Permit No.	Date	Document ID No.
24-01	September 09, 2011	15109

CEC

CARLSON ENVIRONMENTAL CONSULTANTS, PC

LANDFILL GAS, AIR PERMITTING, AND REGULATORY COMPLIANCE SERVICES

RECEIVED
September 7, 2011via a mail
Solid Waste Section
Raleigh Central Office

September 6, 2011

RECEIVED SEP - 7 2011 SOLID WASTE SECTION

Ming-Tai Chao, P.E.
Environmental Engineer II
Permitting Branch, Solid Waste Section
NCDENR Division of Waste Management
1646 Mail Service Center
Raleigh, NC 27699-1646

Subject: Request for Post-Closure Permit Modification
Construction of Landfill Gas Collection and Control System
Columbus County Landfill – Whiteville, NC
SW Permit No. 24-01

Dear Mr. Chao:

On behalf of Columbus County, North Carolina (County), Carlson Environmental Consultants, PC (CEC) is submitting this request for approval from the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Waste Management to construct a landfill gas collection and control system (GCCS) at the Columbus County Landfill (Landfill) located in Whiteville, North Carolina.

The County intends to construct a renewable energy facility at the Landfill, which may consist of landfill gas-fueled engine generators and/or landfill gas-fueled boilers to heat greenhouses. The project has received a grant from NC State Energy Office funded by the American Recovery and Reinvestment Act (ARRA). The GCCS has been designed by, and will be constructed by, Carlson Environmental Consultants, PC and will include a CMI Energy, LLC (CMI) 250 scfm landfill gas (LFG) open flare. Construction of the collection system is expected to begin in early September 2011, with installation of the open flare projected for October 2011 and system start-up in November 2011.

LANDFILL BACKGROUND

The Columbus County Landfill (Landfill) is located south of Highway 74 and west of Highway 701 near the city of Whiteville in Columbus County, North Carolina. The Landfill is owned by Columbus County and contains approximately 1.3 million tons of waste. The Landfill accepted wastes from 1973 to final closure in 1997. The Landfill is capped with a final cover system consisting of clay and vegetative soils. The Landfill is a single waste mound and the County maintains a maintenance shop at the site. The County received primarily municipal solid wastes, yard wastes, and construction materials at the Landfill. No known ashes or other significant inerts were placed at the site.

305 SOUTH MAIN STREET
MONROE, NC 28112
704.283.9765 OFFICE
704.283.9755 FAX

12715 KEY LIME BLVD
WEST PALM BEACH, FL 33412
OFFICE 863.634.7185

PROPOSED LANDFILL GAS SYSTEM

The overall objective of this project is to collect the Landfill's generated gas and use it in a beneficial use project, such as to generate heat and/or electricity for the facility or other end-users, thus providing an environmental benefit by reducing the potential for offsite migration and fugitive emissions of LFG.

As a first step, the County desires to connect existing passive gas vents and new gas wells to an active gas blower and route this gas to a small open flare control device for combustion. See the attached landfill gas drawings and details for additional information. The installation of the LFG system will be performed in one phase. The installation and operation of gas-to-energy devices has not been decided upon at this time and will be determined based upon actual gas collection once the LFG system is installed.

Header and Lateral Piping

The header and lateral collection piping which delivers the LFG to the blower/flare station has been sized considering the head losses throughout the piping network to minimize the vacuum requirements of the system. Based upon the LandGEM Modeling and field testing, the LFG system is expected to recover in the range of 150 to 250 scfm. In the event that the LFG system recovers more LFG than expected, CEC has conservatively sized the collection and control system components for a LFG recovery of up to 500 scfm and the flare has been permitted for up to 350 scfm.

The header piping has been designed to be 8-inch diameter SDR 17 HDPE, with the laterals being 4 and 6-inch diameter SDR 17 HDPE. While slightly oversized for this project, the 8-inch diameter HDPE piping also provides more protection from landfill settlement and it allows condensate and gas to flow more easily in opposite directions. The header and lateral piping is proposed to be installed below grade to be out of the way of post closure operations or landfill activities.

Condensate Sumps

Condensate is formed as the temperature of LFG extracted from a landfill decreases in the collection system piping. The preliminary design provides for one sump to be located at the low point near the blower/flare station; however, additional sumps may be added in the future as needed.

The sumps will be designed to meet the NCDENR regulations, which prohibit the discharge of condensate into a non-Subtitle D constructed landfill cell. The sumps will be designed to collect and retain liquids as a reservoir or to pump condensate to a central location at the blower/flare station. The condensate sumps and/or main holding tank will be sized to handle the maximum weekly condensate collection anticipated. The sumps will be periodically evacuated by pump truck and the condensate will be disposed offsite

to the City of Whiteville wastewater treatment facility. Columbus County is coordinating with the Wastewater Treatment Department to receive the liquid and provide appropriate permits.

Condensate formed in header piping can form a blockage if it collects in a low point and is not removed from the header system. To maintain positive drainage, a 2 percent slope is specified for collection piping on the landfill surface (where possible). Differential settlement under the collection piping is less of a concern in areas off the refuse mound, therefore a minimum slope of 1 percent is specified for piping located on natural soil. These slopes may be modified by the Engineer of Record.

Wellheads and Isolation Valves

The three (3) existing gas vents (V-1, V-2 and V-3) and new gas wells (EW-1 through EW-12) will be fitted with a gas wellhead consisting of a control valve and sampling ports. These wellheads will allow individual control and analysis of each gas well. Since this is a voluntary LFG system, the wellheads will not be monitored to meet any regulatory requirements; however, the collection of LFG will be routinely monitored to maximize LFG extraction and minimize the infiltration of ambient air (for the prevention of landfill fires). Isolation valves will be installed in the main header piping to allow additional control over sections of the wellfield. Flanges will also be installed in the main header to allow for expansion of the wellfield as needed.

Landfill Gas Blower and Open Flare

NCDENR issued an Air Quality Permit (No. 10078R00) to the County dated July 14, 2010 (see attached) for the construction and operation of a landfill gas collection and control system. The air permit allows for construction and operation of an open flare with a maximum flow rating of 350 scfm, yet LFG gas recovery modeling indicates that a 250 scfm open flare will provide sufficient LFG control. The blower/flare system will consist of a centrifugal blower and a 250 scfm CMI Energy, LLC (CMI) open flare. The blower/flare system will be equipped with a flame arrestor, shut-off valves, sample ports, a flow meter or orifice plate, and a condensate knock-out pot.

LFG SYSTEM CONSTRUCTION

As stated above, the construction of the LFG collection and control system will consist of one phase. The construction will include installation of a main header system, laterals to all wells, drilling new wells, installation of a condensate sump(s), and the blower/flare station.

All wells will be 36-inch diameter and drilled to a depth of no deeper than 5 vertical feet above the historical groundwater elevations for the site (data provided by the County). If significant liquid is observed in the well bore during drilling, the well will be terminated

at that depth. The wells will be constructed similar to typical active gas wells with solid piping extending 15 feet below the ground surface and perforated piping with stone backfill extending the remainder of the well depth. Bentonite clay will be used to seal the well bore at two (2) locations: one being just above the stone backfill and the second being the observed depth of the clay landfill cap. The bentonite will be used to seal around the well penetration and to match the existing clay cap thickness. All excavated waste will be transported to the adjacent Columbus County Waste Management Transfer Facility (Permit No. 24-03T) for disposal.

The gas well drilling will be monitored by construction quality assurance (CQA) personnel. The LFG header and lateral piping will be installed in the vegetative soil cover (approximately 18 inches) over the clay cap. All solid wall header/lateral piping will be pressure tested with air to check for leaks. These tests will be performed at various intervals during construction. No wastes are expected to be disturbed in the installation of the LFG header and lateral piping.

CEC will take care in excavating the soil cover and installing the LFG system to prevent damage to the final cover system. CEC will minimize damage to the vegetative cover system during construction. CEC will restore all trenched and disturbed areas of the cap to the pre-construction condition. This will include reseeding with existing grasses and foliage, liming, fertilization, and mulching the areas. CEC will take all necessary precautions, such as covering the trenches with plastic sheeting, to protect open trenches if precipitation occurs during daily construction activities or if trenches are left open overnight.

If any clay cap is impacted during excavation, CEC will immediately make repairs to the cap. The repairs will consist of resealing the areas with bentonite clay. CQA personnel will document all areas in which the clay cap was impacted and repaired.

CONSTRUCTION DOCUMENTATION

Upon completion of the LFG collection and control system installation, CEC will provide to the NCDENR Division of Waste Management as-built drawings of the LFG system as well as a Record Documentation Report. The Record Documentation Report will include (at a minimum) the following:

- A description of the construction work, parties involved, and materials and equipment used;
- Daily field logs from the CQA personnel as well as CEC (as appropriate);
- Well Construction Logs;
- Header and lateral pipe leak testing forms;

- Photographs from the construction;
- Documentation on any repairs made to the clay cap (as needed);
- As-built drawings sealed by a North Carolina registered surveyor; and,
- Certification from a North Carolina Professional Engineer.

LANDFILL GAS SYSTEM OPERATIONS AND MAINTENANCE

Once operational, the LFG collection and control system will be maintained in accordance with the blower/flare system manufacturer's recommendations and generally accepted practices for operating active LFG systems. These include (at a minimum) inspecting and greasing the blowers, observing the operation of the flare, checking the liquid levels in the condensate sumps, checking and recording the LFG quality, pressure, and temperature at each gas well, checking the LFG quality, pressure, and temperature of the gas at the blower/flare station, recording the gas flow at the blower/flare station, and inspecting the wellheads for damaged or loose fittings. Spare parts for the most common maintenance items such as blower grease, spare blower belts, wellhead parts, fuses, and the like will be kept at the Landfill for quick replacement or will be quickly available via third party LFG O&M services.

While the Landfill is not subject to the requirements of the NSPS, which prescribe monthly monitoring, specific limits on wellhead pressure and oxygen, and continuous operation of the LFG system, the County will be maintaining the Landfill's LFG system similar to the NSPS in order to maximize available gas collection and minimize methane migration and the potential for landfill fires.

Based on recent liquid level measurements in the existing gas wells, subsurface liquid does not appear to be a problem at the Landfill; therefore, the active LFG system does not provide for the use of downwell pumps in the existing gas wells. However, if in the future, subsurface liquids do become a problem, downwell pumps can be added with minimal difficulty. The collected condensate from these pumps would be pumped via pipeline to a holding tank for removal from the site via pumper truck.

If in the future a well becomes unusable to the active LFG system due to poor gas quality or low gas flow, it may be temporarily decommissioned from the LFG system. This will involve closing the wellhead valve for an indeterminate period of time to allow the well to regenerate and/or to allow additional testing to be performed. A gas well may be permanently decommissioned by removing the wellhead and placing a cap on the well.

Landfill Fires

Due to the clay cover system, ambient air infiltration into the waste mass due to the active gas system will be minimized thus reducing the potential for a landfill fire. However, the LFG system will be routinely monitored for temperature and oxygen content at each wellhead, and the wells will be adjusted accordingly if conditions for a landfill fire become favorable, such as high well temperatures (in excess of 140 degrees F) and high oxygen content (in excess of 7.5 percent).

Should a landfill fire be suspected, the County will follow the existing procedures in its Solid Waste Closure Plan, which include notifying NCDENR and the local fire department. Landfill personnel will turn off all nearby active gas wells to prevent additional air infiltration and monitor the carbon monoxide levels in the nearby wells to determine the extent of the fire. Landfill personnel who work on the LFG system will be trained on the proper response to a suspected landfill fire.

FINANCIAL ASSURANCE

The installation of the LFG collection and control system is being funded by the County and a grant from the NC State Energy Office under the American Recovery and Reinvestment Act (ARRA). Additional upgrades, future work, and LFG O&M will be paid for by the County, who as the owner of the Landfill, understands and accept the appropriate financial responsibility for this project. The County will update their post-closure financial assurance documents and provide this to NCDENR once all construction and decommissioning costs have been identified.

ASBESTOS DISPOSAL

Because the Columbus County Landfill has accepted waste containing asbestos, CEC will develop an asbestos material removal plan to the NC Health Department, Health and Human Services, Division of Public Health, Hazards Control Unit for approval prior to construction.

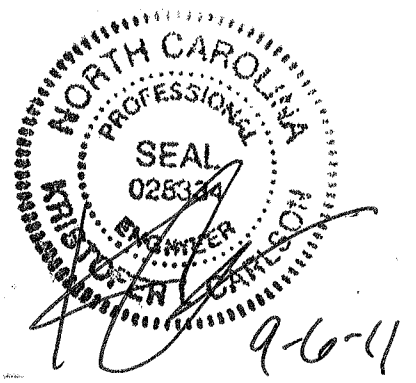
SCHEDULE

The County desires to commence construction of the LFG collection and control system in early September 2011, with system start-up in late October 2011. Due to the grant funding timelines, time is of the essence on the project, and the County would appreciate a response to this request as quickly as possible.

CLOSING

I appreciate your assistance on this project and look forward to your comments. If you have any questions or need additional information, please feel free to contact me at (704) 283-9765.

Respectfully Submitted,



Kristofer L. Carlson, P.E.
Principal
Carlson Environmental Consultants, PC

Attachments

cc: Kipling McClary, Columbus County
William Clark, Columbus County
Marilyn Meares, Columbus County
Stevia Morton, CEC

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Air Quality

Beverly Eaves Perdue
Governor

Sheila C. Holman
Director

Dee Freeman
Secretary

July 14, 2010

Mr. Scott Subler, President/CEO
Columbus County Landfill
101 South Fraser Street (Second Floor)
State College, PA 16801

Subject: Air Permit No. 10078R00
Columbus County Landfill
Whiteville, Columbus County, North Carolina
Permit Class: Small
Facility ID# 2400160

Dear Mr. Subler:

In accordance with your completed application received May 20, 2010, we are forwarding herewith Permit No. 10078R00 to Columbus County Landfill, Whiteville, Columbus County, North Carolina for the construction and operation of air emissions sources or air cleaning devices and appurtenances. Please note the records retention requirements are contained in General Condition 2 of the General Conditions and Limitations.

If any parts, requirements, or limitations contained in this permit are unacceptable to you, you have the right to request a formal adjudicatory hearing within 30 days following receipt of this permit, identifying the specific issues to be contested. Such a request will stay the effectiveness of the entire permit. This hearing request must be in the form of a written petition, conforming to G.S. 150B-23 of the North Carolina General Statutes, and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27699-6714. The form for requesting a formal adjudicatory hearing may be obtained upon request from the Office of Administrative Hearings. Unless a request for a hearing is made pursuant to G.S. 150B-23, this air permit shall be final and binding.

You may request modification of your air permit through informal means pursuant to G.S. 150B-22. This request must be submitted in writing to the Director and must identify the specific provisions or issues for which the modification is sought. Please note that the permit will become final and binding regardless of a request for informal modification unless a request for a hearing is also made under G.S. 150B-23.

Unless exempted by a condition of this permit or the regulations, construction of new air pollution sources or air cleaning devices, or modifications to the sources or air cleaning devices described in this permit must be covered under a permit issued by the Division of Air Quality prior to construction. Failure to do so is a violation of G.S. 143-215.108 and may subject the Permittee to civil or criminal penalties as described in G.S. 143-215.114A and 143-215.114B.

This permit shall be effective from July 14, 2010 until July 1, 2015, is nontransferable to future owners and operators, and shall be subject to the conditions and limitations as specified therein.

This permit is the result of a first time (Greenfield) permit application. All emission sources and control devices are new. **The Permittee is responsible for carefully reading the entire permit and evaluating the requirements of each permit stipulation. The Permittee shall comply with all terms, conditions, requirements, limitations and restrictions set forth in this permit. Noncompliance with any permit condition is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application.**

Should you have any questions concerning this matter, please contact Dean Carroll, PE, at (910) 796-7242.

Sincerely,

Brad Newland, P.E.
Regional Air Quality Supervisor

Enclosures

c: Raleigh Central Files
Wilmington Regional Office, DAQ file
WiRO Permit Coordinator

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF AIR QUALITY

AIR PERMIT NO. 10078R00

Issue Date: July 14, 2010
Expiration Date: July 1, 2015

Effective Date: July 14, 2010
Replaces Permit: (new)

To construct and operate air emission source(s) and/or air cleaning device(s), and for the discharge of the associated air contaminants into the atmosphere in accordance with the provisions of Article 21B of Chapter 143, General Statutes of North Carolina (NCGS) as amended, and other applicable Laws, Rules and Regulations,

Columbus County Landfill
288 Legion Drive
Whiteville, Columbus County, North Carolina
Permit Class: Small
Facility ID# 2400160

(the Permittee) is hereby authorized to construct and operate the air emissions sources and/or air cleaning devices and appurtenances described below:

Emission Source ID	Emission Source Description	Control System ID	Control System Description
ES-1 (NSPS)	one landfill (550,000 tons maximum solid waste capacity; this landfill is closed and will receive no more waste)	CD-1	one landfill gas-fired open flare (10.5 MM Btu/hr maximum heat input; max LFG flow rate of 350 scfm)

in accordance with the completed application 2400160.10A received May 20, 2010 including any plans, specifications, previous applications, and other supporting data, all of which are filed with the Department of Environment and Natural Resources, Division of Air Quality (DAQ) and are incorporated as part of this permit.

This permit is subject to the following specified conditions and limitations including any TESTING, REPORTING, OR MONITORING REQUIREMENTS:

A. SPECIFIC CONDITIONS AND LIMITATIONS

1. Any air emission sources or control devices authorized to construct and operate above must be operated and maintained in accordance with the provisions contained herein. The Permittee shall comply with applicable Environmental Management Commission Regulations, including Title 15A North Carolina Administrative Code (NCAC), Subchapter

2D .0202, 2D .0516, 2D .0521, 2D .0524 (40 CFR 60, Subpart WWW -- Municipal Solid Waste Landfills - Avoidance), 2D .0535, 2D .0540, 2D .0611, and 2D .1806.

2. PERMIT RENEWAL AND EMISSION INVENTORY REQUIREMENT - The Permittee, at least 90 days prior to the expiration date of this permit, shall request permit renewal by letter in accordance with 15A NCAC 2Q .0304(d) and (f). Pursuant to 15A NCAC 2Q .0203(i), no permit application fee is required for renewal of an existing air permit (without a modification request). The renewal request (with AA application form) should be submitted to the Regional Supervisor, DAQ. Also, at least 90 days prior to the expiration date of this permit, the Permittee shall submit the air pollution emission inventory report (with Certification Sheet) in accordance with 15A NCAC 2D .0202, pursuant to N.C. General Statute 143 215.65. The report shall be submitted to the Regional Supervisor, DAQ and shall document air pollutants emitted for the **2014** calendar year.

3. SULFUR DIOXIDE CONTROL REQUIREMENT - As required by 15A NCAC 2D .0516 "Sulfur Dioxide Emissions from Combustion Sources," sulfur dioxide emissions from the landfill gas-fired open flare (10.5 MM Btu/hr maximum heat input, ID No. ES-1) shall not exceed 2.3 pounds per million Btu heat input.

4. VISIBLE EMISSIONS CONTROL REQUIREMENT - As required by 15A NCAC 2D .0521 "Control of Visible Emissions," visible emissions from the landfill gas-fired open flare (10.5 MM Btu/hr maximum heat input, ID No. ES-1), manufactured after July 1, 1971, shall not be more than 20 percent opacity when averaged over a six-minute period, except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. However, sources which must comply with 15A NCAC 2D .0524 "New Source Performance Standards" or .1110 "National Emission Standards for Hazardous Air Pollutants" must comply with applicable visible emissions requirements contained therein.

5. 15A NCAC 2D .0524 "NEW SOURCE PERFORMANCE STANDARDS" – AVOIDANCE For the following equipment, The Permittee shall comply with all applicable provisions, including the notification, testing, reporting, recordkeeping, and monitoring requirements contained in Environmental Management Commission Standard 15A NCAC 2D .0524 "New Source Performance Standards" (NSPS) as promulgated in 40 CFR 60, Subpart indicated below, and including Subpart A "General Provisions."

Emission Source(s)	Regulation
Facility Wide	Subpart WWW -- Municipal Solid Waste Landfills

When (if) an increase in the maximum design capacity of the landfill results in a revised maximum design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, the owner or operator shall comply with the provision of paragraph 60.752(b) of Subpart WWW. The facility must also submit a Title V permit application within one year of receiving the permit to increase the maximum design capacity.

6. NOTIFICATION REQUIREMENT - As required by 15A NCAC 2D .0535, the Permittee of a source of excess emissions that last for more than four hours and that results from a malfunction, a breakdown of process or control equipment or any other abnormal conditions, shall:

    a. Notify the Director or his designee of any such occurrence by 9:00 a.m. Eastern time of the Division's next business day of becoming aware of the occurrence and describe:

        i. the name and location of the facility,

        ii. the nature and cause of the malfunction or breakdown,

        iii. the time when the malfunction or breakdown is first observed,

        iv. the expected duration, and

        v. an estimated rate of emissions.

    b. Notify the Director or his designee immediately when the corrective measures have been accomplished.

    This reporting requirement does not allow the operation of the facility in excess of Environmental Management Commission Regulations.

7. FUGITIVE DUST CONTROL REQUIREMENT - As required by 15A NCAC 2D .0540 "Particulates from Fugitive Dust Emission Sources," the Permittee shall not cause or allow fugitive dust emissions to cause or contribute to substantive complaints or excess visible emissions beyond the property boundary. If substantive complaints or excessive fugitive dust emissions from the facility are observed beyond the property boundaries for six minutes in any one hour (using Reference Method 22 in 40 CFR, Appendix A), the owner or operator may be required to submit a fugitive dust plan as described in 2D .0540(f).

    "Fugitive dust emissions" means particulate matter from process operations that does not pass through a process stack or vent and that is generated within plant property boundaries from activities such as: unloading and loading areas, process areas stockpiles, stock pile working, plant parking lots, and plant roads (including access roads and haul roads).

8. FLARE REQUIREMENTS per 15A NCAC 2D .0611 - Emissions from the Columbus County Landfill shall be controlled by a landfill gas-fired open flare (CD-2). To ensure reliability of this control device, the Permittee shall do the following:

    a. Inspection and Maintenance Requirements - To comply with the provisions of this permit and ensure that optimum control efficiency is maintained, the Permittee shall establish an inspection and maintenance schedule/checklist based on manufacturer's recommendations. As a minimum, the Permittee shall perform an annual inspection on each control device to ensure structural integrity. The results of this inspection shall be recorded in the logbook described below.

b. Recordkeeping Requirements - The results of all inspections and any variance from manufacturer's recommendations or from those given in this permit (when applicable) shall be investigated with corrections made and dates of actions recorded in a logbook. Records of all maintenance activities shall be recorded in the logbook. The logbook (in written or electronic form) shall be kept on-site and made available to DAQ personnel upon request.

9. CONTROL AND PROHIBITION OF ODOROUS EMISSIONS - As required by 15A NCAC 2D .1806 "Control and Prohibition of Odorous Emissions" the Permittee shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary.

B. GENERAL CONDITIONS AND LIMITATIONS

1. TWO COPIES OF ALL DOCUMENTS, REPORTS, TEST DATA, MONITORING DATA, NOTIFICATIONS, REQUESTS FOR RENEWAL, AND ANY OTHER INFORMATION REQUIRED BY THIS PERMIT shall be submitted to the:

   Regional Air Quality Supervisor
   North Carolina Division of Air Quality
   Wilmington Regional Office
   127 Cardinal Drive Extension
   Wilmington, NC 28405
   (910) 796-7215

   For identification purposes, each submittal should include the facility name as listed on the permit, the facility identification number, and the permit number.

2. RECORDS RETENTION REQUIREMENT - Any records required by the conditions of this permit shall be kept on site and made available to DAQ personnel for inspection upon request. These records shall be maintained in a form suitable and readily available for expeditious inspection and review. These records must be kept on site for a minimum of 2 years, unless another time period is otherwise specified.

3. ANNUAL FEE PAYMENT - Pursuant to 15A NCAC 2Q .0203(a), the Permittee shall pay the annual permit fee within 30 days of being billed by the DAQ. Failure to pay the fee in a timely manner will cause the DAQ to initiate action to revoke the permit.

4. EQUIPMENT RELOCATION - A new air permit shall be obtained by the Permittee prior to establishing, building, erecting, using, or operating the emission sources or air cleaning equipment at a site or location not specified in this permit.

5. This permit is subject to revocation or modification by the DAQ upon a determination that information contained in the application or presented in the support thereof is incorrect, conditions under which this permit was granted have changed, or violations of conditions contained in this permit have occurred. The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution.

Unless otherwise specified by this permit, no emission source may be operated without the concurrent operation of its associated air cleaning device(s) and appurtenances.

6. REPORTING REQUIREMENT - Any of the following that would result in previously unpermitted, new, or increased emissions must be reported to the Regional Supervisor, DAQ:

   a. changes in the information submitted in the application regarding facility emissions;

   b. changes that modify equipment or processes of existing permitted facilities; or

   c. changes in the quantity or quality of materials processed.

   If appropriate, modifications to the permit may then be made by the DAQ to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause a violation of the emission limitations specified herein.

7. This permit is nontransferable by the Permittee. Future owners and operators must obtain a new air permit from the DAQ.

8. This issuance of this permit in no way absolves the Permittee of liability for any potential civil penalties which may be assessed for violations of State law which have occurred prior to the effective date of this permit.

9. This permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or Local water quality or land quality control authority.

10. Reports on the operation and maintenance of the facility shall be submitted by the Permittee to the Regional Supervisor, DAQ at such intervals and in such form and detail as may be required by the DAQ. Information required in such reports may include, but is not limited to, process weight rates, firing rates, hours of operation, and preventive maintenance schedules.

11. A violation of any term or condition of this permit shall subject the Permittee to enforcement pursuant to G.S. 143-215.114A, 143-215.114B, and 143-215.114C, including assessment of civil and/or criminal penalties.

12. Pursuant to North Carolina General Statute 143-215.3(a)(2), no person shall refuse entry or access to any authorized representative of the DAQ who requests entry or access for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.

13. The Permittee must comply with any applicable Federal, State, or Local requirements governing the handling, disposal, or incineration of hazardous, solid, or medical wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the Division of Waste Management.

14. PERMIT RETENTION REQUIREMENT - The Permittee shall retain a current copy of the air permit at the site. The Permittee must make available to personnel of the DAQ, upon request, the current copy of the air permit for the site.

15. CLEAN AIR ACT SECTION 112(r) REQUIREMENTS - Pursuant to 40 CFR Part 68 "Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, Section 112(r)," if the Permittee is required to develop and register a risk management plan pursuant to Section 112(r) of the Federal Clean Air Act, then the Permittee is required to register this plan in accordance with 40 CFR Part 68.

16. PREVENTION OF ACCIDENTAL RELEASES - GENERAL DUTY - Pursuant to Title I Part A Section 112(r)(1) of the Clean Air Act "Hazardous Air Pollutants - Prevention of Accidental Releases - Purpose and General Duty," although a risk management plan may not be required, if the Permittee produces, processes, handles, or stores any amount of a listed hazardous substance, the Permittee has a general duty to take such steps as are necessary to prevent the accidental release of such substance and to minimize the consequences of any release. **This condition is federally-enforceable only.**

17. GENERAL EMISSIONS TESTING AND REPORTING REQUIREMENTS - If emissions testing is required by this permit, or the DAQ, or if the Permittee submits emissions testing to the DAQ in support of a permit application or to demonstrate compliance, the Permittee shall perform such testing in accordance with 15A NCAC 2D .2600 and follow all DAQ procedures including protocol approval, regional notification, report submittal, and test results approval.

Permit issued this the 14th day of July, 2010.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

Brad Newland, P.E.
Regional Air Quality Supervisor
By Authority of the Environmental Management Commission

CONSTRUCTION DRAWINGS

LANDFILL GAS COLLECTION SYSTEM INSTALLATION
COLUMBUS COUNTY LANDFILL

LANDFILL OWNER:

COLUMBUS COUNTY, NORTH CAROLINA
COLUMBUS COUNTY LANDFILL
107 LANDFILL ROAD
COLUMBUS COUNTY, NORTH CAROLINA 28472
(910) 640-6600

OWNER REPRESENTATIVE:
KIP McCLARY
(910) 642-2828

ENGINEER:

CARLSON ENVIRONMENTAL CONSULTANTS, PC
305 SOUTH MAIN STREET
MONROE, NORTH CAROLINA 28112
(704) 283-9765

AUGUST 2011

INDEX OF SHEETS

FOR PERMITTING PURPOSES ONLY
NOT FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL SEAL 026334 ENGINEER KRISTOPHER CARLSON
9-6-11

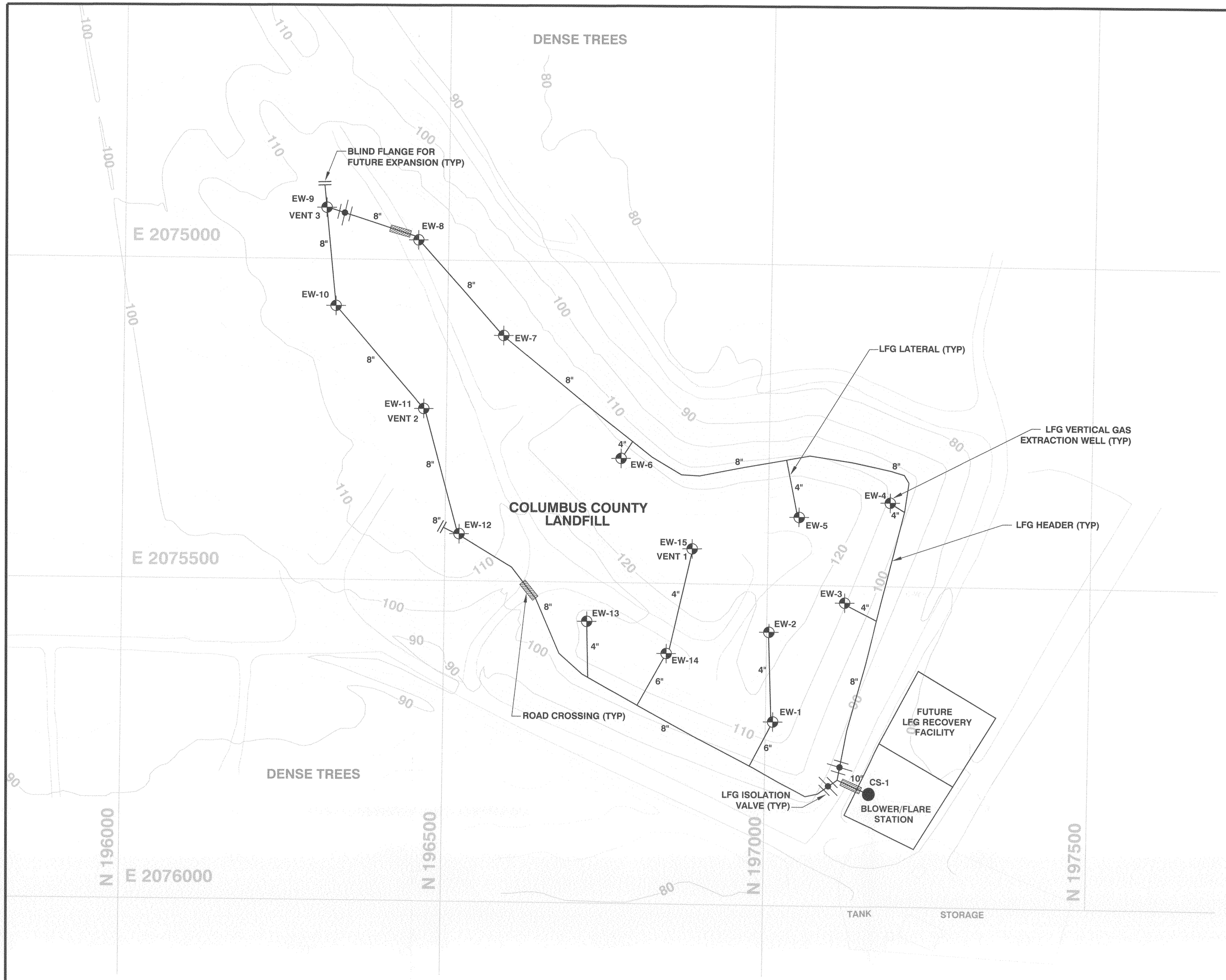
DRAWING TITLE: TITLE SHEET

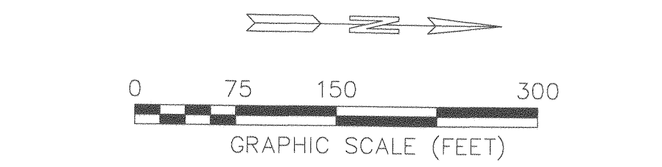
PROJECT: LANDFILL GAS COLLECTION AND CONTROL SYSTEM-2011
CONSTRUCTION DESIGN PLANS

SITE: ENVIRONMENTAL CREDIT CORPORATION
COLUMBUS COUNTY LANDFILL
COLUMBUS COUNTY, NORTH CAROLINA

CARLSON ENVIRONMENTAL CONSULTANTS, PC
305 SOUTH MAIN STREET
MONROE, NORTH CAROLINA 28112
NC PE FIRM COA: C-2533
(704) 283-9765
FAX (704) 283-9755

CEC PROJECT NO.		DWG. CC.TITLE.2011	REV. 0
SCALE	NO SCALE	SHEET 1 OF 4	
DATE	AUGUST 2011		





LEGEND

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- LFG HEADER/LATERAL
- EW-1 VERTICAL LFG EXTRACTION WELL
- ROAD CROSSING
- CS-1 CONDENSATE SUMP
- BLIND FLANGE
- LFG ISOLATION VALVE

NOTES:

1. LANDFILL SURFACE GRADES DIGITIZED FROM DRAWING ENTITLED "EXISTING TOPOGRAPHIC SITE PLAN" DATED APRIL 13, 1993 BY MARLOWE, DREITZLER & ASSOCIATES AND PROVIDED BY COLUMBUS COUNTY, NORTH CAROLINA. SURFACE GRADES ARE APPROXIMATE AND WILL NEED TO BE FIELD VERIFIED.

2. THE LOCATIONS OF VERTICAL WELLS, SUMPS, AND VALVES AND ALIGNMENT OF GAS HEADER PIPING ARE APPROXIMATE AND MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY ENGINEER TO SUIT ACTUAL FIELD CONDITIONS.

3. UNLESS OTHERWISE DIRECTED BY ENGINEER, ALL HEADER AND LATERAL PIPING SHALL BE INSTALLED AT A MINIMUM 2% GRADE ON WASTE AND 0.5% GRADE OFF WASTE.

NORTH CAROLINA PROFESSIONAL SEAL 025334 ENGINEER ROBERT G. CARLSON
9-6-11

FOR PERMITING PURPOSES ONLY
NOT FOR CONSTRUCTION

DRAWING TITLE:
SITE PLAN

PROJECT:
LANDFILL GAS COLLECTION AND CONTROL SYSTEM - 2011
CONCEPTUAL LAYOUT

SITE:
COLUMBUS COUNTY LANDFILL
COLUMBUS COUNTY, NORTH CAROLINA

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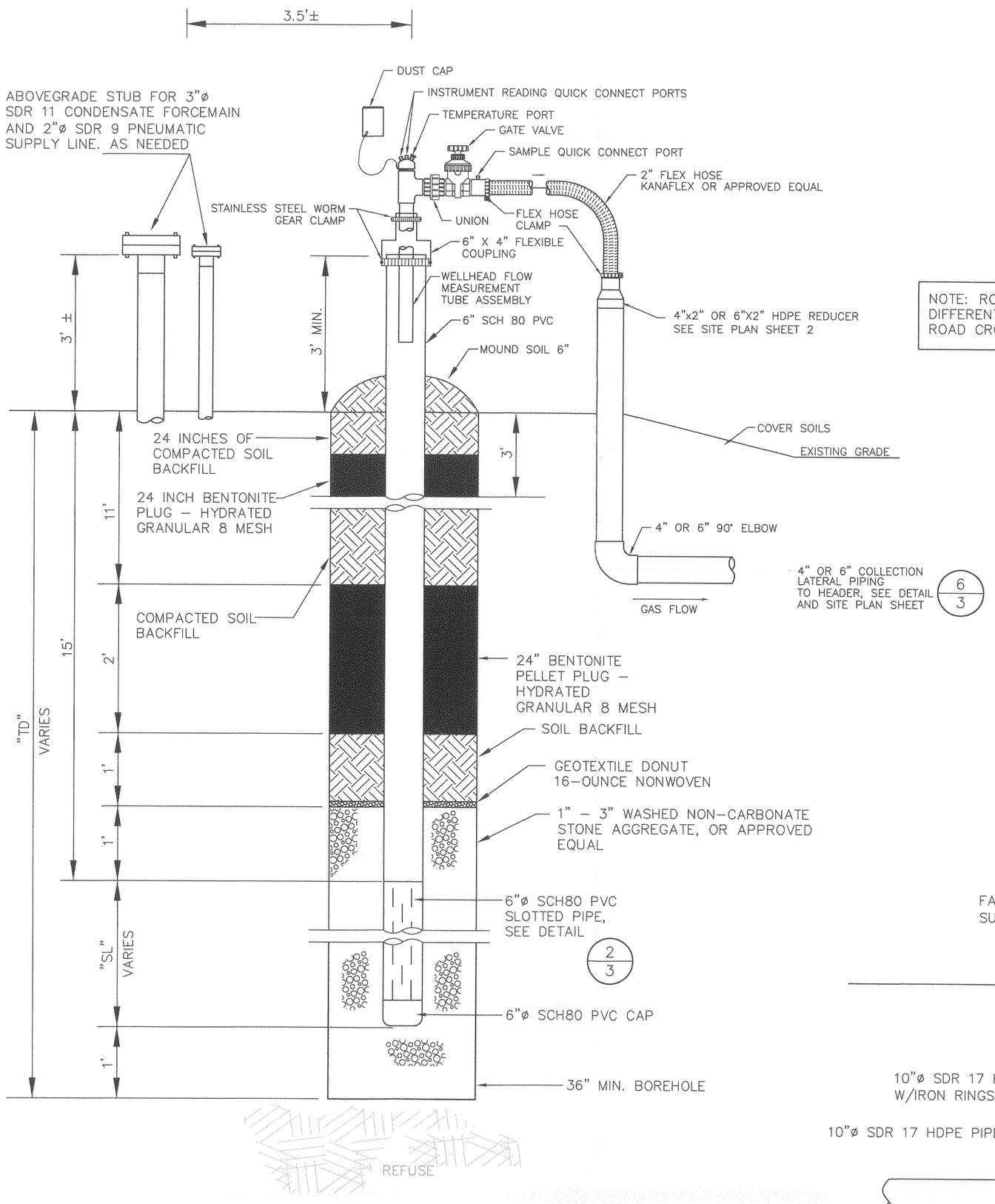
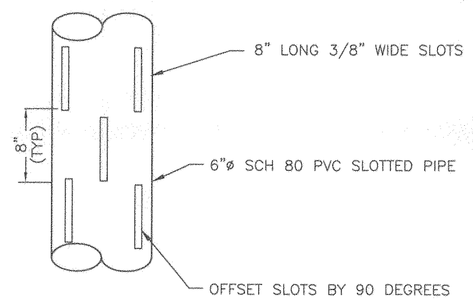
CEC PROJECT NO.		DWG. CC.SITEPLAN.LFG	REV. 0
SCALE	1" = 75'	SHEET 2 OF 4	
DATE	AUGUST 2011		

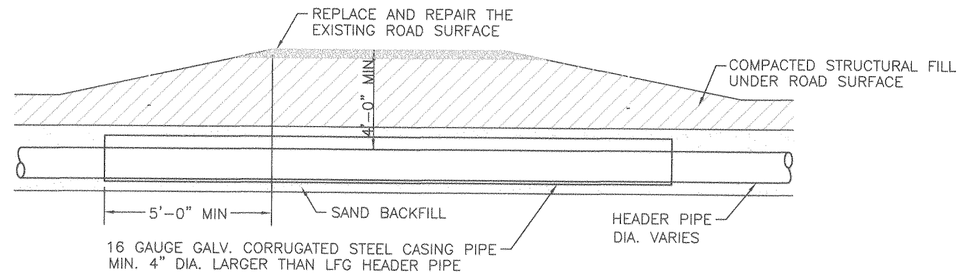


VERTICAL EXTRACTION WELL DETAIL 1/3
NOT TO SCALE

NOTES:
1. WELLHEAD ASSEMBLY SHOWN REPRESENTS 2" LANDTEC ACCU-FLO MODEL AF2V WELLHEAD ASSEMBLY, TEL. 1-800-LANDTEC, FAX 213-895-5866.

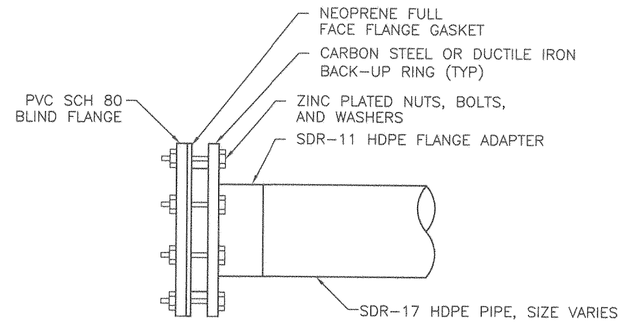


SLOTTED PIPE FOR VERTICAL WELLS DETAIL 2/3
NO SCALE

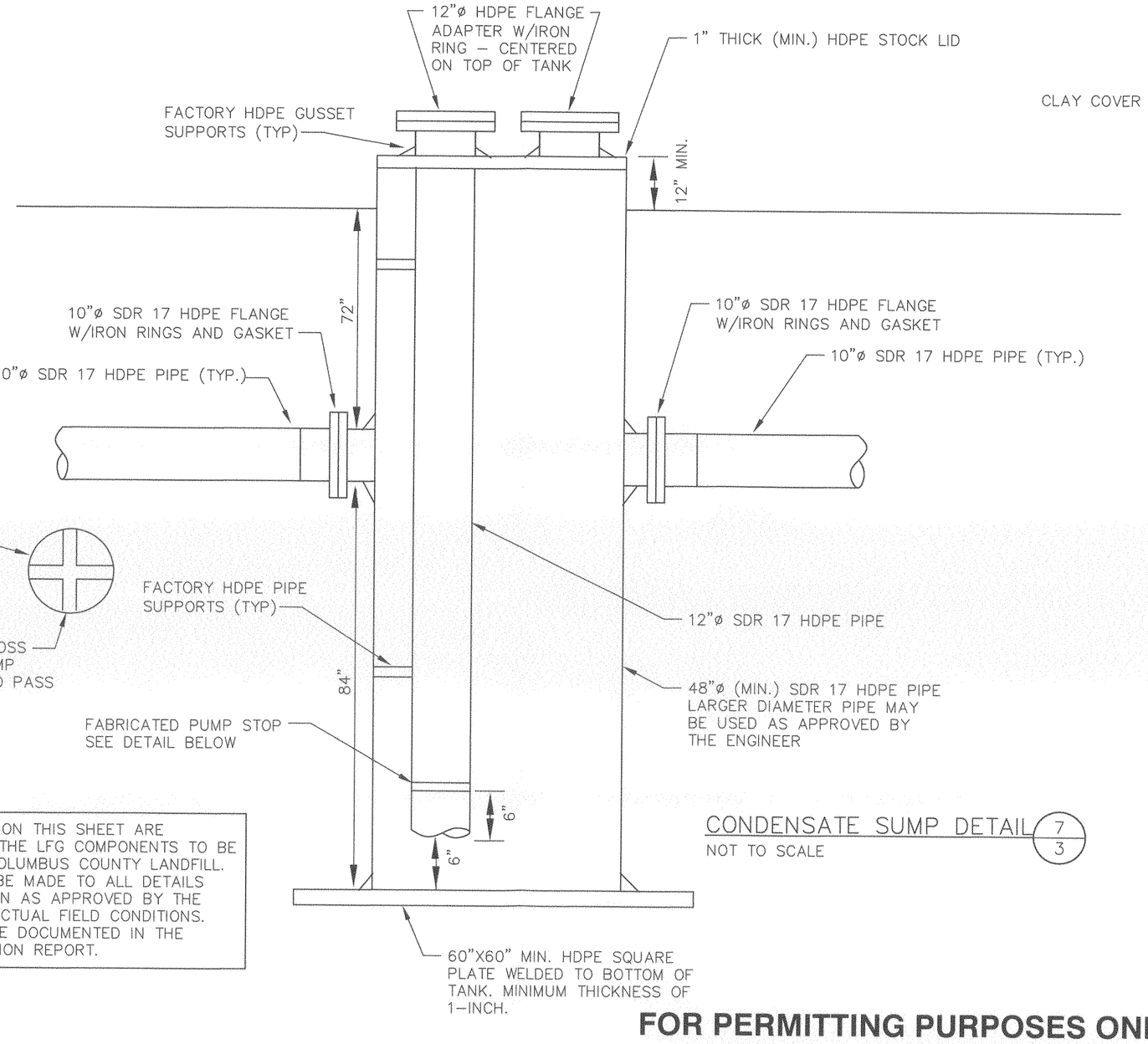


ROAD CROSSING DETAIL 3/3
NOT TO SCALE

NOTE: ROAD CROSSINGS TO BE INSTALLED TO MAXIMIZE LFG PIPING SLOPE TO ACCOMODATE DIFFERENTIAL SETTLEMENT BELOW ROADWAYS. CONTRACTOR AND CQA PERSONNEL TO REVIEW ROAD CROSSING SLOPES BEFORE INSTALLATION TO MAXIMIZE BASED ON AVAILABLE GRADES.



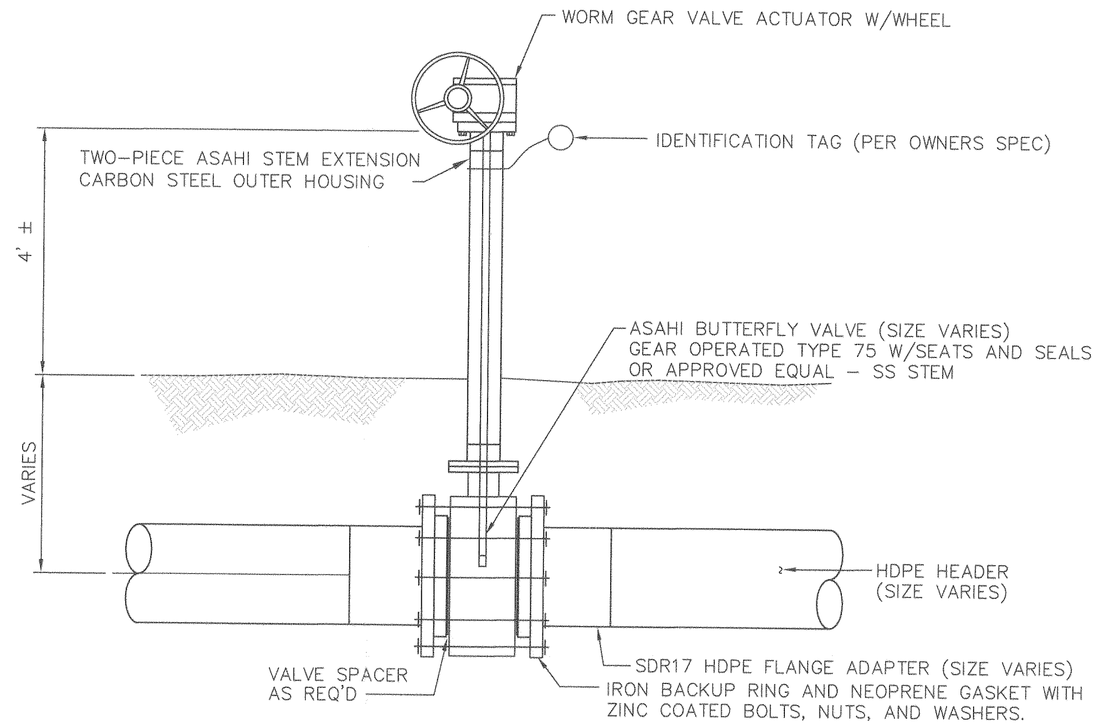
HEADER PIPE BLIND FLANGE 4/3
NOT TO SCALE



CONDENSATE SUMP DETAIL 7/3
NOT TO SCALE

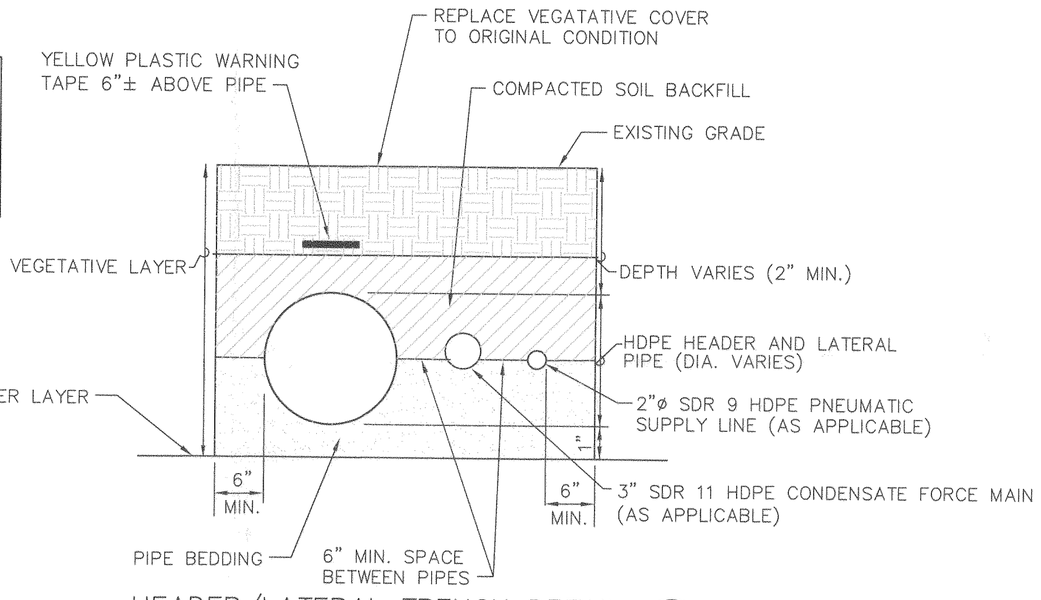
THE DETAILS SHOWN ON THIS SHEET ARE REPRESENTATIVE OF THE LFG COMPONENTS TO BE INSTALLED AT THE COLUMBUS COUNTY LANDFILL. MODIFICATIONS MAY BE MADE TO ALL DETAILS DURING CONSTRUCTION AS APPROVED BY THE ENGINEER TO MEET ACTUAL FIELD CONDITIONS. ALL CHANGES WILL BE DOCUMENTED IN THE AS-BUILT CERTIFICATION REPORT.

FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION



LFG COLLECTION SYSTEM BUTTERFLY VALVE DETAIL 5/3
NOT TO SCALE

NOTE: ALL LFG PIPING TO BE INSTALLED AT A MINIMUM 2% GRADE FOR ALL COUNTER-CURRENT FLOW SECTIONS AND 2% GRADE FOR ALL CONCURRENT FLOW SECTIONS.



HEADER/LATERAL TRENCH DETAIL 6/3
NO SCALE

NOTE: EXISTING LANDFILL FINAL COVER SYSTEM CONSISTS OF APPROXIMATELY 12-18 INCHES OF COVER SOILS, 18-24 INCHES OF CLAY, AND 6-12 INCHES OF INTERIM SOILS OVER THE WASTE. ALL LFG PIPING TO BE INSTALLED IN THE UPPER 12-18 INCHES, UNLESS MAINTAINING PIPE SLOPE REQUIRES INSTALLATION OF LFG PIPING IN THE CLAY OR INTERIM LAYERS. SHOULD LFG PIPING BE INSTALLED IN OR THROUGH THE CLAY CAP, BENTONITE CLAY SHALL BE ADDED TO THE AREAS OF PENETRATION TO REPLACE THE DISTURBED CAP. CQA PERSONNEL TO DOCUMENT ANY DISTURBANCE OF THE CLAY LANDFILL CAP AND ALL REPAIRS.

DRAWING TITLE: LFG DETAILS

PROJECT: LANDFILL GAS COLLECTION AND CONTROL SYSTEM - 2011 CONSTRUCTION DRAWINGS

SITE: COLUMBUS COUNTY LANDFILL
COLUMBUS COUNTY NORTH CAROLINA

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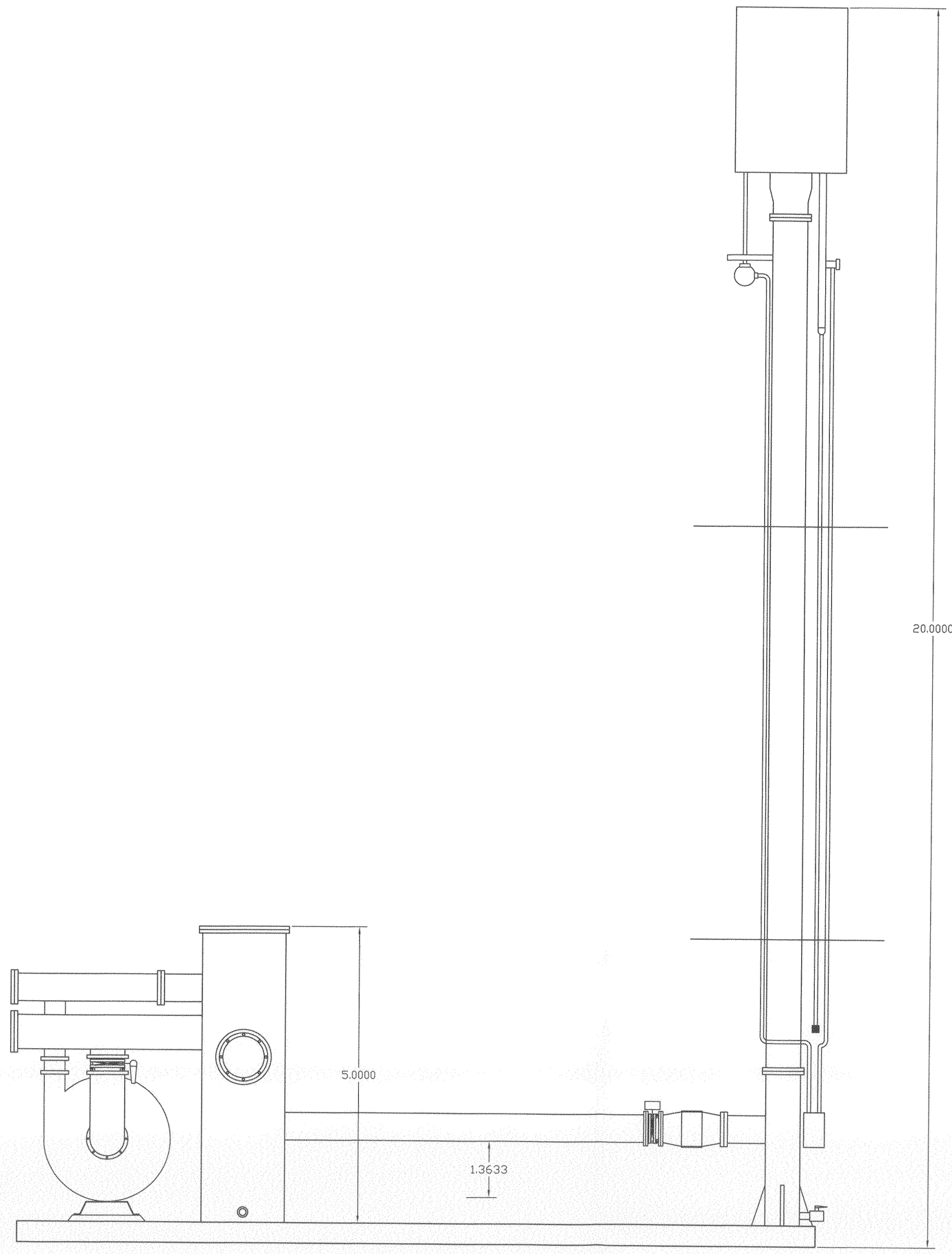
CEC PROJECT NO.	DWG. CC.DETAIL.LFG	REV. 0
SCALE NO SCALE		
DATE AUGUST 2011		



250 SCFM OPEN FLARE
FRONT VIEW

0 1 2 3
SCALE IN FEET

NOTES:
1. CONTROL PANEL, ELECTRICAL WIRING, AND RAIN COVER NOT SHOWN FOR CLARITY.

2. OPEN FLARE SYSTEM SHOWN IS CONCEPTUAL AND FOR PERMITTING PUPOSES ONLY.

NORTH CAROLINA PROFESSIONAL SEAL 028334 ENGINEER KRISTOFFER A. CARLSON
9-6-11

FOR PERMITTING PURPOSES ONLY
NOT FOR CONSTRUCTION

DRAWING TITLE:
LFG DETAILS

PROJECT:
LANDFILL GAS COLLECTION AND CONTROL SYSTEM - 2010
CONSTRUCTION DRAWINGS

SITE:
COLUMBUS COUNTY LANDFILL
COLUMBUS COUNTY, NORTH CAROLINA

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CEC PROJECT NO.		DWG. CC.DETAILS.LFG	REV. 0
SCALE	NO SCALE	SHEET 4 OF 4	
DATE	AUGUST 2011		