below Lid
	B-28A	18" Below Lid
	B-29	18" Below Lid
	B-29A	18" Below Lid
	B-30	18" Below Lid
	B-31	18" Below Lid
	B-32	18" Below Lid
	B-33	18" Below Lid
	B-34	18" Below Lid
	B-34A	18" Below Lid
	B-34B	18" Below Lid
	B-35	18" Below Lid
	B-36	18" Below Lid
	B-37	18" Below Lid
	B-38	18" Below Lid

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**TABLE 5-5A  
SUMMARY OF EXTERIOR SUB-SURFACE STRUCTURES FOR METHANE  
MONITORING**

Type of Sub-surface Utility	Monitoring Location	Measurement Point within Location
<b>Stormwater</b>	B-39	18" Below Lid
	B-40	18" Below Lid
	B-41	18" Below Lid
	B-42	18" Below Lid
	C-13	18" Below Lid
	C-14	18" Below Lid
	C-15	18" Below Lid
	C-16	18" Below Lid
	C-17	18" Below Lid
	C-18	18" Below Lid
	C-19	18" Below Lid
	C-19A	18" Below Lid
	C-20	18" Below Lid
	C-21	18" Below Lid
	C-22	18" Below Lid
	C-23	18" Below Lid
	C-24	18" Below Lid
	C-25	18" Below Lid
	C-26	18" Below Lid
	C-27	18" Below Lid
	D-9	18" Below Lid
	D-10	18" Below Lid
	D-10A	18" Below Lid
	D-10B	18" Below Lid
	D-10C	18" Below Lid
	D-12	18" Below Lid
	D-12A	18" Below Lid
	D-12B	18" Below Lid
	D-13	18" Below Lid
	D-14	18" Below Lid
	D-14A	18" Below Lid
	D-18	18" Below Lid
	D-18A	18" Below Lid
	D-18D	18" Below Lid
	D-19	18" Below Lid
	D-19A	18" Below Lid
	D-19B	18" Below Lid
	D-20	18" Below Lid
	D-22	18" Below Lid
	D-22A	18" Below Lid
	D-22B	18" Below Lid
	D-26	18" Below Lid
	D-27	18" Below Lid
	D-29	18" Below Lid
	D-30	18" Below Lid
	D-34	18" Below Lid
	D-35	18" Below Lid
	D-36	18" Below Lid
	D-37	18" Below Lid
	D-37	40" Below Lid
	D-38	18" Below Lid

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**TABLE 5-5A  
SUMMARY OF EXTERIOR SUB-SURFACE STRUCTURES FOR METHANE  
MONITORING**

Type of Sub-surface Utility	Monitoring Location	Measurement Point within Location
<b>Stormwater</b>	D-38	40" Below Lid
	D-39	18" Below Lid
	D-39	40" Below Lid
	D-40	18" Below Lid
	D-40	40" Below Lid
	D-40	NE Lateral (at Pipe Invert)
	D-41	18" Below Lid
	D-41	40" Below Lid
	D-42	18" Below Lid
	D-42	40" Below Lid
	D-42	NE Lateral (at Pipe Invert)
	D-42	NW Lateral (at Pipe Invert)
	D-42	SE Lateral (at Pipe Invert)
	D-42	SW Lateral (at Pipe Invert)
	D-42A	18" Below Lid
	D-42A	40" Below Lid
	D-42A	NW Lateral (at Pipe Invert)
	D-42A	S Lateral (at Pipe Invert)
	D-43	18" Below Lid
	D-43	40" Below Lid
	D-43	SE Lateral (at Pipe Invert)
	D-44	18" Below Lid
	D-44	40" Below Lid
	D-45	18" Below Lid
	D-46A	18" Below Lid
	D-46B	18" Below Lid
	D-47	18" Below Lid
	D-47A	18" Below Lid
	D-48A	18" Below Lid
	D-48B	18" Below Lid
	D-49	18" Below Lid
	D-50A	18" Below Lid
	D-50B	18" Below Lid
	D-51	18" Below Lid
	D-52A	18" Below Lid
	D-53	18" Below Lid
	D-54A	18" Below Lid
	D-55	18" Below Lid
	D-55A	18" Below Lid
	D-57	18" Below Lid
	D-69	18" Below Lid
	E-1	18" Below Lid
	E-2	18" Below Lid
	E-3	18" Below Lid
	E-4	18" Below Lid
	E-5	18" Below Lid
	E-6	18" Below Lid
	E-7	18" Below Lid
	E-7A	18" Below Lid
	E-8	18" Below Lid
	E-9	18" Below Lid

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**TABLE 5-5A  
SUMMARY OF EXTERIOR SUB-SURFACE STRUCTURES FOR METHANE  
MONITORING**

Type of Sub-surface Utility	Monitoring Location	Measurement Point within Location
<b>Stormwater</b>	E-10	18" Below Lid
	E-11	18" Below Lid
	E-12	18" Below Lid
	E-13	18" Below Lid
	E-14	18" Below Lid
	E-15	18" Below Lid
	E-16	18" Below Lid
	E-16A	18" Below Lid
	E-17	18" Below Lid
	E-18	18" Below Lid
	E-19	18" Below Lid
	E-19A	18" Below Lid
	E-20	18" Below Lid
	E-21	18" Below Lid
	E-22	18" Below Lid
	E-23	18" Below Lid
	E-23A	18" Below Lid
<b>Sanitary</b>	S-28	18" Below Lid
	S-29	18" Below Lid
	S-30	18" Below Lid
	S-31	18" Below Lid
	S-32	18" Below Lid
	S-33	18" Below Lid
	S-34	18" Below Lid
	S-35	18" Below Lid
	S-36	18" Below Lid
	S-37	18" Below Lid
	S-38	18" Below Lid
	S-40	18" Below Lid
	S-41	18" Below Lid
	S-42	18" Below Lid
	S-43	18" Below Lid
	S-43A	18" Below Lid
	S-44	18" Below Lid
	S-44A	18" Below Lid
	S-45	18" Below Lid
	S-46	18" Below Lid
	S-62	18" Below Lid
	S-62OL	18" Below Lid
	S-63	18" Below Lid
	S-63OL	18" Below Lid
	S-64	18" Below Lid
	S-65	18" Below Lid

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**TABLE 5-5A  
SUMMARY OF EXTERIOR SUB-SURFACE STRUCTURES FOR METHANE  
MONITORING**

Type of Sub-surface Utility	Monitoring Location	Measurement Point within Location
<b>Electric</b>	MH-1	18" Below Lid
	MH-2	18" Below Lid
	MH-3	18" Below Lid
	MH-3A	18" Below Lid
	MH-4	18" Below Lid
	MH-6	18" Below Lid
	MH-7	18" Below Lid
	MH-8	18" Below Lid
	MH-9	18" Below Lid
	MH-10	18" Below Lid
	MH-14	18" Below Lid
	MH-15	18" Below Lid
	MH-16A	18" Below Lid
	MH-17	18" Below Lid
	MH-18	18" Below Lid
	MH-19	18" Below Lid
<b>Telephone</b>	TMH-1	18" Below Lid
	TMH-2	18" Below Lid
	TMH-3	18" Below Lid
	TMH-4	18" Below Lid
	TMH-5	18" Below Lid
	TMH-6	18" Below Lid

**OPERATION AND MAINTENANCE PLAN  
HIGHLAND PARK PROPERTY  
5642 TRANSPORTATION BOULEVARD  
GARFIELD HEIGHTS, OHIO 44125**

**TABLE 5-5B  
SUMMARY OF BUILDING SUB-SURFACE STRUCTURES FOR METHANE MONITORING**

Building	Description	Monitoring Location	Monitoring Location Description
<b>Retail B</b>	<b>Former Walmart</b>	CVRA-FLP	F. L. Port
		CVRA-FRP	F. R. Port
		CVRA-RLP	R. L. Port
		CVRA-RRP	R. R. Port
<b>Retail C</b>	<b>Former Circuit City</b>	CVRC-FP1	Floor Port # 1
		CVRC-FP2	Floor Port # 2
		CVRC-FP3	Floor Port # 3
		CVRC-FP4	Floor Port # 4
		CVRC-FP5	Floor Port # 5
		CVRC-FP6	Floor Port # 6
<b>Retail D</b>	<b>Retail D</b>	CVRD-FP1	Floor Port # 1
		CVRD-FP2	Floor Port # 2
		CVRD-FP3	Floor Port # 3
		CVRD-FP4	Floor Port # 4
		CVRD-FP5	Floor Port # 5
		CVRD-FP6	Floor Port # 6
<b>Retail E</b>	<b>Former Office Max</b>	CVRE-FP1	Floor Port # 1
		CVRE-FP2	Floor Port # 2
		CVRE-FP3	Floor Port # 3
		CVRE-FP4	Floor Port # 4
		CVRE-FP5	Floor Port # 5
		CVRE-FP5	Port #5 Ambient
		CVRE-FP6	Floor Port # 6
<b>Retail F</b>	<b>Former Bed, Bath and Beyond</b>	CVRF-FP1	Floor Port # 1
		CVRF-FP2	Floor Port # 2
		CVRF-FP3	Floor Port # 3
		CVRF-FP4	Floor Port # 4
		CVRF-FP5	Floor Port # 5
		CVRF-FP6	Floor Port # 6
<b>Retail G</b>	<b>Former Jo-Ann Fabrics</b>	CVRG-FP1	Floor Port # 1
		CVRG-FP2	Floor Port # 2
		CVRG-FP3	Floor Port # 3
		CVRG-FP4	Floor Port # 4
		CVRG-FP5	Floor Port # 5
		CVRG-BL1	Retail G Blower #1
<b>Retail H</b>	<b>Former A. J. Wright</b>	CVRH-FP1	Floor Port # 1
		CVRH-FP2	Floor Port # 2
		CVRH-FP3	Floor Port # 3
		CVRH-FP4	Floor Port # 4
		CVRH-FP5	Floor Port # 5



**OPERATION AND MAINTENANCE PLAN  
HIGHLAND PARK PROPERTY  
5642 TRANSPORTATION BOULEVARD  
GARFIELD HEIGHTS, OHIO 44125**

**TABLE 5-5B  
SUMMARY OF BUILDING SUB-SURFACE STRUCTURES FOR METHANE MONITORING**

Building	Description	Monitoring Location	Monitoring Location Description
Retail I	Former Dick's Sporting Goods	CVRI-FP1	Floor Port # 1
		CVRI-FP2	Floor Port # 2
		CVRI-FP2	Port #2 ambient
		CVRI-FP3	Floor Port # 3
		CVRI-FP3	Port #3 ambient
		CVRI-FP4	Floor Port # 4
		CVRI-FP5	Floor Port # 5
		CVRI-FP6	Floor Port # 6
		CVRI-FP7	Floor Port # 7
		CVRI-FP8	Floor Port # 8
		CVRI-FP9	Floor Port # 9
Retail J	Giant Eagle	CVRI-FP10	Floor Port # 10
		CVRI-FP11	Floor Port # 11
		CVGE-FP1	Floor Port #1
		CVGE-FP2	Floor Port #2
		CVGE-FP3	Floor Port #3
		CVGE-FP4	Floor Port #4
		CVGE-FP5	Floor Port #5
		CVGE-FP6	Floor Port #6
		CVGE-FP7	Floor Port #7
		CVGE-FP8	Floor Port #8
Retail K	Former Pet Smart	CVGE-FP9	Floor Port #9
		CVGE-FP10	Floor Port #10
		CVRK-FP1	Floor Port # 1
Retail M	Retail M	CVRK-FP2	Floor Port # 2
		CVRK-FP3	Floor Port # 3
		CVRM-FP1	Floor Port # 1
		CVRM-FP2	Floor Port # 2
		CVRM-FP3	Floor Port # 3
		CVRM-FP4	Floor Port # 4
First Merit	Former First Merit	CVRM-FP5	Floor Port # 5
		CVRM-FP6	Floor Port # 6
		CVFM-FP1	Floor Port # 1
		CVFM-FP2	Floor Port # 2
Get Go	Get Go	CVFM-FP3	Floor Port # 3
		CVFM-FP4	Floor Port #4
		CVGG-FP1	Floor Port # 1
Applebee's	Applebee's	CVGG-FP2	Floor Port # 2
		CVGG-FP3	Floor Port # 3
		CVAB-FP1	Floor Port # 1
		CVAB-FP2	Floor Port # 2
		CVAB-FP3	Floor Port # 3
		CVAB-FP4	Floor Port #4

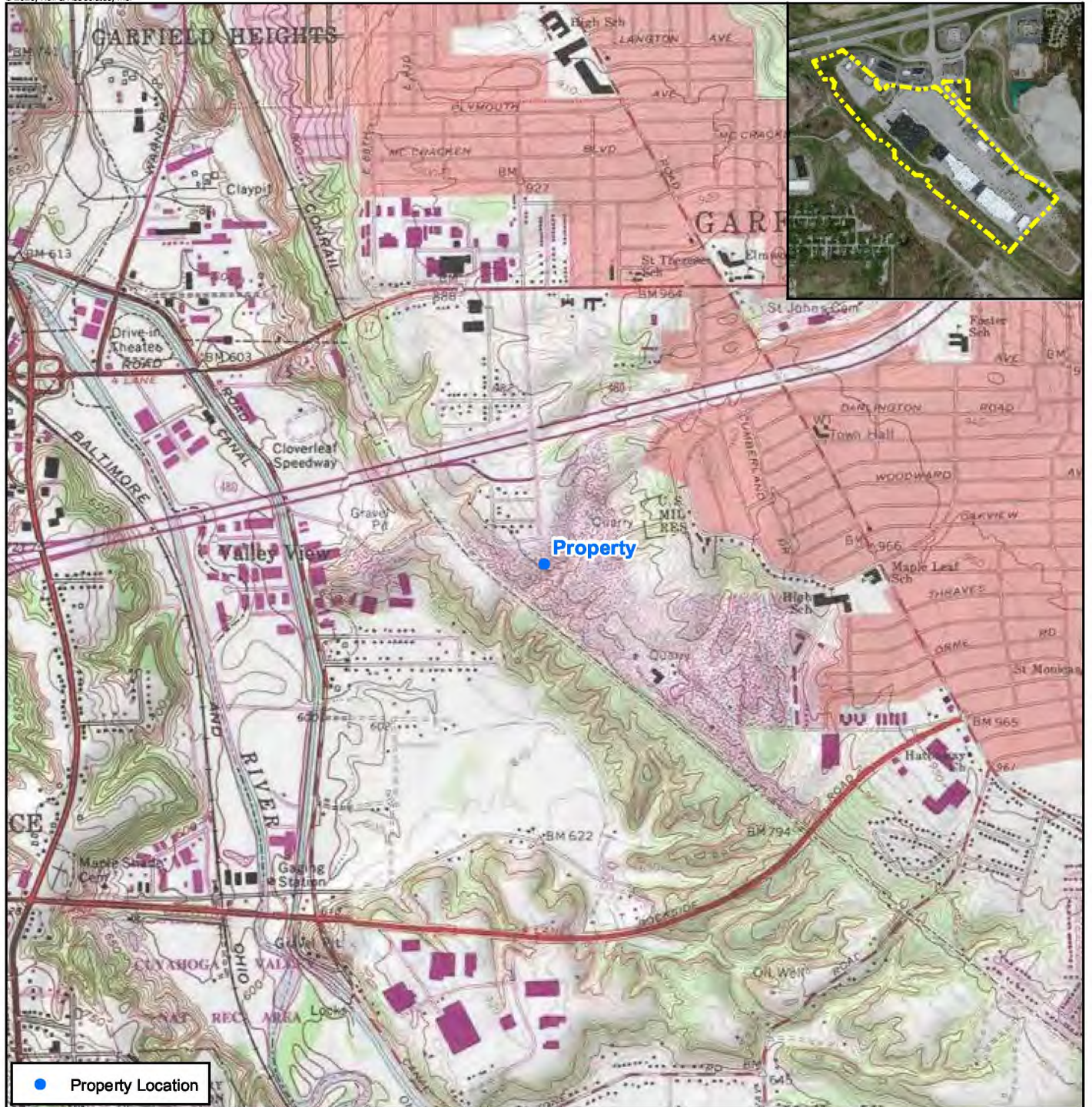
**OPERATION AND MAINTENANCE PLAN  
HIGHLAND PARK PROPERTY  
5642 TRANSPORTATION BOULEVARD  
GARFIELD HEIGHTS, OHIO 44125**

**TABLE 5-6  
MANUAL LEL MONITORING SCHEDULE FOR UNDERGROUND STRUCTURES AND BUILDING FLOOR-PORTS**

Location	Description	Measurement Frequency		
		Initial Monitoring	Long-term Tiered Reduction	If concentration detected >10% LEL
Utilities within 200' of any occupied space	Monitor Subsurface Utility Structures for Methane, including Storm and Sanitary Sewer Manholes and Catch Basins, Electric and Telephone Manholes and Underground Vaults within 200' North, South, East or West of any occupied space.	Monthly until data is available for 12 consecutive weeks.	<ul style="list-style-type: none"> <li>Quarterly when concentrations have been &lt;10% LEL for 12 consecutive weeks</li> <li>Semi-annual when concentrations have been &lt;10% LEL for 1 year</li> <li>Annual when concentrations have been &lt;10% LEL for 2 years</li> </ul>	<ul style="list-style-type: none"> <li>Measurement frequency increased according to <b>Flowchart 5-6</b> of O&amp;M Plan</li> </ul>
Utilities outside of 200' of any occupied space	Monitor Subsurface Utility Structures for Methane, including Storm and Sanitary Sewer Manholes and Catch Basins, Electric and Telephone Manholes and Underground Vaults.	Monthly until data is available for 6 months.	<ul style="list-style-type: none"> <li>Quarterly when concentrations have been &lt;10% LEL for 6 months</li> <li>Semi-annual when concentrations have been &lt;10% LEL for 1 year</li> <li>Annual when concentrations have been &lt;10% LEL for 2 years</li> </ul>	<ul style="list-style-type: none"> <li>Measurement frequency increased according to <b>Flowchart 5-6</b> of O&amp;M Plan</li> </ul>
Building Floor Ports (occupied buildings)	Monitor Building Floor Ports for Methane	Monthly until data is available for 6 consecutive months or until automated LEL measurements from sensors installed in select floor ports and telemetry data is available. Monitoring of automated data collection points, as provided in designs approved by Ohio EPA, will be continuous once the systems have been automated.	<ul style="list-style-type: none"> <li>Quarterly when concentrations have been &lt;10% LEL for 6 consecutive months</li> <li>Semi-annual when concentrations have been &lt;10% LEL for 1 year</li> <li>Annual when concentrations have been &lt;10% LEL for 2 years</li> <li>Continuous if monitoring is automated</li> </ul>	<ul style="list-style-type: none"> <li>Measurement frequency increased according to <b>Flowcharts 5-4A and 5-4B</b> of O&amp;M Plan</li> </ul>
Building Floor Ports (un-occupied buildings)	Monitor Building Floor Ports for Methane	Quarterly until data is available for 4 consecutive quarters. Monitoring of automated data collection points, as provided in designs approved by Ohio EPA, will be continuous once the systems have been automated.	<ul style="list-style-type: none"> <li>Semi-annual when concentrations have been &lt;10% LEL for 1 year</li> <li>Annual when concentrations have been &lt;10% LEL for 2 years</li> </ul>	<ul style="list-style-type: none"> <li>Measurement frequency increased according to <b>Flowcharts 5-4A and 5-4B</b> of O&amp;M Plan</li> </ul>

## **FIGURES**



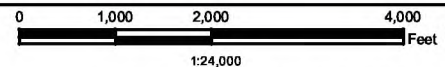


● Property Location



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#### Quad: Shaker Heights, Ohio

Source: The topographic map was acquired through the USGS Topographic Map web service.

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**HULL**  
Environment / Energy / Infrastructure

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Bedford, Ohio 44146

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Fax: (440) 232-8777  
www.hullinc.com

Operation and Maintenance Plan  
Highland Park Property

#### Property Location

Transportation Blvd and Vista Way  
Garfield Heights, Cuyahoga County, Ohio

Date:

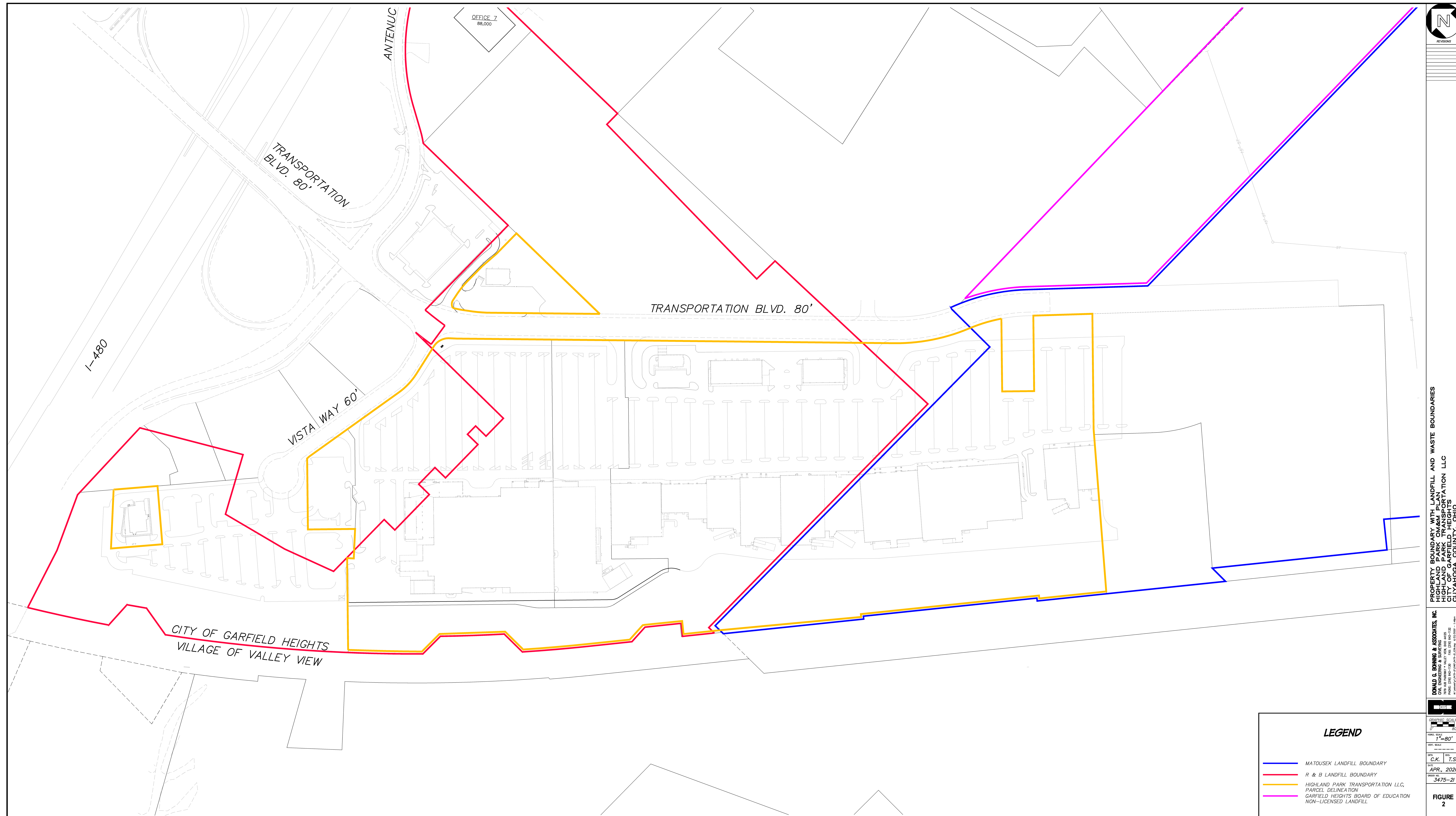
May 2020

File Name:  
ICP021\_07\_Fig01\_PLM.mxd  
Edited: 4/28/2020 By: dreed

Figure

1

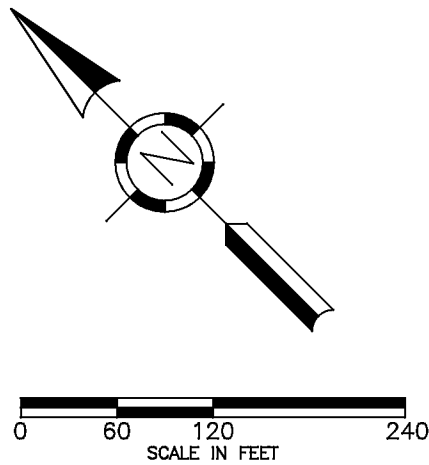












LEGEND

- FAC-1

LANDFILL GAS EXTRACTION WELL

CONDENSATE TRAP/SUMP
- BUILDING-SPECIFIC GAS EXTRACTION LATERAL

BUILDING-SPECIFIC GAS EXTRACTION HEADER

LANDFILL GAS EXTRACTION LATERAL

LANDFILL GAS SYSTEM HEADER



Project Title:

OPERATION AND MAINTENANCE PLAN

HIGHLAND PARK PROPERTY

TRANSPORTATION BLVD. AND VISTA WAY

GARFIELD HEIGHTS, CUYAHOGA COUNTY, OHIO

PREPARED FOR:

INDUSTRIAL COMMERCIAL  
PROPERTIES, LLC

6675 PARKLAND BLVD, SUITE 100  
SOLON, OH 44139

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Mark	Description	Date

Project No.:	ICP021
Plot Date:	9/1/20
Layout By:	LP
Drawn By:	LP
Check By:	TS
Scale:	AS NOTED
Issue Date:	MARCH 2020
Sheet Title:	

GENERAL AREAS  
SUBJECT TO O&M  
ACTIVITIES



HIGHLAND PARK OM&M PLAN  
HIGHLAND PARK TRANSPORTATION LLC  
CITY OF GARFIELD HEIGHTS  
CUYAHOGA COUNTY, OHIO

**CIVIL ENGINEERING & SURVEYING**  
7979 HUB PARKWAY \* VALLEY VIEW, OHIO 44125  
PHONE: (216) 642-1130 FAX: (216) 642-1132  
Mr. \adocadd\p\3475-2\DWG\3475-2L E288.dwg 4/27/2020 - 2:57pm

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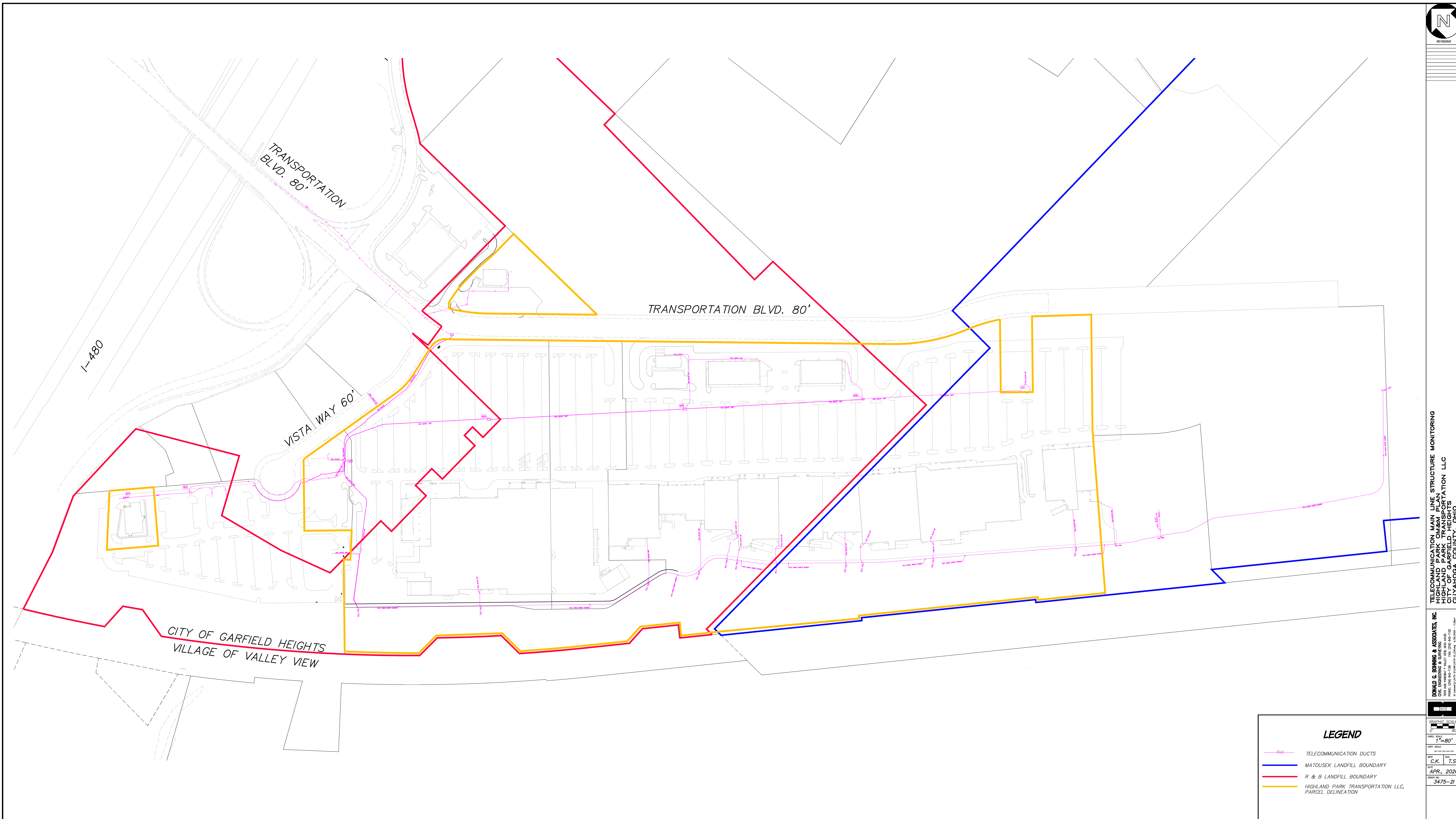












## **APPENDIX A**

### **O & M Inspection Forms**

**HIGHLAND PARK PROPERTY  
5642 TRANSPORTATION BOULEVARD  
GARFIELD HEIGHTS, OHIO 44125**

**MAIN LANDFILL ACTIVE GAS EXTRACTION SYSTEM (MFGS) INSPECTION FORM**

Date/Time Arrived: \_\_\_\_\_  
Time Departed: \_\_\_\_\_  
Name of Inspector: \_\_\_\_\_

Barometric Pressure: \_\_\_\_\_  
Weather Conditions: \_\_\_\_\_  
Wind Speed: \_\_\_\_\_  
Approx. Temperature: \_\_\_\_\_

**SYSTEM MEASUREMENTS**

Blower ID	VFD Speed Setting (Hz)	Inlet Vacuum Pre-Filter (in. H2O)	Post-Filter Vacuum (in. H2O)	Filter Diff. Pressure (in. H2O)	Exhaust Temp (deg. F)	Blower Flowrate (scfm)	Damper Position (% Open)	Other (specify)
EXH01 (Main Facility)								
EXH02 (I-480)								
EXH03 (Get-Go)								
Blower ID	Methane (% LEL or % gas)	Oxygen (%)	CO <sub>2</sub> (%)					
EXH01 (Main Facility)								
EXH02 (I-480)								
EXH03 (Get-Go)								
Extraction Well ID	Temperature (deg. F)	Wellhead Vacuum (in. H2O)	Header Vacuum (in. H2O)	Methane (% LEL or % gas)	Oxygen (%)	CO <sub>2</sub> (%)	Valve Position	Other (specify)
FAC-1								
FAC-2								
FAC-3								
FAC-4								
FAC-5								
FAC-6								
FAC-7								
FAC-8								
FAC-9								

**SYSTEM INSPECTIONS AND MAINTENANCE**

Item	Frequency	Results/Comments
Visual Inspection of MFGS above ground piping and fittings	semi-ann.	
Visual Inspection of Extraction Wells	semi-ann.	
Visual Inspection of Condensate Traps and Sumps	semi-ann.	
Inspection of MFGS Equipment/Enclosures	semi-ann.	
Clean or Change In-line Filter	Diff. pressure 6 to 10 in. H <sub>2</sub> O	
Blower Inspections & Maintenance	Consult Blower Manual for Schedule	
Other (Specify)		

**ABNORMAL OPERATING CONDITIONS**

Description of Alarm or Malfunction	Date/Time	Blower ID	Describe Troubleshooting/Corrective Actions

Notes/Comments




**HIGHLAND PARK PROPERTY  
5642 TRANSPORTATION BOULEVARD  
GARFIELD HEIGHTS, OHIO 44125**

**BUILDING-SPECIFIC ACTIVE GAS EXTRACTION AND METHANE MONITORING SYSTEMS INSPECTION FORM**

Building: \_\_\_\_\_  
Date/Time Arrived: \_\_\_\_\_  
Time Departed: \_\_\_\_\_  
Name of Inspector: \_\_\_\_\_

Barometric Pressure: \_\_\_\_\_  
Weather Conditions: \_\_\_\_\_  
Wind Speed: \_\_\_\_\_  
Approx. Temperature: \_\_\_\_\_

**SYSTEM MEASUREMENTS**

Blower ID	VFD Speed Setting (Hz)	Inlet Vacuum Pre-Filter (in. H <sub>2</sub> O)	Post-Filter Vacuum (in. H <sub>2</sub> O)	Filter Diff. Pressure (in. H <sub>2</sub> O)	Exhaust Temp (deg. F)	Blower Flowrate (scfm)	Damper Position (% Open)	Other (specify)
Blower #__								
Blower #__								
Blower #__								
Blower #__								
Blower ID	Methane (% LEL or % gas)	Oxygen (%)	CO <sub>2</sub> (%)					
Blower #__								
Blower #__								
Blower #__								
Blower #__								

**SYSTEM INSPECTIONS AND MAINTENANCE**

Item	Frequency	Results/Comments
Visual Inspection of Sub-Slab Depressurization System (SSDS) Piping and Fittings	semi-ann.	
Visual Inspection of Building Floor for material cracks/damage	semi-ann.	
Visual Inspection of SSDS Equipment/Enclosures	semi-ann.	
Inspection of Building/Slab for Modifications	semi-ann.	
Clean or Change In-line Filter	Diff. pressure 6 to 10 in. H <sub>2</sub> O above normal.	
Blower Inspections & Maintenance	Consult Blower Manual for Schedule	
Other (Specify)		

**ABNORMAL OPERATING CONDITIONS**

Description of Alarm or Malfunction	Date/Time	Blower ID	Describe Troubleshooting/Corrective Actions

## BUILDING-SPECIFIC ACTIVE GAS EXTRACTION AND METHANE MONITORING SYSTEMS INSPECTION FORM

[illegible]

(collected monthly during first year of operation )

Date	Time	Sub-slab Monitoring Point	LEL (%)	O <sub>2</sub> (%)			
		Floor Port #__					
		Floor Port #__					
		Floor Port #__					
		Floor Port #__					
		Floor Port #__					
		Floor Port #__					
		Floor Port #__					
		Floor Port #__					
		Floor Port #__					
		Floor Port #__					
		Floor Port #__					

### Notes/Comments

**HIGHLAND PARK PROPERTY  
5642 TRANSPORTATION BOULEVARD  
GARFIELD HEIGHTS, OHIO 44125**

**LEACHATE OUTBREAK VISUAL INSPECTION FORM**

Date/Time Arrived: \_\_\_\_\_

Barometric Pressure: \_\_\_\_\_

Time Departed: \_\_\_\_\_

Weather Conditions: \_\_\_\_\_

Name of Inspector: \_\_\_\_\_

Wind Speed: \_\_\_\_\_

Approx. Temperature: \_\_\_\_\_

Purpose of Inspection: ☐ Quarterly

☐ Weekly (following observation of potential outbreak)

☐ Other (describe): \_\_\_\_\_

Were there any conditions or obstructions that limited or prohibited the inspection of any areas of the Property?

☐ Yes

☐ No

If yes, explain: \_\_\_\_\_

Were any potential leachate outbreaks observed at the time of the inspection?

☐ Yes

☐ No

If yes, describe:

Location: \_\_\_\_\_

Approx. size of area (sf): \_\_\_\_\_

Approx. quantity of liquid (gallons): \_\_\_\_\_

Color of liquid: \_\_\_\_\_

Sheen (yes or no): \_\_\_\_\_

Odor of liquid: \_\_\_\_\_

Corrective actions taken (reference Leachate Contingency Plan):

\*If more than one outbreak is observed, make copies of this form as needed.

Signature of Inspector: \_\_\_\_\_



**HIGHLAND PARK PROPERTY  
5642 TRANSPORTATION BOULEVARD  
GARFIELD HEIGHTS, OHIO 44125**

**LANDFILL CAP AND PACEMENT VISUAL INSPECTION FORM**

Date/Time Arrived: \_\_\_\_\_  
Time Departed: \_\_\_\_\_  
Name of Inspector: \_\_\_\_\_

Barometric Pressure: \_\_\_\_\_  
Weather Conditions: \_\_\_\_\_  
Wind Speed: \_\_\_\_\_  
Approx. Temperature: \_\_\_\_\_

Purpose of Inspection: ☐ Quarterly ☐ Weekly (following observation of potential outbreak)  
☐ Other (describe): \_\_\_\_\_

Were there any conditions or obstructions that limited or prohibited the inspection of any areas of the Property?  
☐ Yes ☐ No

If yes, explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Were any potential leachate outbreaks observed at the time of the inspection?  
☐ Yes ☐ No  
If yes, complete leachate outbreak inspection form.

Are there any areas of material erosion requiring repair? ☐ Yes ☐ No  
If yes, explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Are any trees observed in the landfill cap system? ☐ Yes ☐ No  
If yes, explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Do all stormwater controls (berm, ditches, catch basins, etc.) appear to be functioning properly?  
☐ Yes ☐ No  
If no, explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Are there any significant areas of damaged pavement which may be allowing material infiltration of surface water?  
☐ Yes ☐ No  
If yes, explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Are there any material areas of settlement which appear to prevent positive drainage?  
☐ Yes ☐ No  
If yes, explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Additional Comments, Control Measures Requiring Repair, or Control Measures Needed:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature of Inspector: \_\_\_\_\_

**HIGHLAND PARK PROPERTY  
5642 TRANSPORTATION BOULEVARD  
GARFIELD HEIGHTS, OHIO 44125**

**EXTERIOR UNDERGROUND STRUCTURE MONITORING FORM**

Date/Time Arrived: \_\_\_\_\_  
Time Departed: \_\_\_\_\_  
Name of Inspector: \_\_\_\_\_

Barometric Pressure: \_\_\_\_\_  
Weather Conditions: \_\_\_\_\_  
Wind Speed: \_\_\_\_\_  
Approx. Temperature: \_\_\_\_\_

**EXTERIOR SUB-SURFACE MONITORING POINTS METHANE MEASUREMENTS**

Date	Sub-Surface Monitoring Point	%LEL	%O <sub>2</sub>	Date	Sub-Surface Monitoring Point	%LEL	%O <sub>2</sub>
	A-10 (18" Below Lid)				A-45 (18" Below Lid)		
	A-11 (18" Below Lid)				A-46 (18" Below Lid)		
	A-12 (18" Below Lid)				A-48 (18" Below Lid)		
	A-13 (18" Below Lid)				A-49 (18" Below Lid)		
	A-14 (18" Below Lid)				A-50 (18" Below Lid)		
	A-15 (18" Below Lid)				A-52 (18" Below Lid)		
	A-17 (18" Below Lid)				A-53 (18" Below Lid)		
	A-17A (18" Below Lid)				A-54 (18" Below Lid)		
	A-18 (18" Below Lid)				A-55 (18" Below Lid)		
	A-19 (18" Below Lid)				A-56 (18" Below Lid)		
	A-19A (18" Below Lid)				A-57 (18" Below Lid)		
	A-20 (18" Below Lid)				A-58 (18" Below Lid)		
	A-21 (18" Below Lid)				A-59 (18" Below Lid)		
	A-22 (18" Below Lid)				A-60 (18" Below Lid)		
	A-23 (18" Below Lid)				A-61 (18" Below Lid)		
	A-24 (18" Below Lid)				B-2 (18" Below Lid)		
	A-25 (18" Below Lid)				B-3 (18" Below Lid)		
	A-26 (18" Below Lid)				B-4 (18" Below Lid)		
	A-27 (18" Below Lid)				B-5 (18" Below Lid)		
	A-28 (18" Below Lid)				B-6 (18" Below Lid)		
	A-29 (18" Below Lid)				B-7 (18" Below Lid)		
	A-30 (18" Below Lid)				B-8 (18" Below Lid)		
	A-30A (18" Below Lid)				B-9 (18" Below Lid)		
	A-31 (18" Below Lid)				B-10 (18" Below Lid)		
	A-32 (18" Below Lid)				B-10A (18" Below Lid)		
	A-33 (18" Below Lid)				B-10B (18" Below Lid)		
	A-33S (18" Below Lid)				B-10C (18" Below Lid)		
	A-34 (18" Below Lid)				B-11 (18" Below Lid)		
	A-35 (18" Below Lid)				B-12 (18" Below Lid)		
	A-36 (18" Below Lid)				B-13 (18" Below Lid)		
	A-36A (18" Below Lid)				B-13A (18" Below Lid)		
	A-36B (18" Below Lid)				B-14 (18" Below Lid)		
	A-36C (18" Below Lid)				B-15 (18" Below Lid)		
	A-36D (18" Below Lid)				B-16 (18" Below Lid)		
	A-39 (18" Below Lid)				B-17 (18" Below Lid)		
	A-40 (18" Below Lid)				B-18 (18" Below Lid)		
	A-42 (18" Below Lid)				B-19 (18" Below Lid)		
	A-43 (18" Below Lid)				B-20 (18" Below Lid)		
	A-44 (18" Below Lid)				B-20A (18" Below Lid)		

**Notes/Comments**

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## EXTERIOR UNDERGROUND STRUCTURE MONITORING FORM

Barometric Pressure: \_\_\_\_\_  
Weather Conditions: \_\_\_\_\_  
Wind Speed: \_\_\_\_\_  
Approx. Temperature: \_\_\_\_\_

Date	Sub-Surface Monitoring Point	%LEL	%O <sub>2</sub>	Date	Sub-Surface Monitoring Point	%LEL	%O <sub>2</sub>
	B-21 (18" Below Lid)				C-25 (18" Below Lid)		
	B-22 (18" Below Lid)				C-26 (18" Below Lid)		
	B-23 (18" Below Lid)				C-27 (18" Below Lid)		
	B-24 (18" Below Lid)				D-9 (18" Below Lid)		
	B-25 (18" Below Lid)				D-10 (18" Below Lid)		
	B-26 (18" Below Lid)				D-10A (18" Below Lid)		
	B-27 (18" Below Lid)				D-10B (18" Below Lid)		
	B-28 (18" Below Lid)				D-10C (18" Below Lid)		
	B-28A (18" Below Lid)				D-12 (18" Below Lid)		
	B-29 (18" Below Lid)				D-12A (18" Below Lid)		
	B-29A (18" Below Lid)				D-12B (18" Below Lid)		
	B-30 (18" Below Lid)				D-13 (18" Below Lid)		
	B-31 (18" Below Lid)				D-14 (18" Below Lid)		
	B-32 (18" Below Lid)				D-14A (18" Below Lid)		
	B-33 (18" Below Lid)				D-18 (18" Below Lid)		
	B-34 (18" Below Lid)				D-18A (18" Below Lid)		
	B-34A (18" Below Lid)				D-18D (18" Below Lid)		
	B-34B (18" Below Lid)				D-19 (18" Below Lid)		
	B-35 (18" Below Lid)				D-19A (18" Below Lid)		
	B-36 (18" Below Lid)				D-19B (18" Below Lid)		
	B-37 (18" Below Lid)				D-20 (18" Below Lid)		
	B-38 (18" Below Lid)				D-22 (18" Below Lid)		
	B-39 (18" Below Lid)				D-22A (18" Below Lid)		
	B-40 (18" Below Lid)				D-22B (18" Below Lid)		
	B-41 (18" Below Lid)				D-26 (18" Below Lid)		
	B-42 (18" Below Lid)				D-27 (18" Below Lid)		
	C-13 (18" Below Lid)				D-29 (18" Below Lid)		
	C-14 (18" Below Lid)				D-30 (18" Below Lid)		
	C-15 (18" Below Lid)				D-34 (18" Below Lid)		
	C-16 (18" Below Lid)				D-35 (18" Below Lid)		
	C-17 (18" Below Lid)				D-36 (18" Below Lid)		
	C-18 (18" Below Lid)				D-37 (18" Below Lid)		
	C-19 (18" Below Lid)				D-37 (40" Below Lid)		
	C-19A (18" Below Lid)				D-38 (18" Below Lid)		
	C-20 (18" Below Lid)				D-38 (40" Below Lid)		
	C-21 (18" Below Lid)				D-39 (18" Below Lid)		
	C-22 (18" Below Lid)				D-39 (40" Below Lid)		
	C-23 (18" Below Lid)				D-40 (18" Below Lid)		
	C-24 (18" Below Lid)				D-40 (40" Below Lid)		

### Notes/Comments

## EXTERIOR UNDERGROUND STRUCTURE MONITORING FORM

Barometric Pressure: \_\_\_\_\_  
Weather Conditions: \_\_\_\_\_  
Wind Speed: \_\_\_\_\_  
Approx. Temperature: \_\_\_\_\_

Date	Sub-Surface Monitoring Point	%LEL	%O <sub>2</sub>	Date	Sub-Surface Monitoring Point	%LEL	%O <sub>2</sub>
	D-40 (NE Lateral)				E-4 (18" Below Lid)		
	D-41 (18" Below Lid)				E-5 (18" Below Lid)		
	D-41 (40" Below Lid)				E-6 (18" Below Lid)		
	D-42 (18" Below Lid)				E-7 (18" Below Lid)		
	D-42 (40" Below Lid)				E-7A (18" Below Lid)		
	D-42 (NE Lateral)				E-8 (18" Below Lid)		
	D-42 (NW Lateral)				E-9 (18" Below Lid)		
	D-42 (SE Lateral)				E-10 (18" Below Lid)		
	D-42 (SW Lateral)				E-11 (18" Below Lid)		
	D-42A (18" Below Lid)				E-12 (18" Below Lid)		
	D-42A (40" Below Lid)				E-13 (18" Below Lid)		
	D-42A (NW Lateral )				E-14 (18" Below Lid)		
	D-42A (S Lateral )				E-15 (18" Below Lid)		
	D-43 (18" Below Lid)				E-16 (18" Below Lid)		
	D-43 (40" Below Lid)				E-16A (18" Below Lid)		
	D-43 (SE Lateral )				E-17 (18" Below Lid)		
	D-44 (18" Below Lid)				E-18 (18" Below Lid)		
	D-44 (40" Below Lid)				E-19 (18" Below Lid)		
	D-45 (18" Below Lid)				E-19A (18" Below Lid)		
	D-46A (18" Below Lid)				E-20 (18" Below Lid)		
	D-46B (18" Below Lid)				E-21 (18" Below Lid)		
	D-47 (18" Below Lid)				E-22 (18" Below Lid)		
	D-47A (18" Below Lid)				E-23 (18" Below Lid)		
	D-48A (18" Below Lid)				E-23A (18" Below Lid)		
	D-48B (18" Below Lid)				S-28 (18" Below Lid)		
	D-49 (18" Below Lid)				S-29 (18" Below Lid)		
	D-50A (18" Below Lid)				S-30 (18" Below Lid)		
	D-50B (18" Below Lid)				S-31 (18" Below Lid)		
	D-51 (18" Below Lid)				S-32 (18" Below Lid)		
	D-52A (18" Below Lid)				S-33 (18" Below Lid)		
	D-53 (18" Below Lid)				S-34 (18" Below Lid)		
	D-54A (18" Below Lid)				S-35 (18" Below Lid)		
	D-55 (18" Below Lid)				S-36 (18" Below Lid)		
	D-55A (18" Below Lid)				S-37 (18" Below Lid)		
	D-57 (18" Below Lid)				S-38 (18" Below Lid)		
	D-69 (18" Below Lid)				S-40 (18" Below Lid)		
	E-1 (18" Below Lid)				S-41 (18" Below Lid)		
	E-2 (18" Below Lid)				S-42 (18" Below Lid)		
	E-3 (18" Below Lid)				S-43 (18" Below Lid)		

Measurements for pipe laterals taken at pipe invert.

## EXTERIOR UNDERGROUND STRUCTURE MONITORING FORM

Barometric Pressure: \_\_\_\_\_  
Weather Conditions: \_\_\_\_\_  
Wind Speed: \_\_\_\_\_  
Approx. Temperature: \_\_\_\_\_

[illegible]

### Notes/Comments

## **APPENDIX B**

### **Leachate Contingency Plan**

## **Leachate Contingency Plan for the**

### **Highland Park Property**

This Leachate Contingency Plan follows the methodology established by OAC 3745-27-14, Post-Closure Care of Sanitary Landfill Facilities and OAC 3745-27-19, Operational Criteria for a Sanitary Landfill Facility. Although the Landfills are no longer regulated by the post-closure care procedures since the 30-year post-care monitoring period expired in 2018, leachate outbreaks will be addressed and repaired by performing the following activities in accordance with OAC 3745-27-14 (A)(3);

- a) Contain and properly manage the leachate at the sanitary landfill facility.
- b) If necessary, collect, treat, and dispose of the leachate, including, if necessary, following the contingency plan for leachate storage and disposal prepared pursuant to Rule 3745-27-19 of the Administrative Code.
- c) Take action to minimize, control, or eliminate the conditions which contribute to the production of leachate.

Execution of the Leachate Contingency Plan involves a staged approach upon the discovery of a surface outbreak of leachate. It is anticipated that, in most cases, Stage 1 will remediate the outbreak. If Stage 1 does not remediate the outbreak, the subsequent stages may need to be implemented. The steps included in this approach are as follows:

#### **Stage 1: Install Soil Plug**

- a) Remove the surface soil in the area of the leachate outbreak to an approximate depth of three (3) feet.
- b) Containerize the soil removed for transport to and disposal at a licensed solid waste disposal facility.
- c) Refill the excavated area with a clayey soil plug that will prevent the leachate from permeating to the surface.
- d) Spread topsoil, if necessary, to establish a seed bed.
- e) Fine grade and seed the area disturbed by the work.
- f) Inspect the area weekly for four (4) weeks to determine if the leachate outbreak has been remediated.

If Stage 1 does not remediate the outbreak, proceed to Stage 2:

#### **Stage 2: Install Straws**

- a) Excavate an area in the leachate outbreak to install one or more "straws" that will allow for the collection of leachate from the relevant area.
- b) Install the straw(s) and direct the flow of leachate to a temporary holding tank within the limits of waste placement, upon authorization from the Ohio EPA.
- c) Dispose of the collected leachate in accordance with the requirements of the Northeast Ohio Regional Sewer District and Chapter 6111 of the Ohio Revised Code.
- d) Continue operation until leachate flow ceases to the tank.
- e) Remove tank and straw(s).

- f) Refill the excavated area with a clayey soil plug.
- g) Spread topsoil, if necessary, to establish a seed bed.
- h) Fine grade and seed the area disturbed by the work.
- i) Inspect the area weekly for four- (4) weeks to determine if the leachate outbreak has been remediated.

If Stage 2 does not remediate the outbreak, proceed to Stage 3:

**Stage 3: Install Stormwater Diversion:**

- a) Investigate stormwater flow patterns upgradient of the leachate outbreak to determine if stormwater flow could be contributing to the generation of leachate in the area of the outbreak.
- b) If stormwater sheet flow is likely contributing to the generation of leachate in the area of the outbreak, install a stormwater diversion upgradient of the outbreak to direct surface flow away from the area.
- c) Grade and seed the disturbed area.
- d) Repeat Stage 1 or Stage 2, as necessary to remediate outbreak.
- e) Inspect the area weekly for four (4) weeks to determine if the outbreak has been remediated.

If Stage 3 does not remediate the outbreak, proceed to Stage 4:

**Stage 4: Install Horizontal or Vertical Extraction System:**

- a) A horizontal leachate collection trench or a vertical extraction well will be installed in the area of the leachate outbreak.
- b) The leachate collected by the system will be temporarily stored in holding tanks prior to release to the Northeast Ohio Regional Sewer District sewer system in accordance with their requirements and Chapter 6111 of the Revised Code for discharge. Storage tanks will be located within the limits of waste placement. Temporary storage of leachate within the limits of waste placement will only occur with authorization from the Ohio EPA. It is not anticipated that any of the leachate management components will be located outside the limits of waste placement. In the event that temporary or permanent facilities must be located outside the limits of waste placement, adequate secondary containment and double-walled pipe will be provided.
- c) Continue operation of the system until flow ceases to the tank.
- d) Remove tank and straw (s).
- e) Refill the excavated area with a clayey soil plug.
- f) Spread topsoil, if necessary, to establish a seed bed.
- g) Fine grade and seed the area disturbed by the work.
- h) Inspect the area weekly for four (4) weeks to determine if the leachate outbreak has been remediated.



The Leachate Contingency Plan stages are intended to be implemented in the order described above. However, it may be determined to skip any one of the early stages and implement any of the stages at any time, depending on the severity of the outbreak.

**Discontinuation of Leachate Contingency Plan Measures After an Outbreak**

Contingency measures implemented to control leachate outbreaks will be discontinued if the outbreak has disappeared from the surface after the four-weekly inspections. Submittal of records and written authorization from the Ohio EPA will be received prior to discontinuation of contingency measures to remediate the leachate outbreak.

## **APPENDIX C**

### **Main Facility Active Gas Extraction System Design Plans**



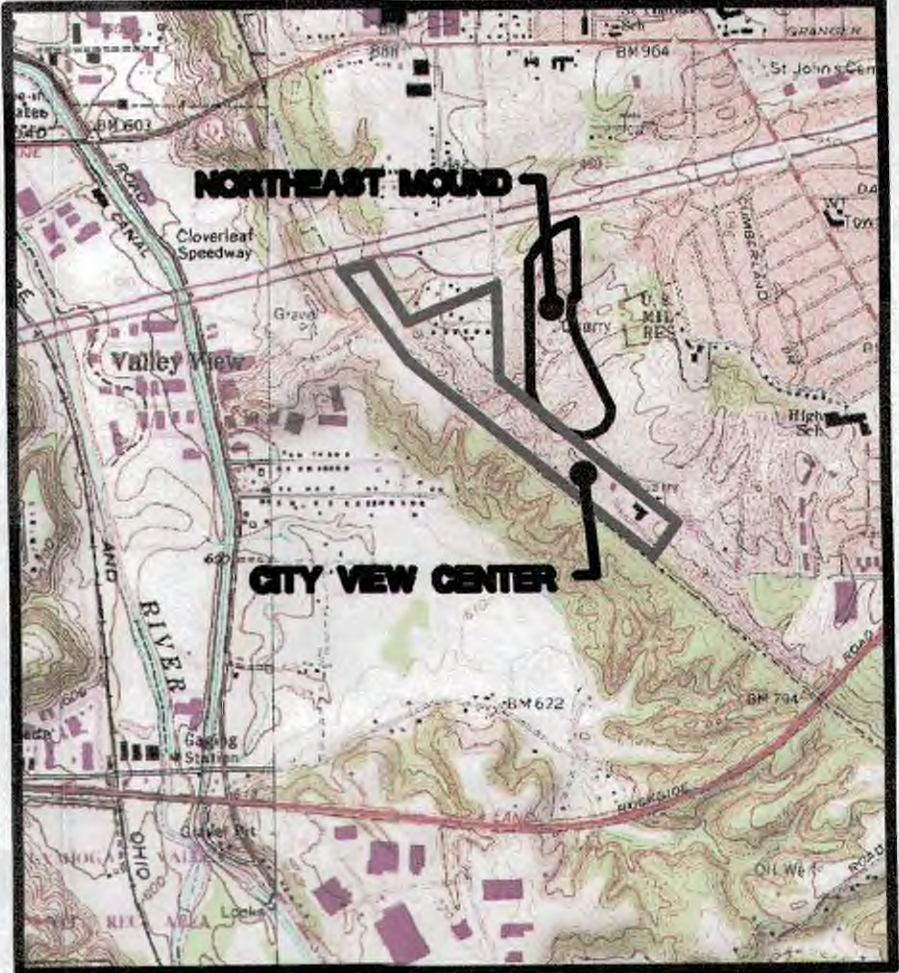
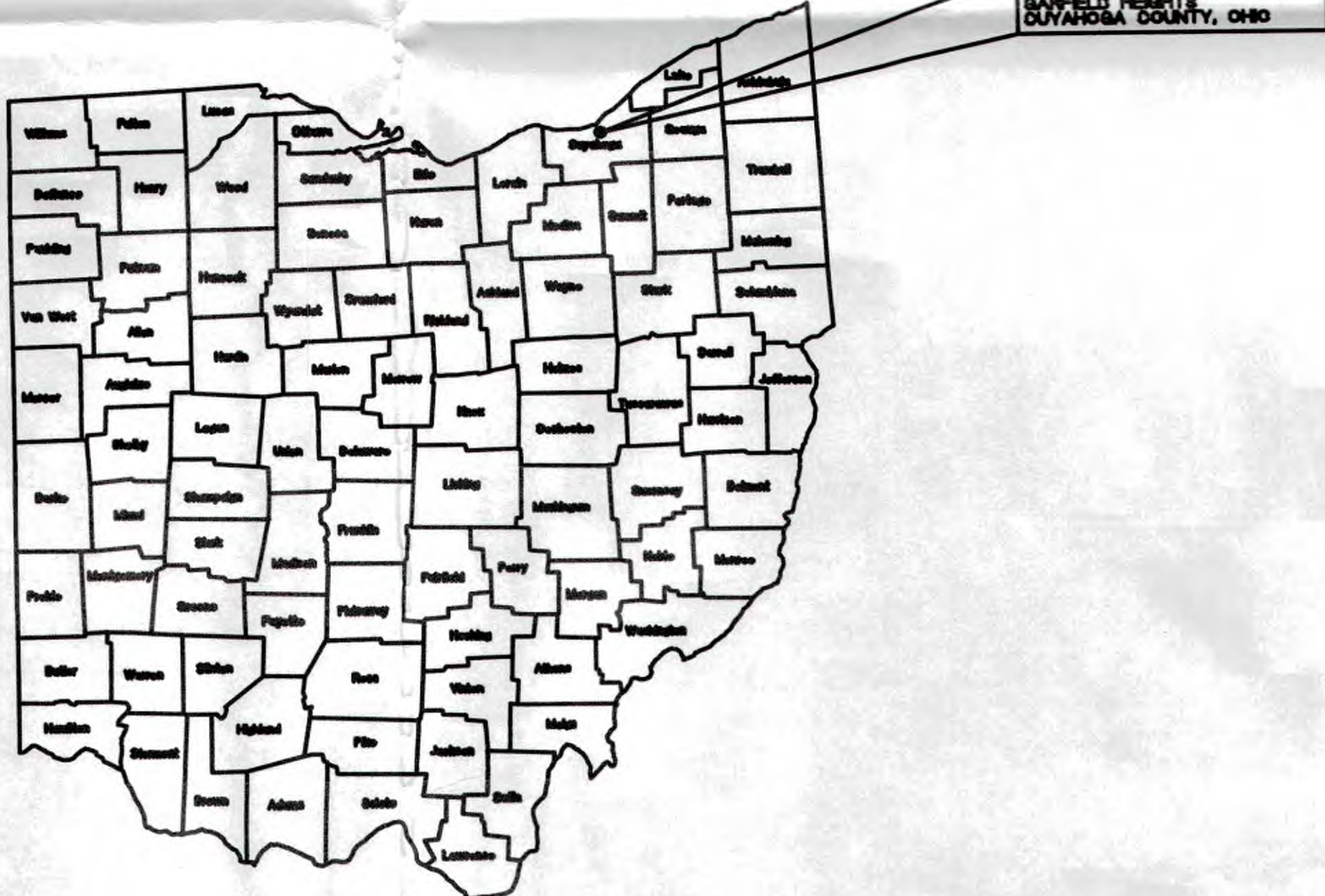
# ACTIVE GAS EXTRACTION SYSTEM

## CITY VIEW CENTER

### GARFIELD HEIGHTS, CUYAHOGA COUNTY, OHIO

DRAWING INDEX	
DRAWING NO.	DRAWING TITLE
1	- COVER SHEET
2	- GAS SYSTEM PLAN SHEET 1
3	- GAS SYSTEM PLAN SHEET 2
4	- GAS SYSTEM PLAN SHEET 3
5	- LEACHATE TOE DRAIN PLAN AND DETAILS
6	- GAS SYSTEM DETAILS 1
7	- GAS SYSTEM DETAILS 2
8	- CONSTRUCTION NOTES AND WELL SCHEDULE

**VICINITY MAP**



**LOCATION MAP**

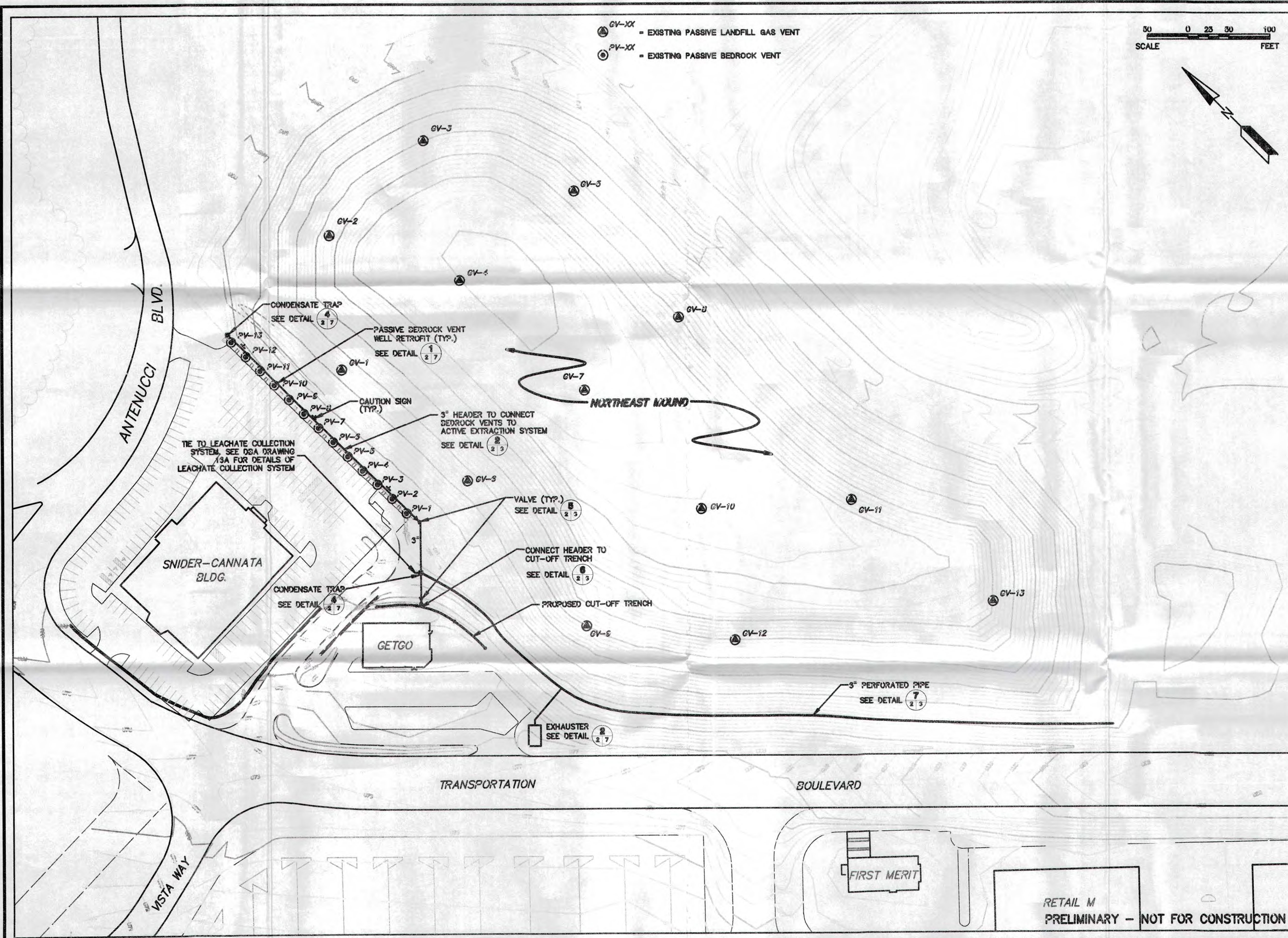
**PREPARED FOR:**  
 GARFIELD LAND DEVELOPMENT, LLC  
 125 W. INDIANTOWN ROAD, SUITE #101  
 JUPITER, FLORIDA 33458

**PREPARED BY:**  
 SCS ENGINEERS  
 2060 READING ROAD  
 SUITE #200  
 CINCINNATI, OHIO 45202-1497  
 PHONE (513) 421-5353  
 FAX (513) 421-2847

JUNE 2009

PRELIMINARY — NOT FOR CONSTRUCTION





<b>SCS ENGINEERS</b> STEVENS, CORRAD AND SOCIETY CONSULTING ENGINEERS, INC. 5400 SHERMAN AVE. SUITE 400, DALLAS, TEXAS 75206 TEL (214) 352-0555 FAX (214) 352-9277		CLIENT: GARFIELD LAND DEVELOPMENT, LLC 925 W. HUNTERMAN ROAD, SUITE #101 JUPITER, FLORIDA 33463	
CADD FILE: <b>PLAN SHEET</b>		SHEET TITLE <b>GAS SYSTEM PLAN SHEET 1</b>	
DATE: <b>JUNE 2006</b>		PROJECT TITLE <b>ACTIVE GAS EXTRACTION SYSTEM CITY NEW CENTER, GARFIELD HEIGHTS, OHIO</b>	
SCALE: <b>AS SHOWN</b>		REV. DATE DESCRIPTION 1 11/10/05	
DRAWING NO. <b>2</b>		OF 57	



◆FAC-x = PROPOSED GAS EXTRACTION WELL

REV	DATE	DESCRIPTION	AMOUNT
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**SHEET TITLE**  
**GAS SYSTEM PLAN SHEET 2**

**PROJECT TITLE**  
ACTIVE GAS EXTRACTION SYSTEM  
CITY VIEW CENTER, GARFIELD HEIGHTS, OHIO

**CLIENT:** GARFIELD LAND DEVELOPMENT, LLC  
125 W. INDIANTOWN ROAD, SUITE #101  
JUPITER, FLORIDA 33453

<b>SCS ENGINEERS</b>	<b>CONTRACTING, CONRAD AND SEARIGHT</b>	<b>CONSULTING ENGINEERS, INC.</b>	<b>6000 SHAWNEE BLVD., SUITE 400A, FREEMAN, OKLA. 74502-9800</b>	<b>(405) 921-2573</b>
<b>MAINT</b>	<b>QC</b>	<b>PDG</b>	<b>SALES</b>	<b>TRAINING</b>
<b>MANAGEMENT</b>	<b>DESIGN</b>	<b>ESTIMATING</b>	<b>INSPECTION</b>	<b>CONSTRUCTION</b>

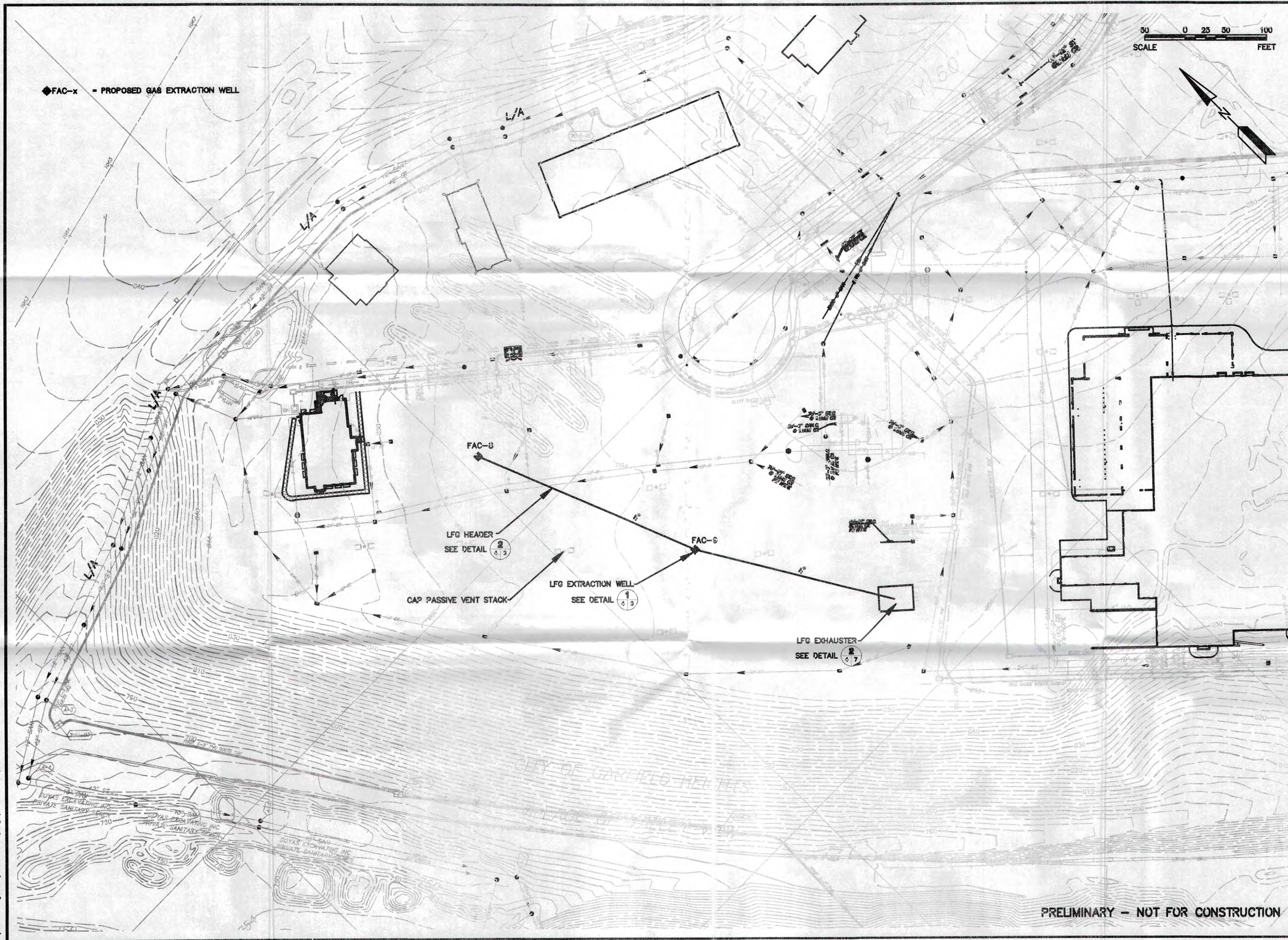
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DATE:  
JUNE 2009  
SCALE:  
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DRAWING NO.

3

PRELIMINARY - NOT FOR CONSTRUCTION



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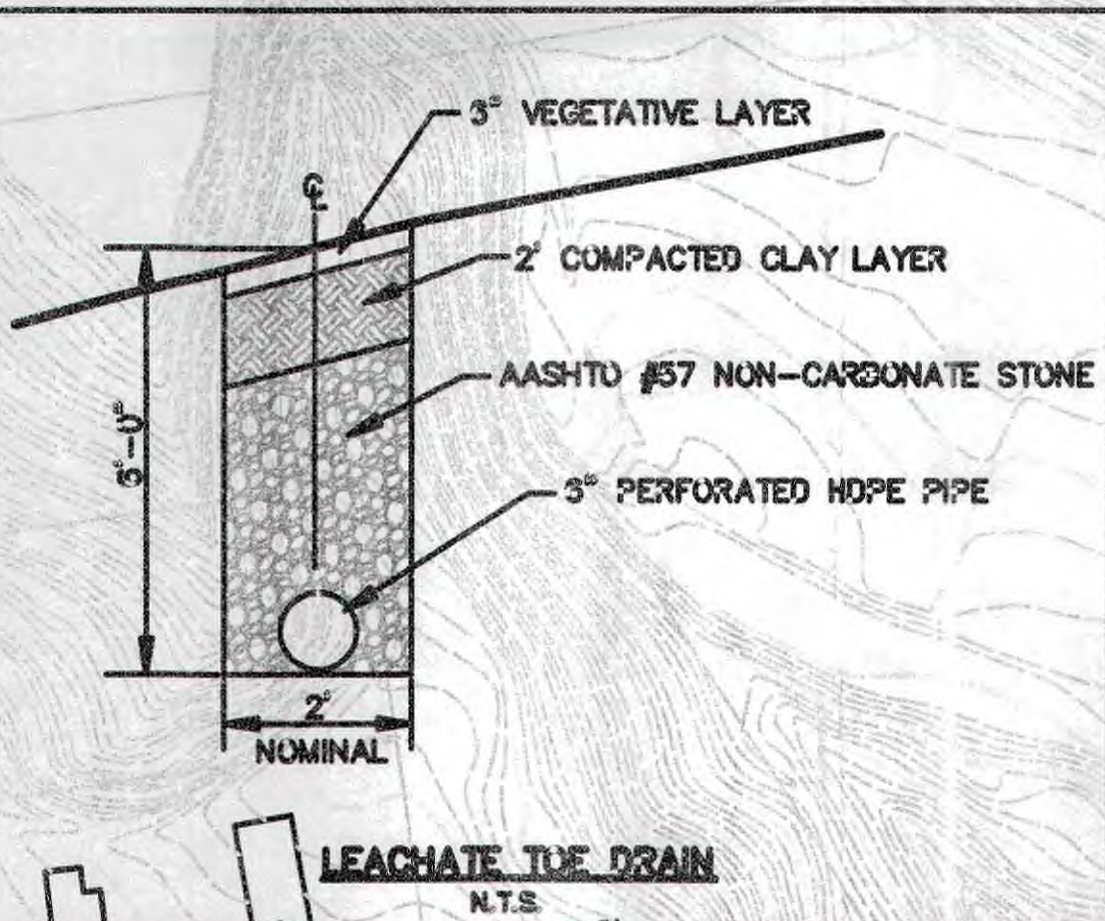


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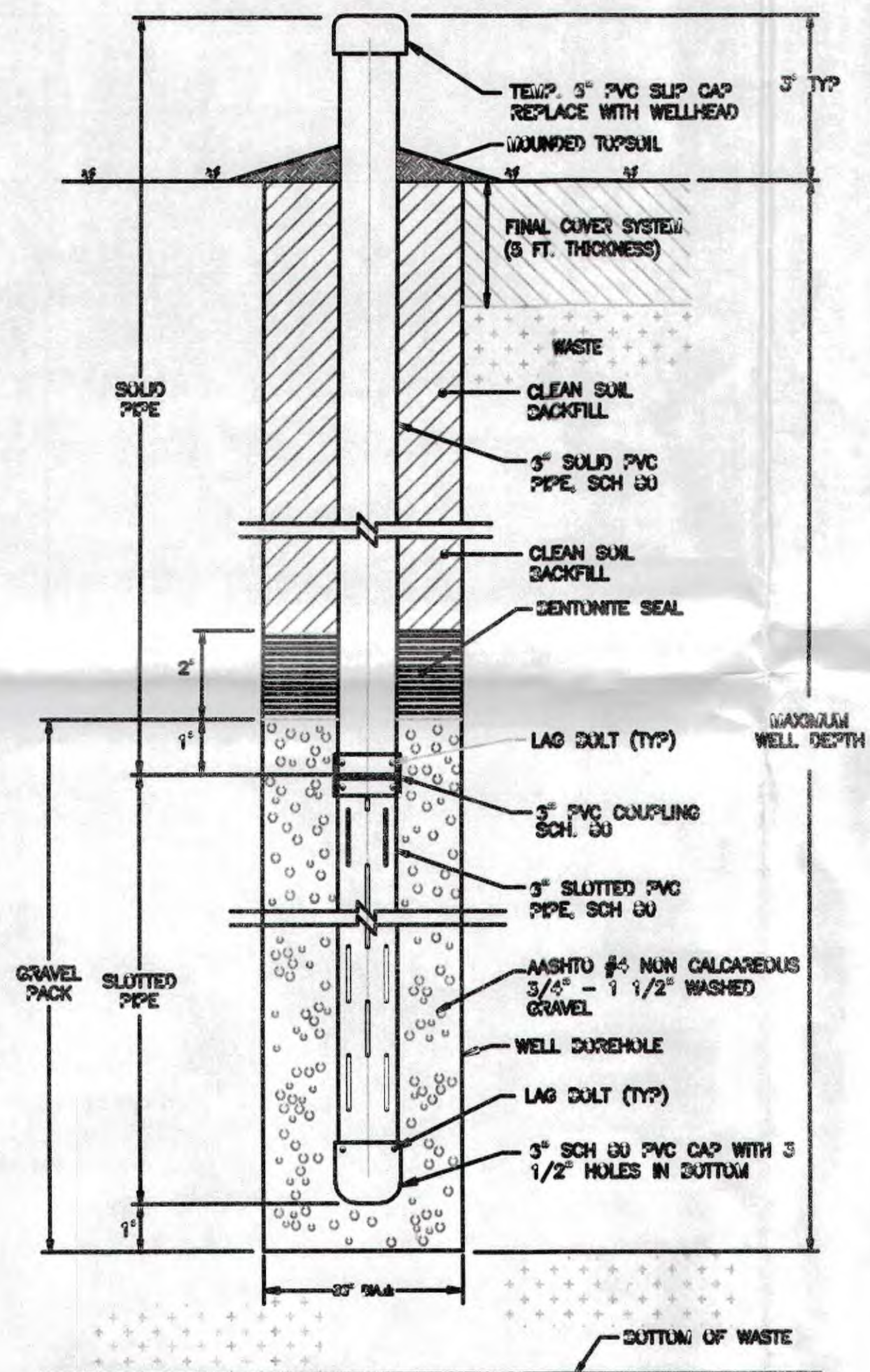
<b>SCS ENGINEERS</b> STEVEN A. CORRAD AND SOCIETY CONSULTING ENGINEERS, INC. 24 COUNTRY CLUB BLVD. SUITE 200 JUPITER, FLORIDA 33451 TEL (407) 585-0550 FAX (407) 585-2537 E-MAIL SCSENG@JUPITER.FL.EDU	CLIENT: GARFIELD LAND DEVELOPMENT, LLC 1225 W. PALM BLVD. SUITE #701 JUPITER, FLORIDA 33451	SHEET TITLE <b>GAS SYSTEM PLAN SHEET 3</b> PROJECT TITLE ACTIVE GAS EXTRACTION SYSTEM CITY NEW CENTER, GARFIELD HEIGHTS, OHIO	REV	DATE	DESCRIPTION	OK
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- | SCS ENGINEERS<br>STEVENA, CONRAD AND SCHMIDT<br>CONSULTING ENGINEERS, INC.<br>1400 N. GULF BLVD., SUITE 200, FORT MYERS, FL 33901<br>TEL (813) 938-2800 FAX (813) 938-2877 |           | CLIENT:<br>GARFIELD LAND DEVELOPMENT, LLC<br>1225 W. UNIVERSITY AVE., SUITE #101<br>JUPITER, FLORIDA 33408 |  |
|--|-----------|--|--|
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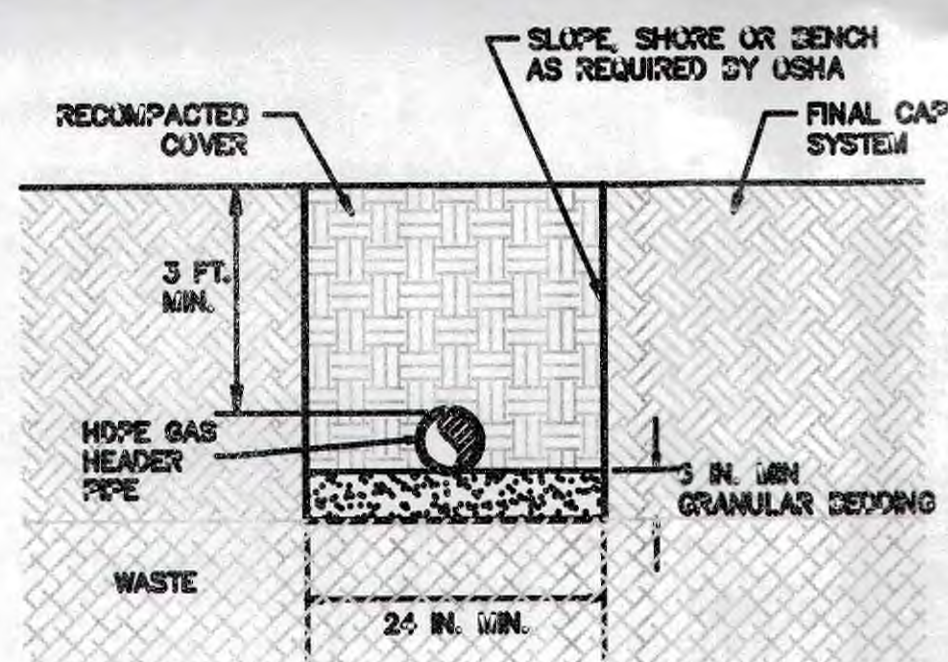




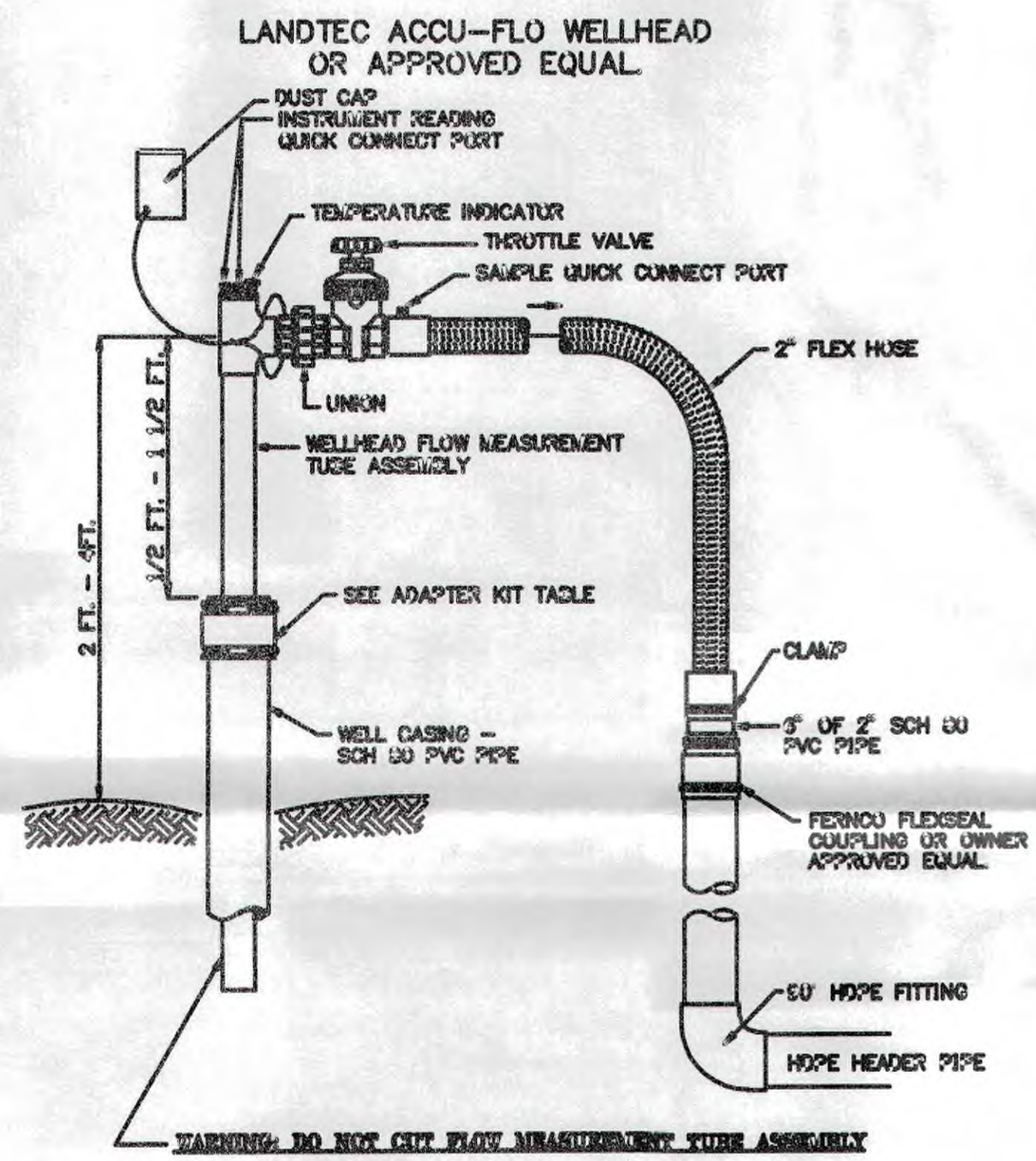


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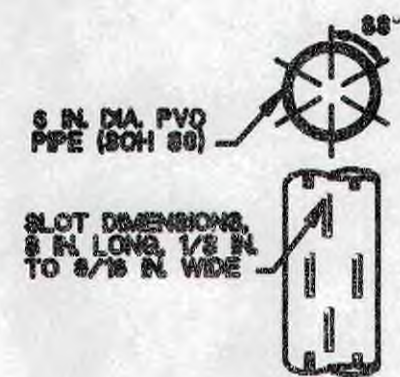
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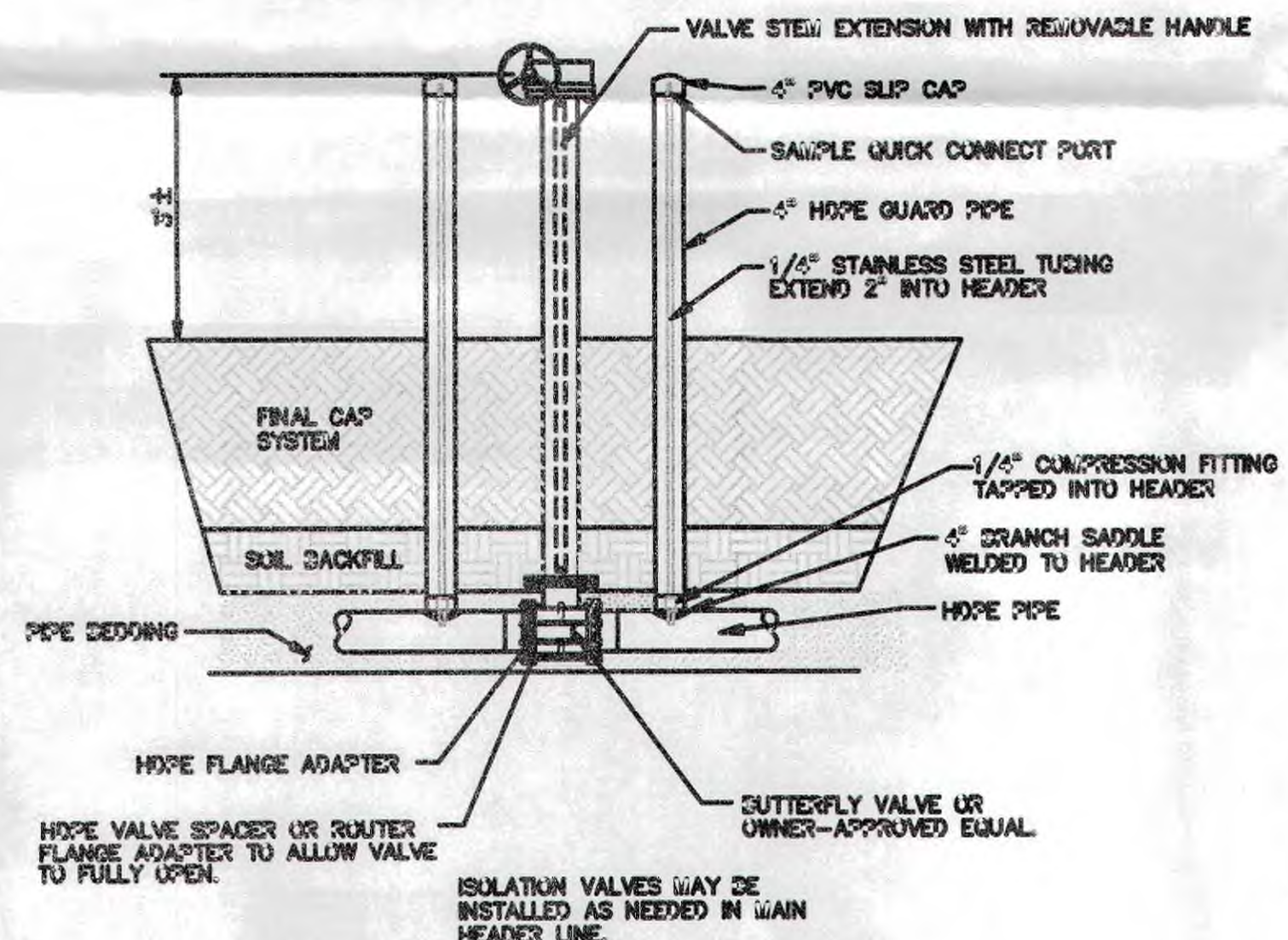


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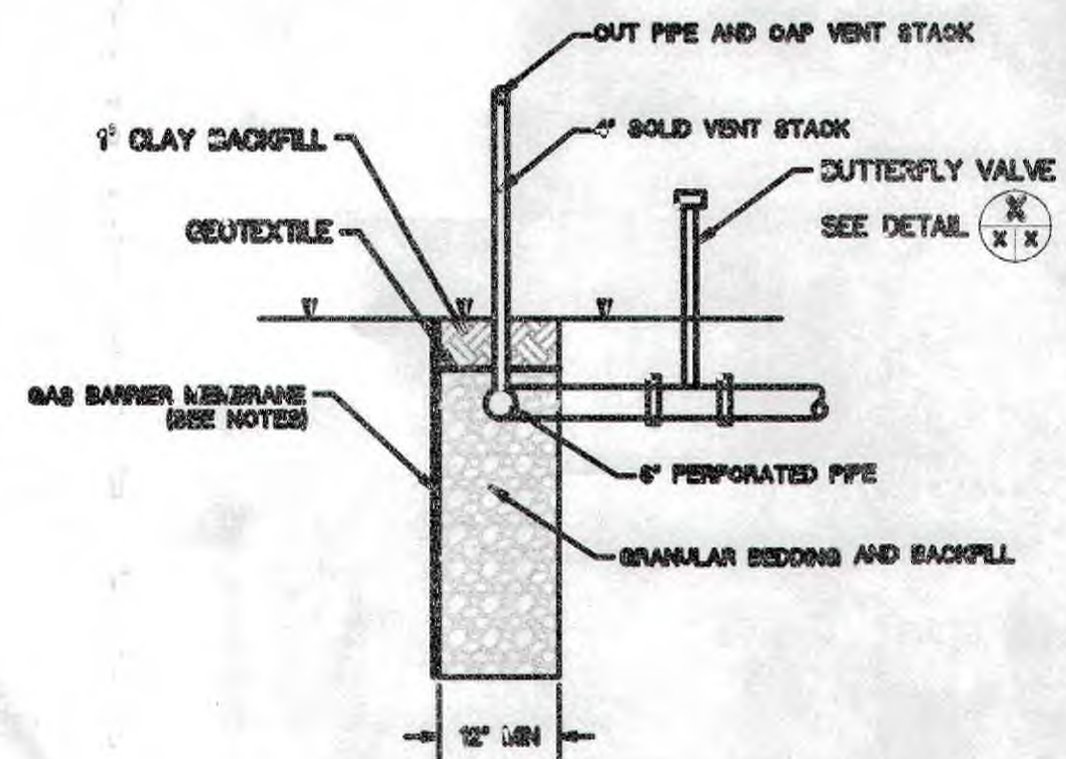


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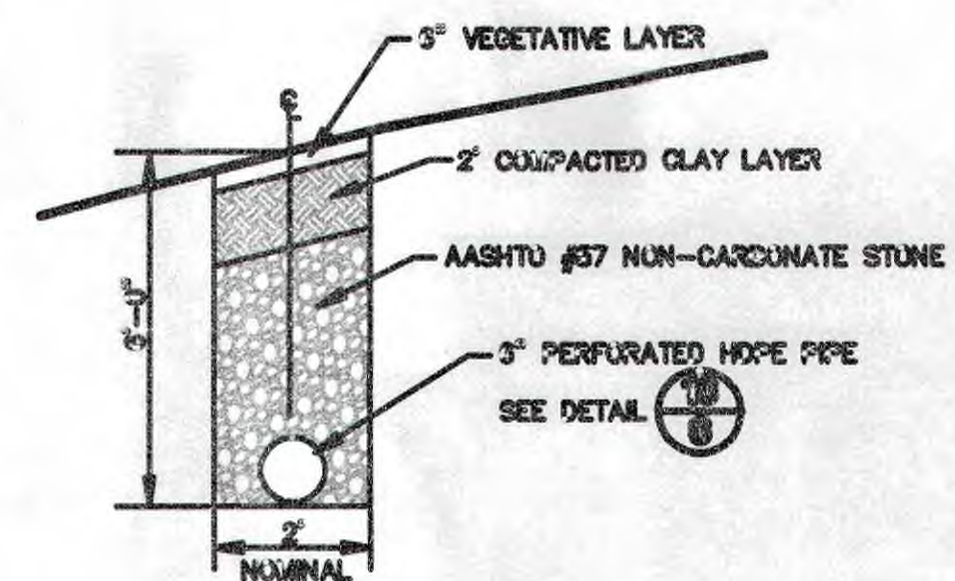
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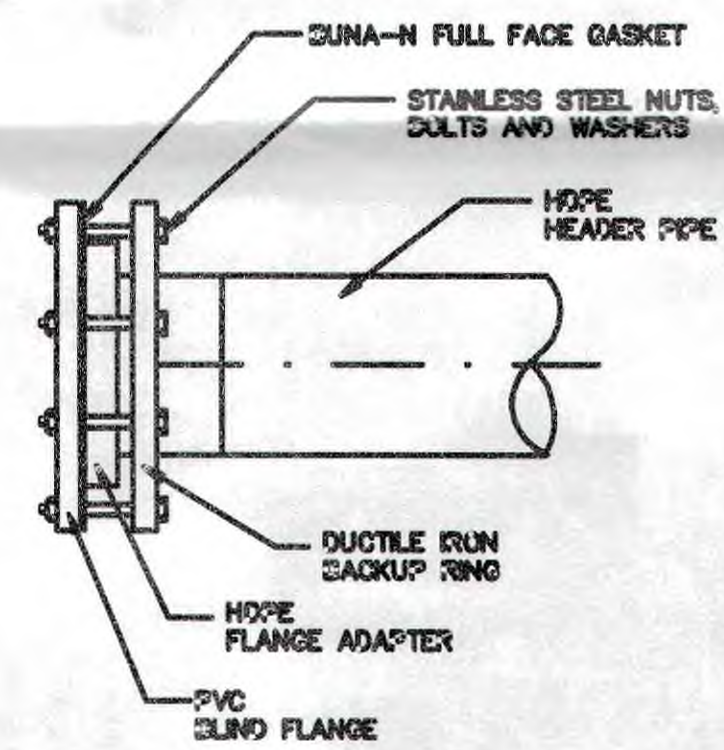
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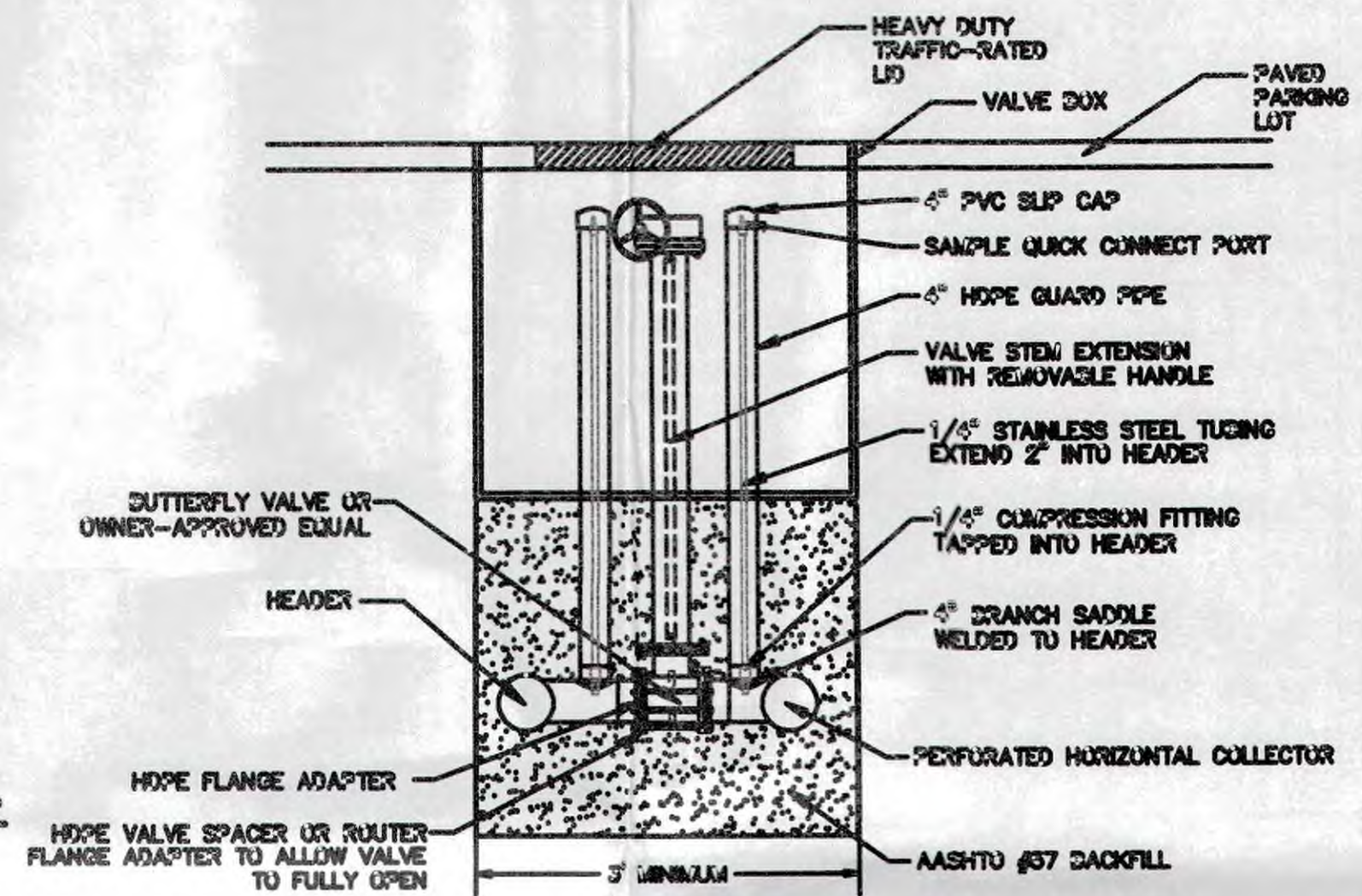
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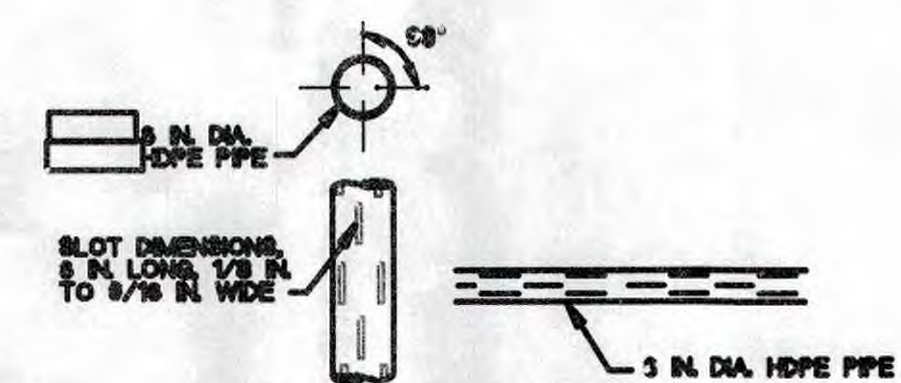
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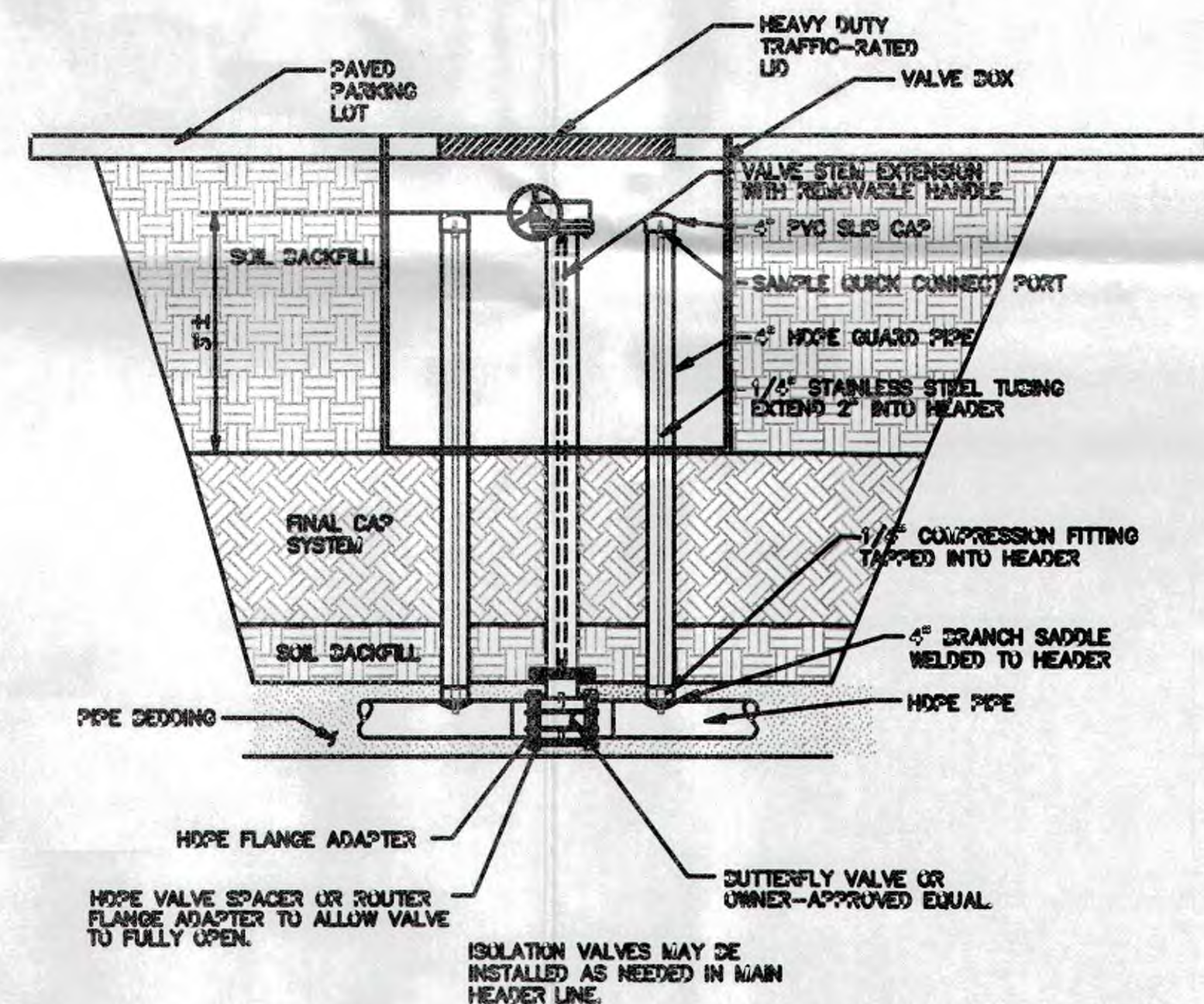


**MAIN FACILITY**  
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**HORIZONTAL COLLECTOR  
PIPE AND SLOTTING DETAIL**

SCALE: NTS



 **TYPICAL VALVE STATION**  
SCALE: NTS

PRELIMINARY - NOT FOR CONSTRUCTION

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SHEET TITLE	PROJECT TITLE
GAS SYSTEM DETAILS 1	ACTIVE GAS EXTRACTION SYSTEM CITY VIEW CENTER, GARFIELD HEIGHTS, OHIO

**CLIENT:** GARFIELD LAND DEVELOPMENT, LLC  
125 W. INDIANTOWN ROAD, SUITE #101  
JUPITER, FLORIDA 33450

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CES/FIG	DEC 78		Q/A

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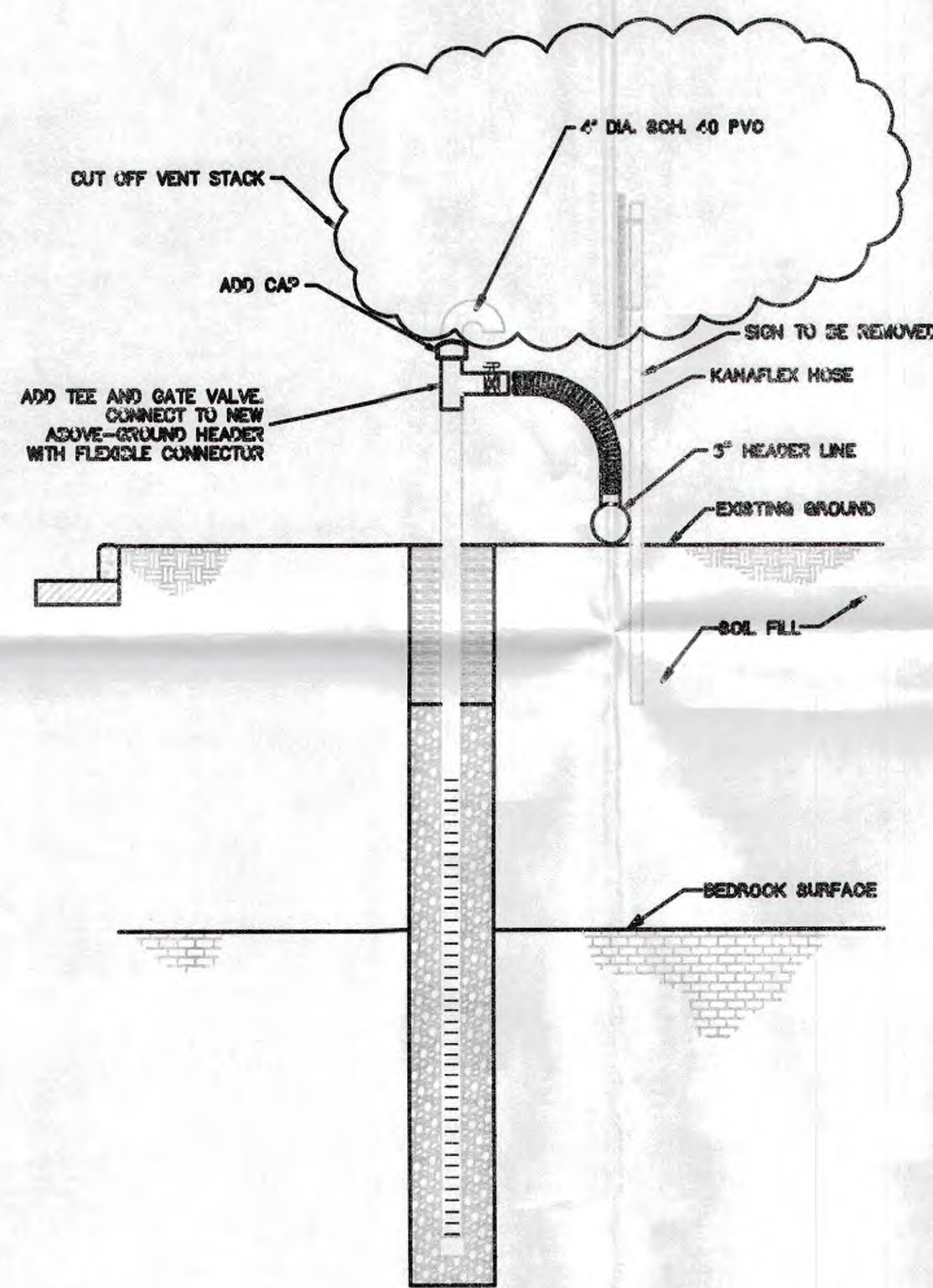
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**JUNE 2009**

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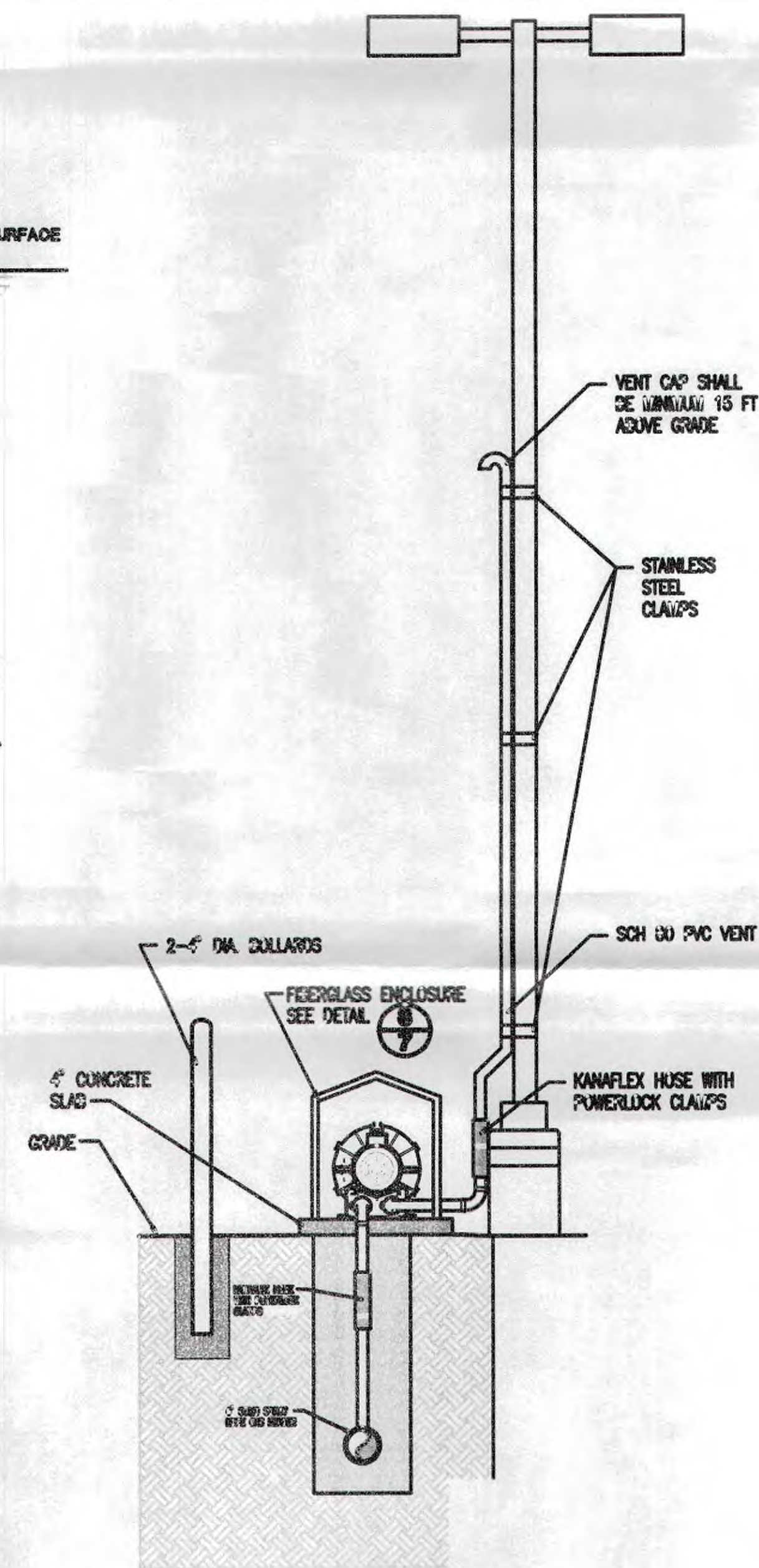


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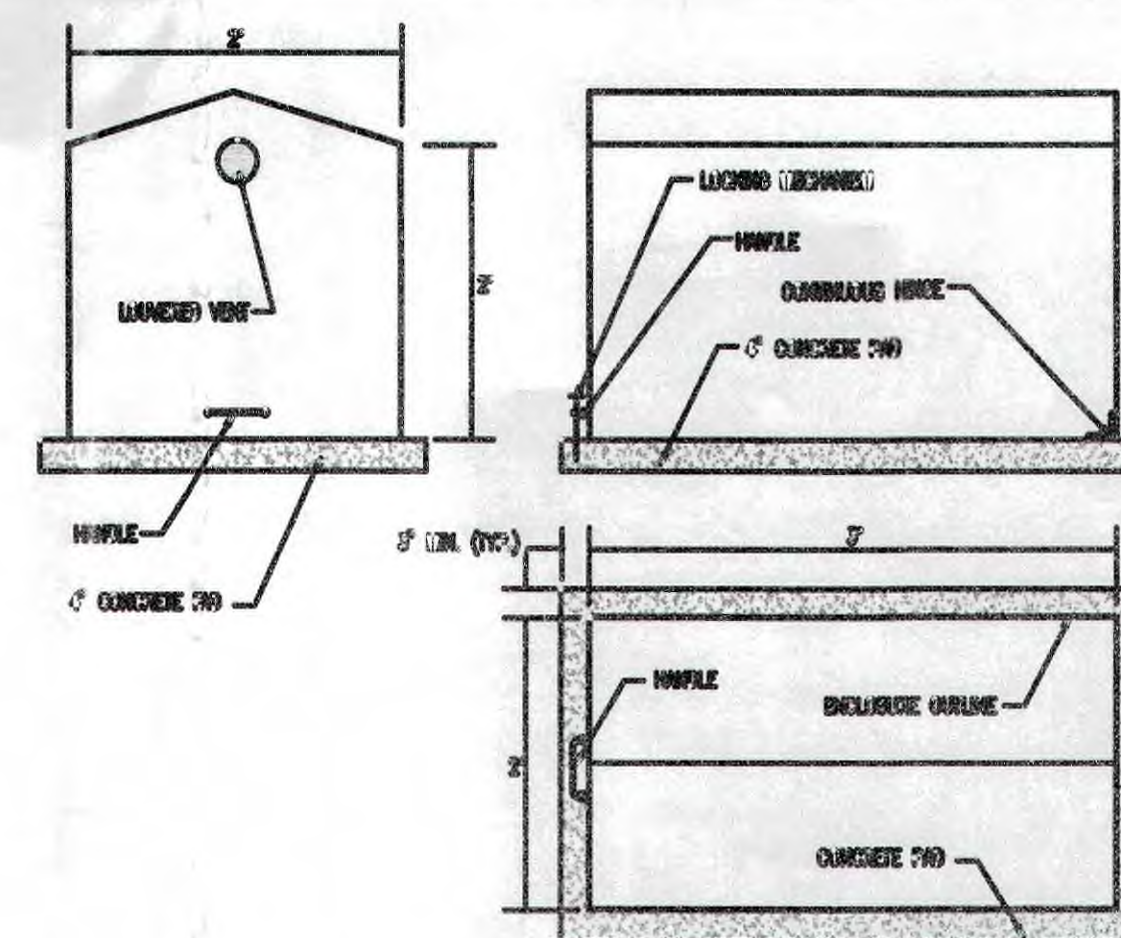
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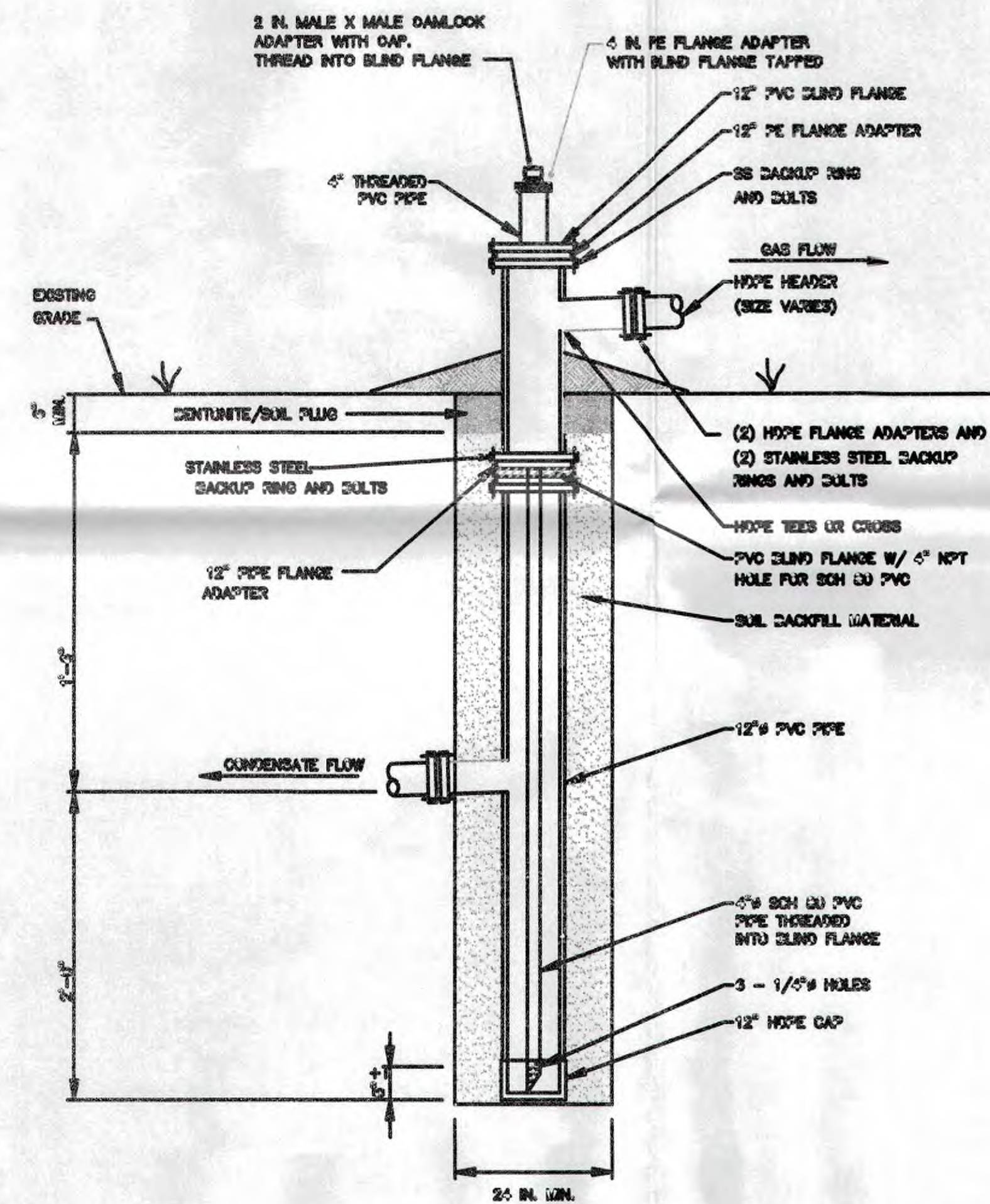
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**FIBERGLASS ENCLOSURE**

SCALE: NTS



**TYPICAL CONDENSATE TRAP**

SCALE: NTS

**SCS ENGINEERS**  
STEVEN, CONRAD AND SCHMIDT  
CONSULTING ENGINEERS, INC.  
125 W. INDIANTOWN ROAD, SUITE #101  
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TEL: (407) 321-3333 FAX: (407) 321-3337  
WWW.SCS-ENG.COM  
E-MAIL: SCS@SCS-ENG.COM

CADD FILE:  
**DETAILS**  
DATE:  
**JUNE 2005**  
SCALE:  
**AS SHOWN**  
DRAWING NO.

SHEET TITLE  
**GAS SYSTEM DETAILS 2**  
PROJECT TITLE  
**ACTIVE GAS EXTRACTION SYSTEM  
CITY VIEW CENTER, GARFIELD HEIGHTS, OHIO**

CLIENT:  
**GARFIELD LAND DEVELOPMENT, LLC  
125 W. INDIANTOWN ROAD, SUITE #101  
JUPITER, FLORIDA 33453**

REV	DATE	DESCRIPTION



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EARTHWORK

- PIPE BEDDING SHALL BE USED WHENEVER THE COLLECTION PIPING RUNS BELOW GRADE. PIPE BEDDING SHALL BE CLEAN, DRY GRANULAR MATERIAL (EXISTING COVER SYSTEM DRAINAGE MEDIA) FREE OF CLAY, MUCK, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES, AND SHALL BE 3 IN. MINIMUM THICKNESS BELOW AND 6 IN. ON BOTH SIDES OF PIPE TO THE SPRINGLINE OF THE PIPE.
- SIDE SLOPES OF EXCAVATIONS SHALL COMPLY WITH THE CODES AND ORDINANCES OF AGENCIES HAVING JURISDICTION TO PREVENT POSSIBLE INJURIES TO WORKERS, STRUCTURES, OR PIPELINES.
- ALL TRENCHES AND EXCAVATIONS SHALL BE BACKFILLED OR COVERED AT THE END OF EACH WORKDAY.
- EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE IMPLEMENTED BY THE CONTRACTOR IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.

LFG EXTRACTION WELLS

- GRAVEL BACKFILL SHALL BE WASHED CLEAN, HARD, DURABLE, CRUSHED STONE OR GRAVEL. GRAVEL BACKFILL SIZE SHALL BE 1 IN. TO 1 1/2 IN. WASHED STONE.
- SOIL BACKFILL MATERIAL SHALL BE CLEAN, CLAY SOIL FILL FREE OF THE FOLLOWING: STONES LARGER THAN 2 IN., CONSTRUCTION DEBRIS, REFUSE, MUCK, SOFT CLAY, LOAM, SPONGY MATERIAL, VEGETATION/ORGANIC MATTER, OR ANGULAR ROCKS.
- BENTONITE PLUG SHALL BE PLACED AS SHOWN ON THE DRAWINGS.
- THE CONTRACTOR SHALL KEEP DETAILED WELL LOGS FOR ALL WELLS DRILLED. LOGS SHALL INCLUDE: TOTAL DEPTH OF WELL, LENGTH OF SLOTTED PIPE, STATIC WATER LEVEL, DESCRIPTION OF THE WASTE STRATA BY INDICATING ITS DEPTH AND THICKNESS, AND THE OCCURRENCE OF ANY WATER BEARING ZONES. WELL LOGS SHALL BE SUBMITTED TO THE OWNER OR ENGINEER.
- THE BORE FOR THE WELL SHALL BE STRAIGHT AND THE WELL PIPE SHALL BE INSTALLED IN THE CENTER OF THE BORE HOLE. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN THE WELL PIPE VERTICALLY PLUMB DURING THE BACKFILL OPERATION OF THE BORED HOLE. SLOTTED PIPE MAY BE FIELD FABRICATED OR SUPPLIED BY THE FACTORY.
- VERTICAL WELL PIPE SECTIONS SHALL BE JOINED BY PVC COUPLINGS. LAG SCREWS SHALL BE USED WITH SOCKET TYPE FITTINGS TO SECURE THE PIPE DURING WELL PLACEMENT. 4 LAG SCREWS SHALL BE INSTALLED FOR EACH COUPLING AND EACH SCREW SHALL HAVE A LENGTH EQUAL TO THE SUM OF THE PIPE AND FITTING WALL THICKNESS. LAG SCREWS SHALL BE OF THE PROPER LENGTH SO AS TO NOT OBSTRUCT THE INSIDE OF THE PIPE.
- WELLHEAD ASSEMBLIES SHALL BE ACCU-FLO SERIES 200 MANUFACTURED BY CES-LANDTECH, COLTON, CA., OR EQUAL.
- EACH WELLHEAD SHALL HAVE ITS NUMBER STENCILED ON ITS SIDE.
- IF WATER IS ENCOUNTERED IN A BURING, THE OWNER OR ENGINEER MAY DECREASE THE DEPTH OF THE BURING AND SLOTTED PIPE, CONTINUE DRILLING TO DETERMINE IF A PERCHED WATER LAYER EXISTS, OR RELOCATE THE WELL.
- IF DURING THE DRILLING OF A HOLE, AN OBSTRUCTION IS ENCOUNTERED, THE DRILLER MUST USE ALL REASONABLE MEANS TO ADVANCE THE DRILLING. IF THE DRILLING RATE FALLS TO LESS THAN 2 FT PER HOUR AND THE WELL CANNOT BE COMPLETED AS SHOWN ON THE DRAWINGS, THE OWNER OR ENGINEER SHALL BE CONSULTED AS TO WHETHER THE BORE HOLE HAS ADVANCED TO A SUFFICIENT DEPTH.
- IF WELL CONSTRUCTION IS NOT COMPLETED BY THE END OF THE WORKING DAY, THE HOLE SHALL BE COVERED WITH A PLATE OF SUFFICIENT THICKNESS AND WITH A SUFFICIENT OVERLAP TO PREVENT ACCESS TO THE HOLE AND TO SUPPORT EXPECTED LOADS. THE EDGES OF THE PLATE SHALL BE COVERED WITH A SUFFICIENT DEPTH OF WET SOIL TO PREVENT THE ESCAPE OF GAS. BARRICADES SHALL BE PLACED AROUND THE COVERED HOLE.

EXCAVATION AND BACKFILL

- NO BENCHING OF EXISTING SLOPES SHALL BE PERMITTED FOR THE INSTALLATION OF THE GAS EXTRACTION SYSTEM OR ANCILLARY COMPONENTS.
- TACK-ON PLATFORMS, WHERE NECESSARY FOR INSTALLATION OF EXTRACTION SYSTEM COMPONENTS SHALL BE NO LARGER THAN NECESSARY TO INSTALL THE COMPONENT.
- THE FINAL TWO FEET OF BACKFILL OVER THE EXTRACTION SYSTEM PIPING SHALL BE CAP MATERIAL INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS. TESTING AND CERTIFICATION OF THE REPLACEMENT CAP MATERIAL SHALL BE PROVIDED BY THE ENGINEER. THE CONTRACTOR SHALL MEET THE REQUIREMENTS FOR THE PLACEMENT OF CAP MATERIAL TO THE SATISFACTION OF THE ENGINEER.

CONSTRUCTION NOTES

PIPES AND FITTINGS

- HDPE LFG HEADER AND LATERAL PIPE SHALL BE SDR-17 WITH TYPE 3408 RESIN.
- HDPE PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THESE DRAWINGS, WHICHEVER IS MORE STRINGENT.
- HDPE PIPE SHALL BE JOINED BY THE FOLLOWING METHODS:
  - UNLESS OTHERWISE STATED, HDPE SHALL BE JOINED BY HEAT FUSION AS SPECIFIED IN THE PIPE MANUFACTURER'S INSTRUCTIONS.
  - HDPE FLANGE ADAPTERS SHALL BE EMPLOYED WHERE INDICATED ON THE DRAWINGS. FLANGES FOR HDPE PIPE SHALL BE CONVULGATED DUCTILE IRON BACKUP RINGS AND A MINIMUM THICKNESS OF 1 IN., AS MANUFACTURED BY IMPROVED PIPING PRODUCTS, INC., OF EMERYVILLE, CALIFORNIA OR APPROVED EQUAL. BACKUP RINGS SHALL BE FINISHED WITH ZINC CHROMATE PRIMER.
- BOLTS AND STUDS SHALL BE ASTM A-273, TYPE 313 STAINLESS STEEL. NUTS AND WASHERS SHALL BE ASTM A-273, TYPE 304 STAINLESS STEEL.
- STUDS, NOT BOLTS, SHALL BE USED TO CONNECT FLANGES. THE STUDS SHALL BE ASTM A-273, TYPE 313 STAINLESS STEEL. THE STUDS SHALL BE FASTENED WITH HEAVY, SEMI-FINISHED HEXAGON NUTS AND COMPLETELY COATED JUST PRIOR TO INSTALLATION WITH AN ANTI-SEIZE COMPOUND SUCH AS MANUFACTURED BY KUPR-KOTE OR APPROVED EQUAL.
- THE CONTRACTOR SHALL TEST ALL LFG COLLECTION PIPE WITH PRESSURIZED AIR (3 PSI) TO DETECT ANY LEAKS IN THE PIPING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRS OR RESTORATIONS MADE IN AREAS WHERE LEAKS ARE DISCOVERED. TEST SEGMENTS SHALL NOT EXCEED 500 LINEAR FT. TEST RESULTS SHALL BE SUBMITTED TO THE OWNER OR ENGINEER.
- PVC SHALL BE SCHEDULE 80 ALIGNED TO MINIMIZE LINEAR DEVIATIONS AT THE JOINTS AND CONNECTED BY PVC SOCKET FITTINGS. A COATING OF CPS PRIMER SHALL BE APPLIED TO THE INTERIOR SURFACE OF THE FITTING SOCKET PRIOR TO THE APPLICATION OF SOLVENT CEMENT.
- FLEXIBLE PVC PIPE AND CLAMPS SHALL BE AS MANUFACTURED BY KANAFLEX IN COMPTON, CA., OR APPROVED EQUAL.
- ALL KANAFLEX HOSE AND PVC PIPE EXPOSED TO WEATHER SHALL BE UV RESISTANT.
- MONITORING PORTS SHALL BE 1/4 IN. POLYPROPYLENE QUICK CONNECT PART NO. PMCO 10-04-12 BY COLDER PRODUCTS (312)545-0061 OR EQUAL, ON EITHER SIDE OF THE LINE.
- PVC BUTTERFLY VALVES SHALL BE LEVER OPERATED, TYPE 75, WAFER STYLE WITH EPDM SEAT. GASKET FOR BUTTERFLY VALVES SHALL BE FLUORINATED ELASTOMERS CONFORMING TO ASTM D-2000, SUITABLE FOR THE PRESSURE AND TEMPERATURE RANGES ENCOUNTERED, AND COMPATIBLE WITH FLANGE FACES. PVC BUTTERFLY VALVES SHALL BE MANUFACTURED BY ASAHI/AMERICA, BEDFORD, MA, OR APPROVED EQUAL.

SAFETY

- CONSTRUCTION SHALL COMPLY WITH THE SAFETY PROVISIONS AS OUTLINED IN SWANA'S COMPILATION OF LANDFILL GAS LABORATORY AND FIELD PRACTICES AND PROCEDURES, DATED MARCH 1992, AND OSHA STANDARDS FOR CONSTRUCTION WORK. CONTRACTOR SHALL SUBMIT 3 COPIES OF THE CONTRACTORS AND ALL SUBCONTRACTORS HEALTH AND SAFETY PLAN(S) TO THE OWNER OR ENGINEER.

GENERAL NOTES

- LAYOUT AND WELL DEPTHS MAY BE MODIFIED AS DIRECTED BY THE OWNER OR ENGINEER TO ACCOMMODATE FIELD CONDITIONS. REVISIONS/MODIFICATIONS SHALL BE REVIEWED BY THE ENGINEER TO ENSURE THE BOTTOM OF THE LANDFILL LINER SYSTEM IS NOT ENCOUNTERED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY LOCAL PERMITS, STREET PERMITS, ETC., AS NECESSARY.
- CONTRACTOR SHALL PROVIDE SURVEYOR FOR INITIAL WELL/HEADER LINE LAYOUT (HORIZONTAL AND VERTICAL). INFORMATION SHALL BE PROVIDED TO THE OWNER AND ENGINEER PRIOR TO INITIATING CONSTRUCTION. CONTRACTOR'S SURVEYOR SHALL PROVIDE AS-BUILT LOCATION INFORMATION (HORIZONTAL AND VERTICAL) FOR ALL WELLS AND LFG COLLECTION PIPING INSTALLED. AS-BUILT INFORMATION SHALL BE STAMPED BY AN OHIO REGISTERED LAND SURVEYOR. INFORMATION SHALL BE PROVIDED TO THE OWNER AND ENGINEER.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE OWNER AND ENGINEER FOR REVIEW, INCLUDING PIPING, CONDENSATE SUMP, CONDENSATE TRAP, CONDENSATE PUMP, AND VALVES.

LANDFILL GAS EXHAUSTERS

- THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ENGINEER FOR APPROVAL MANUFACTURER'S LITERATURE, SHOP DRAWINGS, AND OTHER INFORMATION PERTAINING TO THE ASSEMBLY, OPERATION, LUBRICATION, ADJUSTMENTS, AND OTHER MAINTENANCE AND REPAIRS OF EQUIPMENT INSTALLED UNDER THIS SECTION, TOGETHER WITH DETAILED PARTS LISTS, PLANS, AND/OR PHOTOGRAPHS OF ALL COMPONENTS.
- THE CONTRACTOR SHALL SUBMIT COMPLETE EXHAUSTER PERFORMANCE DATA THAT WILL INDICATE COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS. THIS INFORMATION SHALL INCLUDE EXHAUSTER CHARACTERISTIC CURVES INDICATING CAPACITY FOR FLOW VERSUS PRESSURE HEAD AND AMPS AS TESTED AT THE FACTORY. IT SHALL ALSO INCLUDE CALCULATIONS SHOWING THE EQUIPMENT GAS FLOW AND MOTOR CORRECTIONS REQUIRED FOR OPERATION AT JOB SITE ELEVATION AS SPECIFIED IN THIS SECTION.
- THE CONTRACTOR SHALL FURNISH THREE (3) COPIES OF AN OPERATION AND MAINTENANCE MANUAL PREPARED SPECIFICALLY FOR THIS INSTALLATION. A MINIMUM OF 3 WEEKS PRIOR TO DELIVERY OF THE EQUIPMENT, THE MANUAL SHALL INCLUDE ALL REQUIRED CATALOG CUTS, PLANS, EQUIPMENT LIST, DESCRIPTIONS, AND INFORMATION NECESSARY TO INSTRUCT OPERATING PERSONNEL UNFAMILIAR WITH SUCH EQUIPMENT. THE MANUAL SHALL INCLUDE A LIST OF RECOMMENDED SPARE PARTS FOR THE EQUIPMENT SUPPLIED. THE CONTRACTOR SHALL MODIFY THE MANUAL, AS NECESSARY, BASED ON ENGINEER'S COMMENTS FOLLOWING STARTUP AND SHALL SUBMIT THREE (3) COPIES OF THE FINALIZED MANUAL TWO (2) WEEKS AFTER STARTUP.
- PRIOR TO TESTING, THE CONTRACTOR SHALL SUBMIT A DETAILED OUTLINE OF TEST PROCEDURES INCLUDING STEP-BY-STEP DESCRIPTIONS OF THE PROPOSED TEST, A LIST OF ALL TEST EQUIPMENT, TEST EQUIPMENT CALIBRATION DATES, AND SIGN-OFF SHEETS.
- THE EXHAUSTERS SHALL BE REGENERATIVE BLOWERS CAPABLE OF EXERTING A VACUUM OF 30 ING AND A FLOW OF 190 SCFM. THE EXHAUSTERS SHALL BE MODEL EN 303 AS MANUFACTURED BY AMETEK ROTRON TECHNICAL AND INDUSTRIAL PRODUCTS, KENT, OHIO, OR EQUAL. THE MOTORS SHALL BE 2 HP, 115/230 VOLT, SINGLE PHASE, 90 HZ UNITS. THE EXHAUSTER UNITS SHALL BE MOUNTED ON A STEEL SKID, CONCRETE PAD, OR FIBERGLASS BASE UNIT. THE EXHAUSTER SHALL BE PROTECTED FROM THE WEATHER WITH A FIBERGLASS ENCLOSURE SIZED TO FIT OVER THE ENTIRE UNIT. THE FIBERGLASS ENCLOSURE SHALL BE HINGED TO ALLOW ACCESS TO THE EXHAUSTER FOR MAINTENANCE PURPOSES. THE ENCLOSURE SHALL BE A NON-INSULATED FIBERGLASS FLIP-TOP UNIT BY S.W. ROGERS COMPANY, AKRON, OHIO, OR APPROVED EQUAL.
- THE EXHAUSTER UNIT SHALL BE EQUIPPED WITH A MOISTURE SEPARATOR SIZED TO MEET THE EXHAUSTER REQUIREMENTS.
- EQUIPMENT SHALL BE FIELD-TESTED BY THE CONTRACTOR TO VERIFY PROPER ALIGNMENT AND OPERATION, INCLUDING FREEDOM FROM BINDING, SCRAPING, VIBRATION, SHAFT RUNOUT, OR OTHER DEFECTS. FURNISH ALL EQUIPMENT, MATERIALS, AND LABOR NECESSARY FOR TESTING THE OPERATION OF THE COMPLETE SYSTEM, VALVES AND APPURTENANCES. UPON COMPLETION OF THE INSTALLATION AT NO ADDITIONAL COST TO THE OWNER, THE EXHAUSTERS SHALL BE TESTED TO ASSURE PROPER OPERATION AND DELIVERY OF SPECIFIED FLOW RATES AND VACUUMS IN THE PRESENCE OF THE ENGINEER.
- THE EXHAUSTER SHALL BE PROTECTED FROM THERMAL OVERLOAD WITH A STARTER, COMBINATION FUSIBLE DISCONNECT.

WELL SCHEDULE

WELL NO.	LOCATION COORDINATES		APPROXIMATE SURFACE ELEVATION (FT MSL)	APPROXIMATE WASTE BOTTOM ELEVATION (FT MSL)	BORE HOLE DEPTH (FT)	WELL PIPE DEPTH (FT)	SLOTTED PIPE LENGTH (FT)	SOLID PIPE LENGTH (FT)
	N-S	E-W						
FAC-1	8,928	9,842	870	779	91	90	60	30
FAC-2	9,170	10,014	866	778	91	90	60	30
FAC-3	8,445	11,992	883	847	96	95	29	12
FAC-4	8,220	11,422	980	855	25	24	16	8
FAC-5	7,990	11,499	877	846	31	30	20	10
FAC-6	7,897	11,842	877	846	31	30	20	10
FAC-7	7,776	11,268	875	844	31	30	20	10
FAC-8	10,008	8,959	852	779	79	72	48	24
FAC-9	9,785	9,063	858	807	51	50	34	16

LEGEND

FAC-x PROPOSED EXTRACTION WELL

PRELIMINARY - NOT FOR CONSTRUCTION

SHEET TITLE		CONSTRUCTION NOTES AND WELL SCHEDULE		PROJECT TITLE		ACTIVE GAS EXTRACTION SYSTEM CITY NEW CENTER, GARFIELD HEIGHTS, OHIO	
CLIENT:		GARFIELD LAND DEVELOPMENT, LLC 125 W. INDIANTOWN ROAD, SUITE #101 JUPITER, FLORIDA 33455		DATE:		JUN 02 2006	
DRAWN BY:		JUN 02 2006		CHECKED BY:		JUN 02 2006	
SCALE:		AS SHOWN		DRAWING NO.:		8	



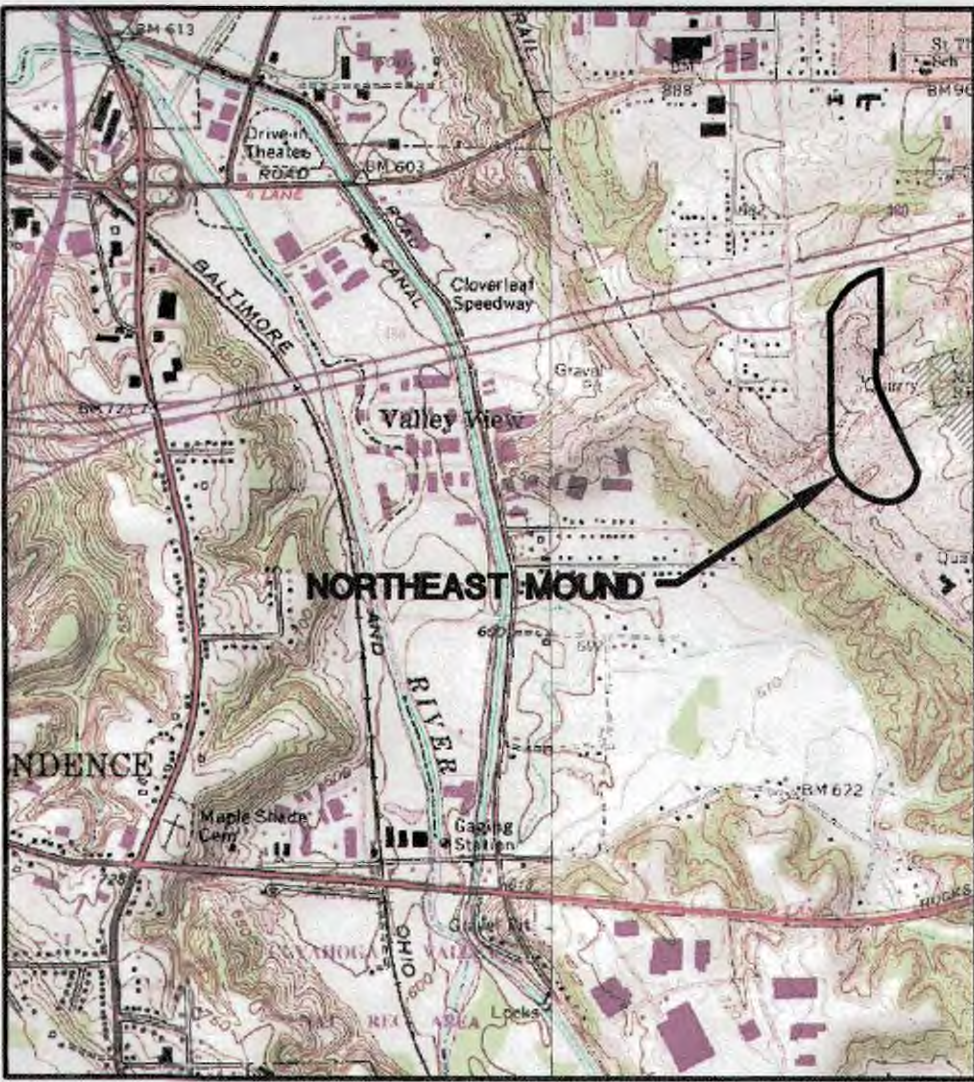
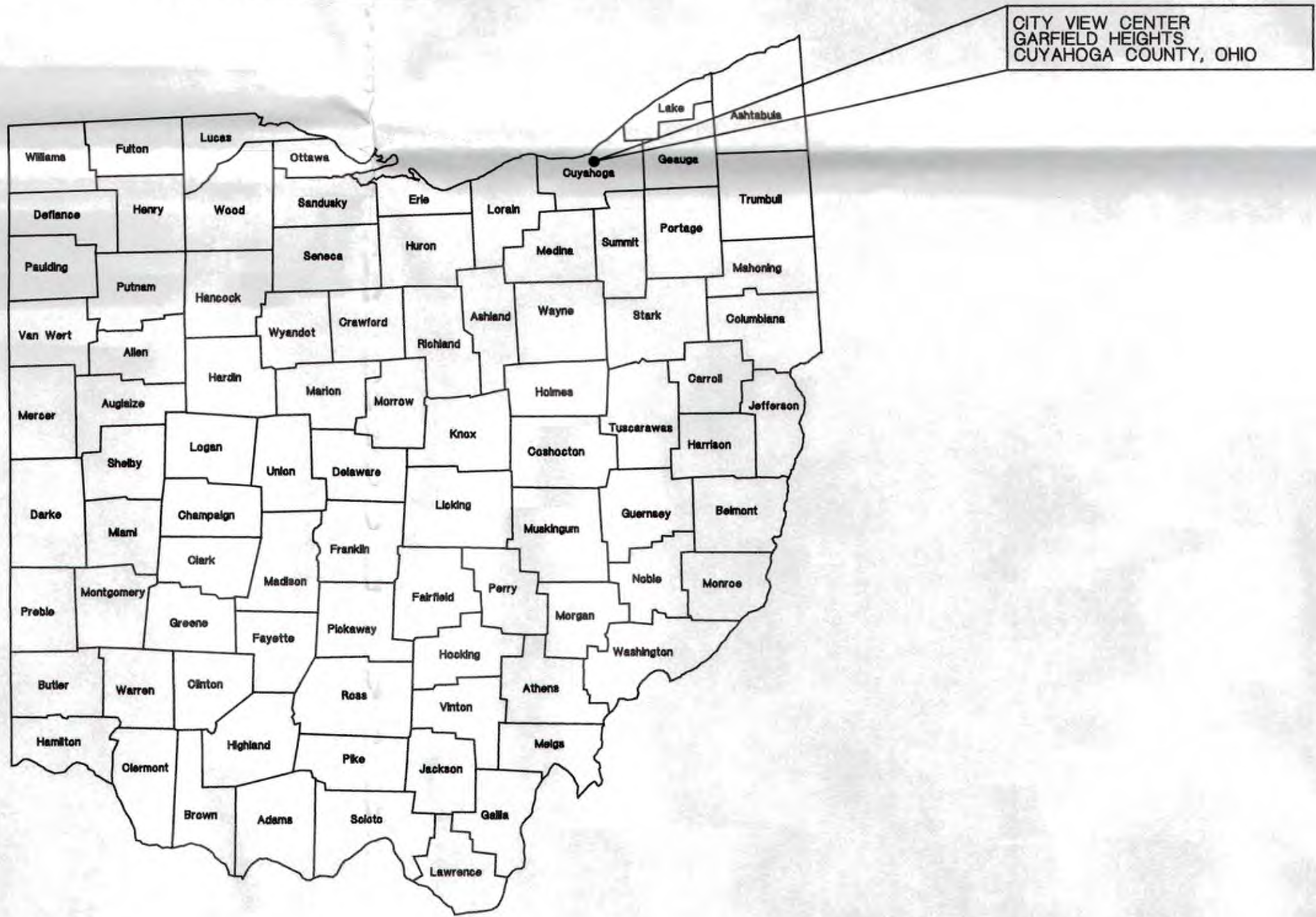
# NORTHEAST MOUND ACTIVE GAS EXTRACTION SYSTEM

## CITY VIEW CENTER

GARFIELD HEIGHTS, CUYAHOGA COUNTY, OHIO

DRAWING INDEX	
DRAWING NO.	DRAWING TITLE
1	COVER SHEET
2	PLAN SHEET
3	GAS SYSTEM DETAILS
4	GAS SYSTEM DETAILS
5	CONDENSATE DETAILS
6	CONSTRUCTION NOTES AND WELL SCHEDULE

VICINITY MAP



LOCATION MAP

PREPARED FOR:  
GARFIELD LAND DEVELOPMENT, LLC  
125 W. INDIANTOWN ROAD, SUITE #101  
JUPITER, FLORIDA 33458

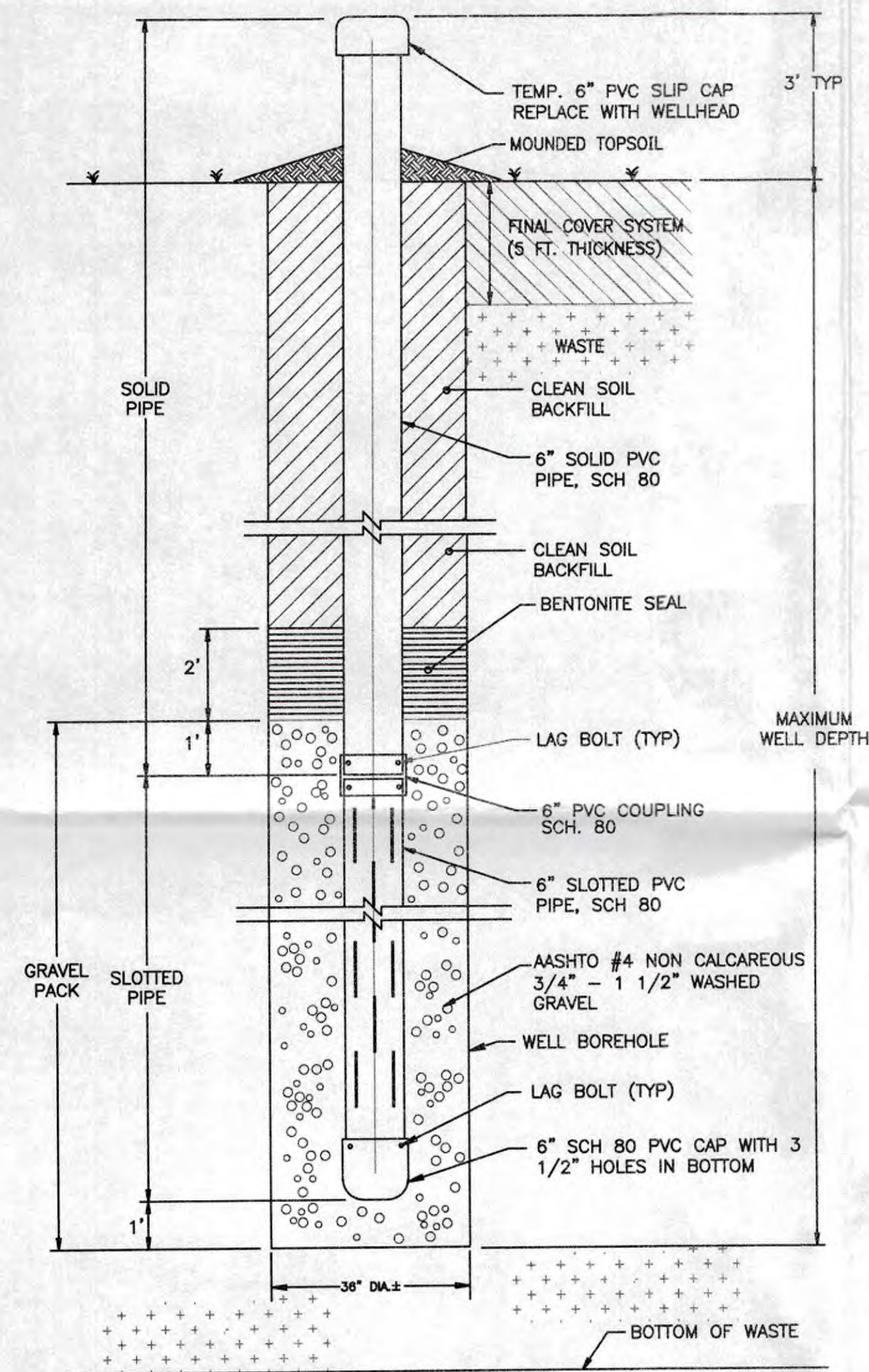
PREPARED BY:  
SCS ENGINEERS  
2080 READING ROAD  
SUITE #200  
CINCINNATI, OHIO 45202-1497  
PHONE (513) 421-5353  
FAX (513) 421-2847

DECEMBER 2008





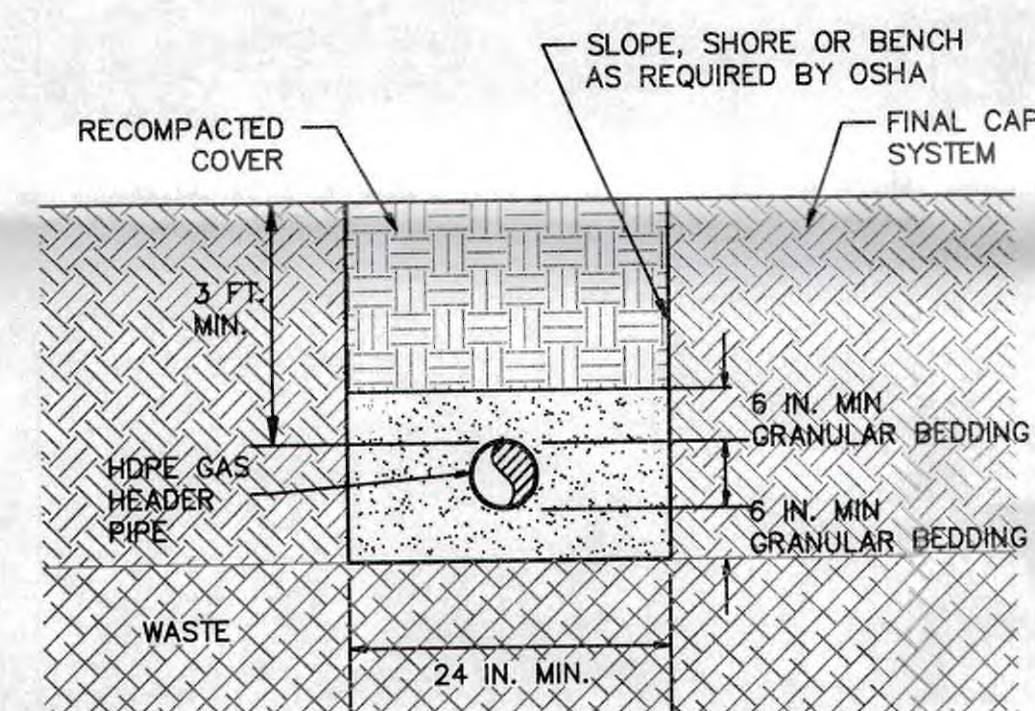




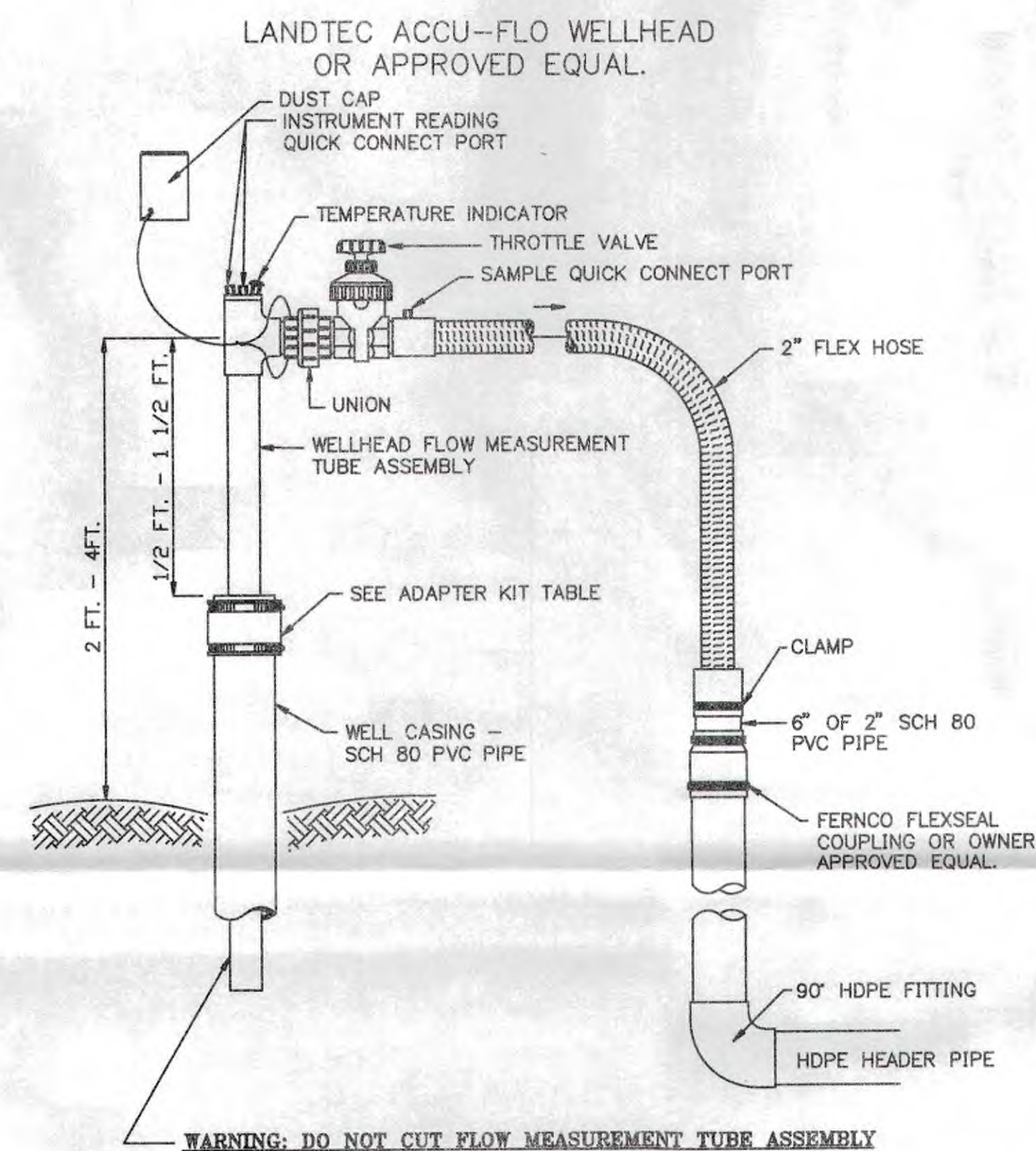
**TYPICAL VERTICAL GAS  
EXTRACTION WELL**

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3

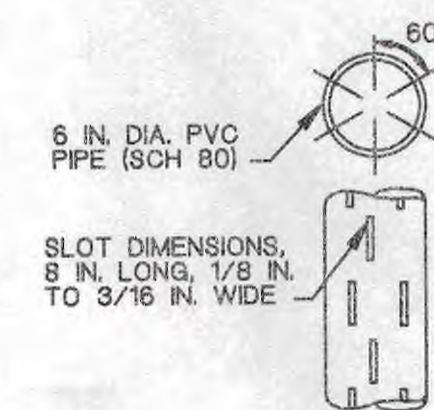
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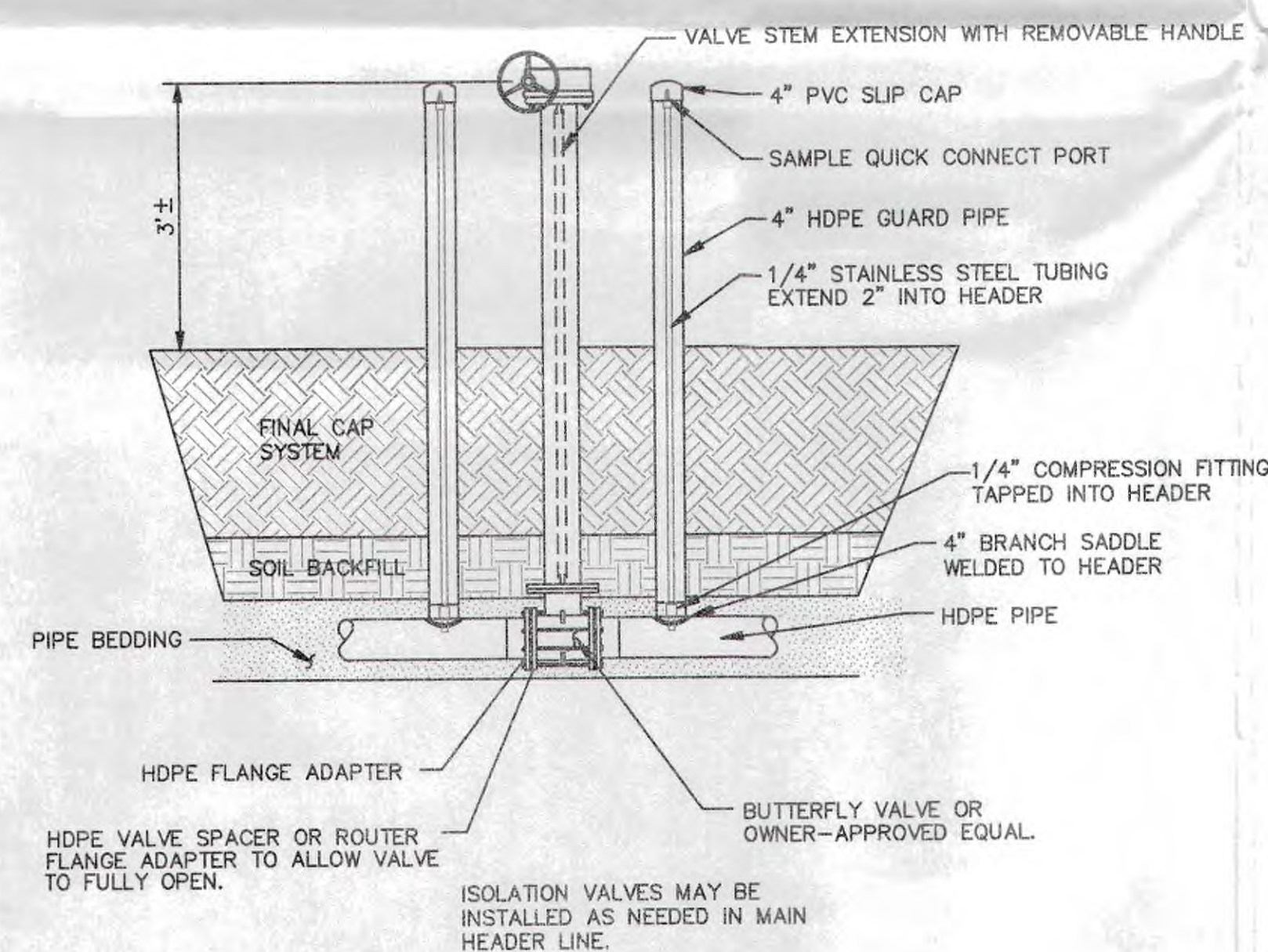
**6**  
**3** **TYPICAL HEADER/LATERAL TRENCH**  
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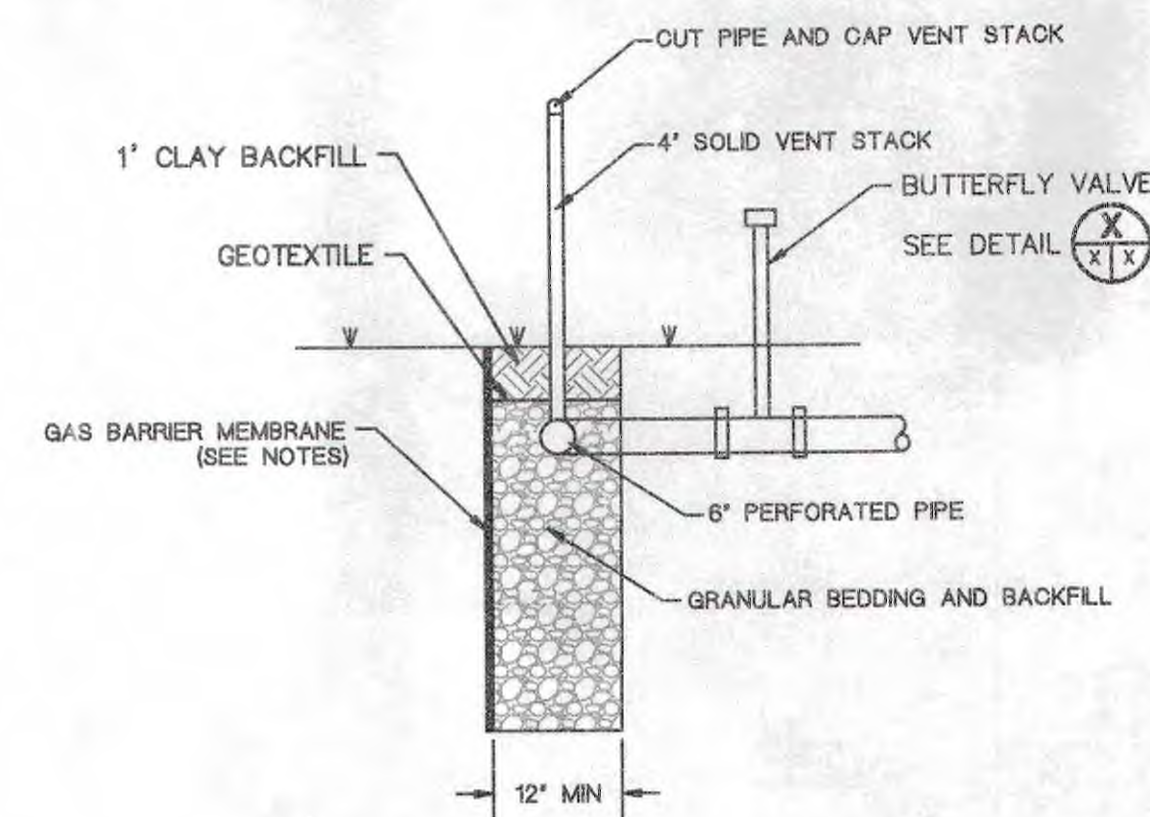
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**3** **TYPICAL GAS EXTRACTION WELLHEAD**  
SCALE: NTS



**2** **SLOTTED PIPE**  
**3** SCALE: NTS

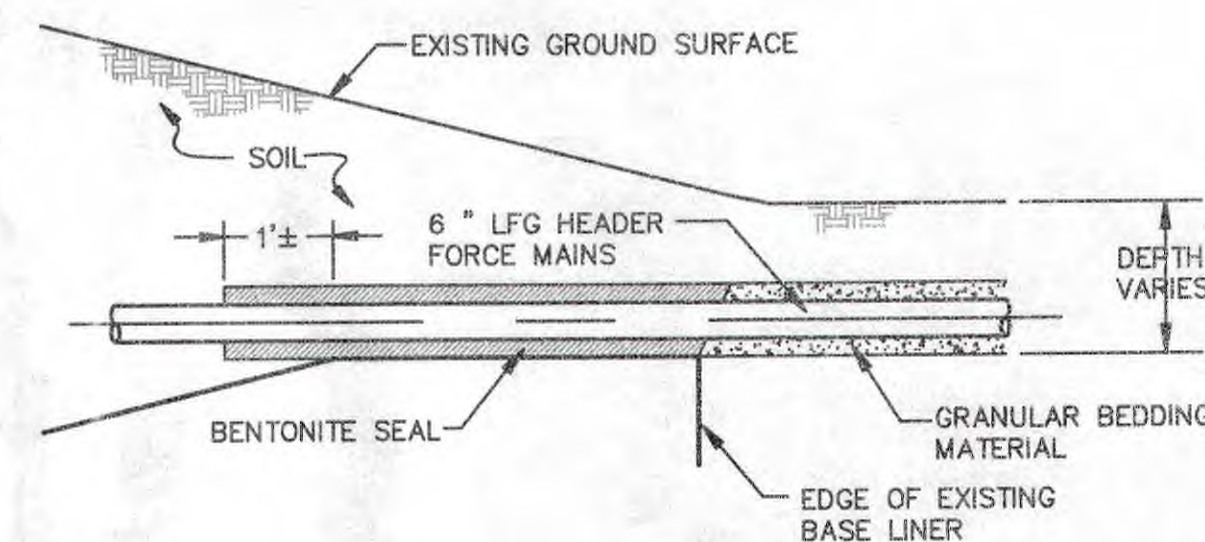


**6**  
**3** **TYPICAL VALVE STATION**  
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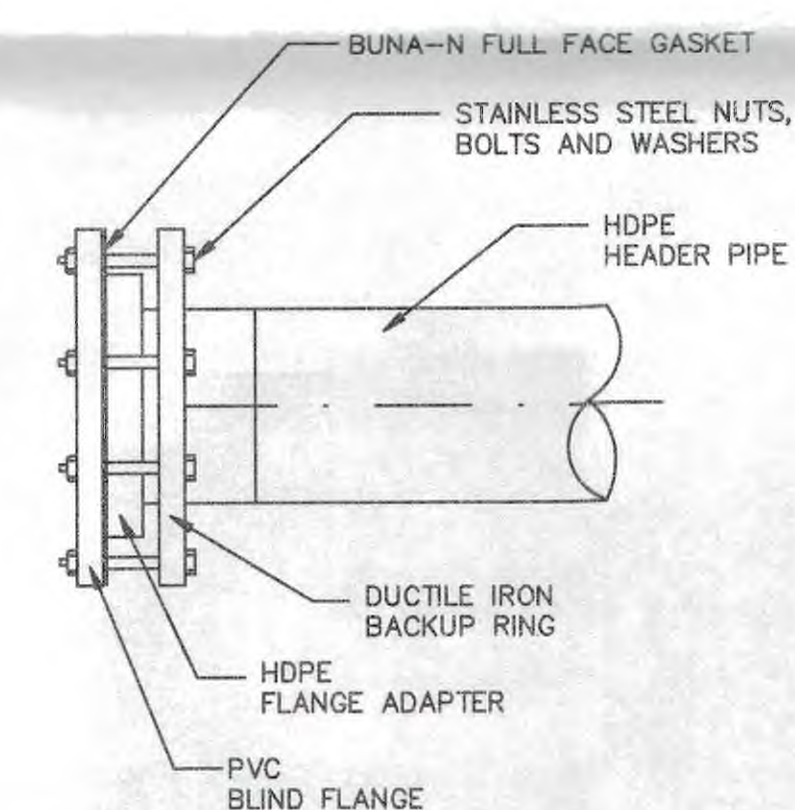


**CUT-OFF TRENCH CONNECTION DETAIL**

SCALE: NTS



**BENTONITE TRENCH PLUG**



**7**  
**3** **TYPICAL BLIND FLANGE**  
SCALE: NTS

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SHEET TITLE	TYPICAL DETAILS
PROJECT TITLE	NORTHEAST MOUND ACTIVE GAS EXTRACTION SYSTEM CITY VIEW CENTER, GARFIELD HEIGHTS, OHIO

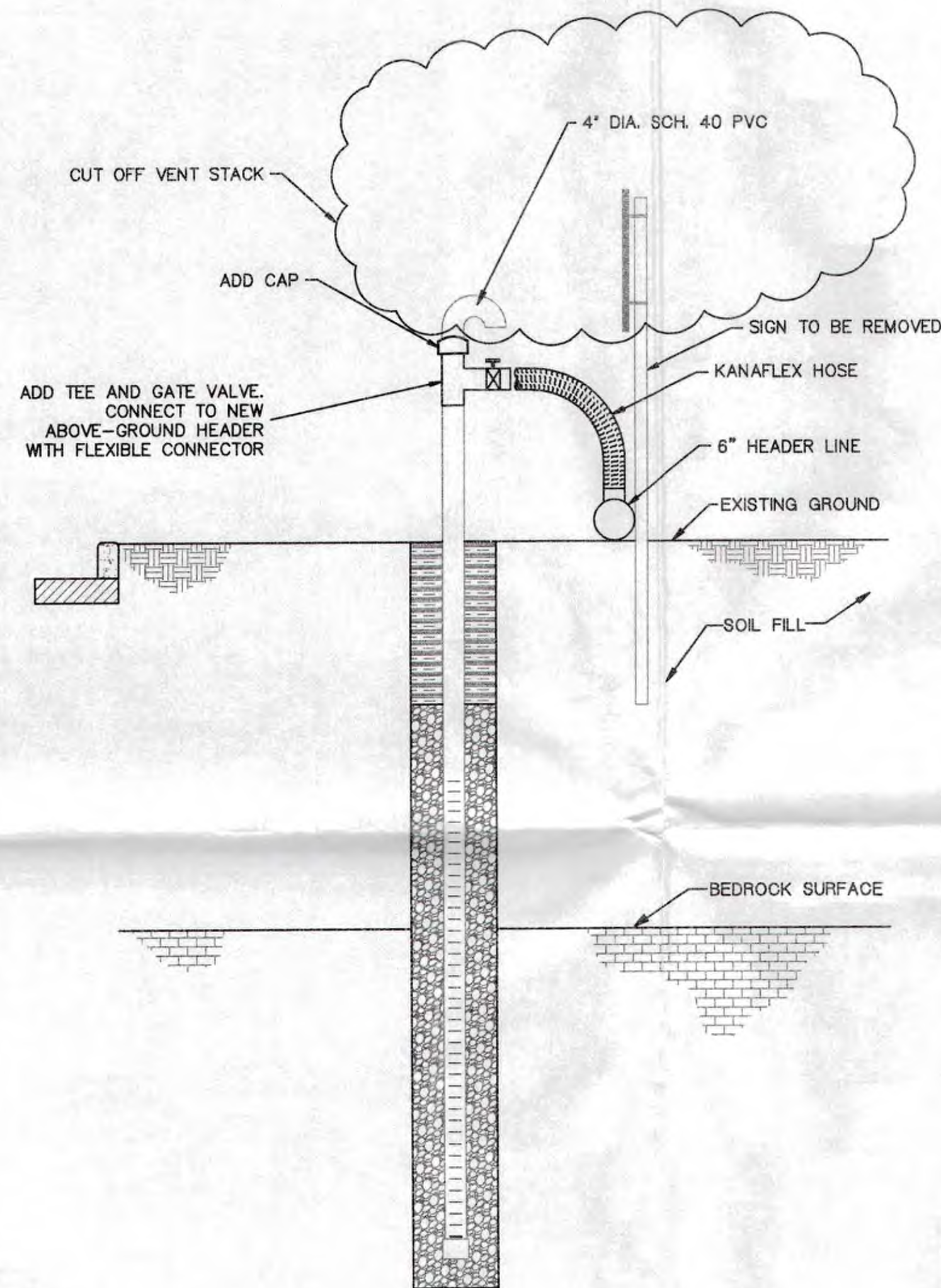
CLIENT: GARFIELD LAND DEVELOPMENT, LLC  
125 W. INDIANTOWN ROAD, SUITE #101  
JUPITER, FLORIDA 33458

**SCS ENGINEERS**  
STEARNS, CONRAD AND SCHMIDT  
CONSULTING ENGINEERS, INC.  
2080 READING ROAD, SUITE #200, CINCINNATI, OHIO 45202  
PH. (513) 421-5553 FAX NO. (513) 421-2847

CADD FILE:	DETAILS
DATE:	DECEMBER 2008
SCALE:	AS SHOWN
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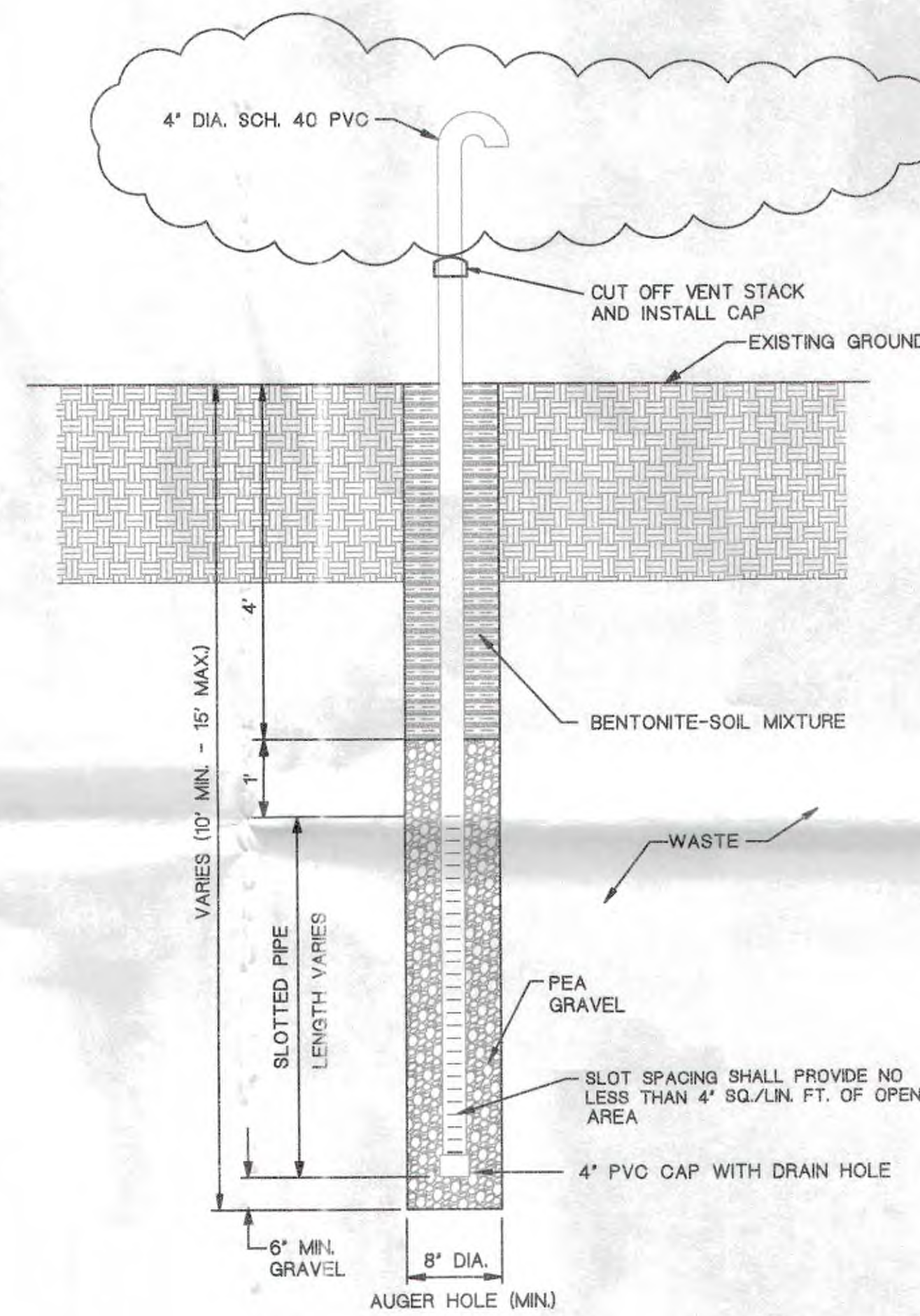
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### EXISTING PASSIVE BEDROCK VENT WELL RETROFIT

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3

SCALE: NTS



### EXISTING PASSIVE LANDFILL GAS VENT WELL ABANDONMENT

1  
4

SCALE: NTS

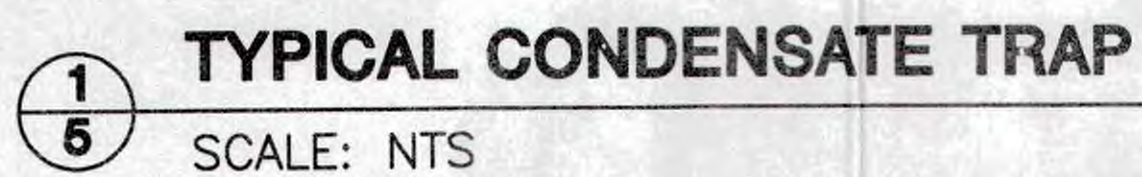
SHEET TITLE  
TYPICAL DETAILS  
PROJECT TITLE  
NORTHEAST MOUND ACTIVE GAS EXTRACTION SYSTEM  
CITY VIEW CENTER, GARFIELD HEIGHTS, OHIO

CLIENT:  
GARFIELD LAND DEVELOPMENT, LLC  
125 W. INDIANTOWN ROAD, SUITE #101  
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SCS ENGINEERS  
STEARNS, CONRAD AND SCHMIDT  
CONSULTING ENGINEERS, INC.  
2060 READING ROAD, SUITE #200, CINCINNATI, OHIO 45202  
PH. (513) 421-5353 FAX NO. (513) 421-2847  
PROJECT NO. CS-080027.01  
DATE: 08/01/08  
DWG. BY: FDB  
CHK. BY: JFW

CADD FILE:  
DETAILS  
DATE:  
DECEMBER 2008  
SCALE:  
AS SHOWN  
DRAWING NO.





ALTERNATIVE CONDENSATE SUMP SYSTEM  
SUBJECT TO OWNER APPROVAL.

<b>SCS ENGINEERS</b> <b>STEARNS, CONRAD AND SCHMIDT</b> <b>CONSULTING ENGINEERS, INC.</b> 208J READING ROAD, SUITE #200, CINCINNATI, OHIO 45202 PH. (513) 421-3333 FAX. NO. (513) 421-2847		CLIENT: GARFIELD LAND DEVELOPMENT, LLC 125 W. INDIANTOWN ROAD, SUITE #101 JUPITER, FLORIDA 33458		SHEET TITLE CONDENSATE DETAILS		REV.	DATE	DESCRIPTION	OK BY
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SCALE: AS SHOWN		DRAWING NO. 07-08027.01		DWN. BY: FDB		△			
DRAWING NO.		CHK. BY: JWW		S/A REV BY:		△			



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EARTHWORK

- PIPE BEDDING SHALL BE USED WHENEVER THE COLLECTION PIPING RUNS BELOW GRADE. PIPE BEDDING SHALL BE CLEAN, DRY GRANULAR MATERIAL (EXISTING COVER SYSTEM DRAINAGE MEDIA) FREE OF CLAY, MUCK, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES, AND SHALL BE 6 IN. MINIMUM THICKNESS BELOW AND 8 IN. ON BOTH SIDES OF PIPE TO THE SPRINGLINE OF THE PIPE.
- SIDE SLOPES OF EXCAVATIONS SHALL COMPLY WITH THE CODES AND ORDINANCES OF AGENCIES HAVING JURISDICTION TO PREVENT POSSIBLE INJURIES TO WORKERS, STRUCTURES, OR PIPELINES.
- ALL TRENCHES AND EXCAVATIONS SHALL BE BACKFILLED OR COVERED AT THE END OF EACH WORKDAY.
- EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE IMPLEMENTED BY THE CONTRACTOR IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.

LFG EXTRACTION WELLS

- GRAVEL BACKFILL SHALL BE WASHED CLEAN, HARD, DURABLE, CRUSHED STONE OR GRAVEL. GRAVEL BACKFILL SIZE SHALL BE 1 IN. TO 1 1/2 IN. WASHED STONE.
- SOIL BACKFILL MATERIAL SHALL BE CLEAN, CLAY SOIL FILL FREE OF THE FOLLOWING: STONES LARGER THAN 2 IN., CONSTRUCTION DEBRIS, REFUSE, MUCK, SOFT CLAY, LOAM, SPONGY MATERIAL, VEGETATION/ORGANIC MATTER, OR ANGULAR ROCKS.
- BENTONITE PLUG SHALL BE PLACED AS SHOWN ON THE DRAWINGS.
- THE CONTRACTOR SHALL KEEP DETAILED WELL LOGS FOR ALL WELLS DRILLED. LOGS SHALL INCLUDE: TOTAL DEPTH OF WELL, LENGTH OF SLOTTED PIPE, STATIC WATER LEVEL, DESCRIPTION OF THE WASTE STRATA BY INDICATING ITS DEPTH AND THICKNESS, AND THE OCCURRENCE OF ANY WATER BEARING ZONES. WELL LOGS SHALL BE SUBMITTED TO THE OWNER OR ENGINEER.
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- VERTICAL WELL PIPE SECTIONS SHALL BE JOINED BY PVC COUPLINGS. LAG SCREWS SHALL BE USED WITH SOCKET TYPE FITTINGS TO SECURE THE PIPE DURING WELL PLACEMENT. 4 LAG SCREWS SHALL BE INSTALLED FOR EACH COUPLING AND EACH SCREW SHALL HAVE A LENGTH EQUAL TO THE SUM OF THE PIPE AND FITTING WALL THICKNESS. LAG SCREWS SHALL BE OF THE PROPER LENGTH SO AS TO NOT OBSTRUCT THE INSIDE OF THE PIPE.
- WELLHEAD ASSEMBLIES SHALL BE ACCU-FLO SERIES 200 MANUFACTURED. BY CES-LANDTECH, COLTON, CA., OR EQUAL.
- EACH WELLHEAD SHALL HAVE ITS NUMBER STENCILED ON ITS SIDE.
- IF WATER IS ENCOUNTERED IN A BORING, THE OWNER OR ENGINEER MAY DECREASE THE DEPTH OF THE BORING AND SLOTTED PIPE, CONTINUE DRILLING TO DETERMINE IF A PERCHED WATER LAYER EXISTS, OR RELOCATE THE WELL.
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- IF WELL CONSTRUCTION IS NOT COMPLETED BY THE END OF THE WORKING DAY, THE HOLE SHALL BE COVERED WITH A PLATE OF SUFFICIENT THICKNESS AND WITH A SUFFICIENT OVERLAP TO PREVENT ACCESS TO THE HOLE AND TO SUPPORT EXPECTED LOADS. THE EDGES OF THE PLATE SHALL BE COVERED WITH A SUFFICIENT DEPTH OF WET SOIL TO PREVENT THE ESCAPE OF GAS. BARRICADES SHALL BE PLACED AROUND THE COVERED HOLE.

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- THE FINAL TWO FEET OF BACKFILL OVER THE EXTRACTION SYSTEM PIPING SHALL BE CAP MATERIAL INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS. TESTING AND CERTIFICATION OF THE REPLACEMENT CAP MATERIAL SHALL BE PROVIDED BY THE ENGINEER. THE CONTRACTOR SHALL MEET THE REQUIREMENTS FOR THE PLACEMENT OF CAP MATERIAL TO THE SATISFACTION OF THE ENGINEER.

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- HDPE PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THESE DRAWINGS, WHICHEVER IS MORE STRINGENT.
- HDPE PIPE SHALL BE JOINED BY THE FOLLOWING METHODS:
  - UNLESS OTHERWISE STATED, HDPE SHALL BE JOINED BY HEAT FUSION AS SPECIFIED IN THE PIPE MANUFACTURER'S INSTRUCTIONS.
  - HDPE FLANGE ADAPTERS SHALL BE EMPLOYED WHERE INDICATED ON THE DRAWINGS. FLANGES FOR HDPE PIPE SHALL BE CONVOLUTED DUCTILE IRON BACKUP RINGS AND A MINIMUM THICKNESS OF 1 IN., AS MANUFACTURED BY IMPROVED PIPING PRODUCTS, INC., OF EMERYVILLE, CALIFORNIA OR APPROVED EQUAL. BACKUP RINGS SHALL BE FINISHED WITH ZINC CHROMATE PRIMER.
- BOLTS AND STUDS SHALL BE ASTM A-276, TYPE 316 STAINLESS STEEL. NUTS AND WASHERS SHALL BE ASTM A-276, TYPE 304 STAINLESS STEEL.
- STUDS, NOT BOLTS, SHALL BE USED TO CONNECT FLANGES. THE STUDS SHALL BE ASTM A-276, TYPE 316 STAINLESS STEEL. THE STUDS SHALL BE FASTENED WITH HEAVY, SEMI-FINISHED HEXAGON NUTS AND COMPLETELY COATED JUST PRIOR TO INSTALLATION WITH AN ANTI-SEIZE COMPOUND SUCH AS MANUFACTURED BY KOPR-KOTE OR APPROVED EQUAL.
- THE CONTRACTOR SHALL TEST ALL LFG COLLECTION PIPE WITH PRESSURIZED AIR (5 PSI) TO DETECT ANY LEAKS IN THE PIPING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRS OR RESTORATIONS MADE IN AREAS WHERE LEAKS ARE DISCOVERED. TEST SEGMENTS SHALL NOT EXCEED 500 LINEAR FT. TEST RESULTS SHALL BE SUBMITTED TO THE OWNER OR ENGINEER.
- PVC SHALL BE SCHEDULE 80 ALIGNED TO MINIMIZE LINEAR DEVIATIONS AT THE JOINTS AND CONNECTED BY PVC SOCKET FITTINGS. A COATING OF CPS PRIMER SHALL BE APPLIED TO THE INTERIOR SURFACE OF THE FITTING SOCKET PRIOR TO THE APPLICATION OF SOLVENT CEMENT.
- FLEXIBLE PVC PIPE AND CLAMPS SHALL BE AS MANUFACTURED BY KANAFLEX IN COMPTON, CA., OR APPROVED EQUAL.
- ALL KANAFLEX HOSE AND PVC PIPE EXPOSED TO WEATHER SHALL BE UV RESISTANT.
- MONITORING PORTS SHALL BE 1/4 IN. POLYPROPYLENE QUICK CONNECT PART NO. PMCD 10-04-12 BY COLDER PRODUCTS (612)645-0091 OR EQUAL, ON EITHER SIDE OF THE LINE.
- PVC BUTTERFLY VALVES SHALL BE LEVER OPERATED, TYPE 75, WAFER STYLE WITH EPDM SEAT. GASKET FOR BUTTERFLY VALVES SHALL BE FLUORINATED ELASTOMERS CONFORMING TO ASTM D-2000, SUITABLE FOR THE PRESSURE AND TEMPERATURE RANGES ENCOUNTERED, AND COMPATIBLE WITH FLANGE FACES. PVC BUTTERFLY VALVES SHALL BE MANUFACTURED BY ASAHI/AMERICA, BEDFORD, MA, OR APPROVED EQUAL.

SAFETY

- CONSTRUCTION SHALL COMPLY WITH THE SAFETY PROVISIONS AS OUTLINED IN SWANA'S COMPILATION OF LANDFILL GAS LABORATORY AND FIELD PRACTICES AND PROCEDURES, DATED MARCH 1992, AND OSHA STANDARDS FOR CONSTRUCTION WORK. CONTRACTOR SHALL SUBMIT 3 COPIES OF THE CONTRACTORS AND ALL SUBCONTRACTORS HEALTH AND SAFETY PLAN(S) TO THE OWNER OR ENGINEER.

GENERAL NOTES:

- LAYOUT AND WELL DEPTHS MAY BE MODIFIED AS DIRECTED BY THE OWNER OR ENGINEER TO ACCOMMODATE FIELD CONDITIONS. REVISIONS/MODIFICATIONS SHALL BE REVIEWED BY THE ENGINEER TO ENSURE THE BOTTOM OF THE LANDFILL LINER SYSTEM IS NOT ENCOUNTERED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY LOCAL PERMITS, STREET PERMITS, ETC., AS NECESSARY.
- CONTRACTOR SHALL PROVIDE SURVEYOR FOR INITIAL WELL/HEADER LINE LAYOUT (HORIZONTAL AND VERTICAL). INFORMATION SHALL BE PROVIDED TO THE OWNER AND ENGINEER PRIOR TO INITIATING CONSTRUCTION. CONTRACTOR'S SURVEYOR SHALL PROVIDE AS-BUILT LOCATION INFORMATION (HORIZONTAL AND VERTICAL) FOR ALL WELLS AND LFG COLLECTION PIPING INSTALLED. AS-BUILT INFORMATION SHALL BE STAMPED BY AN OHIO REGISTERED LAND SURVEYOR. INFORMATION SHALL BE PROVIDED TO THE OWNER AND ENGINEER.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE OWNER AND ENGINEER FOR REVIEW, INCLUDING PIPING, CONDENSATE SUMP, CONDENSATE TRAP, CONDENSATE PUMP, AND VALVES.

WELL SCHEDULE

WELL NO.	LOCATION COORDINATES		APPROXIMATE SURFACE ELEVATION (FT MSL)	APPROXIMATE WASTE BOTTOM ELEVATION (FT MSL)	BORE HOLE DEPTH (FT)	WELL PIPE DEPTH (FT)	SLOTTED PIPE LENGTH (FT)	SOLID PIPE LENGTH (FT)
	N-S	E-W						
NEM-1	10,130	10,619	967	896	71	70	47	23
NEM-2	10,119	10,781	968	902	66	65	44	21
NEM-3	9,917	10,646	967	866	101	100	67	33
NEM-4	9,705	10,592	958	894	64	63	43	20
NEM-5	9,690	10,783	962	898	64	63	43	20
NEM-6	9,554	10,664	955	909	46	45	30	15
NEM-7	9,557	10,781	962	916	46	45	30	15
NEM-8	9,424	10,825	958	917	41	40	27	13

LEGEND

NEM-x PROPOSED EXTRACTION WELL

SHEET TITLE CONSTRUCTION NOTES AND WELL SCHEDULE  
PROJECT TITLE  
NORTHEAST MOUND ACTIVE GAS EXTRACTION SYSTEM  
CITY VIEW CENTER, GARFIELD HEIGHTS, OHIO

CLIENT:  
GARFIELD LAND DEVELOPMENT, LLC  
125 W. INDIANTOWN ROAD, SUITE #101  
JUPITER, FLORIDA 33458

SCS ENGINEERS

STEARNS, CONRAD AND SCHMIDT

CONSULTING ENGINEERS, INC.

2060 READING ROAD, SUITE #200, CINCINNATI, OHIO 45202

PH. (513) 421-5353 FAX NO. (513) 421-2847

PROJECT NO. 052030027.01

DWG. BY: FDB

CHECK BY: JWW

CADD FILE: DETAILS  
DATE: DECEMBER 2008  
SCALE: AS SHOWN  
DRAWING NO.



## **APPENDIX D**

### **Building-Specific Design Plans**

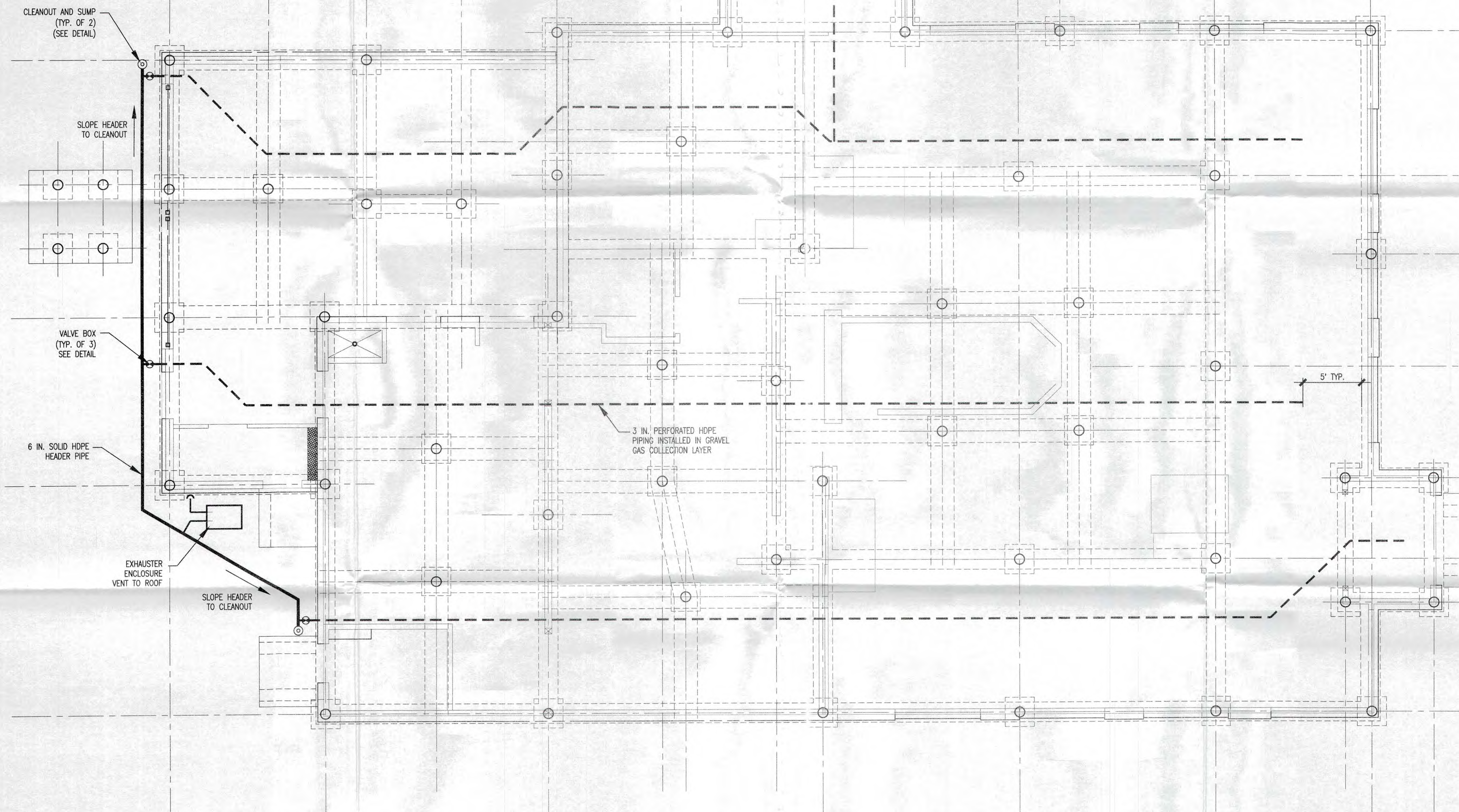


## **APPENDIX D-1**

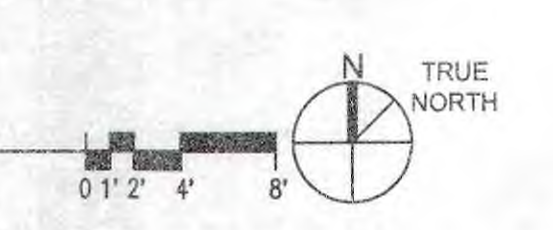
### **Applebee's Building-Specific Design Plans**



LAND PROJECTS 05/03/2006 DWG APPLEBEE'S GAS PLANNING | PLOTTED 07/05/2006 03:58PM BY 2122APT



**A** METHANE COLLECTION PLAN  
MC1.1 SCALE: 1/4" = 1'-0"

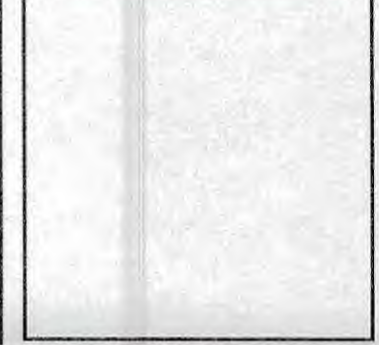


DATES AND REVISIONS	
No.	Date/Description
04-13-06	
04-20-06	BID & PERMIT

Apple American Group  
300 Hickory Knob Road  
Nashville, IN 47448

**SCS ENGINEERS**  
STEARN, CONRAD AND SCHMIDT  
CONSULTING ENGINEERS, INC.  
2080 READING ROAD SUITE 200 CINCINNATI, OHIO 45202  
PH: (513) 421-5353 FAX NO. (513) 421-2847

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1-480 AND TRANSPORTATION  
BLVD. GARFIELD HEIGHTS, OHIO

Applebee's  
Neighborhood Grill & Bar

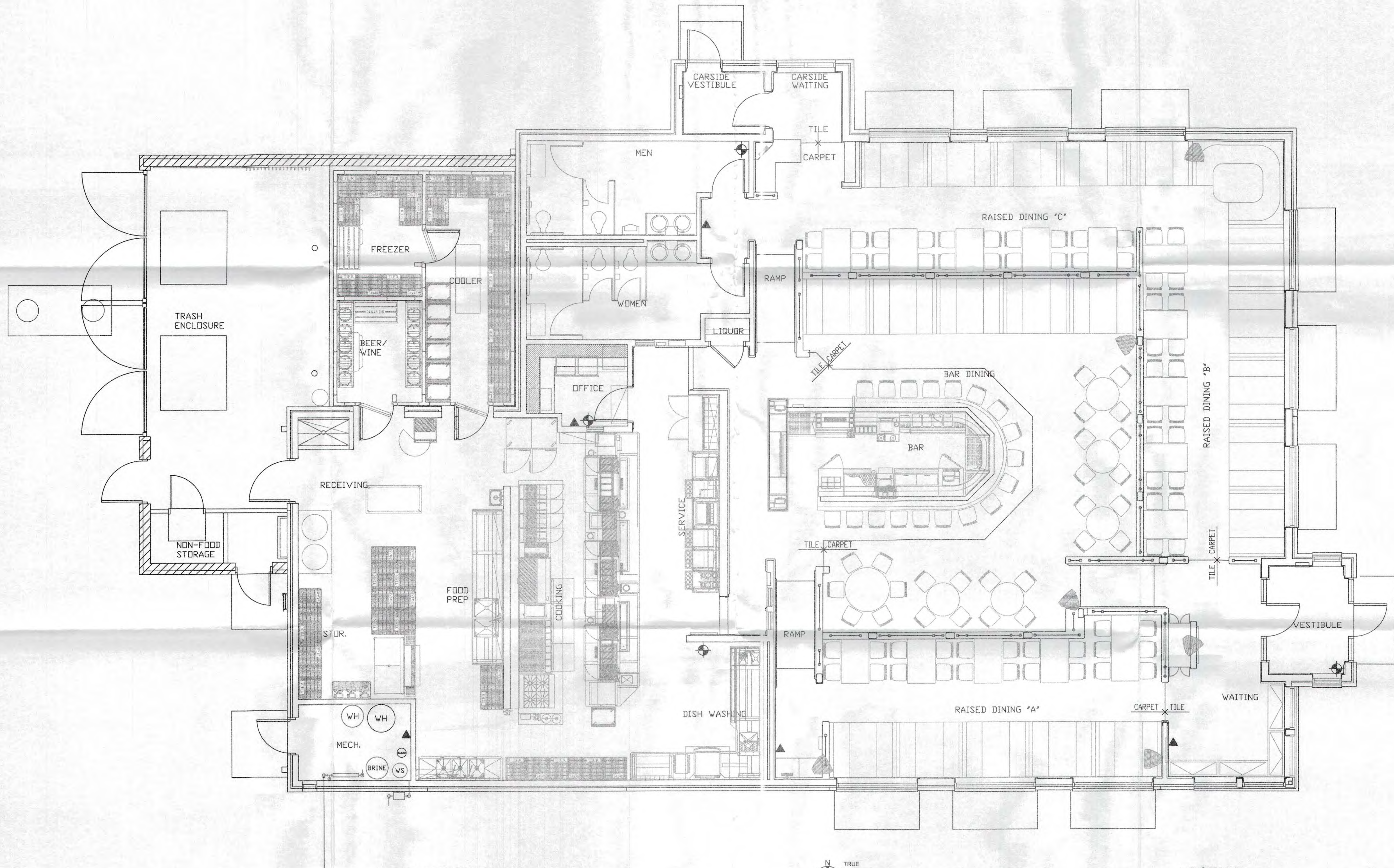
METHANE  
COLLECTION PLAN

DRAWN BY:	APT
CHECKED BY:	CES
SCS NO.:	05203006

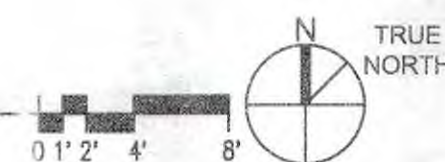
DRAWING NO.  
**MC1.1**



\\LAND\PROJECTS\05203006\DWG\APPLEBEE'S MONITORING PLAN.DWG | PLOTTED 07.07.2006 02:00PM BY 0648TBB



**A METHANE MONITORING PLAN**  
MC2.1 SCALE: 1/4" = 1'-0"



**NOTES:**

1. LOCATIONS FOR FLOOR MONITORING PORTS AND ALARMS ARE APPROXIMATE, BASED ON THE PROTOTYPE. FINAL LOCATIONS FOR THE FLOOR MONITORING PORTS AND ALARMS SHALL BE BASED ON THE FINAL FIXTURE PLAN.

**LEGEND**

- FLOOR MONITORING PORT
- GAS ALARM

DATES AND REVISIONS	
No.	Date/Description
04-13-06	
04-20-06	BID & PERMIT

Apple American Group  
300 Hickory Knob Road  
Nashville, IN 47448

**SCS ENGINEERS**  
STEARN, CONRAD AND SCHMIDT  
CONSULTING ENGINEERS, INC.  
2090 READING ROAD SUITE 200 CINCINNATI, OHIO 45202  
PH (513) 421-5353 FAX NO. (513) 421-2847

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1-480 AND TRANSPORTATION  
BLVD. GARFIELD HEIGHTS, OHIO

Neighborhood Grill & Bar

METHANE  
MONITORING PLAN

DRAWN BY: APT  
CHECKED BY: CES  
SCS NO: 05203006

DRAWING NO.  
**MC2.1**





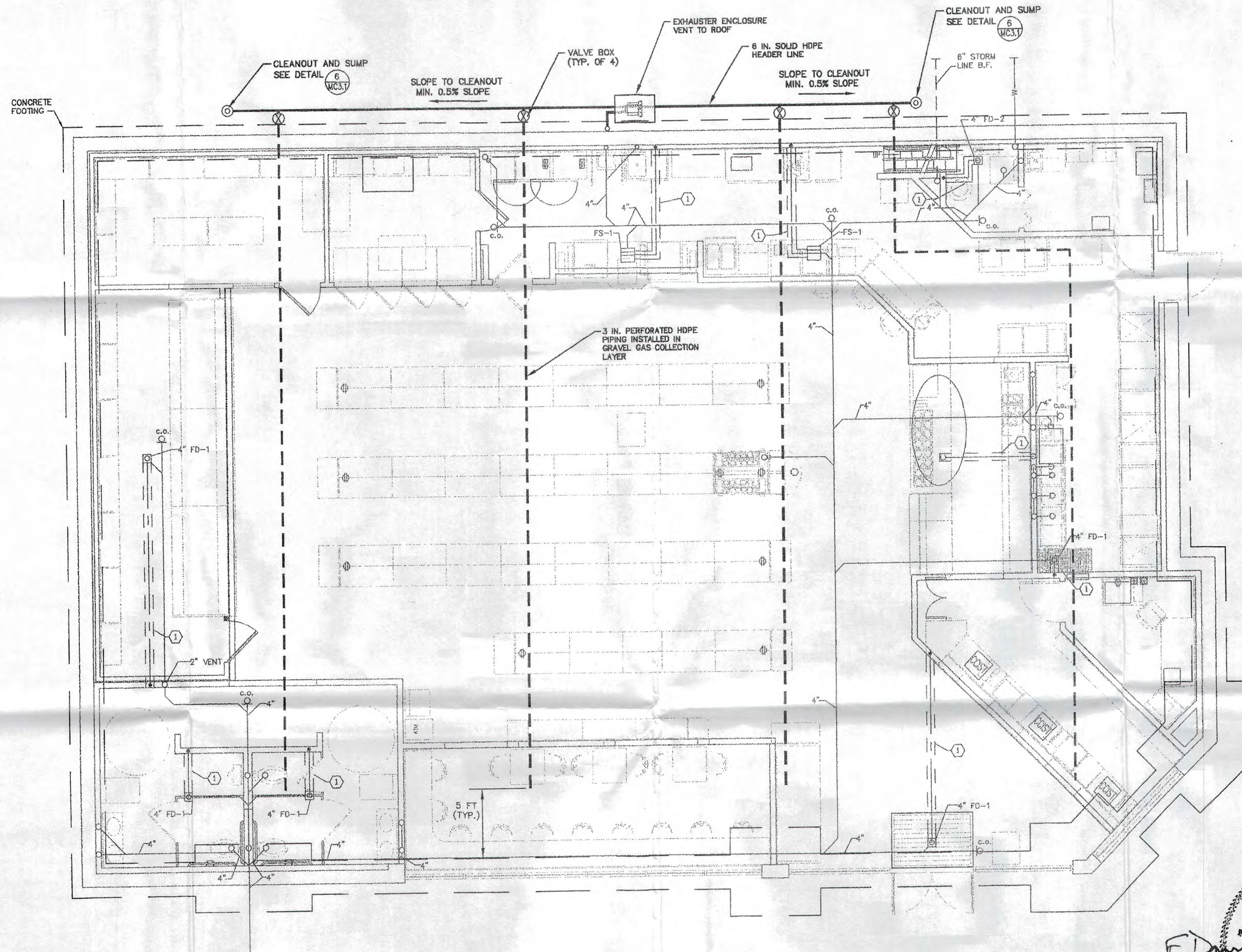


## **APPENDIX D-2**

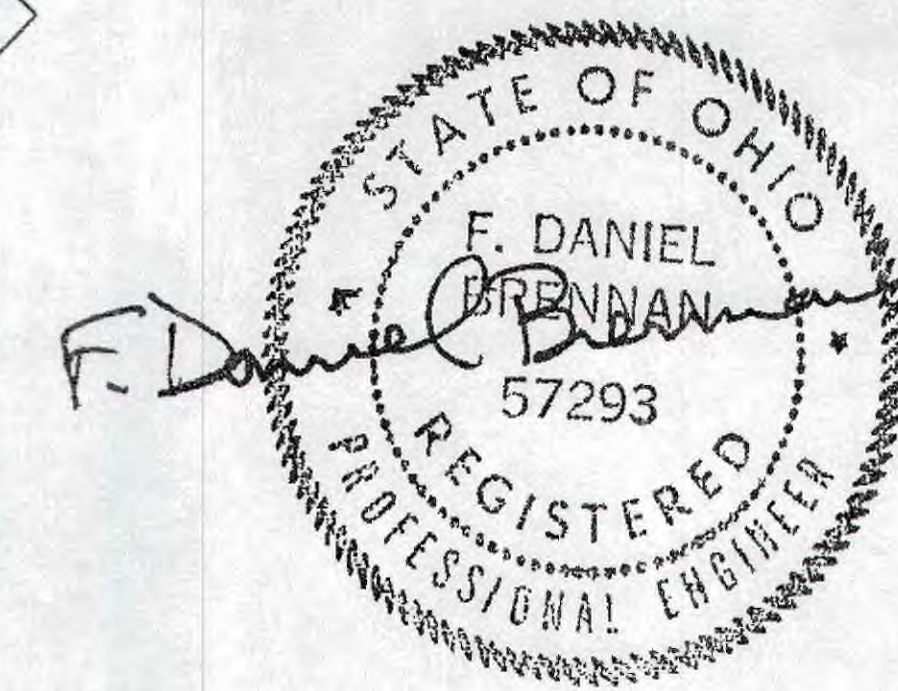
### **Get-Go Building-Specific Design Plans**



I:\Land Projects\05203006\dwg\GetGo Fuel Station Relocated\GAS PLAN.dwg Mar 29, 2006 - 11:20am Layout Name: 11X17 By: 2122apt



GAS COLLECTION PLAN (CONV. STORE)  
SCALE: 1/4" = 1'-0"

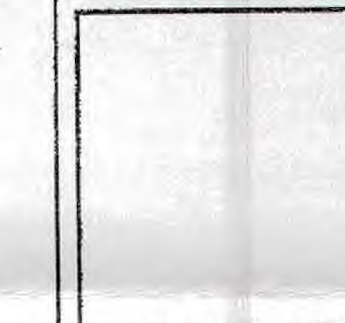


DATES AND REVISIONS	
No.	Date/Description
1	3/24/06 Passive to Active
2	2/23/06 Move Exhaust Lines

**mc**  
PROFESSIONAL ENGINEER  
3075 Buckeye Road, Suite 100  
Solon, OH 44139  
P: (440) 944-4700 - E: (440) 944-0477

**SCS ENGINEERS**  
STEARNS, CONRAD AND SCHMIDT  
CONSULTING ENGINEERS, INC.  
2000 REDUNG ROAD SUITE 200 CLEVELAND, OH 44122  
PH: (313) 427-5555 FAX: (313) 427-2547

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CITY VIEW CENTER

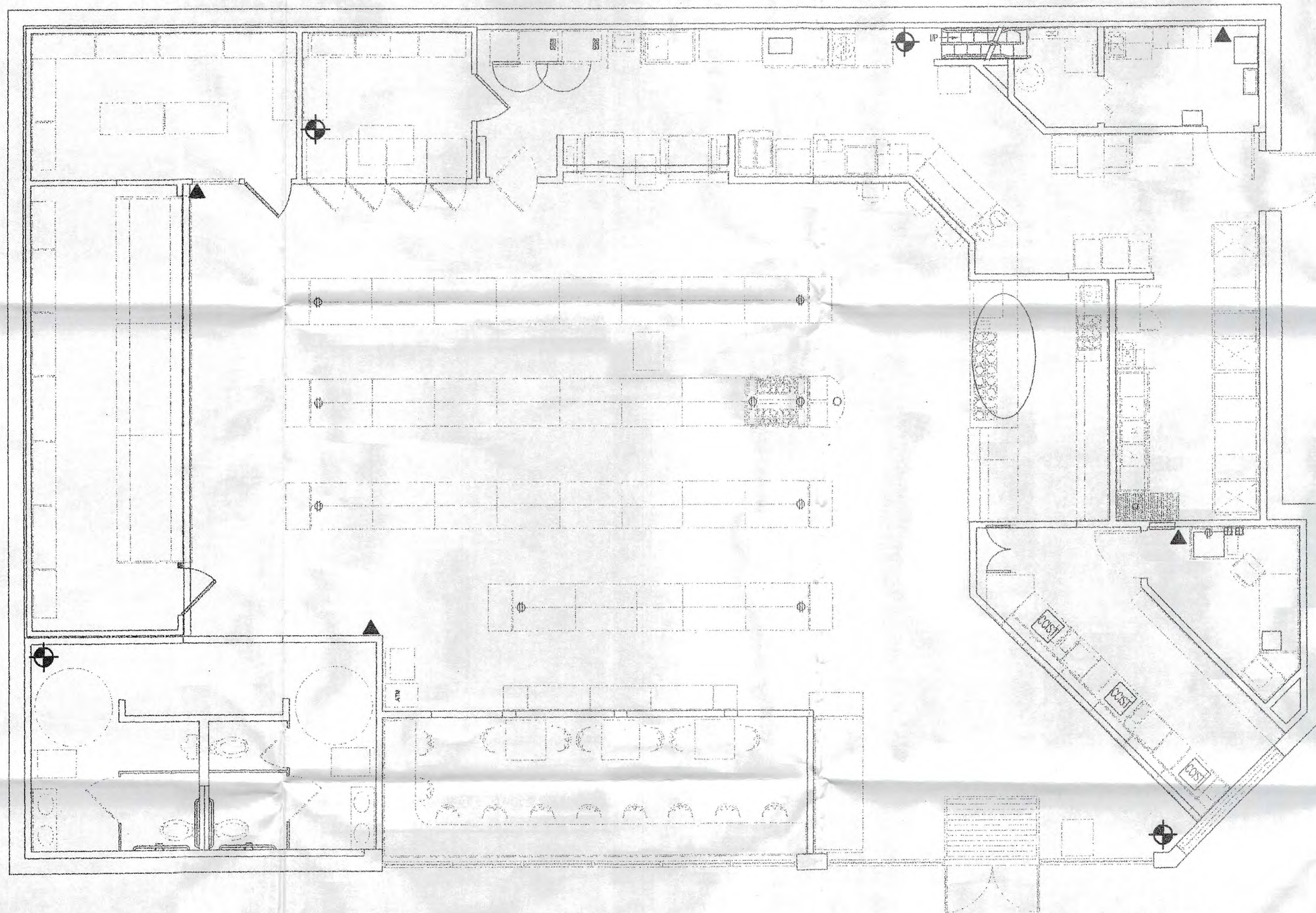
**GetGo**  
CONVENIENCE STORE  
METHANE COLLECTION PLAN

DRAWN BY:	APT
CHECKED BY:	CES
RLB NO:	05203006

DRAWING NO.  
**MC1.1**



I:\Land Projects\05203006\dwg\GelGo Fuel Station Relocated\MONITORING PLAN.dwg Mar 29, 2006 - 11:22am Layout Name: 11X17 By: 2122apt

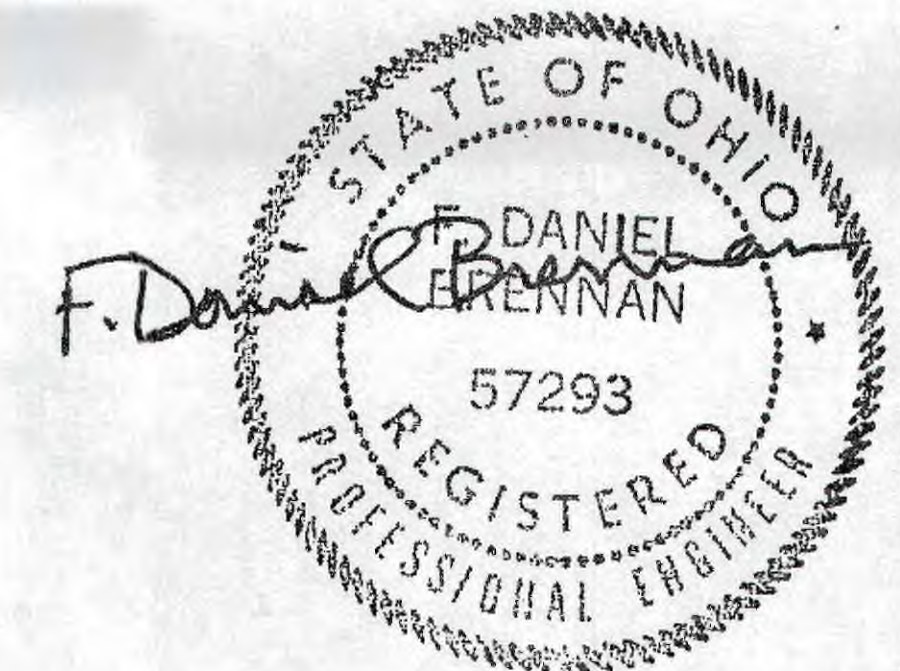


**GAS MONITORING PLAN (CONV. STORE)**  
SCALE: 1/4" = 1'-0"

- ⊕ FLOOR MONITORING PORT  
SEE DETAIL
- ▲ GAS ALARM

**NOTE:**

LOCATIONS FOR THE FLOOR MONITORING PORTS AND ALARMS ARE APPROXIMATE. FINAL LOCATIONS FOR THE FLOOR MONITORING PORTS AND ALARMS SHALL BE BASED ON THE FINAL FIXTURE PLAN.



DATES AND REVISIONS	
No.	Date/Description
1.	3/14/06 Prepare to Act
2.	2/23/06 Move Exhibit Unit



**SCS ENGINEERS**  
STEARNS, CONRAD AND SCHMIDT  
CONSULTING ENGINEERS, INC.  
2000 REDDING ROAD SUITE 200 CINCINNATI, OH 45202  
PH: (513) 421-5583 FAX NO. (513) 421-2947

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**CITY VIEW CENTER**

**GetGo**  
CONVENIENCE STORE  
METHANE MONITORING PLAN

DRAWN BY: APT  
CHECKED BY: CES  
RLB NO.: 05203006

DRAWING NO.  
**MC2.1**



LANDFILL GAS COLLECTION AND DISPOSAL

Explosive gas (landfill gas, methane) shall be collected and free-vented to the atmosphere.

HDPE pipe installation shall be in accordance with the manufacturer's recommendations, the drawings, and specifications, whichever is more stringent.

The gas collection system piping shall be installed in accordance with the plans and specifications using SDR 17 HDPE pipe with type 340R resin unless specified otherwise for a particular installation.

Piping materials for the landfill gas extraction system to be installed beneath the buildings shall be protected from damage due to UV deterioration, harsh weather, and other construction activities by staging the welding operations in an area adjacent to the building construction site that can be kept clean and dry. The area set aside for pipe welding shall be of sufficient size to accommodate the assembly of pipe runs of the lengths shown on the drawings. All solid HDPE pipe to be used for the header lines shall be welded in the staging area, tested for leaks, and then moved to the header trench as a single unit.

Perforations in the collection pipe shall be in accordance with the detail shown on the drawings.

Valves for the gas extraction system shall be Type 75 Butterfly valves with stem extensions as shown on the drawings as manufactured by ASHA/AMERICA, or equal.

HDPE pipe shall be joined by the following methods:

- Unless otherwise stated, HDPE pipe shall be joined by heat fusion as specified in the pipe manufacturer's instructions.
- HDPE flange adapters shall be employed where indicated on the drawings. Flanges for HDPE pipe shall be convoluted ductile iron backup rings and a minimum thickness of 1 inch as manufactured by Improved Piping Products, Inc. of Orinda California, or approved equal. Backup rings shall be finished with zinc chromate primer.

Bolts and studs shall be ASTM A-276, Type 316 stainless steel nuts and washers shall be ASTM A-276, type 304 stainless steel.

Studs, not bolts, shall be used to connect flanges. The studs shall be ASTM A-276, type 316 stainless steel. The studs shall be fastened with heavy, semi-finished hexagon nuts and completely coated just prior to installation with an anti-seize compound such as manufactured by Kopr-Kote, or approved equal.

The Contractor shall test all gas collection system header piping with pressurized air (5 psf) to detect any leaks in the piping. The Contractor shall be responsible for repairs or restorations made in areas where leaks are discovered. Test segments shall not exceed 500 linear feet. Test results shall be submitted to the Engineer.

PVC shall be Schedule 80 aligned to minimize linear deviations at the joints and connected by PVC socket fittings. A coating of CPS primer shall be applied to the interior surface of the fitting socket prior to the application of solvent cement.

Flexible PVC pipe and clamps shall be manufactured by Kanaflex of Compton, California, or approved equal. All Kanaflex hose and PVC pipe exposed to weather shall be UV resistant.

The Contractor shall be responsible for start-up and fine tuning of the explosive gas extraction system. The Contractor shall balance the extraction system beneath the buildings to ensure equal vacuum is exerted to all laterals in each system.

LANDFILL GAS EXHAUSTERS

The CONTRACTOR shall prepare and submit to the ENGINEER for approval manufacturer's literature, shop drawings, and other information pertaining to the assembly, operation, lubrication, adjustments, and other maintenance and repairs of equipment installed under this Section, together with detailed parts lists, plans, and/or photographs of all components.

The CONTRACTOR shall submit complete exhauster performance data that will indicate compliance with the DRAWINGS and SPECIFICATIONS. This information shall include exhauster characteristic curves indicating capacity for flow versus pressure head and amperage as tested at the factory. It shall also include calculations showing the equipment gas flow and motor corrections required for operation at job site elevation as specified in this Section.

The CONTRACTOR shall furnish three (3) copies of an Operation and Maintenance manual prepared specifically for this installation a minimum of 3 weeks prior to delivery of the equipment. The manual shall include all required catalog cuts, plans, equipment list, descriptions, and information necessary to instruct operating personnel unfamiliar with such equipment. The manual shall include a list of recommended spare parts for the equipment supplied. The CONTRACTOR shall modify the manual, as necessary, based on ENGINEER'S comments following startup and shall submit three (3) copies of the finalized manual two (2) weeks after startup.

Prior to testing, the CONTRACTOR shall submit a detailed outline of test procedures including step-by-step descriptions of the proposed test, a list of all test equipment, test equipment calibration dates, and sign-off sheets.

The exhausters shall be regenerative blowers capable of exerting a vacuum of 5.2 inches Hg and a flow of 160 SCFM. The exhausters shall be Model DR 505 M as manufactured by AMETEK Rotron Technical and Industrial Products, Kent, Ohio, or equal. The motors shall be 2 hp., 115/230 volt, single phase, 60 Hz units. The exhauster units shall be mounted on a steel skid, concrete pad, or fiberglass base unit. The exhauster shall be protected from the weather with a fiberglass enclosure sized to fit over the entire unit. The fiberglass enclosure shall be hinged to allow access to the exhauster for maintenance purposes. The enclosure shall be a non-insulated fiberglass slip-top unit by Hot Box of Jacksonville, Florida, a fiberglass reinforced plastic enclosure by Tipton Environmental International, Inc. of Batavia, Ohio, or approved equal.

Equipment shall be FIELD-TESTED by the CONTRACTOR to verify proper alignment and operation, including freedom from binding, scraping, vibration, shaft runout, or other defects. Furnish all equipment, materials, and labor necessary for testing the operation of the complete system, valves and appurtenances, upon completion of the installation at no additional cost to the OWNER. The exhausters shall be tested to assure proper operation and delivery of specified flow rates and vacuums in the presence of the ENGINEER.

The exhauster shall be protected from thermal overload with a starter, combination fusible disconnect as detailed in the electrical drawings.

COMBUSTIBLE GAS FLOOR MONITORING PORTS

Combustible gas floor monitoring ports shall be installed at the locations shown on the drawings. The ports shall consist of a 4-foot x 4-foot section of geocomposite between the gas collection layer and the bottom of the structural concrete floor slab. A 1/2 inch schedule 80 PVC pipe shall be placed atop the geocomposite and surrounded by a cleanout that will be cast into the structural slab. The interior annular space at the base of the cleanout shall be sealed with a non-shrink epoxy grout to provide an airtight seal around the 1/2 inch pipe. A quick disconnect coupling shall be installed on the 1/2 inch pipe to permit monitoring of the port. Quick disconnects shall be 1/2 inch Acetal quick-disconnect Part No. 5012K75 (shut-off) from McMaster-Carr of Cleveland, Ohio, or equal.

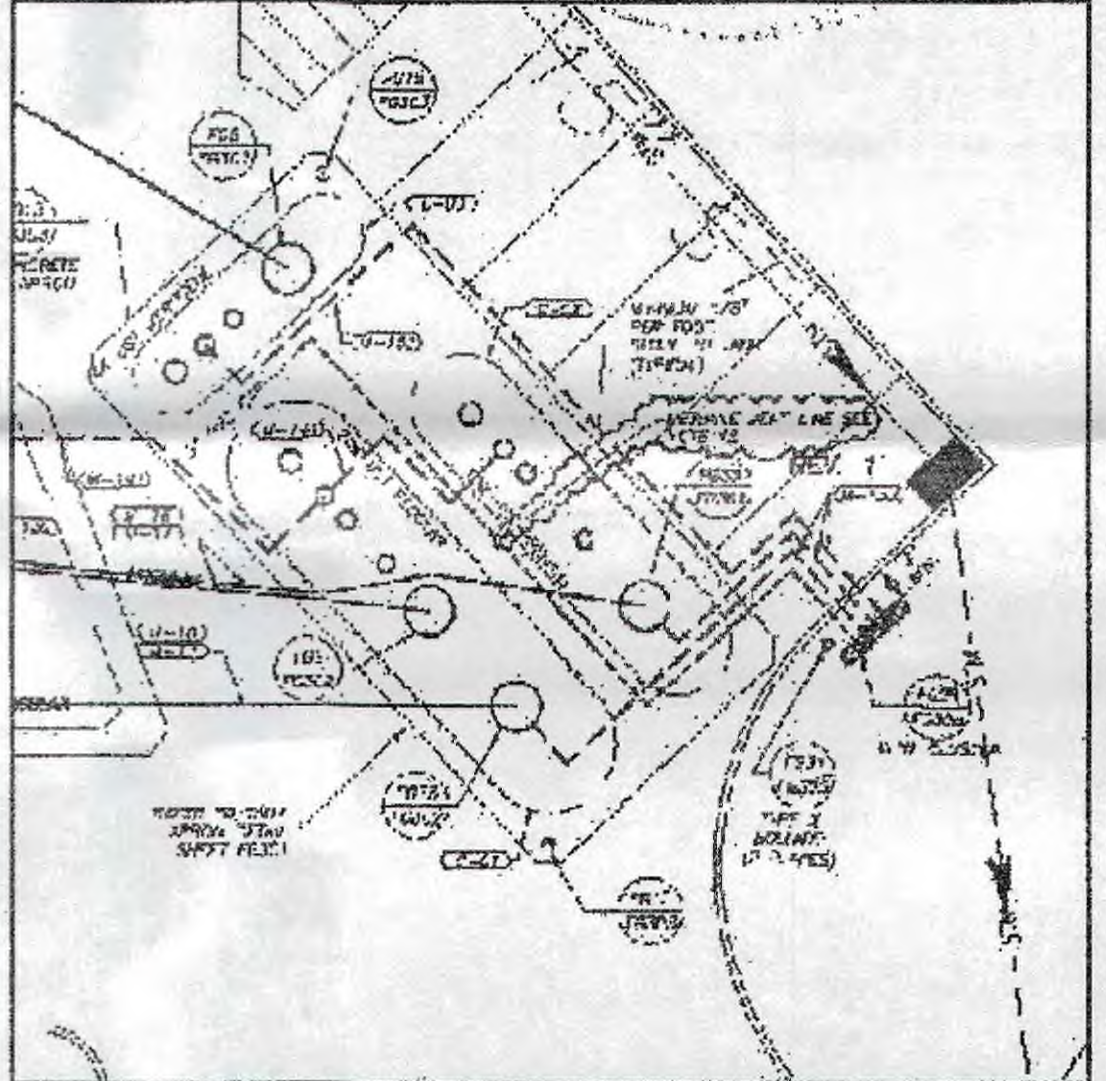
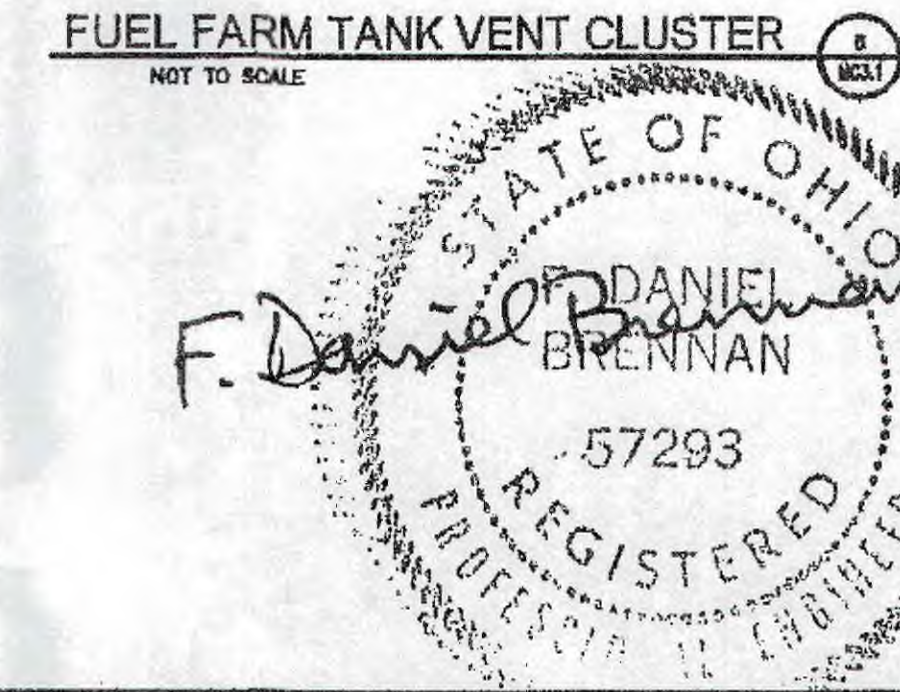
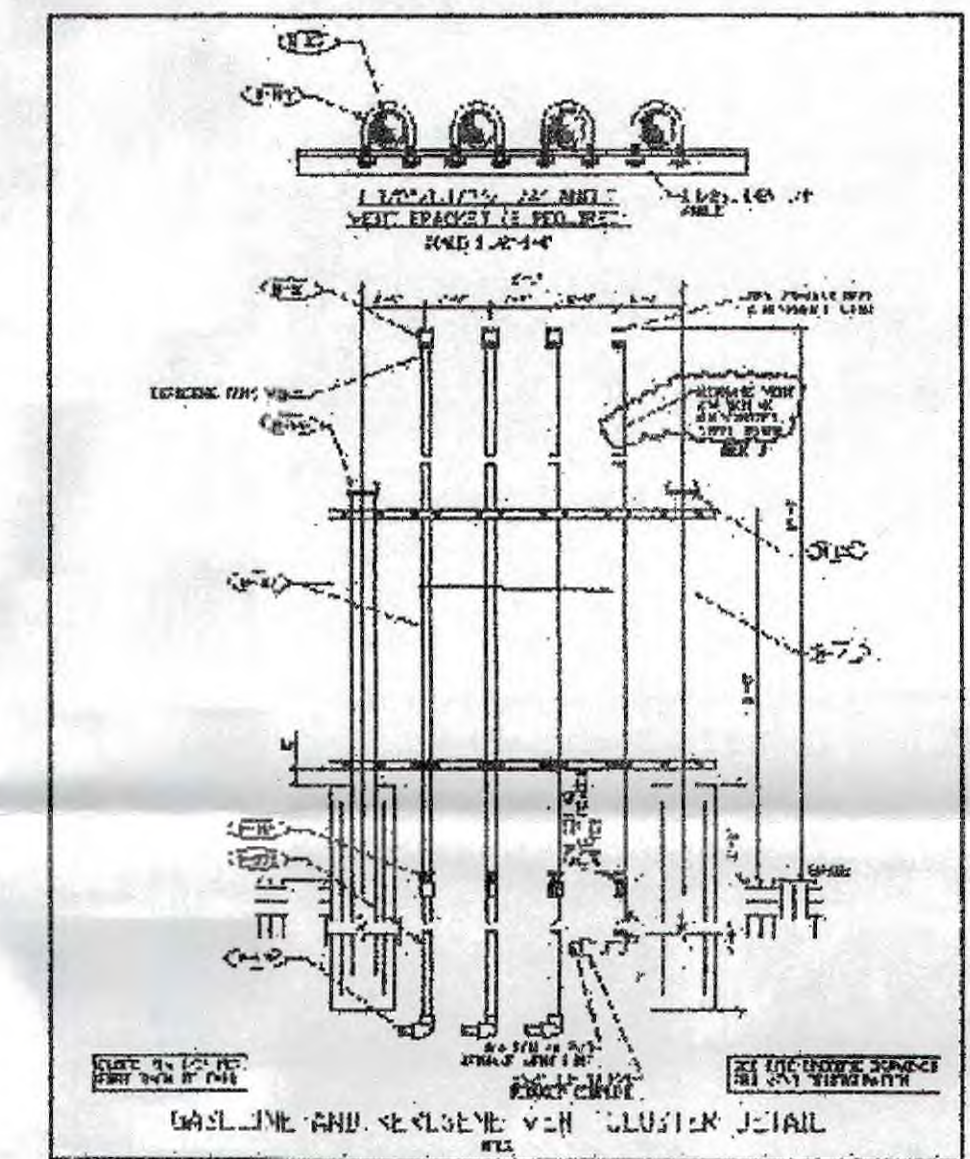
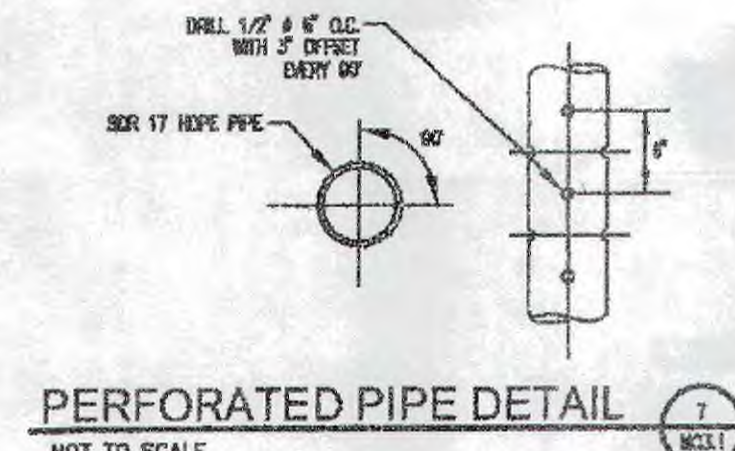
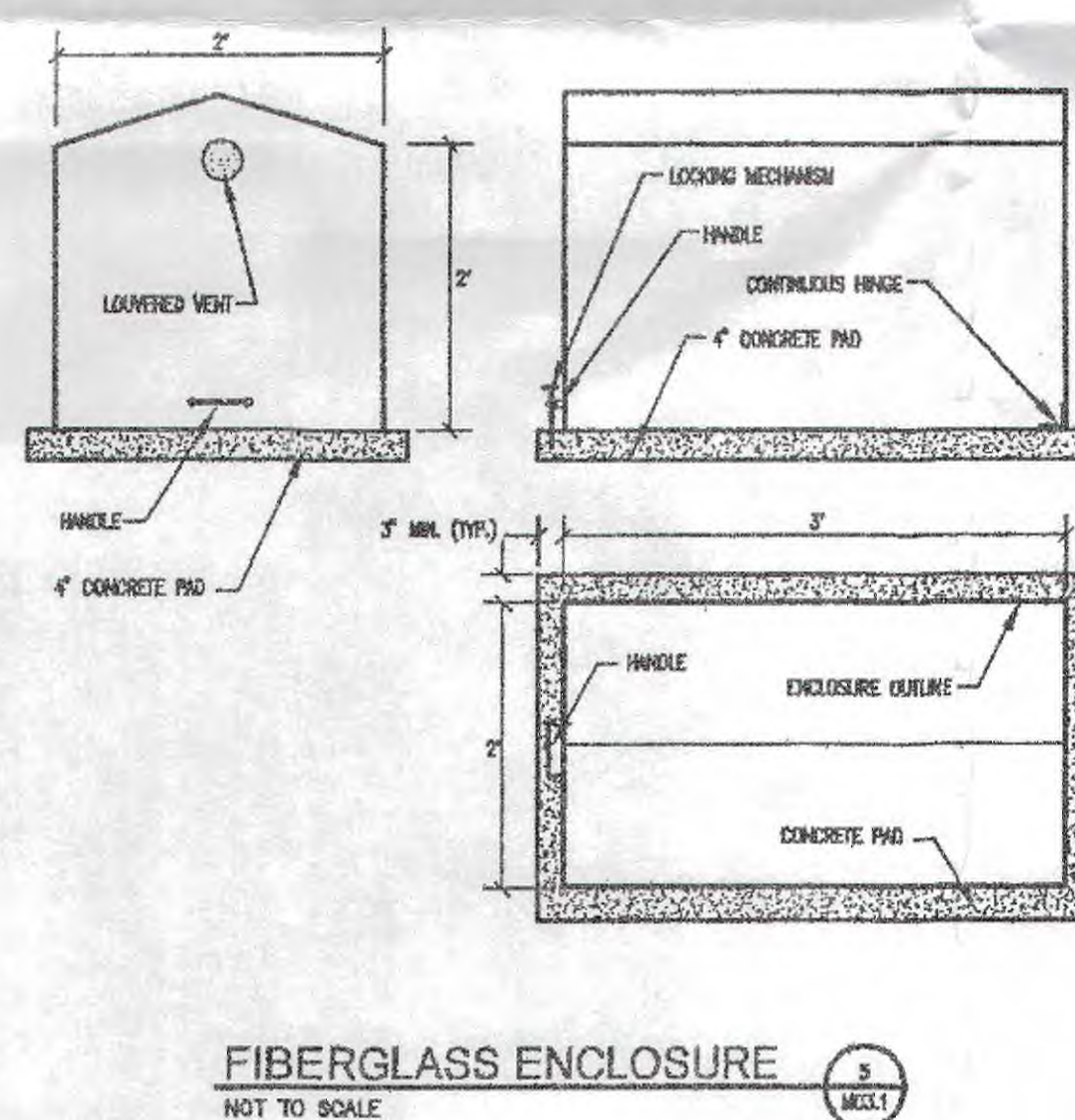
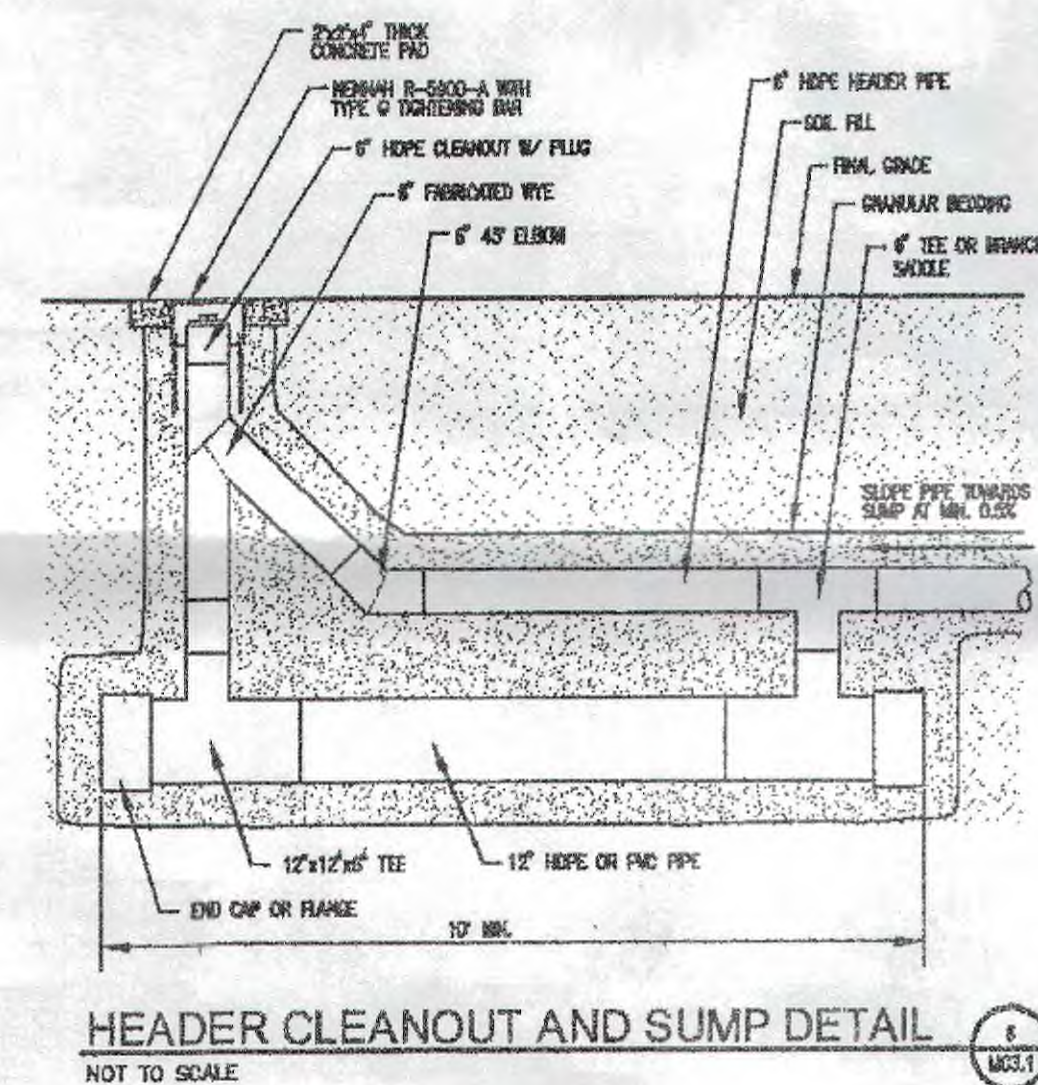
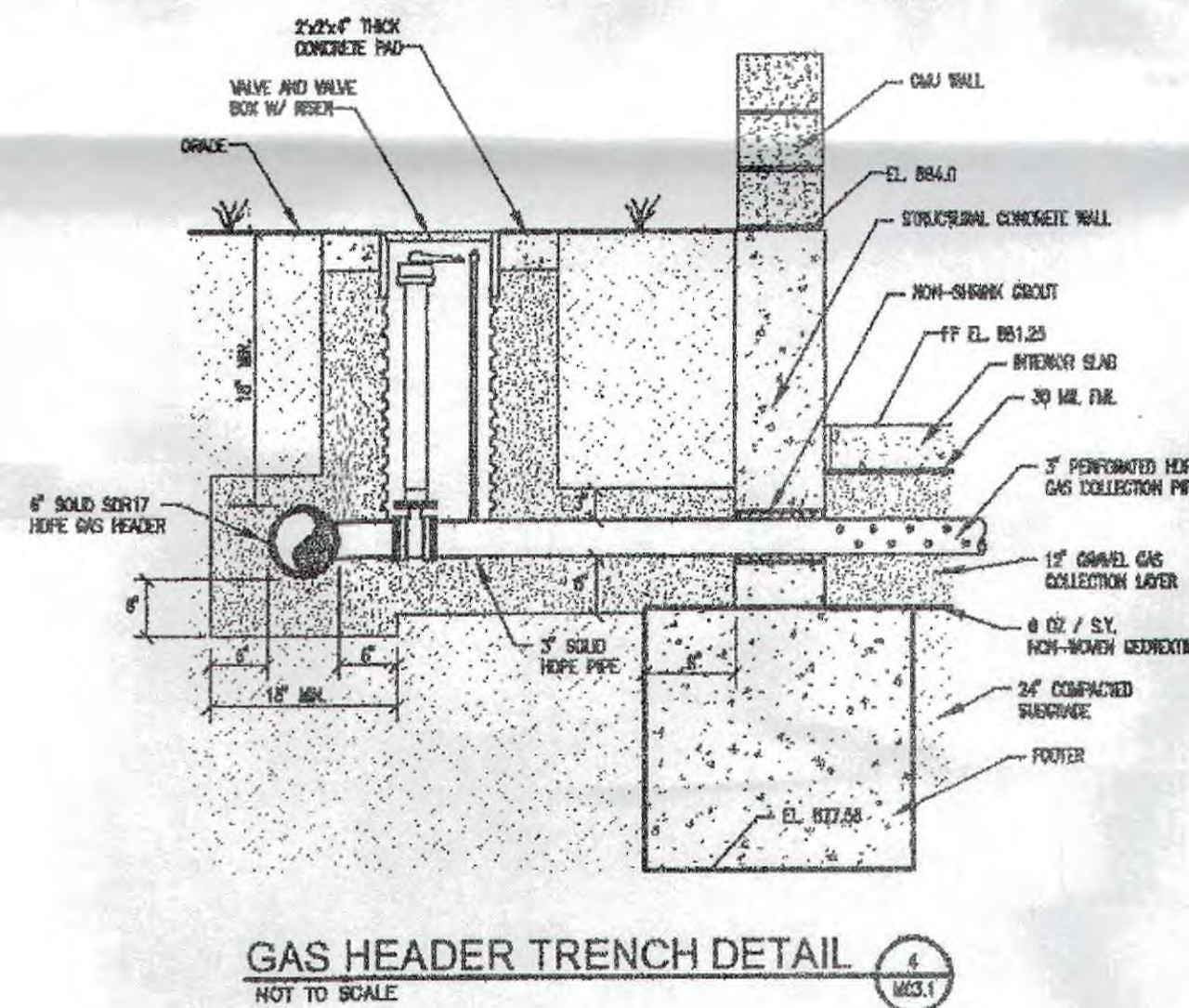
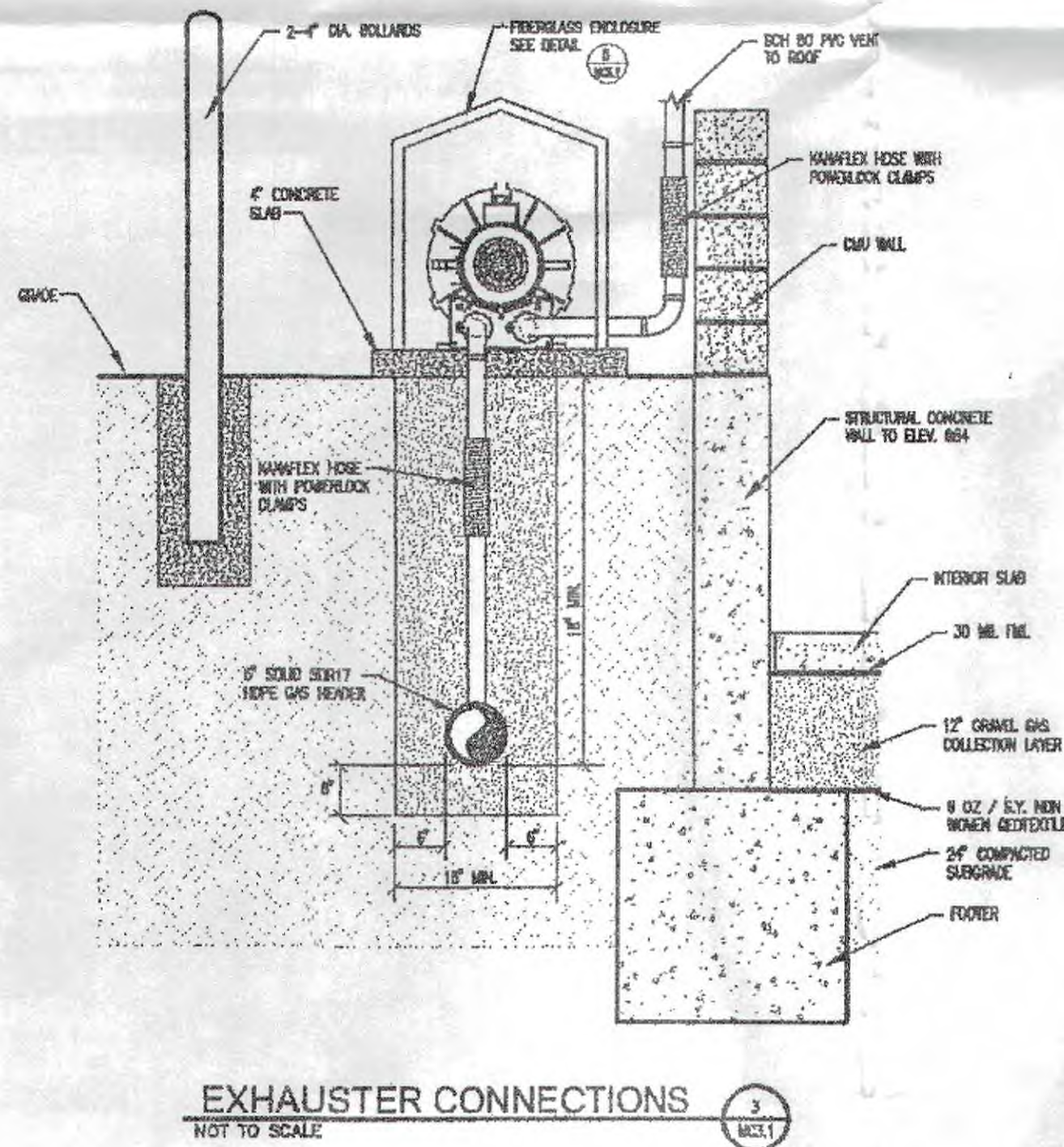
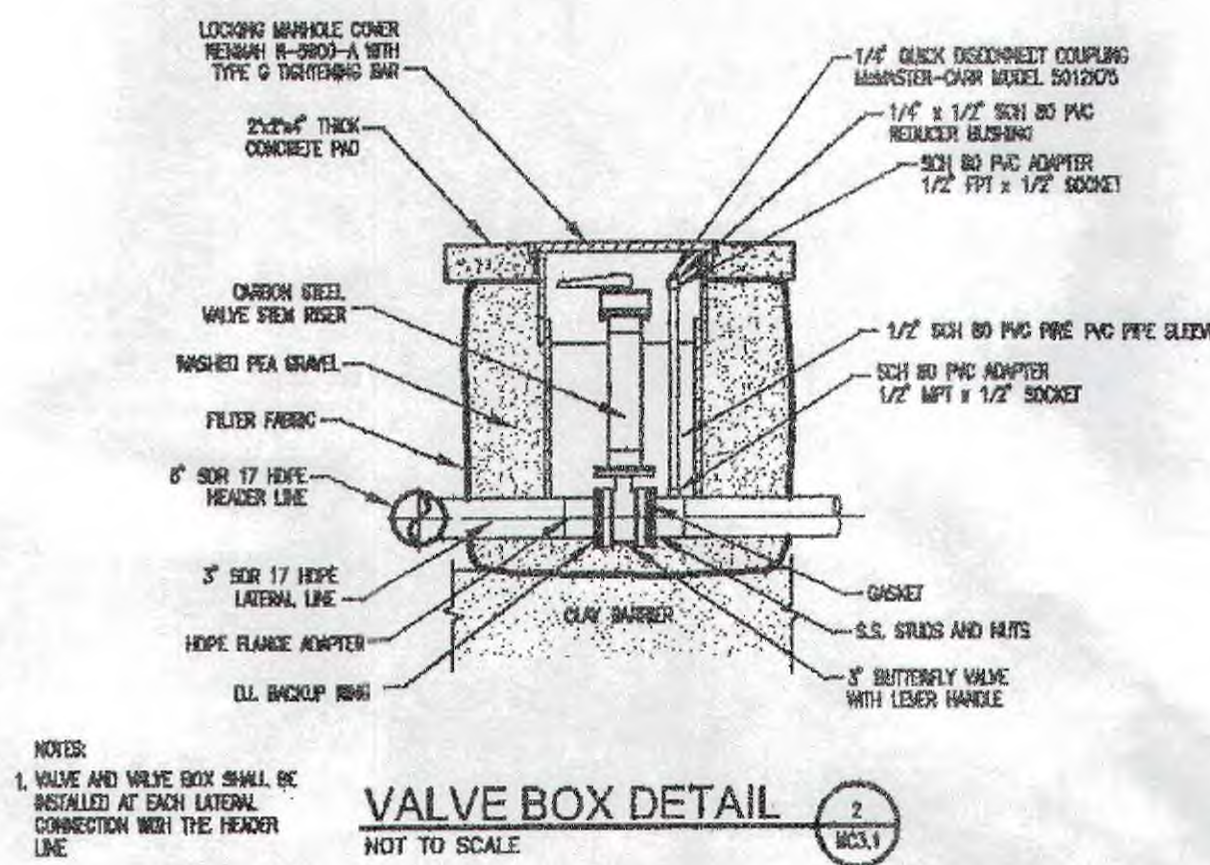
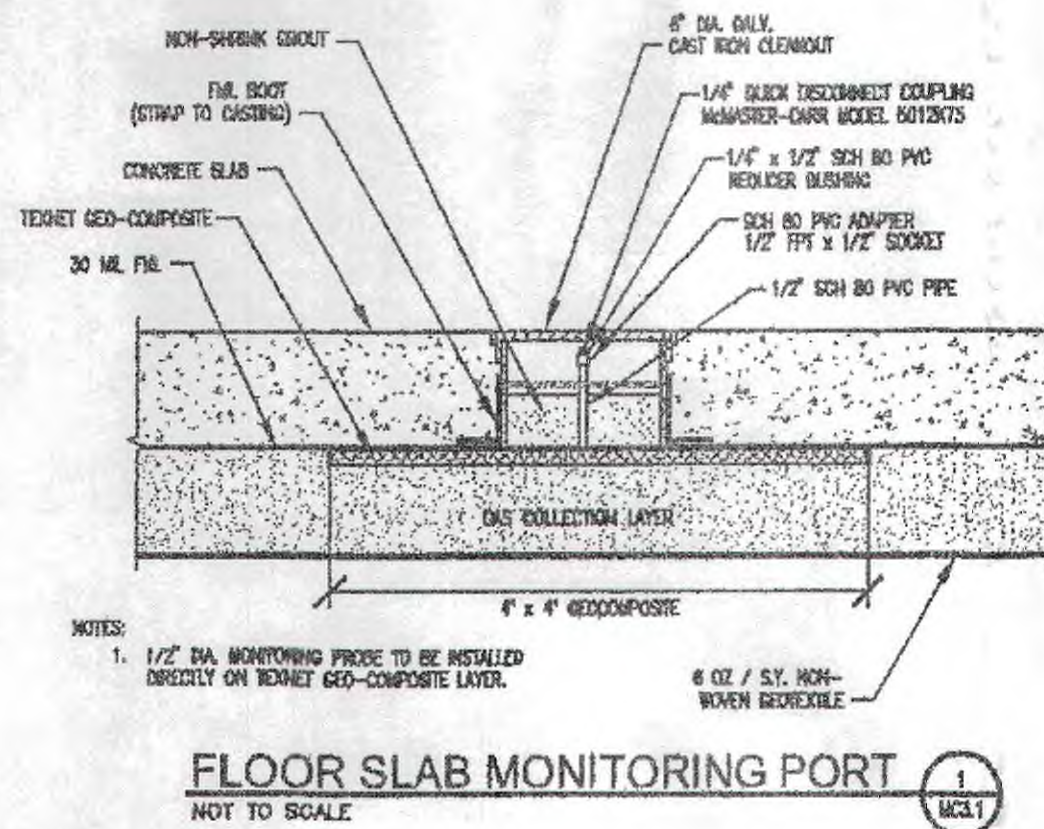
A cast iron lid shall be installed on the port access even with the finish floor elevation.

LANDFILL GAS PROTECTIVE SYSTEMS

All occupied spaces shall be protected with floor monitoring ports and alarms as shown on the drawings.

Explosive gas alarms shall be installed in all buildings within the occupied spaces as shown on the drawings. The alarms shall be mounted a minimum of 6 feet from the floor near a 120 volt outlet. The alarms shall be manufactured by Safe Home Products, Sierra Monitoring Corporation, General Monitors, CEA Instruments, or approved equal.

Underground electrical conduit shall be explosion-proofed at entry points to buildings and electrical equipment (transformers, switches, breakers, lighting fixtures, etc.) to prevent the migration of explosive gas into the facility and/or equipment enclosures. Explosion proof fittings shall be Applicon Electric, or equal.



DATES AND REVISIONS	
No.	Date/Description
1	3/27/06 Plans to ACN
2	3/27/06 Move Exhauster to New
3	3/28/06 Add Fuel Farm Details

**SCS ENGINEERS**  
STEARN, CONRAD AND SCHMIDT  
CONSULTING ENGINEERS, INC.  
2000 HEADING ROAD SUITE 200 CINCINNATI, OHIO 45222  
PH. (618) 481-5353 FAX NO. (618) 481-5357

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**CITY VIEW CENTER**

**GetGo**  
CONVENIENCE STORE  
METHANE NOTES AND DETAILS

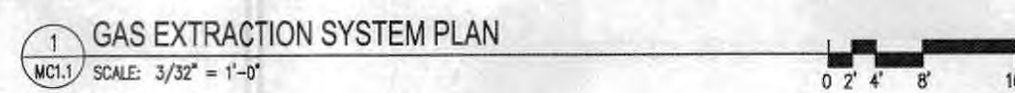
DRAWN BY: APT  
CHECKED BY: CES  
RLB NO.: 05203006  
DRAWING NO. MC3.1



## **APPENDIX D-3**

### **Giant Eagle Building-Specific Design Plans**



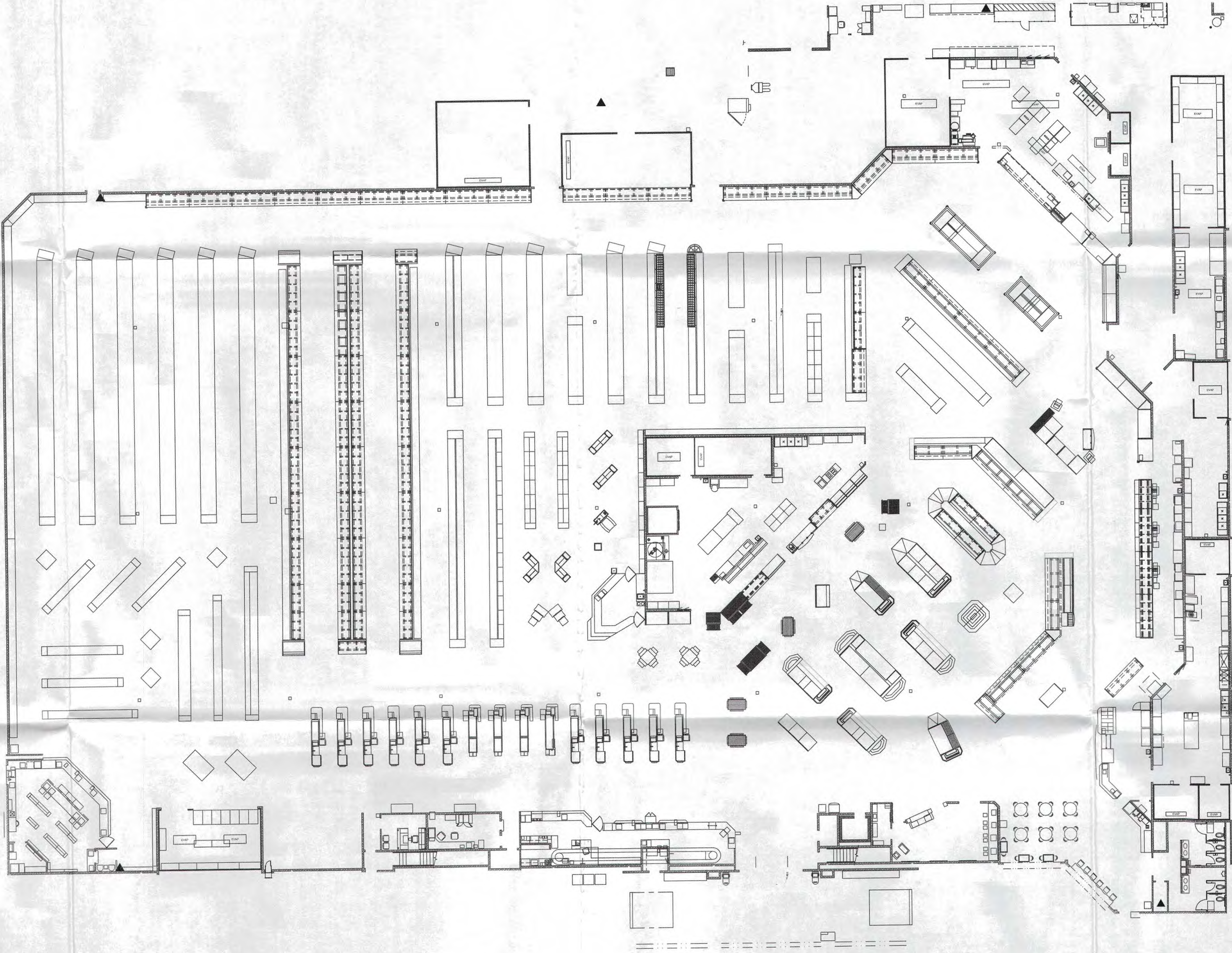


1. A 4" DIAMETER SOLID HDPE PIPE SHALL BE INSTALLED TO THE SANITARY VAULTS TO ALLOW FOR THE EXTRACTION OF EXPLOSIVE GASES FROM THE INTERNAL CHAMBER.
2. A 4" DIAMETER SOLID HDPE PIPE SHALL BE INSTALLED FROM THE GRAVEL GAS COLLECTION LAYER TO THE VAULTS TO AID IN AIR FLOW FROM THE VAULT.

SANITARY VAULT —  
(REFER TO ARCHITECTURAL DRAWINGS)

DRAWING NO.  
**MC1.1**






1 GAS EXTRACTION SYSTEM MONITORING PLAN  
MC2.1 SCALE: 3/32" = 1'-0"

0 2' 4' 8'

NOTES:

1. LOCATIONS FOR FLOOR MONITORING PORTS AND ALARMS ARE APPROXIMATE, BASED ON THE PROTOTYPE FLOOR PLAN. FINAL LOCATIONS FOR THE FLOOR MONITORING PORTS AND ALARMS SHALL BE BASED ON THE FINAL FLOOR PLAN.

LEGEND

-  FLOOR MONITORING PORT  
 GAS ALARM

[illegible]

**SCS ENGINEERS**  
STEARNS, CONRAD AND SCHMIDT  
CONSULTING ENGINEERS, INC.  
2060 READING ROAD SUITE 200 CINCINNATI, OHIO 45202  
PH. (513) 421-5353 FAX NO. (513) 421-2841

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RETAIL 'J'

# GIANT EAGLE

1-460 AND TRANSPORTATION BLVD. GARFIELD HTS., OHIO

## GAS EXTRACTION SYSTEM MONITORING PLAN

DRAWN BY:	AP
CHECKED BY:	CE
SCS NO.:	0520300

DRAWING NO.  
**MC2.**



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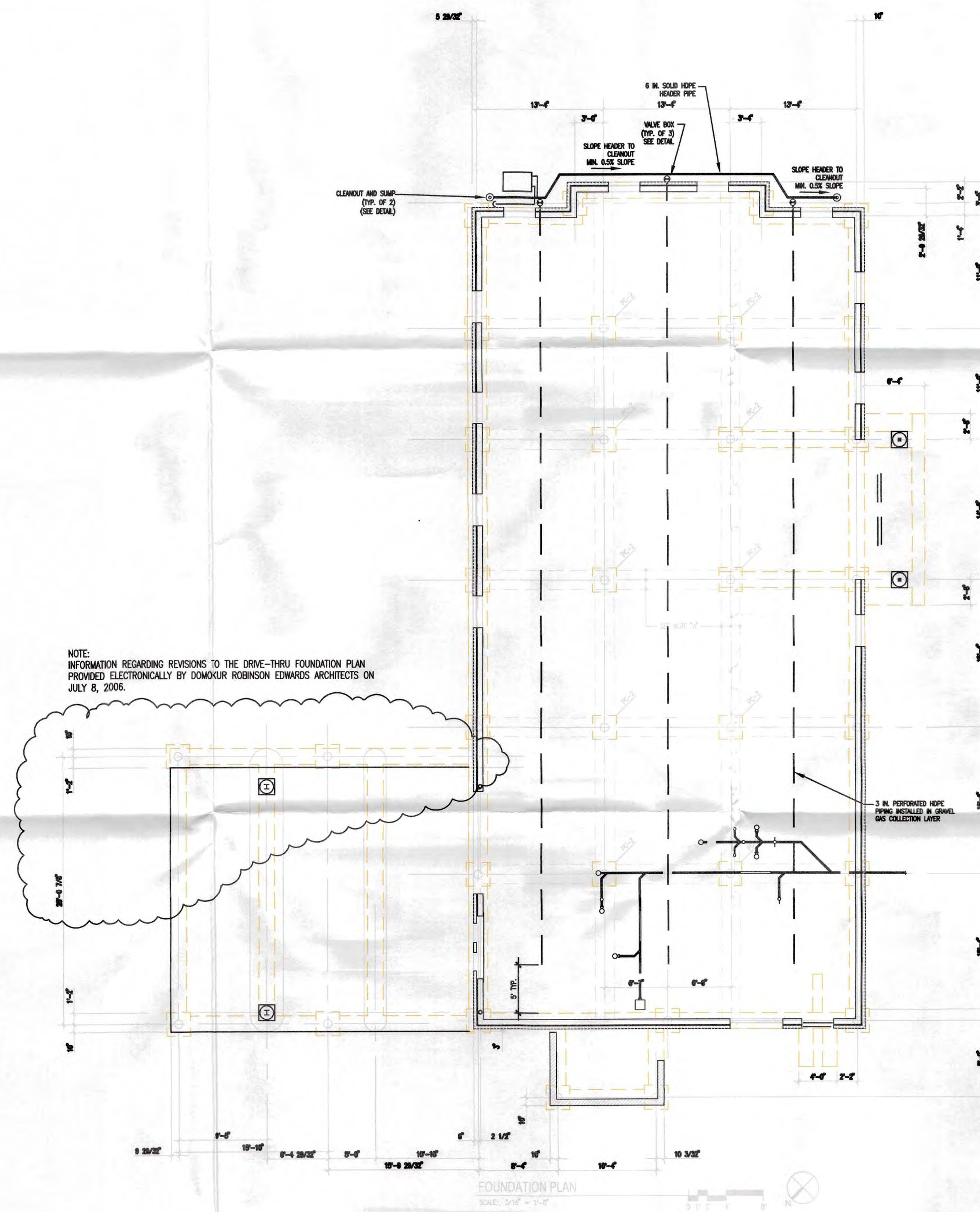
DRAWING NO.  
**MC3.1**



## **APPENDIX D-4**

### **First Merit Building-Specific Design Plans**





NOTE:  
INFORMATION REGARDING REVISIONS TO THE DRIVE-THRU FOUNDATION PLAN  
PROVIDED ELECTRONICALLY BY DOMOKUR ROBINSON EDWARDS ARCHITECTS ON  
JULY 8, 2006.

- ALL ELEVATIONS SHOWN ON PLAN ARE REFERENCED FROM FINISHED FLOOR ELEVATION 0'-0" (+877.50).
- ALL CONCRETE FILLED STEEL PIPE PILES ARE 10 3/4"x0.365" W/16"x1 1/2" THICK END PLATE U.S.A.
- ALLOWABLE STEEL PIPE PILE CAPACITY (1-PILE) = 180 KIPS
- ESTIMATED AVERAGE BEDROCK ELEVATION = 850.00'. REFER TO Q/V/C PLAN FOR CITY VIEW CENTER PREPARED BY SCS ENGINEERING INC. FOR ADDITIONAL Q/V/C INFORMATION.
- ALL CONCRETE SLABS TO BE PLACED ON VAPOR BARRIER - SEE ARCH.
- ALL SLABS SHALL BE 8" THICK AT HIGH POINTS AND SLOPE PER. ARCH. DWGS. (HOLD BOTTOM OF SLAB EL. AND VARY SLAB THICKNESS - MIN. THICKNESS SHALL BE 7").
- COORDINATE EMBEDS / PENETRATIONS WITH ARCH., MECH., AND ELECT. DRAWINGS.
- SEE TYPICAL GRADE BEAM DETAIL ON S3.1.
- ALL SLABS SHALL BE REINFORCED WITH #5 @ 12" O.C. EACH WAY TOP AND BOT.
- "A" - ADD 3 #5 CONT. @ 12" o.c. TOP & BOTTOM TYP.

NOTE:  
ALL 6-IN. HEADER LINES SHALL BE SLOPED A MINIMUM 0.5% AWAY FROM THE  
EXHAUSTER AND TOWARDS THE CLEANOUTS.

DATES AND REVISIONS	
No.	Date/Description
1	DRIVE-THRU FOUNDATION PLAN

**mcquill**  
PROPERTY GROUP  
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**METHANE  
COLLECTION  
PLAN**

1480 AND TRANSPORTATION  
BLVD. GARFIELD HEIGHTS, OHIO

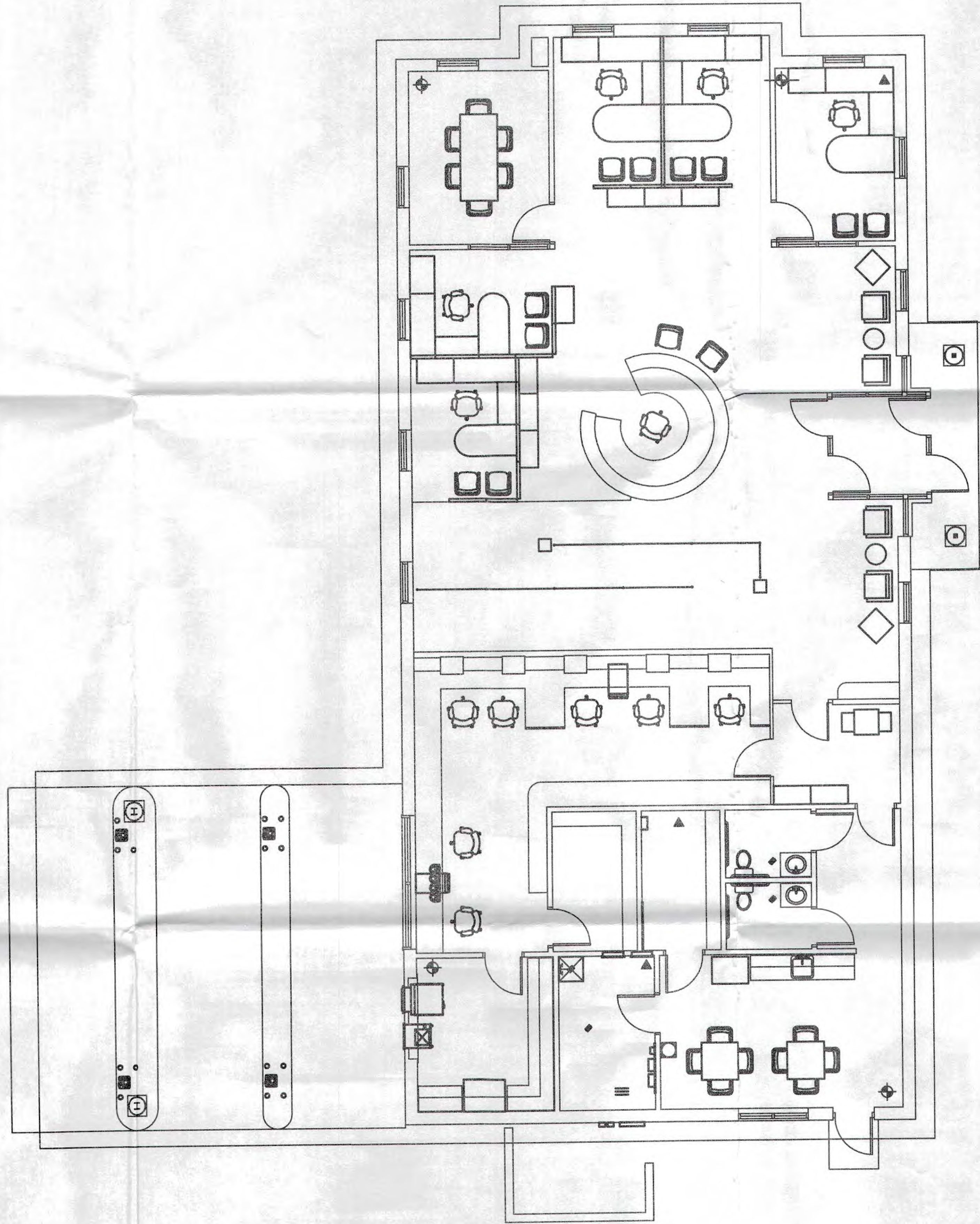
**FIRSTMERIT**

DRAWN BY: TJB  
CHECKED BY: CES  
SCS NO.: 05203006

DRAWING NO.  
MC1.1



ALAND PROJECTS (05/20/2016) UNITS FIRST MERIT GAS PLANS MONITORING PLAN DWG 1 PLOTTED 10/02/2016 09:13AM BY DBA/RTB



NOTES:

1. LOCATIONS FOR FLOOR MONITORING PORTS AND ALARMS ARE APPROXIMATE, BASED ON THE PROTOTYPE. FINAL LOCATIONS FOR THE FLOOR MONITORING PORTS AND ALARMS SHALL BE BASED ON THE FINAL FIXTURE PLAN.

LEGEND

- ◆ FLOOR MONITORING PORT
- ▲ GAS ALARM

DATES AND REVISIONS	
No.	Date/Description

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MONITORING  
PLAN

1-480 AND TRANSPORTATION  
BLVD. GARFIELD HEIGHTS, OHIO  
**FIRSTMERIT®**

DRAWN BY: FJR  
CHECKED BY: SCS  
SCS NO.: 05203006

DRAWING NO.  
**MC2.1**



LANDFILL GAS COLLECTION AND DISPOSAL

Explosive gas (landfill gas, methane) shall be collected and free-vented to the atmosphere from beneath all buildings that are constructed atop solid waste (trash).

HDPE pipe installation shall be in accordance with the manufacturer's recommendations, the drawings, and specifications, whichever is more stringent.

The gas collection system piping shall be installed in accordance with the plans and specifications using SDR 17 HDPE pipe with type 3408 resin unless specified otherwise for a particular installation.

Piping materials for the landfill gas extraction system to be installed beneath the buildings shall be protected from damage due to UV deterioration, harsh weather, and other construction activities by staging the welding operations in an area adjacent to the building construction site that can be kept clean and dry. The area set aside for pipe welding shall be of sufficient size to accommodate the assembly of pipe runs of the lengths shown on the drawings. All solid HDPE pipe to be used for the header lines shall be welded in the staging area, tested for leaks, and then moved to the header trench as a single unit.

Perforations in the collection pipe shall be in accordance with the detail shown on the drawings.

Valves for the gas extraction system shall be Type 75 Butterfly valves with stem extensions as shown on the drawings as manufactured by ASHA/AMERICA, or equal.

HDPE pipe shall be joined by the following methods:

1. Unless otherwise stated, HDPE pipe shall be joined by heat fusion as specified in the pipe manufacturer's instructions.
2. HDPE flange adapters shall be employed where indicated on the drawings. Flanges for HDPE pipe shall be convoluted ductile iron backup rings and a minimum thickness of 1 inch as manufactured by Improved Piping Products, Inc. of Orinda California, or approved equal. Backup rings shall be finished with zinc chromate primer.

Bolts and studs shall be ASTM A-276, Type 316 stainless steel nuts and washers shall be ASTM A-276, type 304 stainless steel.

Studs, not bolts, shall be used to connect flanges. The studs shall be ASTM A-276, type 316 stainless steel. The studs shall be fastened with heavy, semi-finished hexagon nuts and completely coated just prior to installation with an anti-seize compound such as manufactured by Kopr-Kote, or approved equal.

The Contractor shall test all gas collection system header piping with pressurized air (5 psi) to detect any leaks in the piping. The Contractor shall be responsible for repairs or restorations made in areas where leaks are discovered. Test segments shall not exceed 500 linear feet. Test results shall be submitted to the Engineer.

PVC shall be Schedule 80 aligned to minimize linear deviations at the joints and connected by PVC socket fittings. A coating of CPS primer shall be applied to the interior surface of the fitting socket prior to the application of solvent cement.

Flexible PVC pipe and clamps shall be manufactured by Kanaflex of Compton, California, or approved equal. All Kanaflex hose and PVC pipe exposed to weather shall be UV resistant.

Utility vaults along the building fronts shall be protected from excessive gas concentration build-up by tapping through the vault walls with a lateral line from the building gas extraction system to exert a limited airflow from the vaults. A second parallel line shall be provided from the vault to the gravel pack gas collection layer to allow air circulation through the vault.

The Contractor shall be responsible for start-up and fine tuning of the explosive gas extraction system. The Contractor shall balance the extraction system beneath the buildings to ensure equal vacuum is exerted to all laterals in each system.

LANDFILL GAS EXHAUSTERS

The CONTRACTOR shall prepare and submit to the ENGINEER for approval manufacturer's literature, shop drawings, and other information pertaining to the assembly, operation, lubrication, adjustments, and other maintenance and repairs of equipment installed under this Section, together with detailed parts lists, plans, and/or photographs of all components.

The CONTRACTOR shall submit complete exhauster performance data that will indicate compliance with the DRAWINGS and SPECIFICATIONS. This information shall include exhauster characteristic curves indicating capacity for flow versus pressure head and amps as tested at the factory. It shall also include calculations showing the equipment gas flow and motor corrections required for operation at job site elevation as specified in this Section.

The CONTRACTOR shall furnish three (3) copies of an Operation and Maintenance manual prepared specifically for this installation a minimum of 3 weeks prior to delivery of the equipment. The manual shall include all required catalog cuts, plans, equipment list, descriptions, and information necessary to instruct operating personnel unfamiliar with such equipment. The manual shall include a list of recommended spare parts for the equipment supplied. The CONTRACTOR shall modify the manual, as necessary, based on ENGINEER'S comments following startup and shall submit three (3) copies of the finalized manual two (2) weeks after startup.

Prior to testing, the CONTRACTOR shall submit a detailed outline of test procedures including step-by-step descriptions of the proposed test, a list of all test equipment, test equipment calibration dates, and sign-off sheets.

The exhausters shall be regenerative blowers capable of exerting a vacuum of 5.2 inches Hg and a flow of 160 SCFM. The exhausters shall be Model DR 505 M as manufactured by AMETEK Rotron Technical and Industrial Products, Kent, Ohio, or equal. The motors shall be 2 hp., 115/230 volt, single phase, 60 Hz units. The exhauster units shall be mounted on a steel skid, concrete pad, or fiberglass base unit. The exhauster shall be protected from the weather with a fiberglass enclosure sized to fit over the entire unit. The fiberglass enclosure shall be hinged to allow access to the exhauster for maintenance purposes. The enclosure shall be a non-insulated fiberglass flip-top unit by Hot Box of Jacksonville, Florida, a fiberglass reinforced plastic enclosure by Tipton Environmental International, Inc. of Batavia, Ohio, or approved equal.

Equipment shall be FIELD-TESTED by the CONTRACTOR to verify proper alignment and operation, including freedom from binding, scraping, vibration, shaft runout, or other defects. Furnish all equipment, materials, and labor necessary for testing the operation of the complete system, valves and appurtenances, upon completion of the installation at no additional cost to the OWNER. The exhausters shall be tested to assure proper operation and delivery of specified flow rates and vacuums in the presence of the ENGINEER.

COMBUSTIBLE GAS FLOOR MONITORING PORTS

Combustible gas floor monitoring ports shall be installed at the locations shown on the drawings. The ports shall consist of a 4-foot x 4-foot section of geocomposite between the clay cap and the bottom of the structural concrete floor slab. A 1/2 inch schedule 80 PVC pipe shall be placed atop the geocomposite and surrounded by a cleanout that will be cast into the structural slab. The interior annular space at the base of the cleanout shall be sealed with a non-shrink epoxy grout to provided an airtight seal around the 1/2 inch pipe. A quick disconnect coupling shall be installed on the 1/2 pipe to permit monitoring of the port. Quick disconnects shall be 1/2 inch Acetal quick-disconnect Part No. 5012K75 (shut-off) from McMaster-Carr of Cleveland, Ohio, or equal.

A cast iron lid shall be installed on the port access even with the finish floor elevation.

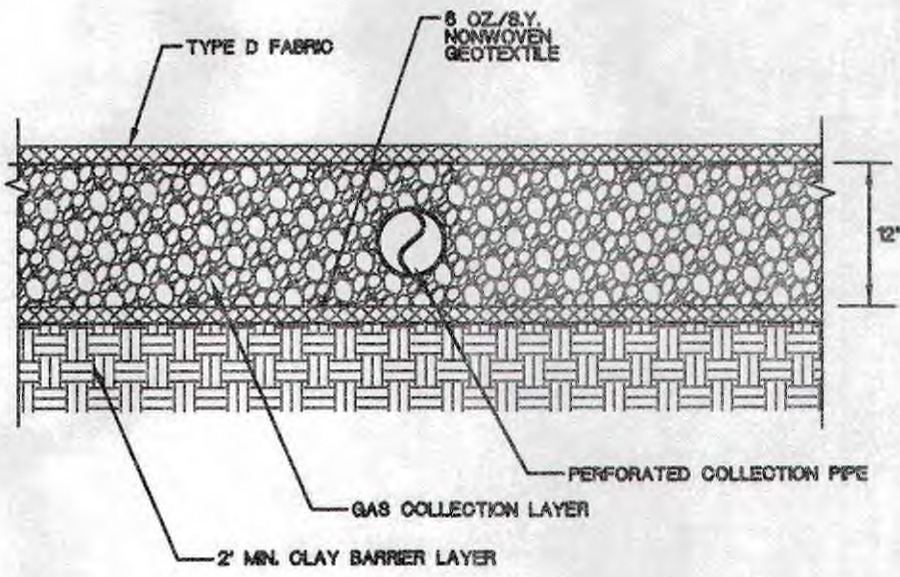
LANDFILL GAS PROTECTIVE SYSTEMS

All occupied spaces shall be protected with floor monitoring ports, explosive gas sensors, and/or alarms as shown on the drawings. Explosive gas sensor systems shall be used in buildings that are constructed over a crawl space and consist of remotely mounted methane sensors connected to a PLC controller located in the Landlord spaces in or adjacent to the protected building. The sensors and controller shall be manufactured by Sierra Monitor Corporation, General Monitors, or approved equal.

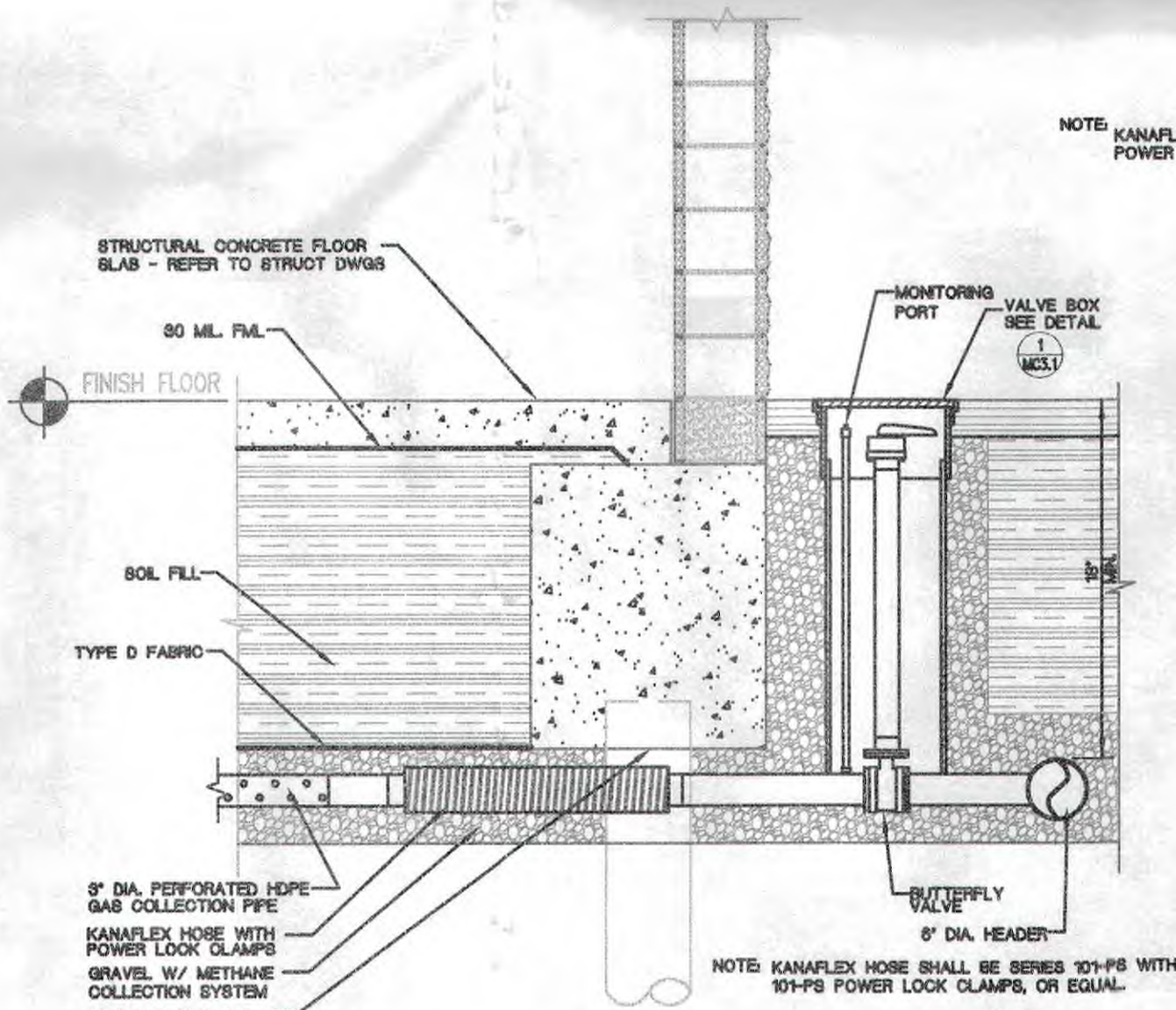
Explosive gas alarms shall be installed in all buildings within the occupied spaces as shown on the drawings. The alarms shall be mounted a minimum of 6 feet from the floor near a 120 volt outlet. The alarms shall be manufactured by Safe Home Products, Sierra Monitoring Corporation, General Monitors, CEA Instruments, or approved equal.

Underground electrical conduit shall be explosion-proofed at entry points to buildings and electrical equipment (transformers, switches, breakers, lighting fixtures, etc.) to prevent the migration of explosive gas into the facility and/or equipment enclosures. Explosion proof fittings shall be Appleton Electric, or equal.

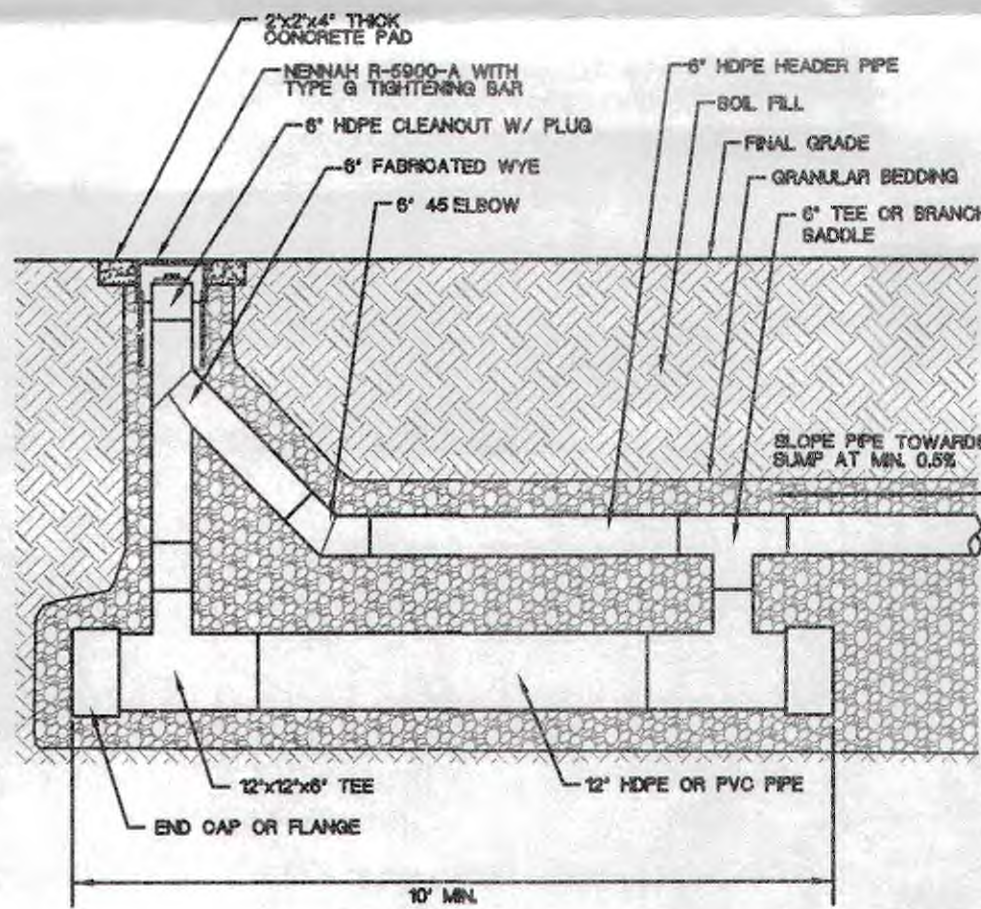
Exhauster shall be protected from thermal overload by a combination fusible motor starter.



6 METHANE COLLECTION LAYER  
MC3.1  
NOT TO SCALE



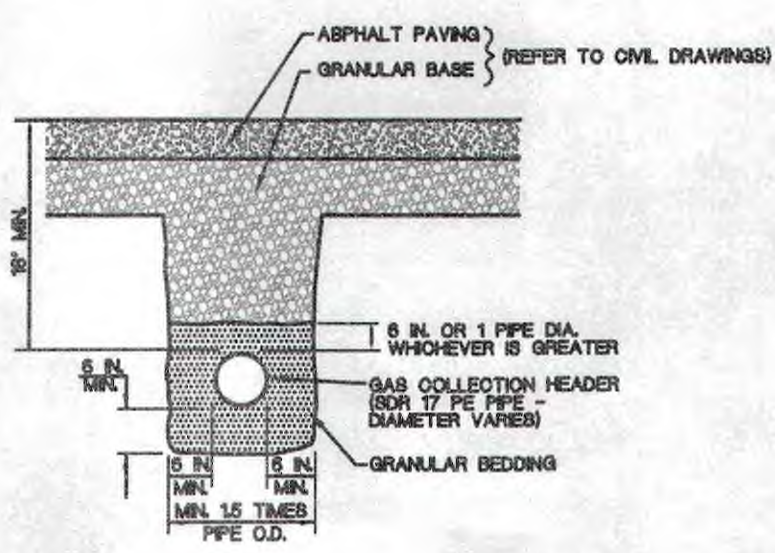
4 BELOW GRADE HEADER SYSTEM  
MC3.1  
NOT TO SCALE



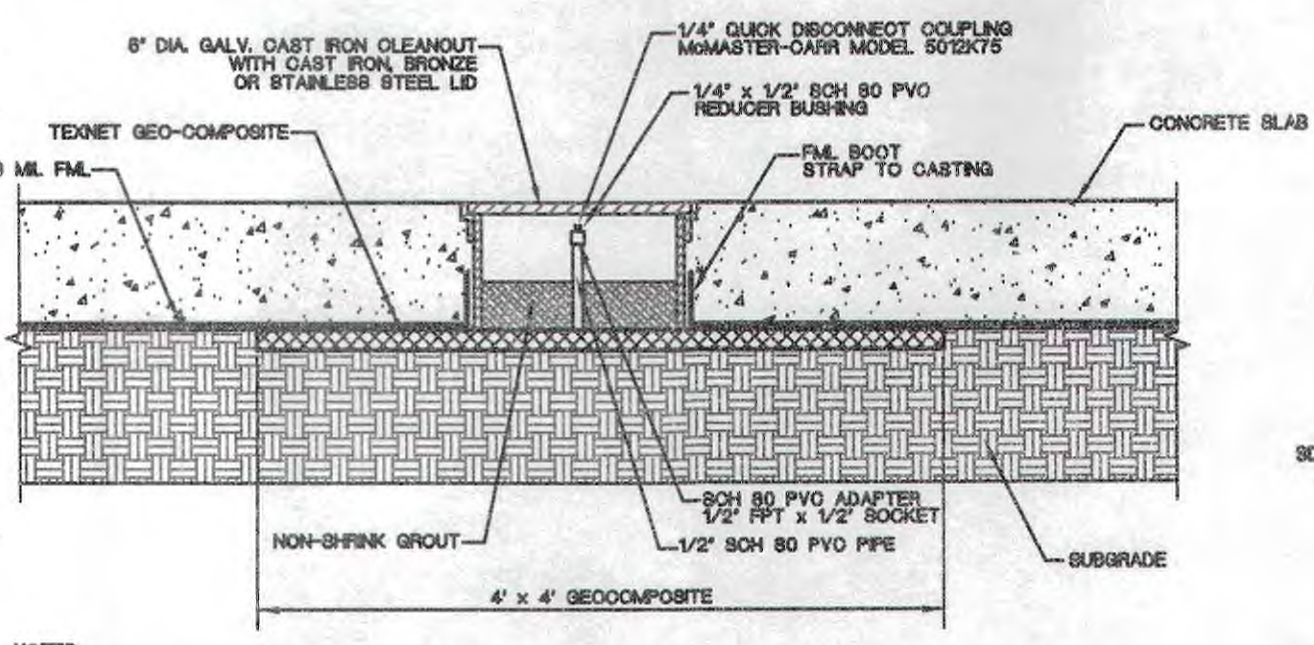
9 CLEANOUT DETAIL  
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NOT TO SCALE



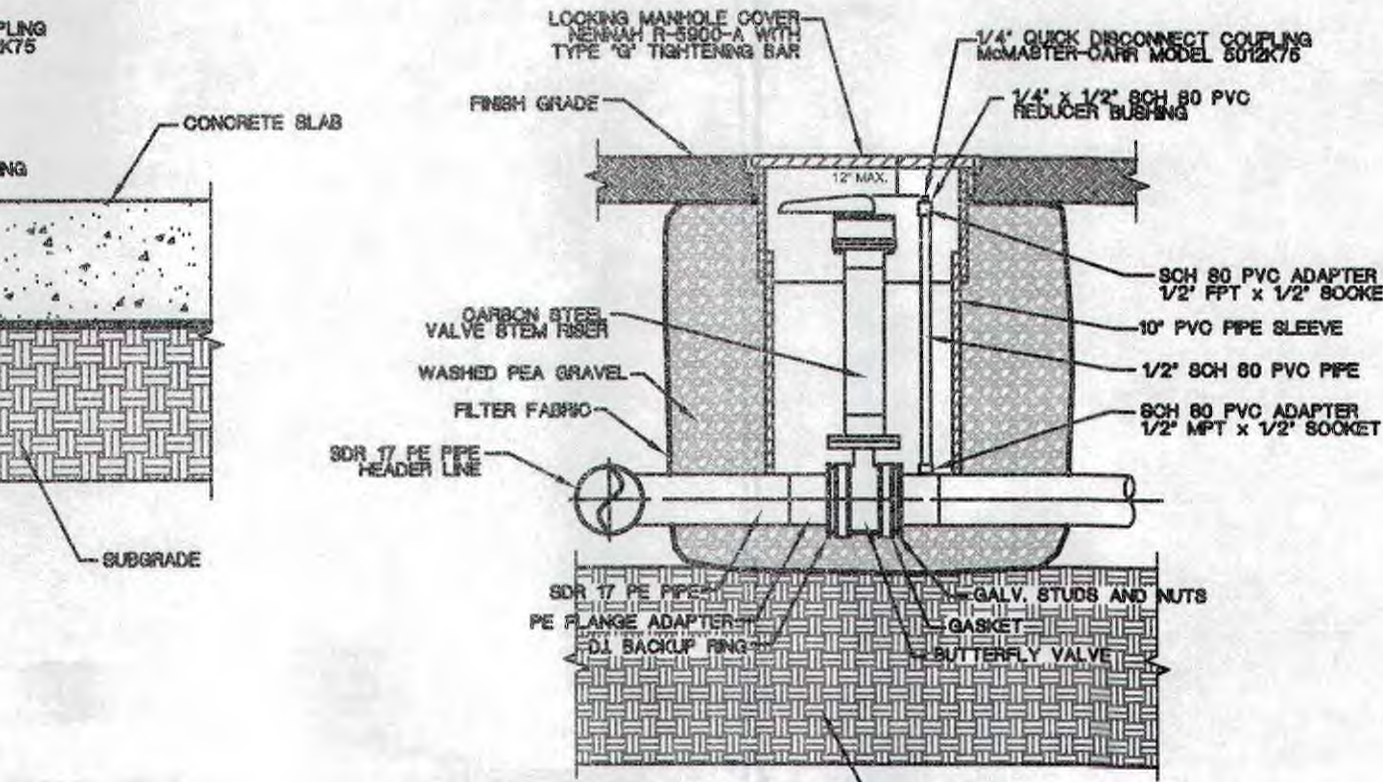
5 EXTRACTION SYSTEM PERFORATED PIPE  
MC3.1  
NOT TO SCALE



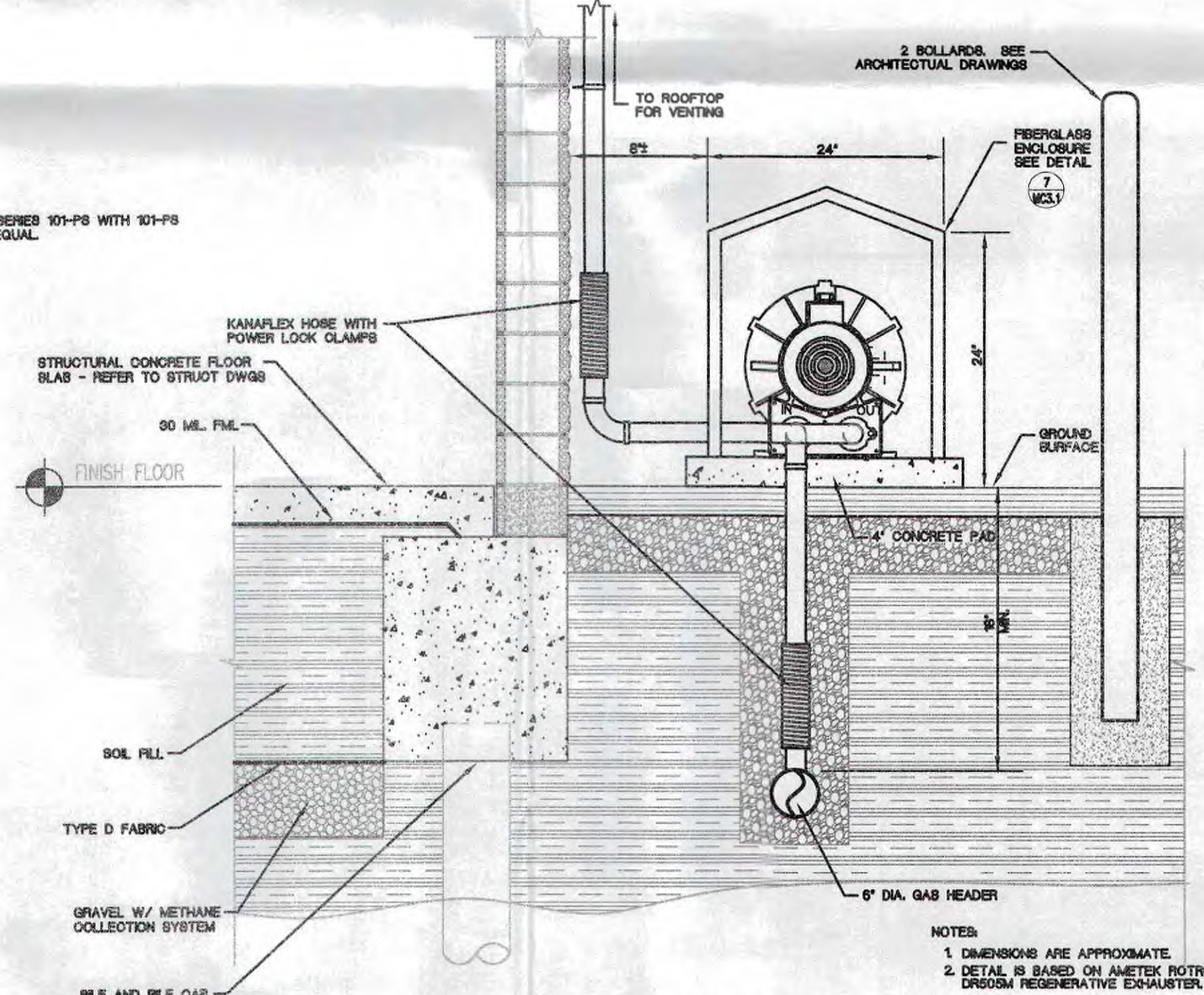
8 LANDFILL GAS HEADER LINE TRENCH  
MC3.1  
NOT TO SCALE



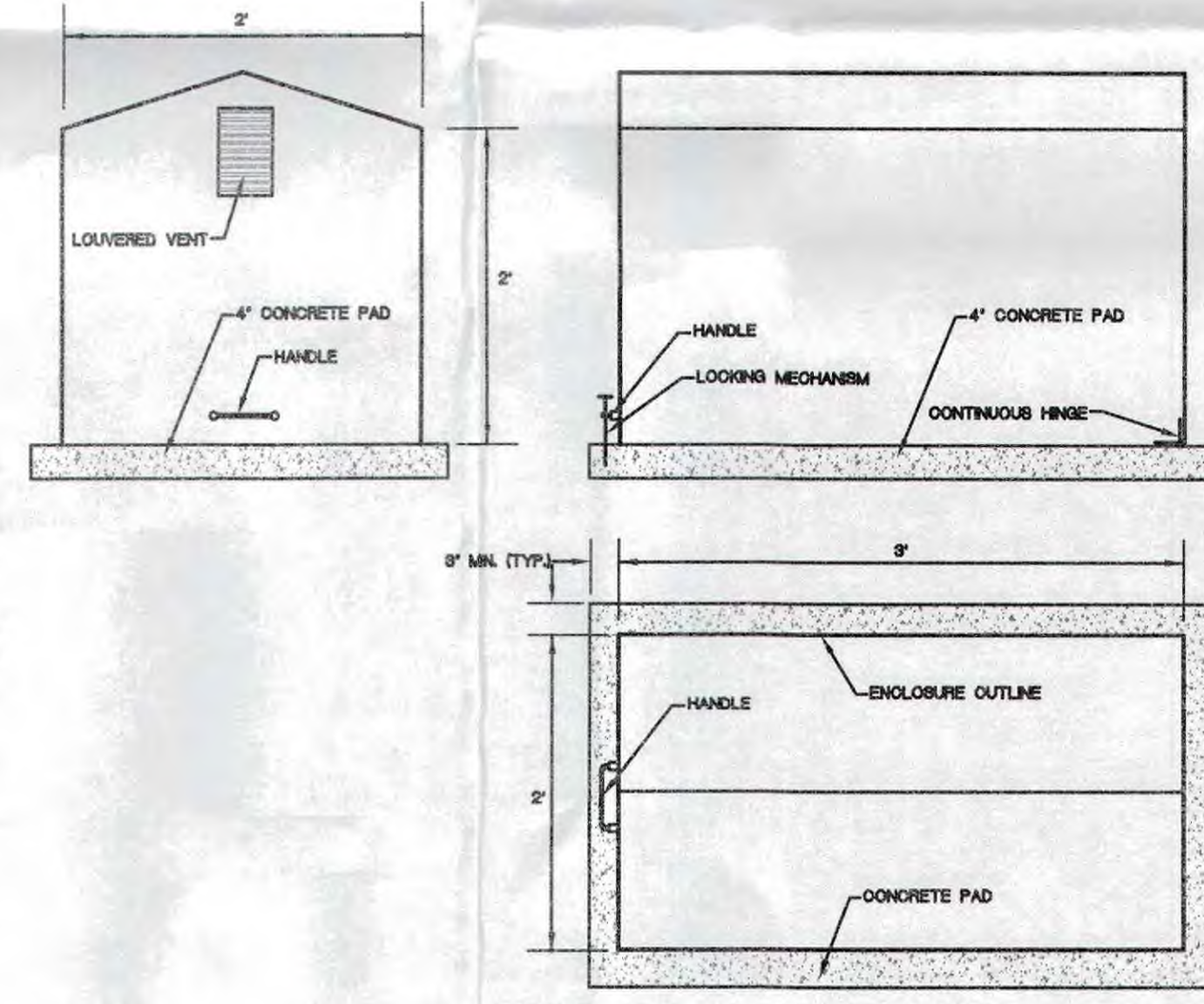
2 FLOOR SLAB MONITORING PORT DETAIL  
MC3.1  
NOT TO SCALE



1 VALVE BOX DETAIL  
MC3.1  
NOT TO SCALE



3 EXHAUSTER CONNECTIONS  
MC3.1  
NOT TO SCALE



7 FIBERGLASS ENCLOSURE  
MC3.1  
NOT TO SCALE

DATES AND REVISIONS	
No.	Date/Description

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NOTES AND DETAILS

1-480 AND TRANSPORTATION  
BLVD. GARFIELD HEIGHTS, OHIO

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DRAWING NO. MC3.1