

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In Re: Palm Beach County Resource)
Recovery Facility Modification of)
Conditions of Certification PA 84-20C) OGC CASE NO 94-2824.
Palm Beach County, Florida)
_____)

FINAL ORDER MODIFYING
CONDITIONS OF CERTIFICATION

On July 29, 1986, the Governor and Cabinet, sitting as the Siting Board, issued a final order approving certification for the Palm Beach County Solid Waste Authority's Palm Beach County Resource Recovery Facility. That certification order approved the construction and operation of a 75 MW, municipal waste-fired facility and associated facilities located in Palm Beach County, Florida.

On August 11, 1995, Palm Beach County Solid Waste Authority (SWA) filed a request to amend the conditions of certification pursuant to Section 403.516(1)(b), Florida Statutes (F.S.). The SWA requested that the conditions be modified to approve the installation of a landfill gas collection and flaring system within the site boundary.

Copies of SWA's proposed modification were made available for public review in September, 1995. On September 22, 1995, a Proposed Modification of Power Plant Certification was published in the Florida Administrative Weekly. As of September 19, 1995, all parties to the original proceeding had received copies of the intent to modify. The notice specified that a hearing would be held if a party to the original certification hearing objects within 45 days from receipt of the proposed

notice of modification or if a person whose substantial interests will be affected by the proposed modification objects in writing within 30 days after issuance of the public notice. Written objections to the proposed modifications were not received by the Department. Accordingly, in the absence of any timely objection,

IT IS ORDERED:

The proposed changes to the Palm Beach County Solid Waste Authority's Resource Recovery Facility as described in the August 11, October 30, November 3 and December 4, 1995, requests for modification are APPROVED. Pursuant to Section 403.516(1)(b), F.S., the conditions of certification for the Palm Beach County Resource Recovery Facility are **MODIFIED** as follows:

Condition XIV.A. 6. Landfill Gas Collection and Flare System

- a. This source shall be allowed to operate continuously (i.e., 8760 hours per year).
- b. The utility flare system shall be designed manufactured, and operated according to U.S. Environmental Protection Agency criteria as specified in 40 CFR 60.18, in order to ensure high efficiency combustion of landfill gas at the 97% level of destruction of total hydrocarbons with a flame temperature of at or above 1400⁰ F.
- c. There shall be no visible emissions form any individual flare, except for periods not to exceed a total of five minutes during any two consecutive hours at which visible emissions can be up to 20 percent opacity.

d. For inventory purposes, the pollutant emission rates from each of the flare systems

are:

<u>EMISSION RATE</u>			
<u>Pollutant</u>	<u>Emission Factors</u>	<u>Pounds/Hour</u>	<u>Tons/Year</u>
<u>NO_x</u>	<u>0.07 lb/million Btu</u>	<u>1.67</u>	<u>7.33</u>
<u>VOC</u>	<u>36 LB/millions ft³</u>	<u>1.94</u>	<u>8.51</u>
<u>SO₂</u>	<u>0.002 lb/scf</u>	<u>1.67</u>	<u>1.33</u>
<u>PM₁₀</u>	<u>1.69 E-05 lb/scf</u>	<u>0.91</u>	<u>3.99</u>
<u>CO</u>	<u>0.37 lb million Btu</u>	<u>9.10</u>	<u>39.87</u>

e. This source shall meet the applicable requirements of 40 CFR Subpart WWW,

NSPS for Municipal Solid Waste Landfills upon adoption by the Florida Department of

Environmental Protection; 40 CFR 60.18, General Control Device Requirements; Chapters 62-

209 through 297 and 62-4, F.A.C.

f. Compliance with the visible emissions standard shall be determined using EPA Method 22 and shall be for the duration of 2 hours. Such tests shall be conducted within 60 days of completion of construction and initial startup operation, and annually thereafter. The required visible emissions test report shall also contain the gas flow rate from the extraction wells and the flare temperature data.

g. Sulfur content of the input gas to any flare shall not exceed 0.65 pounds per hour.

h. An analysis shall be performed to determine the sulfur content of input gas to the flare, by the American Society for Testing and Materials (ASTM) test method, D 1072-90, prior to any flare startup. Additional tests shall be performed on a yearly basis, and results included as part of the facility's annual operation report.

i. Pursuant to Rule 62-296.320 (2) , F.A.C., objectionable odors caused by these sources are prohibited.

j. Total volumetric flow to any flare in the system shall be limited to 900 scfm. Total volumetric low to the aggregate of the two flares shall be limited to 1800 scfm.

k. Proper devices shall be installed at all wellheads, and at the flare station for 1) gas flow volume and gas pressure measurements, 2) gas composition analysis, 3) gas temperature and flame temperature recording, and flow control, prior to the collection and disposal of the active landfill gases, Such devices shall be properly calibrated and maintained at all times according to manufacturers written instructions. The checking and record keeping requirements specified in 40 CFR 60 Subpart WWW, NSPS for Municipal Solid Waste Landfills.

l. The net heating value of the input gas shall be 200 Btu/scf or greater. Compliance with this parameter shall be determined by methodology specified in paragraph (f) of 40 CFR 60.18. Samples shall be taken, and results reported annually.

m. Actual exit velocity of each flare shall be calculated and reported on an annual basis, using methods specified in paragraph (f) of 40 CFR 60.18.

n. The Southeast District office shall be given at least 15 days written notice prior to compliance testing.

o. Prior to placing the flare in service , the pilot gas for the flare shall be fired by propane at 25 scfh (standard cubic feet per hour). The pilot light is not required when the flame is sustained by the landfill gas alone.

NOTICE OF RIGHTS

Any party to this Notice has the right to seek judicial review of the Order Pursuant to

Section 120.68, Florida Statutes, by the filing of Notice Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the clerk of the Department of Environmental Protection in the Office of General Counsel, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date that the Final Order is filed with the Department of Environmental Protection.

DONE AND ENTERED this 27th day of March, 1996 in Tallahassee, Florida.

**FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52
Florida Statutes, with the designated
Department Clerk, receipt of which
is hereby acknowledged.**

Rebecca P. 3/29/96
Clerk Date

**STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION**

Virginia B. Wetherell
for *Virginia B. Wetherell*
VIRGINIA B. WETHERELL
SECRETARY
3900 Commonwealth Boulevard
Tallahassee, FL 32399-3000

CERTIFICATE OF SERVICE

I DO HEREBY certify that a true and correct copy of the foregoing has been sent by U.S. Mail to the following listed persons on April 1, 1996.

Karen Brodeen, Esquire
Department of Community Affairs
2740 Centerview Drive
Tallahassee, FL 32399-2100

Paul R. Golis, Esquire
Watterson Hyland, Baird & Klett
Prosperity Gardens, Suite 112
11380 Prosperity Farms Road
Palm Beach Gardens, FL 33410

Roger G. Saberson, Esquire
Treasure Coast Regional Planning
Council
70 SE 4th Ave.
Delray, FL 33483-4514

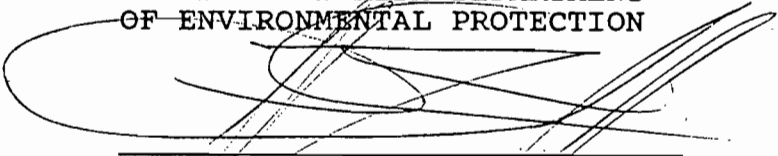
Bob Elias, Esquire
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Toni M. Leidy, Esquire
South Florida Water
Management District
P.O. Box 24680
West Palm Beach, FL 33416-4680

Joel T. Daves III, Esquire
Burdick & Daves
P.O. Box 790
West Palm Beach, FL 33402

Terrell K. Arline, Esquire
325 Clematis Street
Suite C
West Palm Beach, FL 33401

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Charles T. "Chip" Collette
Assistant General Counsel

3900 Commonwealth Blvd.
M.S. 35
Tallahassee, FL 32399-3000

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In Re: City of Lake Worth Utilities)
Department Unit S-5 Modification of)
Conditions of Certification Palm Beach) OGC NO. 96-0860
County, Florida, PA 74-05B)
_____!

FINAL ORDER MODIFYING
CONDITIONS OF CERTIFICATION

On May 18, 1976, the Governor and Cabinet, sitting as the Siting Board, issued a final order approving certification for the City of Lake Worth Utilities Department's Tom G. Smith Municipal Power Plant Unit S-5. That certification order approved the construction and operation of a 29.5 MW, oil-fired, steam electric generating facility located in Palm Beach County, Florida.

On September 22, 1993, The City of Lake Worth's utility Department filed a request for a determination of Reasonably Available Control Technology (RACT) for the control of Nitrogen Oxides (NOx) pursuant to Florida Administrative Code Rule 62-96.570. On January 31, 1996, the Department of Environmental Protection determined the NOx RACT for the power plant. Such a determination acts as an automatic modification of the Conditions of Certification pursuant to section 403.511(5)(a), F.S.

IT IS ORDERED:

Pursuant to Section 403.511(5)(a), F.S., the conditions of certification for the City of Lake Worth Utilities Department's Tom G. Smith Municipal Power Plant Unit S-5 are

MODIFIED as follows:

Condition I. 7. The permittee shall comply with the following emission standards for NOx.

a. Emissions of NOx from unit GT-2/S-5 shall not exceed 0.50 lb./million BTU while firing natural gas and 0.90 lb./million Btu while firing fuel oil.

b. Compliance for unit GT-2/S-5 shall be demonstrated by annual emission testing in accordance with EPA Test Method 7E. Emission testing shall be completed by February 28th of each year. Annual compliance testing while firing oil is not required for units that operated on oil for less than 400 hours in the previous federal fiscal year (ending September 30th). The permittee shall submit to the Palm Beach County Public Health Unit, Air Section, and to the Department of Environmental Protection, Southeast District Office, Air Program, written confirmation that testing while firing oil is not required, in lieu of submitting an emission test report for each unit that is not tested each year.

c. All required emission testing shall be performed no later than February 28th of each year, except for units that are not operating because of scheduled maintenance outages and emergency repairs, which will be tested within thirty days of return to service.

d. Compliance testing shall be conducted with the emission units operating at the permitted capacity (90 to 100% of the maximum permitted operation rate of the emission units). If an emission's unit is not tested at permitted capacity, the emission unit shall not be operated above 110% of the test load until a new test showing compliance is conducted. Operation of the emissions unit above 110% of the test load is allowed for no more that 15 days for the purpose of conducting additional compliance testing to regain the authority to operate at the permitted capacity. [F.A.C. Rule 62-297.310 (2)]

NOTICE OF RIGHTS

Any party to this Notice has the right to seek judicial review of the Order Pursuant to Section 120.68, Florida Statutes, by the filing of Notice Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the clerk of the Department of Environmental Protection in the Office of General Counsel, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date that the Final Order is filed with the Department of Environmental Protection.

DONE AND ENTERED this 27th day of March, 1996 in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

FILING AND ACKNOWLEDGEMENT FILED, on this date, pursuant to S120.52 Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

[Signature] Clerk 3/29/96 Date

[Signature]
VIRGINIA B. WETHERELL
SECRETARY
3900 Commonwealth Boulevard
Tallahassee, FL 32399-3000

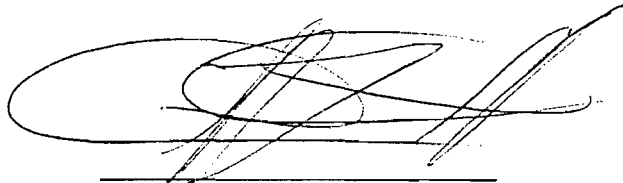
CERTIFICATE OF SERVICE

I hereby certify that a copy of the Final Order Modifying Conditions of Certification of the City of Lake Worth Utilities was sent to the following parties by United States mail on the 1st day of April, 1996.

Karen Brodeen, Esquire
Department of Community Affairs
2740 Centerview Drive
Tallahassee, Florida 32399-2100

Bob Elias, Esquire
Florida Public Service Commission
Gerald L. Gunter Building
2540 Shumard Oak Blvd.
Tallahassee, Florida 32399-0850

Mr. Harvey Wildscheutz, Director
City of Lake Worth Utilities Department
1900 2nd Avenue North
Lake Worth, Florida 33461-4298



Charles T. "Chip" Collette
Assistant General Counsel

State of Florida
Department of Environmental Protection
3900 Commonwealth Blvd., M.S. 35
Tallahassee, Florida 32399-3000
Telephone: (904) 488-9730



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

NOTICE OF PERMIT AMENDMENT

In the matter of an
Application for Permit Amendment by:

DEP File No. PSD-FL-108(B)

Mr. David B. Lowe
Solid Waste Authority of
Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412

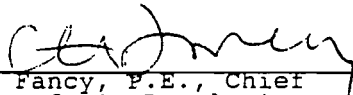
02-23-96P02:45 RCVD

Enclosed is amended permit No. PSD-FL-108(B) to install a landfill collection system to control emissions from the Class I and Class III landfills at the North County Resource Recovery Facility (NCRRF). The amendment authorizes operation in Palm Beach County, Florida. This permit amendment is issued pursuant to Section 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 14 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION


C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT AMENDMENT and all copies were mailed by certified mail before the close of business on 2-21-96 to the listed persons.

Clerk Stamp
FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

Kimi Jones
Clerk

2-21-96
Date

Copies furnished to:

J. Kahn, SED
J. Harper, EPA
J. Bunyak, NPS
H. Oven, PPS
A. Makled, P.E.
J. Koerner, PBCHU

"Protect, Conserve and Manage Florida's Environment and Natural Resources"



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
February 20, 1996

Virginia B. Wetherell
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David B. Lowe
Solid Waste Authority of
Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412

Dear Mr. Lowe:

Re: North County Resource Recovery Facility (NCRRF)
PSD-FL-108(B), Solid Waste Authority of Palm Beach County

The Department received your request of August 11, 1995, and supporting information to install a landfill collection system to control emissions from the Class I and Class III landfills at the North County Resource Recovery Facility (NCRRF). This request will require adding new specific conditions to the above referenced PSD permit. This permit is amended as follows:

NEW SPECIFIC CONDITIONS:

1. This source shall be allowed to operate continuously (i.e., 8760 hours/year).
2. The utility flare system shall be designed, manufactured, and operated according to U.S. Environmental Protection Agency criteria as specified in 40 CFR 60.18, in order to ensure high efficiency combustion of landfill gas at the 98% level of destruction of total hydrocarbons, with a flame temperature of at or above 1400°F.
3. There shall be no visible emissions from any individual flare, except for periods not to exceed a total of five minutes during any two consecutive hours at which visible emissions can be up to 20 percent opacity.
4. For inventory purposes, the pollutant emission rates from each of the flare systems are:

EMISSION RATE

<u>Pollutant</u>	<u>Emission Factors</u>	<u>Pounds/Hour</u>	<u>Tons/Year</u>
NOx	0.07 lb/million Btu	1.67	7.33
→ VOC	36 lb/million ft ³	1.94	8.51
SO ₂	0.002 lb/scf	1.67	1.33
PM ₁₀	1.69 E-05 lb/scf	0.91	3.99
CO	0.37 lb/million Btu	9.10	39.87

5. This source shall meet the applicable requirements of 40 CFR Subpart WWW, NSPS for Municipal Solid Waste Landfills upon adoption by the Florida Department of Environmental Protection; 40 CFR 60.18, General Control Device Requirements; Chapters 62-209 through 297 and 62-4, F.A.C.

6. Compliance with the visible emissions standard shall be determined using EPA Method 22 and shall be for the duration of 2 hours. Such tests shall be conducted within 60 days of completion of construction and initial startup operation, and annually thereafter. The required visible emissions test report shall also contain the gas flow rate from the extraction wells and the flare temperature data.

7. Sulfur content of the input gas to any flare shall not exceed 0.65 pounds per hour.

Mr. David B. Lowe
Page Two
February 20, 1996

8. An analysis shall be performed to determine the sulfur content of input gas to the flare, by the American Society for Testing and Materials (ASTM) test method, D 1072-90, prior to any flare startup. Additional tests shall be performed on a yearly basis, and results included as part of the facility's annual operating report.

9. Pursuant to Rule 62-296.320(2), F.A.C., Objectionable Odors caused by these sources are prohibited.

10. Total volumetric flow to any flare in the system shall be limited to 900 scfm. Total volumetric flow to the aggregate of the two flares shall be limited to 1800 scfm.

11. Proper devices shall be installed at all wellheads, and at the flare station for 1) gas flow volume and gas pressure measurements, 2) gas composition analysis, 3) gas temperature and flame temperature recording, and 4) flow control, prior to the collection and disposal of the active landfill gases. Such devices shall be properly calibrated and maintained at all times, according to manufacturers' written instructions. The checking and recording of the gas flow, temperature, and pressure, shall be performed on a quarterly basis for all wells and on a monthly basis for the flare station.

The permittee shall keep a hard copy of the gas extraction monitoring and analysis data, as well as instrumentation history records, on site at all times. The data shall be summarized and included as part of the facility's annual operating report. These sources shall comply with recording and recordkeeping requirements specified in 40 CFR 60 Subpart WWW, NSPS for Municipal Solid Waste Landfills.

12. The net heating value of the input gas shall be 200 Btu/scf or greater. Compliance with this parameter shall be determined by methodology specified in paragraph f of 40 CFR 60.18. Samples shall be taken, and results reported annually.

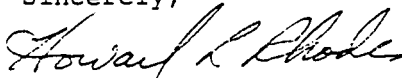
13. Actual exit velocity of each flare shall be calculated and reported on an annual basis, using methods specified in paragraph f of 40 CFR 60.18.

14. The Southeast District office shall be given at least 15 days written notice prior to compliance testing.

15. Prior to placing the flare in service, the pilot gas for the flare shall be fired by propane at 25 scfh (standard cubic feet per hour). The pilot light is not required when the flame is sustained by the landfill gas alone.

A copy of this letter shall be filed with the PSD-FL-108, and shall become a part of the permit.

Sincerely,



Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/th/t

cc: J. Kahn, SED
J. Bunyak, NPS
A. Makled, P.E.
J. Harper, EPA
H. Owen, PPS
J. Koerner, PBCHU

Attachments available upon request:

Application to construct/modify the NCRF facility submitted on August 11, 1995.

Additional correspondence submitted on October 30, November 3 and December 4, 1995.

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
*David B. Lowe
 Solid Waste Authority
 of Palm Bch CO
 7501 N. Jog Rd
 West Palm Bch, FL
 33412*

4a. Article Number
2 127 633 170

4b. Service Type
 Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise

7. Date of Delivery
2/23/96

5. Signature (Addressee)
[Signature]

6. Signature (Agent)
[Signature]

8. Addressee's Address (Only if requested and fee is paid)

Thank you for using Return Receipt Service.

PS Form 3811, December 1991 *U.S. GPO: 1993-352-714 **DOMESTIC RETURN RECEIPT**

2 127 633 170



Receipt for Certified Mail

No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

Sent to <i>David Lowe</i>	
Street and No. <i>Solid Waste Auth.</i>	
P.O., State and ZIP Code <i>of PBC</i>	
Postage <i>West Palm</i>	<i>\$ Bch</i>
Certified Fee	<i>FI</i>
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fee	\$
Postmark or Date <i>2-21-96</i> <i>PSD-FI-108(B)</i>	

PS Form 3800, March 1993



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

NOTICE OF PERMIT AMENDMENT

In the matter of an
Application for Permit Amendment by:

DEP File No. PSD-FL-108(B)

Mr. David B. Lowe
Solid Waste Authority of
Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412

Enclosed is amended permit No. PSD-FL-108(B) to install a landfill collection system to control emissions from the Class I and Class III landfills at the North County Resource Recovery Facility (NCRRF). The amendment authorizes operation in Palm Beach County, Florida. This permit amendment is issued pursuant to Section 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 14 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **NOTICE OF PERMIT AMENDMENT** and all copies were mailed by certified mail before the close of business on 2-21-96 to the listed persons.

Clerk Stamp
FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

Kuni Jobs
Clerk

2-21-96
Date

Copies furnished to:

- J. Kahn, SED
- J. Harper, EPA
- J. Bunyak, NPS
- H. Oven, PPS
- A. Makled, P.E.
- J. Koerner, PBCHU

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

FINAL DETERMINATION

North County Resource Recovery Facility (NCRRF)
PSD-FL-108(B)
Solid Waste Authority of Palm Beach County

This permit amendment will add new specific conditions to the above referenced PSD permit applicable to the North County Resource Recovery Facility (NCRRF) of Palm Beach County. The new specific conditions will allow the installation of a landfill collection system and flares to control volatile organic compound (VOC) and odorous emissions from the Class I and Class III landfills at the NCRRF. Emissions from the combustion of landfill gases will not exceed the PSD significance levels for carbon monoxide, sulfur dioxide, and nitrogen oxides.

The permit amendment was distributed on December 22, 1995. The Notice of Intent to Issue was published by the applicant in The Palm Beach Post on January 19, 1996. Copies of the permit amendment evaluation were available for inspection at the office of the Division of Environmental Science and Engineering, Palm Beach County Public Health Unit and the offices of the Department of Environmental Protection in West Palm Beach and Tallahassee.

Comments were submitted by Alex Makled, Professional Engineer-of-Record, of Camp, Dresser & McKee (CDM) during the public notice period. Mr. Makled requested to change the sulfur content in the input gas from 0.045 to 0.65 lb/hr for the purpose of calculating potential emissions in Specific Condition No. 7., to increase the emission rate of VOC to 97.2 lb/hr and to revise Specific Condition No. 11 to reflect recording of data in a quarterly basis instead of a weekly basis. In addition, they also requested to delete Specific Conditions No. 14 and 17 since the Solid Waste Authority is currently preparing the Title V permit application for their waste to energy facility. The Title V permit application will include the emissions from the landfills gas system flares.

The Department considered their requests and agree to the changes as proposed except for the increase of VOC emissions to 97.2 lb/hr. The proposed LFG collection system will be installed to destroy the quantities of nonmethane organic compounds (NMOCs) by 98% by weight. Specific Condition No. 7 will change the sulfur content of the input gases to 0.65 lb per hour. Specific Condition No. 11 will reflect the recording of data on a quarterly basis instead of a weekly basis. Specific Condition No. 14 and 17 will be deleted. The permit specific conditions will be renumbered accordingly.

The final action of the Department is to issue the permit amendment as noted during the public notice period except for the changes discussed above.



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
February 20, 1996

Virginia B. Wetherell
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David B. Lowe
Solid Waste Authority of
Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412

Dear Mr. Lowe:

Re: North County Resource Recovery Facility (NCRRF)
PSD-FL-108(B), Solid Waste Authority of Palm Beach County

The Department received your request of August 11, 1995, and supporting information to install a landfill collection system to control emissions from the Class I and Class III landfills at the North County Resource Recovery Facility (NCRRF). This request will require adding new specific conditions to the above referenced PSD permit. This permit is amended as follows:

NEW SPECIFIC CONDITIONS:

1. This source shall be allowed to operate continuously (i.e., 8760 hours/year).
2. The utility flare system shall be designed, manufactured, and operated according to U.S. Environmental Protection Agency criteria as specified in 40 CFR 60.18, in order to ensure high efficiency combustion of landfill gas at the 98% level of destruction of total hydrocarbons, with a flame temperature of at or above 1400°F.
3. There shall be no visible emissions from any individual flare, except for periods not to exceed a total of five minutes during any two consecutive hours at which visible emissions can be up to 20 percent opacity.
4. For inventory purposes, the pollutant emission rates from each of the flare systems are:

EMISSION RATE

<u>Pollutant</u>	<u>Emission Factors</u>	<u>Pounds/Hour</u>	<u>Tons/Year</u>
NOx	0.07 lb/million Btu	1.67	7.33
VOC	36 lb/million ft ³	1.94	8.51
SO ₂	0.002 lb/scf	1.67	1.33
PM ₁₀	1.69 E-05 lb/scf	0.91	3.99
CO	0.37 lb/million Btu	9.10	39.87

5. This source shall meet the applicable requirements of 40 CFR Subpart WWW, NSPS for Municipal Solid Waste Landfills upon adoption by the Florida Department of Environmental Protection; 40 CFR 60.18, General Control Device Requirements; Chapters 62-209 through 297 and 62-4, F.A.C.
6. Compliance with the visible emissions standard shall be determined using EPA Method 22 and shall be for the duration of 2 hours. Such tests shall be conducted within 60 days of completion of construction and initial startup operation, and annually thereafter. The required visible emissions test report shall also contain the gas flow rate from the extraction wells and the flare temperature data.
7. Sulfur content of the input gas to any flare shall not exceed 0.65 pounds per hour.

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Mr. David B. Lowe
Page Two
February 20, 1996

8. An analysis shall be performed to determine the sulfur content of input gas to the flare, by the American Society for Testing and Materials (ASTM) test method, D 1072-90, prior to any flare startup. Additional tests shall be performed on a yearly basis, and results included as part of the facility's annual operating report.

9. Pursuant to Rule 62-296.320(2), F.A.C., Objectionable Odors caused by these sources are prohibited.

10. Total volumetric flow to any flare in the system shall be limited to 900 scfm. Total volumetric flow to the aggregate of the two flares shall be limited to 1800 scfm.

11. Proper devices shall be installed at all wellheads, and at the flare station for 1) gas flow volume and gas pressure measurements, 2) gas composition analysis, 3) gas temperature and flame temperature recording, and 4) flow control, prior to the collection and disposal of the active landfill gases. Such devices shall be properly calibrated and maintained at all times, according to manufacturers' written instructions. The checking and recording of the gas flow, temperature, and pressure, shall be performed on a quarterly basis for all wells and on a monthly basis for the flare station.

The permittee shall keep a hard copy of the gas extraction monitoring and analysis data, as well as instrumentation history records, on site at all times. The data shall be summarized and included as part of the facility's annual operating report. These sources shall comply with recording and recordkeeping requirements specified in 40 CFR 60 Subpart WWW, NSPS for Municipal Solid Waste Landfills.

12. The net heating value of the input gas shall be 200 Btu/scf or greater. Compliance with this parameter shall be determined by methodology specified in paragraph f of 40 CFR 60.18. Samples shall be taken, and results reported annually.

13. Actual exit velocity of each flare shall be calculated and reported on an annual basis, using methods specified in paragraph f of 40 CFR 60.18.

14. The Southeast District office shall be given at least 15 days written notice prior to compliance testing.

15. Prior to placing the flare in service, the pilot gas for the flare shall be fired by propane at 25 scfh (standard cubic feet per hour). The pilot light is not required when the flame is sustained by the landfill gas alone.

A copy of this letter shall be filed with the PSD-FL-108, and shall become a part of the permit.

Sincerely,



Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/th/t

cc: J. Kahn, SED
J. Bunyak, NPS
A. Makied, P.E.
J. Harper, EPA
H. Oven, PPS
J. Koerner, PBCHU

Attachments available upon request:

Application to construct/modify the NCRRF facility submitted on August 11, 1995.

Additional correspondence submitted on October 30, November 3 and December 4, 1995.

Florida Department of
Environmental Protection

Memorandum

al

TO: Howard L. Rhodes

THROUGH: Clair Fancy *CAF*

FROM: A. A. Linero *aa* 2/14
Teresa Heron *TH*

DATE: February 14, 1996

SUBJECT: Modification of Permit PSD-FL-108(B)
Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility (NCRRF)

Attached is a letter modifying a construction permit for this facility. The modification consists of the installation of a landfill gas collection system to control VOC's and odorous emissions from the Class I and Class II landfills at the NCRRF.

Two flares will be installed in accordance with the proposed New Source Performance Standards for landfills (40 CFR 60 Subpart WWW). The two flares are identical units. The landfill gas collection systems are similar in concept. The potential emissions of combustion products from each emission unit are less than the PSD significant level.

I recommend your approval and signature.

TH/kt

Attachments

Solid Waste Authority P.1/2

CDM Camp Dresser & McKee

File

FACSIMILE

1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406
407-689-3336
407-689-9713 Fax

Date: Feb 7, 96

Please deliver to:

To: Ms. Teresa Heron, FDEP/Tallahassee

Firm: FDEP/Tallahassee

Fax No.: 904-922-6979

From: Alex Makled

Job No.: 2678-08/Solid Waste Authority of Palm
Beach County

Total No. of Pages: 2 (Including this one)

Summary: Teresa,

As discussed this morning, this
is the Proof of Publication that
was published on Jan 19, 1996
in the Palm Beach Post.

If for any reason, you have trouble during receipt of this transmission
please contact the sender at the number listed above. Thank You.

THE PALM BEACH POST

Published Daily and Sunday
West Palm Beach, Palm Beach County, Florida

PROOF OF PUBLICATION

STATE OF FLORIDA
COUNTY OF PALM BEACH

Before the undersigned authority personally appeared Jody Dunowitz
who on oath says that she/he is Class Adv Mgr of The Palm Beach Post,
a daily and Sunday newspaper published at West Palm Beach in Palm Beach County,
Florida; that the attached copy of advertising, being a Notice
in the matter of Intent to Issue Permit
in the _____ Court, was published in said newspaper in
the issues of January 19, 1996

Affiant further says that the said The Post is a newspaper published at West Palm Beach,
in said Palm Beach County, Florida, and that the said newspaper has heretofore been
continuously published in said Palm Beach County, Florida, daily and Sunday and has been
entered as second class mail matter at the post office in West Palm Beach, in said Palm Beach
County, Florida, for a period of one year next preceding the first publication of the attached
copy of advertisement; and affiant further says that she/he has neither paid nor promised
any person, firm or corporation any discount, rebate, commission or refund for the purpose
of securing this advertisement for publication in the said newspaper.

Jody Dunowitz

Sworn to and subscribed before me this 19 day of January A.D. 19 96

OFFICIAL NOTARY SEAL
KAREN M. MCLINTON
NOTARY PUBLIC STATE OF FLORIDA
COMMISSION NO. CC240480
MY COMMISSION EXP. NOV. 15, 1996

Karen M. McLinton
Karen M. McLinton, Notary Public

Personally known XX or Produced Identification _____

Type of Identification Produced _____

NO. 186837
STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION
NOTICE OF
INTENT TO ISSUE PERMIT
AMENDMENT
PSC-FL-108(8)

The Department of Environmental Protection gives notice of its intent to issue a permit amendment to the Solid Waste Authority of Palm Beach County to incorporate permit changes to reflect the installation of a landfill gas collection system to control emissions from the Class I and Class II landfills at the North County Resource Recovery Facility (NCRRF). This facility is located at 7501 North Jog Road, West Palm Beach, Palm Beach County, Florida.

The landfills associated with the NCRRF consist of a 174-acre Class I landfill of double liner technology with a leachate collection system and a 152 acre Class II landfill of single liner technology with a leachate collection system, Landfilling (Class I and Class II) at the site began in 1989 upon closing of the Dyer Row, toward Landfill, northeast of this site. Construction of the 32-acre landfill is to be phased over the life of the facility with site closure estimated for 2017 based on the Landfill Airspace Depletion Model. The installation of landfill gas collection system and flare, will reduce the emissions of volatile organic compounds and control odors. The project will emit less than significant amounts of nitrogen oxides, volatile organic compounds, sulfur dioxide, particulate matter and carbon monoxide and will not result in the increase of ground level concentrations of these pollutants.

This permit amendment is issued pursuant to Section 403, Florida Statutes.

Any person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32309-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person

NO. 185837
STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION
NOTICE OF
INTENT TO ISSUE PERMIT
AMENDMENT
PSD-FL-108(5)

The Department of Environmental Protection gives notice of its intent to issue a permit amendment to the Solid Waste Authority of Palm Beach County to incorporate permit changes to reflect the installation of a landfill gas collection system to control emissions from the Class I and Class III landfills at the North County Resources Recovery Facility (NCRRF). This facility is located at 7501 North Jog Road, West Palm Beach, Palm Beach County, Florida.

The landfills associated with the NCRRF consist of a 174-acre Class I landfill of double-lineer collection system with a leachate collection system and a 152-acre Class III landfill of single-lineer technology with a leachate collection system. Landfilling (Class I and Class III) at the site began in 1988 upon closing of the Dyer Boulevard Landfill, northeast of this site. Construction of the 327-acre landfill is to be phased over the life of the facility with site closure estimated for 2017 based on the Landfill Airspace Depletion Model. The installation of landfill gas collection system and flares will reduce the emissions of volatile organic compounds and control odors. The project will emit less than significant amounts of nitrogen oxides, volatile organic compounds, sulfur dioxide, particulate matter and carbon monoxide and will not result in the increase of ground level concentrations of these pollutants.

This permit amendment is issued pursuant to Section 403, Florida Statutes.

Any person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petitioner must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information; (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or

proposed action. If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to the proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C. The application is available for public inspection during normal business hours, 8:00 am to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection, Bureau of Air Regulation, 111 S. Mangola Drive, Suite 4, Tallahassee, Florida 32301

Department of Environmental Protection, 1900 South Congress Avenue, Air A, West Palm Beach, FL 33406

Division of Environmental Science, Palm Beach County Health Unit, 901 Evernia, West Palm Beach, Florida 33402-0029

Any person may send written comments on the proposed action to Administrative Law Source Review Section, of the Department of Environmental Protection, Bureau of Air Regulation, Mail Station 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination. Further, a public hearing can be requested by any person(s). Such requests must be submitted within 30 days of this notice.
PUB: The Palm Beach Post
January 19, 1996



Camp Dresser & McKee Inc.

environmental
services

1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406
Tel: 407 689-3336 Fax: 407 689-9713

RECEIVED

JAN 22 1996

BUREAU OF
AIR REGULATION

January 19, 1996

AIRBORNE EXPRESS

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: PSD-FL-108(B)
Application to Construct/Operate Landfill Gas
Management System for Class I and Class III Landfills
North County Resource Recovery Facility
Solid Waste Authority of Palm Beach County

Dear Mr. Fancy:

Transmitted herewith is the proof of publication of the Notice of Intent to Issue the Permit for the referenced project. This notice of intent was published in the legal section of the Palm Beach Post as requested in the Department's letter dated December 19, 1995 to Mr. David B. Lowe of the Solid Waste Authority of Palm Beach County.

If you should have any questions, please call me.

Very truly yours,

CAMP DRESSER & McKEE INC.

Alex H. Makled, P.E.

AHM/mjm
Enclosure

File: 2678-08-PM[1]

cc: John Booth, P.E.
David Low, P.E.

mm0890

CC: SED
EPA
NPS
B. Owen, PPS
T. Heron, BAR
J. Koerner, PBE

CDM Camp Dresser & McKee

FACSIMILE

1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406
407-689-3336
407-689-9713 Fax

Date: Jan 16, 1996

Please deliver to:

To: Ms. Teresa Heron, FDEP / Tallahassee

Firm: FDEP / Tallahassee

Fax No.: 904 - 922 6979

From: Alex Makled

Job No.: 2678-08 / Solid Waste Authority
of Palm Beach County

Total No. of Pages: 4 (Including this one)

Summary:

Teresa, please review and incorporate
our comments on the draft permit
into the final permit. If there
are any questions on any of our
comments, please call me.

If for any reason, you have trouble during receipt of this transmission
please contact the sender at the number listed above. Thank You.

DRAFT

December xx, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David B. Lowe
Solid Waste Authority of
Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412

Dear Mr. Lowe:

Re: North County Resource Recovery Facility (NCRRF)
PSD-FL-108(B), Solid Waste Authority of Palm Beach County

The Department received your request of August 11, 1995, and supporting information to install a landfill collection system to control emissions from the Class I and Class III landfills at the North County Resource Recovery Facility (NCRRF). This request will require adding new specific conditions to the above referenced PSD permit. This permit is amended as follows:

NEW SPECIFIC CONDITIONS:

1. This source shall be allowed to operate continuously (i.e., 8760 hours/year).
2. The utility flare system shall be designed, manufactured, and operated according to U.S. Environmental Protection Agency criteria as specified in 40 CFR 60.18, guaranteeing high efficiency combustion of landfill gas at the 98% level of destruction of total hydrocarbons, with a flame temperature of at or above 1400°F.
3. There shall be no visible emissions from any individual flare, except for periods not to exceed a total of five minutes during any two consecutive hours.
4. For inventory purposes, the pollutant emission rates from the flare system^s are:

o.k. ✓

^

↑
each of

DRAFT

Mr. David B. Lowe
Page Two
December XX, 1995

EMISSION RATE

<u>Pollutant</u>	<u>Emission Factors</u>	<u>Pounds/Hour</u>	<u>Tons/Year</u>
NO _x	0.07 LB/MMBTU	1.67	7.33
VOC	36 LBS/MMF ³	1.94 <i>9/12 lb/hour</i>	8.51
SO ₂	0.002 LB/HR/DSCFM	1.67	1.33
PM ₁₀	1.69 E-05 LBS/SCF	0.91	3.99
CO	0.37 LB/MMBTU	9.10	39.87

no change

5. This source shall meet the applicable requirements of 40 CFR Subpart WWW, NSPS for Municipal Solid Waste Landfills; 40 CFR 60.18, General Control Device Requirements; Chapters 62-209 through 297 and 62-4, F.A.C.

6. Compliance with the visible emissions standard shall be determined using EPA Method 22 and shall be for the duration of 2 hours. Such tests shall be conducted within 60 days of completion of construction and initial startup operation, and annually thereafter. The required visible emissions test report shall also contain the extraction wells gas flow rate and the flare temperature data.

7. Sulfur content of the input gas to any flare shall not exceed 0.045 pounds per hour. *0.065*

8. An analysis shall be performed to determine the sulfur content of input gas to the flare, by the American Society for Testing and Materials (ASTM) test method, D 1072-90, prior to any flare startup. Additional tests shall be performed on a yearly basis, and results included as part of the facility's annual operating report.

9. Pursuant to Rule 62-296.320(2), F.A.C., Objectionable Odors caused by these sources are prohibited.

10. Total volumetric flow to any flare in the system shall be limited to 900 scfm. Total volumetric flow to the aggregate of the two flares shall be limited to 1800 scfm.

11. Proper devices shall be installed at all wellheads, and at the flare station for 1) gas flow volume and gas pressure measurements, 2) gas composition analysis, 3) gas temperature and flame temperature recording, and 4) flow control, prior to the collection and disposal of the active landfill gases. Such devices shall be properly calibrated and maintained at all times, according to manufacturers' written instructions.

Just Change #

0.65

Mr. David B. Lowe
Page Three
December XX, 1995

Handwritten scribbles

The checking and recording of the gas flow, temperature, pressure, and composition, ~~and flame temperature~~, shall be performed on a weekly basis for all wells and the flare station.

The permittee shall keep a hard copy of the weekly gas extraction monitoring and analysis data, as well as instrumentation history records, on site at all times. The weekly data shall be summarized and included as part of the facility's annual operating report.

12. The net heating value of the input gas shall be 200 Btu/scf or greater. Compliance with this parameter shall be determined by methodology specified in paragraph f of 40 CFR 60.18. Samples shall be taken, and results reported annually.

13. Actual exit velocity of each flare shall be calculated and reported on an annual basis, using methods specified in paragraph f of 40 CFR 60.18.

14. An operation and maintenance plan shall be submitted to the Department's Southeast District office prior to applying for an operating permit. *(Please delete this condition - see note below)*

15. The Southeast District office shall be given at least 15 days written notice prior to compliance testing.

16. Prior to placing the flare in service, the pilot gas for the flare shall be fired by propane at 25 scfh (standard cubic feet per hour), with a maximum heat input rate of .06 MMBtu/hour. The pilot light is not required when the flame is sustained by the landfill gas alone.

17. An application for an operation permit shall be submitted to the Department in accordance with Rule 62-213.420, Permit Applications. *(Please delete this condition - see note below)*

The application we submitted was for a "Construct/operate" permit and it included a Flare Maintenance schedule in Appendix I. Additionally, as stated in the application's cover letter, the Solid Waste Authority is currently preparing the Title V permit application (40 CFR Part 70) for their waste to energy facility. The Title V permit application will include the emission from the landfills' gas system flares.

Change quality

on a monthly basis for

and

specified in 40 CFR 60 Subpart WWV, NSDS for Municipal Solid Waste Landfills.

12

13

15

16

17

(919) 541-2421

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
INTENT TO ISSUE

In the matter of an
Application for Permit Amendment by:

DEP File No. PSD-FL-108(B)
Palm Beach Co.

Mr. David B. Lowe
Solid Waste Authority of Palm Beach Co.
7501 North Jog Road
West Palm Beach, Florida 33412

The Department of Environmental Protection hereby gives notice of its intent to issue a permit amendment for a modification (copy attached) for the proposed project as detailed in the application/request specified above, for the reasons stated in the application/request.

The applicant, Solid Waste Authority of Palm Beach County applied on August 11, 1995, to the Department of Environmental Protection for a permit amendment for a modification to the North County Resource Recovery facility permit to reflect the installation of a landfill gas collection system to control emissions from the Class I and Class III landfills. The facility is located in Palm Beach County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.). The project is not exempt from permitting procedures. The Department has determined that a construction permit is required for the proposed project.

Pursuant to Section 403.815, F.S., and DEP Rule 62-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information;

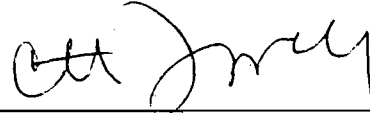
- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and,
- (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this intent in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this

proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Tallahassee, Florida.

**STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION**



C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **PERMIT AMENDMENT** and all copies were mailed by certified mail before the close of business on 12-22-95 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kuni Oakes 12-22-95
Clerk Date

Copies furnished to:

- J. Kahn, SED
- J. Harper, EPA
- J. Bunyak, NPS
- H. Oven, PPS
- A. Makled, P.E.
- J. Koerner, PBCHU

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1. Addressee's Address
- 2. Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
 David B. Lowe
 Solid Waste Authority
 of Palm Bch Co.
 7501 N. Jog Rd
 West Palm Bch, FL 33412

4a. Article Number
 2 127 633 227

4b. Service Type
 Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise

7. Date of Delivery
 12/28/95

5. Signature (Addressee)
 [Signature]

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)
 [Signature]

Thank you for using Return Receipt Service.

2 127 633 227



Receipt for Certified Mail

No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

Sent to David B. Lowe	
Street and No. Solid Waste Authority	
P.O., State and ZIP Code of Palm Bch	
Postage West Palm Bch, FL	
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	12-28-95
PSD-FI-108(B)	

PS Form 3800, March 1993

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT

PSD-FL-108(B)

The Department of Environmental Protection gives notice of its intent to issue a permit amendment to the Solid Waste Authority of Palm Beach County to incorporate permit changes to reflect the installation of a landfill gas collection system to control emissions from the Class I and Class III landfills at the North County Resource Recovery Facility (NCRRF). This facility is located at 7501 North Jog Road, West Palm Beach, Palm Beach County, Florida.

The landfills associated with the NCRRF consist of a 174 acre Class I landfill of double-liner technology with a leachate collection system and a 153 acres Class III landfill of single-liner technology with a leachate collection system. Landfilling (Class I and Class III) at the site began in 1989 upon closing of the Dyer Boulevard Landfill, northeast of this site. Construction of the 327-acre landfill is to be phased over the life of the facility with site closure estimated for 2017 based on the Landfill Airspace Depletion Model. The installation of landfill gas collection systems and flares will reduce the emissions of volatile organic compounds and control odors. The project will emit less than significant amounts of nitrogen oxides, volatile organic compounds, sulfur dioxide, particulate matter and carbon monoxide and will not result in the increase in ground level concentrations of these pollutants.

This permit amendment is issued pursuant to Section 403, Florida Statutes.

Any person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information; (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and, (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

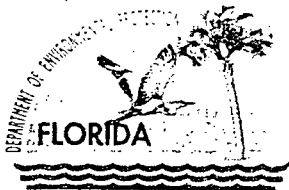
Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
1900 South Congress Avenue, Suite A
West Palm Beach, Florida 33406

Division of Environmental Science
Palm Beach County Health Unit
901 Evernia
West Palm Beach, Florida 33402-0029

Any person may send written comments on the proposed action to Administrator, New Source Review Section, at the Department of Environmental Protection, Bureau of Air Regulation, Mail Station 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person(s). Such requests must be submitted within 30 days of this notice.



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

December 19, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David B. Lowe
Solid Waste Authority of
Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412

Dear Mr. Lowe:

Enclosed is a proposed amendment letter and Public Notice for modifications to the North County Resource Facility located in Palm Beach County, Florida. You are required to do a public notice for this modification. All comments during the public notice period should be addressed to New Source Review Administrator at the Department's Tallahassee address.

If there are additional questions on the above, please call Teresa Heron at (904)488-1344.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/th/t

enclosures

cc: J. Kahn, SED
J. Harper, EPA
J. Bunyak, NPS
H. Oven, PPS
A. Makled, P.E.
J. Koerner, PBCHU

Florida Department of
Environmental Protection

Memorandum

TO: Clair Fancy
FROM: A. A. Linero
DATE: December 19, 1995
SUBJECT: Modification of Permit PSD-FL-108(B)
Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility (NCRRF)

Attached is a letter modifying a construction permit for this facility. The modification consists of the installation of a landfill gas collection system to control pollutants and odorous emissions from the Class I and Class II landfills at the NCRRF.

Two flares will be installed in accordance with the proposed New Source Performance Standards for landfills (40 CFR 60 Subpart WWW). The two flares are identical units. The landfill gas collection systems are similar in concept. The potential emissions from each emission unit are less than the PSD significant level.

I recommend your approval and signature.

TH/kt

Attachments

DRAFT

Mr. David B. Lowe
Page Three
December XX, 1995

The checking and recording of the gas flow, temperature, pressure, and composition, and flame temperature, shall be performed on a weekly basis for all wells and the flare station.

The permittee shall keep a hard copy of the weekly gas extraction monitoring and analysis data, as well as instrumentation history records, on site at all times. The weekly data shall be summarized and included as part of the facility's annual operating report.

12. The net heating value of the input gas shall be 200 Btu/scf or greater. Compliance with this parameter shall be determined by methodology specified in paragraph f of 40 CFR 60.18. Samples shall be taken, and results reported annually.

13. Actual exit velocity of each flare shall be calculated and reported on an annual basis, using methods specified in paragraph f of 40 CFR 60.18.

14. An operation and maintenance plan shall be submitted to the Department's Southeast District office prior to applying for an operating permit.

15. The Southeast District office shall be given at least 15 days written notice prior to compliance testing.

16. Prior to placing the flare in service, the pilot gas for the flare shall be fired by propane at 25 scfh (standard cubic feet per hour), with a maximum heat input rate of .06 MMBtu/hour. The pilot light is not required when the flame is sustained by the landfill gas alone.

17. An application for an operation permit shall be submitted to the Department in accordance with Rule 62-213.420, Permit Applications.

David B. Lowe
Page Four
December XX, 1995

DRAFT

A copy of this letter shall be filed with the PSD-FL-108, and shall become a part of the permit.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/th/t

cc: J. Kahn, SED
J. Harper, EPA
J. Bunyak, NPS
H. Oven, PPS
A. Makled, P.E.
J. Koerner, PBCHU

Attachments available upon request:

Application to construct/modify the NCRRF facility
submitted on August 11, 1995

Additional correspondence submitted on October 30, November 3 and
December 4.

DRAFT

December xx, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David B. Lowe
Solid Waste Authority of
Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33412

Dear Mr. Lowe:

Re: North County Resource Recovery Facility (NCRRF)
PSD-FL-108(B), Solid Waste Authority of Palm Beach County

The Department received your request of August 11, 1995, and supporting information to install a landfill collection system to control emissions from the Class I and Class III landfills at the North County Resource Recovery Facility (NCRRF). This request will require adding new specific conditions to the above referenced PSD permit. This permit is amended as follows:

NEW SPECIFIC CONDITIONS:

1. This source shall be allowed to operate continuously (i.e., 8760 hours/year).
2. The utility flare system shall be designed, manufactured, and operated according to U.S. Environmental Protection Agency criteria as specified in 40 CFR 60.18, guaranteeing high efficiency combustion of landfill gas at the 98% level of destruction of total hydrocarbons, with a flame temperature of at or above 1400°F.
3. There shall be no visible emissions from any individual flare, except for periods not to exceed a total of five minutes during any two consecutive hours.
4. For inventory purposes, the pollutant emission rates from the flare system are:

DRAFT

Mr. David B. Lowe
Page Two
December XX, 1995

EMISSION RATE

<u>Pollutant</u>	<u>Emission Factors</u>	<u>Pounds/Hour</u>	<u>Tons/Year</u>
NO _x	0.07 LB/MMBTU	1.67	7.33
VOC	36 LBS/MMF ³	1.94	8.51
SO ₂	0.002 LB/HR/DSCFM	1.67	1.33
PM ₁₀	1.69 E-05 LBS/SCF	0.91	3.99
CO	0.37 LB/MMBTU	9.10	39.87

5. This source shall meet the applicable requirements of 40 CFR Subpart WWW, NSPS for Municipal Solid Waste Landfills; 40 CFR 60.18, General Control Device Requirements; Chapters 62-209 through 297 and 62-4, F.A.C.

6. Compliance with the visible emissions standard shall be determined using EPA Method 22 and shall be for the duration of 2 hours. Such tests shall be conducted within 60 days of completion of construction and initial startup operation, and annually thereafter. The required visible emissions test report shall also contain the extraction wells gas flow rate and the flare temperature data.

7. Sulfur content of the input gas to any flare shall not exceed 0.045 pounds per hour.

8. An analysis shall be performed to determine the sulfur content of input gas to the flare, by the American Society for Testing and Materials (ASTM) test method, D 1072-90, prior to any flare startup. Additional tests shall be performed on a yearly basis, and results included as part of the facility's annual operating report.

9. Pursuant to Rule 62-296.320(2), F.A.C., Objectionable Odors caused by these sources are prohibited.

10. Total volumetric flow to any flare in the system shall be limited to 900 scfm. Total volumetric flow to the aggregate of the two flares shall be limited to 1800 scfm.

11. Proper devices shall be installed at all wellheads, and at the flare station for 1) gas flow volume and gas pressure measurements, 2) gas composition analysis, 3) gas temperature and flame temperature recording, and 4) flow control, prior to the collection and disposal of the active landfill gases. Such devices shall be properly calibrated and maintained at all times, according to manufacturers' written instructions.



Camp Dresser & McKee Inc.

environmental
services

1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406
Tel: 407 689-3336 Fax: 407 689-9713

November 30, 1995

FEDERAL EXPRESS

Ms. Teresa Heron
Power Plant Siting Section
Florida Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Subject: Power Plant Site Certification PA 84-20
Application to Construct/Operate Landfill Gas
Management System for Class I and Class III Landfills
North County Resource Recovery Facility
Solid Waste Authority of Palm Beach County

Dear Ms. Heron:

Reference is made to your facsimile dated October 16, 1995 regarding the above referenced project. Below is our written response to each of the Department's technical staff comments listed in your letter and repeated below in bold.

Comment No. 1: What will be the total number of wells at both landfills?

This project which is considered Phase I of the entire landfill (both Class I and Class III landfills) gas management system includes:

- 16 wells for Class I landfill
- 98 gas extraction trenches and 60 gas extraction risers for the Class III landfill

The exact number of wells for the future phases of the project will be determined as part of designing the LFG system for the future cells of the landfill.

Comment No. 2: How will the gas flow to the flare and flare flame operating temperature be monitored? Please provide the proposed make and model of the measurement device. Appendix H Will measurements be automatically recorded? What is the maximum/ average gas flow per well? What is the total volumetric gas flow to the flare (SCFM)?

Flare flame operations will be monitored through the use of installed thermocouples. A strip chart recorder will be installed to continuously record critical operating data (see information attached).

RECEIVED
NOV 30 1995
BUREAU OF
AIR REGULATION

Ms. Teresa Heron
November 30, 1995
Page 2

Also, gas flow calculations for the Class I wells and for the Class III trenches/risers are transmitted herewith. Additionally, as indicated in the original permit application, the maximum throughput rate for each of the proposed two flares is 900 scfm.

Comment No. 3: Appendix B drawings were not included with the application.

A copy of Appendix B drawings is transmitted herewith. Please note that six complete signed and sealed sets of same were submitted with the original application.

Comment No. 4: Provide legible copies of drawings included in Appendix C. Show wells, gas collection system, and flare.

An additional copy of Appendix C drawings is transmitted herewith.

Comment No. 5: What is the net heating value of the gas being combusted (Btu/ scf)?

The net heating value of the landfill gas can vary from a minimum of 300 Btu/cu ft. to a maximum of 600 Btu/cu ft. A heating value of 450 - 550 Btu/cu ft. is anticipated.

Comment No. 6: What is the exit velocity (ft/ sec) of the flare?

An exit Velocity of < 60 ft/sec. is anticipated.

Comment No. 7: What fuel is used for the pilot light and how is its flame monitored?

Propane is used as the fuel for the pilot light. The pilot flame will be monitored through the use of an installed thermocoupler. The thermocoupler will verify that the pilot light has lighted before the main flame ignition is initiated. Once the main flame thermocoupler verifies that the main flame has ignited, the pilot will shut down.

Comment No. 8: What is the maximum/ average sulfur content of the input gas to the flare?

The sulfur content of the input gas to the flare should not exceed .045 pounds per hour.

As requested, we have also enclosed a copy of permit number PSD-FL-108A for the North County Resource Recovery Facility issued by FDEP on January 14, 1992.

Ms. Teresa Heron
November 30, 1995
Page 3

We trust that this submittal satisfies your request for clarification of the information provided in the permit application. If you have any questions or require further clarification, please do not hesitate to contact this office.

Very truly yours,

CAMP-DRESSER & McKEE INC.



Alex H. Makled, P.E.

File: 2678-08-RT[1]

cc: Halmilton S. Oven, P.E., FDEP/Tallahassee, w/o enclosures
David Lowe, P.E., Solid Waste Authority, w/o enclosures
Marc Bruner, Ph.D., Solid Waste Authority, w/o enclosures
John Booth, P.E., Solid Waste Authority, w/o enclosures

mm0829

GAS FLOW CALCULATIONS
 LANDFILL GAS RECOVERY SYSTEM
 NCRRF CLASS I LANDFILL
 SOLID WASTE AUTHORITY OF PALM BEACH COUNTY

DENSITY OF REFUSE: 1200.00 lb/cy
 GAS GENERATION RATE: 0.0350 cf/lb-yr
 PIPE DESIGN 1.2*GGR: 0.042 cf/lb-yr
 RECOVERY DESIGN 0.8*GGR: 0.028 cf/lb-yr
 ROI Factor: 4.30
 ROI Correction Factor: 1.13 0.00

WELL NO.	COORDINATES NORTHING EASTING	EXISTING GRADE (MSL)	LF BASE GRADE (MSL)	WELL ROI (FT)	REFUSE BORING DEPTH (FT)	PIPE DESIGN FLOWS (CFM)
W01	883571 780832	66.55	24.00	125	39.55	7.8
W02	883437 780997	64.35	23.35	125	38.00	7.5
W03	883432 781249	68.92	23.37	125	42.55	8.3
W04	883425 781498	69.00	23.14	125	42.86	8.4
W05	883418 781750	68.31	23.20	125	42.11	8.3
W06	883434 781999	69.32	23.37	125	42.95	8.4
W07	883571 782010	69.82	24.80	125	42.02	8.2
W08	883906 782017	67.95	22.99	125	41.96	8.2
W09	883674 781843	81.88	24.60	125	54.28	10.7
W10	883639 781630	74.36	24.18	125	47.18	9.3
W11	883644 781380	72.25	24.56	125	44.69	8.8
W12	883649 781127	70.02	24.50	125	42.52	8.3
W13	883868 781022	64.48	24.15	125	37.33	7.3
W14	883871 781275	71.94	25.43	125	43.51	8.5
W15	883869 781524	70.57	25.82	125	41.75	8.2
W16	883936 781767	65.61	24.17	125	41.44	8.1
RW1						9.3
DL1						14.2
RW2						4.9
RW3						7.6
DL2						4.8
DL3						4.2
RW4						4.8
DL4						10.6
RW5						4.7

Total 684.69

SUM OF GAS WELL VOLUMES 199.3

7-27-12

GAS VOLUME CALCULATIONS
 LANDFILL GAS RECOVERY SYSTEM
 NCRRF CLASS III LANDFILL
 SOLID WASTE AUTHORITY OF PALM BEACH COUNTY

REFUSE DENSITY (L 1200 (LBS/CU YD)
 GAS GEN RATE 0.1 (CU FT/LB/YR)

TRENCH	TRENCH LENGTH	PHASE A		PHASE A & B			PHASE A, B & C		
		%	GAS VOLUME	TRENCH LENGTH	%	GAS VOLUME	TRENCH LENGTH	%	GAS VOLUME
CELL III-3				62.8					
T1	713	0.222	13.9	356.5	0.111	7.0	237.7	0.074	4.6
T2	813	0.253	15.9	406.5	0.127	7.9	271.0	0.084	5.3
T3	843	0.263	16.5	421.5	0.131	8.2	281.0	0.088	5.5
T4	842	0.262	16.5	421	0.131	8.2	280.7	0.087	5.5
L40				356.5	0.111	7.0	237.7	0.074	4.6
L41				406.5	0.127	7.9	271.0	0.084	5.3
L42				421.5	0.131	8.2	281.0	0.088	5.5
L43				421	0.131	8.2	280.7	0.087	5.5
T80							237.7	0.074	4.6
T81							271.0	0.084	5.3
T82							281.0	0.088	5.5
T83							280.7	0.087	5.5
CELL III-2				84.9					
T5	842	0.201	17.1	421	0.100	8.5	280.7	0.067	5.7
T6	840	0.200	17.0	420	0.100	8.5	280.0	0.067	5.7
T7	838	0.200	17.0	419	0.100	8.5	279.3	0.067	5.7
T8	836	0.200	16.9	418	0.100	8.5	278.7	0.067	5.6
T9	834	0.199	16.9	417	0.100	8.5	278.0	0.066	5.6
L44				421	0.100	8.5	280.7	0.067	5.7
L45				420	0.100	8.5	280.0	0.067	5.7
L46				419	0.100	8.5	279.3	0.067	5.7
L47				418	0.100	8.5	278.7	0.067	5.6
L48				417	0.100	8.5	278.0	0.066	5.6
T84							280.7	0.067	5.7
T85							280.0	0.067	5.7
T86							279.3	0.067	5.7
T87							278.7	0.067	5.6
T88							278.0	0.066	5.6
				414.5	0.100	11.4	276.3	0.067	7.6
				413.5	0.100	11.4	275.7	0.067	7.6
				412.5	0.100	11.3	275.0	0.067	7.6
				411.5	0.100	11.3	274.3	0.067	7.5
				410.5	0.100	11.3	273.7	0.066	7.5
L49				414.5	0.100	11.4	276.3	0.067	7.6
L50				413.5	0.100	11.4	275.7	0.067	7.6
L51				412.5	0.100	11.3	275.0	0.067	7.6
L52				411.5	0.100	11.3	274.3	0.067	7.5
L53				410.5	0.100	11.3	273.7	0.066	7.5
T89							276.3	0.067	7.6
T90							275.7	0.067	7.6
T91							275.0	0.067	7.6
T92							274.3	0.067	7.5
T93							273.7	0.066	7.5

GAS VOLUME CALCULATIONS
 LANDFILL GAS RECOVERY SYSTEM
 NCRRF CLASS III LANDFILL
 SOLID WASTE AUTHORITY OF PALM BEACH COUNTY

REFUSE DENSITY (L 1200 (LBS/CU YD)
 GAS GEN RATE 0.1 (CU FT/LB/YR)

TRENCH	PHASE A		PHASE A & B			PHASE A, B & C		
	TRENCH LENGTH	% VOLUME	TRENCH LENGTH	% VOLUME	GAS VOLUME	TRENCH LENGTH	% VOLUME	GAS VOLUME
			409	0.125	11.7	272.7	0.084	7.8
			408	0.125	11.7	272.0	0.083	7.8
			407.5	0.125	11.7	271.7	0.083	7.8
			406.5	0.125	11.6	271.0	0.083	7.8
L54			409	0.125	11.7	272.7	0.084	7.8
L55			408	0.125	11.7	272.0	0.083	7.8
L56			407.5	0.125	11.7	271.7	0.083	7.8
L57			406.5	0.125	11.6	271.0	0.083	7.8
T94						272.7	0.084	7.8
T95						272.0	0.083	7.8
T96						271.7	0.083	7.8
T97						271.0	0.083	7.8
			318	0.143	8.7	212.0	0.095	5.8
			383.5	0.173	10.5	255.7	0.115	7.0
			408.5	0.184	11.2	272.3	0.123	7.5
L58			318	0.143	8.7	212.0	0.095	5.8
L59			383.5	0.173	10.5	255.7	0.115	7.0
L60			408.5	0.184	11.2	272.3	0.123	7.5
T98						212.0	0.095	5.8
T99						255.7	0.115	7.0
T100						272.3	0.123	7.5
Total Gas Volume, CFM			415.41		415.41			415.41

TO: Buck Oven
FROM: Teresa Heron
THROUGH: Clair Fancy
Al Linero
SUBJECT: Solid Waste Authority of Palm Beach County
Landfill Flares
DATE: October 5, 1995

These are some questions regarding this project:

1. What will be the total number of wells at both landfills? 16 per class 1 and 97 trenches Please specify. How many gas wells will be installed over the life of the landfill, 200 total, and the maximum number of well for this site? Please be advised that future gas well additions will require modification to any air construction permit that has been issued.
2. How will the gas flow to the flare and flare flame operating temperature be monitored? Please provide the proposed make and model of the measurement device. Appendix H Will the measurements be automatically recorded? What is the maximum/average gas flow per well? Clas 1 :56 cfm What is the total volumetric gas flow to the flare (SCFM)? 900 per each flare.
3. Appendix B drawings were not included with the application.
4. Provide legible copies of drawings included in Appendix C Show wells, gas collection system, and flare.
5. What is the net heating value of the gas being combusted (Btu/scf)
6. What is the exit velocity (ft/sec) of the flare?
7. What fuel is used for the pilot light and how is its flame monitored?
8. What is the maximum/average sulfur content of the input gas to the flare?

PERMITTEE:

Brevard County Board of County Commissioners

Permit Number:

AC05-238122

Expiration Date:

January 2, 1997

GENERAL CONDITIONS:

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

1. This source shall be allowed to operate continuously (i.e., 8760 hours/year).
2. The utility flare system shall be designed, manufactured, and operated according to U.S. Environmental Protection Agency criteria as specified in 40 CFR 60.18, guaranteeing high efficiency combustion of landfill gas at the 98% level of destruction of total hydrocarbons, with a flame temperature of at or above 1400°F.
3. There shall be no visible emissions from any individual flare, except for periods not to exceed a total of five minutes during any two consecutive hours.
4. For inventory purposes, the pollutant emission rates from the flare system are:

<u>Pollutant</u>	<u>Emission Rate</u>	
	<u>pounds/hour</u>	<u>tons/year</u>
NO _x	3.4	15.0
NMOC	.01	.05
SO ₂	.09	0.4
PM ₁₀	trace	trace

PERMITTEE:

Brevard County Board of County
Commissioners

Permit Number:

AC05-238122

Expiration Date:

January 2, 1997

SPECIFIC CONDITIONS:

5. This source shall meet the requirements of 40 CFR 60.18, and Chapters 17-212 and 17-4, F.A.C.

6. Maximum allowable emissions rates of carbon monoxide (CO) are 52.3 pounds per hour and 229.0 tons per year. These limitations are accepted by the permittee to avoid the otherwise applicable requirements of New Source Review - Prevention of Significant Deterioration (PSD), Rule 17-212.400, F.A.C., and application of Best Available Control Technology (BACT), Rule 17-212.410, F.A.C.

7. Compliance with the maximum allowable emission rate of carbon monoxide stated in Specific Condition Number 6 shall be determined by utilization of the following equation:

Calculated annual emissions rate of CO (tons per year) =
volumetric flow rate (scfm) of the input gas to the flare
system x .11

The .11 constant is derived based on the flare operating parameters, i.e., the estimated methane content of the input gas stream (53.7%), and the 98% hydrocarbon design destruction capability (efficiency) of the flare system, as follows, and assumes that only 1% of the methane is converted in the stack to CO.

CO (tons per year) = [] scfm x .537 x .01 x 28 lbs./lb.mol
x 1/359 lb.mol/ft³ x 60 min./hour x 24 hours/day x 365
days/year x 1/2000 tons per pound

This computation shall be made prior to the flare startup and annually thereafter. Results shall be reported as part of the facility's Annual Operating Report. Specific Condition Number 12 limits the flow rate to the flare system to 2080 scfm.

8. Compliance with the visible emissions standard shall be determined using EPA Method 22 and shall be for the duration of 2 hours. Such tests shall be conducted within 60 days of completion of construction and initial startup operation, and annually thereafter. The required visible emissions test report shall also contain the extraction wells gas flow rate and the flare temperature data.

9. Sulfur content of the input gas to any flare shall not exceed .045 pounds per hour.

10. An analysis shall be performed to determine the sulfur content of input gas to the flare, by American Society for Testing and Materials (ASTM) test method, D 1072-90, prior to any flare

Add subscript www requirements

PERMITTEE:

Brevard County Board of County
Commissioners

Permit Number:

AC05-238122

Expiration Date:

January 2, 1997

SPECIFIC CONDITIONS:

startup. Additional tests shall be performed on a yearly basis, and results included as part of the facility's Annual Operating Report.

11. Pursuant to Rule 17-296.320(2), F.A.C., objectionable odors caused by this source are prohibited.

12. Total volumetric flow to any flare in the system shall be limited to 1040 scfm. Total volumetric flow to the aggregate of the three flares shall be limited to 2080 scfm.

13. Proper devices shall be installed at all wellheads, and at the flare station for 1) gas flow volume and gas pressure measurements, 2) gas composition analysis, 3) gas temperature and flame temperature recording, and 4) flow control, prior to the collection and disposal of the active landfill gases. Such devices shall be properly calibrated and maintained at all times, according to manufacturers' written instructions.

The checking and recording of the gas flow, temperature, pressure, and composition, and flame temperature, shall be performed on a weekly basis for all wells and the flare station.

The instrument to be used to measure gas flow, temperature, pressure and composition will be a portable landfill gas extraction monitor and analyzer (e.g., LANDTEC-GEM-500 with on-board computer) or equivalent. The flare flame temperature shall be monitored by a Fuji Electronic MicroController (or equivalent).

The permittee shall keep a hard copy of the weekly gas extraction monitoring and analysis data, as well as instrumentation history records, on site at all times. The weekly data shall be summarized and included as part of the facility's Annual Operating Report.

14. The net heating value of the input gas shall be 200 BTU/scf or greater. Compliance with this parameter shall be determined by methodology specified in paragraph f of 40 CFR 60.18. Samples shall be taken, and results reported annually.

15. Actual exit velocity of each flare shall be calculated and reported on an annual basis, using methods specified in paragraph f of 40 CFR 60.18.

16. An operation and maintenance plan shall be submitted to the Department's Central District Office prior to the expiration date of this permit.

PERMITTEE:
Brevard County Board of County
Commissioners

Permit Number: AC05-238122
Expiration Date: January 2, 1997

SPECIFIC CONDITIONS:

17. The Central District Office shall be given at least 15 days written notice prior to compliance testing.

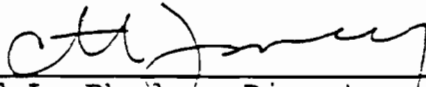
18. Prior to placing the flare in service, the pilot gas for the flare shall be fired by propane at 25 scfh (standard cubic feet per hour), with a maximum heat input rate of .06 MMBTU/hour. The pilot light is not required when the flame is sustained by the landfill gas alone.

19. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

20. An application for an operation permit must be submitted to the Central District Office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, and certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports, as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this 22 day
of December, 1993

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION


for _____
Howard L. Rhodes, Director
Division of Air Resources
Management

LFG SPECIALTIES, INC.

DATE: 10/31/95

FAX Cover Sheet

To: James Getting
WET

From: Louis Kalani
LFG Specialties

Total number of pages including this cover sheet: 12

If all pages are not received,
please call Jennifer at (216) 891-0305.

Mr. Getting,

Please find attached information you requested regarding flow meters and chart recorders for the Solid Waste Authority of Palm Beach flare package.

Please contact Louis if you have any questions.

Jennifer

Main Office

7550 Lucerne Drive
Suite #110
Cleveland, Ohio 44130
216/891-0305 FAX: 216/891-8288

FAX # (904) 243-0077



2168918288

Plant

705 Friendship Drive
P.O. Box 332
New Concord, Ohio 43762
614-826-7586 Fax: 614-826-4948

OCT-31-1995 12:41

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P.01

TECHNICAL BULLETIN

BULLETIN 686A



FLOWMETERS BY:

Thermal Instrument Co.
217 Sterner Mill Road, Treviso, PA 19053 • (215) 355-8400

THERMAL FLOW PROBE

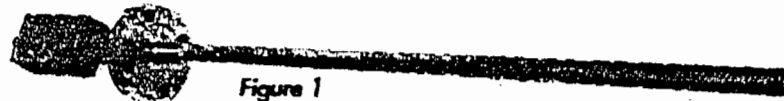


Figure 1

CONCEPT

The Thermal Flow Probe is a flow meter developed to measure rates of flowing streams by merely inserting the Probe into the stream.

It has flow and temperature detecting sensors mounted on the inside diameter of a piece of sealed pipe. These sensors detect flow rate and temperature of a stream of gas, liquids, or slurries passing over the outside diameter of the pipe.

These sensors are essentially resistance thermometers made of etched metal film in order to provide high speed response. In theory, if one of these temperature sensitive grids were heated slightly by a constant electrical current, it would transfer a certain amount of heat to the flowing stream. The amount of heat conducted off this sensor, by the flowing stream, is directly proportional to the mass flow rate of the stream, with slight errors due to radiant heat losses from the sensor, and conduction losses along the length of the pipe.

These losses are a function of the ambient temperature, which in this case, is the temperature of the stream. It is the function of the temperature sensors in this same piece of pipe to detect these temperature changes and with these corrective readings, correct the flow readout, so it is a true measure of flow rate, in spite of the variation of temperature of the medium and ambient.

CONSTRUCTION

As shown in Figure 1: The design of the Stack Probe presents a very rugged construction. The Probe shown is actually a piece of 1", type 316 stainless steel pipe. The end of the pipe is sealed and welded. It is provided with a raised face flange to seal against a mating flange on the pipe or stack, in which it is to be inserted for flow measurement.

The electrical connections can be made either in a gasketed type conduit, or an explosion-proof conduit.

For flow rate measurement of streams, which do not exceed 400°F, we use our standard etched Nickel sensing elements.

For application up to 1000°F, we utilize Platinum sensors which are imbedded in a ceramic matrix, securely bonded to the inside diameter of the pipe.

Many industrial stacks operate at temperatures reaching 1000°F.

This flow measuring Probe may be constructed of pipe or tubing made of any metal which may be compatible with the corrosive atmospheres or fluids, to be encountered in any given application. Figure 2 is a sketch showing an internal arrangement of sensors in this flow measuring probe.

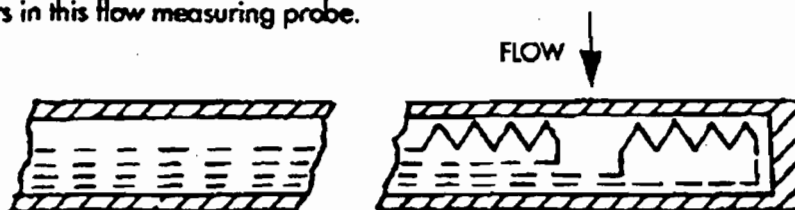


Figure 2

Best Available Copy

Honeywell

DPR 100 C/D

Pen and Multipoint

100 mm Digital Recorders

01-6021
3/94

Specification and Technical Data

Introduction

The DPR 100 C and D are the highest functionality 100 mm (4 inch) recorders on the market today. They offer the best chart in the industry, with complete process documentation, at any speed, for the most demanding applications. Their accuracy is by far superior due to the wide choice of available ranges and actuations.

The two versions are:

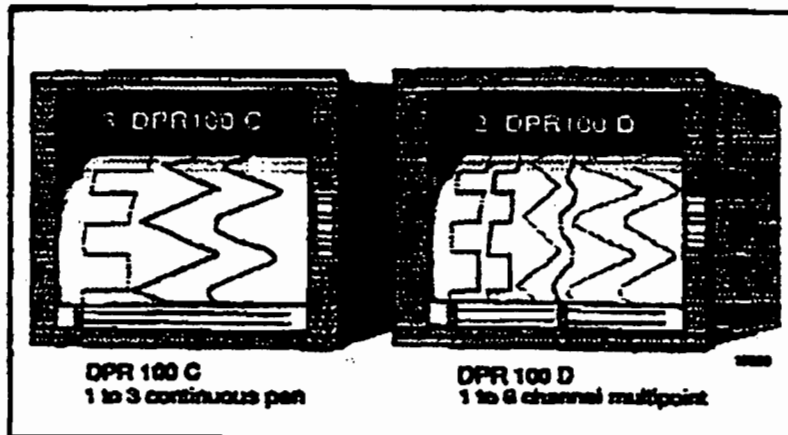
- DPR 100C: 1 to 3 continuous pen
- DPR 100D: 3 or 6 channel multipoint

Their large and bright display, together with their outstanding chart visibility and fluorescent illumination, makes it easy to read and interpret from a distance.

They are particularly suitable for chemicals, pharmaceuticals, power generation, metals, environmental monitoring, and food processing applications.

MAIN FEATURES

- 100 mm (4 inch) chart width (DIN 16230)
- 0.1% accuracy full scale (IEC 873) applicable on a very wide choice of actuations and ranges
- Each input span is adjustable within the selected range, with up to 2 ranges per channel
- Universal input board (T/C, RTD, mV, mA, volts)
- Alphanumeric display: 12 digits or 1 or 2 bargraphs, adjustable brightness
- Roll or fan fold chart



- Fully documented chart with trace color assignment, alarm trend in red, tagging, zooming, zoning, trend or tabular print outs, messages, all at up to 500 mm/h (20 in/h)
- Up to 10 traces (6 analog, 4 digital inputs) on the multipoint DPR 100D
- Up to 6 analog inputs can be configured on a 3 pen DPR 100C
- Full configurability through front keys and interactive program menu in 6 languages as standard. Optional configuration using Honeywell PC configurator connected via the front jack, or by communication, with multilevel password security
- 12 user-configurable messages (14 characters each)
- 4 line batch header automatically incremented and saved in case of power failure
- Event precursor mode
- Software upgrade capability by the front jack (via PC or MODEM)
- Input calibration traceability (audit-trail)

- 12 alarm set points, assignable to any input, math result, communication signal
- 2 configurable chart speeds, selectable via alarm, logic input, front keys or communication
- Universal power supply 85 to 264 V ac/dc, 24 or 48 V ac/dc
- IP 54 front protection (IEC 529)
- Compact dimensions: 144 x 144 mm x (5.7 x 5.7), depth 245 mm (9.7) behind panel

OPTIONS

- Up to 12 relay outputs assignable to alarms or recorder events
- Up to 4 logic inputs
- Mathematic packages, with the results saved in case of power failure. Math functions can be interconnected
- 24 Vdc transmitter power supply 50 mA
- Communication: ASCII, MODBUS RTU
- CSA approved

Best Available Copy

Honeywell

DPR 100 C/D Pen and Multipoint 100 mm Digital Recorders

01-6021
3/84

Specification and Technical Data

Introduction

The DPR 100 C and D are the highest functionality 100 mm (4 inch) recorders on the market today. They offer the best chart in the industry, with complete process documentation, at any speed, for the most demanding applications. Their accuracy is by far superior due to the wide choice of available ranges and actuations.

The two versions are:

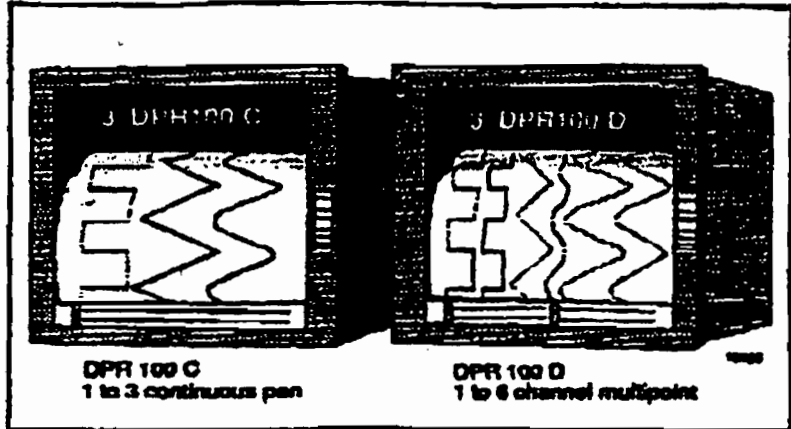
- DPR 100C: 1 to 3 continuous pen
- DPR 100D: 3 or 6 channel multipoint

Their large and bright display, together with their outstanding chart visibility and fluorescent illumination, makes it easy to read and interpret from a distance.

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- Roll or fan fold chart



- Fully documented chart with trace color assignment, alarm trend in red, tagging, zooming, zoning, trend or tabular print outs, messages, all at up to 500 mm/h (20 in/h)
- Up to 10 traces (6 analog, 4 digital inputs) on the multipoint DPR 100D
- Up to 6 analog inputs can be configured on a 3 pen DPR 100C
- Full configurability through front keys and interactive program menu in 6 languages as standard. Optional configuration using Honeywell PC configurator connected via the front jack, or by communication, with multilevel password security
- 12 user-configurable messages (14 characters each)
- 4 lines batch header automatically incremented and saved in case of power failure
- Event precursor mode
- Software upgrade capability by the front jack (via PC or MODEM)
- Input calibration traceability (audit-trail)

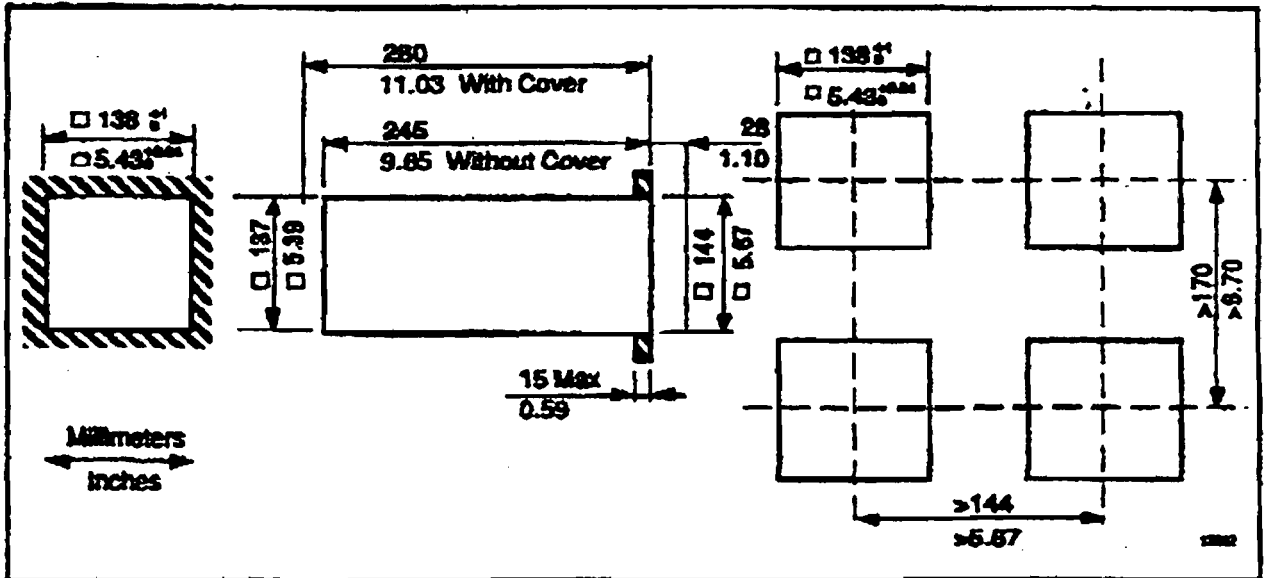
- 12 alarm set points, assignable to any input, math result, communication signal
- 2 configurable chart speeds, selectable via alarm, logic input, front keys or communication
- Universal power supply 85 to 264 Vac/dc, 24 or 48 Vac/dc
- IP 54 front protection (IEC 529)
- Compact dimensions: 144 x 144 mm x (5.7 x 5.7), depth 245 mm (9.7) behind panel

OPTIONS

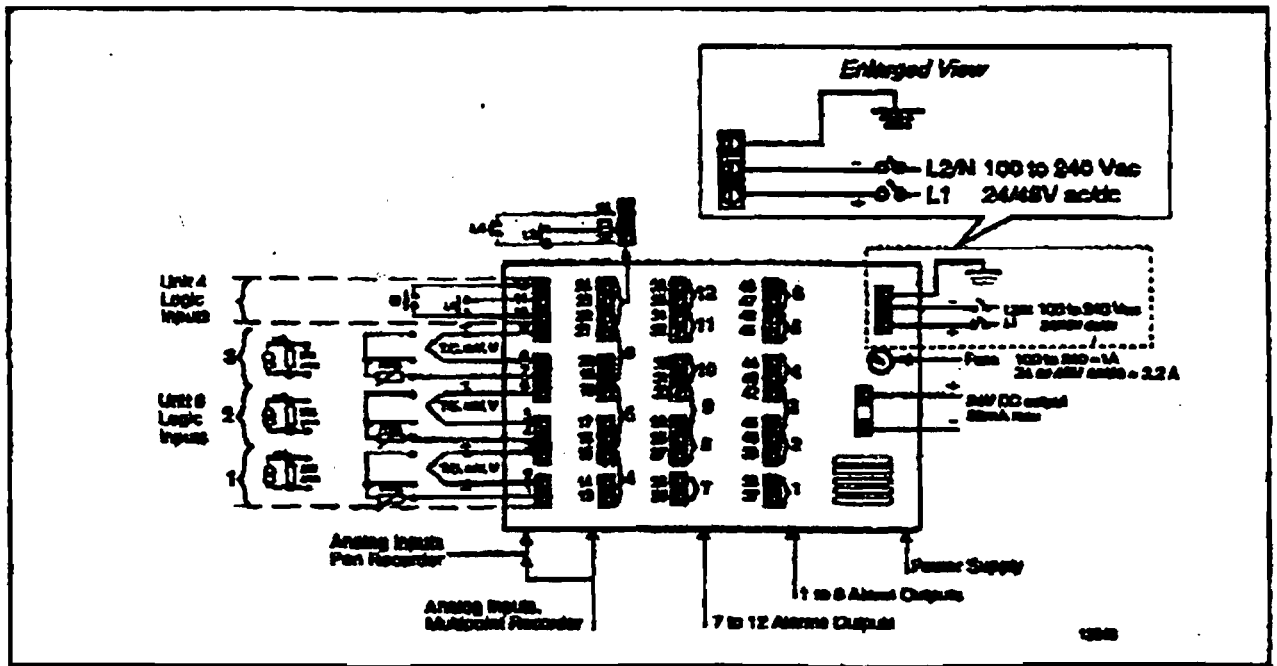
- Up to 12 relay outputs assignable to alarms or recorder events
- Up to 4 logic inputs
- Mathematic packages, with the results saved in case of power failure. Math functions can be interconnected
- 24 Vdc transmitter power supply 50 mA
- Communication: ASCII, MODBUS RTU
- CSA approved

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Dimensions



Connections



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- Min, max
- Timers

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The maths calculations and results are stored during power interruptions

Digital communication	
Protocols	RS232 ASCII communication to PC application or with auto-dial for modem to remote information. RS422 or RS485 ASCII communication output. RS422 or RS484 Modbus RTU communication output.
PC Supervision	Using ASCII communication, the application software provides the following functions: <ul style="list-style-type: none"> - reads PVs, alarms, or events status - stores information on a file - sends messages to the recorder - modifies product configuration
Event	The recorder can be configured to deliver an output signal (alarm relay) on a recorder event such as burnout, paper cassette out, battery fail, alarm condition or communication interrupt.
Power supply	85 to 264 Vac/dc or 24 or 48 Vac/dc (+10-15% nominal)
To transmitters	24 V, 50 mA max. (optional)
Power consumption	3 pens and Mpt: 30 VA max.
Clock timer	
Format	Year, month, hour, minute can be set
Power interruption	Battery backed (10 years time, 3 years off power)
Accuracy	$\pm 10^{-5}$
Packaging	
Weight	Pen & Mpt: 3.5 kg (7.7 lbs.)
Front face	144 x 144 mm (5.7 x 5.7 inches) according to DIN 43718
Depth	245 mm (9.7") behind panel, including terminals and line protection cover
Front window	Acrylic
Front protection	IP 54 (IEC 529)
Lock	Latch or optional key (DIN 43832-N)
Cutout	DIN 138 x 138 mm (5.43 x 5.43 inches)
Construction	Silicon-free
Chart illumination	Fluorescent light
Option	Rear terminal cover, portable case
Mounting	Panel mounting $\pm 30^\circ$ from horizontal (DIN 43834)
Wiring	Rear screw terminals. Terminal modules are plugged on the instrument.
Writing	
Pen	1 cartridge per pen, fiber tip, 1400 m (4500 ft.) of trace per color (blue, red, green)
Multipoint	1 print wheel, 6 colors, 250 m (820 ft) of trace per color (purple, red, black, green, blue, brown).

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Page 7

Chart Speed, cont Speed setting	Pen: 1 to 6000 mm/hr (0.04 in/hr to 240 in/hr). Mpt: 1 to 1500 mm/hr (.04 in/hr to 60 in/hr). Continuous traces in color, dotted traces in configurable color with regular chart documentation (configurable.)
Stepping chart motor	Resolution 0.12 mm (0.006 inches).
Product configuration Front configuration	<ul style="list-style-type: none"> • 2 product configurations can be stored and selected by the front keys • A very simple and interactive product configuration can be carried out on the product with 6 front keys. A friendly program with prompt messages confirms the operation. The prompt messages can be selected in different languages: English, German, French, Spanish, Italian or Swedish. A 2-level password protects the unit from nonauthorized modification (level 1 = limited access; level 2 = full protection).
PC configuration	<ul style="list-style-type: none"> • Through the front jack, the unit can be configured from a PC through a Honeywell PC interface. This provides the facility to copy the configuration, modify, store, upload or download the product configuration or make a service diagnostic or upgrade a new software or linearize 2 special customer sensors (50 segments each).
Logic inputs Actions	<p>Up to 4 dry contact inputs (1.5 mA - 12 Vdc)</p> <p>Change chart speed 1 to speed 2, tab interval 1 to tab interval 2, digital print-out, print message, print inhibit, event trace, print a batch message, tabulate maths calculations.</p> <p>Event markings: Pen: Pen 1 used as operation marker on the right side of the chart for event 1 and on the left side of the chart for event 2. Mpt: 4 traces maximum on the chart. The trace position and the color are configurable.</p>
Alarms Set-point	12 alarm set-points, freely assignable to any channel and output relay. Full configurability of set-point, hysteresis and alarm type (high, low, rate of change, deviation).
Function	Can trigger a message, print channel red in alarm, print in alarm, change the range, change the speed, print digital PV values, trigger the event precursor.
Output	6 or 12 SPST relay outputs: 2 A, 250 Vac on resistive load Contact N.C. in alarm condition (configurable to N.O.).
Alphanumeric documentation Messages	12 freely assignable and configurable messages of 14 characters each, including the specific letter used in German and Swedish. Can be printed with the date/time on top of the traces by alarms, logic inputs or communication.
Batch header	One batch message of 4 lines of 14 characters, fully configurable, with incremented batch numbers and date/time. Printed through digital input and

Page 8

Mathematics package (optional)	<p>Many functions are available such as:</p> <ul style="list-style-type: none"> - Basic mathematics functions - Square root - F_0 sterilization - Totalization - Mass flows - Energy consumption - Vacuum pressure - Averages - Min, max - Timers
Digital communication Protocols	The maths calculations and results are stored during power interruptions

DPR 100 FUNCTIONAL SPECIFICATIONS

Technical Data

Technology	Microprocessor-based, with nonvolatile memory. Flash memory for software upgrade via the front jack.
Analog Inputs	1, 2, or 3 continuous traces. 3 or 6 channels. Inputs are scanned by solid-state switches and are galvanically isolated (except for RTD sensor).
DPR 100C pen recorder	
DPR 100D multipoint recorder	
Signal source	Thermocouple with individual cold junction compensation. Line resistance up to 1000 ohms T/C, mV, mA, V. RTD Pt 100 3-wire connections, lead resistance per wire 40 Ω balanced.
Basic mathematic functions	Square Root extraction ($\sqrt{\quad}$) Differential = (Δ)
Filter	A digital filter is configurable per input, 0 to 10 seconds.
Field calibration	A channel field calibration - 0% and 100% span - may be made to certify input sensor loop.
Burnout	T/C, mV, Volt, configurable to upscale, to downscale or none. RTD: inherent upscale. mA: inherent downscale
Scanning time (solid-state relays)	Pen: 1 pen = 160 ms 2 pens = 240 ms 3 pens = 330 ms Mpt: 3 channels = 330 ms / 6 channels = 720 ms
Input impedance	10 Mohm for T/C, mV inputs. >1 Mohm for volt inputs.
Stray rejection	Series mode \geq 60 db. Common mode at 250 Vac \geq 130 db
Display	12 digit fluorescent display: 8.5 mm (0.33 in.) high (matrix display) configurable in: - digital PV values with engineering unit in accordance with the input range - 1 or 2 bargraphs Can display analog input, Tags, math results, communication, alarms or event messages.
Brightness	The display brightness is configurable.
Recording span	Per input, up to 2 analog scales can be configured to be printed on the chart with the engineering unit channel reference and tag name. Each input can be configured differently.
Scaling	
Zoning	Each input can be configured on 0 to 100%, or 0 to 50%, or 50 to 100% of the chart.
Pen offset (Pen recorder)	Distance between pens: 2 mm - Offset compensation configurable Chart definition: 1 step = 0.2 mm
Pen carriage speed	1 second full scale
Chart length	Fan-fold 18 m (59 ft.) (as DIN 16230) / Roll 24 m (79 ft.)
Pen trace	
Pen	1400 m (4500 ft.) per pen
Multipoint	250 m (820 ft.) per color
Chart speed	1 or 2 chart speeds, fully configurable, selected by a logic input, alarm or configuration. Speed 1: fully adjustable per step of 1 mm/hr, (.04 in/hr) within limit Speed 2: fully adjustable per step of 1 mm/hr, (.04 in/hr) within limit

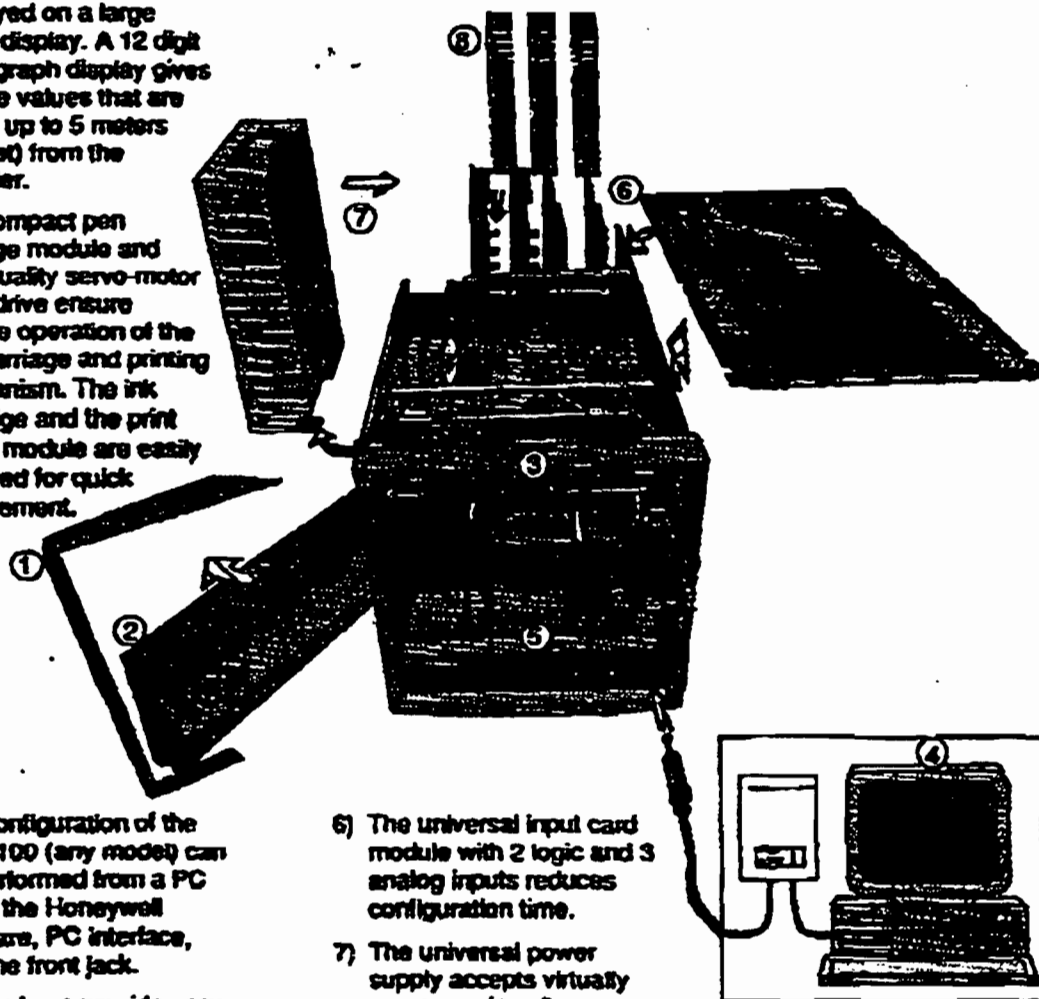
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Page 5

Easy to install... Easy to use... Easy to maintain

The DPR 100's compact, modular design and rugged construction reduces spare parts inventory and simplifies maintenance. Its operator-friendly configuration keys, easy to read analog scales or digital displays, reliable alarm functions and customized charts ensure accurate monitoring and recording of your process.

- 1) IP54 door
- 2) Process data is clearly displayed on a large digital display. A 12 digit or bargraph display gives precise values that are visible up to 5 meters (18 feet) from the recorder.
- 3) The compact pen carriage module and high quality servo-motor chart drive ensure reliable operation of the pen carriage and printing mechanism. The ink cartridge and the print wheel module are easily removed for quick replacement.
- 4) Full configuration of the DPR 100 (any model) can be performed from a PC using the Honeywell software, PC interface, and the front jack.
- 5) Simple keys provide easy configuration and operation. Interactive prompt messages confirm modification of the configuration or function.



- 6) The universal input card module with 2 logic and 3 analog inputs reduces configuration time.
- 7) The universal power supply accepts virtually any ac or dc voltage.
- 8) The plugged rear connections allow easy maintenance.

1301

Rugged, Simple and Modular Construction

Easy Access

Access to the chart and the ink cartridges is straightforward, reducing maintenance costs.

The multipoint print head design provides fine, clear traces in up to 6 colors.

Two Paper Types

Either roll or fan-fold paper cassettes can be used. Roll paper allows easier reading of historical data during operation and is less sensitive to temperature and humidity. On the other hand, fan-fold paper allows easier data access when the record is stored.

Pen Carriage Module

A compact pen carriage module guarantees efficient operation of the pen carriage and the printing mechanism.

Digital Display

The highly visible alphanumeric display provides clear operator information. The illumination level is configurable.

Up to 2 bargraph displays are configurable and includes information on the PV trend.

Universal Input Board

The universal input board supports all actuations. Scanning by solid-state relays. This universal input board reduces the configuration cost of the product. It is a "plug-in" board for easy servicing.

Universal Power Supply Module

The universal switching mode power supply simplifies installation of the recorder by accepting 85 to 264 Vac/0c 50/60 Hz. Optionally available is a 24 or 48 V ac/dc power supply module. On request, the power supply can also deliver 24 Vdc 50 mA to supply remote transmitters.

Rear Connections

All inputs/outputs are screw-connected to the rear terminal blocks which may be removed from the chassis without disconnection of the wires.

Easy Configuration

Local Configuration

A user-friendly program with local language prompts (English, French, German, Italian, Spanish, or Swedish) permits a full configuration of the recorder using the 6 front keys. A multilevel password protects against unauthorized changes to the configuration. Two different product configurations can be stored in memory.

PC Configuration

By way of the front communication jack, the recorder can be configured from a personal computer using an optional PC interface module. In addition to configuration, the PC will provide the ability to upload, download, modify, store the recorder configuration, initiate diagnostic test, and provides the facility to linearize up to two customized input sensors (50 segments each).

The DPR 100 is designed to operate nonstop in harsh industrial environments at 50°C (120°F). It has a front panel protection against dust and water splashes to meet standard IP 54 (IEC 529).

The construction of the DPR 100 is simple and modular, with its few modules being plugged into the main chassis. This modular concept, along with the recorder's extra long life ink cartridge and long paper chart, significantly reduces service and maintenance costs.

Fluorescent Chart Illumination

In any ambient light condition, chart illumination makes traces and current values immediately visible, even from a distance.

Pen Offset

A memory buffer stores the data in order to place the value on the same time line as the first pen. This feature reduces possible errors when interpreting the chart.

DPR 100 C Pen Recorder: Writing Speed

Chart Speed		Chart documentation
up to 1000 mm/h	up to 40 inch/h	chart fully documented alarm messages but no chart scales traces only
1000 to 1500 mm/h	40 to 60 inch/h	
1500 mm/h to 6000 mm/h	60 inch/h to 240 inch/h	

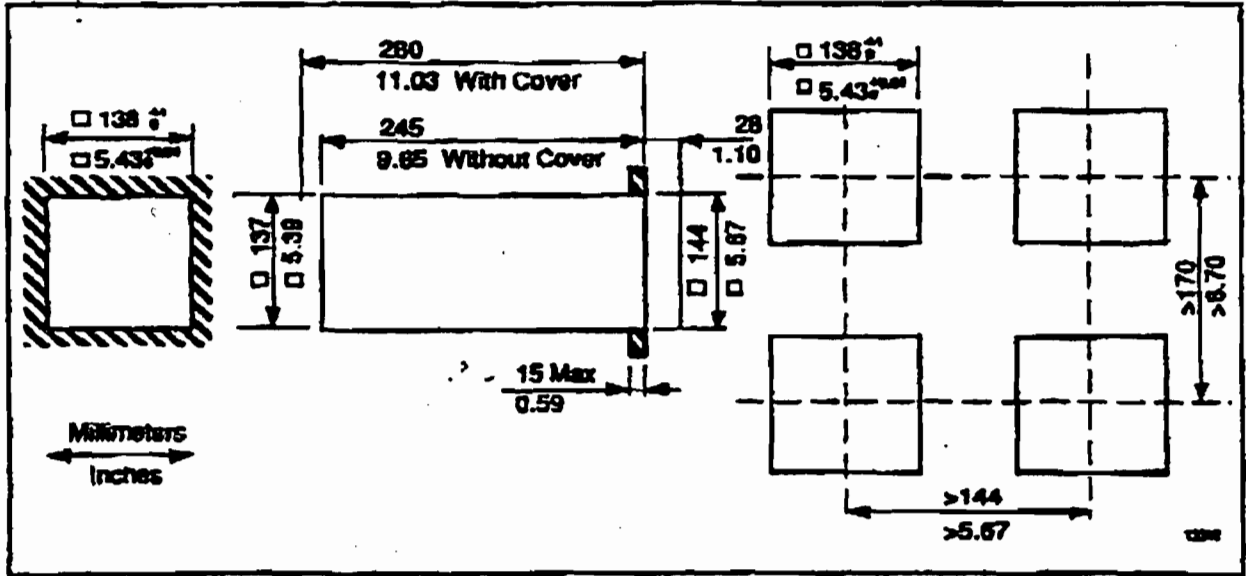
DPR 100 D Multipoint recorder: Writing Speeds

# Inputs (See Note)	Continuous trace lines Full chart documentation mm/hr (in/hr)	Dotted trace lines Full chart documentation	Dotted trace lines Alarm messages No chart documentation
1	1.0 to 1200 (0.04 to 48)	-	1000-1500 (40-60)
2	1.0 to 925 (0.04 to 37)	-	1000-1500 (40-60)
3	1.0 to 775 (0.04 to 31)	775-1000 (31 to 40)	1000-1500 (40-60)
4	1.0 to 650 (0.04 to 26)	650-1000 (26 to 40)	1000-1500 (40-60)
5	1.0 to 550 (0.04 to 22)	550-1000 (22 to 40)	1000-1500 (40-60)
6	1.0 to 475 (0.04 to 19)	475-1000 (19 to 40)	1000-1500 (40-60)
7	1.0 to 400 (0.04 to 16)	400-1000 (16 to 40)	1000-1500 (40-60)
8	1.0 to 350 (0.04 to 14)	350-1000 (14 to 40)	1000-1500 (40-60)
9	1.0 to 300 (0.04 to 12)	300-1000 (12 to 40)	1000-1500 (40-60)
10	1.0 to 280 (0.04 to 11)	280-1000 (11 to 40)	1000-1500 (40-60)

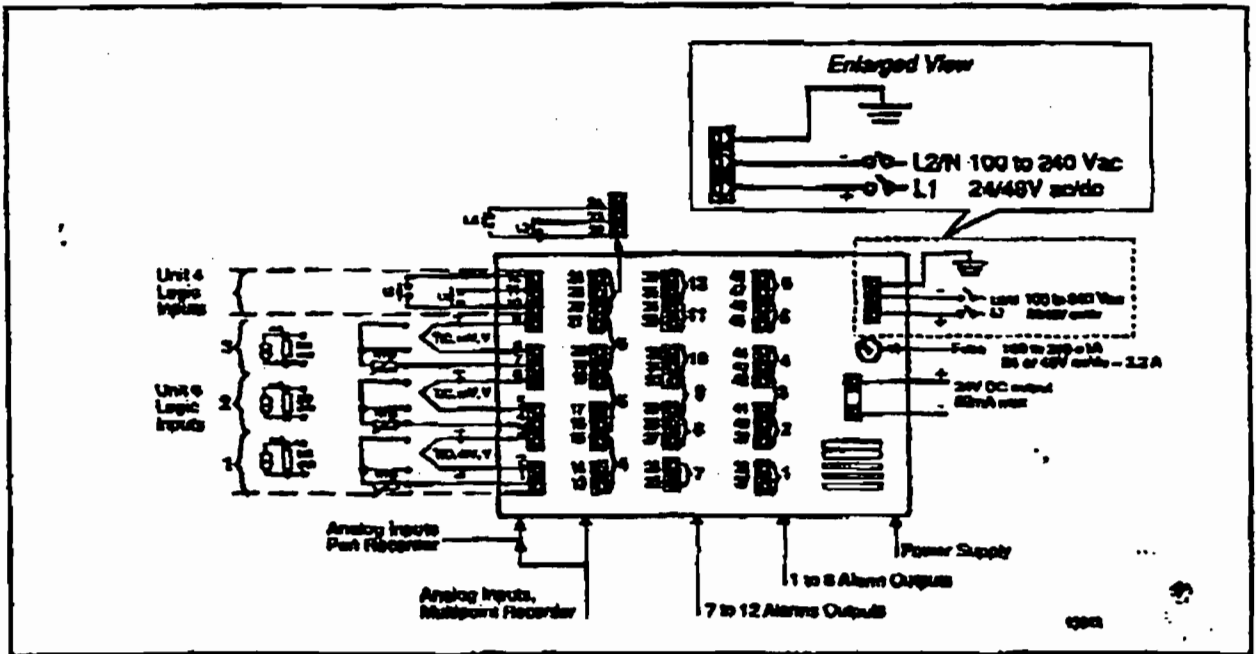
Note: Combination of analog and digital (logic) inputs

Best Available Copy

Dimensions



Connections



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** TOTAL PAGE 001 **

Blue Prints

Appendix B

Drawings ARE

In hard copy file.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
AIR AND RADIATION

September 19, 1995

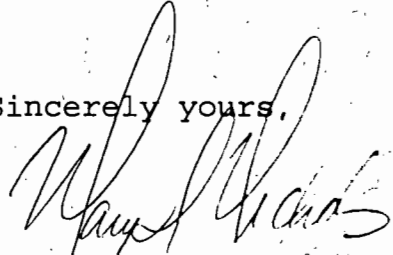
Dear Sir or Madam:

Thank you for contacting the Office of Air and Radiation Docket and Information Center. Enclosed are the documents that you requested. I hope they satisfy your requirements.

My office is dedicated to prompt, courteous customer service, particularly for all who express an interest in what we are doing through docket inquiries. We are committed to increasing participation in the policy and decision-making processes of the Environmental Protection Agency.

I welcome your comments on how effective the docket has been in responding to your needs, as well as any suggestions to improve this important service.

Sincerely yours,



Mary D. Nichols
Assistant Administrator
for Air and Radiation

Enclosures



Printed on Recycled Paper

Check Sheet

Company Name: PALM BEACH CO. SOLID WASTE AUTHORITY
Permit Number: PA-84-20C
PSD Number: 108(B)
Permit Engineer: HERON

Application:

- Initial Application
- Incompleteness Letters
- Responses
- Waiver of Department Action
- Department Response
- Other

Cross References:

-
-
-

Intent:

- Intent to Issue
- Notice of Intent to Issue
- Technical Evaluation
- BACT Determination
- Unsigned Permit
- Correspondence with:
 - EPA
 - Park Services
 - Other
- Proof of Publication
 - Petitions - (Related to extensions, hearings, etc.)
 - Waiver of Department Action
 - Other

Final Determination:

- Final Determination
- Signed Permit
- BACT Determination
- Other

Post Permit Correspondence:

- Extensions/Amendments/Modifications
- Other

Date: 10/27/97 1:56:02 PM
From: Thomas Tittle WPB
Subject: PSD-FL-108(B) issued February 1996
To: Teresa Heron TAL
CC: Andrew Neita WPB
CC: Terri Hilliard WPB

It has recently come to our attention that "New Specific Condition" 3 of the subject permit appears to contain an error which needs to be fixed.

The condition states: "There shall be no visible emissions from any individual flare, except for periods not to exceed a total of five minutes during any two consecutive hours at which visible emissions can be up to 20 percent opacity."

The phrase "at which visible emissions can be up to 20 percent opacity" should be deleted from this specific condition. The compliance method is Method 22. Method 22 does not evaluate the opacity of emissions ... just how long there are any emissions visible. Subpart WWW is consistent with the suggestion to delete the phrase.

Thanks for your attention to this matter. If you are not the appropriate person to address this request, please forward it to the appropriate person (and copy us with your forwarding memo). We assumed you were the "th" initials on the permit.

Tom



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

June 25, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Alex H. Makled, P.E.
Camp Dresser & McKee Inc.
1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406

RE: Solid Waste Authority of Palm Beach County
PSD-FL-108(B) Issued February 20, 1996

Dear Mr. Makled:

The Department is in receipt of your letter dated June 5, 1996 requesting clarification and confirmation of the new specific conditions added to the North County Resource Recovery Facility (NCRRF), permit No. PSD-FL-108(B). The Department has reviewed your letter and has the following comments:

Specific Condition No. 2. The Department agrees with your rationale. However as the condition states, the flame temperature shall be at a minimum of 1400 degrees Fahrenheit.

Specific Condition No. 4. The Department agrees with your rationale. The typographical error of 1.33 tons SO₂/year should be corrected. An emission limit of 7.33 tons SO₂/year shall be changed in the Title V permit.

Specific Condition No. 7. The Department will not delete this condition. This condition provides the Department with reasonable assurance that the operation of this flare system will not cause or contribute to a violation of the sulfur dioxide (SO₂) ambient air quality standard and/or that the proposed SO₂ emissions will not exceed the threshold level requiring review pursuant to Prevention of Significant Deterioration (PSD). This condition is a standard condition for recently issued permits for landfill operations.

Specific Condition No.8. See Specific Condition No.7.

The Department agrees with your rationale on Specific Conditions 5, 6, 10, 11, 14, and 15. If you have any questions, please call Ms. Teresa Heron at (904)488-1344.

Sincerely,

A. A. Linero, Administrator
New Source Review Section
Bureau of Air Regulation

cc: Isidore Goldman, SED
Buck Oven., DEP

AAL/th/t

P 339 251 117

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to MR. Alex Makled	
Street & Number 1601 BELVEDERE RD. STE 211 S.	
Post Office, State, & ZIP Code West Palm Beach FL 33406	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	6/25/96
PSD - FL-10S(B)	

PS Form 3800 April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

MR. ALEX MAKLED, P.E.
 CAMP, DRESSER & MCKEE, INC
 1601 BELVEDERE RD. STE 211 S.
 WEST PALM BEACH, FL 33406

4a. Article Number

P 339 251 117

4b. Service Type

- Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise

7. Date of Delivery

7.9.96

5. Signature (Addressee)

[Handwritten signature]

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

Thank you for using Return Receipt Service.

CDM Camp Dresser & McKee Inc.

environmental
services

1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406
Tel: 407 689-3336 Fax: 407 689-9713

June 5, 1996

Mr. Howard L. Rhodes
Director
Division of Air Resources Management
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RECEIVED
JUN 6 1996
BUREAU OF
AIR REGULATION

Subject: Solid Waste Authority of Palm Beach County
North County Resource Recovery Facility (NCRRF)
PSD-FL-108(B)

ATTENTION: Ms. Teresa Heron

Dear Mr. Rhodes:

We are writing this letter on behalf of the Solid Waste Authority of Palm Beach County (SWA) seeking clarification/confirmation of our understanding of the new specific conditions added to the North County Resource Recovery Facility (NCRRF) permit No. PSD-FL-108(B). These conditions were added by the Department as an amendment to include the construction and operation of the gas collection and control system for the NCRRF landfills. The permit amendment was issued by the Department on February 20, 1996 (copy attached).

For ease of reference and review, we have repeated each of the new conditions in this letter as shown in bold, followed by our response.

Specific Condition No. 1. This source shall be allowed to operate continuously (i.e., 8760 hours/year).

Response: No comments.

Specific Condition No. 2. The utility flare system shall be designed, manufactured, and operated according to U.S. Environmental Protection Agency criteria as specified in 40 CFR 60.18, in order to ensure high efficiency combustion of landfill gas at the 98% level of destruction of total hydrocarbons, with a flame temperature of at or above 1400° F.

Response: As indicated in our permit application submittal, the proposed utility flare system is designed in accordance with the U.S. Environmental Protection Agency (EPA) established criteria for open flares, 40 CFR 60.18, with an approximate

Mr. Howard L. Rhodes
June 5, 1996
Page 2

operating temperature of 1400° F. Obviously the flame temperature readings will vary depending on the point of measurement.

Specific Condition No. 3. There shall be no visible emissions from any individual flare, except for periods not to exceed a total of five minutes during any two consecutive hours at which visible emissions can be up to 20 percent opacity.

Response: No comments.

Specific Condition No. 4. For inventory purposes, the pollutant emission rates from each of the flare systems are:

Pollutant	Emission Factors	Pounds/Hour	Tons/Year
NO _x	0.07 lb/million Btu	1.67	7.33
VOC	36 lb/million ft ³	1.94	8.51
SO ₂	0.002 lb/scf	1.67	1.33
PM ₁₀	1.69 E-05 lb/scf	0.91	3.99
CO	0.37 lb/million Btu	9.10	39.87

Response: We have two comments on this condition as follows:

Comment No. 1: It is our understanding that these emission rates are included in this permit as design data and will be used for informational purposes only during the operation of the landfill gas collection and control system.

Comment No. 2: In reference to the VOC emission rate, please note that based on the pollutant emission calculations included in the permit application, the estimated uncontrolled (prior to destruction in the flare system)VOC emission from each unit is 97.2 lb/hour. Based on a 98% destruction efficiency, this number will be reduced to 1.94 lb/hour. Additionally, please note that the SO₂ emission rate included in the above table under the tons/year column should be 7.33 tons/year and not 1.33 tons/year.

Mr. Howard L. Rhodes
June 5, 1996
Page 3

Specific Condition No. 5. This source shall meet the applicable requirements of 40 CFR Subpart WWW, NSPS for Municipal Solid Waste Landfill upon adoption by the Florida Department of Environmental Protection; 40 CFR 60.18, General Control Device Requirements; Chapters 62-209 through 297 and 62-4, F.A.C.

Response: The system is designed to meet the proposed NSPS regulations. However, since the NSPS regulations have not been officially adopted by FDEP yet, and because they may be modified by FDEP before final adoption, we cannot assure the Department, at this time, that the installed system meets a set of regulations that are not yet in effect.

Specific Condition No. 6. Compliance with the visible emissions standard shall be determined using EPA Method 22 and shall be for the duration of 2 hours. Such tests shall be conducted within 60 days of completion of construction and initial startup operation, and annually thereafter. The required visible emissions test report shall also contain the gas flow rate from the extraction wells and the flare temperature data.

Response: It is SWA's intent to conduct the visible emission tests using EPA Method 22 within 60 days of final completion of construction of the entire system (Class I and Class III systems). It is also SWA's intent to include the gas flow rate from the well fields measured at the flare stations and the flare temperature data in the test reports. These test reports will be submitted to the Department after the initial start up and annually thereafter.

Specific Condition No. 7. Sulfur content of the input gas to any flare shall not exceed 0.65 pounds per hour.

Response: We requested that this condition be deleted during our review of the draft permit, so it is unclear why this condition was included. Please note that we have little to no control over the amount of sulfur in the landfill gas and the primary purpose of installing the flare system is to destroy hazardous air pollutants that may be emitted from the landfills. The proposed flare system is designed to meet EPA emission standards for landfill gas disposal using a utility flare. We respectfully request that this specific condition be deleted from the permit.

Mr. Howard L. Rhodes
June 5, 1996
Page 4

Specific Condition No. 8. An analysis shall be performed to determine the sulfur content of input gas to the flare, by the American Society for Testing and Materials (ASTM) test method, D 1072-90, prior to any flare startup. Additional tests shall be performed on a yearly basis, and results included as part of the facility's annual operating report.

Response: Please see response to Specific Condition No 7.

Specific Condition No. 9. Pursuant to Rule 62-296.320 (2), F.A.C., Objectionable odors caused by these sources are prohibited.

Response: No comments.

Specific Condition No. 10. Total volumetric flow to any flare in the system shall be limited to 900 scfm. Total volumetric flow to the aggregate of the two flares shall be limited to 1800 scfm.

Response: Based on the landfill gas model generation rates included in the permit application, the inlet flow to each flare unit is expected to be around 900 scfm in the year 2004. Also, please note that each of the proposed flare units has a design point of 900 scfm with a maximum flow rate of 1050 scfm.

Specific Condition No. 11. Proper devices shall be installed at all wellheads, and at the flare station for 1) gas flow volume and gas pressure measurements, 2) gas composition analysis, 3) gas temperature and flame temperature recording, and 4) flow control, prior to the collection and disposal of the active landfill gases. Such devices shall be properly calibrated and maintained at all times, according to manufacturer's written instructions. The checking and recording of the gas flow, temperature, and pressure, shall be performed on a quarterly basis for all wells and on a monthly basis for the flare station.

The permittee shall keep a hard copy of the gas extraction monitoring and analysis data, as well as instrumentation history records, on site at all times. The data shall be summarized and included as part of the facility's annual operating report. These sources shall comply with recording and record keeping requirements specified in 40 CFR 60 Subpart WWW, NSPS for Municipal Solid Waste Landfills.

Mr. Howard L. Rhodes
June 5, 1996
Page 5

Response:

As indicated in the landfill gas system permit application and construction drawings, the system design includes provisions for gas sampling ports, pressure taps, temperature reading and flow control devices at each wellhead; and a flow sensor for flow measurement and thermocouples for temperature monitoring at the flare station. Also, each wellhead assembly is fitted with a set of mating flanges which are set up to accommodate future installation of orifice plates to determine flow rates. The installed devices/features will be calibrated and maintained at all times in accordance with the manufacturer's written instructions.

Currently, it is the intent of SWA to monitor gas flow, temperature, pressure, and composition at the flare station on a quarterly basis. Flare flame temperature will be monitored using the skid installed thermocouples as indicated on the project design/shop drawings. SWA will keep hard copy of this monitoring data on site at all times. This data will be summarized and included as part of the facility's annual operating report.

Additionally, it is the intent of SWA to comply with any additional future record keeping and monitoring requirements that may be added as a result of FDEP's adoption of the NSPS regulations for municipal solid waste landfills, provided that such requirements can be met without major modifications to the installed landfill gas system.

Specific Condition No. 12. The net heating value of the input gas shall be 200 Btu/scf or greater. Compliance with this parameter shall be determined by methodology specified in paragraph F of 40 CFR 60.18. Samples shall be taken, and results reported annually.

Response:

No comments.

Specific Condition No. 13. Actual exit velocity of each flare shall be calculated and reported on an annual basis, using methods specified in paragraph F of 40 CFR 60.18.

Response:

No comments.

Specific Condition No. 14. The Southeast District office shall be given at least 15 days written notice prior to compliance testing.

Response:

SWA will give the Southeast District office 15 days written

Mr. Howard L. Rhodes
June 5, 1996
Page 6

notice prior to compliance testing. At the present time, the flare system for the class I landfill is scheduled to be delivered to the site on June 17, 1996 with system start-up is tentatively scheduled to begin later that week.

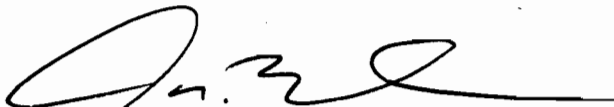
Specific Condition No. 15. Prior to placing the flare in service, the pilot gas for the flare shall be fired by propane at 25 scfh (standard cubic feet per hour). The pilot light is not required when the flame is sustained by the landfill gas alone.

Response: Prior to placing the flare in service, SWA will fire the pilot gas for the flares by propane in accordance with the design criteria which is at a rate of approximately 25 scfh.

We respectfully request that the Department review and concur with our proposed plan to comply with the permit amendment conditions. If you have any questions, please do not hesitate to call.

Very truly yours,

CAMP DRESSER & MCKEE INC.



Alex H. Makled, P.E.

AHM/mjm
Enclosures

File: 2678-08-PM2[4]

cc: John D. Booth, SWA
Robert F. Worobel, SWA
Marc C. Bruner, Ph.D., SWA

cc: Jeresa Heron, BAR
J. Kahn, SED
B. Owen, PPS
J. Koerner, PBCHU
EPA
NPS





Camp Dresser & McKee Inc.

environmental
services

1601 Belvedere Road, Suite 211 South
West Palm Beach, Florida 33406
Tel: 407 689-3336 Fax: 407 689-9713

PSD-FI-108

August 7, 1995

Mr. Hamilton Oven, P.E.
Administrator
Power Plant Siting Section
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road, MS 48
Tallahassee, Florida 32399-2400

Subject: Power Plant Site Certification PA 84-20
Application to Construct/Operate Landfill
Gas Management System for Class I and Class III Landfills
North County Resource Recovery Facility
Solid Waste Authority of Palm Beach County

Dear Mr. Oven:

The Solid Waste Authority (SWA) of Palm Beach County requests an amendment to the Power Plant Site Certification PA 84-20 to construct and operate an active landfill gas system to control emissions from the Class I and Class III landfills located at the North County Resource Recovery Facility.

Six sets of the Florida Department of Environmental Protection (FDEP) Form 62-210.900(1), applicable pages of form 62-701.900(1), and associated documentation including a \$2,000 application processing fee are provided in support of SWA's request for the amendment. The submittal is prepared in accordance with Chapters 62-210 and 62-701, F.A.C. and the construction permit requirements as defined in Chapter 62-4.210, F.A.C.

The provided six sets have been distributed as follows:

- Two-sets with the \$2,000 application processing fee are transmitted herewith to your office.
- Two sets to: Ms. Stephanie S. Brooks, P.E., Air Resources Section,
at FDEP/West Palm Beach
- Two sets to: Mr. Joseph Kahn, P.E., Solid Waste Section, at
FDEP/ West Palm Beach

Mr. Hamilton Oven, P.E.
August 7, 1995
Page 2

Also, please note that SWA is currently preparing the Title V permit application (40 CFR Part 70) for their waste to energy facility. The Title V permit application, to be submitted at a later date, will include emissions from the proposed landfill gas system flares.

Finally, this submittal is organized as follows:

- Letter of transmittal followed by processing fee check
- Form 62-210.900(1): Sections 1, 2, 3, and 4
- Applicable pages of form 62-701.900(1): Section 5
- Supporting documentation: Appendices and attached construction drawings

SWA and CDM appreciate FDEP's assistance on this project. If there are any questions regarding this request, please contact our office.

Very truly yours,

CAMP DRESSER & MCKEE INC.



8/7/95

Alex H. Makled, P.E.
Florida License No. 45935

AHM/mjm
Enclosures

File: 2678-08-RT[9]

cc: Stephanie S. Brooks, P.E., w/two sets of enclosures - FDEP/WPB
Joseph Kahn, P.E., w/two sets of enclosures - FDEP/WPB
John Booth, P.E., w/o enclosures - SWA
Marc Bruner, Ph. D., w/o enclosures - SWA
David Lowe, P.E., w/one set of enclosures - SWA
Richard Statom, w/one set of enclosures - SWA
James A. Getting, P.E., w/one set of enclosures, WET

SOLID WASTE AUTHORITY PALM BEACH COUNTY
7501 NORTH JOG ROAD
WEST PALM BEACH, FLORIDA 33412

Best Available Copy

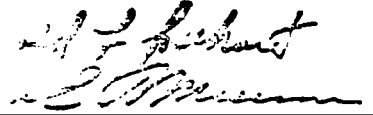
No. 087862

CHECK NO.	DATE	AMOUNT
87862	07/28/95	***2,000.00**

THE SUM OF *****2,000.00DOLLARS

VOID AFTER 90 DAYS

TO THE
ORDER OF: FL DEPT OF ENVIRONMENTAL PROTECTION
P.O. BOX 15425
WEST PALM BEACH, FL
33416



AUTHORIZED SIGNATURE

Barnett Bank of Palm Beach County
West Palm Beach, FL 33409



Best Available Copy

Application

Air Permit Application

RECEIVED
AUG 28 1995

Bureau of
Air Regulation

Solid Waste Authority of
Palm Beach County, Florida

July 1995



DEPARTMENT OF
ENVIRONMENTAL PROTECTION

AUG 11 1995

SITING COORDINATION

Prepared for:

Solid Waste Authority of
Palm Beach County
7501 North Jog Road
West Palm Beach, Florida 33416

Prepared by:

Camp Dresser & McKee Inc.
1601 Belvedere Road, Suite 211, South
West Palm Beach, Florida 33406

I N T E R O F F I C E M E M O R A N D U M

Date: 04-Sep-1995 04:34pm EST
From: Alvaro Linero TAL
LINERO_A
Dept: Air Resources Management
Tel No: 904/921-9532
SUNCOM: 291-9532

TO: See Below

Subject: Solid waste Authority, Palm Beach County

Syed. You are assigned the referenced project. It was submitted to Site Certification who received it on August 7. We, in turn, got it on August 28.

Please review it briefly. Get with Buck and ask him by what date we need to have comments about completeness (or sufficiency).

The project is for a couple of flares and a gas collection system at Class I and III landfills. It will reduce VOC's in a Maintenance area and will help reduce odor problems. At first glance it does not appear to trigger PSD at this time. Emissions are stated to be less than 25 TPY for any pollutant, but more than 5 TPY. My guess is that the main pollutant will be from SO₂ from oxidation of H₂S.

It is apparently on the site of the Palm Beach RRF which is why it is covered by Certification.

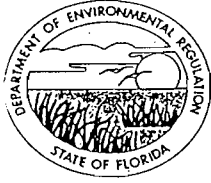
Let's see what can be done to move the project forward. Apparently these landfills have been receiving waste only since 1988/89. It may not produce enough gas to run an engine yet. If it does, we ought to try to encourage it although we have no authority on that. There is a closed landfill on an adjacent site that might be a better candidate for gas recovery per the document "Opportunities for Landfill Gas Energy Recovery in Florida," which I borrowed from Clair's desk. We ought to check status of it. Check out Clair's book for possible references and then return it to him.

Feel free to consult with project engineers (CDM), Palm Beach County (SWA), SE DEP District Air and Solid Waste Sections on this. Determine if it would be helpful to have a meeting here or in Palm Beach on this project. Coordinate with Buck, of course.

Check status of NSPS Subpart ~~www~~ to which they refer. Find out from Larry or Tom if it is a final version and if we have adopted it (or plan to).

Call Stephanie Brooks and ask her to send one of her two copies to Palm Beach HRS. Give Kim a rundown on it so it can be added to the docket and an active file started. Good luck.

Distribution:



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:	Permit Number: PSD-FL-108A
Solid Waste Authority of Palm Beach County	Expiration Date: None
7501 North Jog Road	County: Palm Beach
West Palm Beach, FL 33412	Latitude/Longitude: 26°46'00"N 80°08'45"W
	Project: North County Regional Resource Recovery Facility

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

The North County Regional Resource Recovery Facility is authorized to operate the two (2) existing RDF boilers to their maximum design input rating of 412.5 MMBtu's per hour with a maximum steam rating of 324,000 lbs. per hour, subject to the General and Specific Conditions stated herein.

This permit shall supercede the original PSD permit (PSD-FL-108) issued to the North County Regional Resource Recovery Facility.

The Resource Recovery Facility consists of three major plants: the RDF manufacturing plant, the boiler plant and the electric generating plant.

The facility is designed to process 2,000 TPD of municipal solid waste (MSW) with an annual throughput of 624,000 tons. The RDF manufacturing plant is equipped with three MSW processing lines, any two of which can handle 2,000 TPD of incoming MSW. Excess capacity and redundancy were built into the processing plant to assure that the throughput requirements could be met with one processing line down for planned or unplanned maintenance.

The boiler plant includes two B&W boilers, each designed to combust up to 900 TPD of RDF with a reference heating value of 5,500 Btu/lb (412.5 MMBtu/hr). Actual RDF heating values typically range from 4,500 to 6,200 Btu/lb respectively.

Emissions from each boiler are controlled by a Joy Technologies spray dryer absorber followed by a Joy/BSH Krefeld four field electrostatic precipitator. Each precipitator has a gas flow

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT(S)

In the matter of an
Application for Permit by:

DER File No. PSD-FL-108A
Palm Beach County


Solid Waste Authority of Palm
Beach County
7501 North Jog Road
West Palm Beach, FL 33412

Enclosed is Permit Modification Number PSD-FL-108A to allow the two (2) existing RDF boilers to operate at their maximum design input rating of 412.5 MMBtu's per hour, at the North County Regional Resource Recovery Facility in Palm Beach County, Florida, issued pursuant to section(s) 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 1-14-92 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.


(Clerk)

1-14-92
(Date)

Copies furnished to:
J. Harper, EPA
S. Brooks, SE District
C. Shaver NPS
J. Stormer, HRS

120 C

PERMITTEE: Permit Number: PSD-FL-108A
Solid Waste Authority of Palm Beach County Expiration Date: None

ing of 198,000 ACFM and is designed to operate with three of fields in service.

gas emissions (opacity, O₂, SO₂, CO and NO_x) from each unit monitored with an Enviroplan CEM system.

turbine-generator plant has a nominal output rating of 62 MW, is matched to the full output capacity of the boilers.

source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Amendments are listed below:

Solid Waste Authority application for modification received November 29, 1989.
Solid Waste Authority letter dated October 5, 1990.
HRS letter dated October 8, 1990.
Solid Waste Authority letter dated December 3, 1990.
HRS letter dated May 24, 1991.
Solid Waste Authority letter dated July 17, 1991.
Southeast District Office letter dated October 22, 1991.
HRS letter dated October 29, 1991.
Solid Waste Authority letter dated November 5, 1991.
Solid Waste Authority letter dated November 6, 1991
EPA letter dated November 20, 1991.

PERMITTEE:
Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A
Expiration Date: None

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or

PERMITTEE:
Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A
Expiration Date: None

GENERAL CONDITIONS:

auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

- a. a description of and cause of non-compliance; and
- b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source

PERMITTEE: Permit Number: PSD-FL-108A
Solid Waste Authority of Palm Beach County Expiration Date: None

GENERAL CONDITIONS:

arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- (x) Determination of Best Available Control Technology (BACT)
- (x) Determination of Prevention of Significant Deterioration (PSD)
- () Compliance with New Source Performance Standards (NSPS)

14. The permittee shall comply with the following:

- a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
- b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for

PERMITTEE: Permit Number: PSD-FL-108A
Solid Waste Authority of Palm Beach County Expiration Date: None

GENERAL CONDITIONS:

this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

1. Before the third unit commences construction, a new PSD construction permit must be submitted to the DER, since more than 18 months have elapsed from the date construction permit PSD-FL-108 was issued on December 16, 1986.

2. The Solid Waste Authority's North County Regional Resource Recovery Facility shall be allowed to operate continuously (i.e., 8,760 hrs/yr).

3. Stack emissions from each unit shall not exceed the following limits.

- a. Particulate matter: 0.015 grains per dscf corrected to 7% O₂.
- b. NO_x: 0.48 lbs/MMBtu. (24-hour block average)
- c. Carbon Monoxide: 400 ppmvd corrected to 7% O₂ (1-hour average); 200 ppmvd corrected to 7% O₂ (24-hour average).

PERMITTEE: Solid Waste Authority of Palm Beach County
Permit Number: PSD-FL-108A
Expiration Date: None

SPECIFIC CONDITIONS:

- d. Lead: 4.0×10^{-4} lbs/MMBtu.
 - e. Mercury: 2.4×10^{-4} lbs/MMBtu.
 - f. Beryllium 7.3×10^{-7} lbs/MMBtu.
 - g. Fluoride: 0.0032 lbs/MMBtu.
 - h. VOC: 0.016 lbs/MMBtu.
 - i. SO₂: 70% removal or 30 ppmvd at 7% O₂, whichever is less stringent (24-hour geometric mean).
 - j. Hydrogen Chloride: 90% removal or 25 ppmvd at 7% O₂, whichever is less stringent (3 run test average).
 - k. The opacity from each unit shall not exceed 10%, 6 minute average. CEM readings when the process is not operating shall be excluded from averaging calculations.
 - l. Dioxins/Furans: Emissions of total (tetra thru octa-chlorinated dibenzo-p dioxins and dibenzofurans) shall not exceed 60 ng/dscm at 7% O₂.
4. Each unit shall be tested within 180 days of issuance of this permit, and annually thereafter, to demonstrate compliance with emission standards mentioned in specific condition No. 3, using the following EPA test methods contained in 40 CFR 60, Appendix A, and in accordance with F.A.C. Section 17-2.700:
- a. Method 1 for selection of sample site and sample traverses.
 - b. Method 2 for determining stack gas flow rate when converting concentrations to or from mass emission limits.
 - c. Method 3 or 3A for gas analysis when needed for calculation of molecular weight or percent CO₂.
 - d. Method 4 for determining moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.
 - e. Method 5 for concentration of particulate matter and associated moisture content. One sample shall constitute one test run.
 - f. Method 9 for visible determination of the opacity of emissions.

PERMITTEE:

Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A

Expiration Date: None

SPECIFIC CONDITIONS:

- g. Method 6, 6C or 8 for concentration of SO₂, or other Methods approved by DER. Two samples, taken at approximately 30 minute intervals, shall constitute one test run.
 - h. Method 7, 7A, 7B, 7C, 7D or 7E for concentration of nitrogen oxides, or other Methods approved by DER. Four samples, taken at approximately 15 minute intervals, shall constitute one test run.
 - i. Method 26 for determination of hydrochloric acid concentration or other Methods approved by DER and EPA.
 - j. Method 10 (continuous) for determination of CO concentrations. One sample constitutes one test run.
 - k. Method 12 for determination of lead concentration and associated moisture content, or other Methods approved by DER. One sample constitutes one test run.
 - l. Method 13A or 13B for determination of fluoride concentrations and associated moisture content, or other Methods approved by DER. One sample constitutes one test run.
 - m. Method 19 for determination of "F" factors in determining compliance with heat input emission rates.
 - n. Method 101A for determination of mercury emission rate and associated moisture content, or other Methods approved by DER. One sample shall constitute one test run.
 - o. Method 104 for determination of beryllium emission rate and associated moisture content, or other Methods approved by DER. One sample shall constitute one test run.
 - p. Method 25 or 25A for determination of volatile organic compounds, or other Methods approved by DER. One sample shall constitute one test run.
 - q. Method 23 for determination of dioxin/furan concentration or other Methods approved by DER and EPA.
5. The permittee shall submit a stack test report to the Department within 45 days of testing.
6. The temperature at the exit of the dry scrubber shall not exceed 300°F (4 hour block average). Appropriate instrumentation shall be installed, if not already installed, within 180 days of

PERMITTEE: Permit Number: PSD-FL-108A
Solid Waste Authority of Palm Expiration Date: None
Beach County

SPECIFIC CONDITIONS:

issuance of this permit; at a proper location to continuously monitor and record these operating temperatures.

7. During boiler start up, the auxiliary gas burners shall be operating at their maximum capacity prior to the introduction of RDF to the boilers, and shall remain in operation until the lime spray dryer and particulate control device are fully operational.

8. During normal, non-emergency boiler shut down, the auxiliary gas burners shall be operated at their maximum capacity until all RDF has been combusted.

9. The annual capacity factor for the auxiliary gas burners, as determined by 40 CFR 60.43B(d), shall be less than 10%.

10. Open storage of solid waste outside of a building is prohibited.

11. The Solid Waste Authority's North County Regional Resource Recovery Facility shall utilize municipal solid waste as stated in the permit application. No sludge from sewage treatment plants shall be used as fuel. Use of alternate fuels would necessitate application for a modification to this permit.

12. During the compliance stack tests, RDF shall be analyzed by at least two separate labs, approved by the Department, using split samples for the Btu and moisture contents.

13. The lbs/hr of steam produced, corrected for pressure and temperature, shall be continuously monitored and recorded on a 4 hour block average. This monitor and data record shall be properly calibrated and maintained at all times.

14. Continuous Monitoring Program: The owner or operator of this source shall install (if not already installed), maintain, operate, and submit reports of excessive emissions for the SO₂, NO_x, CO, oxygen, and opacity. All averaging periods for emissions monitors shall be based on a midnight to midnight averaging period. The permittee shall also continuously monitor temperature at the dry scrubber exit, and steam production. The facility shall be operated by personnel properly trained for the equipment herein. The permittee shall provide a copy of the operation and maintenance manual for the Continuous Emissions Monitoring System to the Department within 180 days of issuance of this permit. The

PERMITTEE: Permit Number: PSD-FL-108A
Solid Waste Authority of Palm Beach County Expiration Date: None

SPECIFIC CONDITIONS:

permittee shall provide written notice to the Department 15 days prior to formal staff training sessions, and allow Department representatives to attend said training sessions.

15. Continuous monitoring data shall be collected and recorded during periods of startup, shutdown and malfunction. Emissions during periods of startup, shutdown and malfunction shall be excluded from averaging calculations, and from determinations of compliance with emissions limits of this permit provided, however, that the duration of startups, shutdowns or malfunctions shall not exceed three hours per occurrence.

- a. The startup period as stated in this condition shall mean the period when the boilers begin continuous burning of RDF, and does not include any warm up period when only the auxiliary gas burners are utilized, and no RDF is being combusted.
- b. Malfunction shall mean any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal and usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation, any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

16. The Department's Tallahassee office and the West Palm Beach District office, along with the PBCHD, shall be notified at least 30 days prior to the first annual stack tests. After the first stack tests are completed, the permittee shall give at least 15 days' written notice prior to future annual stack testing to the West Palm Beach District and PBCHD offices.

17. There shall be no objectionable odors from this facility during operation, startup, shutdown or malfunction periods.

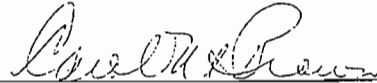
18. The permittee shall maintain a daily log of the municipal solid waste received. Such a log must record, at a minimum, the amount of waste, the time, and the type of waste received. The permittee shall also retain records of all information resulting from monitoring activities and indicating operating parameters as specified in this permit for a minimum of three years from the date of recording.

PERMITTEE:
Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A
Expiration Date: None

Issued this 13th day
of January, 1992

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



Carol M. Browner
Secretary

Final Determination

Solid Waste Authority of Palm Beach County
North County Regional Resource Recovery Facility
Palm Beach County, Florida

Modification
Permit No. PSD-FL-108A

Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

January 7, 1992

FINAL DETERMINATION

Solid Waste Authority (SWA) of Palm Beach County submitted an application for a permit modification on November 29, 1989. The North County Regional Resource Recovery Facility is currently authorized to process 2,000 tons per day of municipal solid waste with an annual throughput of 624,000 tons. The modifications requested would allow the maximum boiler heat input to increase from 360 MMBtu/hr to 412.5 MMBtu/hr. Modifications to the nitrogen oxide (NO_x) and carbon monoxide (CO) emission rates were also requested.

The Florida Department of Environmental Regulation (FDER) reviewed the application and issued a Preliminary Determination and Technical Evaluation on October 16, 1991. Modifications included raising the maximum boiler heat input rate from 360 to 412.5 MMBtu/hr, raising the NO_x emission rate from 0.32 to 0.48 lbs/MMBtu, and modifying the CO emission rate to conform with EPA's guidelines for Existing Municipal Waste Combustors. The notice of intent to issue was published in the Palm Beach Post on October 20, 1991.

The U.S. Environmental Protection Agency (EPA) submitted a letter commenting on the Preliminary Determination on November 20, 1991. The first comment made by the EPA was to modify the permit conditions for hydrogen chloride and sulfur dioxide to read the same as the federal guidelines. As a result, the words, "whichever is less stringent" were added to specific conditions 3.i and 3.j of the permit. In accordance with federal guidelines, the EPA commented that the opacity from each unit should not exceed 10%, for a 6-minute average. Specific condition 3.k was modified accordingly. The EPA also requested that the Department include an emission standard for dioxins and furans. This standard was added to the permit as specific condition 3.l and limits the emissions to 60 nanograms per standard cubic meter, corrected to 7% O₂. In accordance with this emission limitation, Method 23 has been added as specific condition 4.q.

On October 22, 1991, the Department's Southeast District (SED) office submitted a letter commenting on the Preliminary Determination. It was suggested that either an expiration date be specified or that specific condition 21 be modified to reflect some other basis for the operation permit application deadline. A review of the Preliminary Determination indicated that conditions 20 and 21 were inadvertently included in the permit (these conditions are not included for permits being reviewed under the Power Plant Siting Process). Specific conditions 20 and 21 have been removed from the permit. The SED's letter also expressed concern over the apparent increase in the mercury and VOC emission limits. After reviewing the permit history of this facility, the Department concluded that the emission limits in

the original PSD construction permit (1986) were extrapolated from the emission limits in the Power Plant Siting Certification (PPSC) in such a way as to allow higher total emissions of mercury and VOCs from the facility. The PSD permit modification (1991) used the emission limits from the PSD construction permit (1986) and not the PPSC. Compliance testing conducted for the North County Resource Recovery Facility demonstrated that neither unit tested higher than 21% of the stricter limit for mercury or 5% of the stricter limit for VOCs. As this is the case, the mercury emission limit in specific condition 3.e was changed from 0.00036 lbs/MMBtu to 0.00024 lbs/MMBtu and the VOC emission limit in specific condition 3.h was changed from 0.023 lbs/MMBtu to 0.016 lbs/MMBtu.

On November 4, 1991, the Department received a comment letter regarding the Preliminary Determination from the Palm Beach County Health Unit (PBCHU). In this letter, the PBCHU recommended including a dioxin/furan emission limit according to the federal guidelines. Also, the PBCHU concurred with the SED's comments regarding the mercury and VOC emission limits. All comments made by the PBCHU were previously addressed.

The final action of the Department will be to issue the modified permit (PSD-FL-108A) as proposed in the Technical Evaluation and Preliminary Determination except for the changes discussed above.

Best Available Control Technology (BACT)
North County Regional Resource Recovery Facility
Solid Waste Authority of Palm Beach County
Palm Beach County, Florida
PSD-FL-108-A

The applicant has constructed a resource recovery facility (RRF) located near the intersection of the Beeline Highway and the Florida Turnpike in Palm Beach County, Florida. The resource recovery facility consists of three major plants: the RDF manufacturing plant, the boiler plant and the electric generating plant.

The facility is designed to process 2,000 TPD of municipal solid waste (MSW) with an annual throughput of 624,000 tons. The RDF manufacturing plant is equipped with three MSW processing lines, any two of which can handle 2,000 TPD of incoming MSW. The boiler plant includes two B&W boilers, each designed to combust up to 900 TPD of RDF with a reference heating value of 5,500 Btu/lb (412.5 MMBtu/hr). Emissions from each boiler are controlled by a Joy Technologies spray dryer absorber followed by a Joy/BSH Krefeld four field electrostatic precipitator. Flue gas emissions (opacity, O₂, SO₂, CO and NO_x) from each unit are monitored with an Enviroplan CEM system. The turbine-generator plant has a nominal output rating of 62 MW, and is matched to the full output capacity of the boilers.

The original application to construct the facility was submitted in 1985. As the permit was being finalized in 1986, the applicant met with the Department to identify several items where the proposed permit differed from the designs being finalized and the contract for construction and operation which was executed in 1986. The primary issue concerned heat input. The draft permit provided a heat input of 360 MMBtu/hr capacity for each boiler. The design allowed heat input of 412.5 MMBtu/hr. This higher boiler capacity was intended to provide more reliable operating margins. The increased capacity allows more throughput during peak waste generation periods, allows for catch up capacity after scheduled or unscheduled downtime and to account for variability in fuel heating value. The increased capacity decreases the likelihood that raw garbage would be diverted to the landfill.

In addition to permitted heat input, the applicant also identified emission limitations for some air pollutants for which the draft permit and contract differed. Based on the discussions conducted in 1986, the Department and the applicant concurred that the permit would be issued as drafted. The applicant agreed to accept the permit as drafted and submit a request for modification to conform the permit to the design at a later date.

In 1989, the applicant submitted a request to increase the permitted boiler capacity and modify the emission limitations for the pollutants nitrogen oxides, carbon monoxide, sulfur dioxide, sulfuric acid mist, lead, and mercury. Subsequently the applicant withdrew the request for modifications of emission limitations for lead and mercury. In accordance with this request, BACT has been re-evaluated for nitrogen oxides and carbon monoxide. The emission limitation for sulfur dioxide has been reviewed from the standpoint of alternative means of determining compliance, and an evaluation has been made to determine if an emission limitation is needed for sulfuric acid mist.

BACT Determination Requested by the Applicant:

Current Permit Language	Requested Modification
NO _x : 0.32 lbs/MMBtu	0.56 lbs/MMBtu
CO: 400 PPMDV (3 hr. avg.) @ 12% CO ₂	200 PPMDV (24 hr. avg.) @ 12% CO ₂ 400 PPMDV (1 hr. avg.) @ 12% CO ₂

Date of Receipt of a BACT Application:

November 30, 1989

BACT Determination Procedure:

In accordance with Florida Administrative Code Chapter 17-2, Air Pollution, this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

- (a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169, and any emission limitation contained in 40CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).
- (b) All scientific, engineering, and technical material and other information available to the Department.
- (c) The emission limiting standards of BACT determinations of any other state.

- (d) The social and economic impact of the application of such technology.

With regard to the considerations outlined above, the evaluation will also take into account both the regulations as they existed in 1986 when the original permit was issued, and the emission guidelines for existing municipal waste combustors that have recently been promulgated under Section 111(d) and 129 of the Clean Air Act Amendments of 1990.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

Nitrogen Oxides

The applicant asserted that original NO_x limit of 0.32 lb/MMBtu is too stringent. This was based on permit limitations allowing higher NO_x emissions for mass burn facilities permitted in Florida prior to or concurrently with the applicant's facility. The applicant requested the permit limit be changed from .32 lbs/MMBtu to .56 lbs/MMBtu.

A review of the BACT/LAER Clearinghouse suggest that the NO_x limit requested by the applicant is comparatively high. Although no RDF facilities have been required to use add on equipment for NO_x control, such as thermal de-NO_x, several RDF facilities have been permitted with lower than the applicant's requested NO_x limitations.

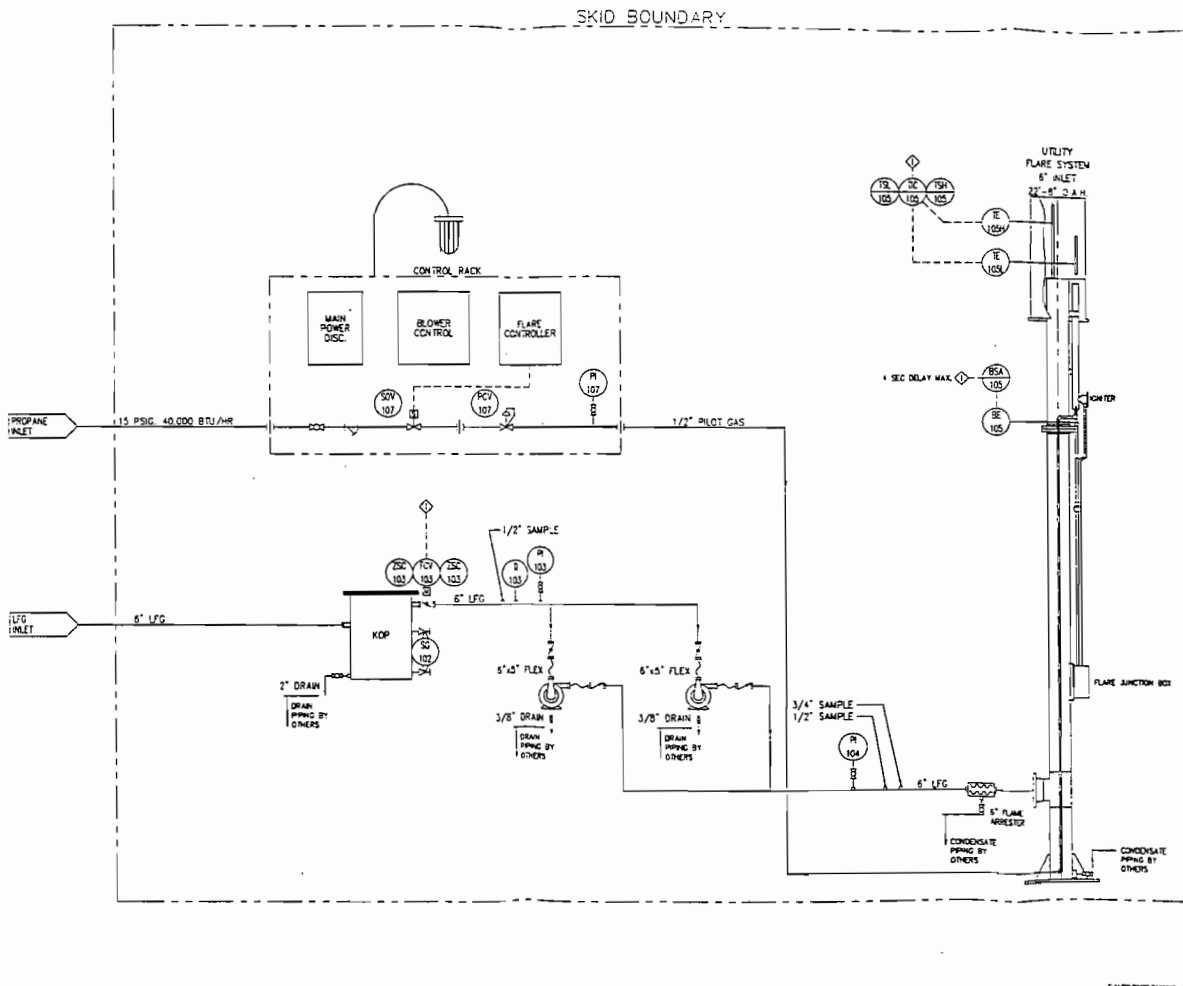
Two RDF facilities, in Huntsville, Alabama and Honolulu, Hawaii were permitted in 1987 (Palm Beach RRF was permitted in 1986). Each had NO_x emission limitations of 0.46 lb/MMBtu and 260 ppm_v at 12% CO₂ (equates to approximately 0.46 lb/MMBtu for the Palm Beach Facility). Given these limitations and the stack test results, an emission level of 0.48 lb/MMBtu is viewed to be reasonable for the Palm Beach RRF and is thereby judged to represent BACT.

Carbon Monoxide

The applicant has proposed a reduction in the emission limitation for carbon monoxide as a valid criteria to demonstrate good combustion practices.

APPENDIX C
P-20000000

NO.	SYMBOL	DESCRIPTION
SC-102	2" LG	2" LG GAS LINE
PCV-101	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-102	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-103	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-104	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-105	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-106	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-107	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-108	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-109	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-110	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-111	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-112	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-113	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-114	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-115	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-116	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-117	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-118	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-119	2" LG	2" LG GAS PRESSURE CONTROL VALVE
PCV-120	2" LG	2" LG GAS PRESSURE CONTROL VALVE



C:\WORK\PROJECTS\17-1-14-87\2475.H 17

REV.	DESCRIPTION	DATE

LFG SPECIALTIES, INC.
 HEAD OFFICE
 7550 LUCERNE DRIVE #110
 CLEVELAND, OHIO 44130
 (216) 891-0305

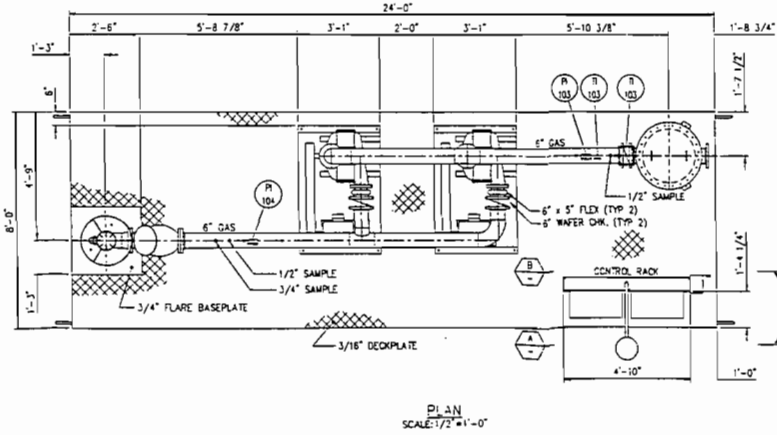
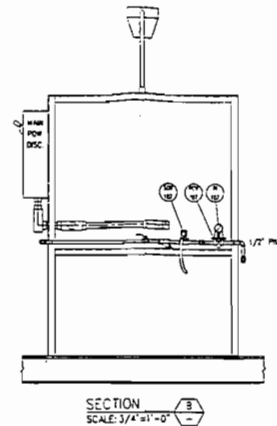
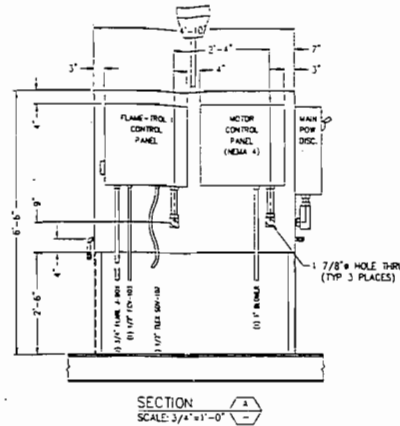
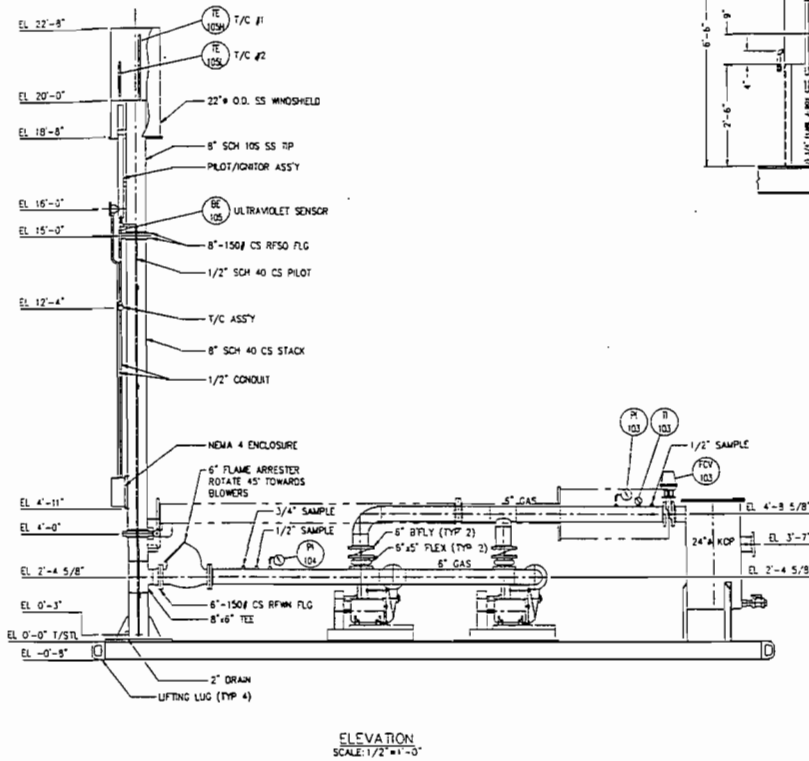
PLANT
 105 FRIENDSHIP DRIVE
 NEW CANTON, OHIO 43762
 (614) 826-7422

SCALE	DATE	PROJECT NAME	PROJECT NUMBER
1" = 10'	07/24/95		P59506B

PIPING AND INSTRUMENTATION DIAGRAM
 TYPICAL

P59506B

This drawing and the information contained herein is the property of LFG SPECIALTIES, INC. and is loaned to the user for their use only. It is not to be used for any other purpose without written permission from LFG SPECIALTIES, INC.



REV.	DESCRIPTION	DATE	BY

LFG SPECIALTIES, INC.

HEAD OFFICE: 7550 LUCERNE DRIVE #110
CLEVELAND, OHIO 44130
(216) 891-0305

PLANT: 705 FRIENDSHIP DRIVE
NEW CONCORD, OHIO 43762
(614) 826-7422

FILE NO.	AS NOTED	DATE	BY
PROJECT NAME	UTILITY FLARE PACKAGE	2/24/95	L.K.
DRAWING NUMBER	PLAN, ELEVATION & DETAILS		
DESIGNED BY	TYPICAL		
CHECKED BY			
PROJECT NUMBER	P59506B1		

P 339 251 117

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to MR. Alex Makled	
Street & Number 1601 BELVEDERE RD. STE 211 S.	
Post Office, State, & ZIP Code West Palm Bch FL 33406	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	6/25/96
PSD - FL-108(B)	

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1. Addressee's Address
- 2. Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
MR. ALEX MAKLED, P.E.
CAMP, DRESSER & MCKEE, INC
1601 BELVEDERE RD. STE 211 S.
WEST PALM BEACH, FL 33406

4a. Article Number
P 339 251 117

4b. Service Type

<input type="checkbox"/> Registered	<input type="checkbox"/> Insured
<input checked="" type="checkbox"/> Certified	<input type="checkbox"/> COD
<input type="checkbox"/> Express Mail	<input type="checkbox"/> Return Receipt for Merchandise

7. Date of Delivery
7.9.96

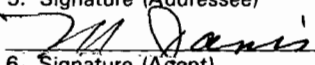
5. Signature (Addressee)


8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

SENDER: <ul style="list-style-type: none"> • Complete items 1 and/or 2 for additional services. • Complete items 3, and 4a & b. • Print your name and address on the reverse of this form so that we can return this card to you. • Attach this form to the front of the mailpiece, or on the back if space does not permit. • Write "Return Receipt Requested" on the mailpiece below the article number. • The Return Receipt will show to whom the article was delivered and the date delivered. 		I also wish to receive the following services (for an extra fee): <ol style="list-style-type: none"> <input type="checkbox"/> Addressee's Address <input type="checkbox"/> Restricted Delivery Consult postmaster for fee.							
3. Article Addressed to: David B. Lowe Solid Waste Authority of Palm Bch CO 7501 N. 208 Rd West Palm Bch, FL 33412		4a. Article Number 2 127 633 170							
5. Signature (Addressee) 		4b. Service Type <table border="0"> <tr> <td><input type="checkbox"/> Registered</td> <td><input type="checkbox"/> Insured</td> </tr> <tr> <td><input checked="" type="checkbox"/> Certified</td> <td><input type="checkbox"/> COD</td> </tr> <tr> <td><input type="checkbox"/> Express Mail</td> <td><input type="checkbox"/> Return Receipt for Merchandise</td> </tr> </table>		<input type="checkbox"/> Registered	<input type="checkbox"/> Insured	<input checked="" type="checkbox"/> Certified	<input type="checkbox"/> COD	<input type="checkbox"/> Express Mail	<input type="checkbox"/> Return Receipt for Merchandise
<input type="checkbox"/> Registered	<input type="checkbox"/> Insured								
<input checked="" type="checkbox"/> Certified	<input type="checkbox"/> COD								
<input type="checkbox"/> Express Mail	<input type="checkbox"/> Return Receipt for Merchandise								
6. Signature (Agent)		7. Date of Delivery 2/23/96							
		8. Addressee's Address (Only if requested and fee is paid)							

Thank you for using Return Receipt Service.

PS Form 3811, December 1991 *U.S. GPO: 1993-352-714 DOMESTIC RETURN RECEIPT

2 127 633 170



Receipt for Certified Mail

No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

PS Form 3800, March 1993

Sent to	David Lowe
Street, Apt. No.	Solid Waste Auth.
P.O., State, and ZIP Code	of PBC
Postage	West Palm Bch
Certified Fee	FL
Special Delivery Fee	
Restricted Delivery Fee	
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NO. 195837
STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION
NOTICE OF
INTENT TO ISSUE PERMIT
AMENDMENT
PSD-FL-108(S)

The Department of Environmental Protection gives notice of its intent to issue a permit amendment to the Solid Waste Authority of Palm Beach County to incorporate permit changes to reflect the installation of a landfill gas collection system to control emissions from the Class I and Class III landfills at the North County Resources Recovery Facility (NCRRF). This facility is located at 7501 North Jog Road, West Palm Beach, Palm Beach County, Florida.

The landfills associated with the NCRRF consist of a 174-acre Class I landfill of double-liner technology with a leachate collection system and a 152 acre Class III landfill of single-liner technology with a leachate collection system. Landfilling (Class I and Class III) at the site began in 1988 upon closing of the Dyer Boulevard Landfill, northeast of this site. Construction of the 327-acre landfill is to be phased over the life of the facility with site closure estimated for 2017 based on the Landfill Airspace Depletion Model. The installation of landfill gas collection system and flares will reduce the emissions of volatile organic compounds and control odors. The project will emit less than significant amounts of nitrogen oxides, volatile organic compounds, sulfur dioxide, particulate matter and carbon monoxide and will not result in the increase of ground level concentrations of these pollutants.

This permit amendment is issued pursuant to Section 4039, Florida Statutes. Any person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information; (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or

proposed action. If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during normal business hours, 8:00 am to 5:00 p.m., Monday through Friday, except legal holidays, at:
Department of Environmental Protection, Bureau of Air Regulation, 111 S. Mangolia Drive, Suite 4, Tallahassee, Florida 32301
Department of Environmental Protection, 1900 South Congress Avenue, Air A, West Palm Beach, FL 33406
Division of Environmental Science, Palm Beach County Health Unit, 901 Evernia, West Palm Beach, Florida 33402-0029

Any person may send written comments on the proposed action to Administrator, New Source Review Section, of the Department of Environmental Protection, Mail Station 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination. Further, a public hearing can be requested by any person(s). Such requests must be submitted within 30 days of this notice.
PUB: The Palm Beach Post
January 19, 1996

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
*David B. Lowe
 Solid Waste Authority
 of Palm Bch Co.
 7501 N. 90th Rd
 West Palm Bch, FL 33412*

4a. Article Number
2127 633 227

4b. Service Type
 Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise

7. Date of Delivery
12/28/95

5. Signature (Addressee)
[Signature]

6. Signature (Agent)
[Signature]

8. Addressee's Address (Only if requested and fee is paid)

Thank you for using Return Receipt Service.

2 127 633 227



Receipt for Certified Mail
 No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

Sent to
David B. Lowe

Street and No.
Solid Waste Authority

P.O., State and ZIP Code
of Palm Bch

Postage
West Palm Bch, FL

Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
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TOTAL Postage & Fees	\$
Postmark or Date	<i>12-28-95</i>

PSD-FL-108(B)

PS Form 3800, March 1993

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT[S]

In the matter of an
Application for Permit by:

DER File No. PSD-FL-108A
Palm Beach County

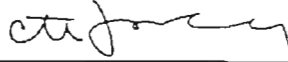
Solid Waste Authority of Palm
Beach County
7501 North Jog Road
West Palm Beach, FL 33412

Enclosed is Permit Modification Number PSD-FL-108A to allow the two (2) existing RDF boilers to operate at their maximum design input rating of 412.5 MMBtu's per hour, at the North County Regional Resource Recovery Facility in Palm Beach County, Florida, issued pursuant to section(s) 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

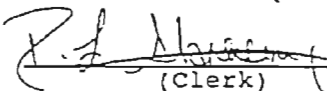

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 1-14-92 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.


(Clerk)

1-14-92
(Date)

Copies furnished to:
J. Harper, EPA
S. Brooks, SE District
C. Shaver NPS
J. Stormer, HRS

120 C



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:	Permit Number: PSD-FL-108A
Solid Waste Authority of Palm Beach County	Expiration Date: None
7501 North Jog Road	County: Palm Beach
West Palm Beach, FL 33412	Latitude/Longitude: 26°46'00"N 80°08'45"W
	Project: North County Regional Resource Recovery Facility

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

The North County Regional Resource Recovery Facility is authorized to operate the two (2) existing RDF boilers to their maximum design input rating of 412.5 MMBtu's per hour with a maximum steam rating of 324,000 lbs. per hour, subject to the General and Specific Conditions stated herein.

This permit shall supercede the original PSD permit (PSD-FL-108) issued to the North County Regional Resource Recovery Facility.

The Resource Recovery Facility consists of three major plants: the RDF manufacturing plant, the boiler plant and the electric generating plant.

The facility is designed to process 2,000 TPD of municipal solid waste (MSW) with an annual throughput of 624,000 tons. The RDF manufacturing plant is equipped with three MSW processing lines, any two of which can handle 2,000 TPD of incoming MSW. Excess capacity and redundancy were built into the processing plant to assure that the throughput requirements could be met with one processing line down for planned or unplanned maintenance.

The boiler plant includes two B&W boilers, each designed to combust up to 900 TPD of RDF with a reference heating value of 5,500 Btu/lb (412.5 MMBtu/hr). Actual RDF heating values typically range from 4,500 to 6,200 Btu/lb respectively.

Emissions from each boiler are controlled by a Joy Technologies spray dryer absorber followed by a Joy/BSH Krefeld four field electrostatic precipitator. Each precipitator has a gas flow

COMTEE:
Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A
Expiration Date: None

ing of 198,000 ACFM and is designed to operate with three of
fields in service.

gas emissions (opacity, O₂, SO₂, CO and NO_x) from each unit
monitored with an Enviroplan CEM system.

turbine-generator plant has a nominal output rating of 62 MW,
is matched to the full output capacity of the boilers.

source shall be constructed in accordance with the permit
ication, plans, documents, amendments and drawings, except as
rwise noted in the General and Specific Conditions.

chments are listed below:

Solid Waste Authority application for modification received
November 29, 1989.

Solid Waste Authority letter dated October 5, 1990.

HRS letter dated October 8, 1990.

Solid Waste Authority letter dated December 3, 1990.

HRS letter dated May 24, 1991.

Solid Waste Authority letter dated July 17, 1991.

Southeast District Office letter dated October 22, 1991.

HRS letter dated October 29, 1991.

Solid Waste Authority letter dated November 5, 1991.

Solid Waste Authority letter dated November 6, 1991

EPA letter dated November 20, 1991.

PERMITTEE:
Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A
Expiration Date: None

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or

PERMITTEE:
Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A
Expiration Date: None

GENERAL CONDITIONS:

auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

- a. a description of and cause of non-compliance; and
- b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source

PERMITTEE:
Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A
Expiration Date: None

GENERAL CONDITIONS:

arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- (x) Determination of Best Available Control Technology (BACT)
- (x) Determination of Prevention of Significant Deterioration (PSD)
- () Compliance with New Source Performance Standards (NSPS)

14. The permittee shall comply with the following:

- a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
- b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for

PERMITTEE:
Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A
Expiration Date: None

GENERAL CONDITIONS:

this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

1. Before the third unit commences construction, a new PSD construction permit must be submitted to the DER, since more than 18 months have elapsed from the date construction permit PSD-FL-108 was issued on December 16, 1986.

2. The Solid Waste Authority's North County Regional Resource Recovery Facility shall be allowed to operate continuously (i.e., 8,760 hrs/yr).

3. Stack emissions from each unit shall not exceed the following limits.

- a. Particulate matter: 0.015 grains per dscf corrected to 7% O₂.
- b. NO_x: 0.48 lbs/MMBtu. (24-hour block average)
- c. Carbon Monoxide: 400 ppmvd corrected to 7% O₂ (1-hour average); 200 ppmvd corrected to 7% O₂ (24-hour average).

PERMITTEE:

Solid Waste Authority of Palm
Beach County

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Expiration Date: None

SPECIFIC CONDITIONS:

- d. Lead: 4.0×10^{-4} lbs/MMBtu.
 - e. Mercury: 2.4×10^{-4} lbs/MMBtu.
 - f. Beryllium 7.3×10^{-7} lbs/MMBtu.
 - g. Fluoride: 0.0032 lbs/MMBtu.
 - h. VOC: 0.016 lbs/MMBtu.
 - i. SO₂: 70% removal or 30 ppmvd at 7% O₂, whichever is less stringent (24-hour geometric mean).
 - j. Hydrogen Chloride: 90% removal or 25 ppmvd at 7% O₂, whichever is less stringent (3 run test average).
 - k. The opacity from each unit shall not exceed 10%, 6 minute average. CEM readings when the process is not operating shall be excluded from averaging calculations.
 - l. Dioxins/Furans: Emissions of total (tetra thru octa-chlorinated dibenzo-p dioxins and dibenzofurans) shall not exceed 60 ng/dscm at 7% O₂.
4. Each unit shall be tested within 180 days of issuance of this permit, and annually thereafter, to demonstrate compliance with emission standards mentioned in specific condition No. 3, using the following EPA test methods contained in 40 CFR 60, Appendix A, and in accordance with F.A.C. Section 17-2.700:
- a. Method 1 for selection of sample site and sample traverses.
 - b. Method 2 for determining stack gas flow rate when converting concentrations to or from mass emission limits.
 - c. Method 3 or 3A for gas analysis when needed for calculation of molecular weight or percent CO₂.
 - d. Method 4 for determining moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.
 - e. Method 5 for concentration of particulate matter and associated moisture content. One sample shall constitute one test run.
 - f. Method 9 for visible determination of the opacity of emissions.

PERMITTEE:

Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A

Expiration Date: None

SPECIFIC CONDITIONS:

- g. Method 6, 6C or 8 for concentration of SO₂, or other Methods approved by DER. Two samples, taken at approximately 30 minute intervals, shall constitute one test run.
 - h. Method 7, 7A, 7B, 7C, 7D or 7E for concentration of nitrogen oxides, or other Methods approved by DER. Four samples, taken at approximately 15 minute intervals, shall constitute one test run.
 - i. Method 26 for determination of hydrochloric acid concentration or other Methods approved by DER and EPA.
 - j. Method 10 (continuous) for determination of CO concentrations. One sample constitutes one test run.
 - k. Method 12 for determination of lead concentration and associated moisture content, or other Methods approved by DER. One sample constitutes one test run.
 - l. Method 13A or 13B for determination of fluoride concentrations and associated moisture content, or other Methods approved by DER. One sample constitutes one test run.
 - m. Method 19 for determination of "F" factors in determining compliance with heat input emission rates.
 - n. Method 101A for determination of mercury emission rate and associated moisture content, or other Methods approved by DER. One sample shall constitute one test run.
 - o. Method 104 for determination of beryllium emission rate and associated moisture content, or other Methods approved by DER. One sample shall constitute one test run.
 - p. Method 25 or 25A for determination of volatile organic compounds, or other Methods approved by DER. One sample shall constitute one test run.
 - q. Method 23 for determination of dioxin/furan concentration or other Methods approved by DER and EPA.
5. The permittee shall submit a stack test report to the Department within 45 days of testing.
6. The temperature at the exit of the dry scrubber shall not exceed 300°F (4 hour block average). Appropriate instrumentation shall be installed, if not already installed, within 180 days of

PERMITTEE:
Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A
Expiration Date: None

SPECIFIC CONDITIONS:

issuance of this permit, at a proper location to continuously monitor and record these operating temperatures.

7. During boiler start up, the auxiliary gas burners shall be operating at their maximum capacity prior to the introduction of RDF to the boilers, and shall remain in operation until the lime spray dryer and particulate control device are fully operational.

8. During normal, non-emergency boiler shut down, the auxiliary gas burners shall be operated at their maximum capacity until all RDF has been combusted.

9. The annual capacity factor for the auxiliary gas burners, as determined by 40 CFR 60.43B(d), shall be less than 10%.

10. Open storage of solid waste outside of a building is prohibited.

11. The Solid Waste Authority's North County Regional Resource Recovery Facility shall utilize municipal solid waste as stated in the permit application. No sludge from sewage treatment plants shall be used as fuel. Use of alternate fuels would necessitate application for a modification to this permit.

12. During the compliance stack tests, RDF shall be analyzed by at least two separate labs, approved by the Department, using split samples for the Btu and moisture contents.

13. The lbs/hr of steam produced, corrected for pressure and temperature, shall be continuously monitored and recorded on a 4 hour block average. This monitor and data record shall be properly calibrated and maintained at all times.

14. Continuous Monitoring Program: The owner or operator of this source shall install (if not already installed), maintain, operate, and submit reports of excessive emissions for the SO₂, NO_x, CO, oxygen, and opacity. All averaging periods for emissions monitors shall be based on a midnight to midnight averaging period. The permittee shall also continuously monitor temperature at the dry scrubber exit, and steam production. The facility shall be operated by personnel properly trained for the equipment herein. The permittee shall provide a copy of the operation and maintenance manual for the Continuous Emissions Monitoring System to the Department within 180 days of issuance of this permit. The

PERMITTEE:
Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A
Expiration Date: None

SPECIFIC CONDITIONS:

permittee shall provide written notice to the Department 15 days prior to formal staff training sessions, and allow Department representatives to attend said training sessions.

15. Continuous monitoring data shall be collected and recorded during periods of startup, shutdown and malfunction. Emissions during periods of startup, shutdown and malfunction shall be excluded from averaging calculations, and from determinations of compliance with emissions limits of this permit provided, however, that the duration of startups, shutdowns or malfunctions shall not exceed three hours per occurrence.

- a. The startup period as stated in this condition shall mean the period when the boilers begin continuous burning of RDF, and does not include any warm up period when only the auxiliary gas burners are utilized, and no RDF is being combusted.
- b. Malfunction shall mean any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal and usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation, any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

16. The Department's Tallahassee office and the West Palm Beach District office, along with the PBCHD, shall be notified at least 30 days prior to the first annual stack tests. After the first stack tests are completed, the permittee shall give at least 15 days' written notice prior to future annual stack testing to the West Palm Beach District and PBCHD offices.

17. There shall be no objectionable odors from this facility during operation, startup, shutdown or malfunction periods.

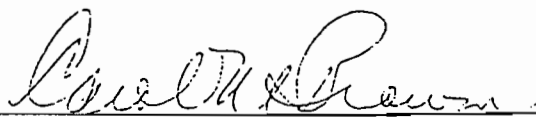
18. The permittee shall maintain a daily log of the municipal solid waste received. Such a log must record, at a minimum, the amount of waste, the time, and the type of waste received. The permittee shall also retain records of all information resulting from monitoring activities and indicating operating parameters as specified in this permit for a minimum of three years from the date of recording.

PERMITTEE:
Solid Waste Authority of Palm
Beach County

Permit Number: PSD-FL-108A
Expiration Date: None

Issued this 13th day
of January, 1992

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



Carol M. Browner
Secretary

Final Determination

Solid Waste Authority of Palm Beach County
North County Regional Resource Recovery Facility
Palm Beach County, Florida

Modification
Permit No. PSD-FL-108A

Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

January 7, 1992

FINAL DETERMINATION

Solid Waste Authority (SWA) of Palm Beach County submitted an application for a permit modification on November 29, 1989. The North County Regional Resource Recovery Facility is currently authorized to process 2,000 tons per day of municipal solid waste with an annual throughput of 624,000 tons. The modifications requested would allow the maximum boiler heat input to increase from 360 MMBtu/hr to 412.5 MMBtu/hr. Modifications to the nitrogen oxide (NO_x) and carbon monoxide (CO) emission rates were also requested.

The Florida Department of Environmental Regulation (FDER) reviewed the application and issued a Preliminary Determination and Technical Evaluation on October 16, 1991. Modifications included raising the maximum boiler heat input rate from 360 to 412.5 MMBtu/hr, raising the NO_x emission rate from 0.32 to 0.48 lbs/MMBtu, and modifying the CO emission rate to conform with EPA's guidelines for Existing Municipal Waste Combustors. The notice of intent to issue was published in the Palm Beach Post on October 20, 1991.

The U.S. Environmental Protection Agency (EPA) submitted a letter commenting on the Preliminary Determination on November 20, 1991. The first comment made by the EPA was to modify the permit conditions for hydrogen chloride and sulfur dioxide to read the same as the federal guidelines. As a result, the words, "whichever is less stringent" were added to specific conditions 3.i and 3.j of the permit. In accordance with federal guidelines, the EPA commented that the opacity from each unit should not exceed 10%, for a 6-minute average. Specific condition 3.k was modified accordingly. The EPA also requested that the Department include an emission standard for dioxins and furans. This standard was added to the permit as specific condition 3.l and limits the emissions to 60 nanograms per standard cubic meter, corrected to 7% O₂. In accordance with this emission limitation, Method 23 has been added as specific condition 4.q.

On October 22, 1991, the Department's Southeast District (SED) office submitted a letter commenting on the Preliminary Determination. It was suggested that either an expiration date be specified or that specific condition 21 be modified to reflect some other basis for the operation permit application deadline. A review of the Preliminary Determination indicated that conditions 20 and 21 were inadvertently included in the permit (these conditions are not included for permits being reviewed under the Power Plant Siting Process). Specific conditions 20 and 21 have been removed from the permit. The SED's letter also expressed concern over the apparent increase in the mercury and VOC emission limits. After reviewing the permit history of this facility, the Department concluded that the emission limits in

the original PSD construction permit (1986) were extrapolated from the emission limits in the Power Plant Siting Certification (PPSC) in such a way as to allow higher total emissions of mercury and VOCs from the facility. The PSD permit modification (1991) used the emission limits from the PSD construction permit (1986) and not the PPSC. Compliance testing conducted for the North County Resource Recovery Facility demonstrated that neither unit tested higher than 21% of the stricter limit for mercury or 5% of the stricter limit for VOCs. As this is the case, the mercury emission limit in specific condition 3.e was changed from 0.00036 lbs/MMBtu to 0.00024 lbs/MMBtu and the VOC emission limit in specific condition 3.h was changed from 0.023 lbs/MMBtu to 0.016 lbs/MMBtu.

On November 4, 1991, the Department received a comment letter regarding the Preliminary Determination from the Palm Beach County Health Unit (PBCHU). In this letter, the PBCHU recommended including a dioxin/furan emission limit according to the federal guidelines. Also, the PBCHU concurred with the SED's comments regarding the mercury and VOC emission limits. All comments made by the PBCHU were previously addressed.

The final action of the Department will be to issue the modified permit (PSD-FL-108A) as proposed in the Technical Evaluation and Preliminary Determination except for the changes discussed above.

Best Available Control Technology (BACT)
North County Regional Resource Recovery Facility
Solid Waste Authority of Palm Beach County
Palm Beach County, Florida
PSD-FL-108-A

The applicant has constructed a resource recovery facility (RRF) located near the intersection of the Beeline Highway and the Florida Turnpike in Palm Beach County, Florida. The resource recovery facility consists of three major plants: the RDF manufacturing plant, the boiler plant and the electric generating plant.

The facility is designed to process 2,000 TPD of municipal solid waste (MSW) with an annual throughput of 624,000 tons. The RDF manufacturing plant is equipped with three MSW processing lines, any two of which can handle 2,000 TPD of incoming MSW. The boiler plant includes two B&W boilers, each designed to combust up to 900 TPD of RDF with a reference heating value of 5,500 Btu/lb (412.5 MMBtu/hr). Emissions from each boiler are controlled by a Joy Technologies spray dryer absorber followed by a Joy/BSH Krefeld four field electrostatic precipitator. Flue gas emissions (opacity, O₂, SO₂, CO and NO_x) from each unit are monitored with an Enviroplan CEM system. The turbine-generator plant has a nominal output rating of 62 MW, and is matched to the full output capacity of the boilers.

The original application to construct the facility was submitted in 1985. As the permit was being finalized in 1986, the applicant met with the Department to identify several items where the proposed permit differed from the designs being finalized and the contract for construction and operation which was executed in 1986. The primary issue concerned heat input. The draft permit provided a heat input of 360 MMBtu/hr capacity for each boiler. The design allowed heat input of 412.5 MMBtu/hr. This higher boiler capacity was intended to provide more reliable operating margins. The increased capacity allows more throughput during peak waste generation periods, allows for catch up capacity after scheduled or unscheduled downtime and to account for variability in fuel heating value. The increased capacity decreases the likelihood that raw garbage would be diverted to the landfill.

In addition to permitted heat input, the applicant also identified emission limitations for some air pollutants for which the draft permit and contract differed. Based on the discussions conducted in 1986, the Department and the applicant concurred that the permit would be issued as drafted. The applicant agreed to accept the permit as drafted and submit a request for modification to conform the permit to the design at a later date.

In 1989, the applicant submitted a request to increase the permitted boiler capacity and modify the emission limitations for the pollutants nitrogen oxides, carbon monoxide, sulfur dioxide, sulfuric acid mist, lead, and mercury. Subsequently the applicant withdrew the request for modifications of emission limitations for lead and mercury. In accordance with this request, BACT has been re-evaluated for nitrogen oxides and carbon monoxide. The emission limitation for sulfur dioxide has been reviewed from the standpoint of alternative means of determining compliance, and an evaluation has been made to determine if an emission limitation is needed for sulfuric acid mist.

BACT Determination Requested by the Applicant:

Current Permit Language	Requested Modification
NO _x : 0.32 lbs/MMBtu	0.56 lbs/MMBtu
CO: 400 PPMDV (3 hr. avg.) @ 12% CO ₂	200 PPMDV (24 hr. avg.) @ 12% CO ₂ 400 PPMDV (1 hr. avg.) @ 12% CO ₂

Date of Receipt of a BACT Application:

November 30, 1989

BACT Determination Procedure:

In accordance with Florida Administrative Code Chapter 17-2, Air Pollution, this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

- (a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169, and any emission limitation contained in 40CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).
- (b) All scientific, engineering, and technical material and other information available to the Department.
- (c) The emission limiting standards of BACT determinations of any other state.

- (d) The social and economic impact of the application of such technology.

With regard to the considerations outlined above, the evaluation will also take into account both the regulations as they existed in 1986 when the original permit was issued, and the emission guidelines for existing municipal waste combustors that have recently been promulgated under Section 111(d) and 129 of the Clean Air Act Amendments of 1990.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

Nitrogen Oxides

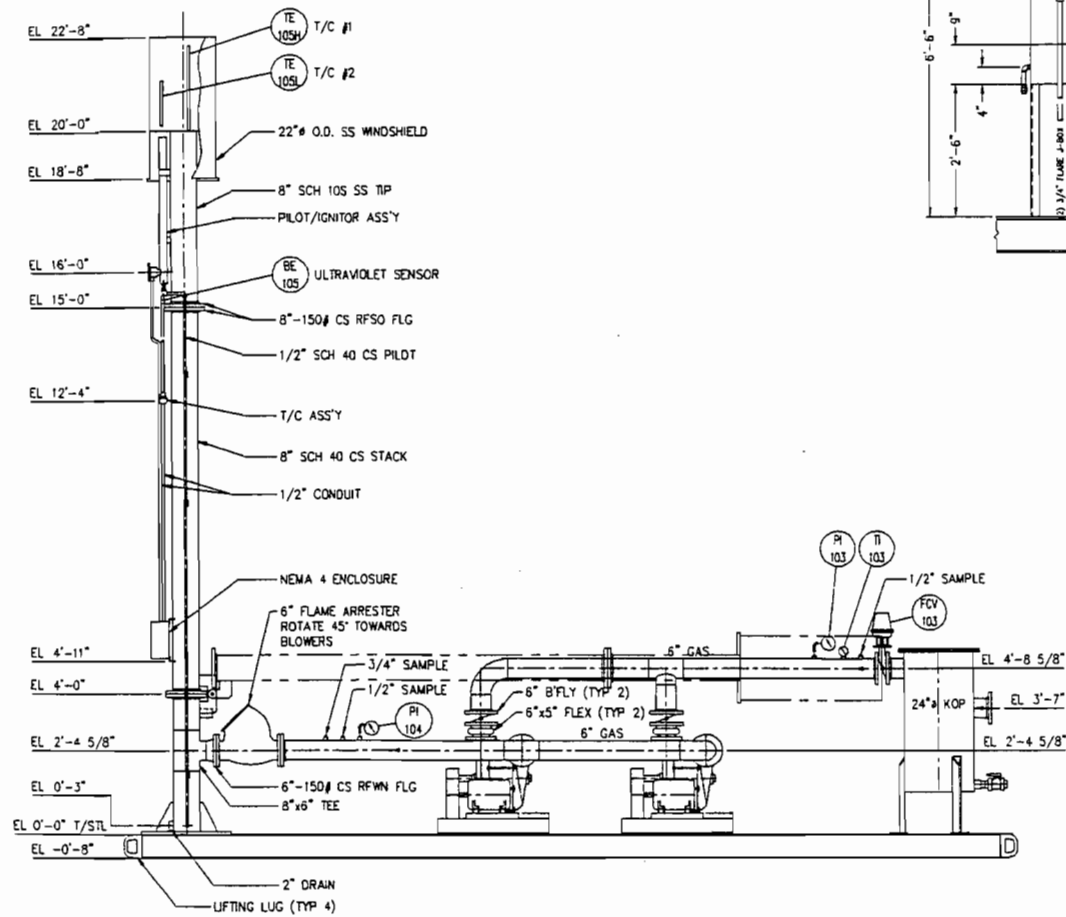
The applicant asserted that original NO_x limit of 0.32 lb/MMBtu is too stringent. This was based on permit limitations allowing higher NO_x emissions for mass burn facilities permitted in Florida prior to or concurrently with the applicant's facility. The applicant requested the permit limit be changed from .32 lbs/MMBtu to .56 lbs/MMBtu.

A review of the BACT/LAER Clearinghouse suggest that the NO_x limit requested by the applicant is comparatively high. Although no RDF facilities have been required to use add on equipment for NO_x control, such as thermal de-NO_x, several RDF facilities have been permitted with lower than the applicant's requested NO_x limitations.

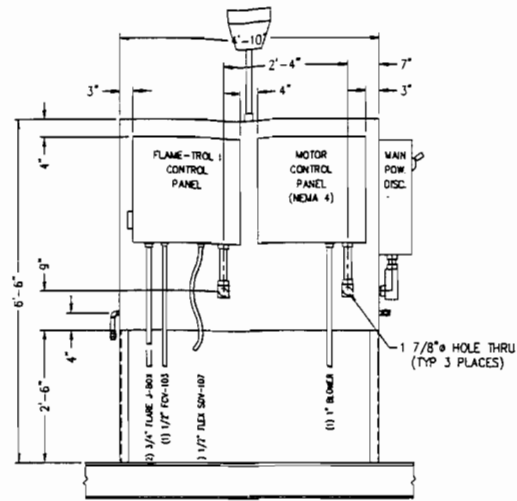
Two RDF facilities, in Huntsville, Alabama and Honolulu, Hawaii were permitted in 1987 (Palm Beach RRF was permitted in 1986). Each had NO_x emission limitations of 0.46 lb/MMBtu and 260 ppm_{dv} at 12% CO₂ (equates to approximately 0.46 lb/MMBtu for the Palm Beach Facility). Given these limitations and the stack test results, an emission level of 0.48 lb/MMBtu is viewed to be reasonable for the Palm Beach RRF and is thereby judged to represent BACT.

Carbon Monoxide

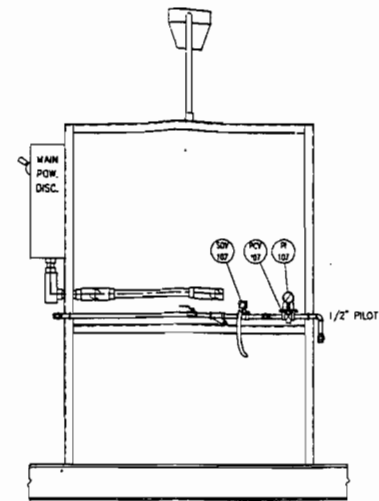
The applicant has proposed a reduction in the emission limitation for carbon monoxide as a valid criteria to demonstrate good combustion practices.



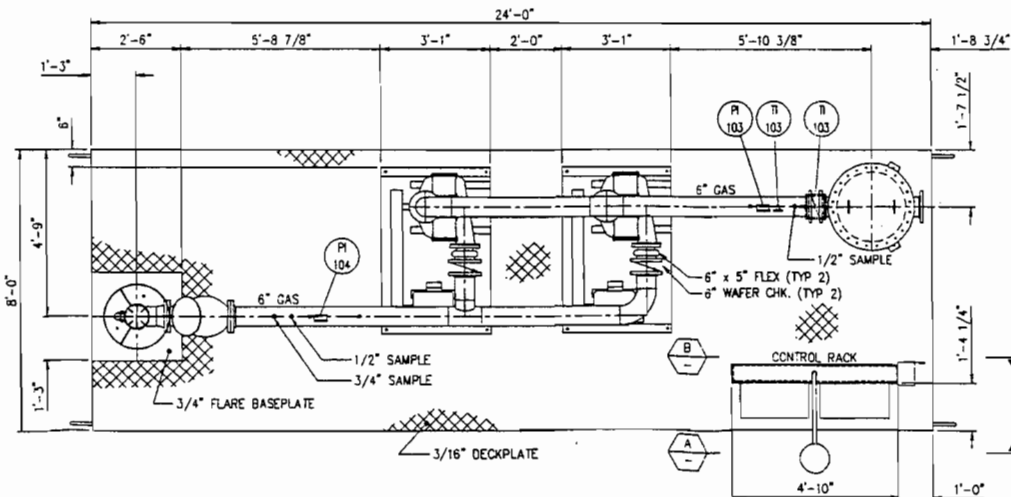
ELEVATION
SCALE: 1/2" = 1'-0"



SECTION A
SCALE: 3/4" = 1'-0"



SECTION B
SCALE: 3/4" = 1'-0"



PLAN
SCALE: 1/2" = 1'-0"

REV.	DESCRIPTION	DATE	BY

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LFG SPECIALTIES, INC.
 HEAD OFFICE
 7550 LUCERNE DRIVE #110
 CLEVELAND, OHIO 44130
 (216) 891-0305
 PLANT
 705 FRIENDSHIP DRIVE
 NEW CONCORD, OHIO 43762
 (614) 826-7422

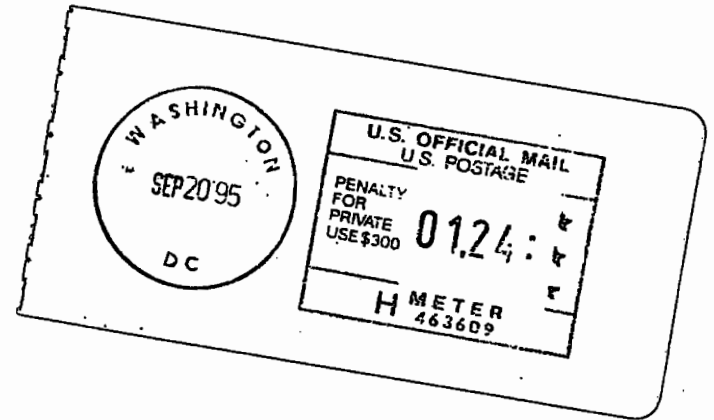
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PROJECT NAME	
PROJECT NUMBER	P5950681
DRAWING NUMBER	
CUSTOMER	LFG SPECIALTIES, INC.
P.O. NUMBER	P5950681
SCALE	AS NOTED
DATE	07/24/95
ENGINEER	L.K.
DESIGNED BY	
APPROVED BY	

United States
Environmental Protection
Agency

Washington, DC 20460

Mail Code: 6102

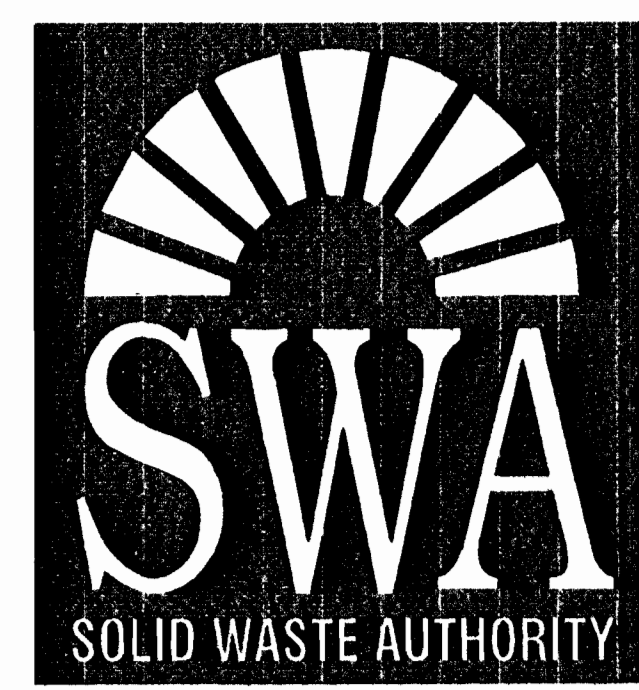
Official Business
Penalty for Private Use
\$300



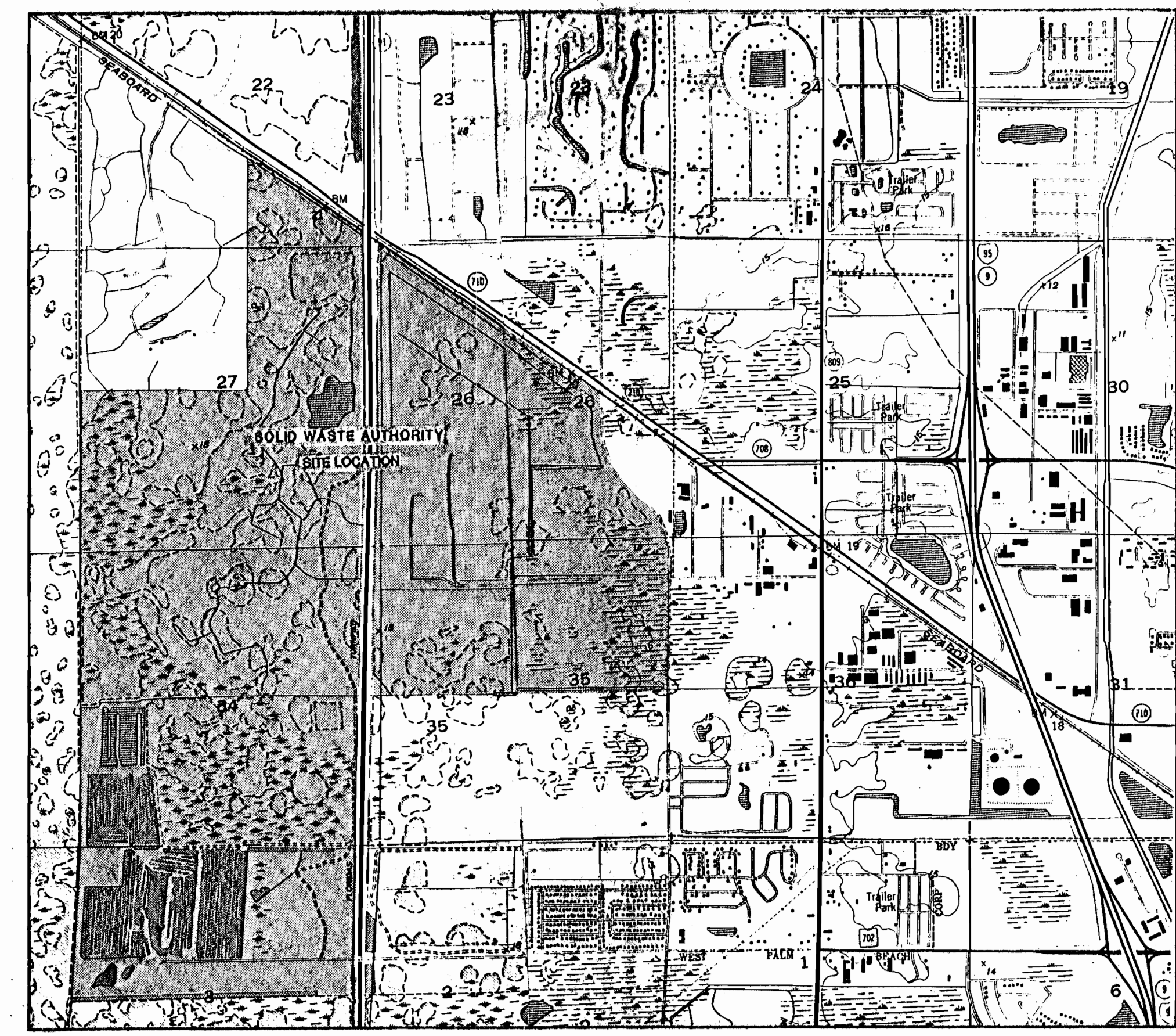
Teresa Heron
Bureau of Regulation
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

A-88-09 IV-H-3

LANDFILL GAS MANAGEMENT SYSTEM FOR NORTH COUNTY RESOURCE RECOVERY FACILITY CLASS I AND CLASS III LANDFILLS



PALM BEACH COUNTY, FLORIDA
SOLID WASTE AUTHORITY OF PALM BEACH COUNTY



SITE LOCATION MAP
RIVIERA BEACH/DELTA
FLORIDA
7.5 MINUTE SERIES (TOPOGRAPHIC)
SCALE 1:24000

<u>DWG</u>	<u>TITLE</u>
1	LANDFILL AREA SITE PLAN
2	CLASS I LANDFILL - GAS WELL, TRENCH AND HEADER LAYOUT
3	CLASS III LANDFILL - GAS WELL, TRENCH AND HEADER LAYOUT
4	GAS EXTRACTION WELL AND LCS TRENCH DETAILS
5	LCS CLEANOUT GAS EXTRACTION RISER DETAILS
6	LCS TRENCH GAS EXTRACTION DETAILS
7	HEADER PIPING DETAILS
8	MISCELLANEOUS DETAILS
9	CONDENSATE FORCEMAIN DETAILS
10	GAS MONITORING PROBE DETAIL
11	CONDENSATE PUMP STATION DETAILS
12	BLOWER/FLARE SKID DETAIL
13	CONSTRUCTION NOTES
14	CONSTRUCTION NOTES

Commissioners

- | | | |
|---|-------------------------------|-----------------------------------|
| Burt Aaronson
Chair | | |
| Maude Ford Lee
Vice-Chairman | Warren H. Newell
Secretary | Mary McCarty
Commissioner |
| Karen T. Marcus
Commissioner | Ken Foster
Commissioner | Carol A. Roberts
Commissioner |
| Donald Lockhart
SWA Executive Director | | Mark Hammond
Managing Director |
| John Booth
Director of Engineering | | David Lowe
Assistant Director |

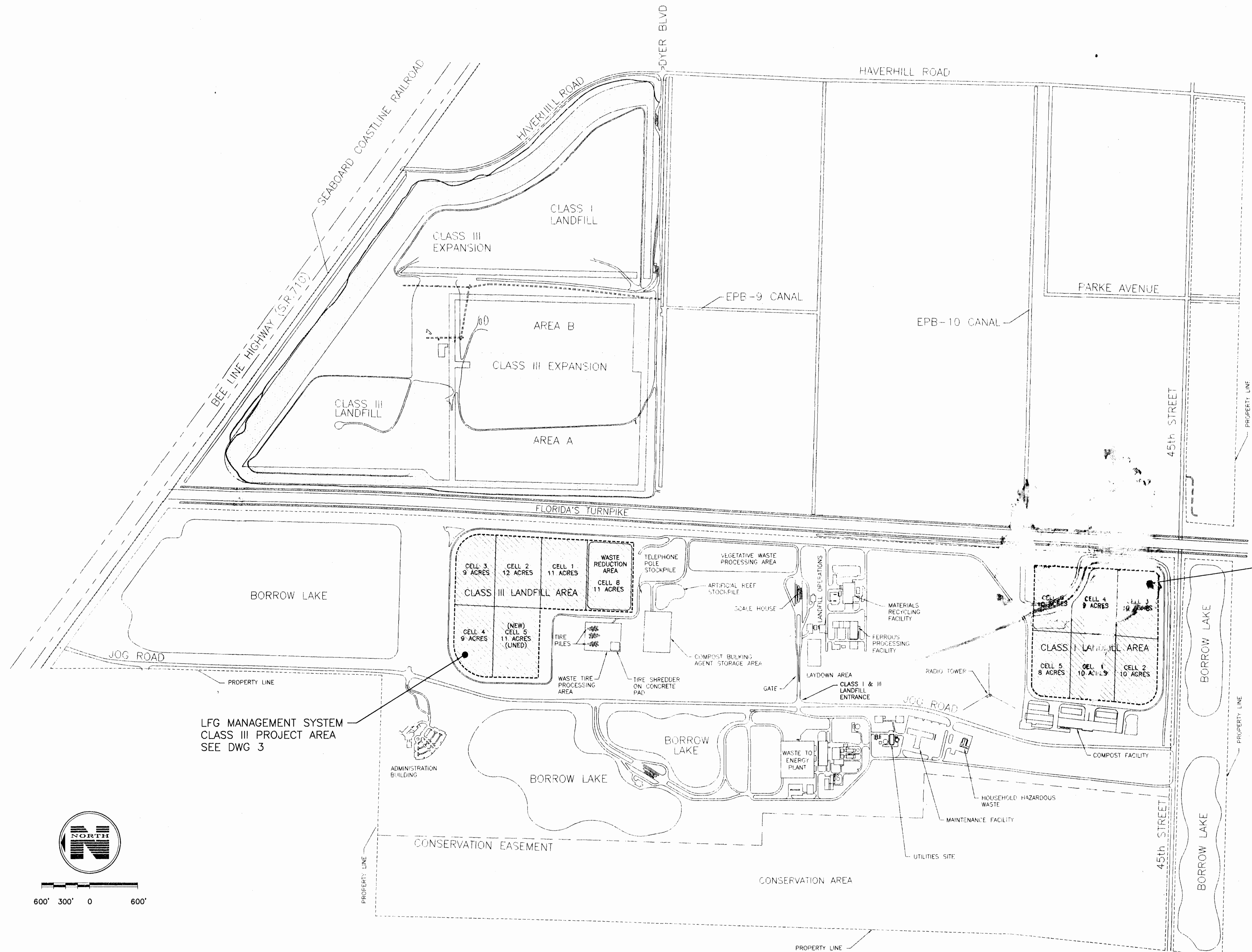
PREPARED BY:
WASTE ENERGY TECHNOLOGY, INC.
11 TUPELO AVENUE SE
FT. WALTON BEACH, FL 32548
(904) 243-0033

IN ASSOCIATION WITH:
CAMP DRESSER AND MCKEE INC.
1601 BELVEDERE ROAD
SUITE 211 SOUTH
WEST PALM BEACH, FL 33406
(407) 689-3336

PREPARED FOR:
THE SOLID WASTE AUTHORITY
OF PALM BEACH COUNTY
7501 NORTH JOG ROAD
WEST PALM BEACH, FL 33412
(407) 640-4000

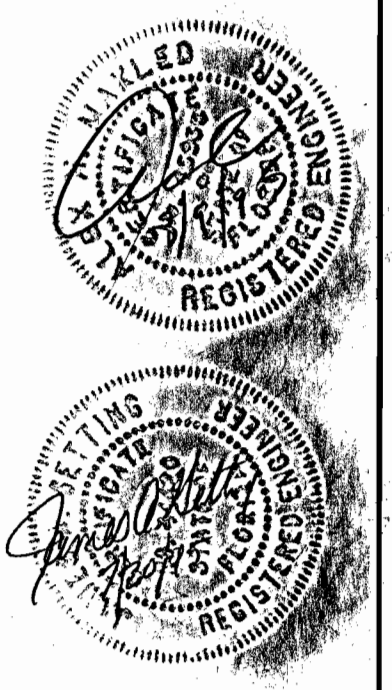
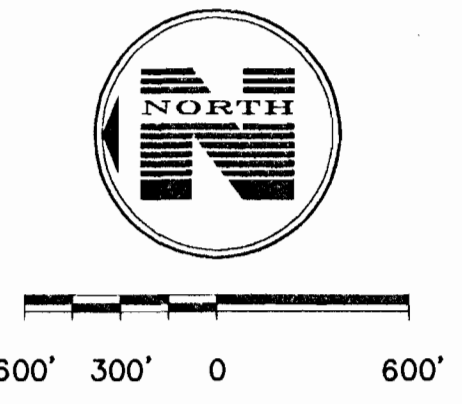


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LFG MANAGEMENT SYSTEM
CLASS I PROJECT AREA
SEE DWG 2

LFG MANAGEMENT SYSTEM
CLASS III PROJECT AREA
SEE DWG 3



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DESIGNED BY: WET DRAWN BY: EPC SHEET CHK'D BY: JAG CROSS CHK'D BY: JPC APPROVED BY: _____ DATE: JULY 1995					<p>CAMP DRESSER & McKEE INC. environmental engineers, scientists, planners, & management consultants</p>					SOLID WASTE AUTHORITY OF PALM BEACH COUNTY PALM BEACH COUNTY, FLORIDA LANDFILL GAS MANAGEMENT SYSTEM NORTH COUNTY RESOURCE RECOVERY FACILITY					SHEET TITLE: LANDFILL AREA SITE PLAN					WET PROJECT NO: 95296 DRAWING NO: 1 SHEET 2 OF 15				
REV. NO.	DATE	DRWN	CHKD	REMARKS	PRINTED: JUL 20 1995																			

TOPOGRAPHIC REFERENCE

PREPARED BY: ENVIRONMENTAL MEASUREMENT CONSULTANTS, INC.
WEST PALM BEACH, FL (407)-842-1888
DATE OF PHOTOGRAPHY: 10/18/94 JOB NO.: 31.06

THIS MAP WAS COMPILED TO MEET NATIONAL MAP ACCURACY STANDARDS FOR TWO FOOT CONTOUR INTERVAL MAPPING. FIELD CHECKING OF THIS MAP IS RECOMMENDED BEFORE USE. TWO FOOT CONTOUR INTERVAL BASED ON CLIENT CONTROL; HORIZONTAL DATUM BASED ON LOCAL GRID.

LEGEND

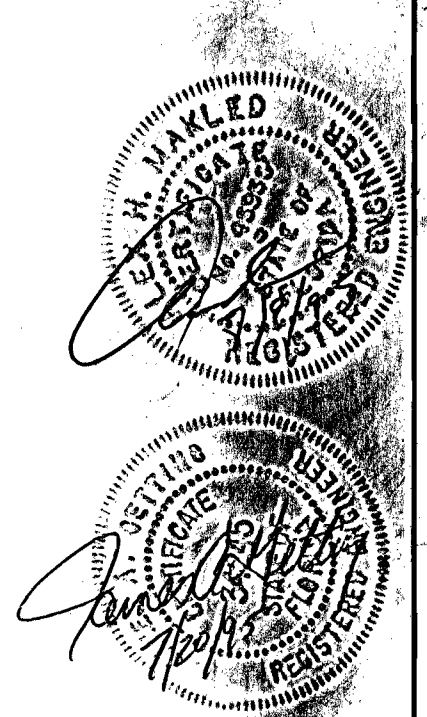
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SEE DETAIL 1/4
- T80 LCS TRENCH GAS EXTRACTION RISER
SEE DETAIL 1/6
- L43 LCS CLEANOUT GAS EXTRACTION RISER
SEE DETAIL 1/5
- DL2 LCS CLEANOUT GAS EXTRACTION RISER
SEE DETAIL 1/5
- RW4 LCS CLEANOUT GAS EXTRACTION RISER
SEE DETAIL 1/5
- EXISTING LCS CLEANOUT RISER
- 12" GAS COLLECTION HEADER
SEE DETAIL 1/7
- ELECTRICAL CONDUIT
SEE DETAIL 1/7
- HEADER VALVE
SEE DETAIL 7/7
- REDUCER
- HEADER SAMPLING RISER
SEE DETAIL 4/7
- FLANGES
SEE DETAIL 6/7
- BLIND FLANGE
SEE DETAIL 5/7
- TEE
SEE DETAIL 3/7
- ROAD CROSSING CASING
SEE DETAIL 6/7
- 21- CELL BASE GRADE CONTOUR
SEE DETAIL 3/4
- 50- PROPOSED FINAL GRADE CONTOUR
- 30.00 CELL BERM ELEVATION
- H P HIGH POINT

NOTES

1. AS LANDFILLING PROGRESSES, THE LFG SYSTEM WILL BE EXPANDED TO NEW CELLS UTILIZING THE CONCEPTS AND PRINCIPLES DETAILED IN THIS DRAWING SET.
2. SEE CONSTRUCTION NOTES, DWG 13.



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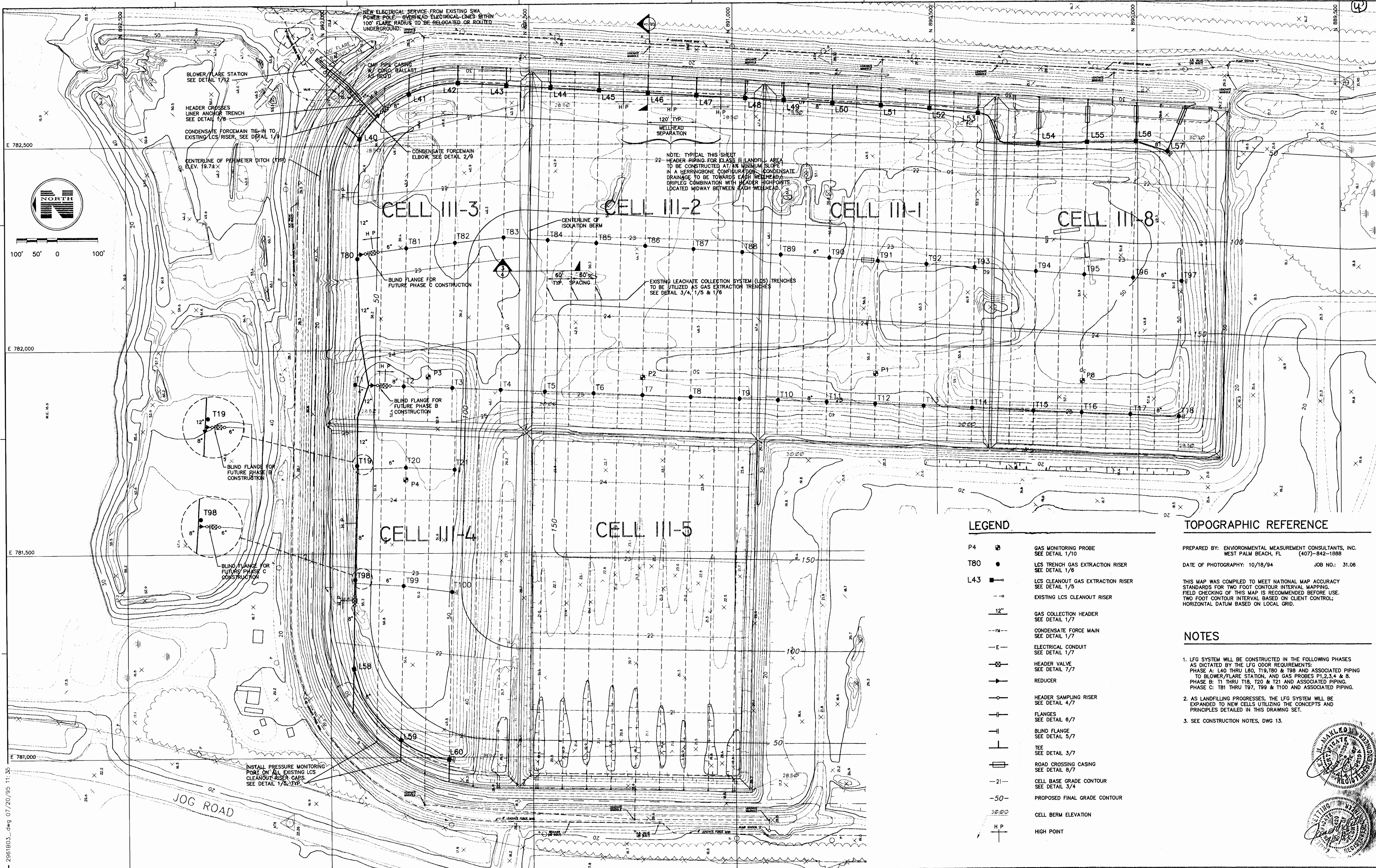
DESIGNED BY:	WET
DRAWN BY:	EPC
SHEET CHK'D BY:	JAG
CROSS CHK'D BY:	JPC
APPROVED BY:	
DATE:	JULY 1995

ENVIRONMENTAL MEASUREMENT CONSULTANTS, INC.
 CAMP DRESSER & McKEE, INC.
 environmental engineers, scientists, planners, & management consultants

SOLID WASTE AUTHORITY OF PALM BEACH COUNTY
 PALM BEACH COUNTY, FLORIDA
LANDFILL GAS MANAGEMENT SYSTEM
NORTH COUNTY RESOURCE RECOVERY FACILITY

SHEET TITLE:
CLASS I LANDFILL
GAS WELL, TRENCH AND HEADER LAYOUT

WET PROJECT NO: 95296
 DRAWING NO. **2**
 SHEET 3 OF 15



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E 782,500

E 782,000

E 781,500

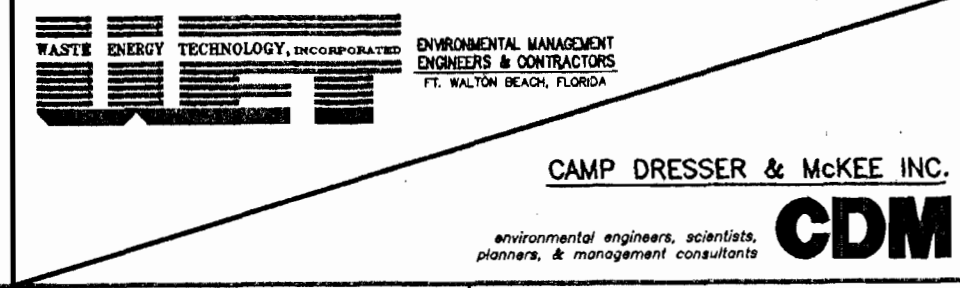
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JOG ROAD

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: WET
 DRAWN BY: EPC
 SHEET CHK'D BY: JAG
 CROSS CHK'D BY: JPC
 APPROVED BY: JPC
 DATE: JULY 1995

PRINTED: JUL 20 1995



SOLID WASTE AUTHORITY OF PALM BEACH COUNTY
 PALM BEACH COUNTY, FLORIDA

LANDFILL GAS MANAGEMENT SYSTEM
 NORTH COUNTY RESOURCE RECOVERY FACILITY

SHEET TITLE:

CLASS III LANDFILL
 GAS WELL, TRENCH AND HEADER LAYOUT

WET PROJECT NO: 95296
 DRAWING NO. 3
 SHEET 4 OF 15

LEGEND

- P4 ● GAS MONITORING PROBE SEE DETAIL 1/10
- T80 ● LCS TRENCH GAS EXTRACTION RISER SEE DETAIL 1/6
- L43 — LCS CLEANOUT GAS EXTRACTION RISER SEE DETAIL 1/5
- — EXISTING LCS CLEANOUT RISER
- 12" — GAS COLLECTION HEADER SEE DETAIL 1/7
- — CONDENSATE FORCE MAIN SEE DETAIL 1/7
- — ELECTRICAL CONDUIT SEE DETAIL 1/7
- — HEADER VALVE SEE DETAIL 7/7
- — REDUCER
- — HEADER SAMPLING RISER SEE DETAIL 4/7
- — FLANGES SEE DETAIL 6/7
- — BLIND FLANGE SEE DETAIL 5/7
- — TEE SEE DETAIL 3/7
- — ROAD CROSSING CASING SEE DETAIL 6/7
- 21- CELL BASE GRADE CONTOUR SEE DETAIL 3/4
- 50- PROPOSED FINAL GRADE CONTOUR
- — CELL BERM ELEVATION
- H P HIGH POINT

TOPOGRAPHIC REFERENCE

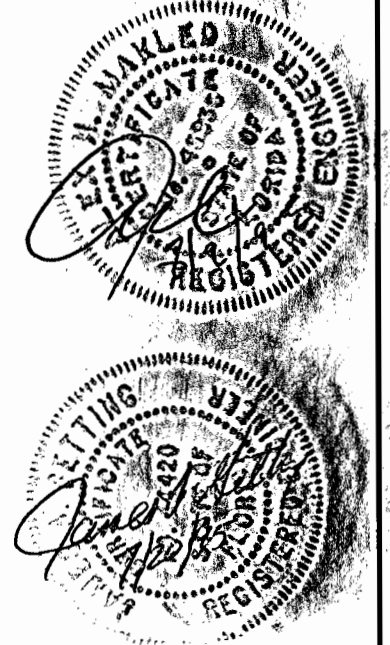
PREPARED BY: ENVIRONMENTAL MEASUREMENT CONSULTANTS, INC.
 WEST PALM BEACH, FL (407)-842-1888

DATE OF PHOTOGRAPHY: 10/18/94 JOB NO.: 31.06

THIS MAP WAS COMPILED TO MEET NATIONAL MAP ACCURACY STANDARDS FOR TWO FOOT CONTOUR INTERVAL MAPPING. FIELD CHECKING OF THIS MAP IS RECOMMENDED BEFORE USE. TWO FOOT CONTOUR INTERVAL BASED ON CLIENT CONTROL. HORIZONTAL DATUM BASED ON LOCAL GRID.

NOTES

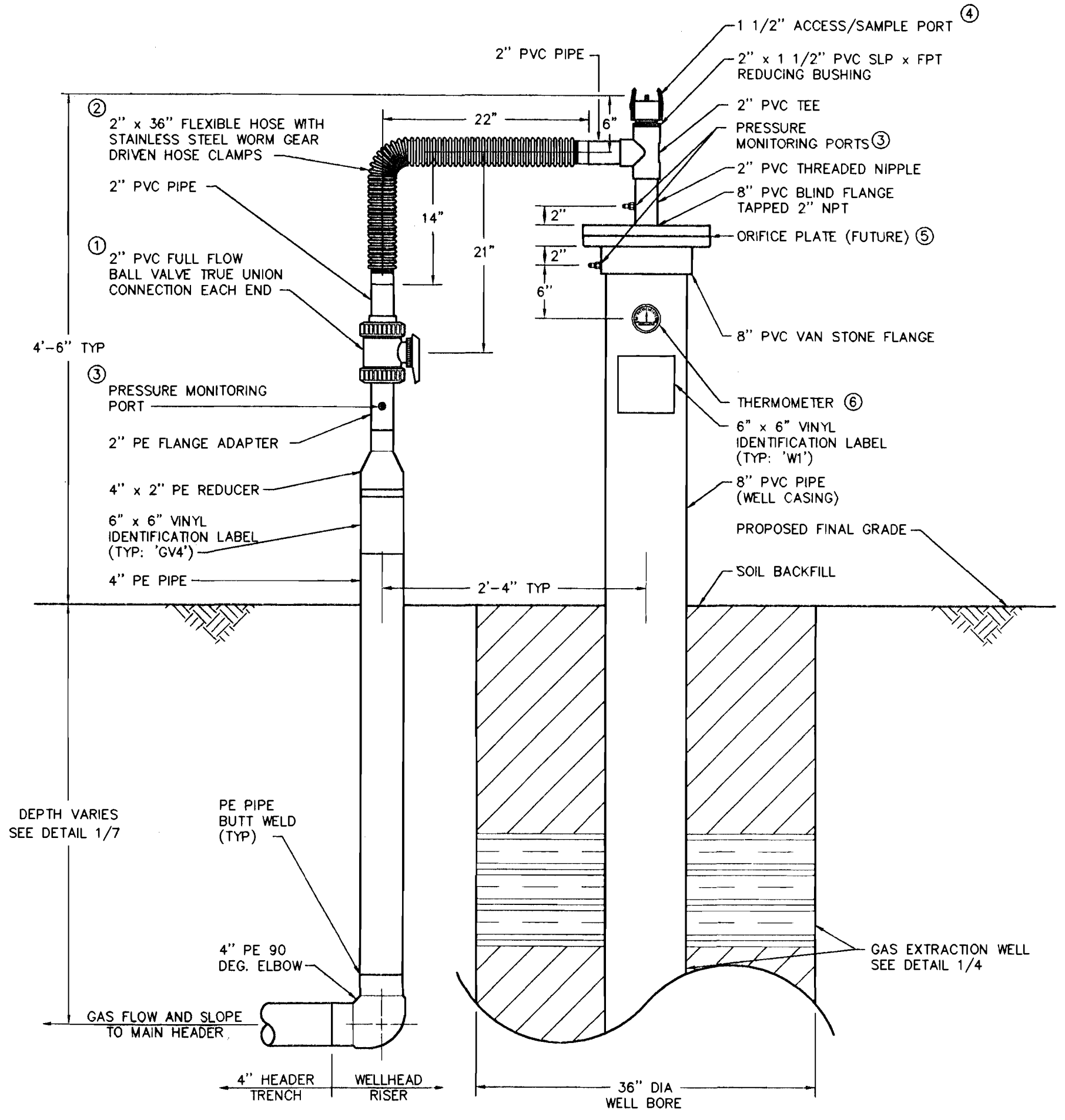
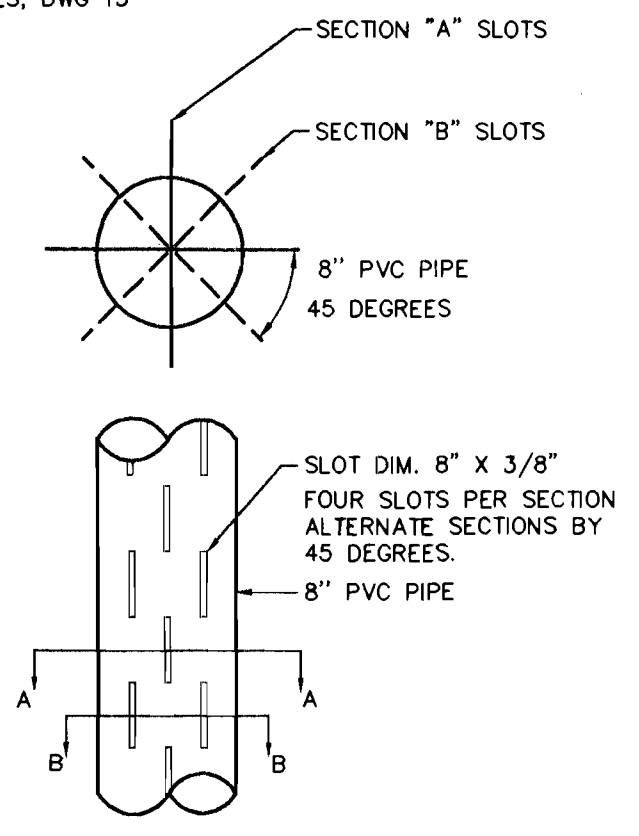
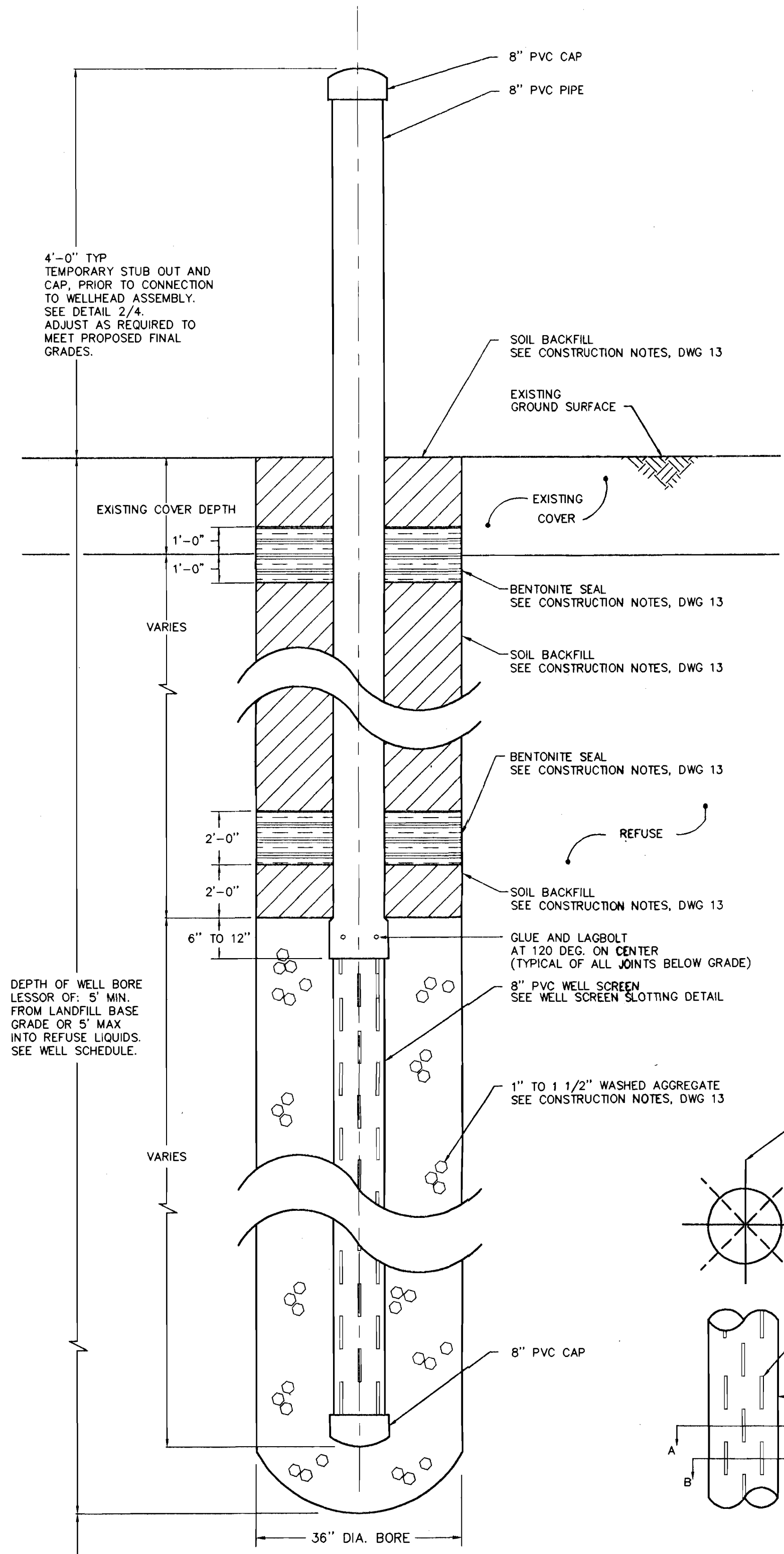
- LFG SYSTEM WILL BE CONSTRUCTED IN THE FOLLOWING PHASES AS DICTATED BY THE LFG ODOR REQUIREMENTS:
 PHASE A: L40 THRU L60, T19, T80 & T98 AND ASSOCIATED PIPING TO BLOWER/FLARE STATION, AND GAS PROBES P1, 2, 3, 4 & 8.
 PHASE B: T1 THRU T18, T20 & T21 AND ASSOCIATED PIPING.
 PHASE C: T81 THRU T97, T99 & T100 AND ASSOCIATED PIPING.
- AS LANDFILLING PROGRESSES, THE LFG SYSTEM WILL BE EXPANDED TO NEW CELLS UTILIZING THE CONCEPTS AND PRINCIPLES DETAILED IN THIS DRAWING SET.
- SEE CONSTRUCTION NOTES, DWG 13.



GAS EXTRACTION WELL SCHEDULE

WELL NO.	GRID COORDINATES	EXISTING GRADE (MSL)	EST'D LF BASE GRADE (MSL)	EST'D DEPTH TO BORING (FT)	WELL DEPTH (FT)	LENGTH OF SLOTTED PIPE (FT)	LENGTH OF SLOTTED PIPE (FT)	EST'D WELL ROL (FT)
CLASS I LANDFILL AREA								
W1	883571 780832	66.5	24.0	42.5	37.5	20.0	17.5	125.0
W2	883437 780997	64.3	23.4	41.0	36.0	20.0	15.0	125.0
W3	883432 781249	68.9	23.4	45.5	40.5	20.0	20.5	125.0
W4	883425 781498	69.0	23.1	45.9	40.9	20.0	20.9	125.0
W5	883418 781750	68.3	23.2	45.1	40.1	20.0	20.1	125.0
W6	883434 781999	69.3	23.4	45.9	40.9	20.0	20.9	125.0
W7	883671 782010	69.8	24.8	45.0	40.0	20.0	20.0	125.0
W8	883966 782017	68.0	23.0	45.0	40.0	20.0	20.0	125.0
W9	883674 781843	81.9	24.6	57.3	52.3	20.0	32.3	125.0
W10	883639 781630	74.4	24.2	50.2	45.2	20.0	25.2	125.0
W11	883644 781380	72.3	24.6	47.7	42.7	20.0	22.7	125.0
W12	883649 781127	70.0	24.5	45.5	40.5	20.0	20.5	125.0
W13	883868 781022	64.5	24.2	40.3	35.3	20.0	15.3	125.0
W14	883871 781273	71.9	25.4	46.5	41.5	20.0	21.5	125.0
W15	883869 781524	70.6	25.8	44.7	39.7	20.0	19.7	125.0
W16	883936 781767	68.6	24.2	44.4	39.4	20.0	19.4	125.0
TOTALS				652.7	320.0	332.7		

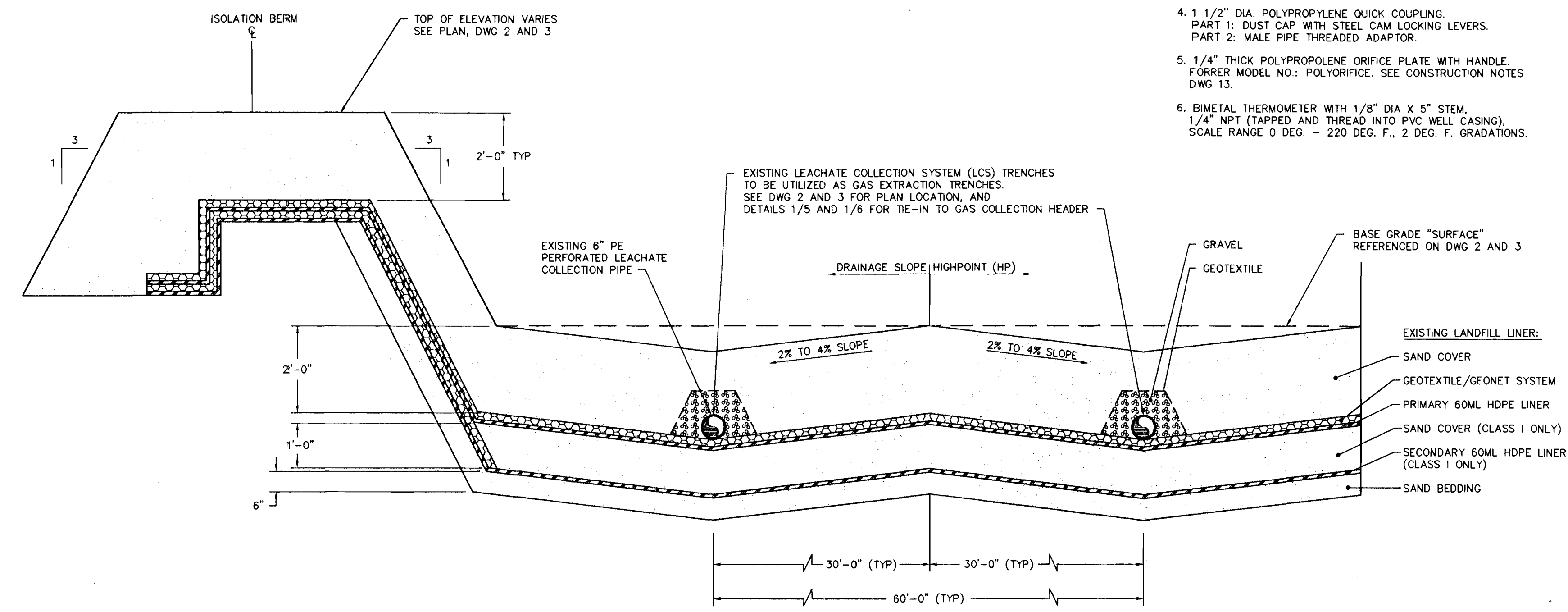
1. SITE GRID COORDINATES FOR GAS WELLS ARE FOR DESIGN LOCATION ONLY. ACTUAL CONSTRUCTION LOCATION OF WELLS MAY VARY TO MEET FIELD CONDITIONS.



2 GAS EXTRACTION WELLHEAD DETAIL

LIST OF MATERIALS

- 2" ASAHI/AMERICA PVC DUO-BLOC TRUE UNION BALL VALVE WITH SOCKET CONNECTIONS, TEFLON SEATS, NITRILE BACKING CUSHIONS AND VALVE SEALS, OR EQUAL.
- 1T-6000-2-36 FLEXHOSE WITH 2 COLLARS (1T-6003-2) AND 2 WORM GEAR HOSE CLAMPS (1T-406-2) OR EQUAL.
- 1/4" NPT SAMPLE PORT, COLDER PRODUCTS LCD 240-04 COUPLING INSERT (TAPPED AND THREADED IN PLACE) AND DUST COVER PLC 320. ALSO PROVIDE 5 (PROJECT TOTAL) SAMPLE COUPLING, PLC 170-04 COUPLING BODY TO OWNER.
- 1 1/2" DIA. POLYPROPYLENE QUICK COUPLING. PART 1: DUST CAP WITH STEEL CAM LOCKING LEVERS. PART 2: MALE PIPE THREADED ADAPTOR.
- 1/4" THICK POLYPROPYLENE ORIFICE PLATE WITH HANDLE. FORMER MODEL NO.: POLYORIFICE. SEE CONSTRUCTION NOTES DWG 13.
- EMETAL THERMOMETER WITH 1/8" DIA X 5" STEM, 1/4" NPT (TAPPED AND THREADED INTO PVC WELL CASING). SCALE RANGE 0 DEG. - 220 DEG. F., 2 DEG. F. GRADATIONS.



3 EXISTING LCS TRENCH/BASE LINER SECTION

1 GAS EXTRACTION WELL DETAIL

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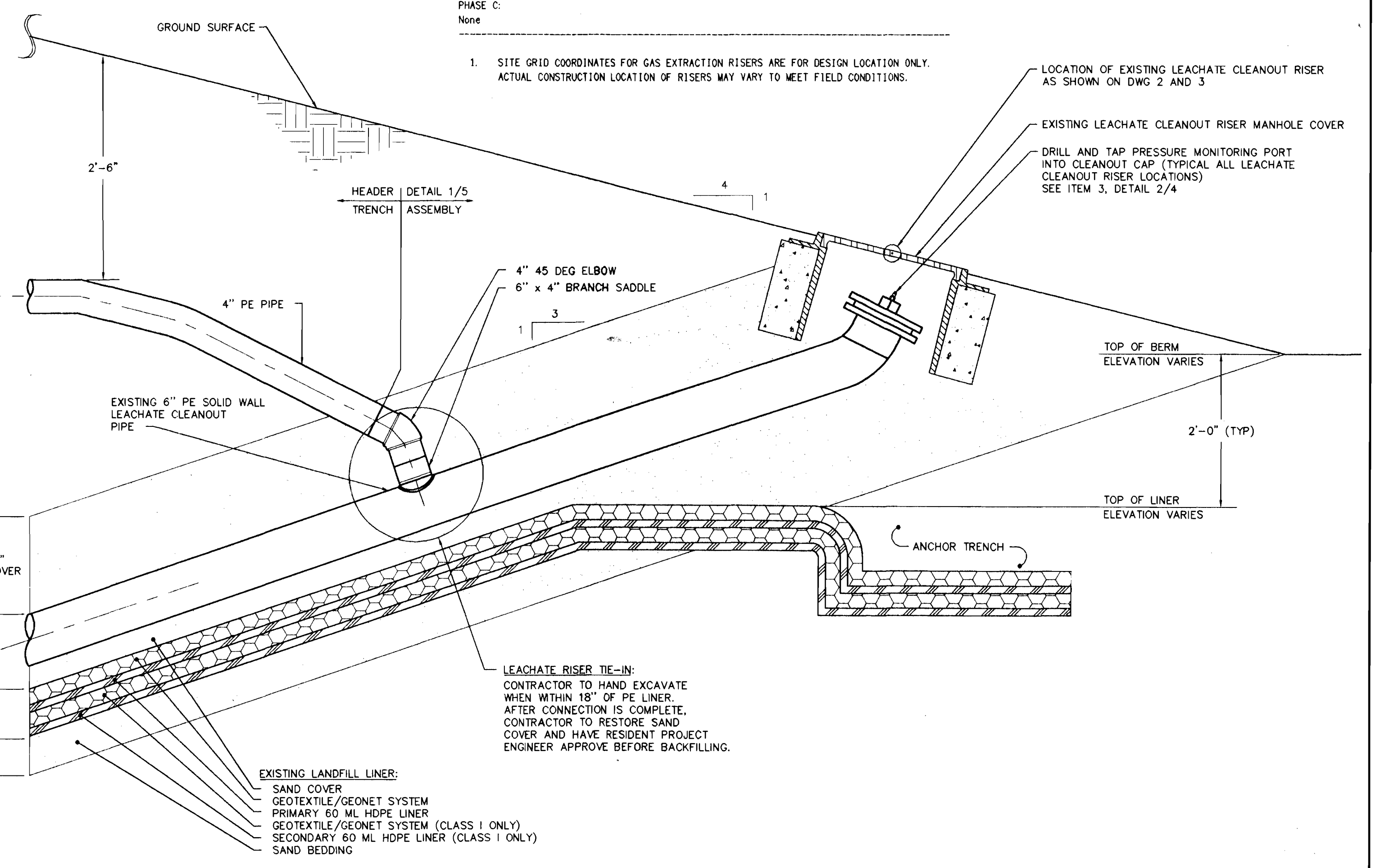
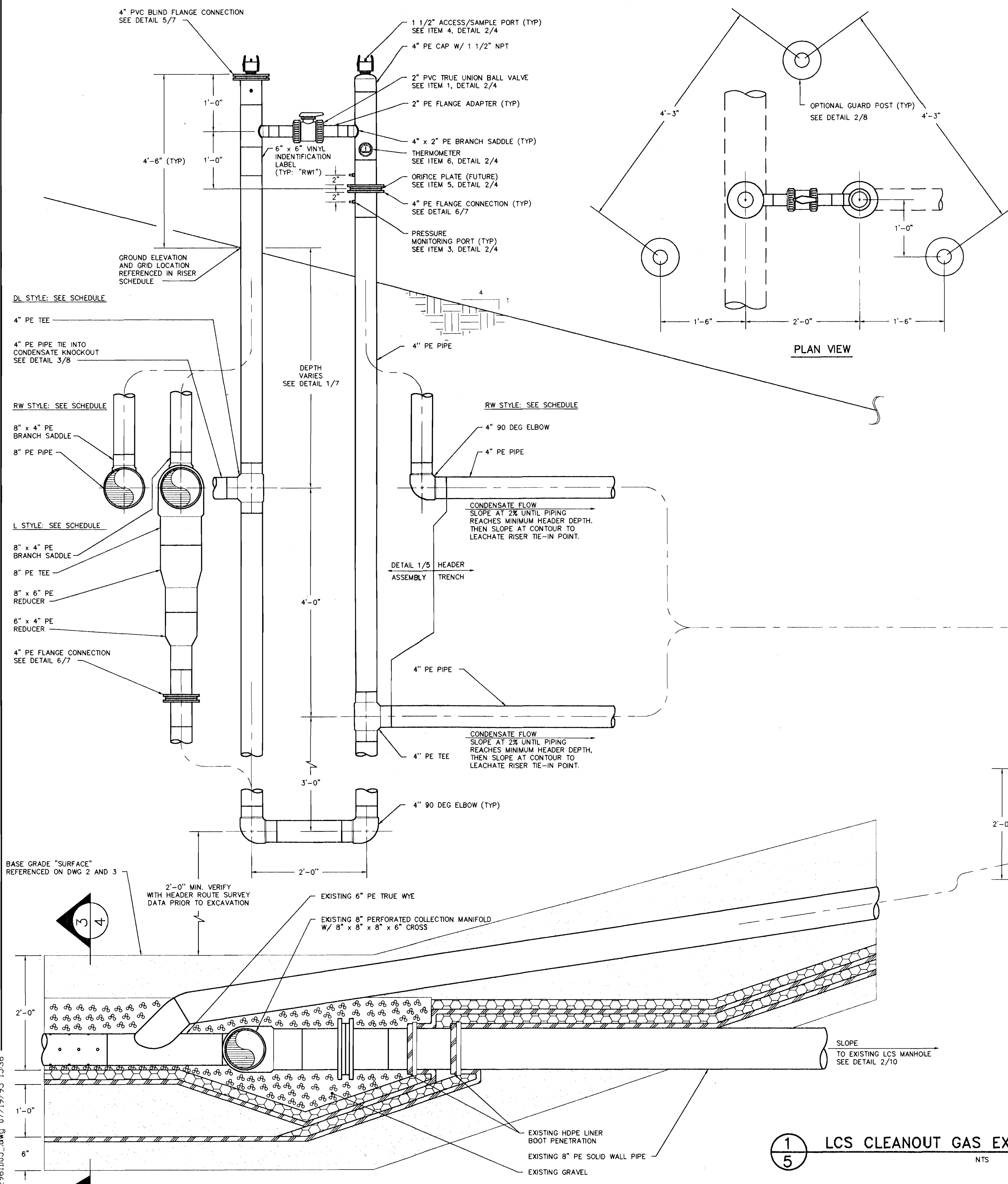
DESIGNED BY: WEL	WASTE ENERGY TECHNOLOGY ENVIRONMENTAL MANAGEMENT ENGINEERS & CONSTRUCTORS 11 WEST BUCKINGHAM	SHEET TITLE: CLASS I AND CLASS III LANDFILLS GAS EXTRACTION WELL AND LCS TRENCH DETAILS	WET PROJECT NO: 95296
DRAWN BY: TLA	CAMP DRESSER & MCKEE INC. environmental engineers, scientists, planners, & management consultants CDM	SHEET NO. 4	DRAWING NO. 4
SHEET CHK'D BY: JAC			
CROSS CHK'D BY: JPC	DATE: JULY 1995	SHEET 5 OF 15	
APPROVED BY:	DATE: JULY 1995	PRINTED: JUL 20 1995	

LCS CLEANOUT GAS EXTRACTION RISER SCHEDULE

RISER STYLE AND NO.	GRID COORDINATES		EST'D GRADE (MSL)	EST'D DEPTH TO BASE GRADE (FT)	EST'D DEPTH TO GRD BASE GRADE (FT)	ASSEMBLY LENGTH (FT)	ASSEMBLY DIST ABOVE GRD BASE GRADE (FT)
	NORTHING	EASTING					
CLASS I LANDFILL AREA							
DL1	884047	780688	39.0	22.5	16.5	14.0	2.5
DL2	883281	780979	43.0	22.5	20.5	14.0	6.5
DL3	883267	781787	44.0	22.5	21.5	14.0	7.5
DL4	883950	782138	46.0	22.5	23.5	14.0	9.5
CLASS III LANDFILL AREA							
PHASE A:							
L40	891920	782517	37.1	20.9	16.2	12.5	3.7
L41	891798	782627	37.0	20.3	16.7	12.5	4.2
L42	891677	782653	37.0	20.3	16.7	12.5	4.2
L43	891557	782646	37.0	20.6	16.4	12.5	3.9
L44	891448	782640	36.8	21.1	15.7	12.5	3.2
L45	891328	782632	37.2	21.1	16.1	12.5	3.6
L46	891208	782625	38.5	21.2	17.4	12.5	4.9
L47	891088	782618	38.8	21.2	17.6	12.5	5.1
L48	890969	782611	40.1	21.2	18.9	12.5	6.4
L49	890874	782605	38.9	21.2	17.7	12.5	5.2
L50	890754	782598	38.8	21.2	17.7	12.5	5.1
L51	890634	782591	37.8	21.2	16.6	12.5	4.1
L52	890514	782584	37.4	21.2	16.2	12.5	3.7
L53	890395	782572	36.6	21.2	15.4	12.5	2.9
L54	890244	782497	37.0	21.2	15.8	12.5	3.3
L55	890124	782500	37.0	21.4	15.6	12.5	3.1
L56	890004	782501	37.0	21.4	15.6	12.5	3.1
L57	889926	782477	37.0	21.4	15.6	12.5	3.1
L58	891943	781218	38.1	21.7	16.4	12.5	3.9
L59	891827	781043	37.0	20.8	16.2	12.5	3.7
L60	891709	780990	37.0	20.6	16.4	12.5	3.9
PHASE B: None							
PHASE C: None							

1. SITE GRID COORDINATES FOR GAS EXTRACTION RISERS ARE FOR DESIGN LOCATION ONLY. ACTUAL CONSTRUCTION LOCATION OF RISERS MAY VARY TO MEET FIELD CONDITIONS.

LOCATION OF EXISTING LEACHATE CLEANOUT RISER AS SHOWN ON DWG 2 AND 3
EXISTING LEACHATE CLEANOUT RISER MANHOLE COVER
DRILL AND TAP PRESSURE MONITORING PORT INTO CLEANOUT CAP (TYPICAL ALL LEACHATE CLEANOUT RISER LOCATIONS) SEE ITEM 3, DETAIL 2/4



1 LCS CLEANOUT GAS EXTRACTION RISER DETAIL
5 NTS



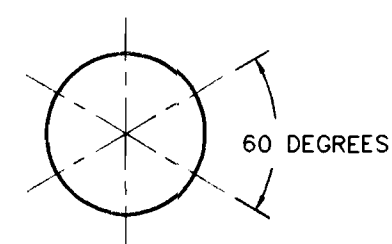
2961105.dwg 07/19/95 19:36

DESIGNED BY: WET		SOLID WASTE AUTHORITY OF PALM BEACH COUNTY PALM BEACH COUNTY, FLORIDA LANDFILL GAS MANAGEMENT SYSTEM NORTH COUNTY RESOURCE RECOVERY FACILITY	SHEET TITLE: CLASS I AND CLASS III LANDFILLS LCS CLEANOUT GAS EXTRACTION RISER DETAIL	WET PROJECT NO: 95296
DRAWN BY: TLA			CONTRACTOR TO HAND EXCAVATE WHEN WITHIN 18" OF PE LINER. AFTER CONNECTION IS COMPLETE, CONTRACTOR TO RESTORE SAND COVER AND HAVE RESIDENT PROJECT ENGINEER APPROVE BEFORE BACKFILLING.	DRAWING NO: 5
SHEET CHK'D BY: JAG			EXISTING LANDFILL LINER: SAND COVER GEOTEXTILE/GEONET SYSTEM PRIMARY 60 ML HDPE LINER GEOTEXTILE/GEONET SYSTEM (CLASS I ONLY) SECONDARY 60 ML HDPE LINER (CLASS I ONLY) SAND BEDDING	SHEET 6 OF 15
CROSS CHK'D BY: JPC			CAMP DRESSER & McKEE INC. environmental engineers, scientists, planners, & management consultants CDM	
APPROVED BY: [Signature]			DATE: JULY 1995	

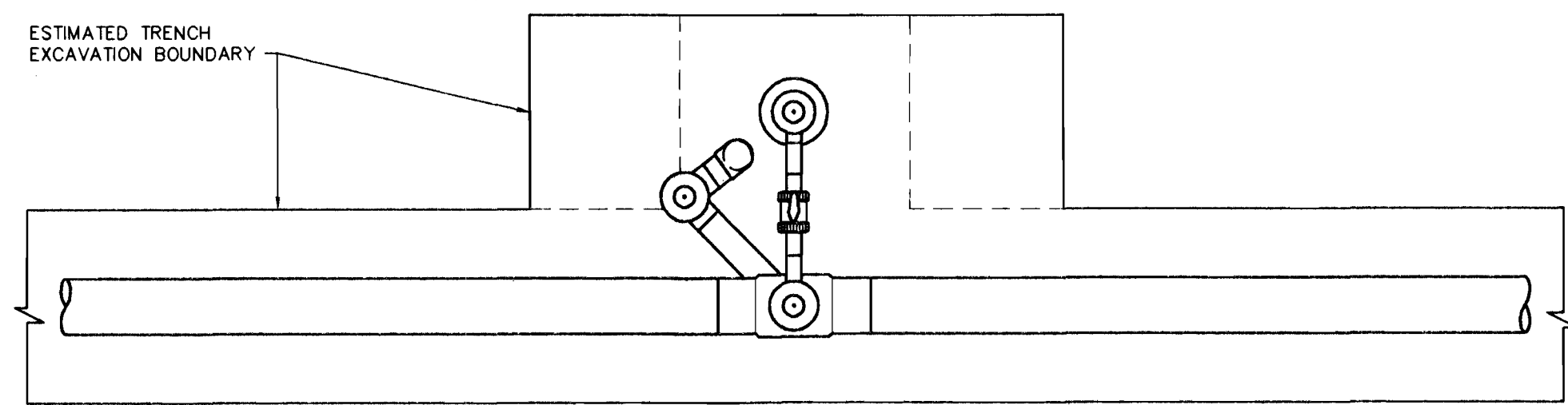
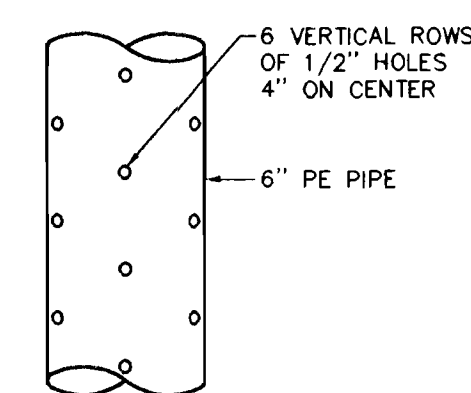
LCS TRENCH GAS EXTRACTION RISER SCHEDULE

RISER STYLE AND NO.	GRID NORTHING	GRID EASTING	EST'D EXISTING GRADE (MSL)	EST'D LF BASE GRADE (MSL)	EST'D DEPTH TO U-TRAP (FT)	EST'D DEPTH TO BASE GRADE BELOW GRD (FT)	DEPTH TO PIPE PERFOR (FT)	PERF'D PIPE LENGTH (FT)	EXCAVATION DIST ABOVE BASE GRADE (FT)
CLASS I LANDFILL AREA									
None									
CLASS III LANDFILL AREA									
PHASE A:									
T19	891932	781716	49.4	24.5	24.9	16.0	15.0	4.0	5.9
T80	891928	782223	38.2	22.8	15.4	12.5	11.4	4.0	0.0
T98	891939	781436	48.8	22.8	26.0	15.0	15.0	4.0	7.0
PHASE B:									
T1	891936	781916	47.0	24.3	22.7	12.5	15.0	4.0	3.7
T2	891816	781911	52.1	24.4	27.7	12.5	15.0	4.0	8.7
T3	891696	781905	52.0	24.6	27.5	12.5	15.0	4.0	8.5
T4	891570	781908	40.1	24.7	15.4	12.5	11.4	4.0	0.0
T5	891457	781895	42.3	25.0	17.4	12.5	13.3	4.0	0.0
T6	891347	781890	44.6	25.0	19.6	12.5	15.0	4.0	0.6
T7	891227	781885	44.4	25.0	19.4	12.5	15.0	4.0	0.4
T8	891107	781879	44.8	25.0	19.8	12.5	15.0	4.0	0.8
T9	890988	781874	44.6	25.0	19.6	12.5	15.0	4.0	0.6
T10	890993	781870	45.2	25.1	20.2	12.5	15.0	4.0	1.2
T11	890773	781865	46.6	25.0	21.6	12.5	15.0	4.0	2.6
T12	890653	781859	47.9	25.0	22.9	12.5	15.0	4.0	3.9
T13	890533	781854	48.6	25.0	23.6	12.5	15.0	4.0	4.6
T14	890413	781849	51.2	25.0	26.2	12.5	15.0	4.0	7.2
T15	890260	781842	50.7	25.0	25.7	12.5	15.0	4.0	6.7
T16	890140	781837	50.1	25.0	25.1	12.5	15.0	4.0	6.1
T17	890020	781831	50.3	25.0	25.3	12.5	15.0	4.0	6.3
T18	889900	781826	48.8	25.0	23.8	12.5	15.0	4.0	4.8
T20	891812	781710	51.9	24.5	27.5	12.5	15.0	4.0	8.5
T21	891692	781705	52.0	24.4	27.6	12.5	15.0	4.0	8.6
PHASE C:									
T81	891808	782248	39.4	22.7	16.7	12.5	12.7	4.0	0.0
T82	891687	782261	40.3	22.7	17.6	12.5	13.6	4.0	0.0
T83	891567	782273	41.9	22.7	19.2	12.5	15.0	4.0	0.2
T84	891458	782266	42.8	23.1	19.7	12.5	15.0	4.0	0.7
T85	891338	782257	44.3	23.1	21.2	12.5	15.0	4.0	2.2
T86	891218	782249	45.0	23.1	21.9	12.5	15.0	4.0	2.9
T87	891098	782241	46.6	23.1	23.5	12.5	15.0	4.0	4.5
T88	890978	782233	47.8	23.1	24.7	12.5	15.0	4.0	5.7
T89	890858	782226	48.3	23.2	25.1	12.5	15.0	4.0	6.1
T90	890764	782218	49.4	23.2	26.2	12.5	15.0	4.0	7.2
T91	890644	782210	57.0	23.2	33.8	12.5	15.0	4.0	14.8
T92	890524	782202	57.6	23.2	34.4	12.5	15.0	4.0	15.4
T93	890404	782193	59.4	23.2	36.2	12.5	15.0	4.0	17.2
T94	890252	782183	53.0	23.2	29.8	12.5	15.0	4.0	10.8
T95	890132	782175	51.4	23.2	28.2	12.5	15.0	4.0	9.2
T96	890012	782166	50.2	23.2	27.0	12.5	15.0	4.0	8.0
T97	889892	782158	50.5	23.2	27.3	12.5	15.0	4.0	8.3
T99	891819	781420	51.1	22.8	28.3	12.5	15.0	4.0	9.3
T100	891699	781405	49.0	22.8	26.2	12.5	15.0	4.0	7.2

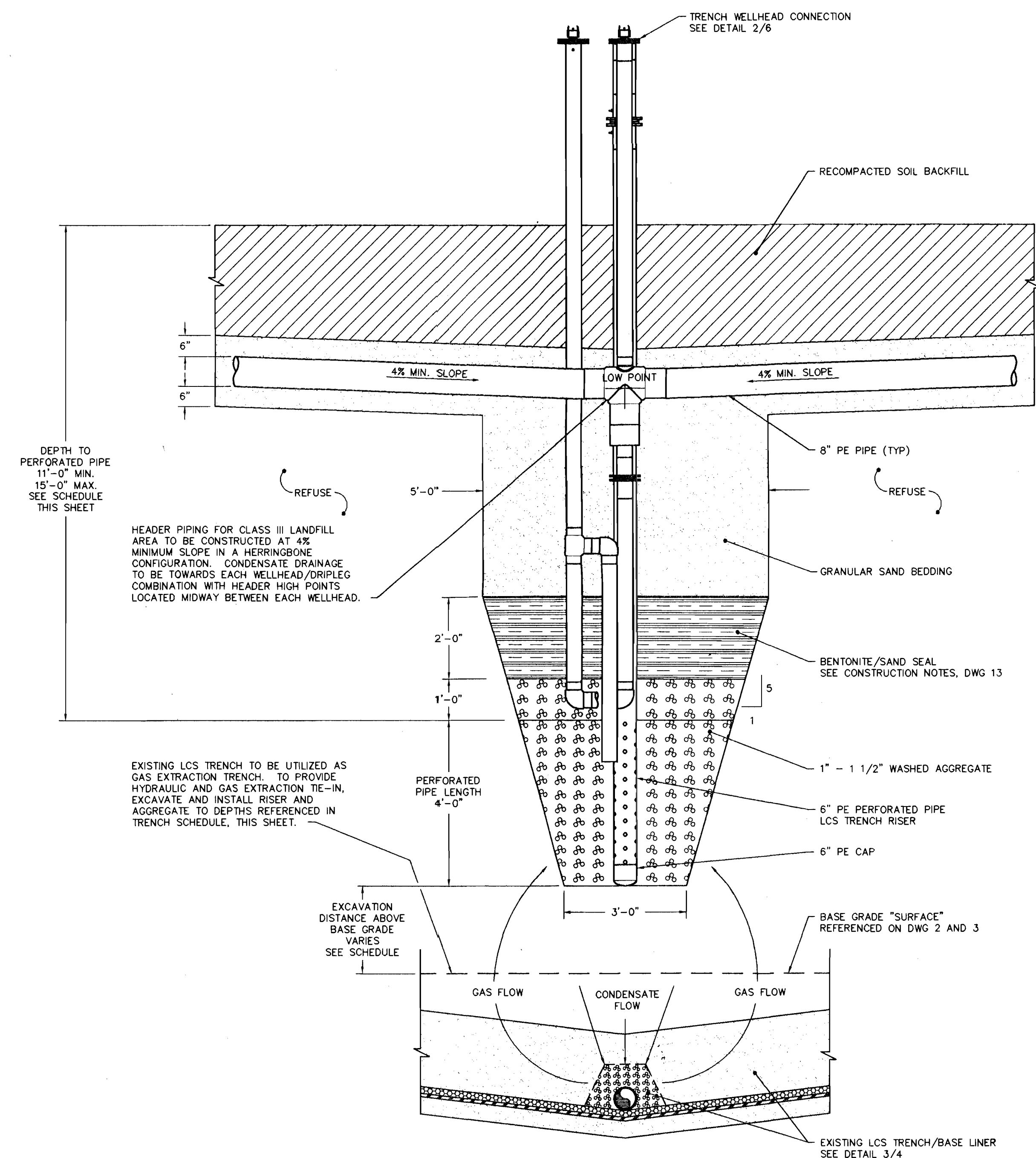
- SITE GRID COORDINATES FOR GAS PROBES ARE FOR DESIGN LOCATION ONLY. ACTUAL CONSTRUCTION LOCATION OF PROBES MAY VARY TO MEET FIELD CONDITIONS.
- LCS TRENCH RISER ASSEMBLY BASED ON A MINIMUM ESTIMATED DEPTH TO BASE GRADE OF 15 FEET. DURING FIELD LAYOUT, ADJUST LOCATION OF RISER TO OBTAIN THIS 15' MINIMUM DETPH.
- FOR RISER WHERE EXCAVATION DISTANCE ABOVE BASE GRADE EXCEEDS 10 FEET, CONSTRUCTION METHODS WILL UTILIZE 36" DIA. BORING TO WITHIN 5 FEET OF BASE GRADE.



WELL SCREEN PERFORATION DETAIL

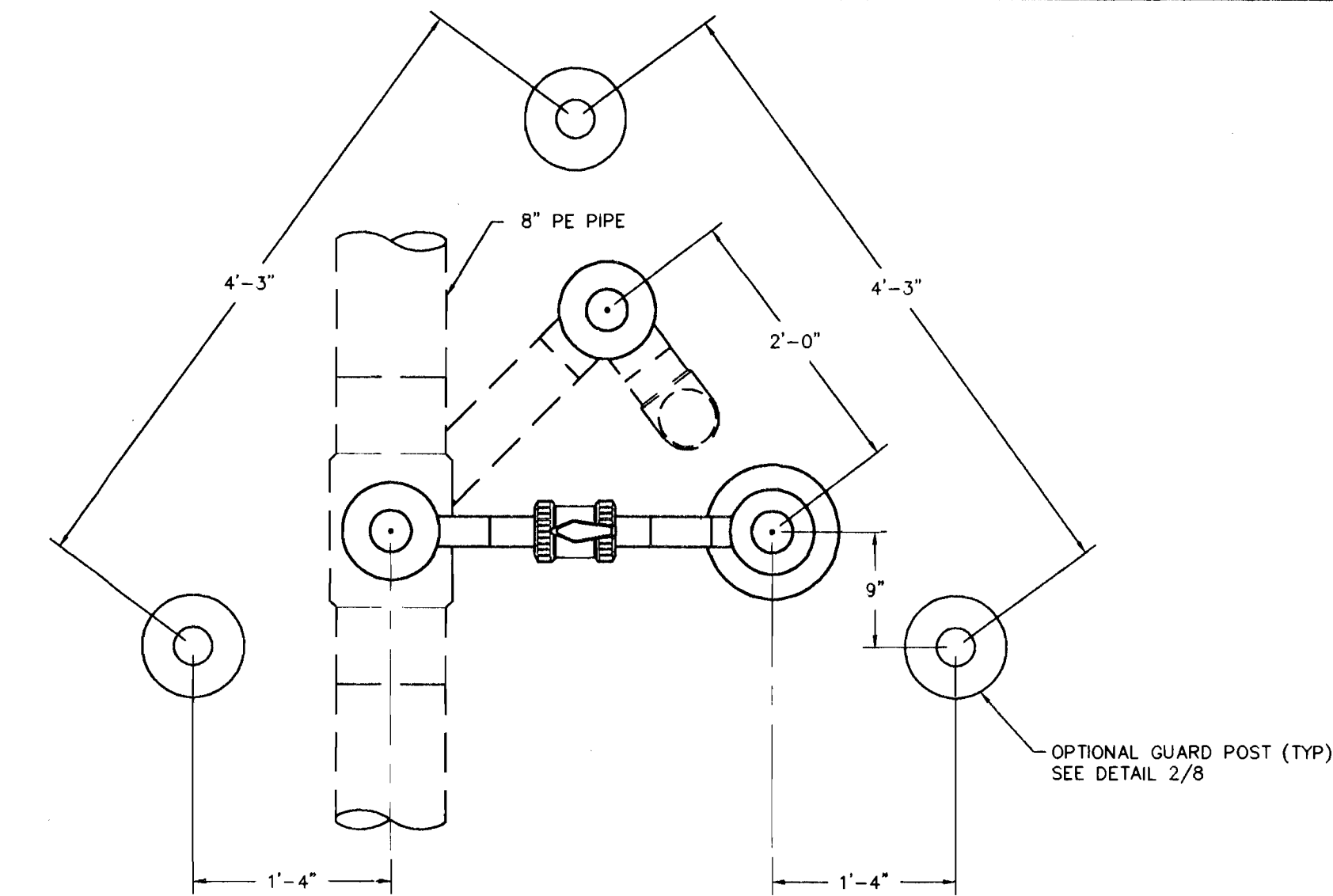


PLAN VIEW

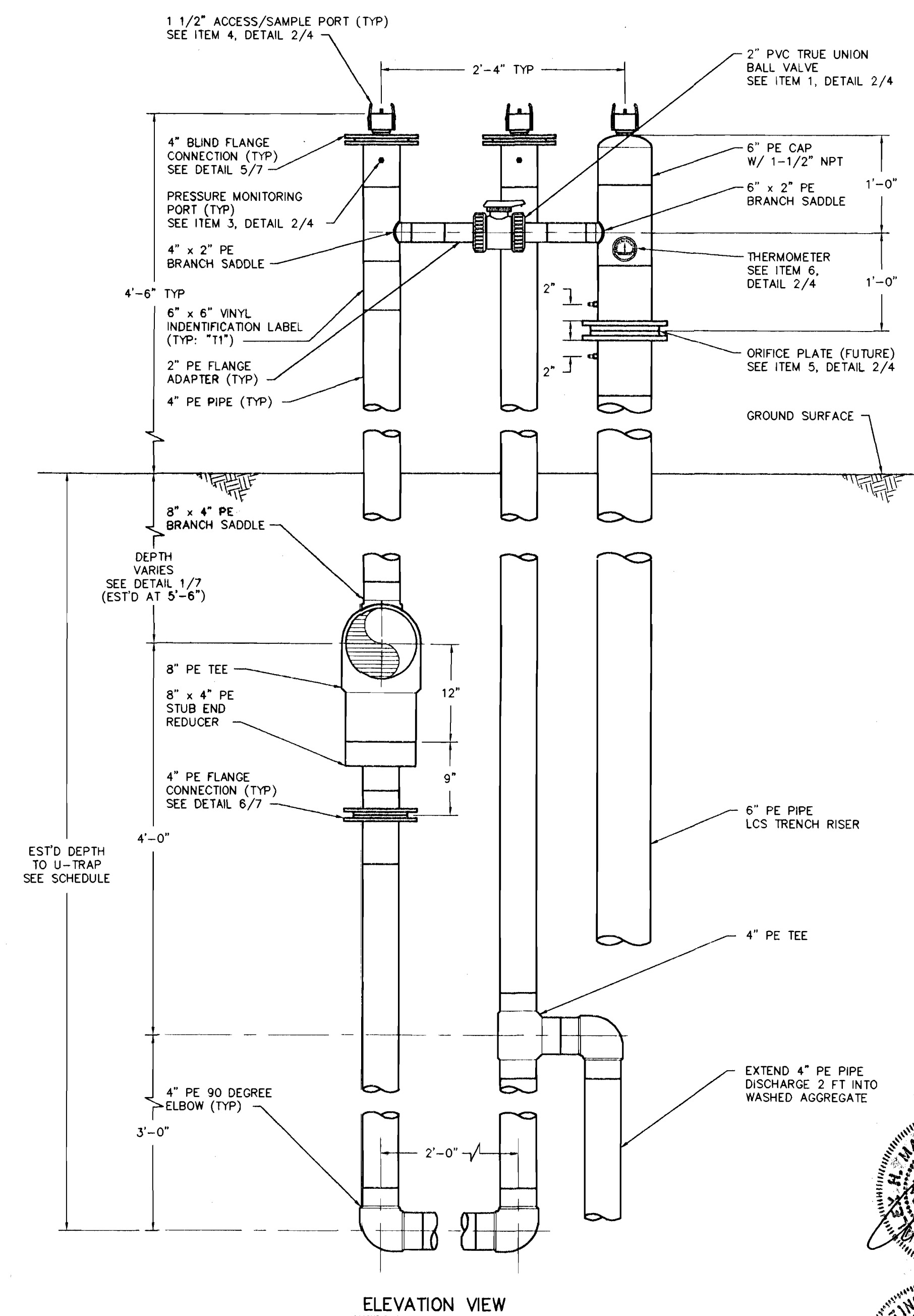


ELEVATION VIEW

1 LCS TRENCH GAS EXTRACTION RISER DETAIL
6 NTS



PLAN VIEW



ELEVATION VIEW

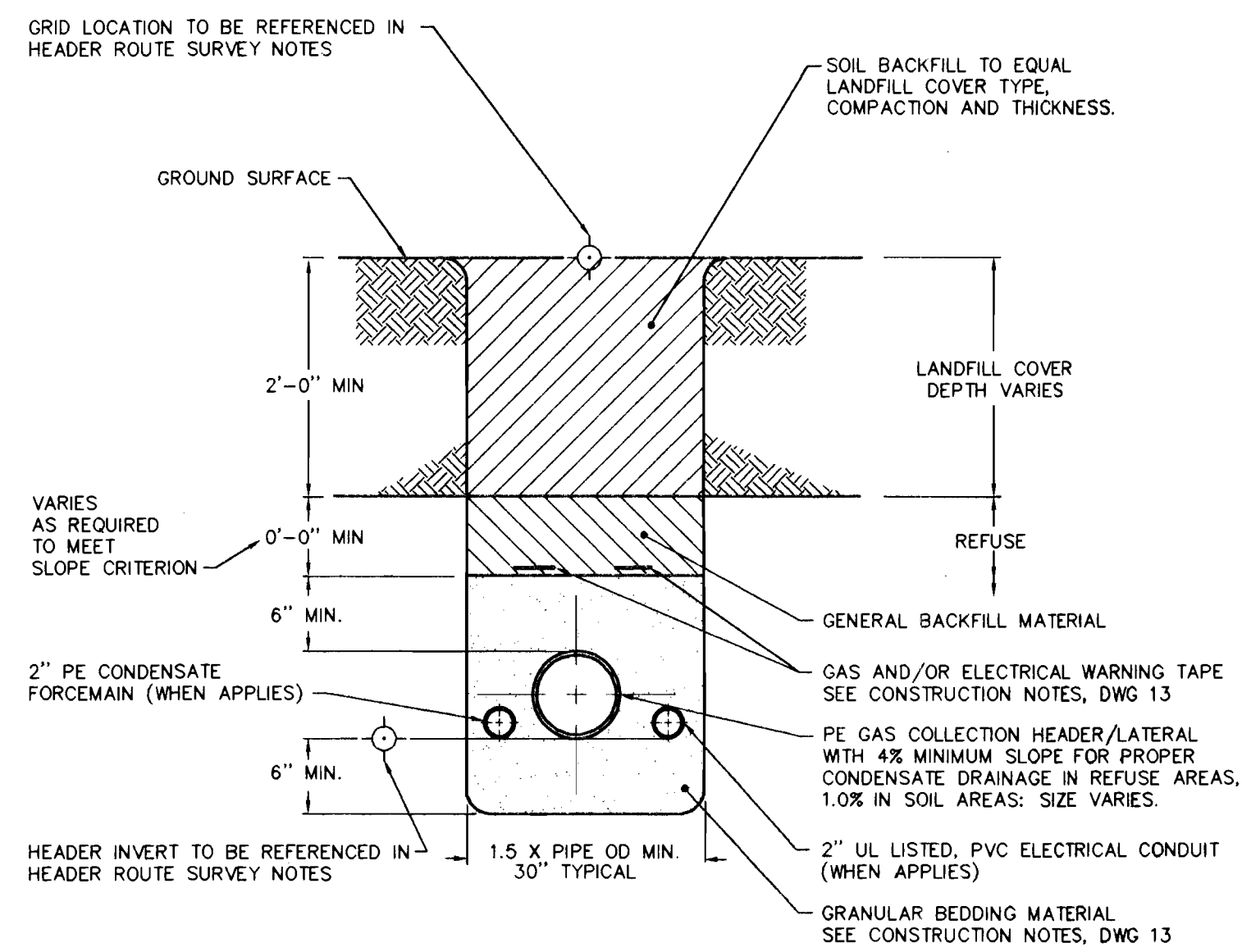
2 LCS TRENCH GAS EXTRACTION WELLHEAD DETAIL
6 NTS

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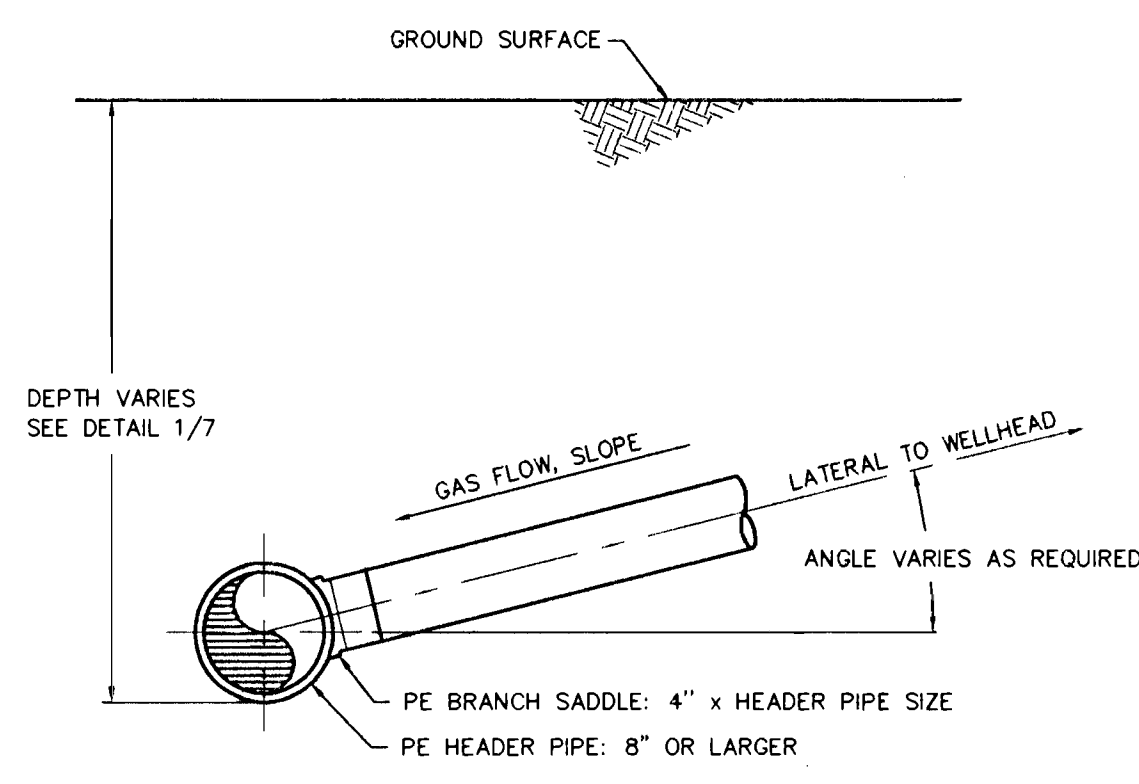
DESIGNED BY: WET	ENVIRONMENTAL ENGINEERS, SCIENTISTS, PLANNERS, & MANAGEMENT CONSULTANTS
DRAWN BY: TLA	ENVIRONMENTAL ENGINEERS, SCIENTISTS, PLANNERS, & MANAGEMENT CONSULTANTS
SHEET CHK'D BY: JAG	ENVIRONMENTAL ENGINEERS, SCIENTISTS, PLANNERS, & MANAGEMENT CONSULTANTS
CROSS CHK'D BY: JPC	ENVIRONMENTAL ENGINEERS, SCIENTISTS, PLANNERS, & MANAGEMENT CONSULTANTS
APPROVED BY: [Signature]	ENVIRONMENTAL ENGINEERS, SCIENTISTS, PLANNERS, & MANAGEMENT CONSULTANTS
DATE: JULY 1995	ENVIRONMENTAL ENGINEERS, SCIENTISTS, PLANNERS, & MANAGEMENT CONSULTANTS

SOLID WASTE AUTHORITY OF PALM BEACH COUNTY
PALM BEACH COUNTY, FLORIDA
LANDFILL GAS MANAGEMENT SYSTEM
NORTH COUNTY RESOURCE RECOVERY FACILITY

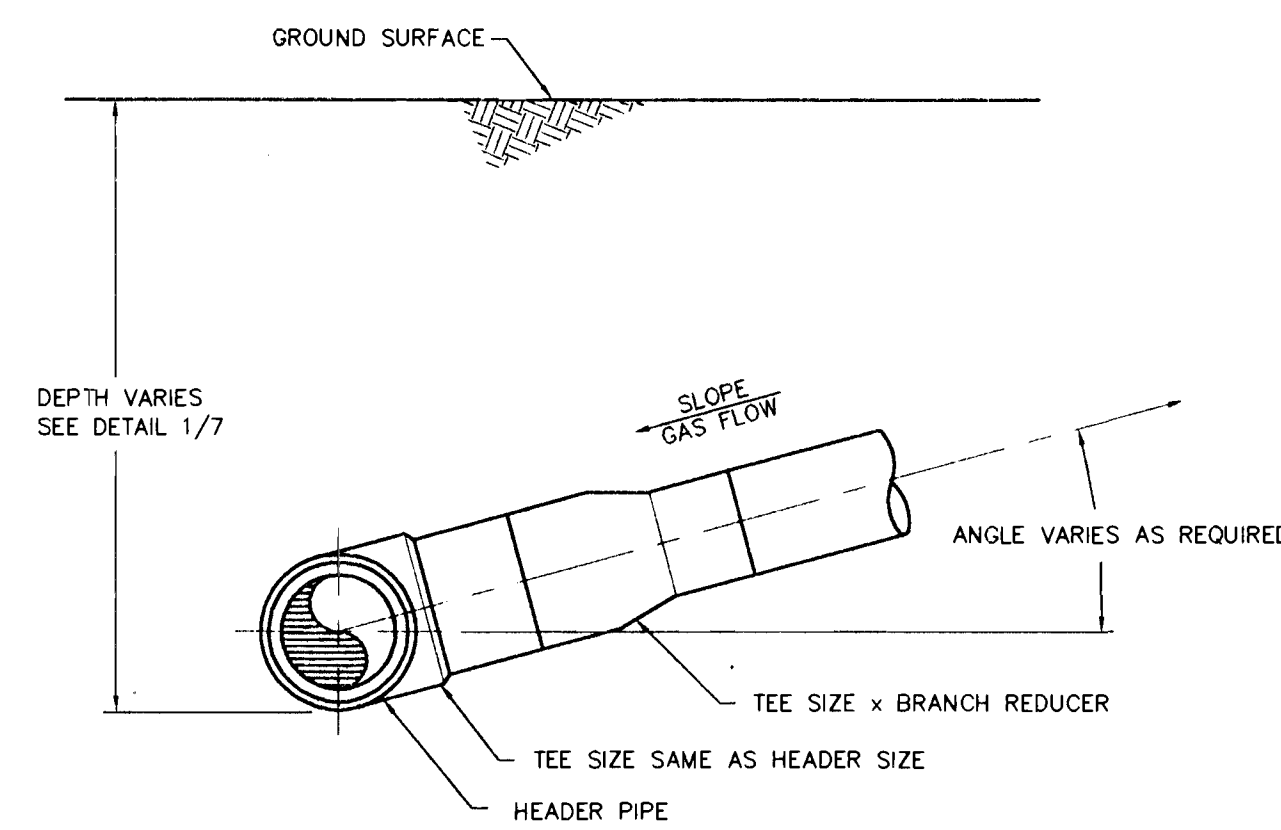
SHEET TITLE:	CLASS III LANDFILL LCS TRENCH GAS EXTRACTION DETAILS	WET PROJECT NO: 95296
DRAWING NO.	6	
SHEET	7 OF 15	



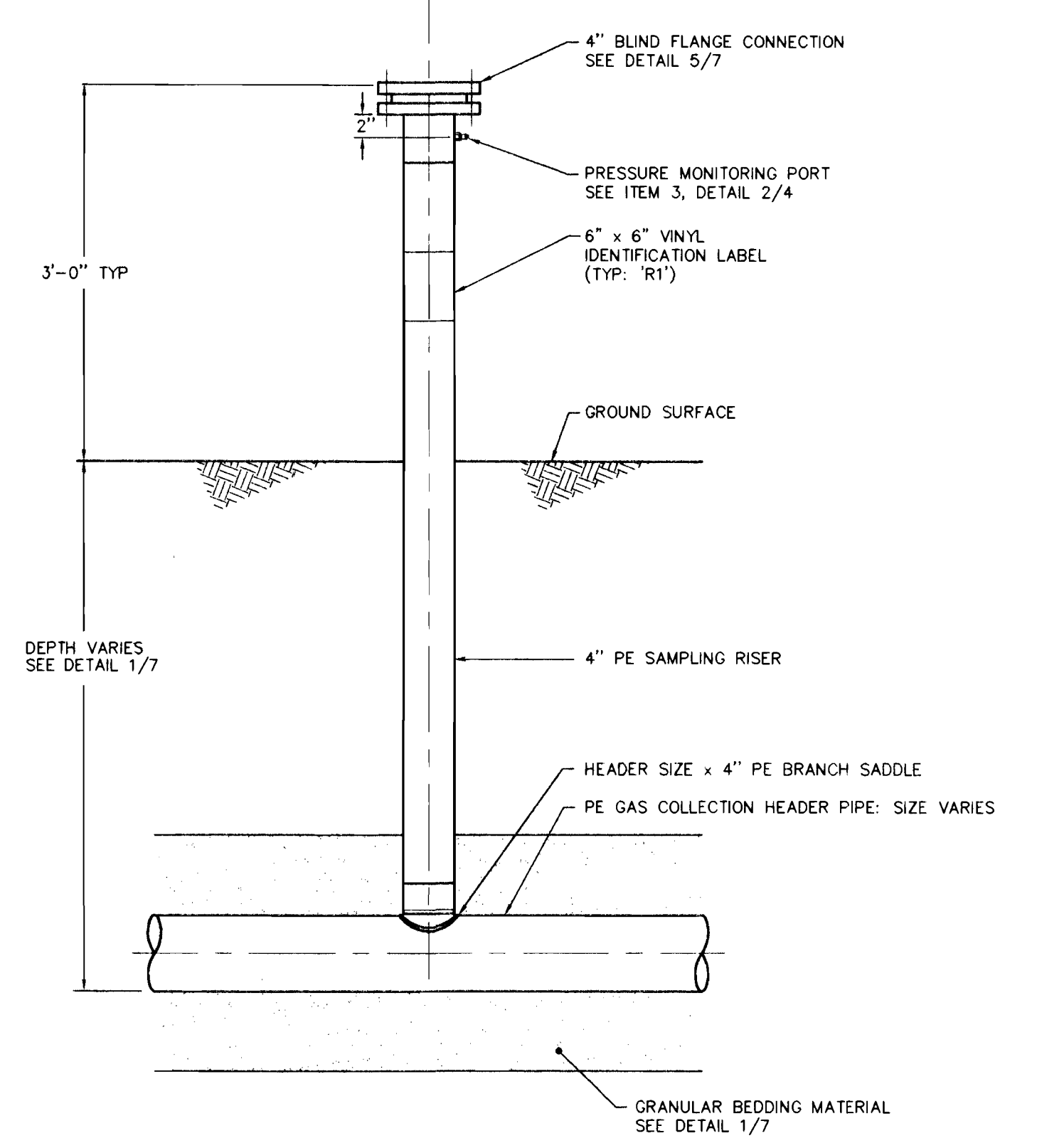
1 7 HEADER/LATERAL TRENCH DETAIL NTS



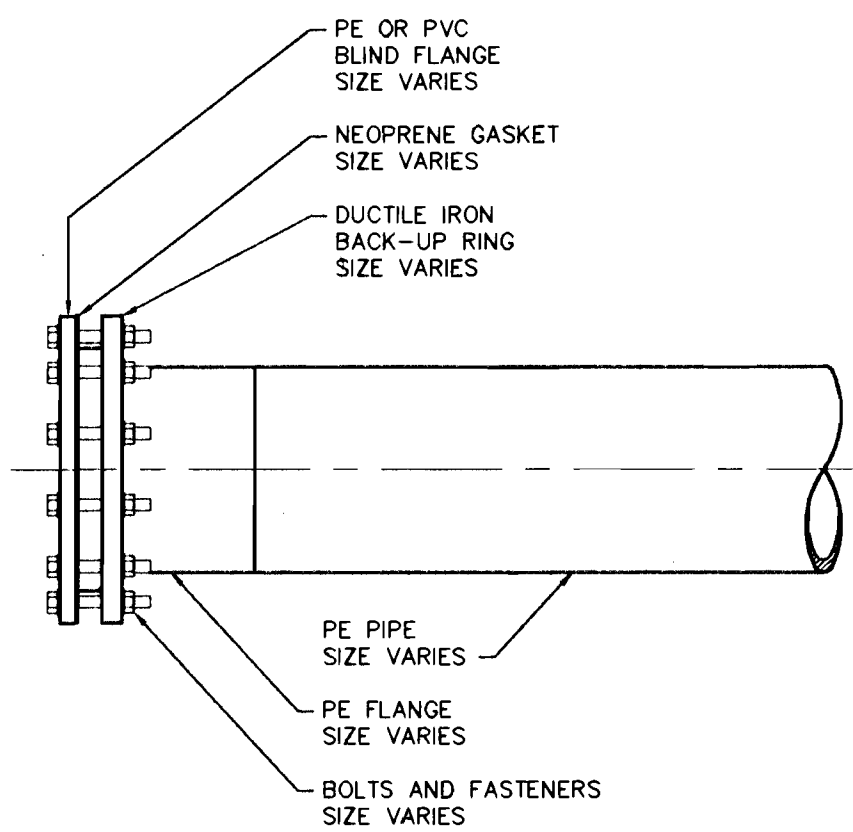
2 7 BRANCH SADDLE DETAIL NTS



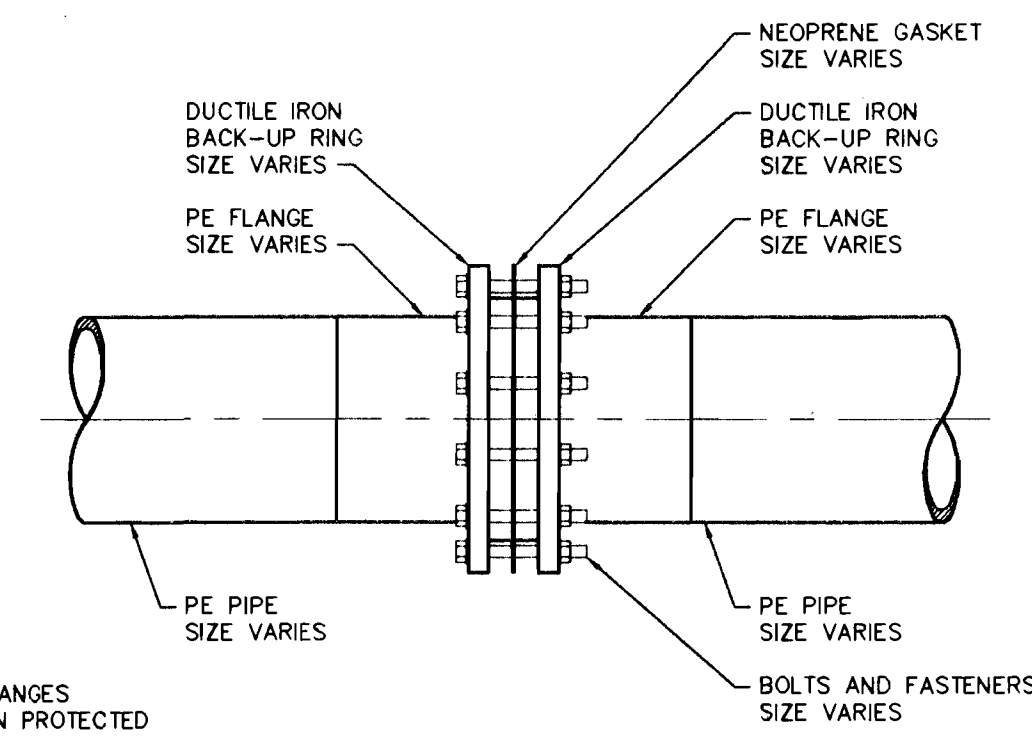
3 7 TEE CONNECTION DETAIL NTS



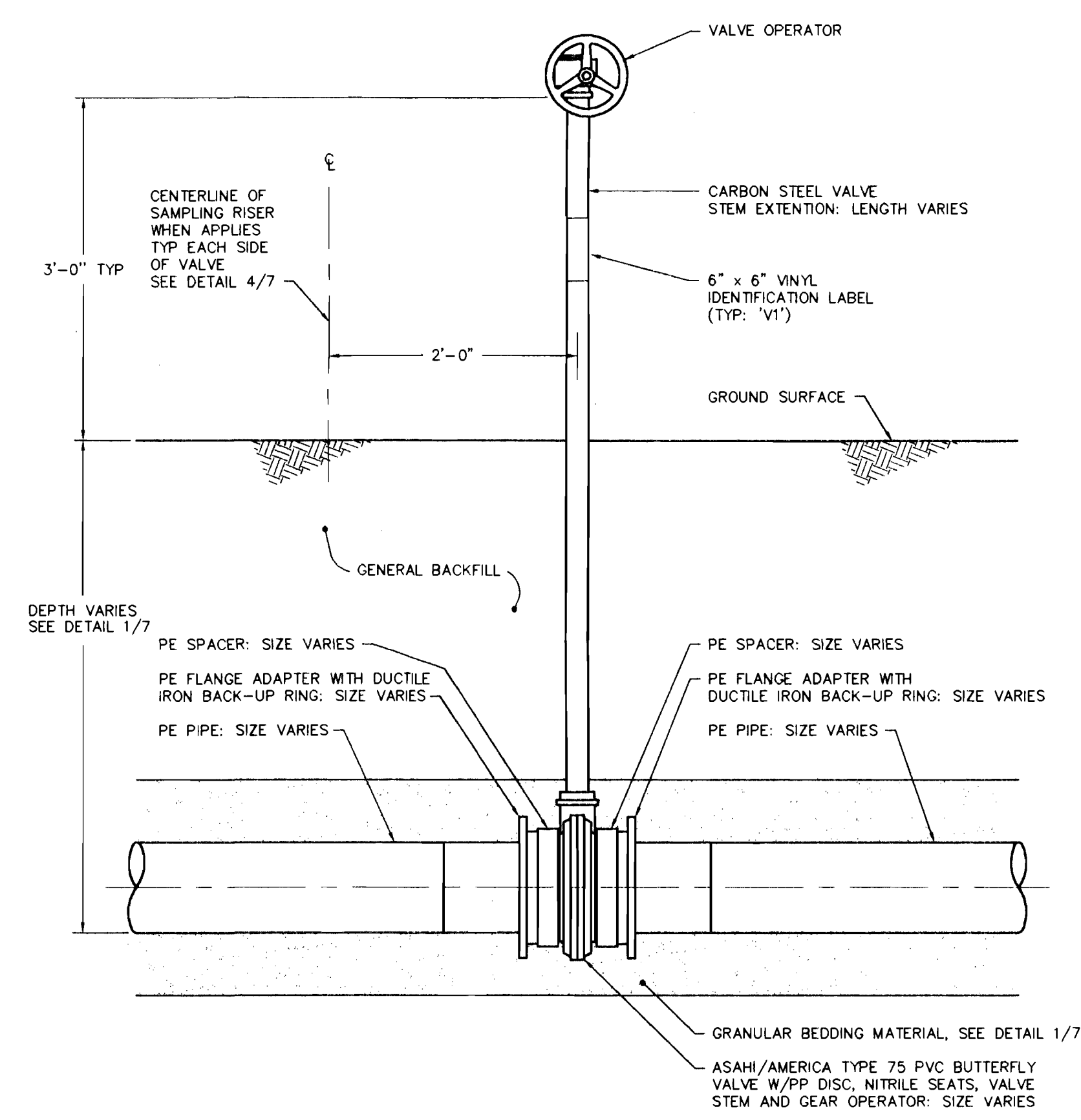
4 7 SAMPLING RISER DETAIL NTS



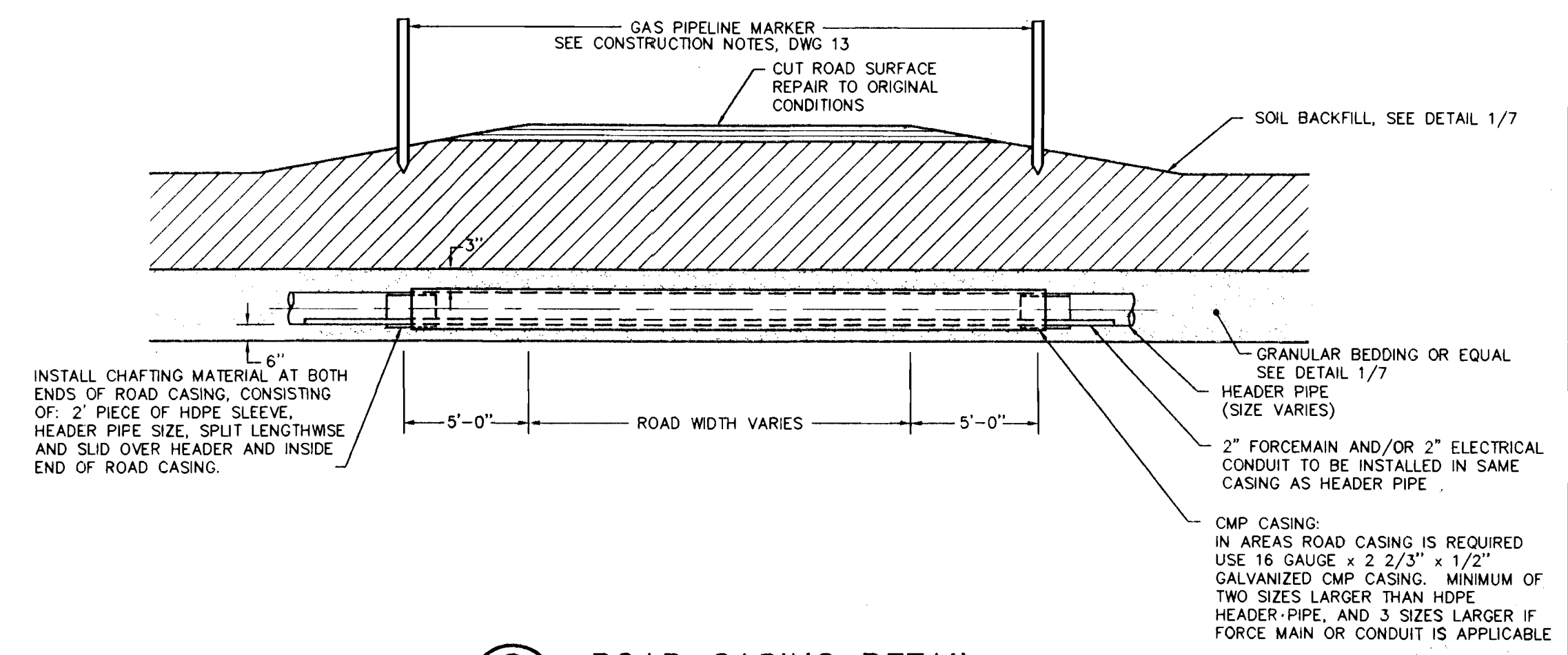
5 7 BLIND FLANGE CONNECTION DETAIL NTS



6 7 FLANGE CONNECTION DETAIL NTS



7 7 HEADER VALVE NTS



8 7 ROAD CASING DETAIL NTS TO BE FIELD LOCATED

NOTE: BELOW GRADE FLANGES TO BE CORROSION PROTECTED SEE CONSTRUCTION NOTES, DWG 13

CMP CASING: IN AREAS ROAD CASING IS REQUIRED USE 16 GAUGE x 2 2/3" x 1/2" GALVANIZED CMP CASING. MINIMUM OF TWO SIZES LARGER THAN HDPE HEADER PIPE, AND 3 SIZES LARGER IF FORCE MAIN OR CONDUIT IS APPLICABLE

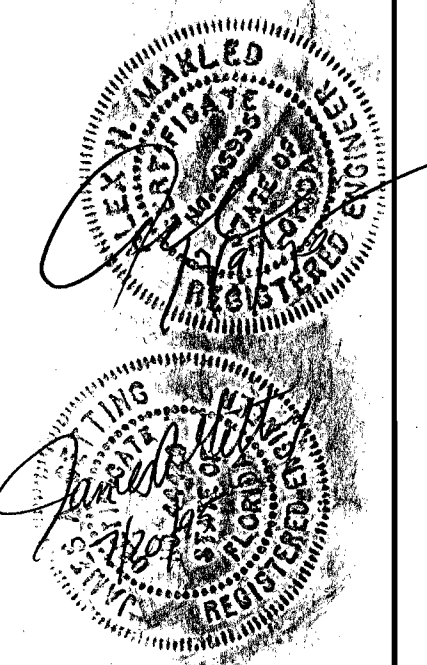
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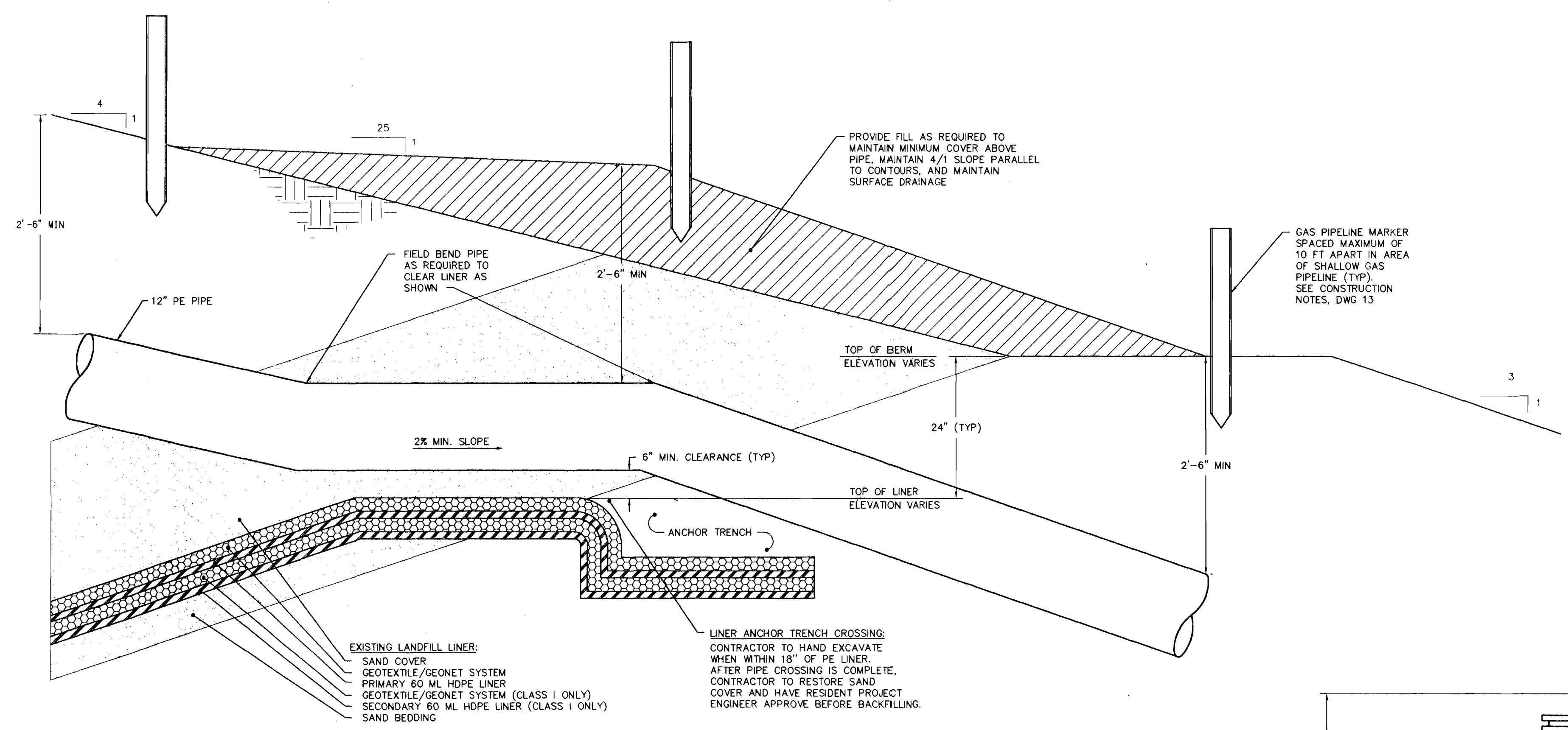
REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: WET	ENVIRONMENTAL MANAGEMENT ENGINEERS & CONTRACTORS
DRAWN BY: TLA	
SHEET CHK'D BY: JAG	
CROSS CHK'D BY: JPC	
APPROVED BY: [Signature]	
DATE: JULY 1995	

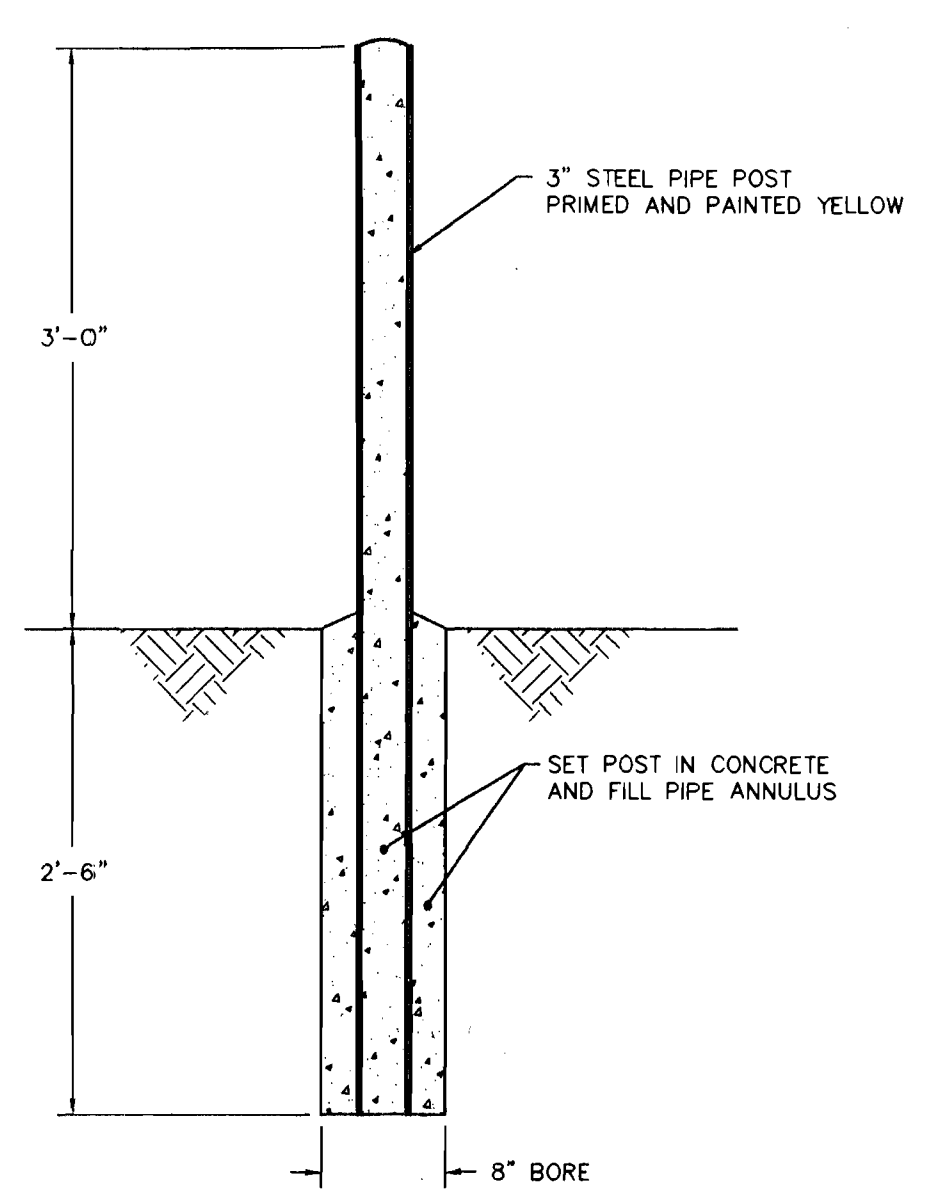
SOLID WASTE AUTHORITY OF PALM BEACH COUNTY
PALM BEACH COUNTY, FLORIDA
LANDFILL GAS MANAGEMENT SYSTEM
NORTH COUNTY RESOURCE RECOVERY FACILITY

SHEET TITLE:	CLASS I AND CLASS III LANDFILLS HEADER PIPING DETAILS	WET PROJECT NO: 95296
DRAWING NO:	7	
SHEET 8 OF 15		



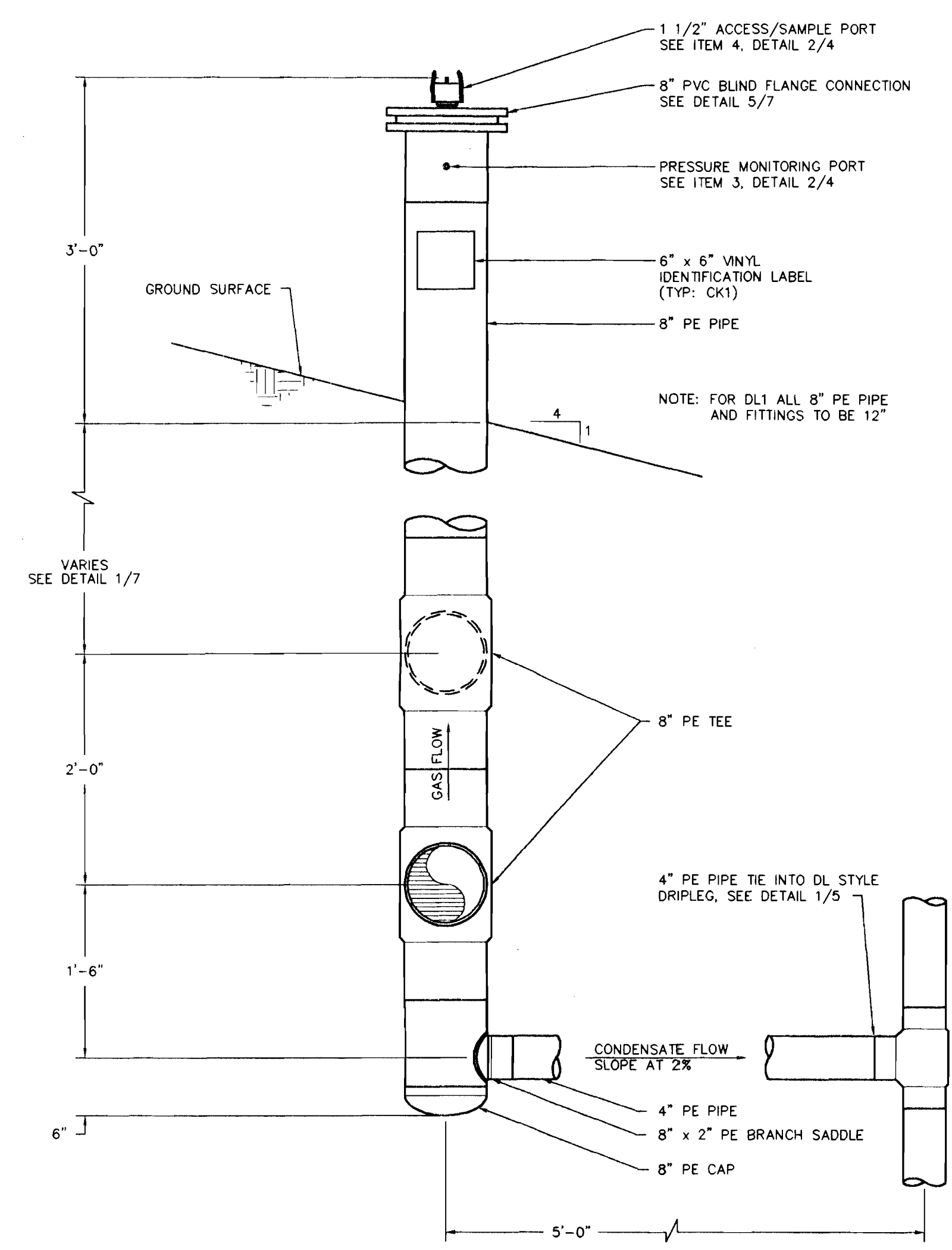


1
8 LINER ANCHOR TRENCH CROSSING
NTS



NOTE: OPTIONAL GUARD POSTS TO BE PLACED AROUND ALL LFG SYSTEM ABOVE GRADE APPURTENANCES AT A 2.5 FT RADIUS, 120 DEG APART.

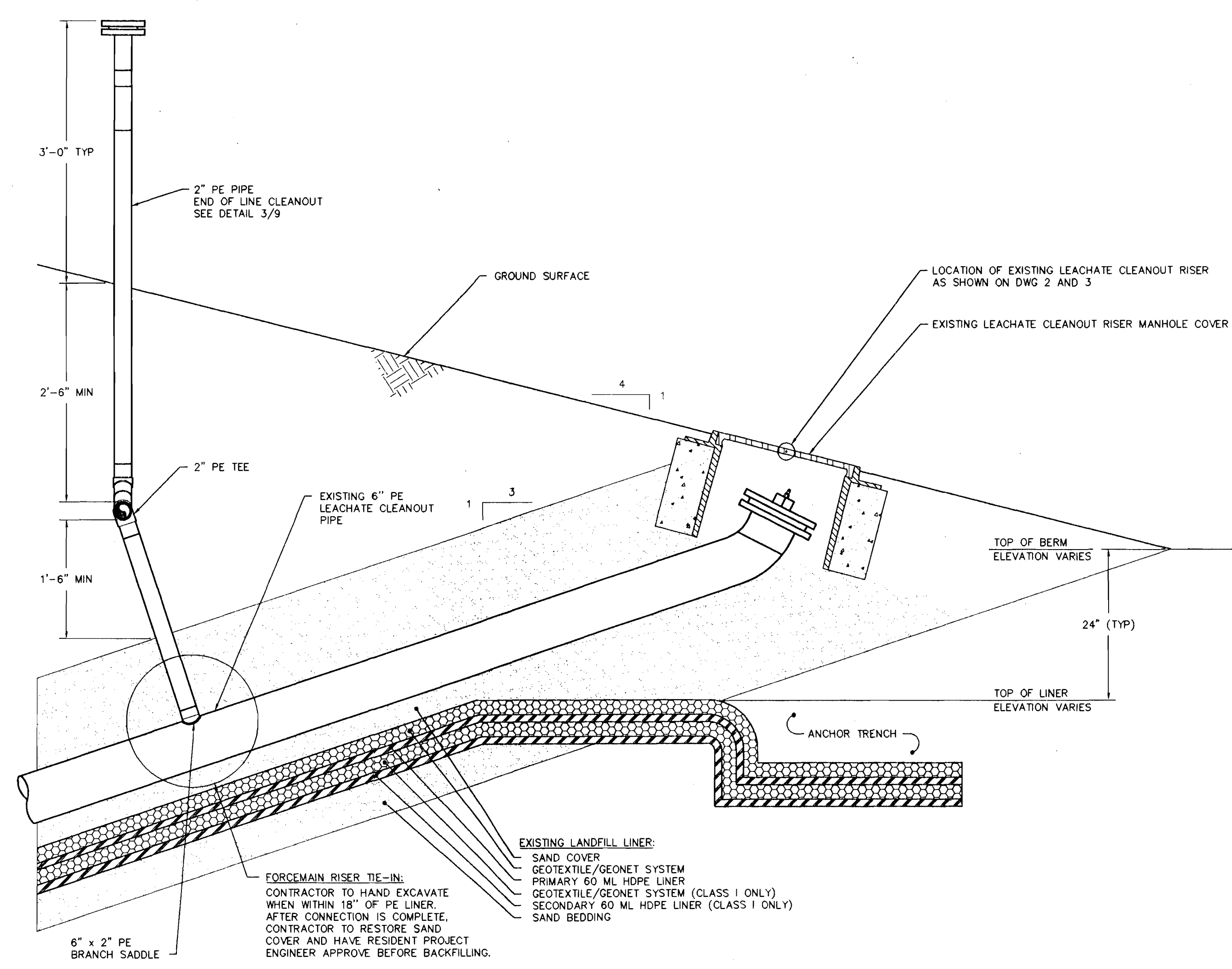
2
8 GUARD POST DETAIL
NTS



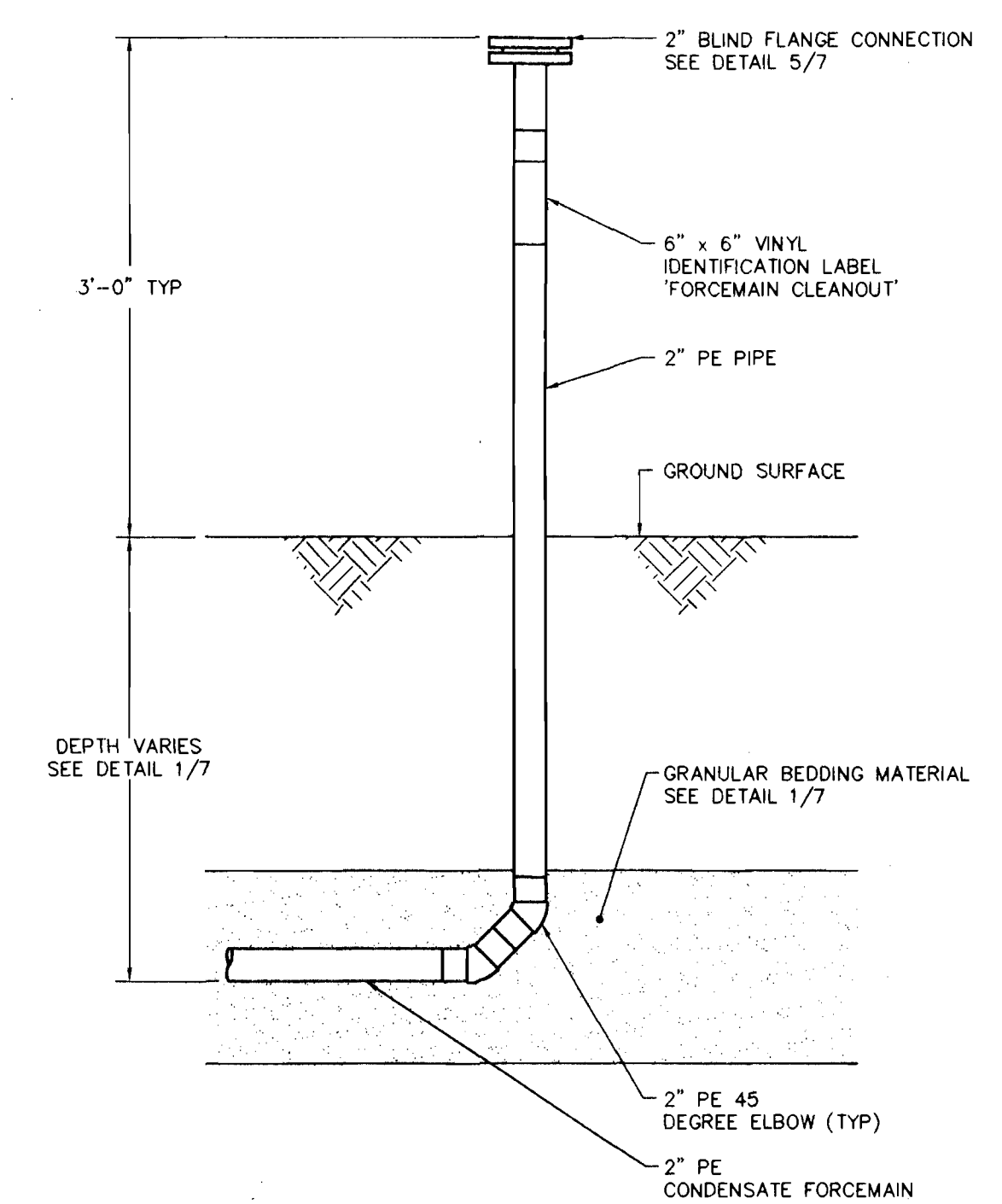
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8 CONDENSATE KNOCKOUT
NTS

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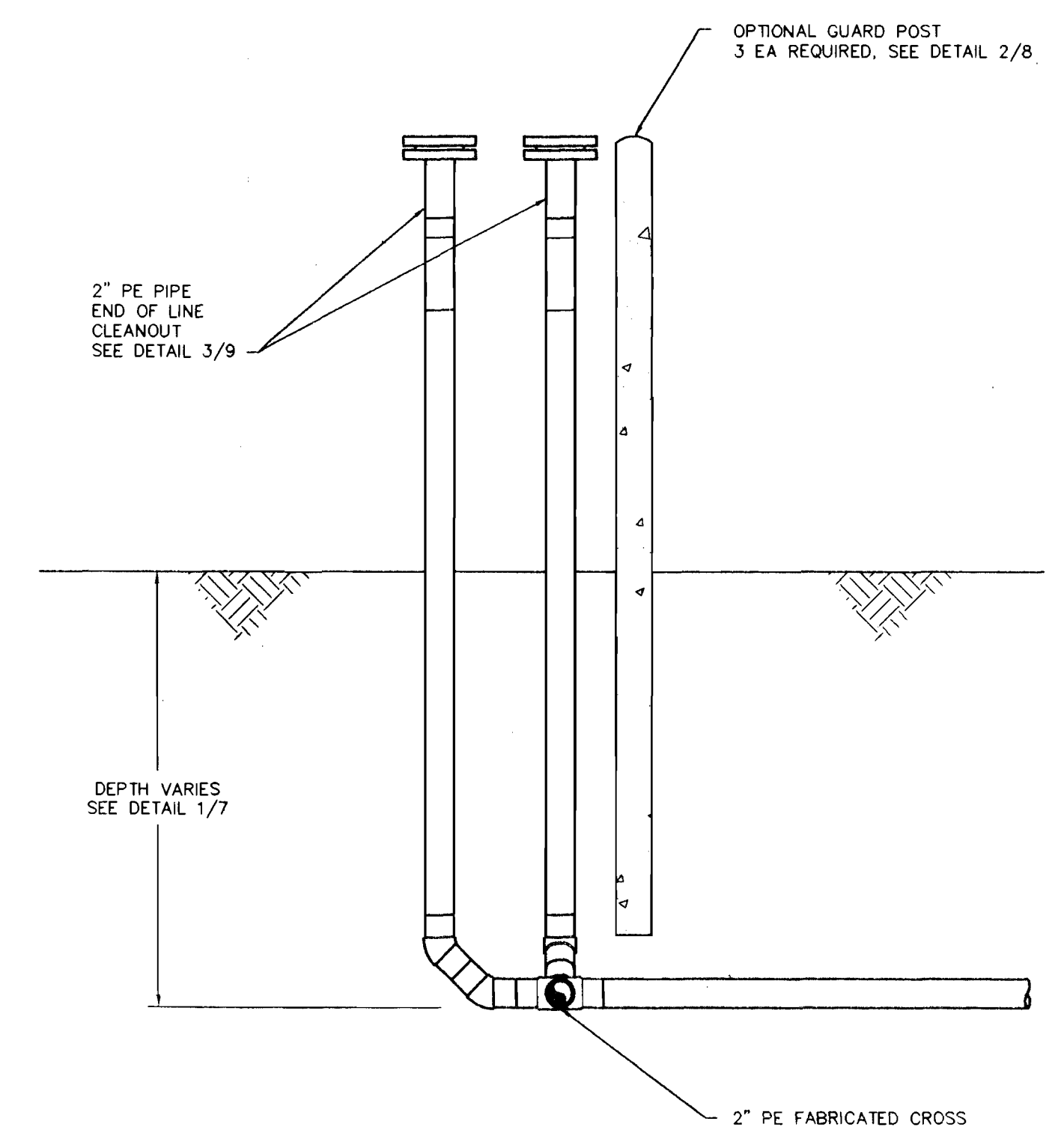
DESIGNED BY: WET DRAWN BY: TLA SHEET CHK'D BY: JAG CROSS CHK'D BY: JPC APPROVED BY: _____ DATE: JULY 1995						SOLID WASTE AUTHORITY OF PALM BEACH COUNTY PALM BEACH COUNTY, FLORIDA LANDFILL GAS MANAGEMENT SYSTEM NORTH COUNTY RESOURCE RECOVERY FACILITY		SHEET TITLE: CLASS I AND CLASS III LANDFILLS MISCELLANEOUS DETAILS		WET PROJECT NO: 95296 DRAWING NO: 8 SHEET 9 OF 15	
REV. NO.	DATE	DRWN	CHKD	REMARKS	PRINTED: JUL 20 1995						



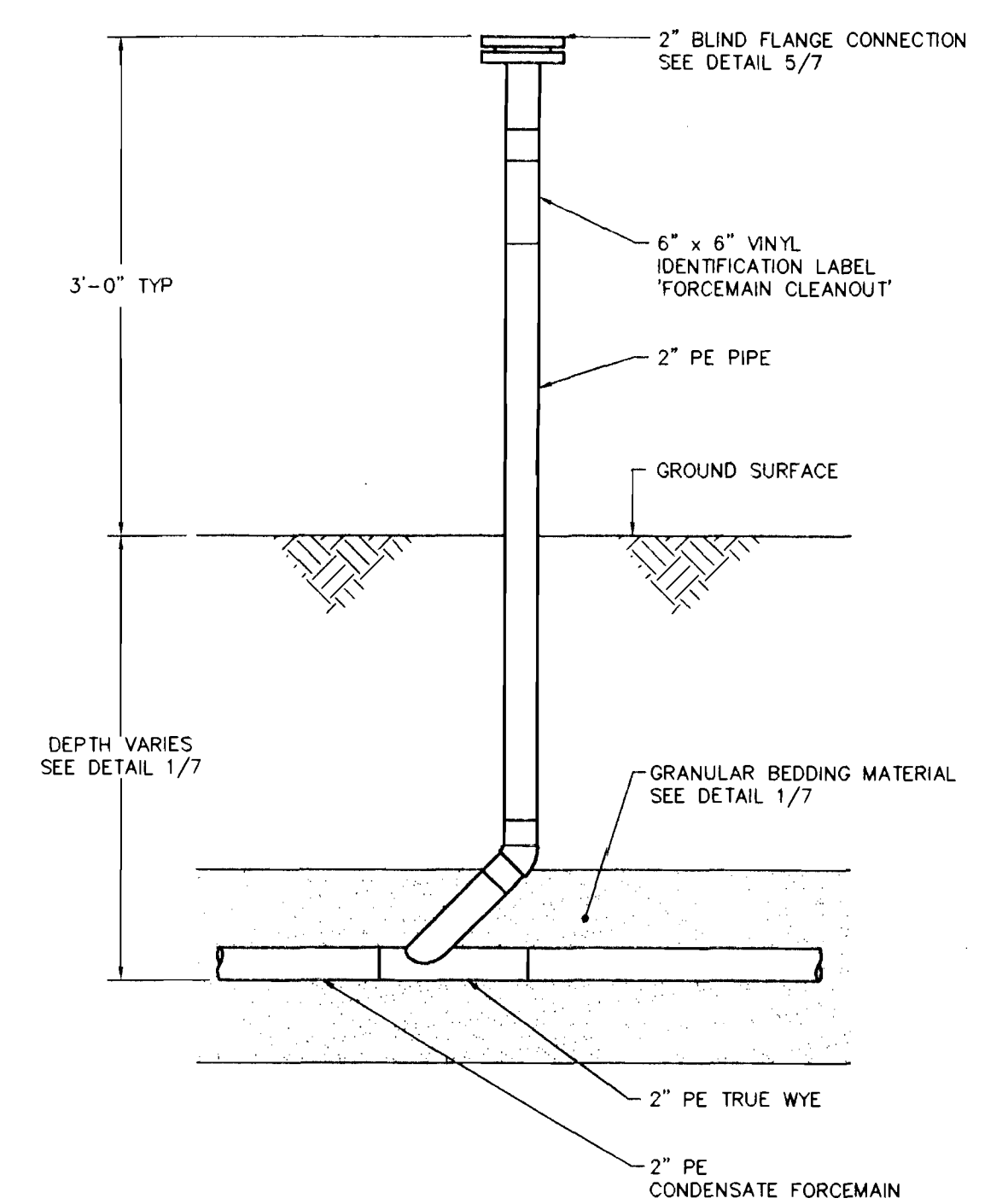
1
9 CLASS III CONDENSATE FORCEMAIN TIE-IN
NTS



3
9 END OF LINE FORCEMAIN CLEANOUT
NTS



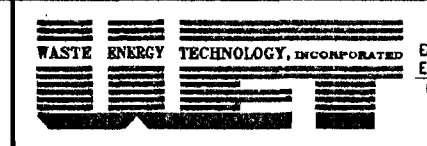
2
9 CLASS III CONDENSATE FORCEMAIN ELBOW
NTS




4
9 IN-LINE FORCEMAIN CLEANOUT
NTS

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DESIGNED BY:	WET
DRAWN BY:	TLA
SHEET CHK'D BY:	JAC
CROSS CHK'D BY:	JPC
APPROVED BY:	
DATE:	JULY 1995

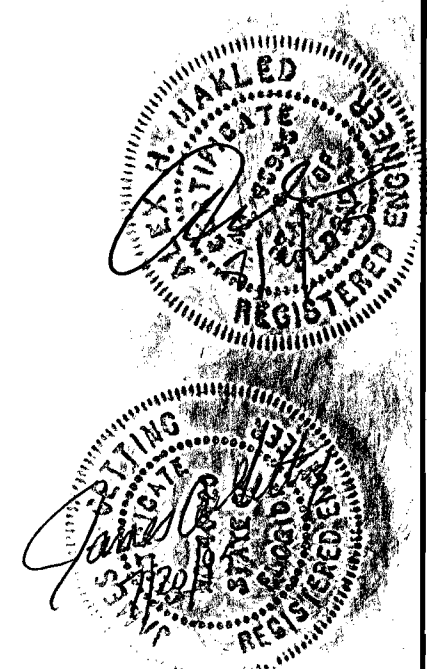

WASTE ENERGY TECHNOLOGY
 ENVIRONMENTAL MANAGEMENT
 ENGINEERS & CONTRACTORS
 FT. WALTON BEACH, FLORIDA

CAMP DRESSER & MCKEE INC.
 environmental engineers, scientists,
 planners, & management consultants


SOLID WASTE AUTHORITY OF PALM BEACH COUNTY
 PALM BEACH COUNTY, FLORIDA
LANDFILL GAS MANAGEMENT SYSTEM
NORTH COUNTY RESOURCE RECOVERY FACILITY

SHEET TITLE:
**CLASS I LANDFILL
 CONDENSATE FORCEMAIN DETAILS**

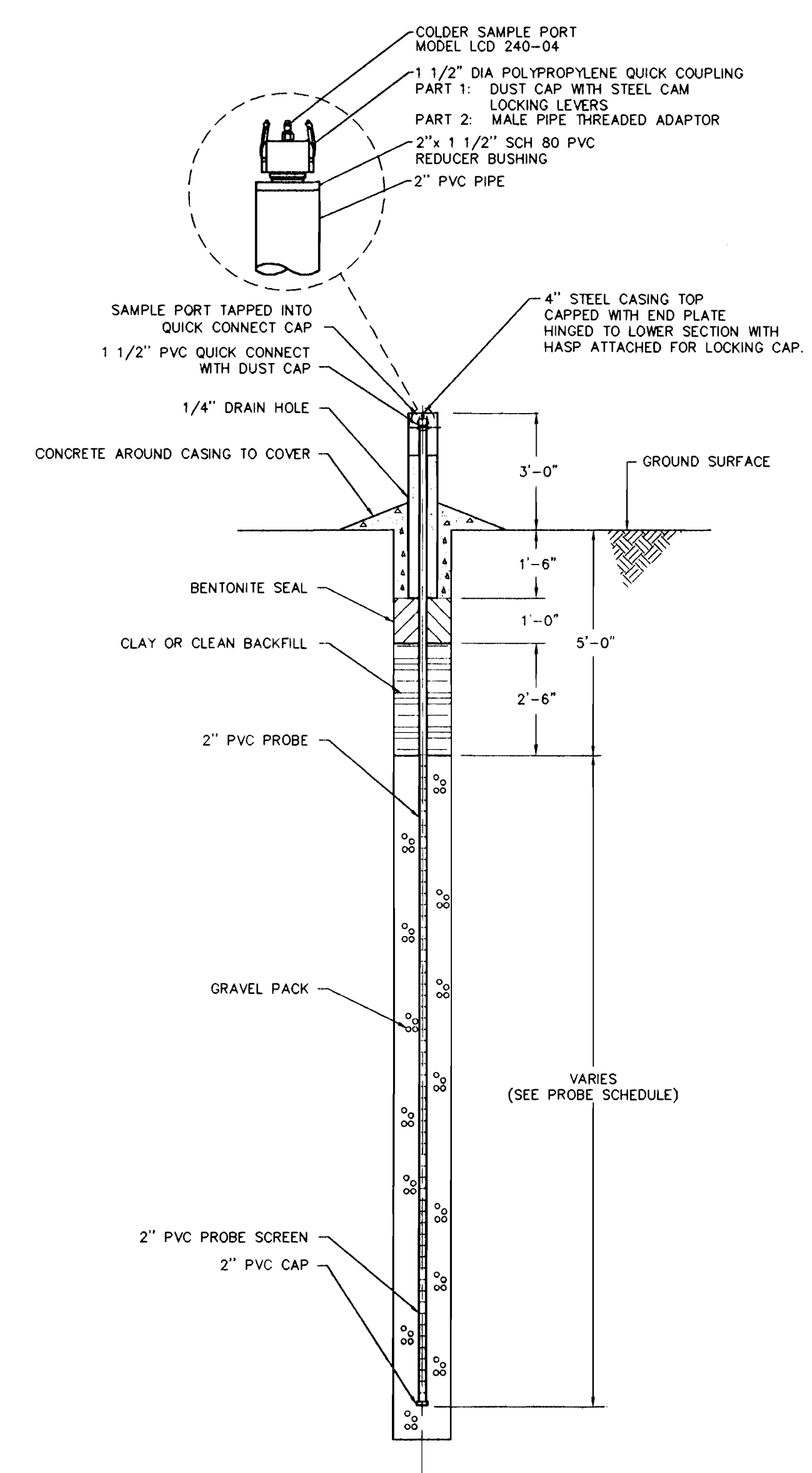
WET PROJECT NO:	95296
DRAWING NO.	9
SHEET	10 OF 15



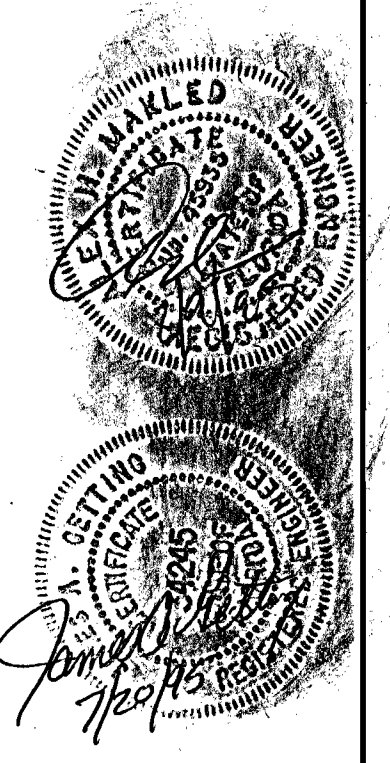
GAS MONITORING PROBE SCHEDULE

PROBE NO.	GRID NORTHING	GRID EASTING	EST'D EXISTING GRADE (MSL)	EST'D LF BASE GRADE (MSL)	EST'D DEPTH TO BASE GRADE (FT)	PROBE BORING DEPTH (FT)	BORING DIST ABOVE BASE GRADE (FT)	DEPTH TO PIPE SLOT (FT)	SLOTTED PIPE LENGTH (FT)
CLASS I LANDFILL AREA None									
CLASS III LANDFILL AREA									
PHASE A:									
P1	890651	781933	53.0	24.5	28.5	23.5	5.0	5.0	18.5
P2	891226	781928	47.0	24.7	22.3	17.3	5.0	5.0	12.3
P3	891755	781933	51.0	24.5	26.5	21.5	5.0	5.0	16.5
P4	891813	781680	52.0	24.5	27.5	22.5	5.0	5.0	17.5
P8	890138	781914	52.0	24.5	27.5	22.5	5.0	5.0	17.5
PHASE B: None									
PHASE C: None									
TOTALS						107.3	25.0	25.0	82.3

1. SITE GRID COORDINATES FOR GAS PROBES ARE FOR DESIGN LOCATION ONLY. ACTUAL CONSTRUCTION LOCATION OF PROBES MAY VARY TO MEET FIELD CONDITIONS.

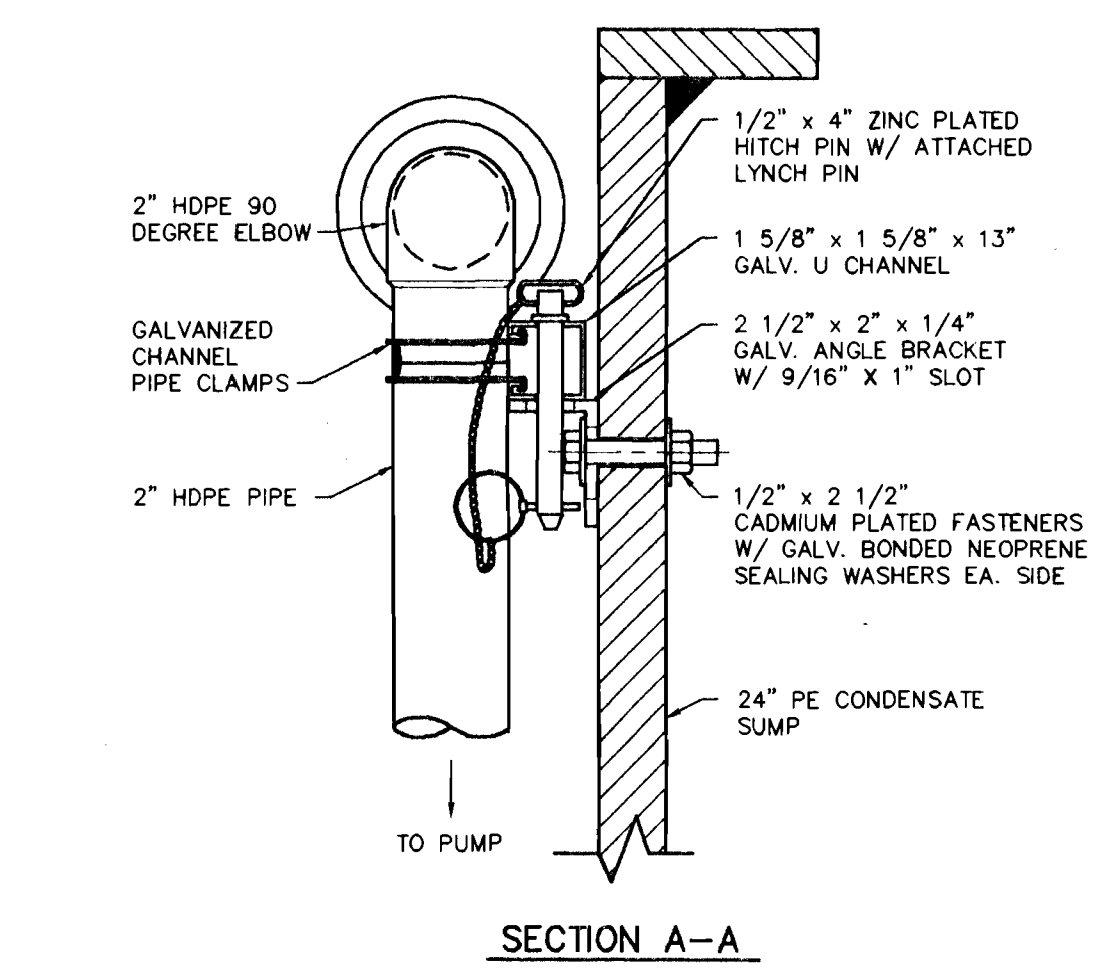
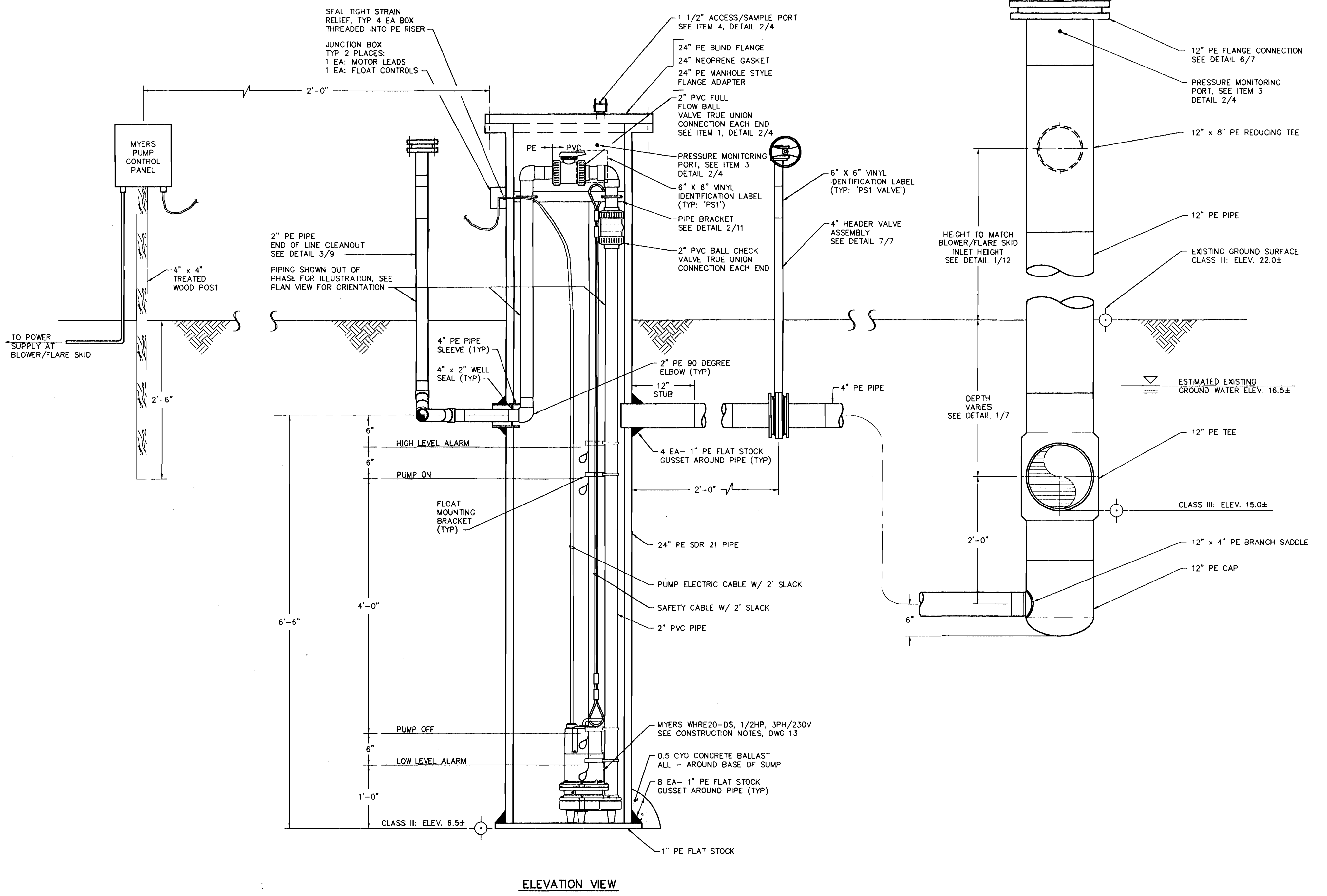
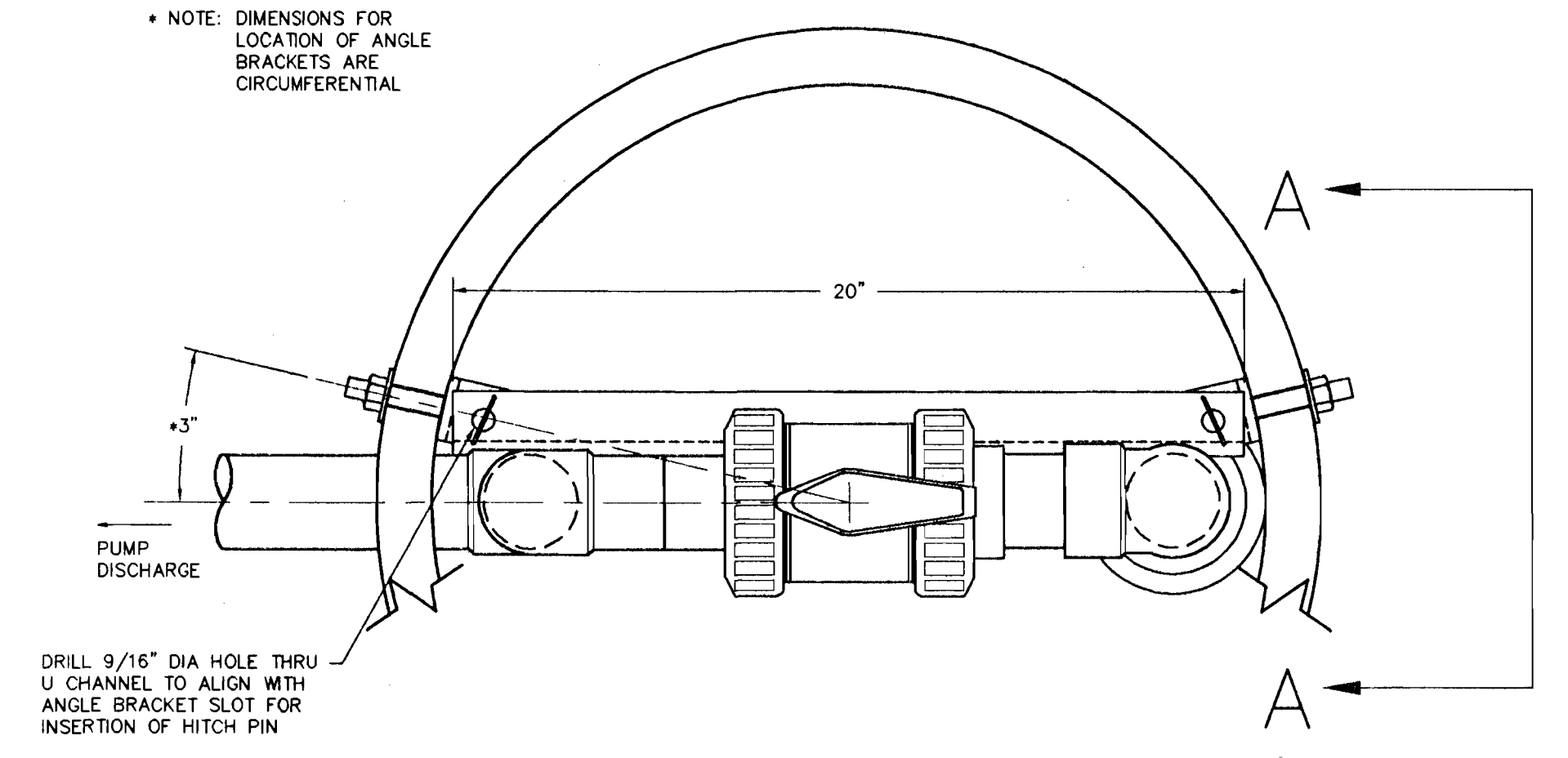
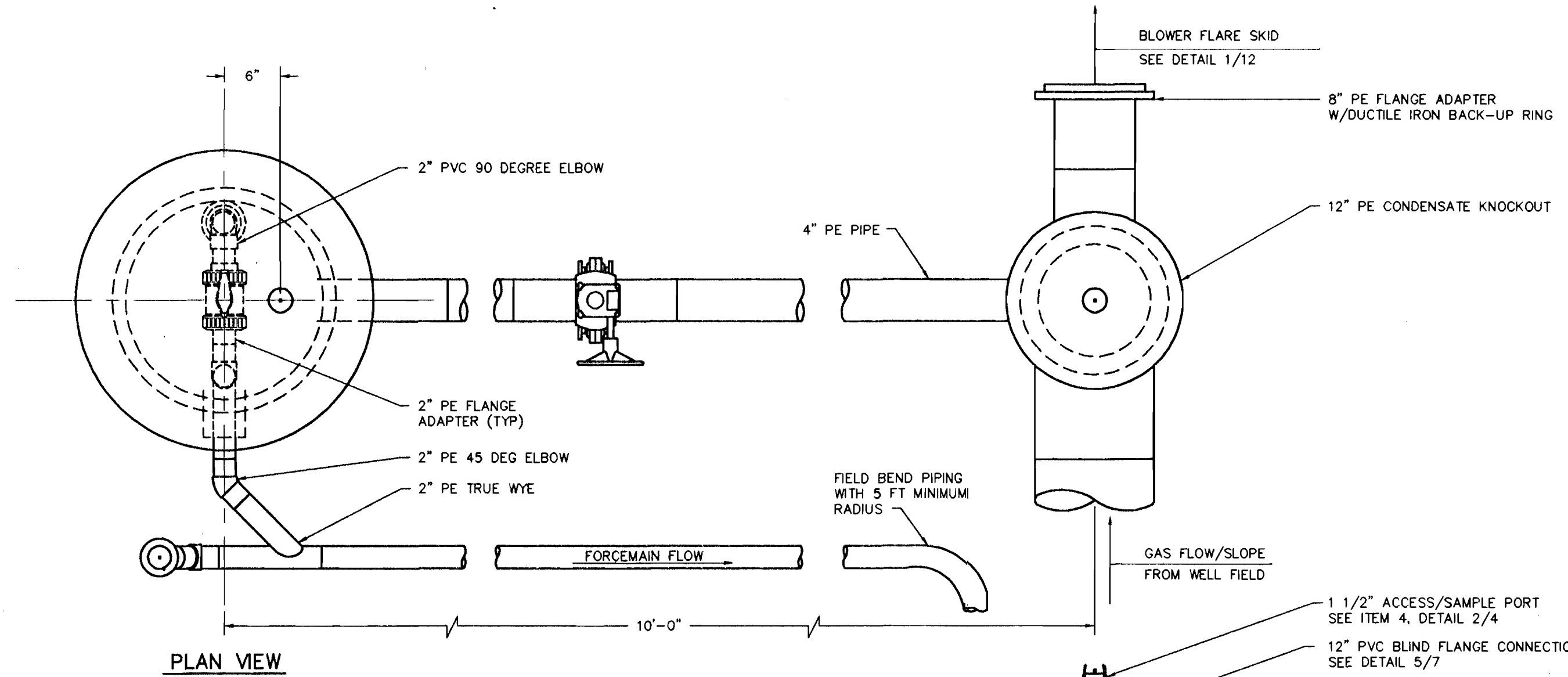


1
10 GAS MONITORING PROBE DETAIL
NTS



2961C10A.dwg 07/28/95 09:09

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REV. NO.	DATE	DRWN	CHKD	REMARKS											



2/11 CONDENSATE PIPING BRACKET DETAIL
 NTS
 NOTE: BRACKET FURNISHED AS COMPLETE ASSEMBLY BY VENDOR

1/11 CONDENSATE PUMP STATION DETAIL
 SEE DETAIL 1/12 FOR ORIENTATION IN BLOWER/FLARE STATION

296LD11.dwg 07/19/95 16:52

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: WET	DATE: JULY 1995
DRAWN BY: TLA	
SHEET CHK'D BY: JAG	
CROSS CHK'D BY: JPC	
APPROVED BY: [Signature]	

SOLID WASTE AUTHORITY OF PALM BEACH COUNTY
 PALM BEACH COUNTY, FLORIDA

LANDFILL GAS MANAGEMENT SYSTEM
NORTH COUNTY RESOURCE RECOVERY FACILITY

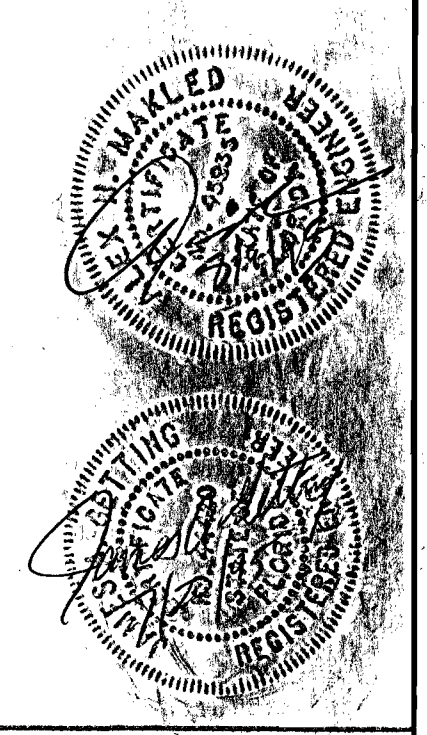
CAMP DRESSER & MCKEE INC.
 environmental engineers, scientists,
 planners, & management consultants

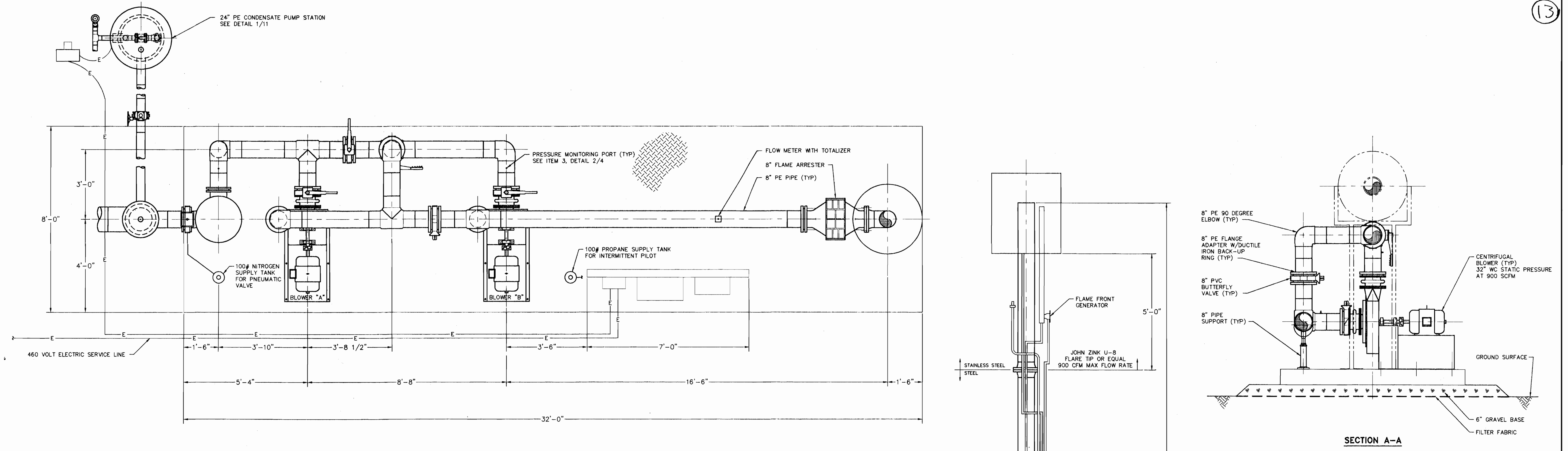
SHEET TITLE:
**CLASS III LANDFILL
 CONDENSATE PUMP STATION DETAILS**

WET PROJECT NO: 95296

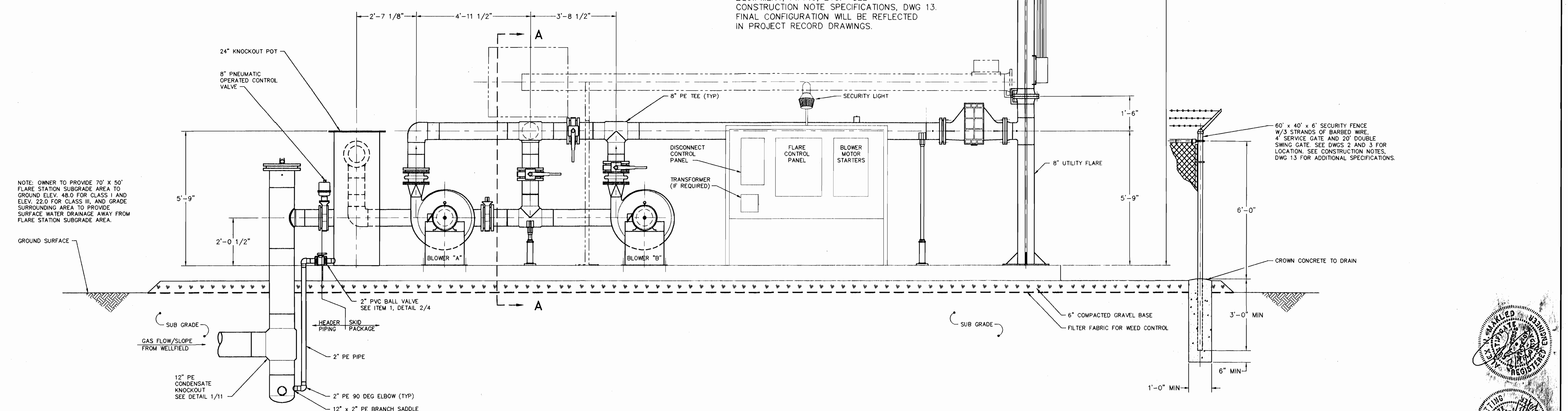
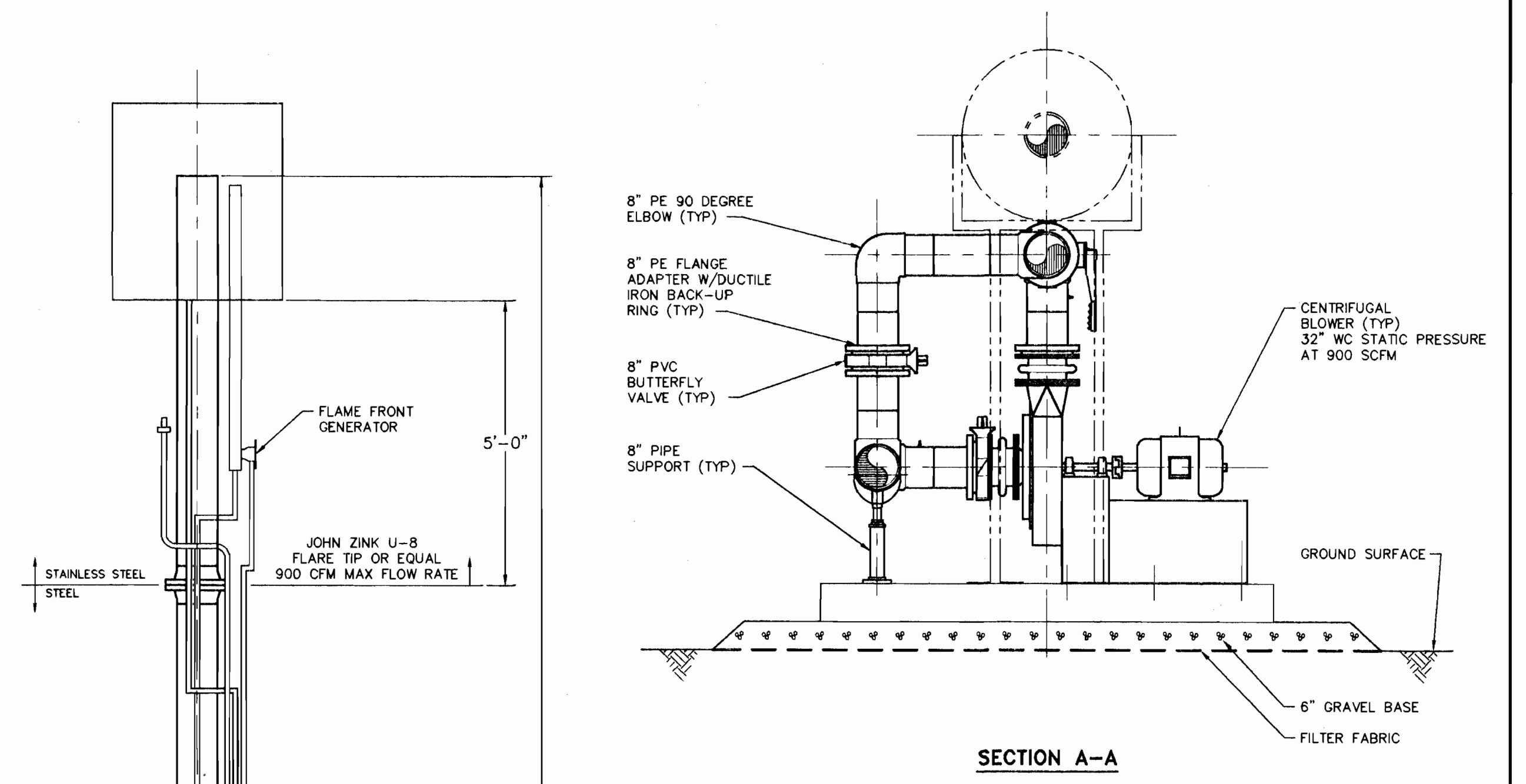
DRAWING NO.
11

SHEET 12 OF 15





NOTE: BLOWER/FLARE SKID CONFIGURATION FOR CONCEPT ILLUSTRATION ONLY, AND MAY VARY BASED ON DIMENSIONS OF EQUIPMENT, PIPING, ETC. SEE CONSTRUCTION NOTE SPECIFICATIONS, DWG 13. FINAL CONFIGURATION WILL BE REFLECTED IN PROJECT RECORD DRAWINGS.



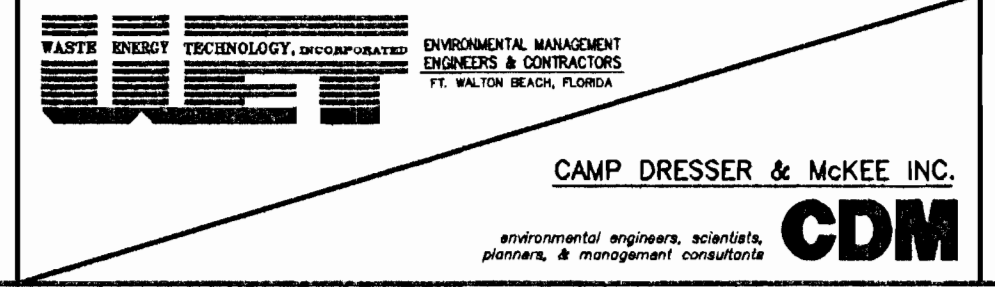
NOTE: OWNER TO PROVIDE 70' x 50' FLARE STATION SUBGRADE AREA TO GROUND ELEV. 48.0 FOR CLASS I AND ELEV. 22.0 FOR CLASS III, AND GRADE SURROUNDING AREA TO PROVIDE SURFACE WATER DRAINAGE AWAY FROM FLARE STATION SUBGRADE AREA.

1 TYPICAL BLOWER/FLARE SKID DETAILS
12 NTS

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REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:	WET
DRAWN BY:	TLA
SHEET CHK'D BY:	JAG
CROSS CHK'D BY:	JPC
APPROVED BY:	
DATE:	JULY 1995



SOLID WASTE AUTHORITY OF PALM BEACH COUNTY
PALM BEACH COUNTY, FLORIDA

LANDFILL GAS MANAGEMENT SYSTEM
NORTH COUNTY RESOURCE RECOVERY FACILITY

SHEET TITLE:	CLASS I AND CLASS III LANDFILLS BLOWER/FLARE SKID DETAIL
WET PROJECT NO:	95296
DRAWING NO.	12
SHEET	13 OF 15

CONSTRUCTION NOTES

14

1. GENERAL PROJECT LAYOUT AND CONSTRUCTION

1. Contractor shall be aware of the present topographic conditions of the project site and of all installation requirements for the Landfill Gas Management System presented and specified in the design plans, prior to performing any work.

2. Contractor shall be aware of the dangers involved with working in the confined space of the excavated header trench and extraction well borehole, and must take appropriate safety measures and adhere to all safety requirements stated in the contract documents. All work shall be performed in accordance with the SWANA Landfill Gas Division Health and Safety Task Force, "A Compilation of Landfill Gas Field Practices and Procedures, Health and Safety" dated August 1991, and any applicable Federal and State regulations.

3. The Owner shall be responsible for locating all utilities within the construction area. Contractor shall be responsible for repairing any damage to located existing facilities due to Contractors construction, at no additional cost to Owner. Repair of any damage to unlocated utilities due to Contractors construction, shall be at additional cost to the Owner.

4. Location and installation of gas extraction wells, LCS gas extraction risers, gas header piping, and condensate knockouts may vary to accommodate landfill surface / subsurface, field conditions, landfill refuse limits, and maintain a minimum required header slope.

All piping bends shown in plans are pipe field bends except where fittings are indicated.

All well gas header laterals are 4" diameter unless otherwise specified. Wells to be offset from the header a minimum of ten (10) feet.

All reducers are constructed adjacent to mainline and/or lateral tees. Reducers are one pipe size reduction per fitting. Use of multiple reducers is required for 2 pipe sizes, or greater reductions, and are denoted by largest size x smallest size. (e.g., For 10" x 4": 10" x 6", 8" x 6", and 6" x 4").

Contractor shall construction field stake proposed gas well locations, LCS gas extraction risers, and complete header route with appurtenances prior to construction to ensure all header route locations and elevations will fit actual field conditions, and meet the system design objectives presented in these drawings. Contractor shall prepare header route survey notes to include header stationing, site grid coordinates, header invert elevation, ground elevation, header depth, header slope, construction notes, pipe information, and a complete job pipe summary. Format to be as follows:

STATION (ft)	GRID COORDINATES		HEADER INVERT ELEV. (ft)	GROUND HEADER ELEV. (ft)	HEADER DEPTH (ft)	HEADER SLOPE (%)	CONSTRUCTION NOTES	PIPE INFORMATION
	(North)	(East)						
LINE F-7								
0+00	50708.45	22997.65	1235.58	1239.66	3.8	-2.13%	STA 0+02 LINE E-E' 12" x 4" BRANCH SADDLE BEGIN 6" CMP ROAD CASING	31 FT OF 4" DIA PE AT 2.13%
0+04	50704.56	22997.42	1235.74	1240.40	4.7		END 6" CMP ROAD CASING	
0+26	50694.44	22977.80	1235.28	1239.09	3.8		STA 1+28 C-C' 4" TEE AND RISER	
0+31	50712.66	22981.02	1235.17	123.54	3.4			
LATERAL TO WELL 6R								
0+00	50601.26	23272.90	1274.62	1278.90	4.3	2.00%	STA 2+00 LINE A-A' 6" x 4" BRANCH SADDLE WELL 6R	5 FT OF 4" DIA PE AT 2.00%
0+05	50606.27	23271.25	1274.72	1278.66	3.9			
LATERAL TO WELL 7R								
0+00	50591.22	23078.87	1264.31	1268.29	4.0	2.00%	STA 4+00 LINE A-A' 6" x 4" BRANCH SADDLE WELL 7R	5 FT OF 4" DIA PE AT 2.00%
0+05	50595.02	23081.00	1264.41	1268.86	4.5			

Construction field stake notes to be submitted to owner for review, prior to any construction by Contractor of gas extraction wells and header collection piping.

5. All solid waste from landfill gas well drilling, LCS trench riser, header trench and other associated excavation to be hauled by the contractor to the respective Class I or Class III Landfill disposal working face for disposal at the location directed by the owners representative. Owner shall be responsible for compacting and covering this waste along with normal daily landfill disposal operations.

2. PVC PIPE HANDLING AND WELDING

1. All polyvinyl chloride (PVC) pipe and pipe fittings shall be Schedule 80, or approved equal, unless noted otherwise in the construction drawings. The PVC shall meet ASTM D-1784 and F-441 classification and all PVC fittings shall meet ASTM F-439 classification.

2. All below grade PVC slip coupling joints (for well construction) to be solvent cemented as per manufacturer's specifications and lag bolted at 120 degree intervals about circumference of pipe socket. Lag bolts shall not protrude through the well casing.

3. PVC AND PE FLANGE CONNECTIONS

1. All flanges to meet the American National Standards Institute (A.N.S.I.) 150 pound bolt hole circle diameter, number of bolts and bolt sizing requirements. All bolts, nuts, and washers to be cadmium plated grade 8, zinc plated, galvanized, or 18-8 Stainless Steel. All flange connections to use full face neoprene flange gasket.

2. In making flange joints, the following precautions should be observed:

- A. When a PVC flange is installed, the pipe ends shall be cut square and fully bottomed out in the flange socket.
- B. Insert the appropriate size neoprene flange gasket between the flanges, the flange/valve/flange spacer connection or orifice plate.
- C. Use U.S. Standard round washers on plastic flanges (trimming of washers may be required on some flanges). Bolts should be well lubricated per manufacturer's recommendations.
- D. To prevent leaky gaskets, tighten the flange bolts in accordance with manufacturer's recommended sequence. CAUTION: Do not over-torque bolts.

- 4" Flange - 20 to 30 ft/lbs
- 6" Flange - 33 to 50 ft/lbs
- 8" Flange - 33 to 50 ft/lbs
- 10" Flange - 53 to 75 ft/lbs
- 12" Flange - 53 to 75 ft/lbs

All sizes greater than 12" shall be torqued in accordance manufacturer's recommendations.

3. All below grade steel flanges/pipe and bolts to be corrosion protected with Rubberized Asphalt Emulsion, or equal.

4. LANDFILL GAS EXTRACTION WELLS

1. No extraction well boring shall extend into or through the landfill base liner. If a well boring cannot be completed to the specified depth due to boring refusal or encountered excessive liquids, the Contractor shall immediately notify the Project Design Engineer, who will make the decision if the well can be completed at the achieved depth, or must be relocated. Well refusals (abandoned well borehole) shall be backfilled with spoil material taken from the well bore, to the landfill cover / refuse interface; remaining refusal borehole to be backfilled with soil to equal landfill cover type, compaction, and thickness.

2. The Contractor Project Representative shall be present during all well boring and construction activities to log the refuse profile including refuse temperature, dates, degree of decomposition, moisture content, liquid levels, and record construction well materials and dimensions. All field changes regarding extraction well locations and construction dimensions specified in the design gas extraction well schedule shall be properly recorded and documented by the Contractor as "Record Drawing" conditions.

3. To minimize air intrusion around the extraction well, when setting the PVC gas extraction well casing, no PVC coupling shall be used within five (5) feet of the existing ground elevation. The gas extraction well casing also shall extend four (4) feet above the proposed ground elevation when well is set. This stub up is temporary until the wellhead assembly is installed.

4. A washed 1 to 1 1/2 inch rounded river rock aggregate shall be used around the slotted portion of the pipe. Calcium content shall be less than 10% by weight. Sieve and calcium content analysis shall be submitted by the contractor and approved by the Project Design Engineer prior to well installation.

5. The well soil backfill shall be equal to final landfill cover requirements and shall be furnished by the Owner. The top two (2) feet of borehole shall be soil backfilled to equal landfill cover type, compaction, and thickness.

6. The gas extraction well Bentonite Seal installation procedure shall consist of:

- A. Backfilling 2 feet with well soil backfill directly atop the gravel pack.
- B. Lower Bentonite Seal (to be placed during well construction): Installing four (4) fifty (50) pound bags of dry NL Boroid "holeplug" or approved equivalent bentonite chips and spread uniformly into the well borehole over the well soil backfill;
- C. Saturating the NL Boroid "holeplug" bentonite chips in the well borehole with 50 gallons of water or in accordance with manufacturer's specifications to achieve a minimum hydration of four inches;
- D. Waiting 10 minutes, the bentonite chips in the borehole shall be saturated again with 10 gallons of water;
- E. Backfilling over the hydrated bentonite chips with well soil backfill to a distance of one (1) foot below the bottom of the landfill cover;
- F. Top Bentonite Seal (to be placed during wellhead installation): Installing four (4) fifty (50) pound bags of dry NL Boroid "holeplug" bentonite chips and spread uniformly into the well borehole;
- G. Saturating the bentonite chips in the well borehole with 50 gallons of water or in accordance with manufacturer's specifications to achieve a minimum hydration of four inches;
- H. Waiting 10 minutes, the bentonite chips in the borehole shall be saturated again with 10 gallons of water;
- I. Backfilling the remaining borehole with landfill soil cover material equal to the site specified and approved landfill cover type, compaction, and thickness.
- J. Product information for Bentonite to be used shall be submitted by the Contractor and approved by the Project Design Engineer prior to well installation.

5. LCS TRENCH GAS EXTRACTION RISERS

1. No LCS Trench Gas Extraction Riser excavation shall extend through the landfill base liner. If a trench riser excavation cannot be completed to the specified depth due to excavation refusal or encountered excessive liquids, the Contractor shall immediately notify the Project Design Engineer, who will make the decision if the riser excavation can be completed at the achieved depth, or must be relocated. Riser excavation refusals shall be backfilled with spoil material taken from the excavation, to the landfill cover / refuse interface; remaining excavation to be backfilled with soil to equal landfill cover type, compaction, and thickness.

2. A washed 1 to 1 1/2 inch rounded river rock aggregate shall be used around the perforated portion of the pipe. Calcium content shall be less than 10% by weight. Sieve and calcium content analysis shall be submitted by the contractor and approved by the Project Design Engineer prior to trench riser installation.

3. The trench soil backfill shall be equal to final landfill cover requirements and shall be furnished by the Owner.

4. The LCS Trench Riser Bentonite/Soil Seal shall consist of:

- A. Premixing four (4) fifty (50) pound bags of dry NL Boroid "holeplug" or approved equivalent bentonite chips per one (1) cubic yard of trench soil backfill;
- B. Spreading bentonite/soil mix uniformly directly atop the gravel pack, to a depth of two (2) feet;
- C. Saturating the bentonite/soil mix with 40 gallons of water per cubic yard of mix;
- D. Backfilling over the hydrated bentonite/soil mix with trench soil backfill to invert of adjacent gas collection header trench.

6. POLYETHYLENE HEADER PIPE HANDLING AND FUSION

1. The landfill gas collection header piping is to be constructed of high density polyethylene (HDPE) pipe of type PE3408 resin. All high density polyethylene (HDPE) pipe shall meet ASTM D 3350-80 cell classification PE345434C requirements with a minimum rated SDR of seventeen (17) unless otherwise specified. All HDPE pipe fittings shall have a minimum rated SDR of fifteen and one half (15.5) unless otherwise specified, and be of molded construction for 8" and less, and fabricated construction for 10" and larger, or approved equal.

2. The landfill gas condensate forcemain piping is to be constructed of high density polyethylene (HDPE) pipe of type PE3408 resin. All high density polyethylene (HDPE) pipe shall meet ASTM D 3350-80 cell classification PE345434C requirements with a minimum rated SDR of nine (9) unless otherwise specified. All HDPE pipe fittings shall have a minimum rated SDR of nine (9) unless otherwise specified, and be of molded construction, or approved equal.

3. High Density Polyethylene pipe shall be stored or stacked so as to prevent damage by marring, crushing or puncture. Maximum stacking height shall be limited to six (6) feet.

4. Cleaning solutions, detergents, or solvents, when required, shall be used in accordance with the manufacturer's recommendations. Care shall be taken to protect the pipe from excessive heat or harmful chemicals.

5. Care shall be taken to avoid imposing strains that will over stress or buckle the piping or impose excessive stress on the joints. Pipe shall not be bent under the minimum radius recommended by the manufacturer for type and grade.

6. Butt fusions shall be made in accordance with manufacturer's recommendations and procedures. Fusion equipment and a qualified operator shall be provided by contractor.

7. Branch saddle fusions shall be made in accordance with manufacturer's recommendations and procedures. Branch saddle fusion equipment shall be of the size to facilitate saddle fusion within the trench.

8. Prior to butt fusing pipe, each section of pipe or fittings shall be inspected and cleaned of all dirt, sand, mud, shavings and other debris or animals.

9. At the end of each day, all open ends of fused pipe shall be capped or covered to prevent entry by animals, debris and water.

10. Maximum lengths of fused pipe to be handled as one section shall be field determined by contractor according to pipe size, SDR and topography, to prevent any excessive gouging or surface abrasion, and shall not exceed 1,000 feet at any given time.

7. POLYETHYLENE HEADER PIPING TRENCH INSTALLATION

1. Excavated soil cover material shall be separated from excavated refuse. Any materials not suitable for trench backfill shall be removed by contractor and disposed at a location as designated on the drawings or as directed by the Engineer.

2. During trench excavation and piping installation, proper side slope or benching is required per OSHA standards for any trench of the depth of four (4) feet or more.

3. A laser level or equivalent method shall be used to maintain grades of five percent or less during excavation and bedding grading for installation of gas collection header piping. Grade settings utilized for each pipe section shall be noted accordingly on "Record Drawings".

4. Clean, coarse sand, well graded, maximum 10% carbonate, shall be used for granular bedding purposes, and be furnished by the Owner. A minimum six (6) inch sand bed shall be placed to control trench grade and protect the pipe.

5. Prior to any pipe being installed in the trench, the following items should be inspected, and any irregularities corrected, before lowering piping into the trench.

- A. Butt and saddle fusions.
- B. Pipe integrity.
- C. Trench excavation for rocks, foreign material and bedding. The trench shall be continuous, smooth and free of water, rocks, foreign material.
- D. Proper trench slope as per header route survey note layout.
- E. Trench contour to ensure the pipe will have uniform and continuous support.

6. Tie-ins for tees and reducers shall be made out of the trench whenever possible. When tie-ins can only be made in the trench, a bell hole shall be excavated large enough to ensure adequate and safe work area.

7. All branch saddle connections shall be made within the trench, a bell hole shall be excavated large enough to ensure an adequate and safe work area.

8. To reduce tee and/or branch saddle stress, tees and branch saddles shall be installed at an in-place slope equal to and continuous with the lateral piping.

9. Pipe shall be allowed sufficient time to adjust to trench temperature prior to any testing, segment tie-ins and/or backfilling activity. Untested segment tie-ins shall remain unbackfilled and clearly marked or as directed by the Engineer for easy access and inspection until the system final pressure test is complete.

10. Granular bedding backfill shall be placed in the trench ensuring material is placed under the haunches of the pipe. The bedding shall be placed and compacted using a mechanical compaction device such as a walk behind vibratory compactor or equal, in a loose lift not to exceed nine (9) inches above the top of the pipe. Compaction shall be to a density where subsequent passes with the mechanical compaction device will not reduce the surface elevation of the backfill by more than three-quarters of an inch.

11. Directly atop of the granular bedding, a pipeline warning tape shall be placed, centered over the gas pipeline/condensate for remain below. The warning tape shall be Terra Tape 540 or equal with a minimum thickness of 6 mils, minimum tensile strength of 80 lbs. per 3" width strip, minimum elongation of 800%, with a continuous printed message of "Gas Pipeline Below" repeated every 16 to 36 inches on a yellow colored tape.

12. When applied directly atop of the granular bedding, a pipeline warning tape shall be placed, centered over the electric line below. The warning tape shall be Terra Tape 540 or equal with a minimum thickness of 6 mils, minimum tensile strength of 80 lbs. per 3" width strip, minimum elongation of 800%, with a continuous printed message of "Electric Line Below" repeated every 16 to 36 inches on a red colored tape.

13. Excavated trench material (soil cover) shall be used as general backfill to the lower depth of the existing landfill cover, provided it is free of refuse, rocks and foreign material. The remaining trench shall be backfilled with landfill cover soil material, furnished by Owner, to equal landfill cover type, compaction, and thickness. Backfilled areas shall be graded to match original landfill grade unless specified otherwise in the design drawings.

14. All header pipe installed below a road surface or traffic area shall be encased in a corrugated metal pipe to ensure HDPE pipe structural integrity. Road casings are to be field located with the construction field stake notes. The inner diameter of the CMP shall be a minimum of two (2) inches larger than the outside diameter of the header pipe.

15. With trench grading complete, gas pipeline warning markers shall be placed at all road crossings and other locations detailed on the drawings. Markers to be 66" long by 3.8" wide reinforced polymer BradyStake or equal, with "Caution, Gas Pipeline" label on each side.

8. HEADER PIPING PRESSURE TESTING

1. The Owner shall be given 72 hours advance notice before the Contractor perform any pressure testing procedure, shall have the option of being present during the test, and must approve with signature all pressure testing reports.

SEGMENT TESTING: PRE-INSTALLATION

2. Prior to piping installation, similar sizes of polyethylene piping shall be butt welded together into testing segments not to exceed 1000 feet. Segments shall be fitted with a temporary cap on one end and testing apparatus on the other. The segments to be tested shall be laid on the ground surface and allowed time to reach constant and/or ambient temperature before initiating the test. The pressure test should be performed during a period when the pipe segment will be out of direct sunlight when possible, i.e., early morning, late evening, or cloudy days. This procedure will minimize the pressure changes which will occur during temperature fluctuations.

3. The test pressure shall be at ten psig. Pressure testing gauge shall have maximum increments of 0.1 psig. Contractor shall submit verification and results of gauge calibration prior to final acceptance by the Owner.

4. The allowable pressure drop observed during the test shall not exceed one percent of the testing gauge pressure over a period of one (1) hour. This pressure drop shall be corrected for temperature changes before determining pass or failure.

5. Equipment for this pressure testing procedure shall be furnished by contractor. Equipment required to complete the pressure testing procedure shall consist of a HDPE flange adaptor with a PVC blind flange equal in size to the blower inlet valve. Tapped and threaded into the blind flange shall be a temperature gauge zero to one-hundred degrees centigrade, a pressure gauge zero to fifteen psig, a "tire-valve" to facilitate an air compressor hose, and a ball valve to release pipe pressure at completion of test. Polyethylene reducers shall be utilized to adapt test flange to size of pipe being tested.

PRESSURE TEST FAILURE

- 6. The following steps shall be performed when a pipe segment fails the one (1) percent - one hour test.
 - A. The pipe and all fusions shall be inspected for cracks, pinholes or perforations.
 - B. All flange connections and capped ends shall be inspected for leaks.
 - C. Leaks shall be verified by applying a soap water solution and observing soap bubble formation.
 - D. All pipe and fused joint leaks shall be repaired by cutting out the entire pipe section leaking area, and refusing the pipe.
 - E. After all leaks are repaired, a retest shall be performed.

FINAL SYSTEM PRESSURE TEST

7. A final test shall be made on the completed pipeline. Procedures outlined above shall be utilized.

8. To facilitate the system final pressure test, all open pipe ends shall be temporarily capped with a fused polyethylene cap or be fitted with a blind flange and gasket. Do not pressure test against wellhead or header line valves.

9. The completed system should be in its proper trench location and allowed time to reach constant and/or ambient temperature before initiating the test.

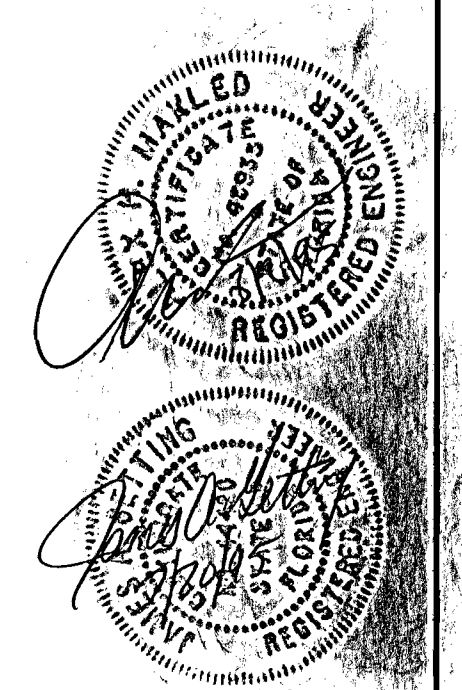
10. Testing apparatus can be placed at location of the valve inlet before the blower.

PRESSURE TEST REPORTING

- 11. All testing shall be reported in writing to the Owner and shall include the following information:
 - A. Date and time of each test/retest
 - B. Person performing test
 - C. Name of owners representative
 - D. Pipe length, size(s) and location
 - E. Test pressure measurements at ten (10) minute intervals
 - F. Ambient temperature at ten (10) minute intervals (measured in trench for final test)
 - G. Signature of Contractor and Resident Project Representative approving "pass" of segment pressure test.
 - H. Pressure test reporting forms are available from the Project Design Engineer.

12. The following information shall be reported in writing if a failure occurs:

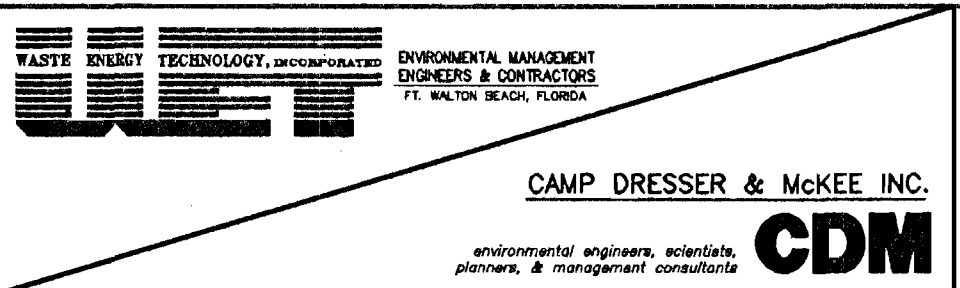
- A. Nature of all leaks found
- B. Details of repair
- C. Retest results



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REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: WET
 DRAWN BY: TLA
 SHEET CHKD BY: JMG
 CROSS CHKD BY: JPC
 APPROVED BY: _____
 DATE: JULY 1995



SOLID WASTE AUTHORITY OF PALM BEACH COUNTY
 PALM BEACH COUNTY, FLORIDA
LANDFILL GAS MANAGEMENT SYSTEM
NORTH COUNTY RESOURCE RECOVERY FACILITY

SHEET TITLE:
CLASS I AND CLASS III LANDFILLS CONSTRUCTION NOTES
 WET PROJECT NO: 95296
 DRAWING NO: **13**
 SHEET 14 OF 15

CONSTRUCTION NOTES CON'T

9. BLOWER/FLARE SKID SPECIFICATIONS

.1 General Description and Operation

The blower/flare skid shall be a self-contained pre-piped and pre-wired completely operable system consisting of centrifugal blowers, utility (condensate) style flare, and control system to operate all components in a totally automatic and safe sequence.

The following is a brief outline of the flare control system start-up and operating sequence.

Automatic operation. Placing the flare control panel selector switch in the "Automatic" mode will initiate start-up of the spark igniter and propane pilot. Once the pilot proves, the ignition cycle ceases, the landfill gas inlet valve is opened and the blower(s) is started allowing landfill gas to flow to the flare tip.

The automatic re-ignition cycle will also be initiated upon loss of the main landfill gas flame as detected by the thermocouples. The following sequence will occur when this happens:

- 1. The blower will shut off.
2. The landfill gas inlet valve will close.
3. The pilot gas solenoid valve will open and the ignition sequence will begin.
3a. If pilot re-ignition does not occur within a specified period the landfill gas inlet valve will remain closed, the blower(s) will remain off and the control panel will shut down.

Automatic start/restart. The unit shall automatically start up whenever power is supplied to the unit. If the unit shuts down for any reason except high flame arrester temperature, the flare will automatically try three times to restart the system.

Manual Operation. The unit shall also feature a manual operations switch which will allow the operator to completely bypass the automatic controls and operate the blowers and flare manually.

.2 Design Operating Conditions

Landfill Gas composition is:

Table with 3 columns: Maximum, Minimum, Typical Operating Range. Rows include CH4, CO2, Air & Inerts.

Maximum Flow Rate: 900 CFM
Minimum Flow Rate: 90 CFM
Operating Temperature: 1400 to 1800oF
Flame Stability: Over Entire Maximum/Minimum Methane and Flow Ranges

.3 Skid Assembly

All equipment shall be mounted on a structurally-designed steel skid with non-skid floor plate constructed to withstand all loading and hauling forces.

.4 Flare Tip and Stack Assembly

Unit shall be a Utility Flare Tip with an energy efficient propane pilot, spark igniter, and both pilot and main flame prove Type K thermocouples.

.5 Flame Arrester

One (1) 8" ANSI 150 lb. flange inlet/outlet flame arrester with aluminum housing and aluminum internals.

.6 Condensate Knockout Drum

Unit shall be a 24 in. diameter by 48 in. high knockout constructed of HDPE with 8", ANSI 150 lb. flange inlet and outlet connections.

.7 Landfill Gas Blowers

The Landfill Gas Blowers shall consist of the following features: High Pressure Centrifugal Blower: Aerovent Series 14, 530(21)-200(8) 10HP, or equal

.8 Skid Inlet Pneumatic Actuator Valve

8" actuated butterfly valve similar to Item .9 below, located at the skid inlet to automatically isolate the flare system in the event of a system shutdown or on start-up.

.9 Blower Manual Control Valve(s)

Six (6) each, 8" ANSI 150 lb., Lug Style Valve with bubble tight closure to 10 psig, located at the blower inlets and outlets to facilitate parallel or series operation.

.10 Flare Control Panel

Weatherproof (NEMA 4) Painted Steel enclosures, Steel Support Rack mounted. All electrical/ignition components to be shop prewired and UL approved as a complete unit.

- .A Pilot gas control system including pressure regulator, fail closed shut down solenoid valves, manual block valves, pressure regulator, pressure gauge, and 1/2" gas piping connections.
.B Automatic ignition system including ignition transformer, and controls.
.C Panel mounted Automatic/Off/Manual start up selector switch.
.D Panel mounted Manual/Off/Automatic blower selector switch (for each blower), with panel mounted blower motor hour meter and AC ammeter with 200X scale on each gas blower circuit, visible in panel window.

.11 Sampling Ports

For sampling of skid operating parameters, 1/4" NPT plugged taps shall be provided on the immediate inlet/outlet of the flare arrester and each blower.

.12 Consumables

The nitrogen and propane cylinders on the blower/flare skid are to be leased and serviced by the Owner and provided to the Contractor for installation.

.13 Finish Point

External carbon steel surfaces receive a "commercial" sandblast to remove mill lacquer, corrosion products, mill scale, and foreign material.

.14 Shop Drawings

General Assembly shop drawings to be submitted by the Vendor/Contractor to the Project Design Engineer to approve the complete blower/flare system operable unit.

.15 Functional Shop Test

At the vendor's shop, prior to unit shipment, the entire skid unit shall be operated as a complete unit to ensure all equipment and controls are functioning at the desired capacity, set points and sequences.

.16 Operations and Maintenance Manual

Blower flare skid vendor shall supply five copies of the operational and maintenance manual for equipment supplied.

.17 Equipment Warranty

Vendor shall guarantee the equipment furnished for a period of eighteen months from date of shipment or twelve months from date of start-up, whichever occurs first.

10. CHAIN-LINK FENCE

Chain-link fencing shall consist of galvanized 9 gauge chain-link fabric in 2 inch mesh, with top and bottom selvages twisted and barbed, provided in one piece widths.

One (1) 20 feet wide, double swing gate and one (1) 4 feet service gate with 180 degree swing, gate stop and locking latch, set on 4" O.D. posts with proper bracing.

All gate hardware to be hot dipped galvanized and of professional quality.

All materials and workmanship to be completed in a professional manner conforming to industry standards.

11. CONDENSATE PUMPS

Landfill gas condensate pumps to be a Myers WIRE20-DS, 1/2HP, 3PH/230v with CE-210W pump control panel and Type P-M Mini-floats, or equal, for service application of 10 GPM at 25 feet of operational head.

12. ELECTRICAL SERVICE SPECIFICATIONS

All electrical conduit shall have seal-off's in place where the conduit enters or exists the ground.

All electrical panels and blower flare skid assembly shall be electrically grounded with ground rods and wire at per the National Electrical Code.

13. OPERATIONS AND MAINTENANCE MANUAL

Five (5) copies of the operational and maintenance manual for all equipment, including copies of approved shop drawings and record drawings, shall be given to the owner within 45 days of substantial completion.

14. SYSTEM-START UP

Contractor shall start-up the active landfill gas management system with the Owner's representative, and ensure construction completion and proper operation of the system.

For final acceptance of the completed gas system, Contractor shall demonstrate full flow capacities of the blower/flare station and achieve a minimum available header vacuum of 10 inch water column at all gas extraction points.

15. DESIGN CHANGES AND MATERIAL SUBSTITUTIONS

Any material substitutions or design modifications must be approved by the Project Design Engineer.

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Logos for WET (Waste Engineering Technology), Environmental Management Engineers & Contractors, and CAMP DRESSER & McKEE INC. CDM

SOLID WASTE AUTHORITY OF PALM BEACH COUNTY
PALM BEACH COUNTY, FLORIDA
LANDFILL GAS MANAGEMENT SYSTEM
NORTH COUNTY RESOURCE RECOVERY FACILITY

SHEET TITLE: CLASS I AND CLASS III LANDFILLS CONSTRUCTION NOTES

WET PROJECT NO: 95296
DRAWING NO: 14
SHEET 15 OF 15

