Fac/Permit/Co ID #	Date	Doc ID#
44-07	11/13/09	8902

McGill ASSOCIATES

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NOV 10 2009

SOLID WASTE SECTION
ASHEVILLE REGIONAL OFFICE

1984-20

November 6, 2009

Mr. Allen Gaither
Solid Waste Permitting Section
Division of Waste Management
North Carolina Department of Environment and Natural Resources
2090 U.S. Highway 70
Swannanoa, North Carolina 28778

RE: Request for Construction Plan Approval
Gas Collection and Combustion System
White Oak MSW Landfill
Haywood County, North Carolina
Permit # 44-07

Dear Mr. Gaither:

On behalf of Haywood County, McGill Associates is pleased to present to you this request for approval of construction plans for a gas collection and combustion system at the White Oak MSW Landfill. The initial phase of the project generally consists of installing approximately 11 new gas extraction wells, modifying 5 existing gas vents to accommodate gas extraction, HDPE collection piping, well dewatering pumps and associated drain lines, and a landfill gas flare station and appurtenances. The initial phase of construction will occur in MSW Phase 1 and a portion of MSW Phase 2. Future phases shown on the plans include expansion of the gas collection system into the remainder of MSW Phase 2 and into future MSW Phases 3 and 4.

The following information is included in this submittal:

- Plan Sheets
- Flare Station Specifications
- Digital copy of all submittal information

The County anticipates granting a Notice to Proceed for the construction of this project in February 2010. A six-month construction contract length is anticipated. In order to obtain a Permit to Operate the gas collection and combustion system, the County will furnish the North Carolina Department of Environment and Natural Resources (NCDENR) the following:

- A revised Operations Plan for the White Oak MSW Landfill;
- The required permit modification fee (upon receipt of invoice from NCDENR);
- As-built drawings of the gas collection and combustion system;

We look forward to working with you on this project. As always, don't hesitate to contact us if you have any questions regarding this submittal or if you require additional information.

Sincerely,
McGILL ASSOCIATES, P.A.

WILLIAM P. SPERRY
Project Engineer

Enclosures

cc: Andrea Keller, NCDENR Solid Waste Section, w/o enc
Stephen King, Haywood County Director of Solid Waste, w/enc
David Cotton, Haywood County Manager, w/o enc
Andy Alexander, BLE, Inc., w/o enc

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Shaw® LFG Specialties, L.L.C.

Corporate Headquarters:
LFG Specialties LLC
16406 US Route 224 E
Findlay, OH 45840-9761
Main: (419)424-4999
Fax: (419)424-4991

UTILITY FLARE SYSTEM
MODEL PCFT622I6

LFG SPECIALTIES BUDGETARY SALES AGREEMENT
NO. 100905

Date: October 16, 2009

PRESENTED TO:
Dave Pasko
McGill Associates
828-252-0575
dpasko@mcgillengineers.com

PREPARED BY:
Lawrence Derr, Applications Engineer
16406 US Route 224 E
Findlay, OH 45840
(419) 424-4915

PRESENTED BY:
Robert Johnston, National Sales Manager
11560 Great Oaks Way, Suite 500
Alpharetta, GA 30022
(770)667-7789

PROJECT REFERENCE:
White Oak MSW Landfill
Haywood County, NC

BID PACKAGE

SALES AGREEMENT

This sale agreement "Agreement" which includes the Equipment Specification and Terms and Conditions of Sale below is entered into on the undersigned date, by and between the seller, LFG Specialties, L.L.C. "LFG Specialties", a Louisiana corporation, and purchaser, _____ (hereinafter "Purchaser").

A. LFG Specialties is the manufacturer of certain flare "Equipment" more fully described in paragraph 1. below, "Equipment Quote".

B. Purchaser wishes to purchase from LFG Specialties such Equipment on the terms and conditions set forth herein.

Therefore, in consideration of the covenants contained herein and for other good and valuable consideration, the legal sufficiency of which is acknowledged, the parties wishing to be legally bound agree as follows:

I. EQUIPMENT SPECIFICATION

Purchaser hereby agrees to purchase from LFG Specialties such Equipment and Services as described in this Agreement per the following and subject to the standard "Terms and Conditions of Sales" herein:

A. Equipment Scope:

LFG Specialties' scope of equipment supply and brief description of the system is listed below. For a more detailed system description please see Section G.

1. One LFG Specialties fully assembled skid mounted landfill gas candlestick flare including:
   - One flare Model CFT622I6 with peripheral equipment (capacity 75 – 750 SCFM of landfill gas at 30-50% methane content)
   - **Designed and constructed to operate as a complete unit to minimize installation and start-up time completely fabricated, assembled, pre-wired and tested prior to shipment.**
   - **Stack to be delivered completely wired from the stack junction box to the thermocouples, UV eye and igniter. Also from the stack junction box to the main control and power panels.**
   - One 6 in. Shand & Jurs Model 94307 flame arrester
   - One propane pilot assembly with automatic igniter system
   - One Houston Service Industries Model 5103 or equal multistage centrifugal landfill gas blower with direct drive and 20 HP, 460 VAC, three phase motor (blower is rated for 0 – 750 SCFM @ 40 in. w.c. inlet vacuum and 15 in. w.c. discharge pressure, 134 deg. F, 2550 ft. asl.)
   - Associated instrumentation including vacuum, pressure and temperature gauges
   - One set of associated flex couplings
   - One 6 in manual valve
   - One 6 in. fail safe automatic pneumatic header valve
   - One 24 in. condensate knock out pot with 20 micron demister/filter, 6 in. inlet and 6 in. outlet, sight glass, level switch, and drain port
   - One control rack with:
     - Flame-Trol III automatic flare controller with touch-screen interface with blower amp and blower hours display
     - Blower motor control center with starters and circuit protectors
     - Main power disconnect and step down transformer
     - Structural roof for heat and weather protection

       Note: Roof to extend 3 ft past the outside of boundary of control panel for personnel coverage

- One each thermal dispersion flow meter
- Yokogawa six channel paperless chart recorder to record flame temperature and landfill gas flow
- One Siemens Ultramat 23 Gas Analyzer to continuously measure Methane, Carbon Dioxide, and Oxygen including:
  - A weather proof enclosure with Climate Control that allows operations from 0°F to 100°F to ensure reliable operations. (Extended temperature ranges are available upon request)
  - An LEL detector that will shut the unit down in the event of a gas leak inside the enclosure
  - A sample conditioning system with filter, gas cooler and auto drain solenoids to ensure a dry sample to protect the analyzer
  - One internal exhaust filter utilizing activated carbon media to minimize odors
  - Factory trained personnel to set-up, commission and train the on-site personnel
  - Two O&M manuals including calibration procedures
  - Two 58 liter calibration bottles for start-up
- 8 ft. wide by 24 ft. long structural steel skid with anti skid deck plating
- All skid components interconnecting carbon steel piping and wiring
- Three copies of O & M Manual, cut sheets, and drawings

Notes:

1. Installation by others.
2. Landfill gas supply system must be properly engineered to provide a stable gas supply for the flare system to function properly.
3. A properly designed condensate removal system must be in place within 50 ft. upstream of the flare system for reliable operation. Additionally, all condensate drain lines on the skid to be connected, by others, prior to start up. A recommended drain line schematic available upon request.
4. The flare system must be supplied power from a stable energy source with a voltage deviation of no more than 7%.

B. Price Schedule:

Price for the LFG Specialties Model PCFT622I6 Utility Flare System as described in Section A, item 1 FOB Findlay, OH, excluding tax, is $

Three days of start-up assistance and training (travel and living expenses are included) $

*NOTE: Should the system not be commissioned by LFG Specialties, the warranty will be void.

Estimated shipping and handling from LFG Specialties shop to site (shipping to be charged at actual cost plus 15% handling fee) $

ALL PRICING IS FOB — FINDLAY, OHIO

Options:

1. One day of Semi-Annual or Annual Preventative Maintenance (travel and living expenses are included). Price is per visit. Additional information available upon request.

PRICE ADDER: $

2. Provide one Raco Guard-It four channel Autodialer

PRICE ADDER: $__

3. Replace the blower motor control center with starters and circuit protectors mentioned above with a 20 HP, 480 volt, 3 phase variable frequency drive with associated vacuum transmitter

PRICE ADDER: $__

C. Shipment Terms:

Shipment terms are F.O.B. LFG Specialties' facilities, Findlay, Ohio. LFG Specialties Sales Agreement calls for the Purchaser to pay all installation costs, freight from our facility to the project site, and all applicable taxes and necessary freight insurance.

D. Shipment Schedule:

LFG Specialties makes every effort to meet our Customers delivery requests and special requirements. Delivery for the flare system outlined in this Agreement is:

Submittal Drawings:	4 weeks after receipt of order for submittal drawings
Equipment Shipment:	12 to 16 weeks from receipt of approval for submittal drawings (Actual delivery to be determined at time of submittal approval)

A storage fee of $100.00 per week may be charged if the site cannot accept delivery of the unit by the scheduled delivery date.

E. Payment Terms:

Terms of payment are 100% net due 30 days from date of invoice. Invoices will be issued on a progress basis according to the following schedule:

Milestone	Amount
Project Award	50% (Invoiced at project award. Unit will not be shipped until payment has been received.)
Equipment Delivery	40% (Invoiced 4 weeks prior to shipment. Start up will not be scheduled until 40% payment has been received.)
Start up Completion	10% (Invoiced after successful completion of start up or 4 months after shipment, whichever occurs first.)

Prices are quoted firm for prompt acceptance and shipment per delivery schedule. Proposals are valid for 45 days from date of issue.

Prices do not include any taxes, duties or assessments.

F. Field Service Rates and Availability:

LFG Specialties can furnish an on site advisor during any aspect of the installation and erection or startup of our equipment deemed necessary by our customers in accordance with our standard "Terms and Conditions of Sales". LFG Specialties recommends 3 days of start up assistance and training for utility flares. Service personnel should be scheduled two weeks in advance for

standard installation, erection, start-up or service work. The Customer Installation Checklist must be signed and returned prior to these services being performed.

Additional on site field service time will be charged $1,000.00 per day, plus travel expenses. Travel expenses to be charged at $1.50/mile.

Service personnel are available for 48 hour emergency service for $1,200.00/day plus $1.50/mile.

G. Technical Data:

1. Gas Composition

   - 30-50% CH_4, Remainder – CO_2, Air, Inerts (gas compositions greater than 50% CH_4 will result in a radiation level greater than 500 BTU/ft^2 at 6 ft. elevation)
   - H_2S to be less than 1000 ppm (for concentrations greater than 1000 ppm please contact LFG Specialties concerning design of system)
   - O_2 to be less than 5%
   - Temp/Pres: 100° F, 12 in. w.c.

2. Flare Size

   - 6 in. tip, 22 ft. overall height flare

Note: A minimum distance from power lines and structures of 4 times the stack height must be maintained around the flare. If this distance is not feasible, please contact LFG Specialties engineering.

3. Destruction efficiency at design flow with gas methane content 30 to 50% -- 98% overall destruction of total hydrocarbons (per the US EPA AP-42)

   - Guaranteed to meet E.P.A. emission standards for landfill gas disposal in utility "candle type" flares.

Note: Flare is designed in accordance with the United States Environmental Protection Agency (EPA) established criteria for open flares, 40 CFR 60.18

4. Minimum methane content required to maintain stable flame and 98% destruction efficiency -- 30%

5. Flow/Emissions (expected) at maximum flow, 50% methane content and 1400°F combustion temperature:

N_2	73.5	% vol.
O_2	13.6	% vol.
CO_2	6.0	% vol.
H_2O	6.9	% vol.
NO_x	0.068	lbs./MMBTU *
CO	0.37	lbs./MMBTU *

* Per the US EPA AP-42 Supplement D, Table 13.5-1

6. Pressure loss through the flare, from the inlet flange through the flare stack, will typically be less than 10" w.c.

7. All utility flare units are designed and constructed to meet Seismic zone 4 guidelines and 100-mph wind loading requirements (per ASCE 7-88, Exp. C).

8. LFG Flow Ranges: The flare stack has a flow turndown ratio of 10:1 based on BTU content. The blower has a flow range outlined in Section A.

H. Equipment Warranty:

LFG Specialties guarantees the Equipment as outlined and specified in this Agreement for the period of twelve (12) months from date of shipment.

Along with standard Material, Workmanship and Performance Warranties outlined in the standard "Terms and Conditions of Sales" herein, LFG Specialties guarantees the equipment to meet present E.P.A. emission standards when installed and operated in accordance with specified design conditions.

I. Quality Control Standards:

LFG Specialties follows the Quality Control Procedures as outlined by the applicable national codes and standards adhered to in the design, engineering, manufacture, assembly and test of our equipment, including but not limited to:

Structural Design	------	AISC
Drawings	------	ANSI S5.1
Fabrication (welding)	------	AWS
Electrical (components)	------	UL
(wiring)	------	NEC
Painting, Sandblast	------	SSPL, SP-6

LFG Specialties does on occasion subcontract fabrication of subassemblies for our equipment. All subcontract work is carried out under LFG Specialties direction and inspected in accordance with our quality control standards.

The nondestructive testing of our equipment includes:

Welding	------	100% visual inspection
Dimensional	------	All dimensions to drawings, correct position and sizing of all connects
Piping	------	100% visual inspection (in/out)
Painting	------	Visual inspection/instrument check using microtest coating thickness gauge
Wiring	------	Functional Check
Controls	------	Functional check, process simulation

LFG Specialties also supplies full submittal documentation on the equipment; including mechanical and electrical drawings and component cut sheets. For equipment support, a complete Operation & Maintenance Manual is included with each unit.

J. Scope of Work:

LFG Specialties will furnish all the Equipment and Services as outlined in this Agreement. Equipment will be fully fabricated, painted and tested as described herein at LFG Specialties facility, Findlay, Ohio.

This Agreement only covers the supply of Equipment and installation advisory service as defined. The following items are not included in LFG Specialties scope of supply.

- Construction drawings: All equipment layout, interconnect details and foundations designs are the responsibilities of Purchaser.

  Note: LFG Specialties drawings will outline field installation connections (location and size) and loading data.

- All installation and civil work including foundations, equipment erection, main and interconnecting piping and wiring including required equipment and materials are the responsibilities of Purchaser.

- All permits/licenses required for installation and/or operation of the Equipment are the responsibility of Purchaser. LFG Specialties will provide necessary manufacturer's data on the equipment as required for permit/license applications.

BUDGETARY

II. LFG SPECIALTIES, L.L.C. TERMS AND CONDITIONS OF SALES

1) DEFINITIONS: Within these "Terms and Conditions of Sales" the term "LFG Specialties" shall mean LFG Specialties, L.L.C. The term "Purchaser" shall mean the person, municipality, firm, or corporation to whom this Agreement is addressed. The term "Equipment" means those articles, materials, supplies, drawings, data, or other property or services described herein.

2) WARRANTIES

A. "Material and Workmanship Warranty": LFG Specialties warrants to the Purchaser that the Equipment of its own manufacture will be complete in all its parts, and for the Warranty Period specified, will under proper application and operation be free from material defects in material or workmanship. LFG Specialties' warranty obligation shall be limited to the following:

(i) Replacement or repair of any Equipment or parts which under normal and proper operating conditions are, in LFG Specialties' sole opinion, found and confirmed defective and are returned to LFG Specialties' facilities within the Warranty Period, transportation charges prepaid.

(ii) Notwithstanding the above, LFG Specialties shall have no obligation as a result of improper storage, installation, repairs or modifications not made by LFG Specialties, or as a result of removal, improper use or misapplication of the Equipment after it has been delivered to the Purchaser.

(iii) Purchaser shall be responsible for freight charges in connection with the return or replacement of any defective Equipment or parts.

B. "Performance Warranty": LFG Specialties warrants that the Equipment of its own manufacture, when shipped and/or installed, will operate within any performance characteristics which are expressly specified herein as a performance guarantee. Any performance characteristics indicated herein, which are not expressly stated as guarantees, are expected "but not guaranteed". Should Purchaser be required or desire to conduct a field compliance/performance test to verify any performance guarantee, such test will be conducted by Purchaser, at his expense. LFG Specialties may be requested to have a representative/s present to witness such test in which case Purchaser shall reimburse LFG Specialties for the time and expense of such representatives at LFG Specialties' service rates then in effect at the time of the test. Purchaser shall give LFG Specialties fifteen (15) days written notice prior to the date Purchaser intends to commence such test.

C. "Warranty as to Equipment not made by LFG Specialties": LFG Specialties will take any steps reasonably within its power to make available to Purchaser any manufacturer's warranty applicable to the Equipment.

D. "Except as outlined herein, and to Title, it is expressly agreed":

(i) "THAT THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, NOR OTHER WARRANTY, EXPRESS, IMPLIED, OR STATUTORY, NOR ANY AFFIRMATION OF FACT, OR PROMISE BY LFG SPECIALTIES WITH REFERENCE TO THE EQUIPMENT OR PARTS THEREOF, OR OTHERWISE, WHICH EXTENDS BEYOND THE DESCRIPTION OF THE EQUIPMENT AS SET FORTH HEREIN, AND

(ii) that the Purchaser acknowledges that it is purchasing the Equipment solely on the basis of the commitments of LFG Specialties expressly set forth herein."

(iii) That LFG Specialties shall have the sole and exclusive right to determine and confirm if warranties apply.

(iv) All warranties stated herein shall be valid for the time period stated in I.H. above.

3) SERVICES:

A. INSTALLATION AND ERECTION

The Equipment shall be transported, installed on a foundation, and connected by Purchaser and at the Purchaser's expense, in strict accordance with the "Customer Installation Checklist" unless otherwise expressly agreed herein. Upon request of Purchaser, LFG Specialties will furnish a field service representative to assist Purchaser during the installation and erection of the Equipment, for which the Purchaser shall pay the published rates in accordance with I.F above per day plus actual living and traveling expenses.

B. START-UP

Start-up Services will consist of LFG Specialties' representative 1) reviewing the Customer Installation Checklist for proper compliance; 2) reviewing the Process Control checklist as outlined in Commissioning Report; and 3) training on process controls and maintenance as outlined in O&M Manual.

C. SERVICE WARRANTY

The field service representative furnished by LFG Specialties will be qualified to assist in the installation, erection and/or start up services ("Services") of the Equipment, but it is understood and agreed that, should Purchaser utilize the field service representative in any manner as a foreman, supervisor, etc., that said representative shall become for that purpose, the Purchaser's employee, for whom Purchaser shall be liable, shall maintain adequate insurance coverage and shall hold harmless and indemnify LFG Specialties from and against any and all claims arising out of said representative's acts or omissions while serving in such capacity.

While performing such Services, LFG SPECIALTIES warrants, represents, and covenants that: (1) LFG SPECIALTIES has the capability, experience, and means required to perform the Services; (2) such Services will be performed using equipment, and material qualified and/or suitable therefor; and (3) LFG SPECIALTIES will perform the Services in a diligent and workmanlike manner consistent with accepted professional practices and standards for nationally recognized firms engaged in similar work, as in effect at the time the Services are performed.

LFG SPECIALTIES further warrants, represents, and covenants that LFG SPECIALTIES will perform the Services in compliance with all applicable federal, state, and local laws, regulations, and ordinances as in effect and construed at the time the Services are performed.

4) INDEMNITY:

Purchaser agrees to indemnify and hold harmless LFG Specialties from all liabilities and losses arising from damages, demands, claims, suits, costs, and expenses including reasonable legal fees

and other expenses of litigation for all injuries to and death of persons and for loss of or damage to property arising out of, connected with, or resulting from the any services provided pursuant to this Agreement or any Equipment sold pursuant to this Agreement, including without limitation the delivery, possession, use, operation, or return of such Equipment, except such liabilities for losses as are attributable to the sole negligence or willful misconduct of LFG Specialties, its agents, or employees.

5) DAMAGES:

Notwithstanding any other provision herein, no event shall LFG Specialties be liable for any special, consequential or incidental damages, nor for loss of anticipated profits nor for loss of use of the equipment or of any installation, system, operation or services into which the equipment or parts may be put, or with respect to which any service that may be performed by LFG Specialties. This limitation on LFG Specialties' liability shall apply to any liability for default under or in connection with the equipment, parts or services delivered hereunder, whether based on negligence, including errors, omissions or other acts, or willful misconduct, warranty, or contract, failure of or delay in delivery or otherwise.

Furthermore, and notwithstanding any other provision herein, in no event shall LFG Specialties' liability, whether arising out of indemnity, negligence, including errors, omissions or other acts, or willful misconduct, or based in contract, warranty, or for any other cause of action, exceed in the cumulative aggregate with respect to all claims arising out of or related to this Agreement the purchase price paid by Purchaser under this Agreement, less a reasonable charge for any utilization by Purchaser.

6) ASSUMPTION OF RISK:

Assumption of Risk/Release of Liability: Purchaser is fully aware and acknowledges there is a risk of injury or property damage arising out of the use or operation of the Equipment purchased hereunder and hereby elects to voluntarily enter into the Agreement and assume all of the risks of injury or property damage arising out of the use or operation of the Equipment, including without limitation those risks described and/or expressly assumed by Purchaser herein; and Purchaser further agrees to waive, release and discharge any and all claims for injury or property damage against LFG Specialties which Purchaser may be otherwise entitled to assert.

7) CANCELLATION:

Order shall not be subject to cancellation or modification, either in whole or in part, without LFG Specialties' consent, and then only under terms that will reimburse the LFG Specialties for all applicable costs incurred, including but not limited, to costs of purchased materials, engineering and labor expenses, and a reasonable allowance for profit.

8) TITLES AND REMEDIES:

Until full payment of all obligations by the Purchaser, LFG Specialties reserves the title to all Equipment furnished hereunder. If the Purchaser, before full satisfaction of all obligations hereunder, defaults in payment or performance or becomes subject to insolvency, receivership, or bankruptcy proceedings or makes any assignment for the benefit of creditors, or without the consent of the LFG Specialties voluntarily or involuntarily sells, transfers, leases or permits any lien or attachment on the Equipment delivered hereunder, LFG Specialties may treat all amounts then or thereafter owed by the Purchaser to be immediately due and payable and LFG Specialties may repossess and Equipment by any means available under law.

9) CONFIDENTIALITY:

All proposals, drawings, design data and technical information developed and/or provided by the LFG Specialties shall be considered "Confidential" and the sole property of the LFG Specialties. All such information disclosed to the Purchaser shall not be reproduced in whole, or in part, or used to furnish information to others, without the written permission of the LFG Specialties.

10) PURCHASER'S DRAWINGS AND SPECIFICATIONS:

LFG Specialties is furnishing only the Equipment specified herein and does not assume any responsibility for other equipment and material not being supplied by LFG Specialties, or the effect thereof on the overall operation of the system of which the Equipment is a part. Accordingly, any comments from the LFG Specialties regarding Purchaser's drawings are responsive only and LFG Specialties shall not be liable therefor.

11) LFG SPECIALTIES'S DRAWINGS AND ENGINEERING DATA:

Prints of LFG Specialties' and data representing LFG Specialties' application of the purchased equipment to the requirement of the contract will be submitted for approval. Upon the return of such prints, within ten (10) working days, the requested changes, if any, will be made to correct misinterpretations. Certified prints of LFG Specialties' drawings will then be furnished. Any Purchaser-requested changes thereafter will be subject to added cost and delivery considerations.

12) DESIGN CHANGES:

While LFG Specialties reserves the right where possible, to include changes in design or material which are improvements, it cannot be responsible for including improvements, effected after beginning of production on Equipment. Design changes suggested by Purchaser after beginning of production shall require LFG Specialties' agreement, including agreements as to price and shipping schedules.

13) MISCELLANEOUS:

A. "Applicable Law" The definition of terms used, interpretation of this Agreement and rights of parties hereto shall be construed under and governed by the laws of the State of Ohio, which include the Uniform Commercial Code of the State of Ohio.

B. "Acceptance" If this document constitutes an acceptance of an offer, such acceptance is expressly made conditional on Purchaser's assent solely to the terms of this Agreement, and acceptance of any part of the Equipment or services covered hereunder shall be deemed to constitute such assent.

C. This Agreement is subject to change or prior sale of Equipment until accepted as an order by an officer of the LFG Specialties.

Utility Flare Model PCFT622I6 Sales Agreement No. 100905
Date: October 16, 2009

This Agreement covers the purchase of a landfill methane flare system with control rack and related peripheral equipment from LFG Specialties (LFG) by Purchaser.

Bill-to Address (please fill in)	**Ship-to Address (please fill in)**
_____	_____
_____	_____
_____	_____
_____	_____
Attention: _____	**Attention:** _____
Phone: _____	**Phone:** _____
Fax: _____	**Fax:** _____

The terms and conditions set forth in this Agreement herein, which include the Equipment Specification and the Terms and Conditions of Sales, constitute the entire understanding of the parties relating to the goods and services provided for herein. All subsequent modifications to this Agreement shall not be effective unless they are in writing and signed by LFG Specialties.

TOTAL EQUIPMENT COST: $ _____

START-UP AND TRAINING ASSISTANCE: $ _____

ESTIMATED SHIPPING & HANDLING: $ _____

OPTIONS SELECTED

_____ $ _____

_____ $ _____

_____ $ _____

TOTAL ESTIMATED CONTRACT VALUE: $ _____

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives as of the month, day, and year set forth below.

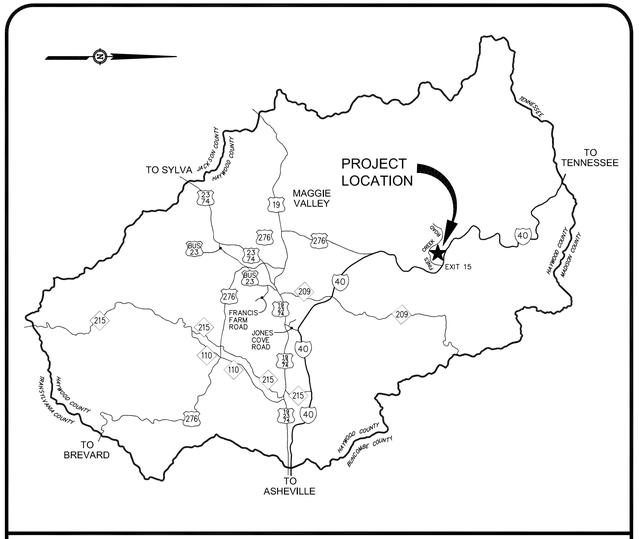
LFG SPECIALTIES	PURCHASER
_____	SIGN: _____
_____	NAME: _____
_____	TITLE: _____
_____	DATE: _____
	P.O.#: _____

WHITE OAK MSW LANDFILL
METHANE GAS COLLECTION & COMBUSTION SYSTEM
HAYWOOD COUNTY

HAYWOOD COUNTY, NORTH CAROLINA

HAYWOOD COUNTY

COUNTY MANAGER : DAVID B. COTTON
SOLID WASTE DIRECTOR : STEPHEN KING



VICINITY MAP NOT TO SCALE

McGill ASSOCIATES
ENGINEERING·PLANNING·FINANCE
55 BROAD STREET ASHEVILLE, NC 28801 PH. (828) 252-0575 FIRM LICENSE # C-0459

FOR REGULATORY REVIEW

NOVEMBER 2009

SCHEDULE OF DRAWINGS

G-001 . . . . . COVER SHEET
C-101 . . . . . METHANE GAS COLLECTION SYSTEM
C-501 . . . . . MISCELLANEOUS DETAILS
C-502 . . . . . MISCELLANEOUS DETAILS
C-503 . . . . . MISCELLANEOUS DETAILS
C-504 . . . . . MISCELLANEOUS DETAILS
C-505 . . . . . FLARE PAD PLAN & DETAILS

FOR REGULATORY REVIEW

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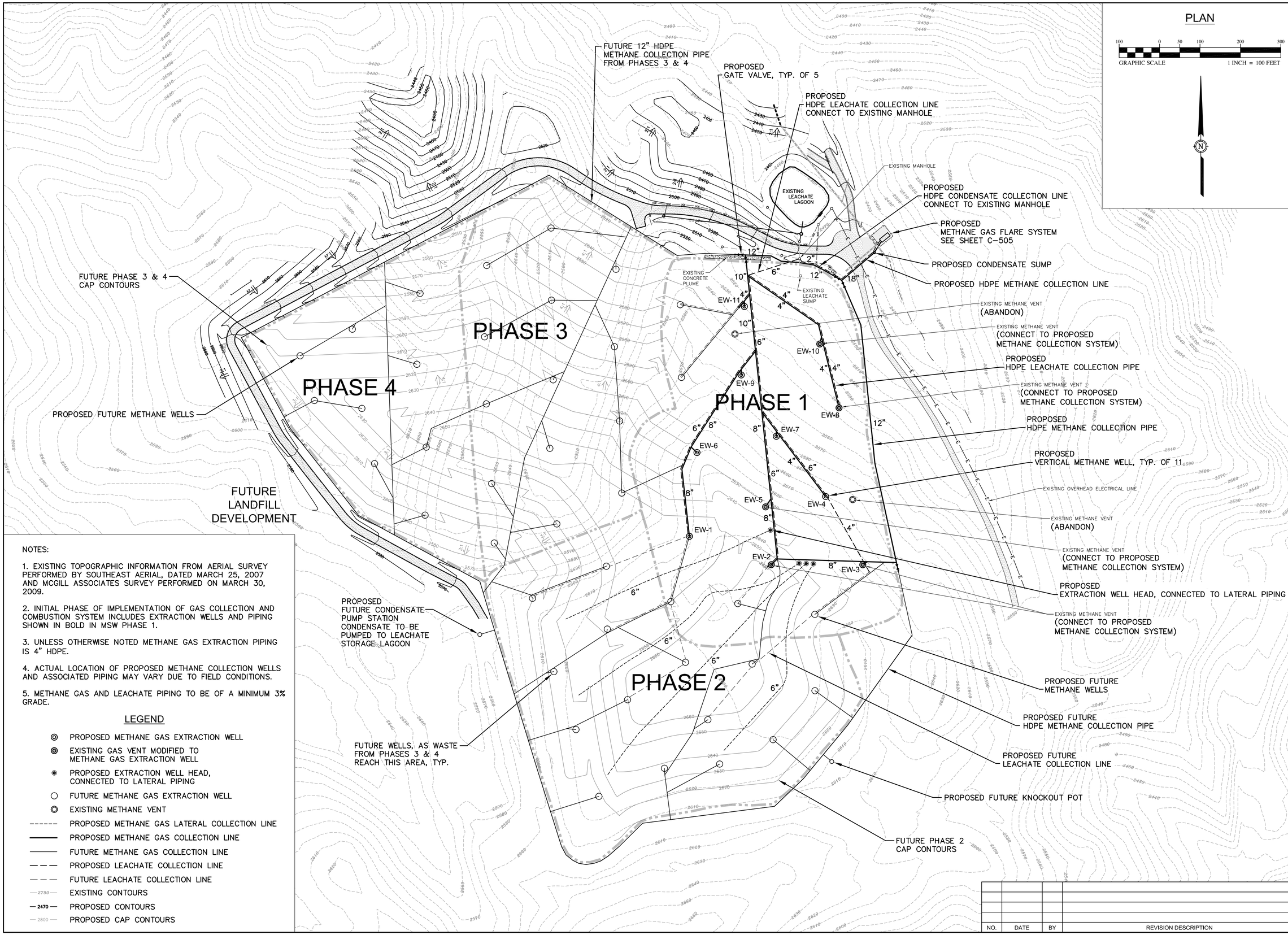

NOTES:

1. EXISTING TOPOGRAPHIC INFORMATION FROM AERIAL SURVEY PERFORMED BY SOUTHEAST AERIAL, DATED MARCH 25, 2007 AND MCGILL ASSOCIATES SURVEY PERFORMED ON MARCH 30, 2009.

2. INITIAL PHASE OF IMPLEMENTATION OF GAS COLLECTION AND COMBUSTION SYSTEM INCLUDES EXTRACTION WELLS AND PIPING SHOWN IN BOLD IN MSW PHASE 1.

3. UNLESS OTHERWISE NOTED METHANE GAS EXTRACTION PIPING IS 4" HDPE.

4. ACTUAL LOCATION OF PROPOSED METHANE COLLECTION WELLS AND ASSOCIATED PIPING MAY VARY DUE TO FIELD CONDITIONS.

5. METHANE GAS AND LEACHATE PIPING TO BE OF A MINIMUM 3% GRADE.

LEGEND

- PROPOSED METHANE GAS EXTRACTION WELL
- EXISTING GAS VENT MODIFIED TO METHANE GAS EXTRACTION WELL
- PROPOSED EXTRACTION WELL HEAD, CONNECTED TO LATERAL PIPING
- FUTURE METHANE GAS EXTRACTION WELL
- EXISTING METHANE VENT
- PROPOSED METHANE GAS LATERAL COLLECTION LINE
- PROPOSED METHANE GAS COLLECTION LINE
- FUTURE METHANE GAS COLLECTION LINE
- PROPOSED LEACHATE COLLECTION LINE
- FUTURE LEACHATE COLLECTION LINE
- 2790 EXISTING CONTOURS
- 2470 PROPOSED CONTOURS
- 2800 PROPOSED CAP CONTOURS

NO.	DATE	BY	REVISION DESCRIPTION

McGill ASSOCIATES
ENGINEERING·PLANNING·FINANCE
55 BROAD STREET ASHEVILLE, NC 28801 PH. (828) 252-0575 FIRM LICENSE # C-0459

FOR REGULATORY REVIEW

WHITE OAK MSW LANDFILL
METHANE GAS COLLECTION & COMBUSTION SYSTEM
HAYWOOD COUNTY
HAYWOOD COUNTY, NORTH CAROLINA

JOB NO.: 09.00720
DATE: NOVEMBER 2009
DESIGNED BY: B. SPERRY
CADD BY: KS
DESIGN REVIEW: ____
CONST. REVIEW: ____
FILE NAME: 09.00720C-101-Methane-Gas-Collection-System.dwg

METHANE GAS COLLECTION SYSTEM

SHEET
C-101

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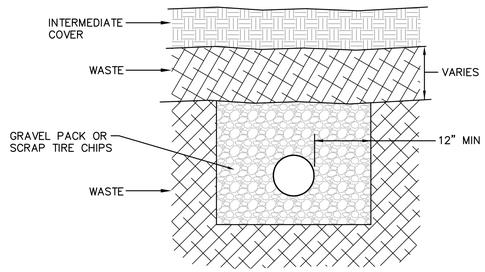
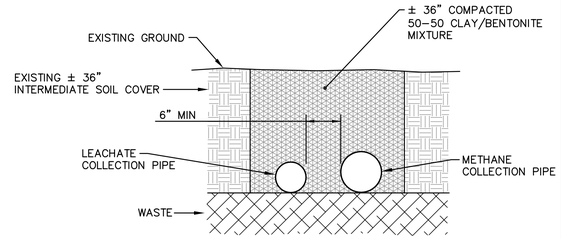


LATERAL TRENCH DETAIL

NOT TO SCALE



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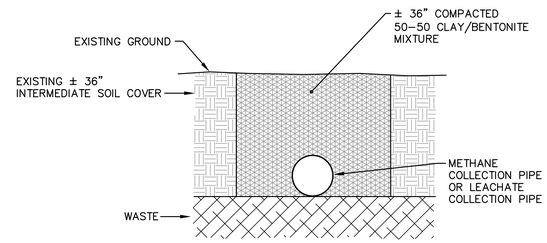

TRENCH DETAIL

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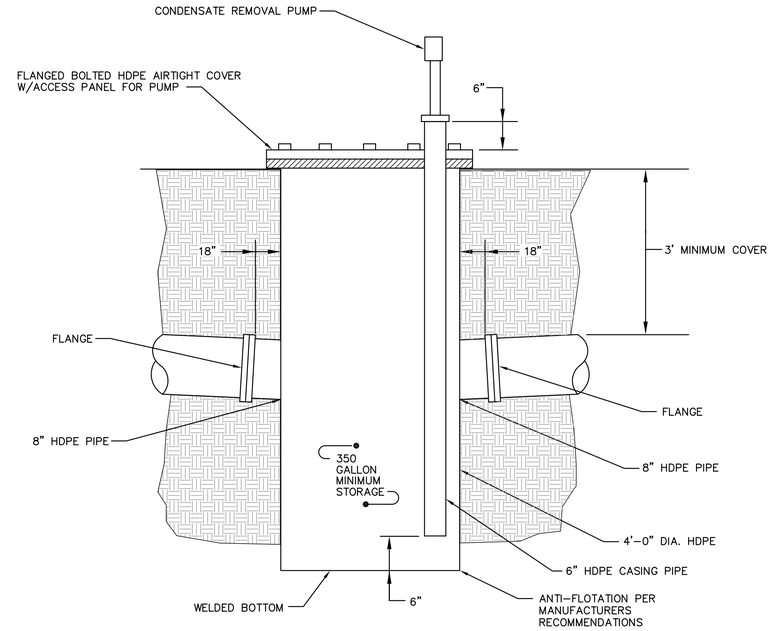
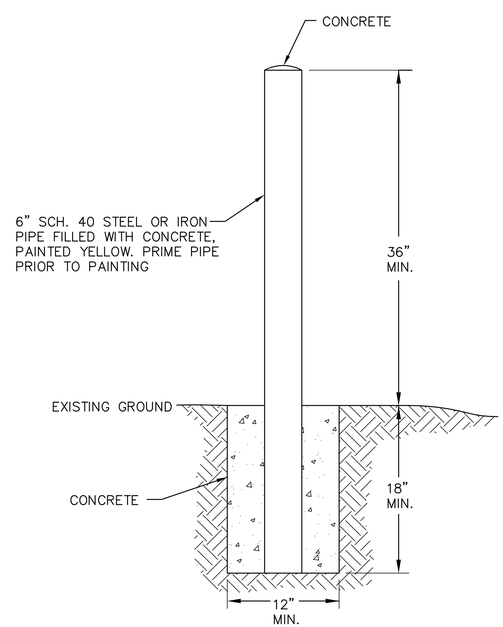


PREFABRICATED HDPE METHANE CONDENSATE SUMP

NOT TO SCALE



BOLLARD DETAIL

REVISION DATE - NOVEMBER 3, 2008

METHANE EXTRACTION WELL INFORMATION

NEW WELL	NORTHING	EASTING	EXISTING GROUND ELEV.	* TOP OF DRAINAGE LAYER ELEV.	DEPTH OF BORING
EW-1	720,975.97	811,825.72	2618.9	2575.5	33.4
EW-2	720,905.79	812,028.32	2639.1	2569.5	59.6
EW-3	720,905.58	812,254.61	2614.7	2571.6	33.1
EW-4	721,074.49	812,162.78	2600.0	2561.6	28.4
EW-5	721,048.81	812,014.17	2631.3	2562.6	58.7
EW-6	721,183.26	811,844.47	2611.6	2577.0	24.6
EW-7	721,223.53	812,040.68	2580.3	2520.4	49.9
EW-8	721,293.86	812,195.85	2542.4	2414.8	17.6
EW-9	721,375.16	811,953.97	2564.2	2522.6	31.6
EW-10	721,451.74	812,148.22	2519.4	2487.3	22.1
EW-11	721,544.59	811,961.73	2529.4	2510.8	8.6

NOTE:

* TOP OF DRAINAGE LAYER ELEVATIONS OBTAINED FROM RECORD DRAWINGS PRODUCED BY MUNICIPAL ENGINEERING COMPANY.

NO.	DATE	BY	REVISION DESCRIPTION

McGill ASSOCIATES
ENGINEERING·PLANNING·FINANCE
55 BROAD STREET ASHEVILLE, NC 28801 PH. (828) 252-0575 FIRM LICENSE # C-0459

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL — FOR REGULATORY REVIEW ONLY

WHITE OAK MSW LANDFILL
METHANE GAS COLLECTION & COMBUSTION SYSTEM
HAYWOOD COUNTY
HAYWOOD COUNTY, NORTH CAROLINA

JOB NO.: 09.00720
DATE: NOVEMBER 2009
DESIGNED BY: B. SPERRY
CADD BY: KS
DESIGN REVIEW: ____
CONST. REVIEW: ____
FILE NAME: 09.00720-C-101-Methane-Gas-Collection-System.dwg

MISCELLANEOUS DETAILS

SHEET
C-501

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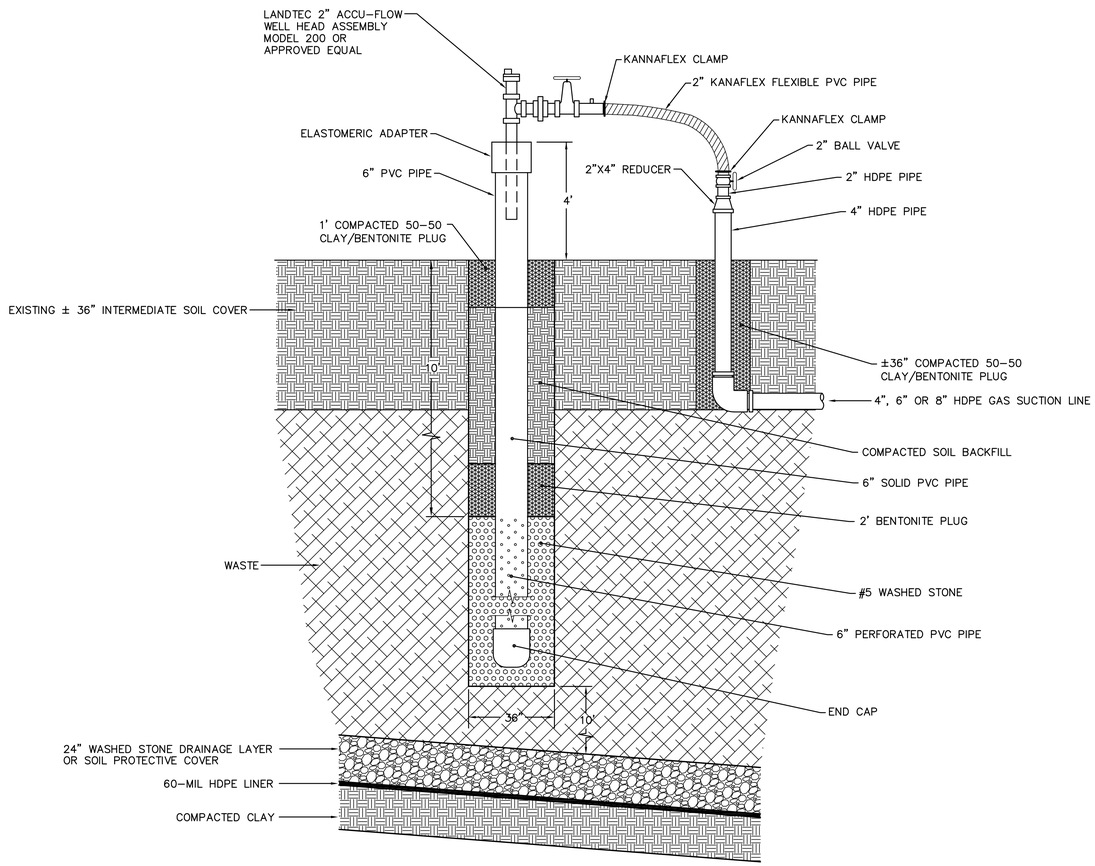
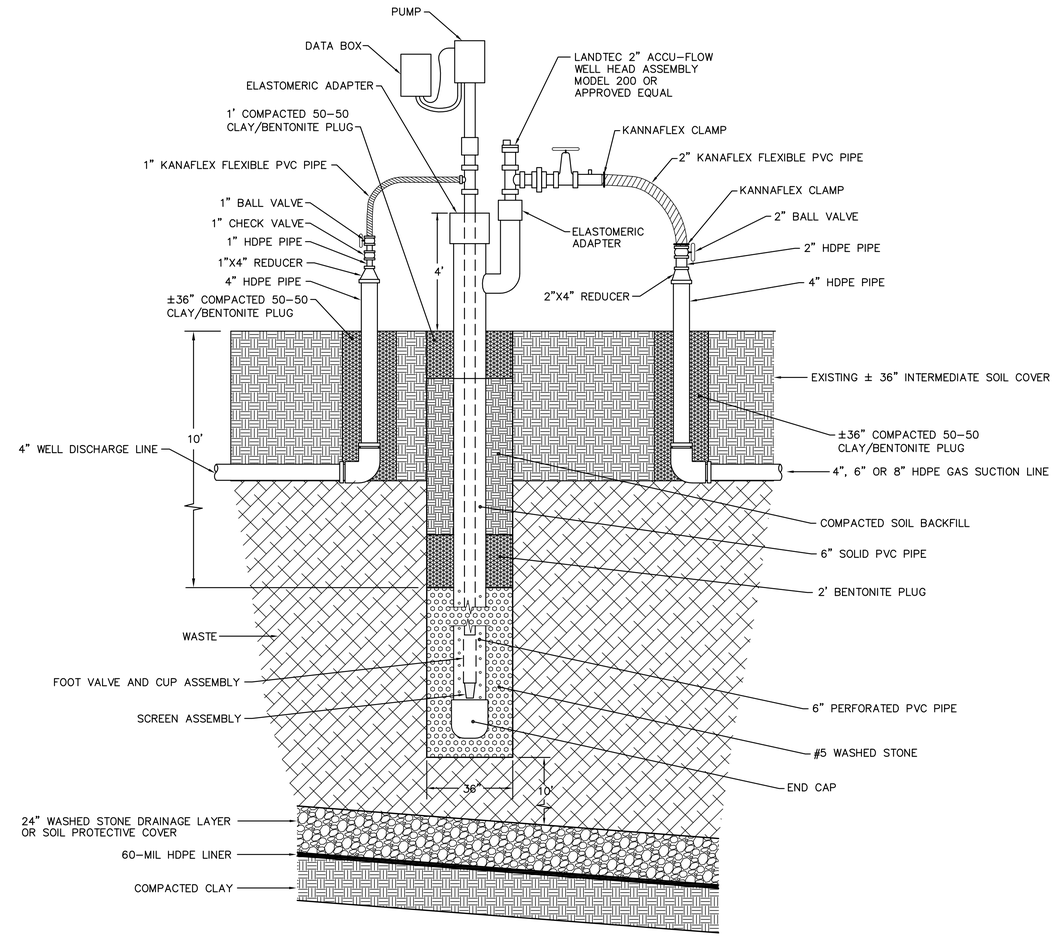


PROPOSED METHANE GAS EXTRACTION WELL

NOT TO SCALE



PROPOSED METHANE GAS EXTRACTION WELL W/ LEACHATE PUMP

NOT TO SCALE

NO.	DATE	BY	REVISION DESCRIPTION

McGill ASSOCIATES
ENGINEERING·PLANNING·FINANCE
55 BROAD STREET ASHEVILLE, NC 28801 PH. (828) 252-0575 FIRM LICENSE # C-0459

FOR REGULATORY REVIEW

WHITE OAK MSW LANDFILL
METHANE GAS COLLECTION & COMBUSTION SYSTEM
HAYWOOD COUNTY
HAYWOOD COUNTY, NORTH CAROLINA

JOB NO.: 09.00720
DATE: NOVEMBER 2009
DESIGNED BY: B. SPERRY
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DESIGN REVIEW: ____
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MISCELLANEOUS DETAILS

SHEET
C-502

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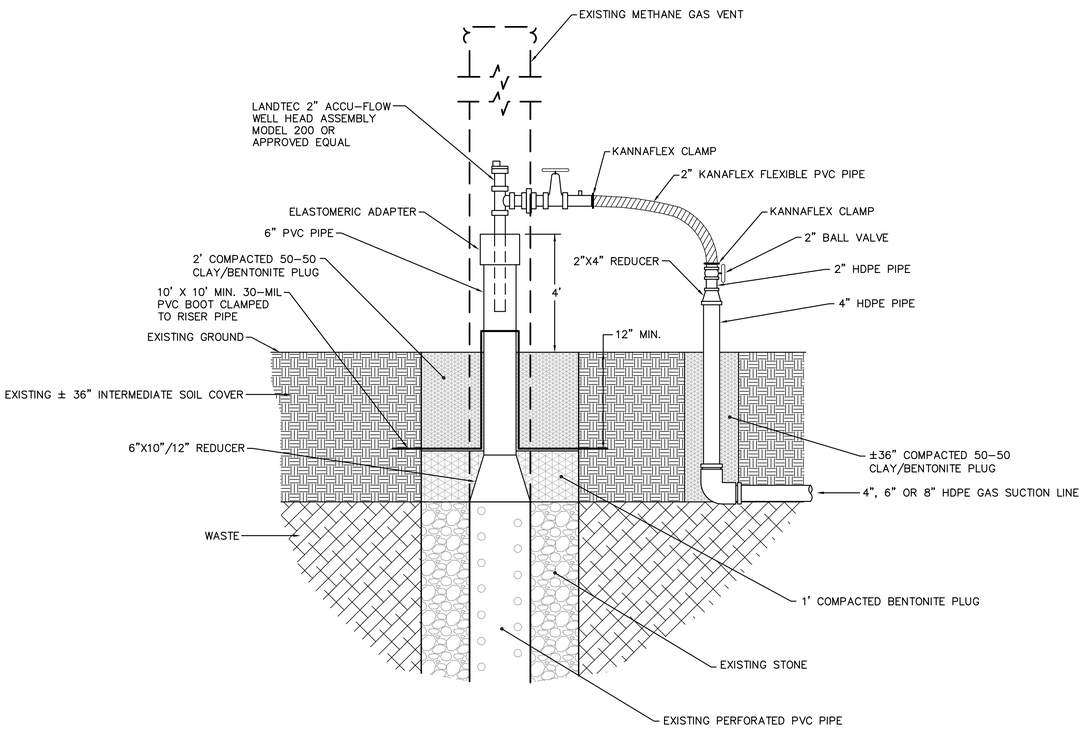
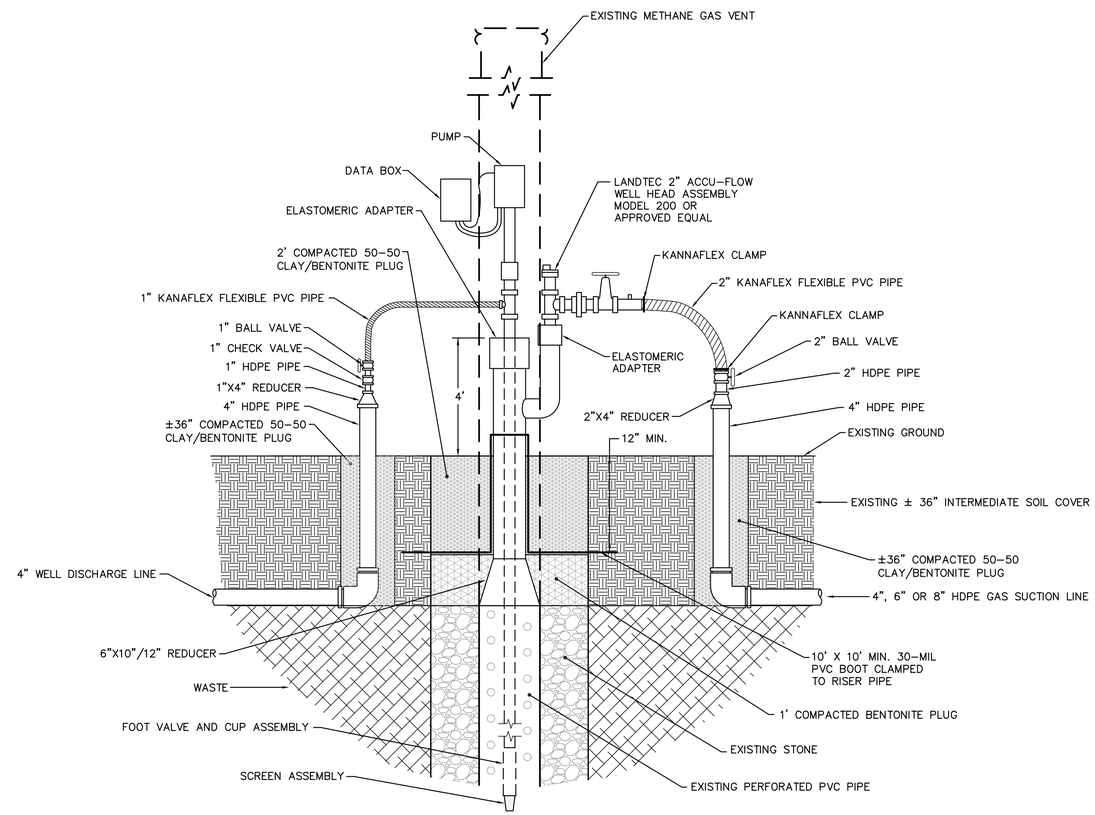


INSTALLATION NOTES:

1. EXCAVATE EXISTING STONE & SOIL MATERIAL TO TOP OF WASTE OR A MINIMUM OF 36".
2. REMOVE EXISTING PIPE TO ±36" BELOW GROUND SURFACE.
4. ATTACH REDUCER AND 6" PIPE TO EXISTING 10"/12" PIPE WITH XXXXX EPOXY OR APPROVED EQUAL.
5. INSTALL A 1' BENTONITE PLUG.
6. FILL REMAINDER OF EXCAVATION WITH A 50-50 COMPACTED CLAY/BENTONITE MIXTURE TO EXISTING GROUND SURFACE.

EXISTING METHANE GAS VENT MODIFIED TO EXTRACTION WELL

NOT TO SCALE



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6. FILL REMAINDER OF EXCAVATION WITH A 50-50 COMPACTED CLAY/BENTONITE MIXTURE TO EXISTING GROUND SURFACE.

EXISTING METHANE GAS VENT MODIFIED TO EXTRACTION WELL W/ LEACHATE PUMP

NOT TO SCALE

NO.	DATE	BY	REVISION DESCRIPTION

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55 BROAD STREET ASHEVILLE, NC 28801 PH. (828) 252-0575 FIRM LICENSE # C-0459

FOR REGULATORY REVIEW

WHITE OAK MSW LANDFILL
METHANE GAS COLLECTION & COMBUSTION SYSTEM
HAYWOOD COUNTY
HAYWOOD COUNTY, NORTH CAROLINA

JOB NO.: 09.00720
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DESIGN REVIEW: ____
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FILE NAME: 09.00720-C-101-Methane-Gas-Collection-System.dwg

MISCELLANEOUS DETAILS

SHEET
C-503

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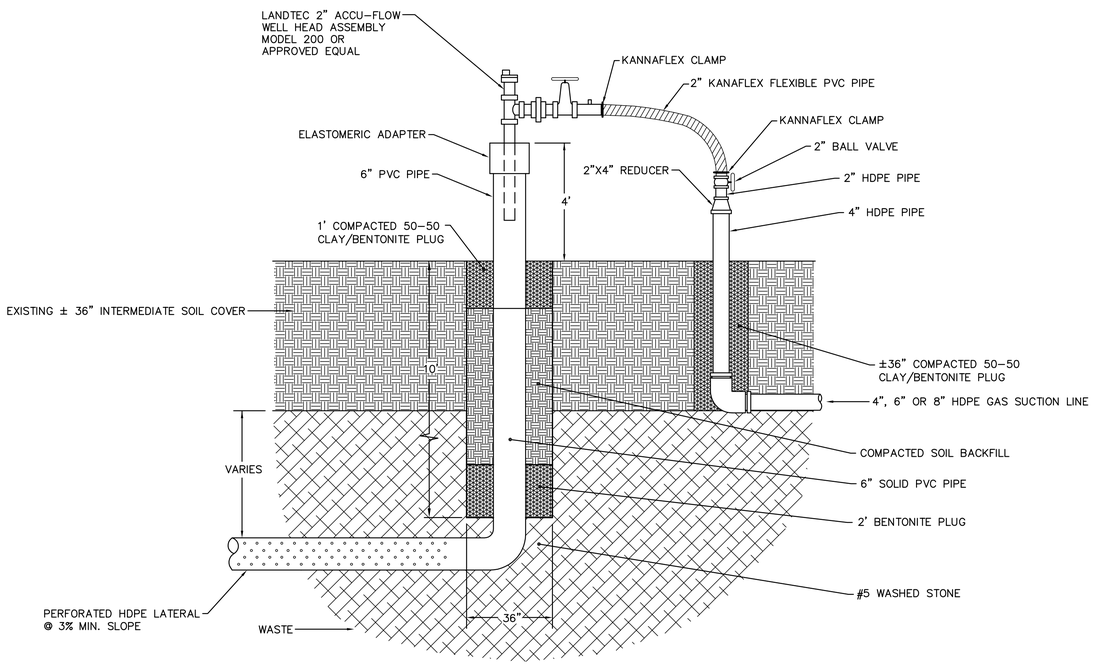
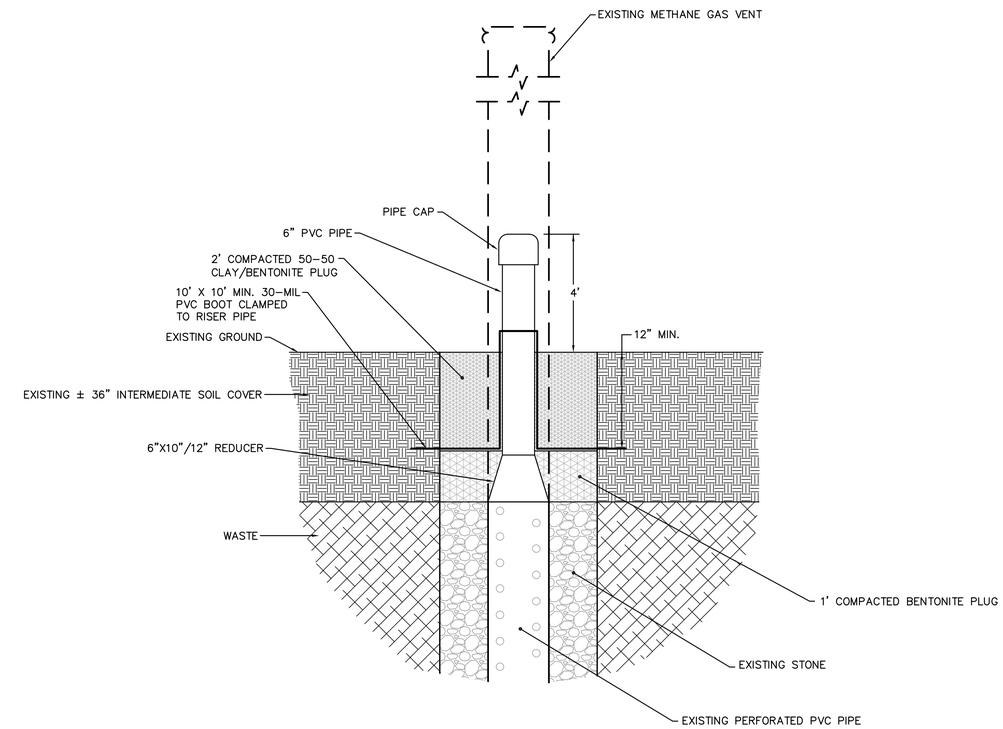


PROPOSED LATERAL GAS COLLECTION PIPING W/ WELLHEAD

NOT TO SCALE



INSTALLATION NOTES:

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4. ATTACH REDUCER AND 6" PIPE TO EXISTING 10"/12" PIPE WITH XXXXX EPOXY OR APPROVED EQUAL.
5. INSTALL A 1' BENTONITE PLUG.
6. FILL REMAINDER OF EXCAVATION WITH A 50-50 COMPACTED CLAY/BENTONITE MIXTURE TO EXISTING GROUND SURFACE.

EXISTING METHANE GAS VENT ABANDONMENT

NOT TO SCALE

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FOR REGULATORY REVIEW

WHITE OAK MSW LANDFILL
METHANE GAS COLLECTION & COMBUSTION SYSTEM
HAYWOOD COUNTY
HAYWOOD COUNTY, NORTH CAROLINA

JOB NO.: 09.00720
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MISCELLANEOUS DETAILS

SHEET
C-504

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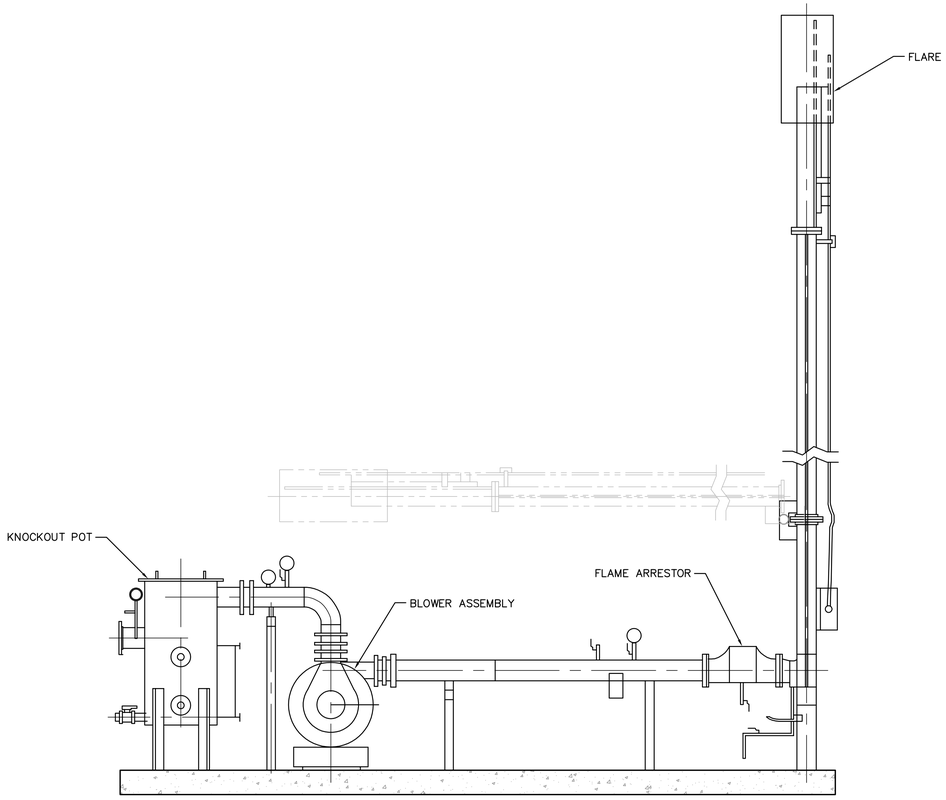
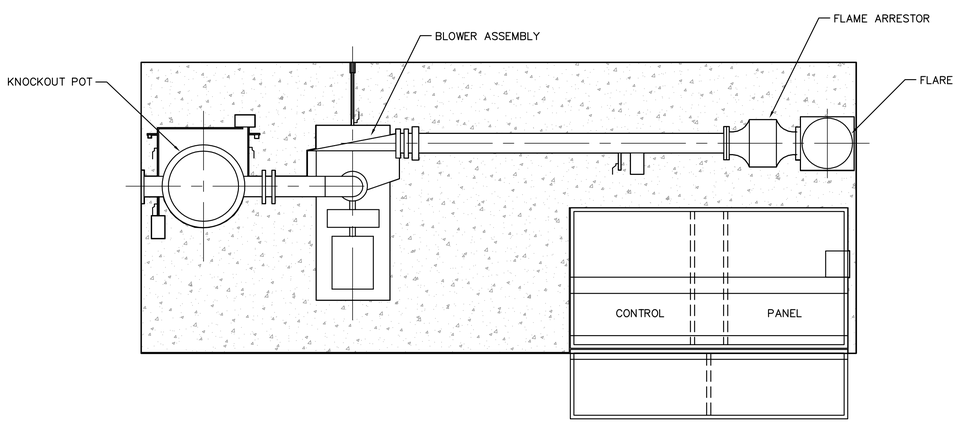
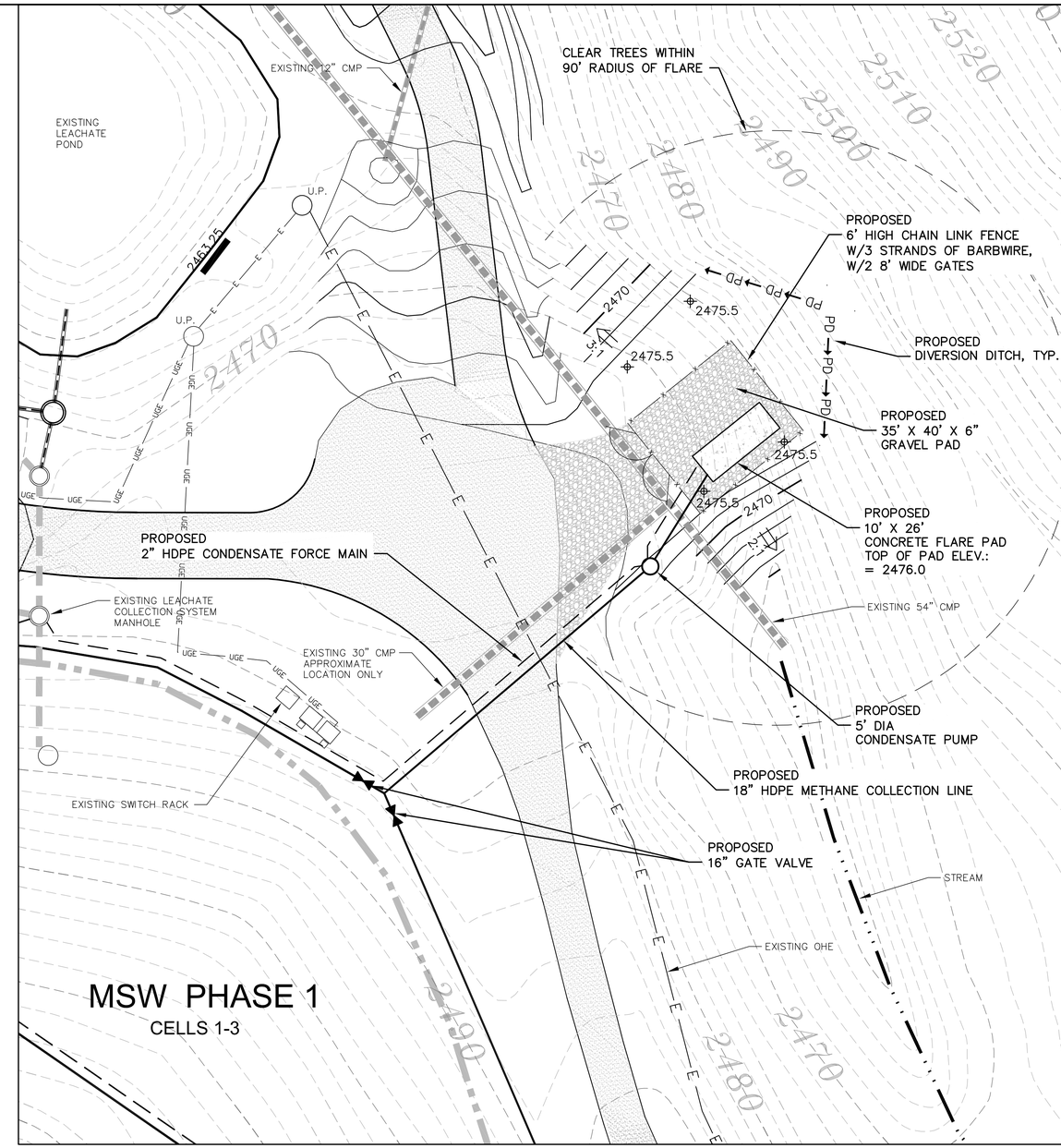


ELEVATION VIEW
NOT TO SCALE



PLAN VIEW
NOT TO SCALE

METHANE GAS FLARE PAD DETAIL



FLARE PAD PLAN
SCALE: 1'=20'

NO.	DATE	BY	REVISION DESCRIPTION

McGill ASSOCIATES
ENGINEERING·PLANNING·FINANCE
55 BROAD STREET ASHEVILLE, NC 28801 PH. (828) 252-0575 FIRM LICENSE # C-0459

FOR REGULATORY REVIEW

WHITE OAK MSW LANDFILL
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FLARE PAD PLAN
& DETAILS

SHEET
C-505

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