



2018 PHASE II LANDFILL GAS SYSTEM
EXPANSION
RECORD DOCUMENTATION AND
CONSTRUCTION CERTIFICATION REPORT

LORAIN II LANDFILL
OBERLIN, OHIO

PREPARED FOR

LORAIN II LANDFILL
43502 OBERLIN ELYRIA ROAD
OBERLIN, OHIO 44074

DATED JUNE 2019

PREPARED BY

BEL ENVIRONMENTAL ENGINEERING, LLC.
3950 BEN HUR AVE, UNIT 6
WILLOUGHBY, OHIO 44094

EXECUTIVE SUMMARY

The Phase II Landfill Gas System Expansion construction at Lorain II Landfill was updated to include the following major components:

- 1,512-feet of 12-inch SDR-17 HDPE gas conveyance piping,
- 2,723-feet of 6-inch diameter SDR-17 HDPE gas conveyance piping,
- 6,344-feet of 2-inch diameter SDR-9 HDPE airline piping,
- 6,686-feet of 3-inch diameter SDR-11 HDPE force main piping,
- 342-feet of 4-inch diameter SDR-11 HDPE force main piping,
- Re-Drilled 8 vertical gas extraction wells,
- Drilled 2 new vertical gas extraction wells,
- Relocated 1 12-inch diameter vacuum header control valve,
- Installed 1 new 12-inch diameter vacuum header control valve,
- Installed 1 3-inch force main cleanout

**RECORD DOCUMENTATION AND CONSTRUCTION CERTIFICATION
LORAIN COUNTY II LANDFILL
2018 PHASE II LANDFILL GAS MANAGEMENT SYSTEM**

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LIST OF DRAWINGS

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1	2018 Phase II LFG System Construction – Plan View
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1.0 INTRODUCTION

Lorain County II Landfill (Lorain), in 2018, completed landfill gas system (LFG) modifications and expansion at the solid waste facility located in Oberlin, Lorain County, Ohio. Construction activities started November 8, 2018 and were substantially completed February 1, 2019.

BEL Environmental Engineering, LLC (BEL) of Willoughby, Ohio, prepared the Construction Plans and Boring Schedule utilizing aerials provided by Cooper Aerial Surveys Co. of Philadelphia, Pennsylvania, survey information provided by Wellert Engineering Inc. (Wellert) of New Philadelphia, Ohio and landfill base liner grades also provided by Wellert. BEL was also retained by Lorain to provide full-time third-party quality assurance monitoring and documentation of construction activities associated with the 2018 Phase II landfill system construction.

American Environmental Group, LTD. (AEG), of Richfield, Ohio, installed the landfill gas extraction wells, LFG conveyance piping system, and other ancillary components related to the gas and liquid collection system.

Wellert Engineering Inc. (Wellert) of Medina, Ohio provided surveying services and prepared the gas collection system as-built drawings.

This report, along with the accompanying appendices and record drawings, provides documentation of the gas collection system construction. Included within this report are the following items:

- Certification of facility construction,
- Extraction well boring and construction logs,
- Gas conveyance piping air pressure testing results,
- Photo Documentation,
- BEL Daily Field Reports,
- Pertinent Documents,
- Resumes, and
- Gas collection system record drawings and details.

1.1 REFERENCE DOCUMENTS

The following reference documents are applicable to the Lorain County II Landfill 2018 Phase II landfill gas system modification and expansion:

- The Construction Quality Assurance/Quality Control Plan (CQA/QC) Plan, Dated May 2009, Revised January 2015.
- The Gas Collection and Control System (GCCS) Design Plan Lorain County II Landfill, Dated June 2016.
- Title V Operating Permit No. P0114469 approved February 27, 2014

1.2 PROJECT PERSONNEL

The key personnel and companies involved with the construction of the 2018 Phase II landfill gas system expansion and modification at Lorain County II Landfill are listed below:

Lorain County II Landfill – Owner

Dawn Wright – Environmental Manager

Bryan Gill – Operations Manager

BEL Environmental Engineering, LLC. – Design and Construction Certification

Brian Barninger PE – Certifying Engineer/Design Engineer

Janet Todia – Project Manager/CQA Technician

Tyler Kawalec– CQA Technician

American Environmental Group, Ltd. – Contractor

Bob Minor – Project Manager – Pipeline Construction

Dean Back – Superintendent – Pipeline Construction

Dokk Stanley – Project Manager – Drill Crew

Wellert Engineering, Inc. – Surveying Services

Kyle Danals – Project Surveyor

In accordance with OAC 3745-27-08(H) (7) all BEL personnel that worked this project had the appropriate training and experience to complete the necessary construction oversight and testing. Their qualifications are as follows:

Brian Barninger, PE – Mr. Barninger is a Registered Professional Engineer in the State of Ohio and has 14 years of experience with environmental construction, including project management, remedial design, and construction quality assurance. Mr. Barninger has acted as a Landfill Engineer/Project Manager for over 100 solid and hazardous waste landfill construction projects at 40 different landfill facilities in 5 states.

Janet Todia – Ms. Todia has 20 years of experience and knowledge in every aspect of landfill design, landfill gas CQA, GCCSs, construction, compliance, operations, maintenance, closure and post-closure care. She has served as a Quality Control Manager/Project Manager for the past eight years. She is experienced with drilling, pipe fusion welding and pressure testing, transmission line installation, and re-compacted soils and geosynthetic repair procedures and documentation.

Personnel resumes are included in Appendix E.

1.3 ALTERATIONS

In accordance with OAC Rule 3745-27-08(H) (2), this report notes the alterations from the approved PTI Application. During the course of the construction/installation activities, there were no significant alterations/deviations implemented for the 2018 Phase II landfill gas system construction at Lorain County II Landfill.

1.4 OTHER CHANGES

In accordance with OAC Rule 3745-27-08(H) (2) (c), the following is a list of changes during the 2018 Phase II landfill gas system construction that enhanced quality and benefited constructability.

- Some of the piping layout was constructed differently from the authorizing documents due to landfill layout such as active waste disposal areas and lined drainage channels.
- Any minor differences in the construction details compared to the authorizing documents are a result of Lorain implementing standard landfill gas details. Any changes denote an increase in detail or an upgrade in materials.

1.5 SUMMARY OF WEATHER AND EQUIPMENT IMPACT

In accordance with OAC Rule 3745-27-08(H) (1) (b) it is being noted that some significant limitations were encountered due to safety concerns operating equipment in rain and snow, delaying the project completion to February of 2019. Please refer to the Daily Field Reports in Appendix D for details on any documented weather delays.

1.6 SUMMARY OF DESIGN AND CONSTRUCTION SPECIFICATIONS

The 2018 Phase II gas management system construction consisted of three (3) engineered components: LFG Extraction Wells, LFG Conveyance Piping System, and LFG Condensate Management System. Each component was constructed per the design and construction specifications except where noted in section 1.3 of this narrative. A summary of their specifications are as follows:

- LFG Extraction Wells – Each borehole was drilled at a minimum diameter of 3 feet and to a depth no less than 20 feet from the landfill base liner. The well casing was constructed of an 8-inch diameter solid and perforated HDPE pipe. The backfill consisted of washed low-carbonate stone placed to a minimum depth of 2-feet above the perforated pipe, the remainder of the backfill consisted of a geonet ring, two hydrated bentonite plugs and clean soil. See Sheet 2, Detail 1 in Appendix F.
- LFG Conveyance Piping System – The piping consisted of 6-inch and 12-inch diameter SDR-17 HDPE constructed with conventional butt fusion welding. All piping was installed at a minimum five (5) percent slope within limits of waste and a minimum of 1 percent slope outside the limits of waste, unless otherwise permitted. All piping was subjected to air pressure testing. See Sheet 1 in Appendix F for as-built pipe locations.
- LFG Condensate Management System – Improvements consisted of the installation of 2-inch diameter SDR-9 HDPE airline piping, and 3-inch and 4-inch SDR-11 HDPE force main piping constructed with butt fusion welding. All piping was subjected to air pressure testing. See Appendix G, Sheet 1 for individual component locations.

2.0 CONSTRUCTION PROCEDURES

The Lorain County II Landfill gas system expansion consisted of vertical extraction wells connected to a gas conveyance piping system via wellhead attachments as depicted in the record details. The new conveyance system

was connected to the existing 12-inch diameter HDPE header piping. In general, the landfill gas management system installed as part of this project consists of the following components:

- Vertical extraction wells equipped with wellheads,
- Remote wellheads implemented to meet grade requirements,
- Lateral and header piping lines,
- Airlines to operate pneumatic pumps installed in the condensate pump station and vertical extraction wells,
- Force main to convey gas condensate,
- Other ancillary components included valves, valve stations, pumps, and other fittings necessary to operate the landfill gas collection system.

The following provides a description of the construction activities:

2.1 SURVEY AND LAYOUT

Prior to drilling the landfill gas extraction wells, the proposed borehole locations and surface elevations were surveyed by Wellert and marked with field lath. The surface elevation survey provided a means to ensure that the landfill base liner was not damaged during the drilling operation. BEL compared surveyed elevations with the design drilling schedule elevations and made modifications as necessary. BEL then provided a final drilling schedule for review and approval by BEL, Wellert, AEG, and Republic. Wellert also provided survey locations for the gas conveyance piping and several existing header/lateral locations. Republic, AEG, and BEL evaluated the conveyance piping design location and made improvements to enhance the gas collection operations while also improving future tie-in locations. Wellert performed as-built surveying of the gas management components as they were constructed, See Sheet 1 in Appendix G for Record Drawings depicting the gas piping layout.

2.2 LFG EXTRACTION WELLS

The 2018 Phase II expansion of Lorain's LFG system includes eight (8) re-drilled vertical gas extraction wells (EW-324R4, EW-318R2, EW-324R2, EW-341R2, EW-334R2, EW-319R2, EW-320R2) and two (2) new wells (EW-365, EW-358). As built extraction well locations are shown on Sheet 1 in Appendix G.

Wells were drilled by a Soil MEC SR30 track mounted drill rig, equipped with a 36-inch diameter bucket auger. The cover soils and refuse removed during the drilling process were collected and transported to the landfill's active disposal area. As indicated on the Well Schedule and Extraction Well Detail on Sheet 2 in Appendix G, the borings were drilled

to maintain a minimum 20-foot separation between the bottom of the borehole and the top of protective cover within the landfill base liner system. CQA Boring logs are included in Appendix A.

Following the completion of a boring, the extraction well piping was installed. The well piping consisted of 8-inch diameter SDR-17 perforated and solid pipe with a butt-fusion end cap at the bottom of the perforated pipe. A 20-foot length of solid pipe was installed as the uppermost section of well casing to minimize the potential for surface air intrusion during future gas extraction operations. The extraction well casing extended a minimum of 3-feet above the existing ground elevation as shown on the Extraction Well Detail on Sheet 2, Detail 1 in Appendix F.

A safety grate was positioned across the surface of the borehole when the well piping was set. The well piping was lowered into the borehole utilizing the drill rig cable system and an excavator with nylon straps. The piping was raised 1-foot off the bottom, centered in the borehole, and secured to the safety grate with a nylon strap.

A collection medium, consisting of coarse aggregate generally 1-inch to 3-inch diameter washed low-carbonate gravel, was placed in the borehole annulus around the well piping and extended from the bottom of the well boring to a minimum 2-feet above the perforated/solid pipe joint. A geocomposite ring was placed above the collection medium and overlain by a 1-foot minimum thick clean soil plug. A 2-foot thick No. 8 mesh hydrated bentonite seal was installed above the soil plug. The borehole was then backfilled with clean soils from the bentonite seal to approximately 5-feet below the existing intermediate cover soils. A second hydrated bentonite seal, 2-feet thick, was placed in the borehole and then filled with clean soil to existing grade. AEG installed a welded safety grate 6 inches below the surface and then graded surface soils to promote surface water flow away from the well. The well borehole depth and backfill material depths were verified by visual confirmation of taped measurements. The LFG extraction wells were constructed as depicted on Sheet 2, Detail 1 in Appendix G. Appendix A includes construction logs that show actual constructed well dimensions and materials used in construction.

The gas extraction well record survey locations and elevations, compiled by Wellert, are shown on Sheet 1 and 2 in Appendix G.

2.3 LFG CONVEYANCE PIPING SYSTEM

The gas conveyance system was constructed with 6-inch or 12-inch diameter SDR-17 HDPE pipe with SDR-11 HDPE fittings. Piping was installed with joints completed by conventional butt fusion welding. The gas conveyance pipe trenches were excavated to provide a minimum of five (5) percent slope for piping installed inside limits of waste. Metallic locator tape was installed over the pipe at an approximate trench depth of 1-foot. The trenching was completed by Caterpillar 320F and 323 track excavators and was generally performed at a minimum width of 24-inches. Air and

condensate force main lines were generally installed in the same trench as the header pipe, as shown on Sheet 3, Detail 7 in Appendix G. Trenches excavated within the limits of refuse were bedded with clean compacted soils to provide a smooth surface above the waste, protecting the pipe and maintaining a consistent grade. Additional clean backfill soil was placed to existing ground surface. BEL monitored all activities to ensure the collection pipe was not damaged during installation. At road crossings, LFG conveyance piping was encased in a protective pipe; see Sheet 3, Detail 4 in Appendix G.

The new header and lateral connections were tied into the existing LFG system utilizing fusion welding and existing flange connections. See Sheet 2, Detail 7 in Appendix G for a typical flange connection. In areas where conventional LFG laterals were not feasible due to current grades, remote wellheads were utilized, see Sheet 3, Detail 3 in Appendix G for a typical remote wellhead.

One 12-inch control valve was installed, and one 12-inch control valve was relocated in the conveyance system during construction. Valve locations are shown on Sheet 1 in Appendix G. See Sheet 4, Detail 3 in Appendix G for a typical underground valve detail.

2.4 LFG CONDENSATE MANAGEMENT SYSTEM

The 2018 Phase II LFG System construction included the installation of air and forcemain piping, and pneumatic pumps. The air piping consisted of 2-inch diameter SDR-9 HDPE. The forcemain was 3-inch SDR-11 HDPE and 4-inch SDR-11 HDPE. Piping was installed with joints completed by conventional butt fusion welding techniques and flange connections. Air and condensate forcemain lines were typically installed in the same trench, as shown on Sheet 3, Detail 1 in Appendix F.

The force main trench was excavated using CAT 320F and 323 track excavators. Typical trench dimensions were 24-inches wide by 3-feet deep and were generally installed with gas conveyance piping, see Sheet 3, Detail 7 in Appendix G for a typical trench detail. Pipe bedding consisted of clean compacted soils to provide a smooth surface. The piping was then placed and backfilled within 1 foot of final elevation where metallic caution tape was placed. Remainder of trench was backfilled and compacted with the excavator bucket and graded to match existing conditions. Record survey of the installed landfill conveyance piping system is shown on Sheet 1 in Appendix G.

One 3-inch force main cleanout was installed. The location can be seen on Sheet 1 in Appendix G. See Sheet 2, Detail 3 in Appendix G for a typical force main cleanout detail.

3.0 CONSTRUCTION QUALITY ASSURANCE

BEL provided construction quality assurance services during the installation of the 2018 Phase II landfill gas system expansion at Lorain County II Landfill. Services included observation of conveyance piping, piping systems construction, air pressure testing, and documentation of construction materials and procedures.

3.1 GAS CONVEYANCE PIPING AIR PRESSURE TESTING

LFG conveyance piping was air-pressure tested following fusion welding to evaluate the system continuity. Air pressure testing was performed on header and lateral piping by pressurizing the piping system to a minimum of 4-psig through a fabricated blind flange containing a valve stem with an in-line air pressure gauge. The forcemain piping was pressurized to 100-psig and airline piping was pressurized to 100-psig in the same manner. Following a brief system stabilization period, initial and final pressures were observed and recorded through an elapsed time of one (1) hour. The system pressure test results were determined to be acceptable if pressure loss was less than 10%. The final test results are provided in Appendix B.

3.2 CONSTRUCTION MONITORING

BEL performed construction observation during the Lorain County II Landfill gas management system installation to verify the general conformance of materials and construction procedures to the design specifications. The activities and items observed and documented included, but were not limited to, the following:

- Gas conveyance piping material, SDR designation, sizing, and installation,
- Gas conveyance pipe trench and backfill,
- Gas conveyance pipe pressure testing,
- Extraction well boring and construction and,
- Air and force main piping material, SDR designation, sizing and installation

4.0 CERTIFICATION SUMMARY

BEL Environmental Engineering, LLC. provided construction quality assurance (CQA) observation and documentation during the Lorain County II Landfill 2018 Phase II landfill gas expansion system construction. The services provided by BEL included: observation of construction procedures, coordination with surveyors and site personnel, CQA monitoring, and air monitoring. The CQA monitoring services included: monitoring the installation of LFG extraction wells, installation of new header and lateral piping, pipe pressure testing, backfilling, and associated construction as detailed above. A summary of construction activities documented by BEL personnel was reported on the Daily Field Reports included in Appendix D. Selected construction photographs are included as Appendix C.

The observations and tests performed by BEL personnel as described in this report during the construction of the 2018 Phase II Landfill Gas System at Lorain County II Landfill indicate that the materials tested conform to the project requirements and construction was performed in compliance with the reference documents listed in Section 1.1.

I certify that this document and all attachments were prepared under my direction or supervision in conformance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiries of the persons who were directly responsible for gathering the information, the information submitted is, to the best of my knowledge, true, accurate, and complete.



Brian P. Barninger, P.E.

BEL Environmental Engineering, LLC.

Certifying Engineer

Ohio Professional Engineer

No. E-73061

Brian Barninger

6/15/19

Date

APPENDIX A

GAS EXTRACTION WELL BORING AND CONSTRUCTION LOGS

BEL
ENVIRONMENTAL
ENGINEERING

CONTRACTOR/SUPERVISOR: AEG / Dokk Stanley

GAS WELL DIAGRAM

Pipe Size: 8"

Existing Ground Surface

Well Grate

Cover Soil

2-foot Bentonite Plug - Hydrated

On Site Soil

Solid Pipe

2-foot Bentonite Plug - Hydrated

1-ft (min) of Clean Soil

Geocomposite Ring

3"- 6" Stone Extends 2-ft (min) Above Perf / Solid Interface

Perf Pipe

Bore Diameter 36 inches

890

-2

-4

-26

-28

-29

-119

-120

Notes: Drilled to scheduled bore depth of 120'.

BEL REPRESENTATIVE: *Janet A. Todia*

WASTE DESCRIPTION				
Depth (FT)	Waste Makeup by Percentage	Distinct Layers	Unusual Odor/Color	Sludge and or Liquids
0-2	100% Soil	NO	NO	NO
2-5	30% paper, 30% wood, 30% plastic, 10% remainder soil	NO	NO	NO
5-10	30% plastic, 30% paper, 10% cloth, 10% remainder soil	NO	NO	NO
10-15	30% wood, 20% cloth, 20% plastic, 30% remainder soil	NO	NO	NO
15-20	30% wood, 40% plastic, 10% mulch, 20% remainder soil	NO	NO	NO
20-25	30% wood, 30% plastic, 20% carpet, 20% remainder soil	NO	NO	NO
25-30	30% wood, 30% plastic, 20% metal, 20% remainder soil	NO	NO	NO
30-35	40% wood, 20% carpet, 20% plastic, 20% remainder soil	NO	NO	NO
35-40	40% wood, 20% carpet, 20% plastic, 20% remainder soil	NO	YES	NO
40-45	30% wood, 30% plastic, 30% rubber hose, 10% remainder soil	NO	YES	NO
45-50	30% plastic, 40% wood, 20% mulch, 20% remainder soil	NO	YES	NO
50-55	20% plastic, 20% cloth, 50% wood, 10% remainder soil	NO	YES	NO
55-60	30% plastic, 20% auto fluff, 40% wood, 10% remainder soil	NO	YES	NO
60-65	40% wood, 20% carpet, 20% plastic, 20% remainder soil	NO	YES	NO
65-70	50% plastic, 20% rubber hose, 30% remainder soil	NO	YES	NO
70-75	40% wood, 30% plastic, 20% rubber, 10% remainder soil	NO	YES	NO
75-80	40% wood, 30% plastic, 20% metal, 20% remainder soil	NO	YES	YES
80-85	40% wood, 30% plastic, 10% medical, 20% remainder soil	NO	YES	YES
85-90	30% plastic, 30% auto fluff, 20% carpet, 20% remainder soil	NO	YES	YES
90-95	60% mulch, 30% plastic, 10% cloth	NO	YES	YES
95-100	60% mulch, 30% plastic, 10% cloth	NO	YES	YES
100-105	70% mulch; 30% wood	NO	YES	YES
105-110	70% mulch; 30% wood	NO	YES	YES
110-115	80% mulch; 20% wood	NO	YES	YES
115-120	80% mulch; 20% wood	NO	YES	YES

GAS EXTRACTION WELL LOG



WELL ID: EW-334R2

DATE: 12/11/18

PROJECT NAME: 2018 Phase II CGGS CQA

NORTHING: 598,249

BEL PROJECT#: 2018.186

EASTING: 2,058,767

ELEVATION: 882

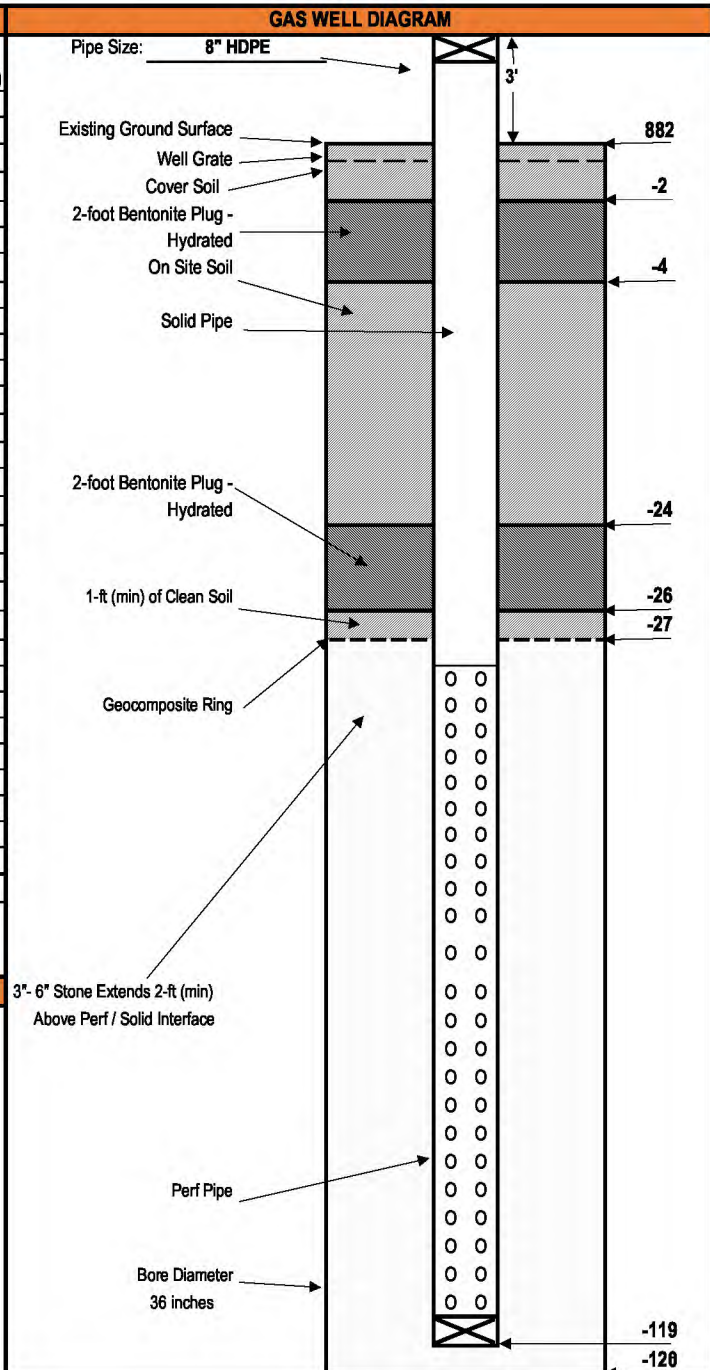
CONTRACTOR/SUPERVISOR: AEG / Dokk Stanley

BORING LOG				
Depth (FT)	Gas Pressure	Degree of Decomposition	Degree of Moisture	Approx. Temp. (F°)
0-2	None	None	Dry	36
2-5	None	Little	Dry	36
5-10	Minor	Little	Dry	92
10-15	Minor	Little	Dry	86
15-20	Minor	Some	Dry	84
20-25	Moderate	Some	Dry	82
25-30	Moderate	Some	Dry	85
30-35	Moderate	Moderate	Dry	84
35-40	Moderate	Moderate	Dry	101
40-45	Moderate	Moderate	Dry	113
45-50	Moderate	Moderate	Dry	126
50-55	Moderate	Moderate	Dry	130
55-60	Moderate	Moderate	Wet	131
60-65	Much	Much	Wet	132
65-70	Much	Much	Wet	131
70-75	Much	Much	Wet	136
75-80	Much	Much	Wet	136
80-85	Much	Much	Wet	128
85-90	Much	Much	Wet	129
90-95	Much	Severe	Wet	129
95-100	Excessive	Severe	Wet	130
100-105	Excessive	Severe	Wet	133
105-110	Excessive	Severe	Wet	132
110-115	Excessive	Severe	Wet	133
115-120	Excessive	Severe	Wet	130

LEGEND			
None, Minor, Moderate,	Little, Some, Moderate,	Dry, Normal, Damp,	
Much, Excessive	Much, Severe	Wet, Saturated	

MATERIAL LIST	
Bore Size (inch):	36"
Bore Depth (ft):	120'
Pipe Size (inch):	8" HDPE
Pipe Material:	HDPE
Solid Pipe Above Ground (ft):	3'
Solid Pipe Below Ground (ft):	20'
Perforated Pipe Length (ft):	99'
Cover Depth (ft):	2'
Bentonite Layer Thickness (ft):	2' x 2'
Gravel Pack (ft):	102'
Joint Connections:	Fused
Pump Installed:	TBD
Well Grate Installed:	Yes

Notes: Drilled to scheduled bore depth of 120'.



BEL REPRESENTATIVE: Janet A. Todia

WASTE DESCRIPTION				
Depth (FT)	Waste Makeup by Percentage	Distinct Layers	Unusual Odor/Color	Sludge and or Liquids
0-2	100% Soil	NO	NO	NO
2-5	20% metal, 30% wood, 30% paper, 10% carpet, 10% remainder soil	NO	NO	NO
5-10	30% metal, 30% wood, 30% paper, 10% remainder soil	NO	NO	NO
10-15	30% wood, 20% paper, 20% carpet, 30% remainder soil	NO	NO	NO
15-20	30% wood, 20% plastic, 20% paper, 30% remainder soil	NO	NO	NO
20-25	30% wood, 30% plastic, 10% mulch, 10% metal, 20% remainder soil	NO	NO	NO
25-30	20% auto fluff, 30% wood, 30% paper, 20% remainder soil	NO	NO	NO
30-35	30% paper, 50% wood, 20% remainder soil	NO	NO	NO
35-40	30% paper, 20% cloth, 40% wood, 10% remainder soil	NO	NO	NO
40-45	50% soil, 30% wood, 20% remainder soil	NO	NO	NO
45-50	50% soil, 30% wood, 10% paper, 10% remainder soil	NO	NO	NO
50-55	30% rubber, 30% metal, 30% wood, 10% remainder soil	NO	NO	NO
55-60	20% rubber, 20% wood, 30% cloth, 10% mulch, 20% remainder soil	NO	NO	NO
60-65	30% wood, 30% plastic, 20% metal, 20% remainder soil	NO	NO	YES
65-70	30% auto fluff, 30% wood, 20% plastic, 20% remainder soil	NO	NO	YES
70-75	40% wood, 20% concrete, 20% plastic, 20% remainder soil	NO	NO	NO
75-80	40% wood, 30% cloth, 20% mulch, 10% remainder soil	NO	YES	NO
80-85	40% wood, 20% plastic, 20% rubber, 20% remainder soil	NO	YES	NO
85-90	30% wood, 20% mulch, 30% plastic, 20% remainder soil	NO	YES	NO
90-95	40% mulch, 20% wood, 20% plastic, 20% remainder soil	NO	YES	NO
95-100	30% wood, 20% mulch, 20% auto fluff, 30% remainder soil	NO	YES	NO
100-105	30% wood, 30% mulch, 20% plastic, 20% remainder soil	NO	YES	NO
105-110	40% sludge, 30% mulch, 20% mulch, 10% remainder soil	NO	YES	YES
110-115	60% sludge, 20% wood, 20% mulch	NO	YES	YES
115-120	30% wood, 30% paper, 30% mulch, 10% remainder soil	NO	YES	NO

BEL
ENVIRONMENTAL
ENGINEERING

DATE: 12/4/18

NORTHING:	597,856
EASTING:	2,059,094
ELEVATION:	909

[illegible]

BEL REPRESENTATIVE: Janet A. Todía

[illegible]

BEL
ENVIRONMENTAL
ENGINEERING

CONTRACTOR/SUPERVISOR: AEG / Dokk Stanley

BEL REPRESENTATIVE: *Janet A. Todía*

WASTE DESCRIPTION				
Depth (FT)	Waste Makeup by Percentage	Distinct Layers	Unusual Odor/Color	Sludge and or Liquids
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5-10	30% plastic, 30% paper, 10% cloth, 10% remainder soil	NO	NO	NO
10-15	30% wood, 40% cloth, 30% remainder soil	NO	NO	NO
15-20	30% wood, 40% plastic, 30% cloth	NO	NO	NO
20-25	30% wood, 30% plastic, 20% medical, 20% remainder soil	NO	NO	NO
25-30	30% wood, 30% plastic, 20% metal, 20% remainder soil	NO	NO	NO
30-35	40% wood, 20% carpet, 20% plastic, 20% remainder soil	NO	NO	NO
35-40	30% paper, 30% wood, 30% plastic, 10% remainder soil	NO	YES	NO
40-45	30% wood, 30% plastic, 30% auto fluff, 10% remainder soil	NO	YES	NO
45-50	30% plastic, 60% wood, 20% remainder soil	NO	YES	NO
50-55	30% paper, 30% wood, 30% plastic, 10% remainder soil	NO	YES	NO
55-60	30% plastic, 20% auto fluff, 40% wood, 10% remainder soil	NO	YES	NO
60-65	40% wood, 20% carpet, 20% plastic, 20% remainder soil	NO	YES	NO
65-70	30% paper, 30% wood, 30% plastic, 10% remainder soil	NO	YES	NO
70-75	40% wood, 20% carpet, 20% plastic, 20% remainder soil	NO	YES	NO
75-80	30% paper, 30% wood, 30% plastic, 10% remainder soil	NO	YES	NO
80-85	40% wood, 30% plastic, 10% medical, 20% remainder soil	NO	YES	NO
85-90	30% plastic, 30% auto fluff, 20% carpet, 20% remainder soil	NO	YES	NO
90-95	60% mulch, 30% plastic, 10% cloth	NO	YES	NO
95-100	75% mulch, 25% wood	NO	YES	YES
105-110	75% mulch, 25% wood	NO	YES	YES
110-115	75% mulch, 25% wood	NO	YES	YES
115-120	75% mulch, 25% wood	NO	YES	YES

BEL
ENVIRONMENTAL
ENGINEERING

DATE: 12/13/18

NORTHING:	598,153
EASTING:	2,058,651
ELEVATION:	891

[illegible]

BEL REPRESENTATIVE: Janet A. Todía

WASTE DESCRIPTION				
Depth (FT)	Waste Makeup by Percentage	Distinct Layers	Unusual Odor/Color	Sludge and or Liquids
0-2	100% Soil	NO	NO	NO
2-5	50% plastic, 20% rubber, 20% wood, 10% paper	NO	NO	NO
5-10	60% plastic, 20% paper, 10% wood, 10% metal	NO	NO	NO
10-15	50% plastic, 30% wood, 10% paper, 10% cloth	NO	NO	NO
15-20	40% plastic, 30% wood, 20% paper, 10% metal	NO	NO	NO
20-25	50% plastic, 20% wood, 10% cloth, 10% paper, 10% metal	NO	NO	NO
25-30	50% plastic, 20% cloth, 20% wood, 10% paper	NO	NO	NO
30-35	50% plastic, 20% wood, 20% paper, 10% metal	NO	NO	NO
35-40	60% plastic, 20% wood, 20% metal	NO	YES	NO
40-45	50% plastic, 40% cloth, 10% metal	NO	YES	NO
45-50	50% plastic, 40% tarp, 10% wood	NO	YES	NO
50-55	30% plastic, 30% cloth, 30% paper, 10% rubber	NO	YES	NO
55-60	30% plastic, 30% cloth, 30% paper, 10% metal	NO	YES	NO
60-65	50% plastic, 20% cloth, 20% wood, 10% paper	NO	YES	NO
65-70	50% plastic, 20% cloth, 20%, 10% rubber	NO	YES	NO
70-75	60% plastic, 10% cloth, 10% wood, 10% metal, 10% paper	NO	YES	NO
75-80	50% plastic, 20% cloth, 20% wood, 10% paper	NO	YES	NO
80-85	40% plastic, 30% wood, 20% paper, 10% rubber	NO	YES	NO
85-90	50% plastic, 20% wood, 20% paper, 10% rubber	NO	YES	NO
90-95	60% mulch, 30% plastic, 10% cloth	NO	YES	NO
95-100	70% mulch, 30% wood	NO	YES	YES
100-105	70% mulch, 30% wood	NO	YES	YES
105-110	70% mulch, 30% wood	NO	YES	YES
110-115	70% mulch, 30% wood	NO	YES	YES
115-120	70% mulch, 30% wood	NO	YES	YES

BEL
ENVIRONMENTAL
ENGINEERING

DATE: 12/10/18

NORTHING:	598,730
EASTING:	2,059,531
ELEVATION:	856

[illegible]

BEL REPRESENTATIVE: Janet A. Todía

[illegible]

BEL
ENVIRONMENTAL
ENGINEERING

CONTRACTOR/SUPERVISOR: AEG / Dokk Stanley

GAS WELL DIAGRAM

Pipe Size: 8"

Existing Ground Surface

Well Grate

Cover Soil

2-foot Bentonite Plug - Hydrated

On Site Soil

Solid Pipe

2-foot Bentonite Plug - Hydrated

1-ft (min) of Clean Soil

Geocomposite Ring

3'- 6" Stone Extends 2-ft (min) Above Perf / Solid Interface

Perf Pipe

Bore Diameter 36 inches

903

-2

-4

-26

-28

-29

-101

-102

3'

MATERIAL LIST	
Bore Size (inch):	36"
Bore Depth (ft):	102'
Pipe Size (inch):	8" HDPE
Pipe Material:	HDPE
Solid Pipe Above Ground (ft):	3'
Solid Pipe Below Ground (ft):	20'
Perforated Pipe Length (ft):	81'
Cover Depth (ft):	2'
Bentonite Layer Thickness (ft):	2' x 2'
Gravel Pack (ft):	84'
Joint Connections:	Fused
Pump Installed:	TBD
Well Grate Installed:	Yes

Notes:

BEL REPRESENTATIVE: Janet A. Todia

[illegible]

BEL
ENVIRONMENTAL
ENGINEERING

DATE: 12/12/18

NORTHING:	597,951
EASTING:	2,058,699
ELEVATION:	927

[illegible]

BEL REPRESENTATIVE: Janet A. Todía

WASTE DESCRIPTION				
Depth (FT)	Waste Makeup by Percentage	Distinct Layers	Unusual Odor/Color	Sludge and or Liquids
0-2	100% Soil	NO	NO	NO
2-5	100% Soil	NO	NO	NO
5-10	60% plastic, 20% paper, 10% wood, 10% metal	NO	NO	NO
10-15	50% plastic, 30% wood, 10% paper, 10% cloth	NO	NO	NO
15-20	40% plastic, 30% wood, 20% paper, 10% metal	NO	NO	NO
20-25	50% plastic, 20% wood, 10% cloth, 10% paper, 10% metal	NO	NO	NO
25-30	50% plastic, 20% rubber, 20% wood, 10% paper	NO	NO	NO
30-35	60% plastic, 20% paper, 10% wood, 10% metal	NO	NO	NO
35-40	60% plastic, 20% wood, 20% metal	NO	YES	NO
40-45	50% plastic, 40% cloth, 10% metal	NO	YES	NO
45-50	60% plastic, 20% wood, 20% metal	NO	YES	NO
50-55	30% plastic, 30% cloth, 30% paper, 10% rubber	NO	YES	NO
55-60	30% plastic, 30% cloth, 30% paper, 10% metal	NO	YES	NO
60-65	50% plastic, 20% cloth, 20% wood, 10% paper	NO	YES	NO
65-70	50% plastic, 20% cloth, 20%, 10% rubber	NO	YES	YES
70-75	60% plastic, 10% cloth, 10% wood, 10% metal, 10% paper	NO	YES	YES
75-80	50% plastic, 20% cloth, 20% wood, 10% paper	NO	YES	YES
80-85	40% plastic, 30% wood, 20% paper, 10% rubber	NO	YES	YES
85-90	50% plastic, 20% wood, 20% paper, 10% rubber	NO	YES	YES
90-95	60% mulch, 30% plastic, 10% metal	NO	YES	YES
95-100	60% plastic, 10% cloth, 10% wood, 10% metal, 10% paper	NO	YES	YES
100-105	60% plastic, 10% cloth, 10% wood, 10% metal, 10% paper	NO	YES	YES
105-110	30% plastic, 30% cloth, 30% wood, 10% metal	NO	YES	YES
110-115	30% plastic, 30% wood, 30% paper, 10% metal	NO	YES	YES
115-120	70% mulch, 30% wood	NO	YES	YES

BEL
ENVIRONMENTAL
ENGINEERING

CONTRACTOR/SUPERVISOR: AEG / Dokk Stanley

BEL REPRESENTATIVE: *Janet A. Todía*

[illegible]

BEL
ENVIRONMENTAL
ENGINEERING

DATE: 12/12/18

NORTHING:	597,960
EASTING:	2,058,929
ELEVATION:	908

[illegible]

BEL REPRESENTATIVE: Janet A. Todía

WASTE DESCRIPTION				
Depth (FT)	Waste Makeup by Percentage	Distinct Layers	Unusual Odor/Color	Sludge and or Liquids
0-2	100% Soil	NO	NO	NO
2-5	100% Soil	NO	NO	NO
5-10	60% plastic, 20% paper, 10% wood, 10% metal	NO	NO	NO
10-15	50% plastic, 30% wood, 10% paper, 10% cloth	NO	NO	NO
15-20	40% plastic, 30% wood, 20% paper, 10% metal	NO	NO	NO
20-25	50% plastic, 20% wood, 10% cloth, 10% paper, 10% metal	NO	NO	NO
25-30	50% plastic, 20% rubber, 20% wood, 10% paper	NO	NO	NO
30-35	60% plastic, 20% paper, 10% wood, 10% metal	NO	NO	NO
35-40	60% plastic, 20% wood, 20% metal	NO	YES	NO
40-45	50% plastic, 40% cloth, 10% metal	NO	YES	NO
45-50	60% plastic, 20% wood, 20% metal	NO	YES	NO
50-55	30% plastic, 30% cloth, 30% paper, 10% rubber	NO	YES	NO
55-60	30% plastic, 30% cloth, 30% paper, 10% metal	NO	YES	NO
60-65	50% plastic, 20% cloth, 20% wood, 10% paper	NO	YES	NO
65-70	50% plastic, 20% cloth, 20%, 10% rubber	NO	YES	NO
70-75	60% plastic, 10% cloth, 10% wood, 10% metal, 10% paper	NO	YES	NO
75-80	50% plastic, 20% cloth, 20% wood, 10% paper	NO	YES	NO
80-85	40% plastic, 30% wood, 20% paper, 10% rubber	NO	YES	NO
85-90	50% plastic, 20% wood, 20% paper, 10% rubber	NO	YES	NO
90-95	60% mulch, 30% plastic, 10% metal	NO	YES	NO
95-100	60% plastic, 10% cloth, 10% wood, 10% metal, 10% paper	NO	YES	YES
100-105	60% plastic, 10% cloth, 10% wood, 10% metal, 10% paper	NO	YES	YES
105-110	70% mulch, 30% wood	NO	YES	YES
110-115	70% mulch, 30% wood	NO	YES	YES
115-120	70% mulch, 30% wood	NO	YES	YES

APPENDIX B

GAS CONVEYANCE PIPING AIR PRESSURE TESTING RESULTS

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 11/8/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
6	17	HDPE	257		EW324R2 to EW319R2 to 12" isolation riser	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	1	5	5.00	0%	Pi: 5 Ti (Celsius): 1	Time Start: 10:30
10	1	5	5.00	0%		Time End: 11:30
20	1	5	5.00	0%		
30	1	5	5.00	0%		
40	1	5	5.00	0%		Result: Pass
50	1	5	5.00	0%		
60	1	5	5.00	0%	Retest: No	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Result: _____ Retest: _____	
10						
20						
30						
40						
50						
60						
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment	
Station/Additional Info:					
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Result: _____ Retest: _____
10					
20					
30					
40					
50					
60					
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA

BEL Representative: Janet Todia

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
Note Air and Condensate lines to be tested at 100 psig, header laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((Pi + 14.7)(Tt + 273)) / (Ti + 273)) - 14.7$
 $\% \text{ Drop} = ((Pc - Pi) / Pc) * 100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 11/12/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment		
6	17	HDPE	260	EW325R2 to EW320R2 to 12" isolation riser		
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	10	5	5.00	0%	Pi: Time Start: 10:38 Time End: 11:38 5Ti (Celsius): 10	
10	10	5	5.00	0%		
20	10	5	5.00	0%		
30	10	5	5.00	0%		
40	10	5	5.00	0%		Result: Pass
50	10	5	5.00	0%		
60	10	5	5.00	0%		Retest: No
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
2	9	HDPE	260		EW325R2 to EW320R2 to 12" isolation riser	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	10	100	100.00	0%	Pi: Time Start: 10:38 Time End: 11:38 Pi: 100 Ti (Celsius): 10 Result: Pass Retest: No	
10	10	100	100.00	0%		
20	10	100	100.00	0%		
30	10	100	100.00	0%		
40	10	100	100.00	0%		
50	10	100	100.00	0%		
60	10	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
3	11	HDPE	260		EW325R2 to EW320R2 to 12" isolation riser	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	10	100	100.00	0%	Pi: Time Start: 10:38 Time End: 11:38 Pi: 100 Ti (Celsius): 10 Result: Pass Retest: No	
10	10	100	100.00	0%		
20	10	100	100.00	0%		
30	10	100	100.00	0%		
40	10	100	100.00	0%		
50	10	100	100.00	0%		
60	10	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

BEL Representative: Janet Todia

PI = Initial Test Pressure TI = Initial Temperature t = Time in minutes from initiation of test Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t" *Note* Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise	Tt = Temperature in Celsius @ Time "t" Pt = Test Pressure in psig @ Time "t" $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$ $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$
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BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 11/14/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
6	17	HDPE	141		EW308R3 lateral	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	5	5	5.00	0%	Pi: 5 Ti (Celsius): 5 Result: Pass Retest: No	Time Start: 15:35
10	5	5	5.00	0%		Time End: 16:35
20	5	5	5.00	0%		
30	5	5	5.00	0%		
40	5	5	5.00	0%		
50	5	5	5.00	0%		
60	5	5	5.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ PassFail Result: YesNo Retest:	
10						
20						
30						
40						
50						
60						
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment		
Station/Additional Info:							
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data		
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ PassFail Result: YesNo Retest:		
10							
20							
30							
40							
50							
60							
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA		

BEL Representative: Janet Todia

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
Note Air and Condensate lines to be tested at 100 psig, header laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((Pi + 14.7)(Tt + 273)) / (Ti + 273)) - 14.7$
 $\% \text{ Drop} = ((Pc - Pi) / Pc) * 100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 11/27/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment	
6	17	HDPE	250	EW358 lateral	
Station/Additional Info:					
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data
0	-1	5	5.00	0%	Time Start: 15:00 Time End: 16:00 Pi: 100Ti (Celsius): -1 Result: Pass Retest: No
10	-1	5	5.00	0%	
20	-1	5	5.00	0%	
30	-1	5	5.00	0%	
40	-1	5	5.00	0%	
50	-1	5	5.00	0%	
60	-1	5	5.00	0%	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
2	9	HDPE	250		EW358 lateral	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-1	100	100.00	0%	Pi: 100	Time Start: 15:00
10	-1	100	100.00	0%		Time End: 16:00
20	-1	100	100.00	0%		Ti (Celsius): -1
30	-1	100	100.00	0%		
40	-1	100	100.00	0%		Result: Pass
50	-1	100	100.00	0%		
60	-1	100	100.00	0%		Retest: No
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
3	11	HDPE	250		EW358 lateral	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-1	100	100.00	0%	Pi: 100	Time Start: 15:00
10	-1	100	100.00	0%		Time End: 16:00
20	-1	100	100.00	0%		Ti (Celsius): -1
30	-1	100	100.00	0%		
40	-1	100	100.00	0%		Result: Pass
50	-1	100	100.00	0%		
60	-1	100	100.00	0%		Retest: No
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

BEL Representative: Janet Todia

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
Note Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$
 $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 12/5/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment	
6	17	HDPE	168	LR-4P to EW-324R2	
Station/Additional Info:					
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data
0	-3	5	5.00	0%	Pi: Time Start: 13:00 Time End: 14:00 5Ti (Celsius): -3 Result: Pass Retest: No
10	-3	5	5.00	0%	
20	-3	5	5.00	0%	
30	-3	5	5.00	0%	
40	-3	5	5.00	0%	
50	-3	5	5.00	0%	
60	-3	5	5.00	0%	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Result: _____ Retest: _____	
10						
20						
30						
40						
50						
60						
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Result: _____ Retest: _____	
10						
20						
30						
40						
50						
60						
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

BEL Representative: Janet Todia

PI = Initial Test Pressure TI = Initial Temperature t = Time in minutes from initiation of test Pc = Initial Pressure in psig corrected for Temperature (Ti) @ Ti "t"	*Note* Air and Condensate lines to be tested at 100 psig, headers/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise	Tt = Temperature in Celsius @ Time "t" Pt = Test Pressure in psig @ Time "t" $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$ % Drop = $((Pc-Pi)/Pc)*100$
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BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 12/7/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
6	17	HDPE	420		EW323R4 to EW315R3 to EW318R2 to 12" riser	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	7	5	5.00	0%	Pi: Time Start: 9:00 Time End: 10:00 5Ti (Celsius): 7	
10	7	5	5.00	0%		
20	7	5	5.00	0%		
30	7	5	5.00	0%		
40	7	5	5.00	0%		Result: Pass
50	7	5	5.00	0%		
60	7	5	5.00	0%		Retest: No
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
2	9	HDPE	420		EW323R4 to EW315R3 to EW318R2 to 12" riser	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	7	100	100.00	0%	Pi: Time Start: 9:00 Time End: 10:00 100Ti (Celsius): 7	
10	7	100	100.00	0%		
20	7	100	100.00	0%		
30	7	100	100.00	0%		
40	7	100	100.00	0%		
50	7	100	100.00	0%		
60	7	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
3	11	HDPE	420		EW323R4 to EW315R3 to EW318R2 to 12" riser	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	7	100	100.00	0%	Pi: 100	Time Start: 9:00
10	7	100	100.00	0%		Time End: 10:00
20	7	100	100.00	0%		Ti (Celsius): 7
30	7	100	100.00	0%		
40	7	100	100.00	0%		Result: Pass
50	7	100	100.00	0%		
60	7	100	100.00	0%	Retest: No	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

BEL Representative: Janet Todia

PI = Initial Test Pressure TI = Initial Temperature t = Time in minutes from initiation of test Pc = Initial Pressure in psig corrected for Temperature (T) @ TI "t"	*Note* Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise	Tt = Temperature in Celsius @ Time "t" Pt = Test Pressure in psig @ Time "t" $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$ $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$
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BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 12/10/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
6	17	HDPE	30		EW341R2 lateral	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-3	5	5.00	0%	Pi: Time Start: 15:00 Time End: 16:00 5Ti (Celsius): -3	
10	-3	5	5.00	0%		
20	-3	5	5.00	0%		
30	-3	5	5.00	0%		
40	-3	5	5.00	0%		Result: Pass
50	-3	5	5.00	0%		
60	-3	5	5.00	0%		Retest: No
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
2	9	HDPE	30		EW341R2 lateral	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-3	100	100.00	0%	Pi: Time Start: 15:00 Time End: 16:00 100Ti (Celsius): -3	
10	-3	100	100.00	0%		
20	-3	100	100.00	0%		
30	-3	100	100.00	0%		
40	-3	100	100.00	0%		
50	-3	100	100.00	0%		
60	-3	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
3	11	HDPE	30		EW341R2 lateral	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-3	100	100.00	0%	Pi: 100 Result: Pass Retest: No	Time Start: 15:00
10	-3	100	100.00	0%		Time End: 16:00
20	-3	100	100.00	0%		Ti (Celsius): -3
30	-3	100	100.00	0%		
40	-3	100	100.00	0%		
50	-3	100	100.00	0%		
60	-3	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

BEL Representative: Janet Todia

PI = Initial Test Pressure TI = Initial Temperature t = Time in minutes from initiation of test Pc = Initial Pressure in psig corrected for Temperature (T) @ TI "t"	*Note* Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise	Tt = Temperature in Celsius @ Time "t" Pt = Test Pressure in psig @ Time "t" $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$ $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$
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BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 12/12/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
6	17	HDPE	200		EW361 to EW365	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	2	5	5.00	0%	Pi: Time Start: 15:30 Time End: 16:30 5Ti (Celsius): 2	
10	2	5	5.00	0%		
20	2	5	5.00	0%		
30	2	5	5.00	0%		
40	2	5	5.00	0%		
50	2	5	5.00	0%		
60	2	5	5.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
2	9	HDPE	200		EW361 to EW365	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	2	100	100.00	0%	Pi: 100	Time Start: 15:30
10	2	100	100.00	0%		Time End: 16:30
20	2	100	100.00	0%		Ti (Celsius): 2
30	2	100	100.00	0%		
40	2	100	100.00	0%		Result: Pass
50	2	100	100.00	0%		
60	2	100	100.00	0%		Retest: No
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
3	11	HDPE	200		EW361 to EW365	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	2	100	100.00	0%	Pi: 100	Time Start: 15:30
10	2	100	100.00	0%		Time End: 16:30
20	2	100	100.00	0%		Ti (Celsius): 2
30	2	100	100.00	0%		
40	2	100	100.00	0%		Result: Pass
50	2	100	100.00	0%		
60	2	100	100.00	0%		Retest: No
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

BEL Representative: Janet Todia

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
Note Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$
 $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 12/14/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment	
6	17	HDPE	75	EW-334R2 (REMOTE)	
Station/Additional Info:					
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data
0	0	5	5.00	0%	Time Start: 14:00 Time End: 15:00 Pi: 5 Ti (Celsius): 0 Result: Pass Retest: No
10	0	5	5.00	0%	
20	0	5	5.00	0%	
30	0	5	5.00	0%	
40	0	5	5.00	0%	
50	0	5	5.00	0%	
60	0	5	5.00	0%	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
2	9	HDPE	75		EW-334R2 (REMOTE)	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	0	100	100.00	0%	Pi: Time Start: 14:00 Time End: 15:00 Pi: 100 Ti (Celsius): 0 Result: Pass Retest: No	
10	0	100	100.00	0%		
20	0	100	100.00	0%		
30	0	100	100.00	0%		
40	0	100	100.00	0%		
50	0	100	100.00	0%		
60	0	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment	
3	11	HDPE	75	EW-334R2 (REMOTE)	
Station/Additional Info:					
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data
0	0	100	100.00	0%	Time Start: 14:00 Time End: 15:00 Pi: 100 Ti (Celsius): 0 Result: Pass Retest: No
10	0	100	100.00	0%	
20	0	100	100.00	0%	
30	0	100	100.00	0%	
40	0	100	100.00	0%	
50	0	100	100.00	0%	
60	0	100	100.00	0%	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA

BEL Representative: Janet Todia

PI = Initial Test Pressure TI = Initial Temperature t = Time in minutes from initiation of test Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t" *Note* Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise	Tt = Temperature in Celsius @ Time "t" Pt = Test Pressure in psig @ Time "t" $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$ $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$
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BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 12/18/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
6	17	HDPE	150		EW42R4 to EW354	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-10	5	5.00	0%	Pi: Time Start: 12:12 Time End: 13:12 Ti (Celsius): -10 Result: Pass Retest: No	
10	-10	5	5.00	0%		
20	-10	5	5.00	0%		
30	-10	5	5.00	0%		
40	-10	5	5.00	0%		
50	-10	5	5.00	0%		
60	-10	5	5.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Result: _____ Retest: _____	
10						
20						
30						
40						
50						
60						
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment	
Station/Additional Info:					
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Result: _____ Retest: _____
10					
20					
30					
40					
50					
60					
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA

BEL Representative: Janet Todia

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
Note Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$
 $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 12/19/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment		
2	9	HDPE	342	EW364 to CS24		
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	2	100	100.00	0%	Pi: Time Start: 10:32 Time End: 11:32 Pi: 100Ti (Celsius): 2 PassFail Result: YesNo YesNo Retest: No	
10	2	100	100.00	0%		
20	2	100	100.00	0%		
30	2	100	100.00	0%		
40	2	100	100.00	0%		
50	2	100	100.00	0%		
60	2	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
4	11	HDPE	342		EW364 to CS24	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	2	100	100.00	0%	Pi: Time Start: 10:32 Time End: 11:32 100Ti (Celsius): 2	
10	2	100	100.00	0%		
20	2	100	100.00	0%		
30	2	100	100.00	0%		
40	2	100	100.00	0%		
50	2	100	100.00	0%		
60	2	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start:	_____
10					Time End:	_____
20					Pi: _____	Ti (Celsius): _____
30						
40					Result:	
50						
60					Retest:	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

BEL Representative: Janet Todia

PI = Initial Test Pressure TI = Initial Temperature t = Time in minutes from initiation of test Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t" *Note Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise	Tt = Temperature in Celsius @ Time "t" Pt = Test Pressure in psig @ Time "t" $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$ $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$
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BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 12/20/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment	
12	17	HDPE	342	EW364 to CS24	
Station/Additional Info:					
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data
0	-6	5	5.00	0%	Time Start: 13:30 Time End: 14:30 Pi: 5Ti (Celsius): -6 Result: Pass Retest: No
10	-6	5	5.00	0%	
20	-6	5	5.00	0%	
30	-6	5	5.00	0%	
40	-6	5	5.00	0%	
50	-6	5	5.00	0%	
60	-6	5	5.00	0%	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Result: _____ Retest: _____	
10						
20						
30						
40						
50						
60						
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment	
Station/Additional Info:					
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Result: _____ Retest: _____
10					
20					
30					
40					
50					
60					
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA

BEL Representative: Janet Todia

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
Note Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$
 $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 12/21/2018
 Project No: 2018.186 BEL Representative: Janet Todia
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment	
2	17	HDPE	905		
Station/Additional Info:		EW324R2 to EW319R2 to eastern 12" isolation riser to EW334R2 to near EW330R			
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data
0	-6	5	5.00	0%	Time Start: 8:45 Time End: 9:45 Pi: 5Ti (Celsius): -6 Result: Pass Retest: No
10	-6	5	5.00	0%	
20	-6	5	5.00	0%	
30	-6	5	5.00	0%	
40	-6	5	5.00	0%	
50	-6	5	5.00	0%	
60	-6	5	5.00	0%	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
3	11	HDPE	905			
Station/Additional Info:		EW324R2 to EW319R2 to eastern 12" isolation rise to EW334R2 to near EW330R				
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-6	5	5.00	0%	Pi: Time Start: 8:45 Time End: 9:45 5 Ti (Celsius): -6 Result: Pass Retest: No	
10	-6	5	5.00	0%		
20	-6	5	5.00	0%		
30	-6	5	5.00	0%		
40	-6	5	5.00	0%		
50	-6	5	5.00	0%		
60	-6	5	5.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment	
Station/Additional Info:					
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Result: _____ Retest: _____
10					
20					
30					
40					
50					
60					
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA

BEL Representative: Janet Todia

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
***Note** Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$
 $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 1/10/2019
 Project No: 2018.186 BEL Representative: Tyler Kawalec
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
12	17	HDPE	195		new 12" isolation valve to access riser to the north	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-5	5	5.00	0%	Pi: Time Start: 9:30 Time End: 10:30 5 Ti (Celsius): -5 Pass Fail Result: Yes Yes No Retest: No	
10	-5	5	5.00	0%		
20	-5	5	5.00	0%		
30	-5	5	5.00	0%		
40	-5	5	5.00	0%		
50	-5	5	5.00	0%		
60	-5	5	5.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Pass Fail Result: Yes No Retest:	
10						
20						
30						
40						
50						
60						
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment		
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start:	_____
10					Time End:	_____
20					Pi: _____	Ti (Celsius): _____
30						Pass Fail
40					Result:	
50						Yes No
60					Retest:	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

BEL Representative: Tyler Kawalec

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
Note Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((PI + 14.7)(Tt + 273)) / (TI + 273)) - 14.7$
 $\% \text{ Drop} = ((Pc - PI) / Pc) * 100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 1/11/2019
 Project No: 2018.186 BEL Representative: Tyler Kawalec
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment		
12 and 6	17	HDPE	840		EW316R3 to EW310R2		
Station/Additional Info:		includes laterals to EW-308R3 and EW-307R3					
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data		
0	-3	5	5.00	0%	Pi: Time Start: 12:35 Time End: 13:35 5Ti (Celsius): -3		
10	-3	5	5.00	0%			
20	-3	5	5.00	0%			
30	-3	5	5.00	0%		Pass	Fail
40	-3	5	5.00	0%		Result: Yes	
50	-3	5	5.00	0%		Yes	No
60	-3	5	5.00	0%		Retest:	No
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Pass Fail Result: _____ Yes No Retest: _____	
10						
20						
30						
40						
50						
60						
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment		
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start:	_____
10					Time End:	_____
20					Pi: _____	Ti (Celsius): _____
30						Pass _____ Fail _____
40					Result:	
50						Yes _____ No _____
60					Retest:	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

BEL Representative: Tyler Kawalec

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature
(Ti) @ Ti "t"
***Note* Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise**
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
Pc = $((Pi + 14.7)(Tt + 273)) / (Ti + 273) - 14.7$
% Drop = $((Pc - Pi) / Pc) * 100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 1/17/2019
 Project No: 2018.186 BEL Representative: Tyler Kawalec
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment		
12	17	HDPE	490	EW316R3 to access riser		
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-5	5	5.00	0%	Pi: Time Start: 9:10 Time End: 10:10 5Ti (Celsius): -5	
10	-5	5	5.00	0%		
20	-5	5	5.00	0%		
30	-5	5	5.00	0%		PassFail
40	-5	5	5.00	0%		Result: YesNo
50	-5	5	5.00	0%		YesNo
60	-5	5	5.00	0%		Retest:No
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Pass Fail Result: Yes No Retest:	
10						
20						
30						
40						
50						
60						
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment		
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start:	_____
10					Time End:	_____
20					Pi: _____	Ti (Celsius): _____
30						Pass _____ Fail _____
40					Result:	
50						Yes _____ No _____
60					Retest:	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

BEL Representative: Tyler Kawalec

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
Note Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((Pi + 14.7)(Tt + 273)) / (Ti + 273)) - 14.7$
 $\% \text{ Drop} = ((Pc - Pi) / Pc) * 100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 1/17/2019
 Project No: 2018.186 BEL Representative: Tyler Kawalec
 Contractor: SCS

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment		
2	9	HDPE	1,310	EW153R3 to EW43R3		
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-5	100	100.00	0%	Pi: Time Start: 9:35 Time End: 10:35 Pi: 100Ti (Celsius): -5 PassFail Result: YesNo YesNo Retest:No	
10	-5	100	100.00	0%		
20	-5	100	100.00	0%		
30	-5	100	100.00	0%		
40	-5	100	100.00	0%		
50	-5	100	100.00	0%		
60	-5	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
3	11	HDPE	1,310		EW153R3 to EW43R3	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-5	100	100.00	0%	Pi: Time Start: 10:30 Time End: 11:30 100Ti (Celsius): -5 PassFail Result: YesNo YesNo Retest:No	
10	-5	100	100.00	0%		
20	-5	100	100.00	0%		
30	-5	100	100.00	0%		
40	-5	100	100.00	0%		
50	-5	100	100.00	0%		
60	-5	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment		
Station/Additional Info:							
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data		
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ PassFail Result:YesNo Retest:		
10							
20							
30							
40							
50							
60							
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA		

BEL Representative: Tyler Kawalec

PI = Initial Test Pressure TI = Initial Temperature t = Time in minutes from initiation of test Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t" *Note Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise	Tt = Temperature in Celsius @ Time "t" Pt = Test Pressure in psig @ Time "t" $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$ $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$
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BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 1/18/2019
 Project No: 2018.186 BEL Representative: Tyler Kawalec
 Contractor: SCS

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
3	11	HDPE	1,250		EW51R3 to EW46R4	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-1	100	100.00	0%	Pi: Time Start: 9:00 Time End: 10:00 100Ti (Celsius): -1 PassFail Result: Yes YesNo Retest:No	
10	-1	100	100.00	0%		
20	-1	100	100.00	0%		
30	-1	100	100.00	0%		
40	-1	100	100.00	0%		
50	-1	100	100.00	0%		
60	-1	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
2	9	HDPE	1,250		EW51R3 to EW46R4	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-1	100	100.00	0%	Pi: Time Start: 9:30 Time End: 10:30 Pi: 100 Ti (Celsius): -1 Pass Fail Result: Yes No Yes No Retest: No	
10	-1	100	100.00	0%		
20	-1	100	100.00	0%		
30	-1	100	100.00	0%		
40	-1	100	100.00	0%		
50	-1	100	100.00	0%		
60	-1	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment		
Station/Additional Info:							
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data		
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Pass Fail Result: Yes No Retest:		
10							
20							
30							
40							
50							
60							
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA		

BEL Representative: Tyler Kawalec

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (T) @ T_i
Note Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$
 $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 1/22/2019
 Project No: 2018.186 BEL Representative: Tyler Kawalec
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment		
6	17	HDPE	151		EW314R3 to EW313R2		
Station/Additional Info:							
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data		
0	-9	5	5.00	0%	Pi: 5	Time Start: 10:15	
10	-9	5	5.00	0%		Time End: 11:15	
20	-9	5	5.00	0%		Ti (Celsius): -9	
30	-9	5	5.00	0%		Pass	Fail
40	-9	5	5.00	0%		Result: Yes	
50	-9	5	5.00	0%		Yes	No
60	-9	5	5.00	0%		Retest:	No
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Pass Fail Result: Yes No Retest:	
10						
20						
30						
40						
50						
60						
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment		
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start:	_____
10					Time End:	_____
20					Pi: _____	Ti (Celsius): _____
30						Pass _____ Fail _____
40					Result:	
50						Yes _____ No _____
60					Retest:	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

BEL Representative: Tyler Kawalec

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
Note Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((PI + 14.7)(Tt + 273)) / (TI + 273)) - 14.7$
 $\% \text{ Drop} = ((Pc - PI) / Pc) * 100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 1/24/2019
 Project No: 2018.186 BEL Representative: Tyler Kawalec
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment		
2	9	HDPE	1,360	north access riser to EW345 to EW310R2		
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-2	100	100.00	0%	Pi: Time Start: 15:50 Time End: 16:50 Pi: 100 Ti (Celsius): -2 Pass Fail Result: Yes No Yes No Retest: No	
10	-2	100	100.00	0%		
20	-2	100	100.00	0%		
30	-2	100	100.00	0%		
40	-2	100	100.00	0%		
50	-2	100	100.00	0%		
60	-2	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
3	11	HDPE	1,360		north access riser to EW345 to EW310R2	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-2	100	100.00	0%	Pi: Time Start: 17:10 Time End: 18:10 Pi: 100 Ti (Celsius): -2 Pass Fail Result: Yes No Retest: No	
10	-2	100	100.00	0%		
20	-2	100	100.00	0%		
30	-2	100	100.00	0%		
40	-2	100	100.00	0%		
50	-2	100	100.00	0%		
60	-2	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment		
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start:	_____
10					Time End:	_____
20					Pi: _____	Ti (Celsius): _____
30						Pass Fail
40					Result:	
50						Yes No
60					Retest:	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

BEL Representative: Tyler Kawalec

PI = Initial Test Pressure TI = Initial Temperature t = Time in minutes from initiation of test Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t" *Note Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise	Tt = Temperature in Celsius @ Time "t" Pt = Test Pressure in psig @ Time "t" $Pc = (((Pi+14.7)(Tt+273))/(Ti+273))-14.7$ $\% \text{ Drop} = ((Pc-Pi)/Pc)*100$
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BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 1/25/2019
 Project No: 2018.186 BEL Representative: Tyler Kawalec
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
6	17	HDPE	165		EW152R2 to EW57R3	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-10	5	5.00	0%	Pi: Time Start: 13:30 Time End: 14:30 5Ti (Celsius): -10 PassFail Result: Yes YesNo Retest:No	
10	-10	5	5.00	0%		
20	-10	5	5.00	0%		
30	-10	5	5.00	0%		
40	-10	5	5.00	0%		
50	-10	5	5.00	0%		
60	-10	5	5.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
3	11	HDPE	165		EW152R2 to EW57R3	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-10	100	100.00	0%	Pi: Time Start: 13:30 Time End: 14:30 100Ti (Celsius): -10 PassFail Result: YesNo YesNo Retest: No	
10	-10	100	100.00	0%		
20	-10	100	100.00	0%		
30	-10	100	100.00	0%		
40	-10	100	100.00	0%		
50	-10	100	100.00	0%		
60	-10	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
2	9	HDPE	165		EW152R2 to EW57R3	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-10	100	100.00	0%	Pi: 100	Time Start: 13:30
10	-10	100	100.00	0%		Time End: 14:30
20	-10	100	100.00	0%		Ti (Celsius): -10
30	-10	100	100.00	0%		Pass Fail
40	-10	100	100.00	0%		Result: Yes
50	-10	100	100.00	0%		Yes No
60	-10	100	100.00	0%		Retest: No
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

BEL Representative: Tyler Kawalec

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
Note Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((PI + 14.7)(Tt + 273)) / (TI + 273)) - 14.7$
 $\% \text{ Drop} = ((Pc - PI) / Pc) * 100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 1/28/2019
 Project No: 2018.186 BEL Representative: Tyler Kawalec
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment	
2	9	HDPE	231		EW331 to EW322 to EW330R	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	2	100	100.00	0%	Pi: Time Start: 16:05 Time End: 17:05 Pi: 100 Ti (Celsius): 2 PassFail Result: YesNo YesNo Retest: No	
10	2	100	100.00	0%		
20	2	100	100.00	0%		
30	2	100	100.00	0%		
40	2	100	100.00	0%		
50	2	100	100.00	0%		
60	2	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
3	11	HDPE	231		EW331 to EW322 to EW330R	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	2	100	100.00	0%	Pi: Time Start: 16:05 Time End: 17:05 100Ti (Celsius): 2 PassFail Result: YesNo YesNo Retest: No	
10	2	100	100.00	0%		
20	2	100	100.00	0%		
30	2	100	100.00	0%		
40	2	100	100.00	0%		
50	2	100	100.00	0%		
60	2	100	100.00	0%		
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment		
Station/Additional Info:							
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data		
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ PassFail Result: YesNo Retest:		
10							
20							
30							
40							
50							
60							
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA		

BEL Representative: Tyler Kawalec

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
***Note** Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((PI + 14.7)(Tt + 273)) / (TI + 273)) - 14.7$
 $\% \text{ Drop} = ((Pc - PI) / Pc) * 100$

BEL Pipe Pressure Test Report



Project Name: 2018 CGGS Phase II Lorain II County Landfill Date: 1/29/2019
 Project No: 2018.186 BEL Representative: Tyler Kawalec
 Contractor: AEG

Pipe Dia.	SDR	Material	Overall Segment Length (ft)	Location of Test Segment		
6	17	HDPE	165	EW317R2 to EW345		
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0	-9	5	5.00	0%	Time Start:	11:40
10	-9	5	5.00	0%	Time End:	12:40
20	-9	5	5.00	0%	Pi: 5	Ti (Celsius): -9
30	-9	5	5.00	0%		Pass Fail
40	-9	5	5.00	0%	Result: Yes	
50	-9	5	5.00	0%		Yes No
60	-9	5	5.00	0%	Retest:	No
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Test Data	
Station/Additional Info:						
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data	
0					Time Start: _____ Time End: _____ Pi: _____ Ti (Celsius): _____ Pass Fail Result: Yes No Retest:	
10						
20						
30						
40						
50						
60						
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:					NA	

Pipe Dia.	SDR	Material	Overall Segment Length (ft)		Location of Test Segment		
Station/Additional Info:							
Time (min.)	Tt (Celsius)	Pt (psig)	Pc (psig)	% Drop	Test Data		
0					Pi:	Time Start:	_____
10						Time End:	_____
20						Ti (Celsius):	_____
30						Pass	Fail
40						Result:	
50						Yes	No
60						Retest:	
Description/Nature of Leak or Repairs of Tested / Retested Segment, if applicable:						NA	

BEL Representative: Tyler Kawalec

PI = Initial Test Pressure
TI = Initial Temperature
t = Time in minutes from initiation of test
Pc = Initial Pressure in psig corrected for Temperature (TI) @ TI "t"
***Note** Air and Condensate lines to be tested at 100 psig, header/laterals @ 10 psig & outer containment piping at 50 psig for 1 hour unless permit or regulations require otherwise
Tt = Temperature in Celsius @ Time "t"
Pt = Test Pressure in psig @ Time "t"
 $Pc = (((PI + 14.7)(Tt + 273)) / (TI + 273)) - 14.7$
 $\% \text{ Drop} = ((Pc - PI) / Pc) * 100$

APPENDIX C
PHOTOGRAPHIC DOCUMENTATION

Lorain County II Landfill

2018 Phase II GCCS CQA

Oberlin, OH



Photo 1

AEG drilling a typical LFG extraction well borehole.



Photo 2

AEG setting a well casing in borehole.



Photo 3

AEG mixing the bentonite and water in the borehole to create the bentonite plug.



Lorain County II Landfill

2018 Phase II GCCS CQA

Oberlin, OH



Photo 4

Typical butt fusion of HDPE pipe.



Photo 5

AEG performing typical pipe pressure tests.



Photo 6

AEG installed CMP in trench and is covering with washed #3 stone for structural fill.

Lorain County II Landfill

2018 Phase II GCCS CQA

Oberlin, OH



Photo 7

AEG hauling trash pulled out of the trench to active fill area during trenching.



Photo 8

AEG using laser-guided total station
to verify proper slope.

Photo 9

Typical LFG collection trench prior to pipe
installation.



Lorain County II Landfill

2018 Phase II GCCS CQA

Oberlin, OH



Photo 10

AEG installing 12-inch header pipe in trench.



Photo 11

AEG backfilling with clean dirt to about 1-foot above piping to be able to put reflective warning tape.

Photo 12

AEG backfilling with clean dirt and installing survey risers.



Lorain County II Landfill

2018 Phase II GCCS CQA

Oberlin, OH



Photo 13

AEG fusing lateral pipe.



Photo 14

AEG installing a 12-inch header isolation valve.

Photo 15

AEG tracking in and grating all trench lines after backfilling was completed.



APPENDIX D
DAILY FIELD REPORTS

Project No.: 2018.186
Date: 11/8/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II LLCs Construction
Contractor/ Personnel: REG Drilling/Construction
Visitors: N/A
Weather: AM OL PM OL OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 32 PM 36 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site; safety meeting
began w/ pressure test
6" SDR 11 4 psi
2" SDR 9 100 psi
3" SDR 11 100 psi
PRESSURE TEST PASSED

Completion:

6" lateral + (2,3,D) RW 361 to RW 365; 204 linear feet
6" lateral + (2,3,D) from RW 341 R2 to the underground fire in point; 36 linear feet

Drilling still on schedule to arrive November 20

Site conditions extremely muddy; hauling taking lots of time - slow going

1715 leave site

Contractor Equipment (QTY) / Sketch
(1) 320 E
(1) 320 F
(1) D5
(2) 725

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1715</u>	<u>1715</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>10.25</u>	<u>10.25</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018.136
Date: 11/12/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II COLCS Construction
Contractor/ Personnel: REG Drilling/Construction
Visitors: N/A

Weather: AM OC PM OC
Temperature (°F): AM 45 PM 45

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
Work area extremely muddy
& slick; very difficult
hauling

Completion:
10" lateral + (2,3,0) from
EW 357 to EW 365; 254 linear
ft

Spoke to Wright & Hill about
site conditions & hauling; very slow productivity
Need a solid prep to move pipe up through
working area

PRESSURE TEST PASSED

6" SDR17 4 psi
2" SDR09 100 psi
2" SDR11 100 psi

1730 left site

Contractor Equipment (QTY) / Sketch	
(1) 320 E	
(1) 320 F	
(1) D5	
(2) 725	

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1730</u>	<u>1730</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>10.5</u>	<u>10.5</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018.186
Date: 11/13/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II GCS Construction
Contractor/ Personnel: AEG Drilling/Construction
Visitors: _____

Weather: AM OC PM OC
Temperature (°F): AM 49 PM 51

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
Site conditions poor; hauling
very slow; Ops helped AEG
get roads
Completion:
6" lateral @ (2,3,0) from future
EW373R4 to EW315R2 to
EW318R2 to the 12" subheader
AEG suspected road crossing
needed between EW323R4 +
EW315R3; walked Brian Hill
to verify
installed 40' 18" 110 gauge LMP
also called BGR to verify design change; run 6"
@ (2,3,0) from EW315R3 directly to 12" subheader +
run 9' 16" lateral to EW318R2
TOTAL linear feet of 6" lateral @ (2,3,0) = 306
wright + BEL approved design change
1730 off site

Contractor Equipment (QTY) / Sketch

(1) 320 E
(1) 320 F
(1) D5
(2) 725

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1730</u>	<u>1730</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>10.5</u>	<u>10.5</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018.186
 Date: 11/13/18
 Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
 Project Name/Location: 2018 Phase II GCS Construction
 Contractor/ Personnel: NEG Drilling/Construction
 Visitors: N/A
 Weather: AM OC PM OC OC - Overcast MC - Mostly Cloudy
 Temperature (°F): AM 42 PM 51 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
 Launch 6" lateral w/ (2,3,0) from
 RW323R4
 install 6" 90 riser w/ (2,3,0)
 for EW323R4
 installed 18" CMP for road
 crossing starting @ 0+50+
 ending w/ 0+90
 installed 6" T riser w/ (2,3,0)
 @ station 1+20 @ EW315R3
 installed 6" T w/ (2,3,0) going up
 to EW318R2
 launch 6" lateral w/ (2,3,0) @ EW318R2
 started 6" 90 riser w/ (2,3,0) @ station 0+00 for EW318R2
 fused lateral pipes to Ts @ station 0+86
 completion:
 EW318R2 50' 6" lateral w/ (2,3,0)
 RW323R4 36' 6" lateral w/ (2,3,0); 5-7' depth
 1730 leave site

Contractor Equipment (QTY) / Sketch

(1) 320 E
 (1) 320 F
 (1) Δ5
 (2) 725

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1730</u>	<u>1730</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>10.5</u>	<u>10.5</u>

*If additional hours off-site provide description in field activities.

BEL Representative: [Signature]

Project No.: 2018-186
Date: 11/17/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II GCS Construction
Contractor/ Personnel: REG Drilling/Construction
Visitors: N/A
Weather: AM OC PM OC OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 36 PM 44 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
Trench 24" CMP road crossing
& installed 100' of 24" CMP
(16 gauge) @ 5-7' depth
Both ends were blocked off
to prevent mud from entering
pipes prior to installation
Trench 6" lateral (+2,3,0) from
RW315R3 to the 12" isolation
riser
Completion:

Contractor Equipment (QTY) / Sketch

(1) 320 E
(1) 320 F
(1) D5
(2) 725

CMP only for the road crossing between RW310R2 &
RW310R3; 100' of 16 gauge 24" CMP
completed installation NOT TIE in of 6" lateral (+
2,3,0) from RW315R3 to the 12" isolation riser;
117 linear feet; NOTE 7-10' trench depth
1730 leave site

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1730</u>	<u>1730</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>10.5</u>	<u>10.5</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018.136
Date: 11/19/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II LCLS Construction
Contractor/ Personnel: AEG Drilling/Construction
Visitors: N/A

Weather: AM OC PM OC
Temperature (°F): AM 34 PM 49

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
extremely muddy conditions
Wright requested the 4" riser be connected to vacuum due to odor complaints
Wright approved 6" vacuum line be installed above grade
Completion:

10" lateral from 4" above grade; 4 hours now ROUTINE for AEG

1200 left site

Contractor Equipment (QTY) / Sketch

(1) 320 E
(1) 320 F
(1) D5
(2) 725

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1200</u>	<u>1200</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>5.0</u>	<u>5.0</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

*Short day due to MVD; special NR request from Wright due to odor complaints

Project No.: 2018-186
Date: 11/27/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II GCS Construction
Contractor/ Personnel: AKG Drilling/Construction
Visitors: N/A
Weather: AM OC PM OC OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 42 PM 51 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrived on site
notified by Hill 12" riser near
LRT was damaged; need NON
ROUTINE repair by AKG
AKG dug down around 9' depth
for the 12" riser repair;
AKG used 5 total hours w/
curt equipment to be billed
to operations - Brian Hill
utilized (2) 10' spot pins;
20' vertical height for repair
PRESSURE TEST
6" SDR17 @ 4psi PASSED
can cover for laterals EW314R3 to EW308R3 +
EW42R4 to EW354
no fill ins today; notified SCS of filling tomorrow
AKG continued hauling through the end of the day
1815 leave site

Contractor Equipment (QTY) / Sketch

(1) 320 E
(1) 320 F
(1) D5
(2) 725

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1815</u>	<u>1815</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>11.25</u>	<u>11.25</u>

*If additional hours off-site provide description in field activities.

Brian Hill
BEL Representative:

Project No.: 2018-186
Date: 11/28/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II Wells Construction
Contractor/ Personnel: AKG Drilling/Construction
Visitors: N/A
Weather: AM OC PM OC OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 38 PM 53 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
AKG was unhooking the tie
in point for the 12" line, it
was discovered that the 6" x
12" gusseted T was broken
off, therefore requiring immediate
replacement
The excavation was opened and
checked back approximately
11' depth
Tie in was completed w/ a
new 6" x 12" T and 6" flange for the lateral at
approximately 1430 & began backfill
AKG completed temporary tie ins to wells RW315R3,
RW318R2, & RW322R3
Non-ROUTINE 2.0 hours for 2 crew members & 1
superintendent
AKG hauled for the rest of the day
called Wright to notify temporary tie ins helped orders
1730 left site

Contractor Equipment (QTY) / Sketch

(1) 320 E
(1) 320 F
(1) D5
(2) 725

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1730</u>	<u>1730</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>10.5</u>	<u>10.5</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018-186
Date: 11/29/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II GCS Construction
Contractor/ Personnel: AREG Drilling/Construction
Visitors: Willard on site for survey
Weather: AM OC PM OC OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 29 PM 38 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
Begin trenching 6" lateral run
from RW308R3 to RW314R3
more than half of the lateral
run had to be excavated
in the 6' to 7' depth range
to achieve 5% grade; took
much more time to excavate
than normal w/ proper
bunching
1000 Willard arrived on site to
complete as built

Contractor Equipment (QTY) / Sketch
(1) 320 E
(1) 320 F
(1) D5
(2) 725

Completion:

RW308R3 to RW314R3 6" lateral; 141 linear feet;
depth 5-7' ranged for AREG w/ bunching
5% grade

1700 left site

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1700</u>	<u>1700</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>10</u>	<u>10</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018.186
Date: 11/30/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II LCLS Construction
Contractor/ Personnel: KEG Drilling/Construction
Visitors: N/A
Weather: AM 06 PM 06 OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 32 PM 45 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
Begin trenching permanent 6"
manure supply to LRT
called Brian Hill @ 0830 to
inform him we had to stop
working on the LRT lateral to
fix huge ruts in the borrow
area that prevented AEG from
hauling dirt
Ops permitted minor to utilize
their dig to fix ruts
installed 6" pipe in trench line + began w/ 6" 90 riser
at station mark 0+00 for LRT
then installed @ 6" 90' elbow @ station mark 1+42
pointing to BL324R2
6" lateral installed @ 5' grade

Contractor Equipment (QTY) / Sketch

(1) 320 E
(1) 320 F
(1) D5
(2) 725

Completion:

LRT 0+0+90 6" SDR17 3 to 5'
0+90 to 1+43 6" SDR17 5 to 7'

1815 left site

4-Gas Meter #:

Functioning Properly (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1815</u>	<u>1815</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>11.25</u>	<u>11.25</u>

*If additional hours off-site provide description in field activities.

BEL Representative: [Signature]

Project No.: 2018.186
Date: 12/4/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II GCS Construction
Contractor/ Personnel: REG Drilling/Construction
Visitors: _____

Weather: AM 0L PM CL
Temperature (°F): AM 20 PM 28

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrived on site)
drill rig arrived yesterday + set
up
begin trenching 10" lateral + (2,3,0)
at EW324R3
struggled due to very muddy
conditions; hauling taking
forever
drilling completed EW323R4 to
a depth of 110'; AEG brought
the well on line due to request
from upland because of odor complaints
construction excavator had to push + pull hand trucks
all day for AEG + Ops

Completion:

10" lateral + (2,3,0) from vacuum line termination
point at R4 to the west; 100' @ 7-10 depth

OKK is set up on EW318R2 for tomorrow
Ops cut path for drilling this morning

1730 left site

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1730</u>	<u>1730</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>10.5</u>	<u>10.5</u>

*If additional hours off-site provide description in field activities.

BEL Representative: _____

Project No.: 2018-186
Date: 12/5/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II GCS Construction
Contractor/ Personnel: AKG Drilling/Construction
Visitors: N/A

Weather: AM OC PM OC
Temperature (°F): AM 19 PM 26

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0630 0700⁰¹ arrived on site
drilling began BW318R2
construction trenching continuation
of 6" lateral + (2,3,0) to the
west; trenching was deep
extremely slow going today due
to mud & trench depth required
to obtain 5'.

completion:

6" lateral + (2,3,0) : 108'; depth
was 10-13'

(1) 320 E
(1) 320 F
(1) Δ5
(2) 725

drilling completed BW318R2 to scheduled true depth of
120'

OKK is set up on BW365 for tomorrow

1815 left site

the mud is really affecting productivity; mud drops
frees

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0630</u>	<u>0700</u>
Off-site:	<u>1815</u>	<u>1815</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>11.75</u>	<u>11.25</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018.136
Date: 12/6/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II Leach Construction
Contractor/ Personnel: AEI Drilling/Construction
Visitors: N/A
Weather: AM OC PM OC OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 29 PM 33 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0630 arrived on site
Begin drilling BW365
0930 team progress meeting
Wright gave permission to leave
half hours while drilling as
long as we use plywood
liner for odor prevention
construction is struggling w/
productivity due to depths
to obtain 57' grade
construction continued punching
from BW319R2 to the 12" isolation riser at a depth
of 7 to 13'
tomorrow SES will give us an isolation for the in
completion:
6" lateral (2,3,0) 11' @ 7 to 13' depth
Drilling completed BW365 to depth of 120' scheduled more
work is set up on BW358 for tomorrow
1830 left site

Contractor Equipment (QTY) / Sketch
(1) 320 E
(1) 320 F
(1) Δ5
(2) 725

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0630</u>	<u>0700</u>
Off-site:	<u>1830</u>	<u>1830</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>12.0</u>	<u>11.5</u>

*If additional hours off-site provide description in field activities.

Amel India
BEL Representative:

Project No.: 2018-186
Date: 12/7/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II GCS Construction
Contractor/ Personnel: REG Drilling/Construction
Visitors: N/A
Weather: AM OC PM CL OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 21 PM 39 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0630 arrive on site
drilling on BW358
BW358 extremely wet @ 70' bore
depth + continued to be very
wet all the way to 94'
completion
SS began isolation @ p130
construction completed 12" tie
in (including 6" lateral air
pressure test on entire 6")
PRESSURE TEST passed

Contractor Equipment (QTY) / Sketch
(1) 320 E
(1) 320 F
(1) D5
(2) 725

Drilling began BW374R2 + got 40' completed; bore will
be properly sealed until tomorrow

Completion:

BW358 to scheduled bore depth of 94'
BW374R2 40' (to be continued)

12" tie in from BR4 to 12" isolation riser (took all
day to complete)

1800 leave site

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0630</u>	<u>0700</u>
Off-site:	<u>1800</u>	<u>1800</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>11.5</u>	<u>11.0</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018-136
 Date: 12/8/18
 Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
 Project Name/Location: 2018 Phase II Leach Construction
 Contractor/ Personnel: AKG Drilling/Construction
 Visitors: N/A
 Weather: AM 06 PM 06 OC - Overcast MC - Mostly Cloudy
 Temperature (°F): AM 30 PM 36 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0630 arrive on site
 Drilling continuing EW324R2
 @ 40' now
 construction is hauling for the
 entire day
 EW324R2 got extremely wet @
 100' now. This well will
 need a pump
 Work is set up on EW341R2 for
 Monday
 construction is also fixing
 pits in the borrow pit
 Work will be on site Monday for as needed to
 take EW325R2 new location

Contractor Equipment (QTY) / Sketch
 (1) 320 E
 (1) 320 F
 (1) D5
 (2) 725

Completion:

EW324R2 to 120' scheduled now

1130 left site

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	0630	0700
Off-site:	1130	1130
Add. Hours:	N/A	N/A
Total:	10.0	9.5

*If additional hours off-site provide description in field activities.

[Signature]
 BEL Representative:

Project No.: 2018.186
Date: 12/10/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II GCS Construction
Contractor/ Personnel: KEG Drilling/Construction
Visitors: Willut Engineering for survey
Weather: AM 06 PM 08 OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 19 PM 26 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0630 arrive on site
Drilling on BW341R2
Construction continued west
w/ (2,3,0) from the 12" isolation
man
hauling still extremely difficult
for AEG
Diana has been down on the west
haul road pushing trucks up
all afternoon

Contractor Equipment (QTY) / Sketch
(1) 320 E
(1) 320 F
(1) Δ5
(2) 725

Completion:

BW341R2 to scheduled bore depth of 101'
BW342R2 to 60' of the 120' scheduled bore
* BW342R2, significant sludge/wet @ 35-50' bore; bore
was sealed overnight
(2,3,0) 12" isolation runs to the west; 180'
1730 left site

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0630</u>	<u>0700</u>
Off-site:	<u>1730</u>	<u>1730</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>11.0</u>	<u>11.0</u>

*If additional hours off-site provide description in field activities.

Willut India
BEL Representative:

Project No.: 2018.186
Date: 12/11/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II GCS Construction
Contractor/ Personnel: AKG Drilling/Construction
Visitors: N/A
Weather: AM CL PM CL OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 20 PM 28 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0630 arrive on site
drilling on BW334R2 (continued from yesterday)
construction trenching 4" lateral and (23.0) from BW325R2 to BW320R2 to the 12" isolation riser; also working on (23.0) from isolation riser to the well @ 3-5' depth
SES noted if he closed well head valves @ BW316, BW315, etc., he is seeing 31" to 41" available vacuum

(1) 320 E
(1) 320 F
(1) D5
(2) 725

Completion:

4" lateral @ (23.0) BW325R2 to BW320R2 to the 12" isolation riser; 742 linear feet; 3-5' depth
(23.0) from isolation riser to the well; 3-5' depth; 48 linear feet

BW334R2 70'-120' scheduled bore depth

BW319R2 80' of the 120' scheduled bore; sealed over right

1800 left site

4-Gas Meter #:

Functioning Properly (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0630</u>	<u>0700</u>
Off-site:	<u>1800</u>	<u>1800</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>11.5</u>	<u>11.0</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018.186
Date: 12/12/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II CCLCS Construction
Contractor/ Personnel: NEG Drilling/Construction
Visitors: _____

Weather: AM CL PM CL
Temperature (°F): AM 30 PM 33

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0630 arrive on site
drilling on BW319R2
Construction PRESSURE TEST
SDR175V00 psi 4 psi
SDR09 100 psi
SDR11 100 psi
Construction working on trenching
6" lateral (23,0) continuing to
the west
Construction abandoned BW319R2
installed well head on BW319R2
Will have isolation tomorrow for the 6" to 12" riser tie
in tomorrow; spoke to SCS Gyson

Contractor Equipment (QTY) / Sketch
(1) 320 E
(1) 320 F
(1) D5
(2) 725

Completion:

BW319R2 to 100' on a 120' scheduled bore approved by
Wright due to sloppy sludge
BW325R2 drilled to scheduled bore depth of 120'
6" lateral (23,0) continuing west; 148 linear feet
DOKK set up on BW320R2 for tomorrow
1830 leave site

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0630</u>	<u>0700</u>
Off-site:	<u>1830</u>	<u>1830</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>12.0</u>	<u>11.5</u>

*If additional hours off-site provide description in field activities.

Amel India
BEL Representative:

Project No.: 2018.186
Date: 12/13/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II CCLCS Construction
Contractor/ Personnel: AGE Drilling/Construction
Visitors: Wellnet Engineering for Survey
Weather: AM CL PM CL OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 22 PM 32 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0630 arrive on site
construction trenching remote
lateral for BW334R2 + (2,3,0)
Drilling on BW320R2
Notified SCS to bring BW334R2 +
BW320R2 on line
cut + installed 12" x 16" T into
existing 12" access riser + made
6" fit in 90° T w/ 6" flange
connection
SCS isolation complete @ 1340
Construction continued to trench (2,3,0) for remote well
BW334R2 w/ 6" lateral; installed 8" x 6" T into
well BW334R2 + made 6" fit in + installed (2,3,0)
90° risers

Contractor Equipment (QTY) / Sketch
(1) 320 E
(1) 320 F
(1) Δ5
(2) 725

Completion:

6" lateral + (2,3,0) 75' for remote well BW334R2
(2,3,0) isolation riser; 160'
w/ 12" 16 gauge CMP
Abandon BW334R2 + BW320R (8" + 16" abandonment)
Installed well heads BW334R2 + BW320R2

1730 left site

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0630</u>	<u>0700</u>
Off-site:	<u>1730</u>	<u>1730</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>11.00</u>	<u>10.5</u>

*If additional hours off-site provide description in field activities.

Paul Tolia
BEL Representative:

Project No.: 2018.186
Date: 12/14/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorzin II Page: 1 of 1
Project Name/Location: 2018 Phase II COLCS Construction
Contractor/ Personnel: AKG Drilling/Construction
Visitors: Willert Engineering Survey
Weather: AM CL PM CL OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 23 PM 26 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
Construction completing 6" lateral
from BW42R4 to BW354
PRESSURE TEST PASSED
1000 Willert on site to obtain
as built for survey nail
removal
Construction installed one 6" T
@ BW354 for vacuum restoration
Drilling signed off & demobilized

Contractor Equipment (QTY) / Sketch
(1) 320 E
(1) 320 F
(1) D5
(2) 725

Completion:

6" lateral from BW42R4 to BW354; 151 linear
has completed
6" T @ BW354
Vacuum restored to BW42R4; SCS notified
Willert as built

Tomorrow will be hauling day for AKG due to
extremely muddy site conditions

1800 leave site

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1800</u>	<u>1800</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>16.0</u>	<u>16.0</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.:

2018-186

Date:

12/19/18

Report No.:



BEL Daily Field Report

Site Name:

Lorain II

Page: 1 of 1

Project Name/Location:

2018 Phase II COLCS Construction

Contractor/ Personnel:

AEG Drilling/Construction

Visitors:

N/A

Weather:

AM CL

PM CL

OC - Overcast

MC - Mostly Cloudy

Temperature (°F):

AM 20

PM 29

CL - Clear

PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0630 arrive on site; begin work
@ 0700
Construction working on continuation
of 12" header to the east
PRESSURE TESTS on (2,4,0) &
12" header replacement leg
PASS; inserted pan blanket on
the 12" flange
SCS notified of required isolation
for tomorrow to tie in the
12" to CS24; construction will
have to remove the 12" valve & move it to the east
side of CS24 tomorrow
Excessive hauling of both trash & dirt considering the
location of the 12" replacement

Contractor Equipment (QTY) / Sketch

(1) 320 E
(1) 320 F
(1) D5
(2) 725

Completion:

12" header & (2,4,0); 270 linear feet
Removed valve stem rises from the 12" valve at the
east end & inserted pan blanket in 12" flange
SCS aware of isolation tomorrow

1800 left site

4-Gas Meter #:

Functioning Properly (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	0700	0700
Off-site:	1800	1800
Add. Hours:	N/A	N/A
Total:	11.0	11.0

*If additional hours off-site provide description in field activities.

BEL Representative:

[Signature]

Project No.:

2018-186

Date:

12/20/18

Report No.:



BEL Daily Field Report

Site Name:

Lorain II

Page:

of

Project Name/Location:

2018 Phase II CCL3 Construction

Contractor/ Personnel:

AEG Drilling/Construction

Visitors:

Willet Engineering Survey

Weather:

AM 06

PM 08

OC - Overcast

MC - Mostly Cloudy

Temperature (°F):

AM 19

PM 24

CL - Clear

PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrived on site
 Construction trenching on 12" header to the west (2,4,0)
 1005 Willet on site for as built
 1245 Construction moving 12" valve to the east side of CS24
 Isolation from SCS 1385; begin tie in to bring the 12" header replacement section back on line along W/ (2,4,0)
 1620 completed tie in of 12" replacement header + (2,4,0); bringing completion of the 12" loop & air force main back on line after waste removal performed by overfill
 completion:
 12" header (2,4,0) north slope reconstruction; 85' moved 12" valve to the east side of CS24
 Completed tie in of 12" header (2,4,0) to complete the loop on north slope
 1730 leave site

Contractor Equipment (QTY) / Sketch

(1) 320 E
 (1) 320 F
 (1) D5
 (2) 725

4-Gas Meter #:

Functioning Properly (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	0700	0700
Off-site:	1730	1730
Add. Hours:	N/A	N/A
Total:	10.5	10.5

*If additional hours off-site provide description in field activities.

Amel India
 BEL Representative:

Project No.: 2018-186
Date: 12/21/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II Wells Construction
Contractor/ Personnel: KEG Drilling/Construction
Visitors: N/A
Weather: AM OC PM OC OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 18 PM 22 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
PRESSURE TESTS (2.3.0) entire
west side camp (rigged at
EW374R2) PASSEN
2" SDR 09 100 psi
3" SDR 11 100 psi
Pressure tests only today due
to extreme mud, however
wanted to assure pressure
tests passed due to ops
movement to our area in
the next few days

Contractor Equipment (QTY) / Sketch

(1) 320 E
(1) 320 F
(1) Δ5
(2) 725

Completion:

Pressure Tests Only (due to extreme mud)

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1000</u>	<u>1000</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>3.0</u>	<u>3.0</u>

*If additional hours off-site provide description in field activities.

Paul India
BEL Representative:

Project No.:

2018.186

Date:

12/27/18

Report No.:



BEL Daily Field Report

Site Name:

Lorain II

Page:

of

Project Name/Location:

2018 Phase II CECs Construction

Contractor/ Personnel:

AEG Drilling/Construction

Visitors:

N/A

Weather:

AM 00

PM 00

OC - Overcast

MC - Mostly Cloudy

Temperature (°F):

AM 16

PM 26

CL - Clear

PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
 Construction trenching 12" header
 * (2,3,0) through the 24" CMP
 at the road crossing between
 BW316R3 & BW316R2.
 Installed 6" T for vacuum
 source @ BW316R3 as well
 as 12" isolation riser
 Flange installed for future
 installation of the 12" valve
 stopped trenching @ high
 point to the north of the road crossing
 south of the road crossing completed installation
 of 12" 90 which will continue the 12" header to
 the east
 CMP protected prior to being backfilled such that
 no mud could enter the CMP

(1) 320 E
 (1) 320 F
 (1) D5
 (2) 725

Completion:

12" x 6" T

12" Flange

1800 leave site

4-Gas Meter #:

Functioning Properly (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	0700	0700
Off-site:	1800	1800
Add. Hours:	N/A	N/A
Total:	12.0	12.0

*If additional hours off-site provide description in field activities.

BEL Representative:

Project No.: 2018-186
Date: 12/28/18
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II Wells Construction
Contractor/ Personnel: AKG Drilling/Construction
Visitors: N/A

Weather: AM 06 PM 06
Temperature (°F): AM 22 PM 26

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
Due to muddy site conditions,
opted to perform abandonments

Completion:

Abandonments:
BW 325 R2 (BW 325 R)
BW 320 R2 (BW 320 R)
BW 324 R2 (BW 324 R)
BW 334 R2 (BW 334 R)

Contractor Equipment (QTY) / Sketch

(1) 320 E
(1) 320 F
(1) D5
(2) 725

1700 left site

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1700</u>	<u>1700</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>10.0</u>	<u>10.0</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018.186
Date: 1/2/19
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II Leach Construction
Contractor/ Personnel: ABG Drilling/Construction
Visitors: N/A
Weather: AM 06 PM 00 OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 20 PM 29 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
0720 isolation by scs for
12" isolation valve installation
+ 12" T tie in
0910 begin installation of 12"
isolation valve of east side
spur
trenching 12" header + (2,3,0)
tie in was an all day event

Completion:

12" isolation valve installation on the east side spur
12" subheader + (2,3,0) 105 linear feet
12" T tie in

* excessive time to "bench out" + uncover a significant
amount of trash to work safely in the excavation
1700 leave site while ABG continues to backfill

Contractor Equipment (QTY) / Sketch

(1) 320 E
(1) 320 F
(1) D5
(2) 725

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1700</u>	<u>1700</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>10.0</u>	<u>10.0</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018.186
Date: 1/3/19
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II COLCS Construction
Contractor/Personnel: NEG Drilling/Construction
Visitors: N/A
Weather: AM OC PM OC OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 28 PM 33 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
Construction working on trenching
12" header and (2,3,0) to the west
0930 Weekly Progress Meeting
discussed 12" jumper being
moved off of the pad & around
the pad instead; also filling
to obtain grade is not possible
at the isolation riser (current
tipper truck area) so we are
going to have to install a high point & have 10' depth
on each side
Weight came out w/ bill to approval design @ 1130;
that will be significant depth & trenching but has
been approved

Contractor Equipment (QTY) / Sketch
(1) 320 E
(1) 320 F
(1) D5
(2) 725

Completion:

12" header & (2,3,0): 58'
12" T @ BW310R3 @ 5-7' depth to supply vacuum to
BW308R3 + BW313R2

1700 left site

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1700</u>	<u>1700</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>10.0</u>	<u>10.0</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

* Extreme tough hauling due to MUD

Project No.: 2018.186
Date: 1/4/19
Report No.: _____



BEL Daily Field Report

Site Name: Lorain II Page: 1 of 1
Project Name/Location: 2018 Phase II GCS Construction
Contractor/ Personnel: NEG Drilling/Construction
Visitors: N/A
Weather: AM 06 PM 06 OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 28 PM 30 CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

0700 arrive on site
Construction continuing trenching
for 12" header + (2,3,0) for
vacuum riser BW312R2
Hauling is extremely difficult;
excavators continue to pull &
push 725s
trenching depth today 7-10'
Very slow progress to MVD

Completion:

12" subheader + (2,3,0); 100 linear feet
12"x16" T for vacuum riser BW312R2

Very slow progress due to site conditions

1700 left site

Contractor Equipment (QTY) / Sketch

(1) 320 E
(1) 320 F
(1) D5
(2) 725

4-Gas Meter #: _____ Functioning Properly (Y/N): _____

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>0700</u>	<u>0700</u>
Off-site:	<u>1700</u>	<u>1700</u>
Add. Hours:	<u>N/A</u>	<u>N/A</u>
Total:	<u>10.0</u>	<u>10.0</u>

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018.186
Date: 1/7/19
Report No.: 29



BEL Daily Field Report

Site Name: Lorain County 11 LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEG (6 personnel)

Visitors:

Weather: AM OC PM OC
Temperature (°F): AM 33°F PM 46°F

OC - Overcast MC - Mostly Cloudy

CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

700 AEG onsite

700 BEL onsite

745 AEG begins trenching from EW-312R2 towards EW-311R2 while hauling away removed garbage

900 AEG begins prefabricating proposed access riser and tee to allow tie to EW-307R3

1130 AEG trenching reaches EW-311R2

1300 AEG begins installing tee in 12" to allow for tie-in from EW-308R3

1430 AEG installs 2" air and 3" force main from EW-312R2 towards EW-311R2

1520 AEG installs 2" air and 3" force main tees to allow tie-ins to EW-307R3 and EW-308R3

1600 AEG begins backfill and installing survey risers

1700 BEL offsite

Contractor Equipment (QTY) / Sketch

Off road truck 725C

Excavator 323

Excavator 320F

4-Gas Meter #: 2012A2 Functioning Properly ☒ (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1700</u>	
Add. Hours:		
Total:	<u>10</u>	

*If additional hours off-site provide description in field activities.

BEL Representative:

Project No.: 2018.186
Date: 1/9/19
Report No.: 30



BEL Daily Field Report

Site Name: Lorain County 11 LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEG (6 personnel)
Visitors: _____
Weather: AM OC PM OC - snow OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 38°F PM 26°F CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

700 AEG onsite
700 BEL onsite
740 AEG begins trenching from EW-311R2 towards
the road crossing
1100 AEG installs 12" pipe through road culvert
1200 AEG begins install of 2" air and 3" forcemain
through road culvert
1310 AEG begins backfill
1345 AEG prefabricates 6" vacuum riser for EW-310R2
1430 AEG installs 6" vacuum, 2" air and 3" forcemain
risers at EW-310R2
1500 AEG begins backfill from the east side of road crossing
1700 BEL offsite

Contractor Equipment (QTY) / Sketch

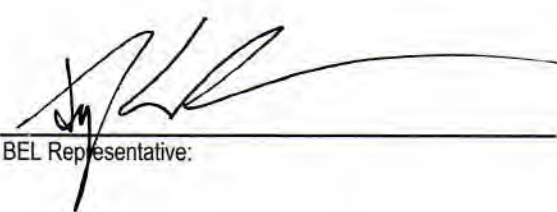
Offroad truck 725C
Excavator 320F
Excavator 323

4-Gas Meter #: 2012A2 Functioning Properly ☒ (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1700</u>	_____
Add. Hours:	_____	_____
Total:	<u>10</u>	_____

*If additional hours off-site provide description in field activities.


BEL Representative:

Project No.: 2018.186
Date: 1/10/19
Report No.: 31



BEL Daily Field Report

Site Name: Lorain County 11 LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEG (6 personnel)
Visitors: _____

Weather: AM OC PM OC OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 24°F PM 24°F CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.):

Today's SOW:

700 AEG onsite
730 BEL onsite
810 AEG begins trenching from 12" header to
EW 307R3
840 AEG begins prefabrication of 6" vacuum,
2" air and 3" force main
930 AEG begins air test of 12" vacuum
1000 AEG removes pan blank
1020 AEG begins trenching from 12" header to
EW 308R3
1200 AEG begins tie-in of laterals to EW 307R3
1310 AEG begins backfill of trench to EW 307R3
1340 AEG finishes backfill
1640 AEG begins backfill of trench to EW 308R3
1700 BEL offsite

Contractor Equipment (QTY) / Sketch

Offroad truck 725C
Excavator 320F, 323
CAT Bulldozer

4-Gas Meter #: 2012 A2 Functioning Properly ☒ (N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700 730</u>	<u>700</u>
Off-site:	<u>1700</u>	_____
Add. Hours:	_____	_____
Total:	<u>9.5</u>	_____

*If additional hours off-site provide description in field activities.

BEL Representative: _____

Project No.: 2018.186
Date: 1/11/19
Report No.: 32



BEL Daily Field Report

Site Name: Lorain County LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEG (6 personnel)
Visitors: Kyle Daniels (Wellert)
Weather: AM OC PM MC OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 24°F PM 25°F CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

700 AEG onsite
700 BEL onsite
730 AEG begins trenching at EW308R3 and
near EW310R2
930 AEG continues trenching from near
EW308R3 to EW304R2 (remote)
1100 AEG begins fusing laterals running to
EW308R3 and EW304R2 (remote)
1200 AEG completes 6" lateral to and riser at
EW304R2 (remote)
1235 AEG begins air test of 12" header and
begins tie-in of 12" header near EW310R2
1430 AEG finishes tie-in and begins backfill
1445 AEG begins tie-in of 6" vacuum at EW308R3 and abandonment of 2" air,
3" for certain and 6" vacuum at EW308R3
1600 AEG finishes abandonment and tie-in at EW308R3
1630 AEG begins backfill and hooking up EW307R3, EW311R2, EW312R2 and
EW316R3 to new vacuum
1645 AEG begins 6" abandonment near EW310R2
1715 AEG finishes abandonment
1730 BEL offsite

Contractor Equipment (QTY) / Sketch

Offroad truck 725C
Excavator 320F, 323

4-Gas Meter #: 2012A2 Functioning Properly ☒ (Y):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1730</u>	
Add. Hours:		
Total:	<u>10.5</u>	

*If additional hours off-site provide description in field activities.


BEL Representative:

Project No.: 2018.186
Date: 1/12/19
Report No.: 33



BEL Daily Field Report

Site Name: Lorain County LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEG (5 personnel)
Visitors: _____

Weather: AM OC PM OC
Temperature (°F): AM 22°F PM 28°F

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

700 AEG onsite
700 BEL onsite
820 AEG begins trenching at EW 316R3
825 AEG raises valve next to access riser
850 AEG begins abandonment of 6" vacuum
and (230) at EW 316R3
930 AEG finishes abandonment and begins
abandonment at EW 312R2
1010 AEG finishes abandonment, backfills at
EW 312R2 and begins at EW 311R2
1055 AEG finishes abandonment, backfills at
EW 311R2, and begins at EW 307R3
1125 AEG finishes abandonment, backfills at EW 307R3, and begins at
EW 304R2 (remote)
1145 AEG finishes abandonment and backfills at EW 304R2
1200 AEG backfills EW 316R3
1230 BEL offsite

Contractor Equipment (QTY) / Sketch

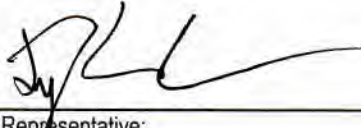
Offroad truck 725C
Excavator 320F, 323

4-Gas Meter #: 2012A2 Functioning Properly ☒ (N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1230</u>	_____
Add. Hours:	_____	_____
Total:	<u>5.5</u>	_____

*If additional hours off-site provide description in field activities.


BEL Representative:

Project No.: 2018.186
Date: 1/15/19
Report No.: 34



BEL Daily Field Report

Site Name: Lorain County LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEg (6 personnel)
Visitors: _____

Weather: AM OC PM OC
Temperature (°F): AM 21°F PM 20°F

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

700 AEG onsite
700 BEL onsite
745 AEG begins trenching from EW31GR3
1010 AEG begins attaching 12" flange connection
1120 AEG begins installing the 12" vacuum header
starting at EW31GR3
1200 AEG installs 2" air and 3" forcemain alongside
12" header
1445 AEG finishes trenching
1510 AEG begins installing survey risers
1520 AEG begins backfilling
1600 BEL offsite

Contractor Equipment (QTY) / Sketch

Offroad truck 725C
Excavator 320F, 323

4-Gas Meter #: 2012A2 Functioning Properly ☒ (N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1600</u>	_____
Add. Hours:	_____	_____
Total:	<u>9</u>	_____

*If additional hours off-site provide description in field activities.

BEL Representative: _____

Project No.: 2018.186
Date: 1/16/19
Report No.: 35



BEL Daily Field Report

Site Name: Locain County LF Page: 1 of 1
Project Name/Location: 2018 GCS
Contractor/ Personnel: AEG (7 personnel)
Visitors: _____

Weather: AM OC PM OC
Temperature (°F): AM 30°F PM 31°F

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

700 AEG onsite
700 BEL onsite
750 AEG begins installing 2' CMP
930 AEG begins trenching towards EW318R2 and
prefabricating 12", 3", and 2" risers
1140 AEG reaches EW318R2 in trenching
1350 AEG begins installing 12", 3" and 2" risers at
EW318R2
1500 AEG backfills over CMP with gravel for
road crossing.
1540 AEG begins backfill
1600 BEL offsite

Contractor Equipment (QTY) / Sketch

Excavator 323, 320F
Offroad truck 725C

4-Gas Meter #: 2012AR2 Functioning Property ☒ (Y):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1600</u>	_____
Add. Hours:	_____	_____
Total:	<u>9</u>	_____

*If additional hours off-site provide description in field activities.

BEL Representative:

Project No.: 2018.186
Date: 1/17/19
Report No.: 36



BEL Daily Field Report

Site Name: Lorain County LF Page: 1 of 1
Project Name/Location: 208 GCS
Contractor/ Personnel: AEG (6 personnel)
Visitors: _____

Weather: AM OC PM OC
Temperature (°F): AM 21°F PM 27°F

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

700 AEG onsite
700 BEL onsite
810 AEG begins trenching
910 AEG begins air test of 12" header
940 SCS begins air test of 2" air and 3" for main
AEG begins installing 3" forcemain cleanout
at EW 1310R2
1145 AEG finishes installing cleanout
1450 AEG finishes trenching at 12" access
riser
1520 AEG begins installing survey risers
1545 AEG begins backfill
1600 BEL offsite

Contractor Equipment (QTY) / Sketch

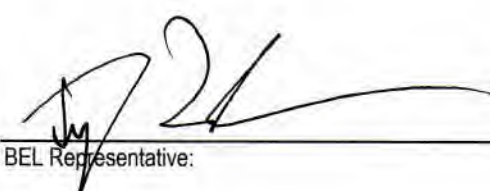
Excavator 320F, 323
Offroad truck 725C

4-Gas Meter #: 2012A2 Functioning Properly (Y/N): (Y)

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1600</u>	_____
Add. Hours:	_____	_____
Total:	<u>9</u>	_____

*If additional hours off-site provide description in field activities.


BEL Representative:

Project No.: 2018.186
Date: 1/18/19
Report No.: 37



BEL Daily Field Report

Site Name: Lorain County LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEG (7 personnel)
Visitors: _____

Weather: AM OC PM OC OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 31°F PM 33°F CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

700 AEG onsite
700 BEL onsite
745 AEG begins trenching at access riser
900 AEG begins tie-in of 12" to access riser
930 SCS begins air test of 12" air and 3"
force main at EW51R3
1000 AEG ties in EW31BR2 to new vacuum
1200 AEG uses flange connection to connect 12"
header to current 12" access riser
1310 AEG uses flange connection to connect 6"
vacuum to current 12" access riser
1330 AEG removes pan blank from 12" at EW31GR3
1410 AEG begins backfill and installing survey risers
1500 BEL offsite

Contractor Equipment (QTY) / Sketch

Excavator 323 320F
Offroad truck 725C

4-Gas Meter #: 2012A2 Functioning Properly ☒ (N):

Summary of hours worked:

	<u>BEL</u>	<u>Contractor</u>
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1500</u>	_____
Add. Hours:	_____	_____
Total:	<u>8</u>	_____

*If additional hours off-site provide description in field activities.


BEL Representative:

Project No.: 2018.186
Date: 1/22/19
Report No.: 38



BEL Daily Field Report

Site Name: Lorain County LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEG (6 personnel)
Visitors: _____

Weather: AM OC PM OC
Temperature (°F): AM 10°F PM 16°F

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

700 AEG onsite
700 BEL onsite
900 AEG begins trenching from EW314R3 towards
EW313R2
1015 AEG begins air test on 6" lateral
1300 AEG trenching reaches EW313R2 and
abandonment ~~at~~ begins
1330 AEG removes pump at EW313R2
1430 AEG begins installing 6" vacuum lateral
1620 AEG begins backfill
1650 AEG reinstalls EW313R2 well head next to
EW314R3 as a remote

Contractor Equipment (QTY) / Sketch

Excavator 323, 320F
Offroad truck 725C

1745 ~~1650~~ AEG reinstalls pump at EW313R2
1800 BEL offsite

4-Gas Meter #: 2012 Functioning Properly ☒ (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1800</u>	_____
Add. Hours:	_____	_____
Total:	<u>11</u>	_____

*If additional hours off-site provide description in field activities.

BEL Representative:

Project No.: 2018.186
Date: 1/24/19
Report No.: 39



BEL Daily Field Report

Site Name: Lorain County LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEG (6 personnel)
Visitors: _____

Weather: AM OC PM OC OC - Overcast MC - Mostly Cloudy
Temperature (°F): AM 29°F PM 27°F CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

700 AEG onsite
700 BEL onsite
825 AEG begins tie-in of 2" air and 3" forcemain at EW 345
1020 AEG begin trenching at 12" access riser at west end of 12" header
1100 AEG finishes trenching
1150 AEG begins installing 2" air and 3" forcemain isolation valves at EW 345
1430 AEG finishes installation of 2" air and 3" forcemain running to EW 345 and isolation valves and begins backfill
1450 AEG begins tie-in of 2" air and 3" forcemain at 12" riser
1525 AEG finishes backfill
1550 AEG begins air test on 2" air
1720 AEG completes 2" air tie-in at 12" riser
1800 AEG offsite
1800 BEL offsite

Contractor Equipment (QTY) / Sketch

Excavator 320F, 323
Offroad truck 725C

4-Gas Meter #: 2012A2 Functioning Property ☒ (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1800</u>	<u>1800</u>
Add. Hours:	_____	_____
Total:	<u>11</u>	<u>11</u>

*If additional hours off-site provide description in field activities.


BEL Representative:

Project No.: 2018.186
Date: 1/25/19
Report No.: 40



BEL Daily Field Report

Site Name: Lorain County LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEG (6 personnel)
Visitors: _____

Weather: AM OC PM PC
Temperature (°F): AM 13°F PM 12°F

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

700 AEG onsite
BEL onsite
740 AEG begins 2" air and 3" forcemain tie-ins at EW310R2
750 AEG begins tie-in of 3" forcemain at 12" access riser
820 AEG finishes tie-in at 12" access riser
830 AEG begins trenching at EW152R2
1145 AEG finishes tie-ins at EW310R2
1155 AEG begins prefabrication of 6" vacuum, 2" air and 3" forcemain for between EW152R2 and EW57R3
1245 AEG begins ~~abandonment~~ installing tees at EW57R3 for 6" vacuum, 2" air and 3" forcemain tie-ins
1330 AEG begins air tests on 6" vacuum, 2" air and 3" forcemain
1400 AEG begins abandonment of 6" vacuum, 2" air and 3" forcemain
1430 AEG completes air test and ~~begins tie-ins at EW57R3~~ install tees at EW57R3
1520 AEG begins tie-ins of 6" vacuum, 2" air and 3" forcemain at EW152R2
1555 AEG begins backfill and installs survey risers
~~1730 AEG finishes tie-ins at EW57R3~~ finish installing tees
1800 AEG finishes backfill
1830 AEG offsite
BEL offsite

Contractor Equipment (QTY) / Sketch

Excavator 320F, 323
Offroad truck 725C
Bulldozer

4-Gas Meter #: 2012A2 Functioning Properly ☒ (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1830</u>	<u>1830</u>
Add. Hours:	_____	_____
Total:	<u>11.5</u>	<u>11.5</u>

*If additional hours off-site provide description in field activities.


BEL Representative:

Project No.: 2018.186
Date: 1/28/19
Report No.: 41



BEL Daily Field Report

Site Name: Lorain County LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEG (5 personnel)
Visitors: _____

Weather: AM OC PM OC
Temperature (°F): AM 11°F PM 24°F

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

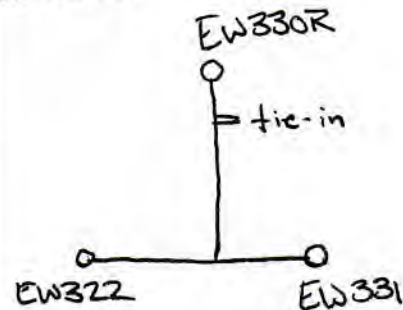
Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

700 AEG onsite
BEL onsite
800 AEG begins prefabrication of 2" and 3" risers and flattening workspace
945 AEG begins trenching near EW330R to EW322 and EW331. Garbage is moved to side slope.
1145 AEG continues trenching to EW331
1245 AEG begins install of 2" air and 3" force main risers at EW330R
1320 AEG begins installing tees for tie-in and begins covering removed trash with dirt.
1410 AEG begins installing tees for laterals between EW331 and EW322.
1500 AEG finishes cover and begins installing 2" and 3" risers at EW331
1520 AEG finishes riser installation at EW331
1605 AEG begins air test on 2" air and 3" force main and begins backfill.
1705 AEG finishes air test and begins tie-ins of 2" air and 3" force main.
1740 AEG finishes tie-ins
1755 AEG finishes backfill
1800 BEL offsite

Contractor Equipment (QTY) / Sketch

Excavator 323, 320F
Offroad truck 725
Bulldozer



4-Gas Meter #: 2072A2 Functioning Properly ☒ (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1800</u>	
Add. Hours:		
Total:	<u>11</u>	

*If additional hours off-site provide description in field activities.

BEL Representative:

Project No.: 2018.186
Date: 1/29/19
Report No.: 42



BEL Daily Field Report

Site Name: Lorain County LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEG (6 personnel)
Visitors: _____

Weather: AM OC PM _____
Temperature (°F): AM 16°F PM _____

OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Today's SOW:

900 BEL onsite
AEG already onsite
1000 AEG begin prefabricating 6" lateral and riser
1140 AEG begins air test on 6" lateral
1240 AEG completes air test on 6" lateral
1300 BEL offsite
AEG finishes day dressing up and cleaning up.

Contractor Equipment (QTY) / Sketch

Excavator 323, 326F
Offroad truck 725C
CAT Bulldozer

4-Gas Meter #: 2012A2 Functioning Properly ☒ (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>900</u>	_____
Off-site:	<u>1300</u>	_____
Add. Hours:	_____	_____
Total:	<u>4</u>	_____

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

Project No.: 2018.186
Date: 2/1/19
Report No.: 43



BEL Daily Field Report

Site Name: Lorain County LF Page: 1 of 1
Project Name/Location: 2018 GCCS
Contractor/ Personnel: AEG (7 personnel)
Visitors: Kyle Danals (Weller)
Weather: AM OC (snow) PM PC
Temperature (°F): AM 7°F PM 9°F
OC - Overcast MC - Mostly Cloudy
CL - Clear PC - Partly Cloudy

Description of field activities (include labor, equipment, site conditions, sampling, etc.):

Today's SOW:

700 AEG onsite

BEL onsite

745 AEG begins trenching from 12" access riser to
EW317R2

810 AEG begins prefabrication of 12" tee and
6" risers

945 AEG finishes prefabrication of 12" tee and
6" risers

1100 AEG begins fusing tee at 12" access riser

1345 AEG trenching reaches EW317R2

1400 AEG begins installing 6" riser at
EW317R2 and begins trenching towards EW345

1500 AEG attaches vacuum at EW317R2

1520 AEG installs 6" riser at EW345

1530 AEG abandons 6" at EW345 and begins backfill

1545 AEG abandons 6" at EW317R2

1640 AEG finishes backfill, begins removing survey risers and begins finishing
dressing up

1800 AEG finishes pulling survey risers
BEL offsite

Contractor Equipment (QTY) / Sketch

Excavator 323, 320F
offroad truck 725C
CAT Bulldozer

4-Gas Meter #: 202A2 Functioning Properly ☒ (Y/N):

Summary of hours worked:

	*BEL	Contractor
On-site:	<u>700</u>	<u>700</u>
Off-site:	<u>1800</u>	
Add. Hours:		
Total:	<u>11</u>	

*If additional hours off-site provide description in field activities.

[Signature]
BEL Representative:

APPENDIX E
RESUMES

Janet Todia

SENIOR PROJECT MANAGER
BEL ENVIRONMENTAL ENGINEERING, LLC



TOTAL EXPERIENCE: 20 Years

WORK HISTORY:

- ❖ BEL Environmental Engineering, LLC – 1 Year
- ❖ T&M Associates – 3 Years
- ❖ Brown and Caldwell – 3 Years
- ❖ American Environmental Group – 6 years
- ❖ Environmental Information Logistics – 2 Years
- ❖ Monitoring Control and Compliance – 2 years
- ❖ Tyco Corporation – 1 Year
- ❖ Emcon/OWT – 3 Years

EDUCATION:

- ❖ University of Toledo College of Pharmacy

PROFESSIONAL REGISTRATION:

- ❖ John Zinc Landfill Gas Flare School, 2007-2010 Annually
- ❖ 40 Hour Hazmat Certification and Current 8 Hour OSHA Refresher
- ❖ NSPS/EG & Title V Compliance Training, 2007 – 2011 Annually
- ❖ 8 Hour OSHA Project Supervisor Training
- ❖ Hydraulic Conductivity & Triaxial Shear, 2017

QUALIFICATION HIGHLIGHTS:

- ❖ Ms. Todia has extensive experience and knowledge of every aspect of landfill design, landfill gas CQA, GCCSs, construction, compliance, operations, maintenance, closure and post-closure care.
- ❖ She has extensive experience in managing multidisciplinary project teams and directing professional consultants and contractors during project planning and execution.
- ❖ She has assessed, designed, planned, implemented and/or executed landfill fire, landfill dross reaction, GCCS investigations and remediation projects under state law, CERCLA, RCRA and/or other regulatory programs, as appropriate, in several US States.

RELEVANT PROJECT EXPERIENCE

Gas Collection and Control System Construction Quality Assurance Projects

Lorain County II Landfill: 2013 Phase 4 and 2014 Phase 1 GCCS Construction, December 10, 2013 – March 31, 2014

Managed construction and quality control assurance for the installation of:

- 2,370 linear feet 6" SDR17 lateral piping to connect the new extraction wells and replacement wells on line with the existing GCCS
- 720 linear feet of 12" SDR17 subheader
- 4,336 linear feet of compressed air and force main system to connect extraction pumps for leachate and condensate extraction (3" force main, 3" airline, 4" force main)
- 1,243 feet total drilling depth (18 wells)
- 3 pneumatic well pumps

Lorain County II Landfill: 2014 Phase 2 GCCS Construction, April 1, 2014 – July 16, 2014

Managed construction and quality control assurance for the installation of:

- 2,100 linear feet 6" SDR17 lateral piping to connect the new extraction wells and replacement wells on line with the existing GCCS
- 910 linear feet of 24" SDR26 subheader to extend the main header system
- 2,565 linear feet of 6" perforated SDR17 horizontal collector piping
- 630 linear feet of 12" SDR17 subheader to extend the main header system
- 10,811 linear feet of compressed air and force main system to connect extraction pumps for leachate and condensate extraction (2" airline, 4" force main, 3" force main, 2" x 4" dual contained force main, 4" x 8" dual contained force main)
- 1,645 feet total drilling depth (18 wells)
- 14 pneumatic well pumps

Lorain County II Landfill: 2014 Phase 3 GCCS Construction, November 17, 2014 – December 20, 2014

Managed construction and quality control assurance for the installation of:

- 754 linear feet 6" SDR17 lateral piping to connect the new extraction wells and replacement wells on line with the existing GCCS
- 327 linear feet 8" SDR17 lateral piping to connect the new extraction wells and replacement wells on line with the existing GCCS
- 1,004 linear feet of 12" SDR17 subheader to extend the main header system
- 503 linear feet of 18" SDR17 subheader to extend the main header system

- ❖ Ms. Todia has routinely worked in cooperation with state, including the TDEQ, OEPA, PADEP, federal, and local regulatory agencies on problem resolution as well as project scope, planning, schedule and execution.
- ❖ She has managed landfill operations and maintenance including environmental compliance for 14 active and/or closed landfills
- ❖ She has managed an Operations and Maintenance Team consisting of 12 Technicians spread across 8 States. Responsibilities include managing, mentoring and development of the Operations and Maintenance staff.
- ❖ Ms. Todia also managed a team of 4 Data Compliance Managers prior to the implementation of National Database Systems to manage and monitor well field data.

- 444 linear feet of compressed air and force main system to connect extraction pumps for leachate and condensate extraction (2" airline, 2" force main, 2" x 4" dual contained force main)
- 937 feet total drilling depth (11 wells)
- 3 pneumatic well pumps

Lorain County II Landfill: 2015 Phase 1 GCCS Construction, January 19, 2015 – May 3, 2015

Managed construction and quality control assurance for the installation of:

- 1,830 linear feet 6" SDR17 lateral piping to connect the new extraction wells and replacement wells on line with the existing GCCS
- 1,179 linear feet of 12" SDR17 subheader to extend the main header system
- 272 linear feet of 24" SDR26 subheader to extend the main header system
- 120 linear feet of 24" SDR32.5 transmission line header to repair an impacted pipe in the gas transmission service line to the power plant on site
- 11,773 linear feet of compressed air and force main system to connect extraction pumps for leachate and condensate extraction (2" airline, 2" force main, 3" force main, 4" force main, 2" x 4" dual contained force main, 4" x 8" dual contained force main)
- 2,015 feet total drilling depth (21 wells)
- 21 pneumatic well pumps

Lorain County II Landfill: 2016 Phase 1 GCCS Construction, February 28, 2016 – June 30, 2016

Managed construction and quality control assurance for the installation of:

- 3,523 linear feet 6" SDR17 lateral piping to connect the new extraction wells and replacement wells on line with the existing GCCS
- 1,063 linear feet of 12" SDR17 subheader to extend the main header system
- 17,627 linear feet of compressed air and force main system to connect extraction pumps for leachate and condensate extraction (2" airline, 3" force main, 4" force main, 2" x 4" dual contained force main, 3" x 6" dual contained force main)
- 1,318 feet total drilling depth (16 wells)
- 12 pneumatic well pumps

Port Clinton Landfill: 2016 GCCS Construction, July 27, 2016 – August 10, 2016

Managed construction and quality control assurance for the installation of:

- 553 linear feet 6" SDR17 lateral piping to connect the new extraction wells and replacement wells on line with the existing GCCS
- 1,652 linear feet of compressed air and force main system to connect extraction pumps for leachate and condensate extraction (2" airline, 3" force main, 3" x 6" dual contained force main)
- 199 feet total drilling depth (4 wells)
- 2 pneumatic well pumps

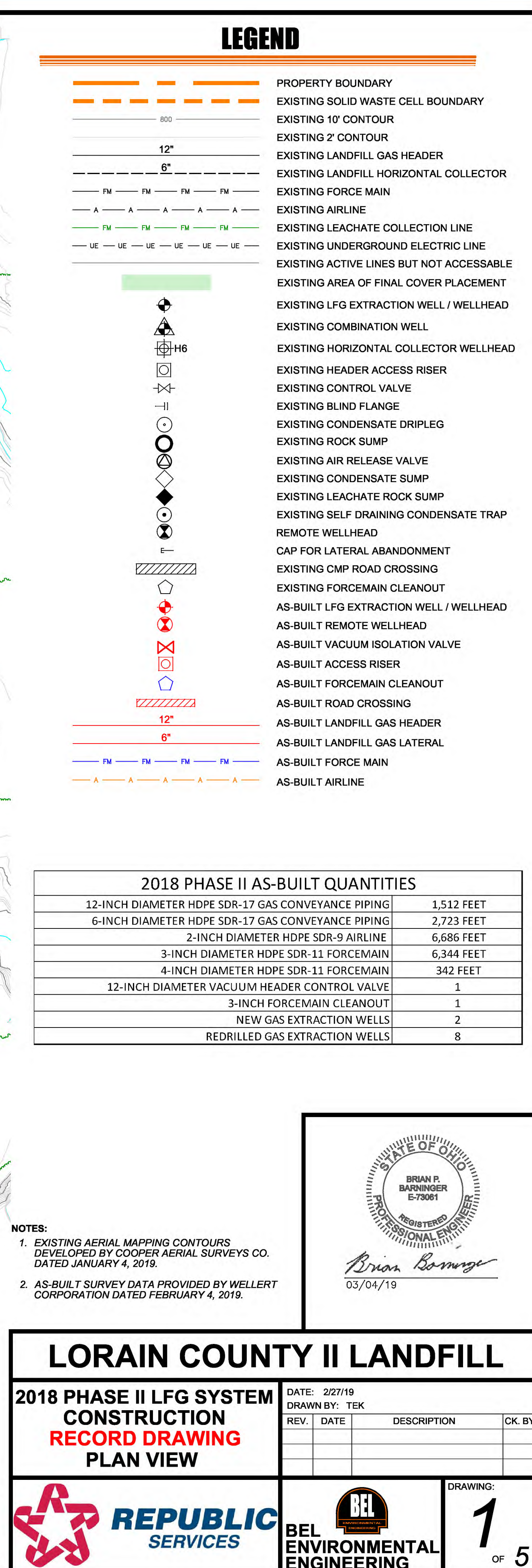
Lorain County II Landfill: 2016 Phase 2 GCCS Construction, September 28, 2016 – February 17, 2017

Managed construction and quality control assurance for the installation of:

- 3,170 linear feet 6" SDR17 lateral piping to connect the new extraction wells and replacement wells on line with the existing GCCS
- 1,403 linear feet of 12" SDR17 subheader piping to connect the new extraction wells and replacement wells with the existing GCCS
- 6,616 linear feet of compressed air and force main system to connect extraction pumps for leachate and condensate extraction (2" airline, 2" x 4" force main, 3" diameter force main, and 4" diameter force main)
- 1,254 feet total drilling depth (18 wells)
- 18 pneumatic well pumps

APPENDIX F
RECORD DRAWINGS

<u>Sheet No.</u>	<u>Drawing Title</u>
1	2018 Phase II LFG System Construction - Plan View
2	2018 Phase II LFG System Construction - Details and Well Schedule
3	2018 Phase II LFG System Construction- Details
4	2018 Phase II LFG System Construction - Details
5	2018 Phase II LFG System Construction - Details
6	2018 Phase II LFG System Construction - Survey Points



2018 PHASE II AS-BUILT QUANTITIES	
12-INCH DIAMETER HDPE SDR-17 GAS CONVEYANCE PIPING	1,512 FEET
6-INCH DIAMETER HDPE SDR-17 GAS CONVEYANCE PIPING	2,723 FEET
2-INCH DIAMETER HDPE SDR-9 AIRLINE	6,686 FEET
3-INCH DIAMETER HDPE SDR-11 FORCEMAIN	6,344 FEET
4-INCH DIAMETER HDPE SDR-11 FORCEMAIN	342 FEET
12-INCH DIAMETER VACUUM HEADER CONTROL VALVE	1
3-INCH FORCEMAIN CLEANOUT	1
NEW GAS EXTRACTION WELLS	2
REDRILLED GAS EXTRACTION WELLS	8

NOTES:

1. EXISTING AERIAL MAPPING CONTOURS DEVELOPED BY COOPER AERIAL SURVEYS CO. DATED JANUARY 4, 2019.
2. AS-BUILT SURVEY DATA PROVIDED BY WELLERT CORPORATION DATED FEBRUARY 4, 2019.



Brian Kormige
03/04/19

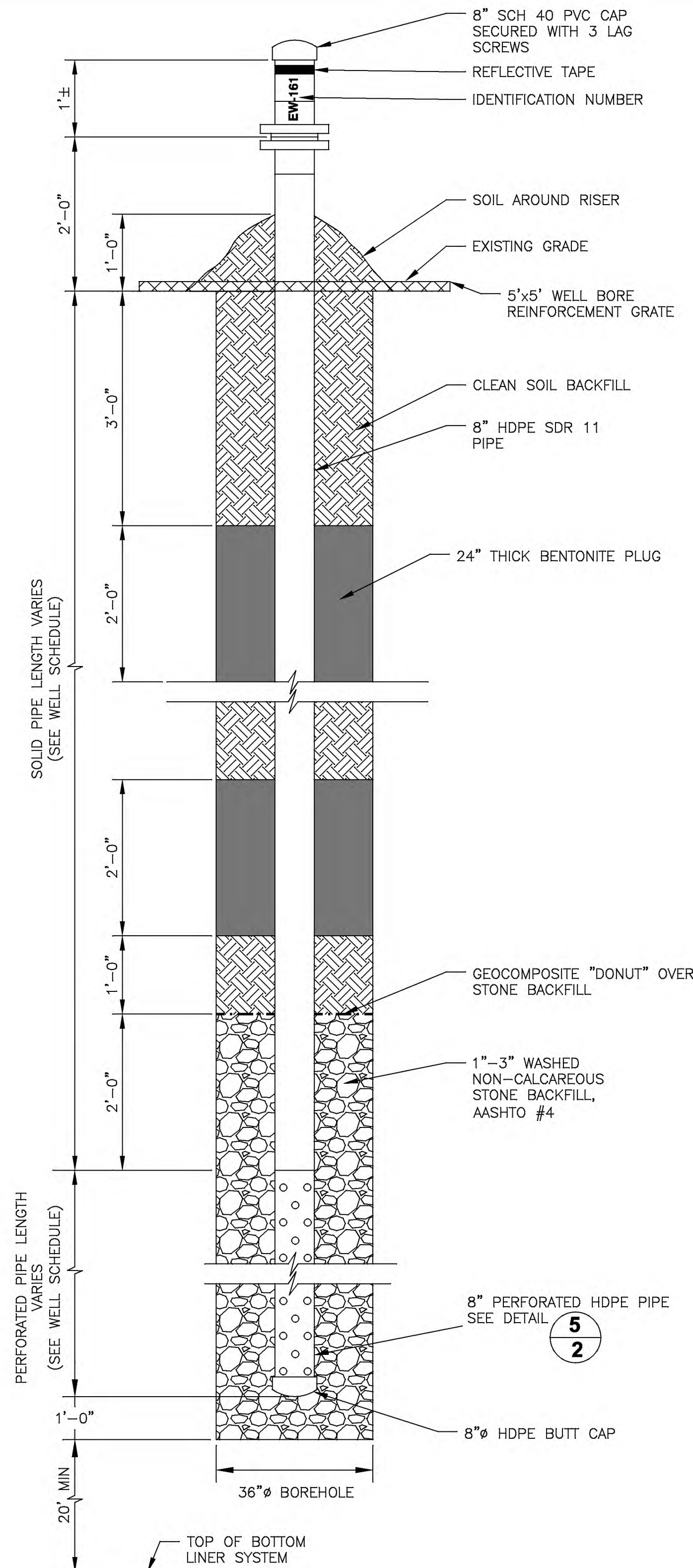
LORAIN COUNTY II LANDFILL

**2018 PHASE II LFG SYSTEM
CONSTRUCTION
RECORD DRAWING
PLAN VIEW**

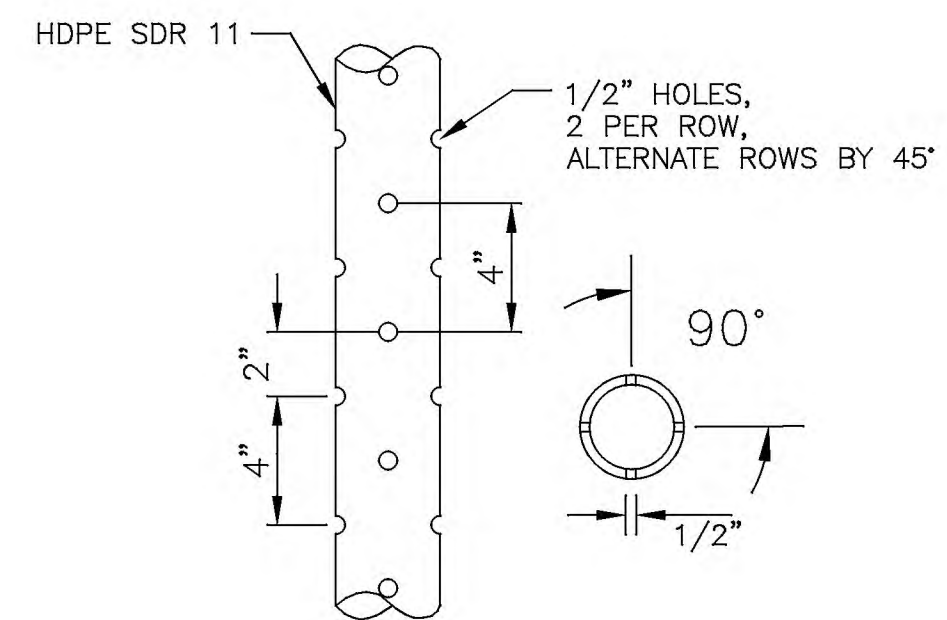


BEL
ENVIRONMENTAL
ENGINEERING

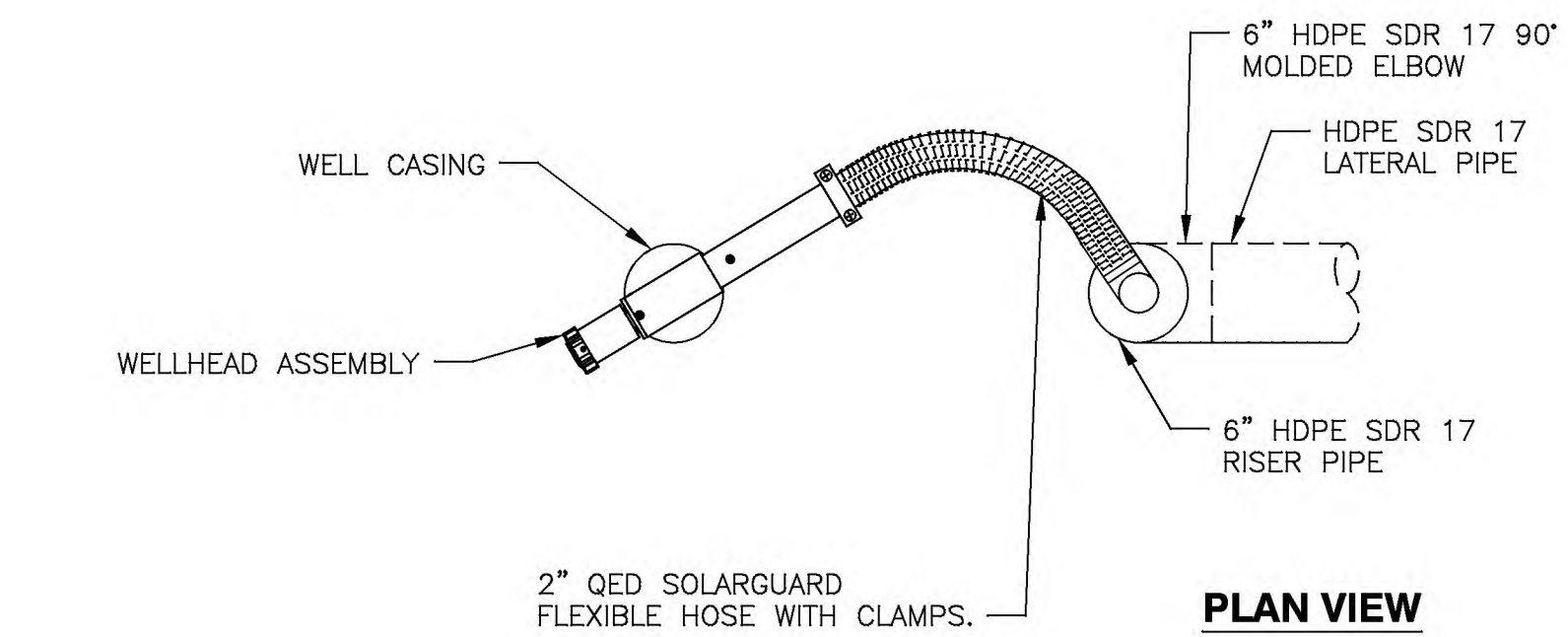
DRAWING:
1
OF **5**



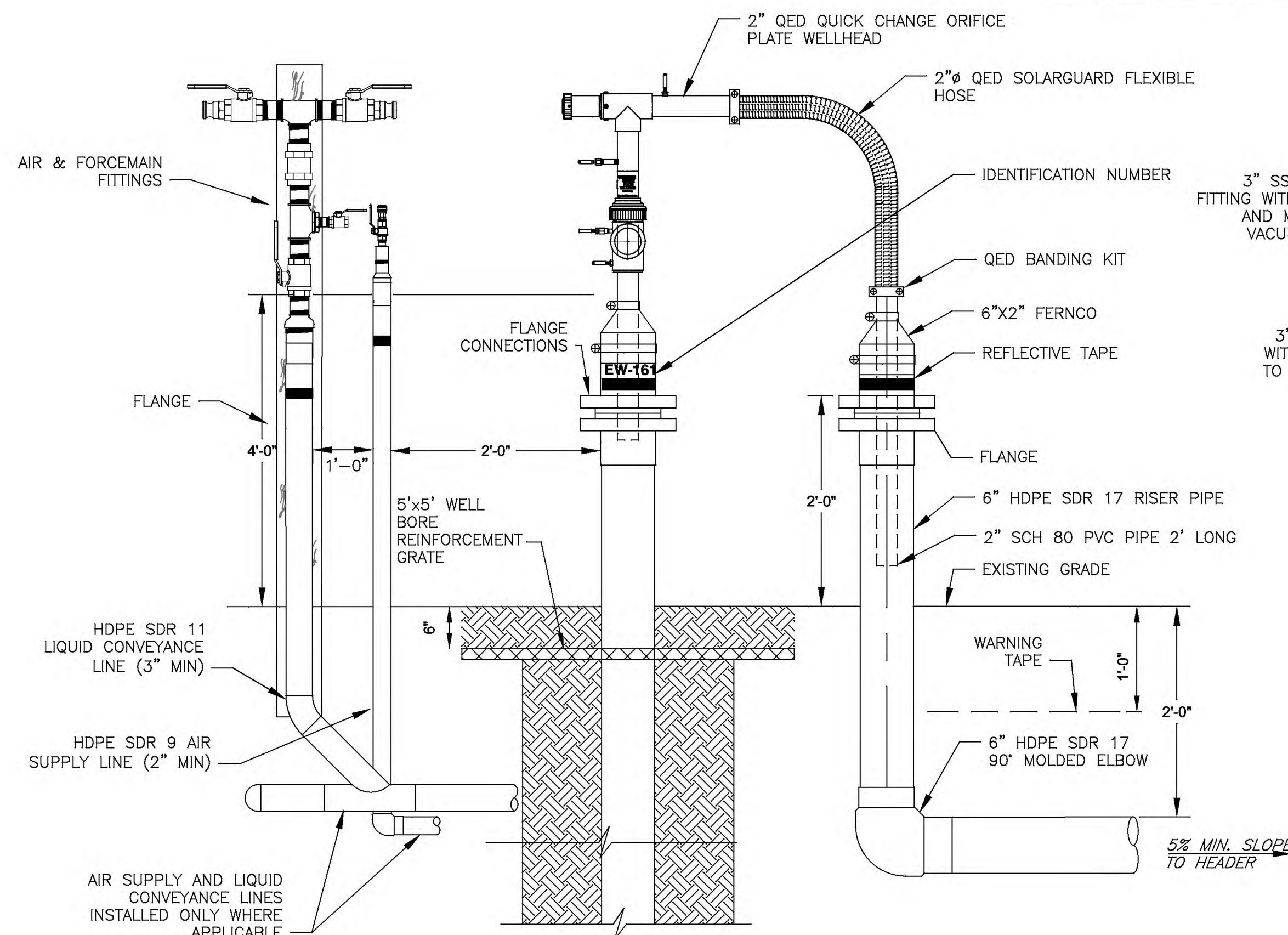
LFG EXTRACTION WELL DETAIL 1
2
NOT TO SCALE



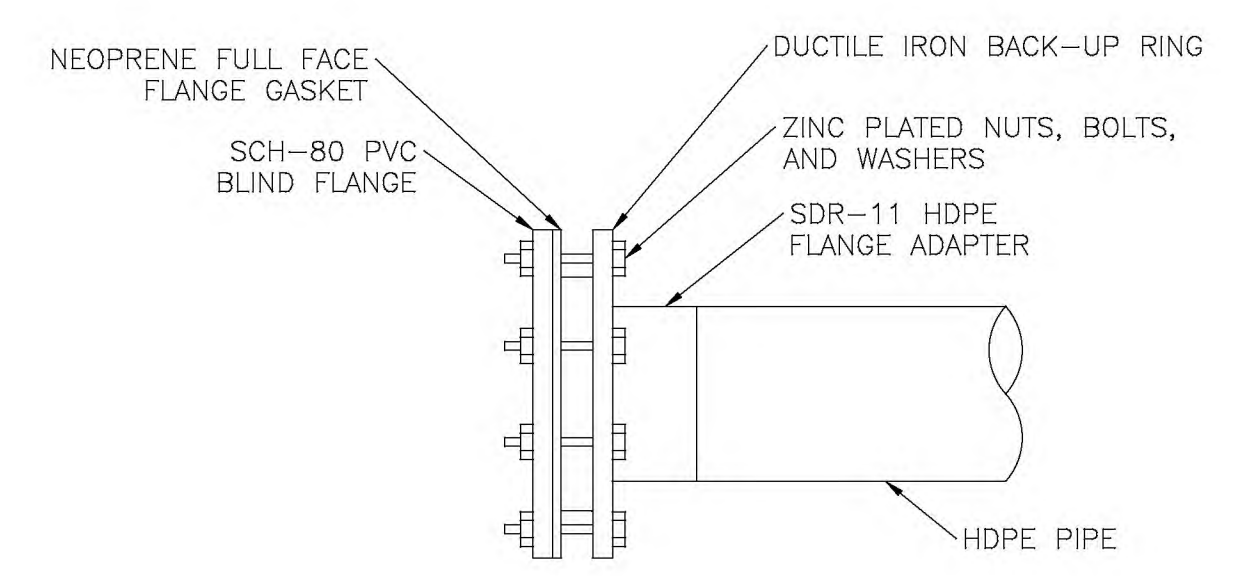
PERFORATED PIPE DETAIL 5
2
NOT TO SCALE



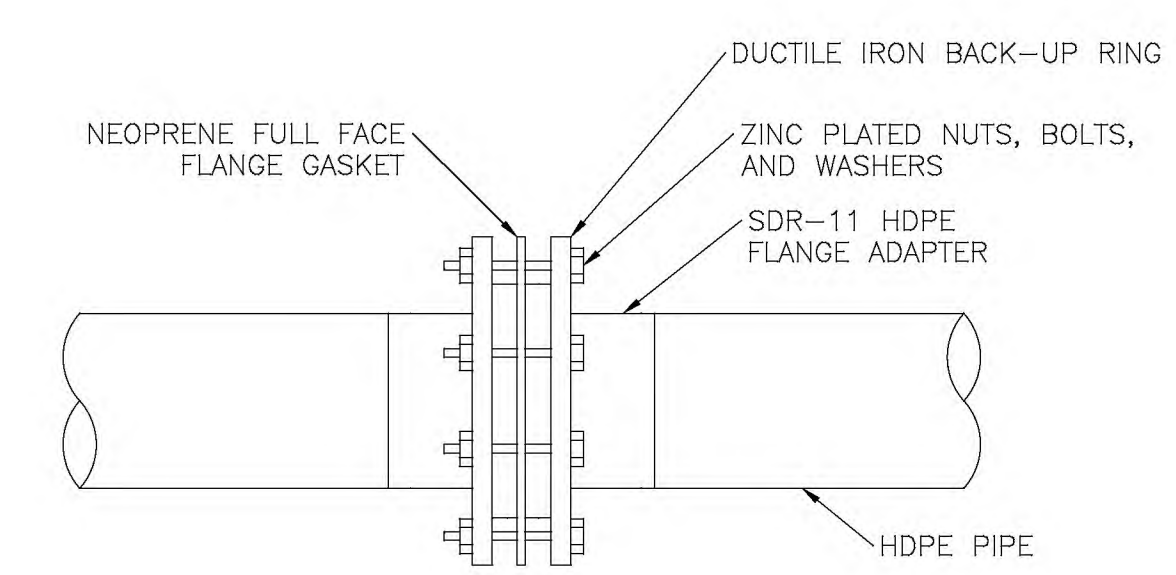
PLAN VIEW



WELLHEAD DETAIL 2
2
NOT TO SCALE

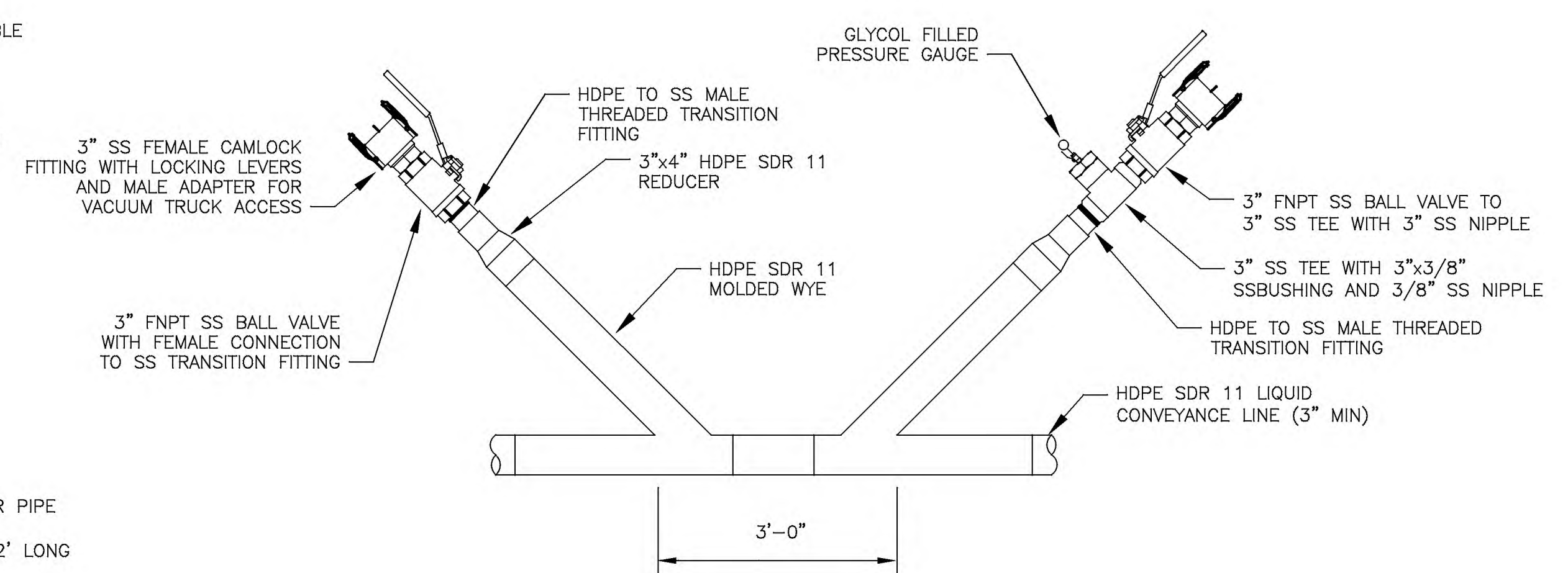


BLIND FLANGE ASSEMBLY DETAIL 6
2
NOT TO SCALE

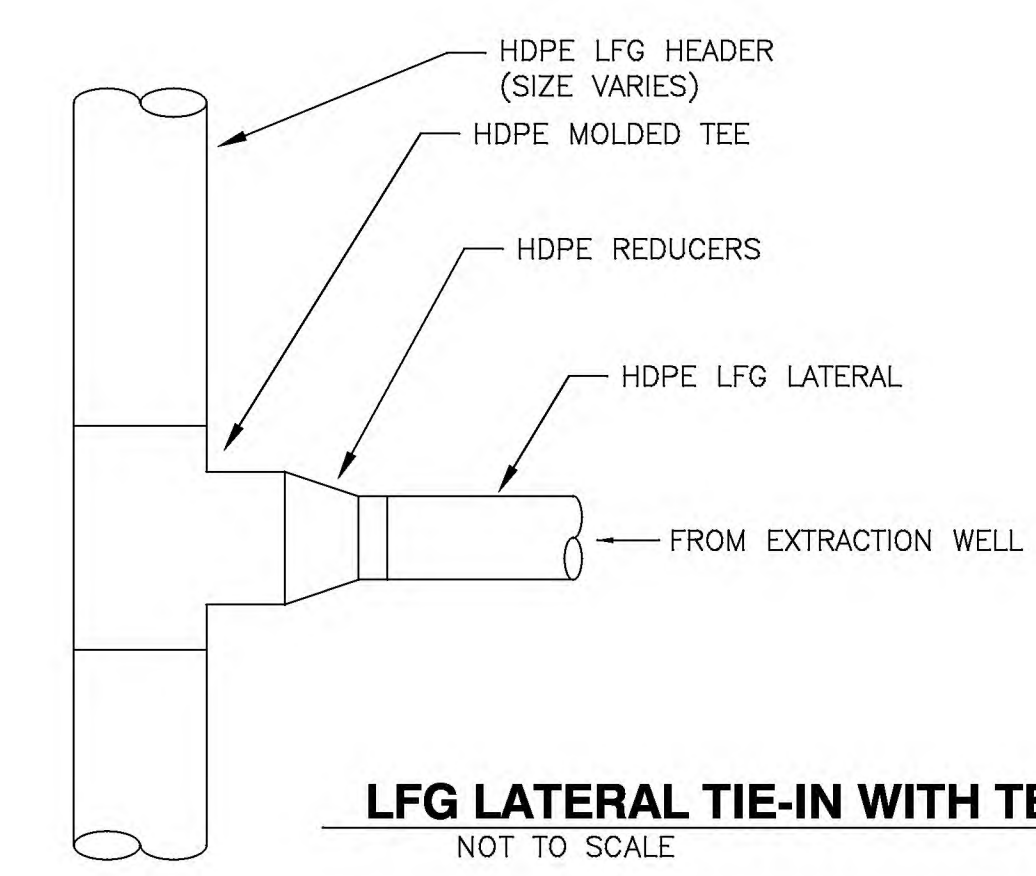


FLANGE CONNECTION DETAIL 7
2
NOT TO SCALE

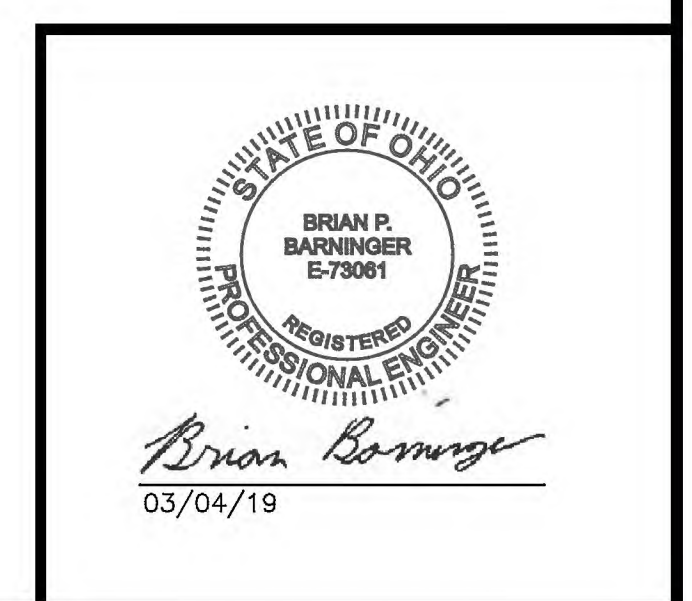
2018 LORAIN COUNTY PHASE II AS-BUILT WELL SCHEDULE											
WELL ID	NORTHING (FT)	EASTING (FT)	APPROX. ELEVATION (FT)		BOREHOLE DEPTH (FT)	PIPE LENGTH (FT)			THICKNESS OF GRAVEL PACK (FT)	WELL CASING DIA. (IN)	FINAL COVER REPAIR
			GROUND SURFACE	BOTTOM OF BOREHOLE		PERFORATED	SOLID WALL	ABOVE GRADE RISER			
EW-323R4	597,856	2,059,094	909	799	110	89	20	3	92	8	NO
EW-318R2	598,086	2,059,079	905	785	120	99	20	3	102	8	NO
EW-365	598,444	2,058,975	890	770	120	99	20	3	102	8	NO
EW-358	598,447	2,058,601	864	770	94	73	20	3	76	8	NO
EW-324R2	597,960	2,058,929	908	788	120	99	20	3	102	8	NO
EW-341R2	598,730	2,059,531	856	755	101	80	20	3	83	8	NO
EW-334R2	598,249	2,058,767	882	762	120	99	20	3	102	8	NO
EW-319R2	598,114	2,058,824	903	801	102	81	20	3	84	8	NO
EW-325R2	597,951	2,058,699	927	807	120	99	20	3	102	8	NO
EW-320R2	598,153	2,058,651	891	771	120	99	20	3	102	8	NO



LIQUID CONVEYANCE CLEANOUT DETAIL 3
2
NOT TO SCALE



LFG LATERAL TIE-IN WITH TEE 4
2
NOT TO SCALE



LORAIN COUNTY II LANDFILL

2018 PHASE II LFG SYSTEM CONSTRUCTION

RECORD DRAWING

DETAILS & WELL SCHEDULE

DATE: 2/27/19
DRAWN BY: TEK

REV.	DATE	DESCRIPTION	CK. BY

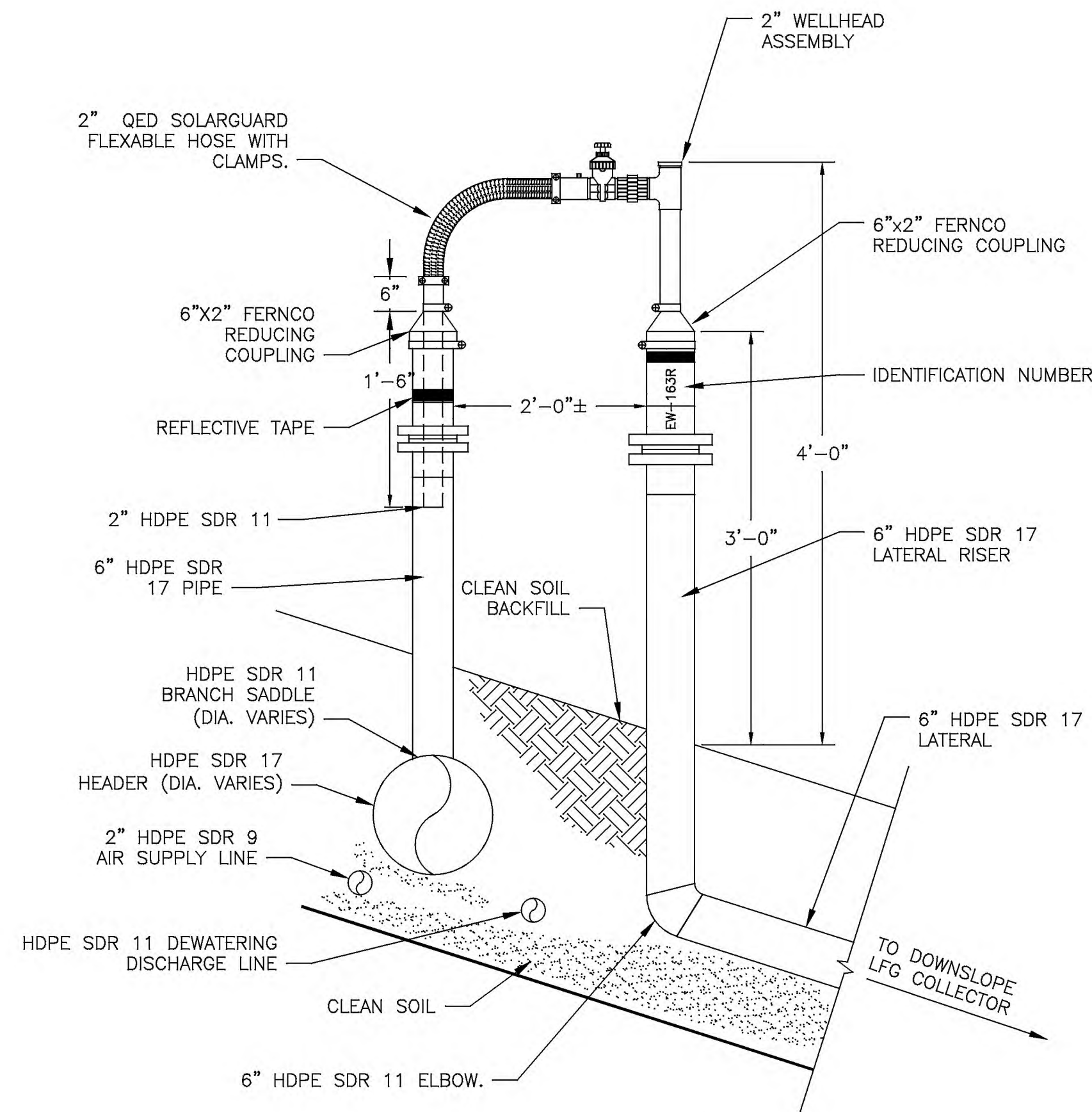
REPUBLIC SERVICES

BEL ENVIRONMENTAL ENGINEERING

DRAWING:

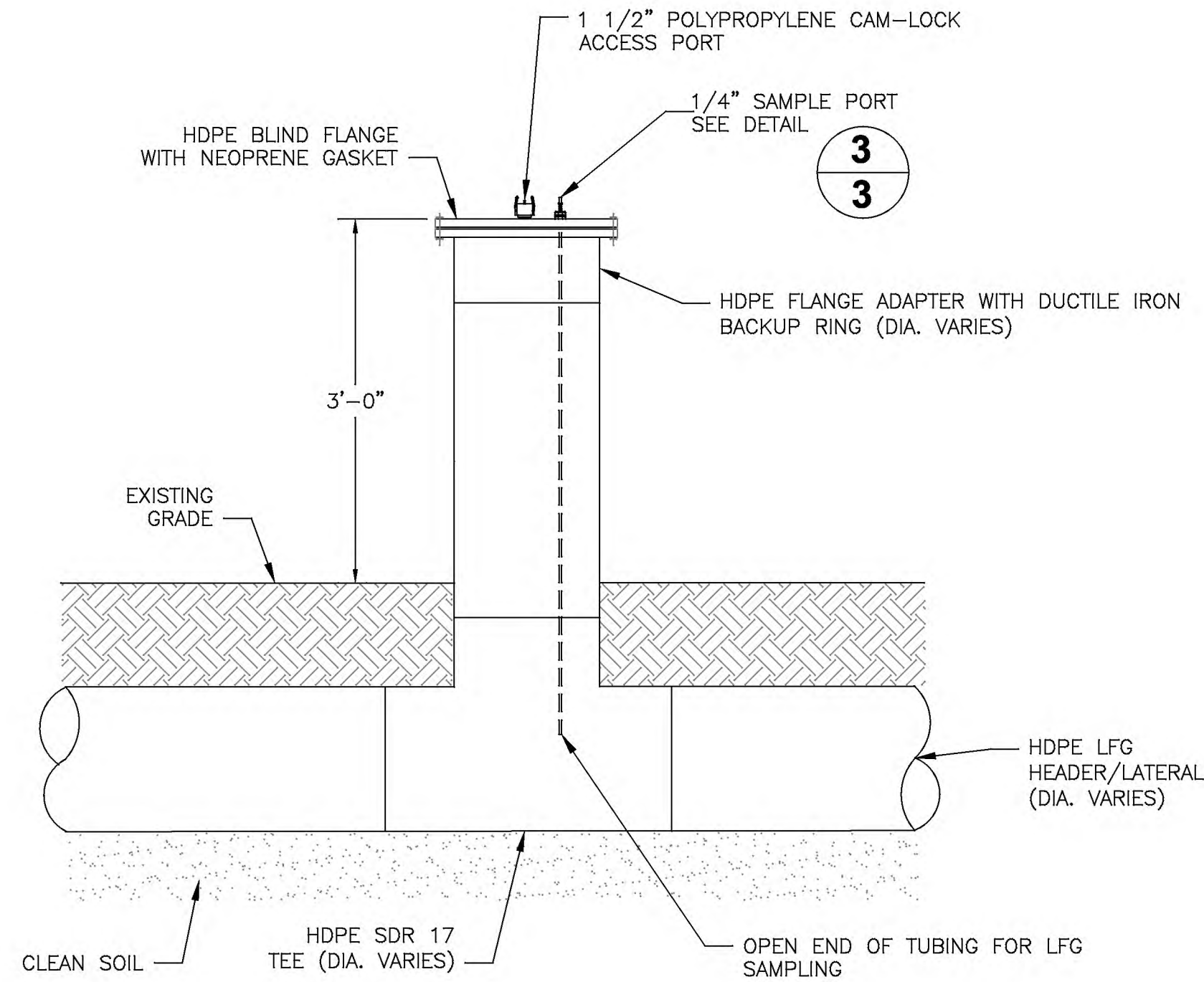
2

OF 5



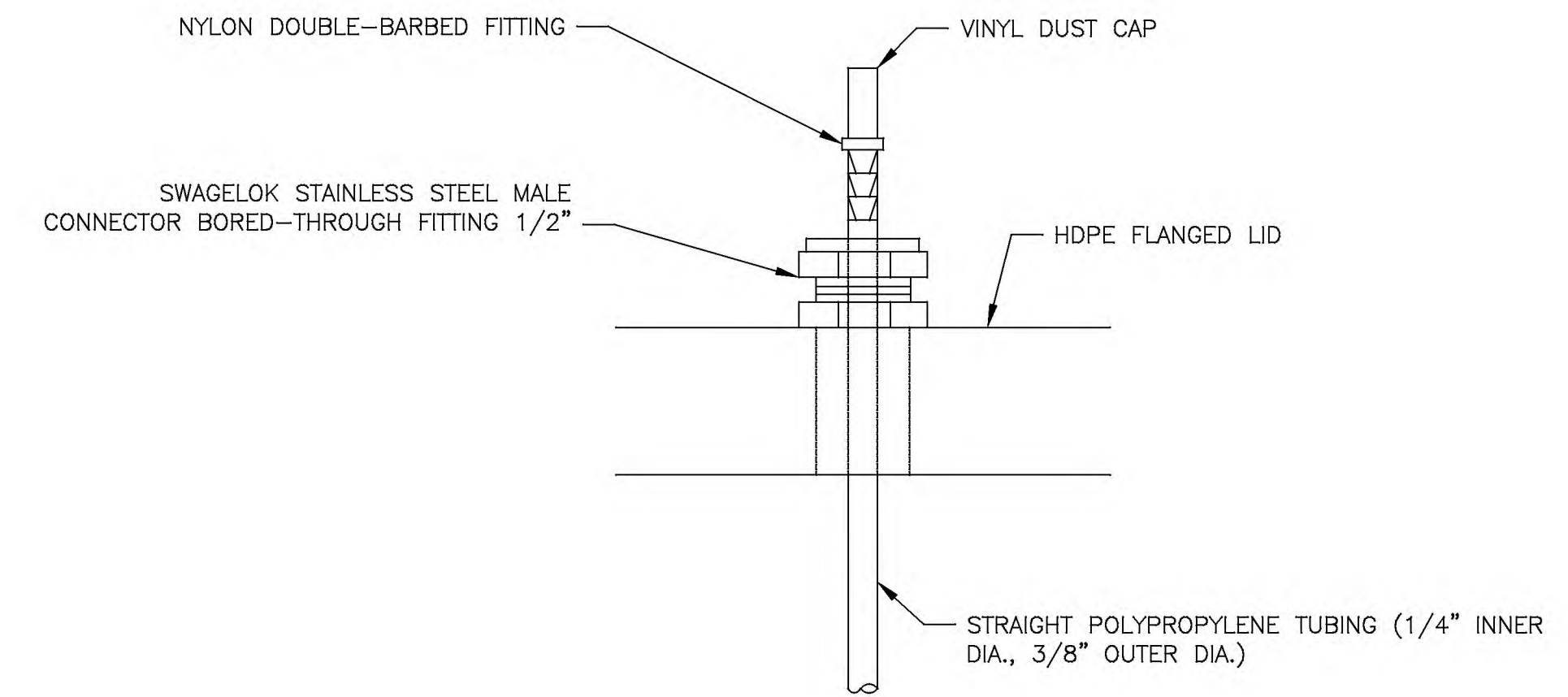
REMOTE WELLHEAD DETAIL
NOT TO SCALE

1
3



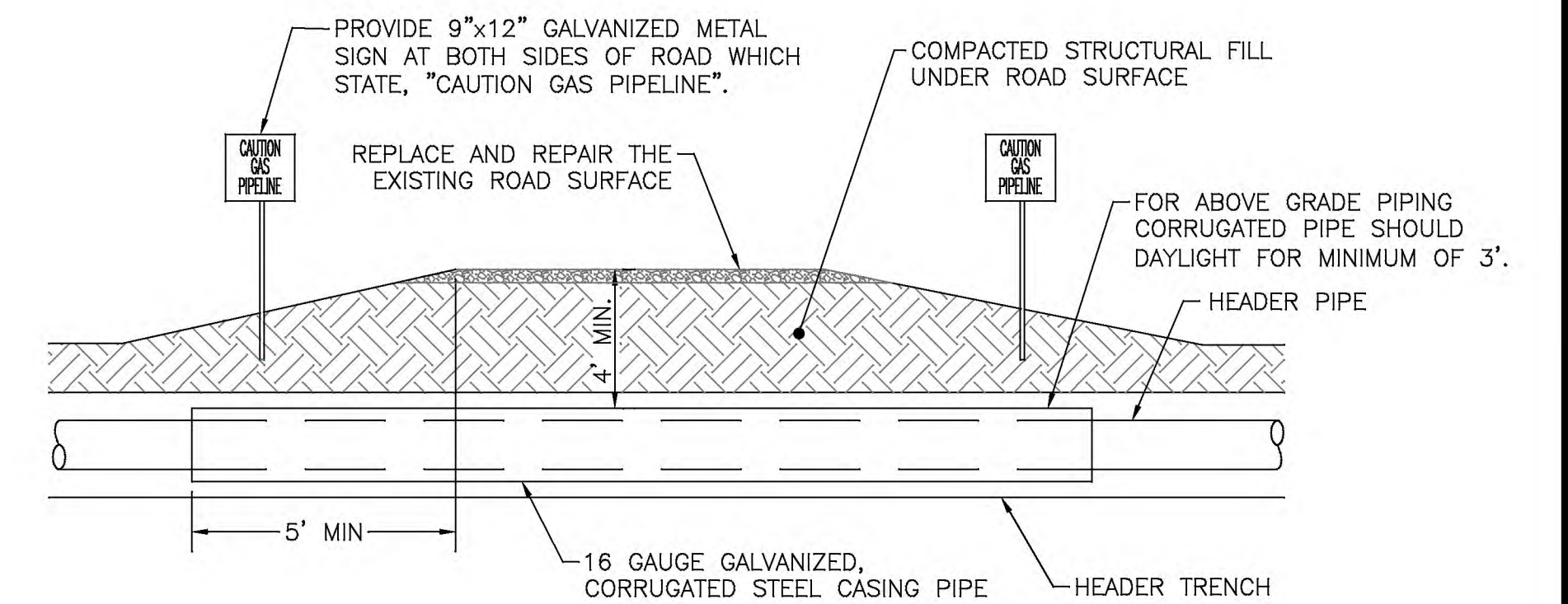
ACCESS RISER DETAIL
NOT TO SCALE

2
3



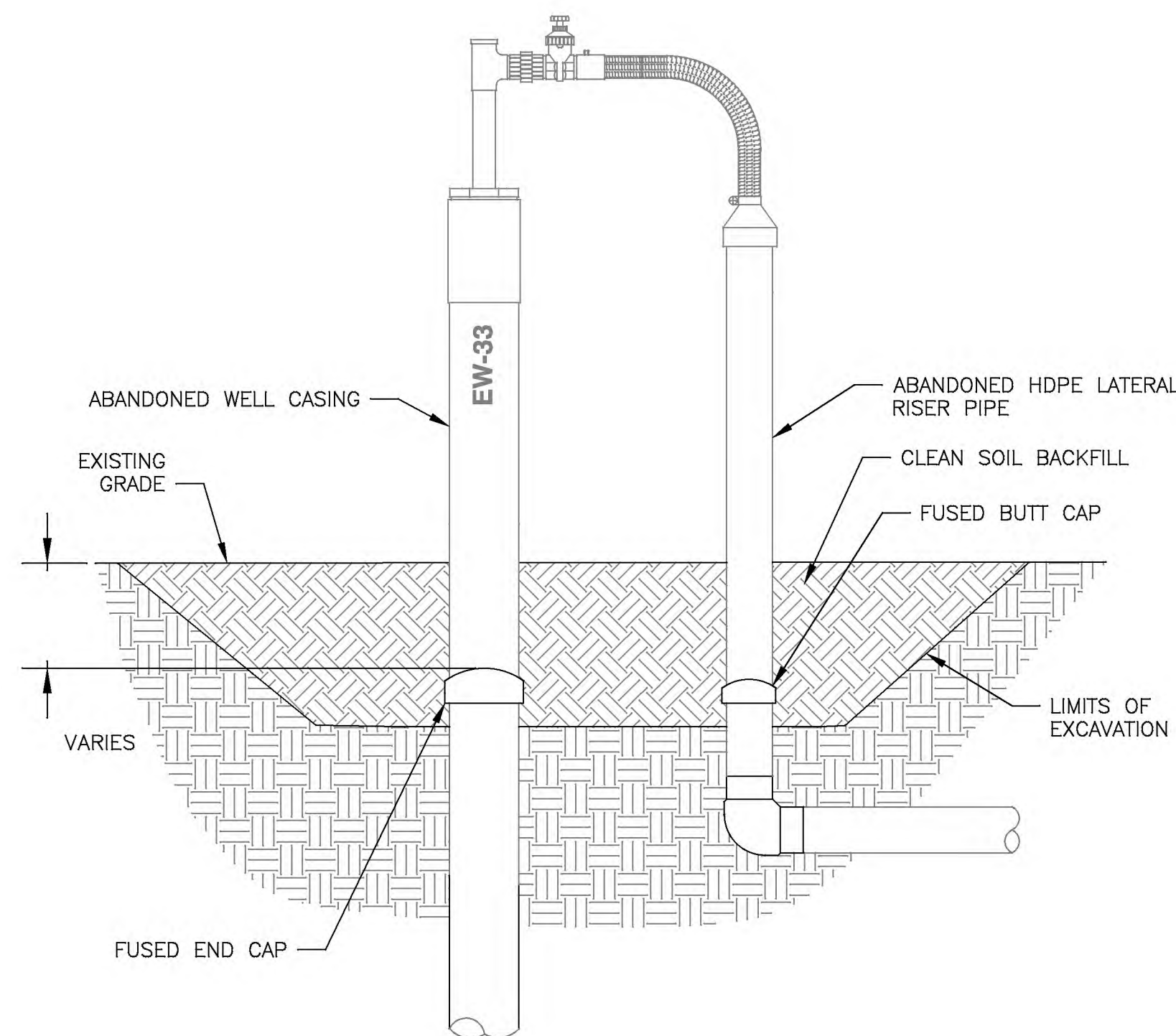
MONITORING PORT DETAIL (TYP.)
NOT TO SCALE

3
3



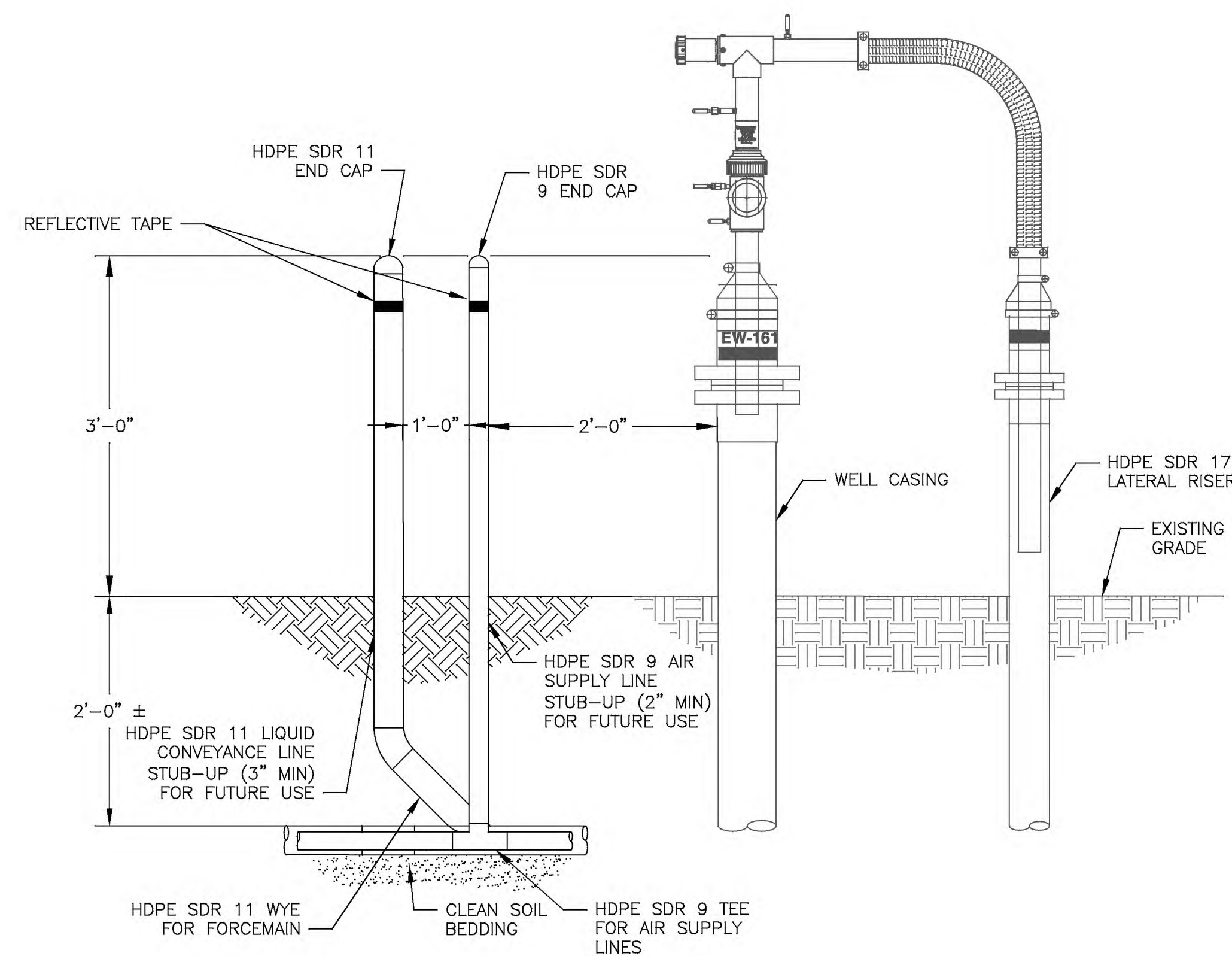
TYPICAL ROAD CROSSING DETAIL
NOT TO SCALE

4
3



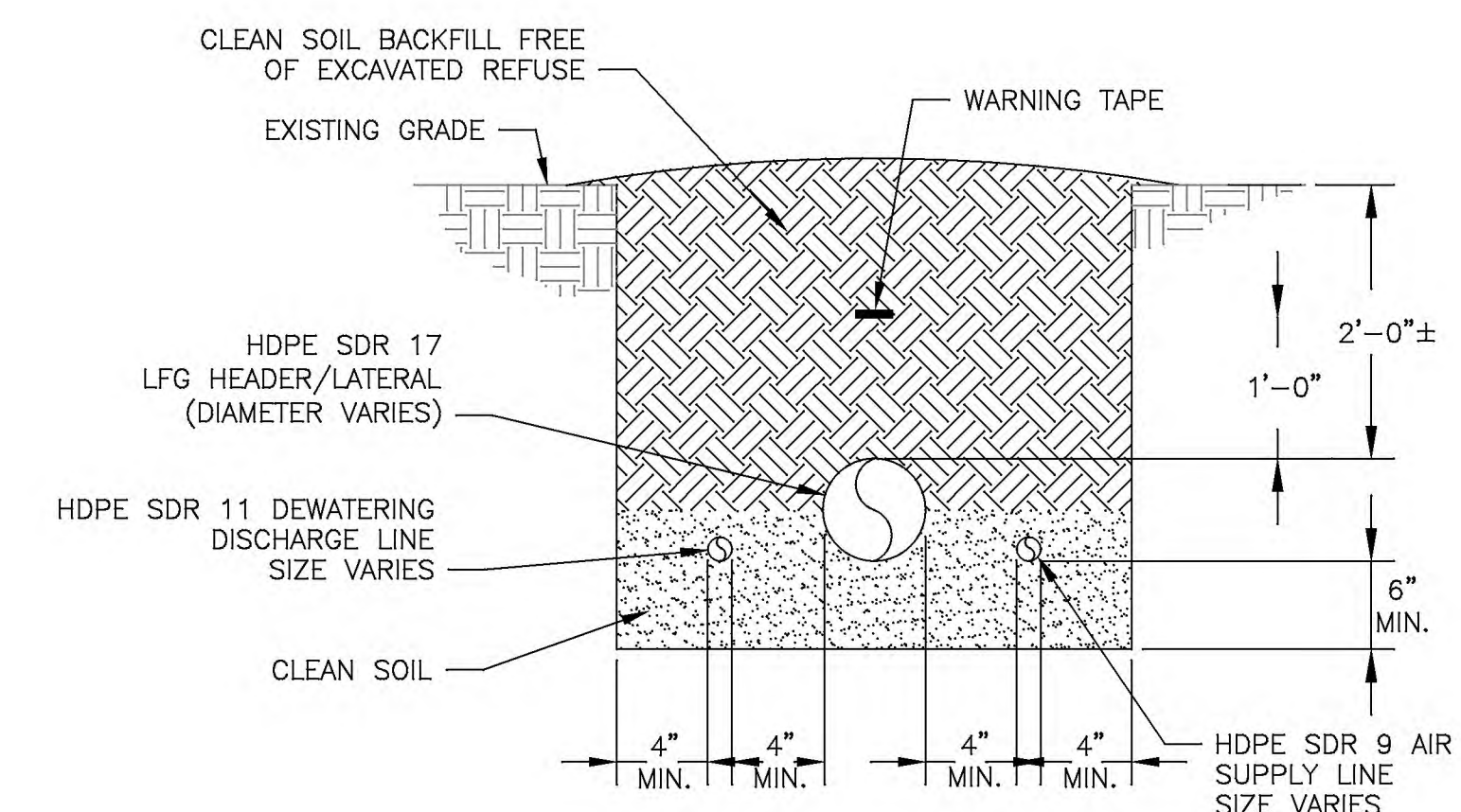
WELL ABANDONMENT DETAIL
NOT TO SCALE

5
3



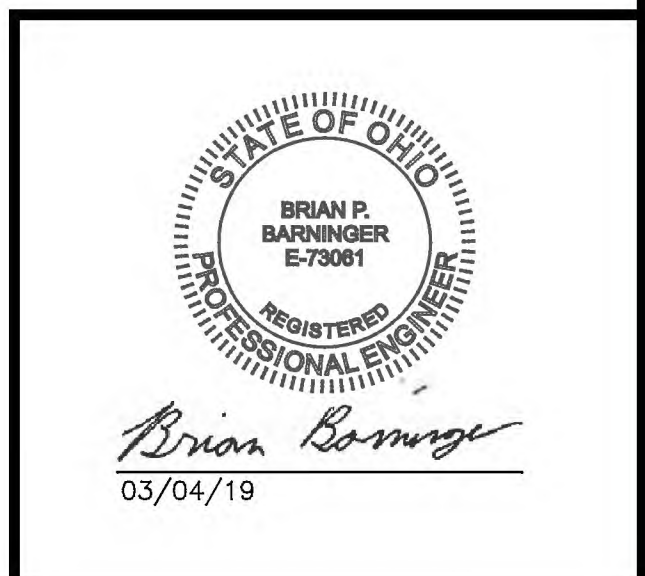
NEW STUB-UP AT EXIST. WELL DETAIL
NOT TO SCALE

6
3



HEADER/LATERAL TRENCH DETAIL
NOT TO SCALE

7
3



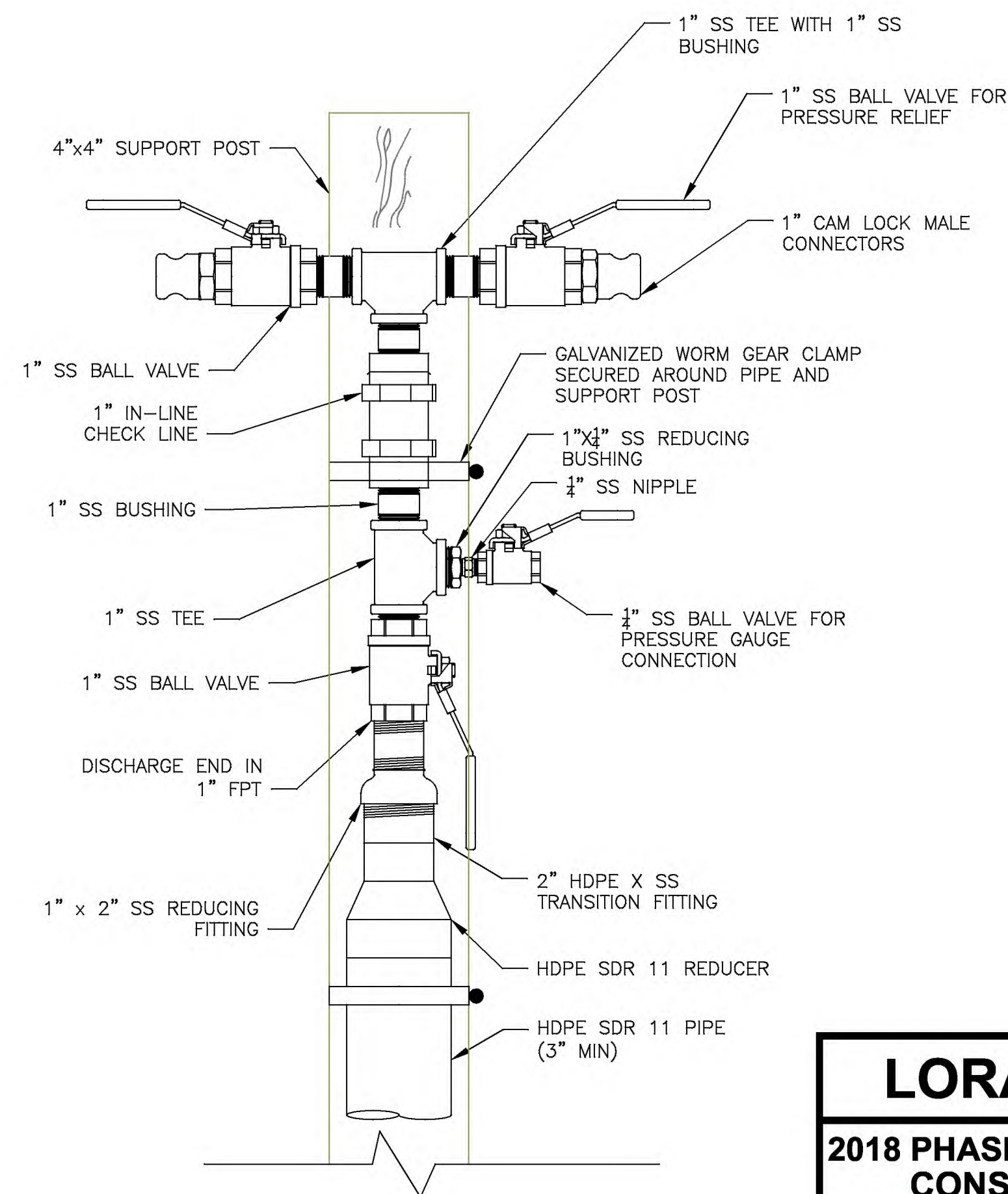
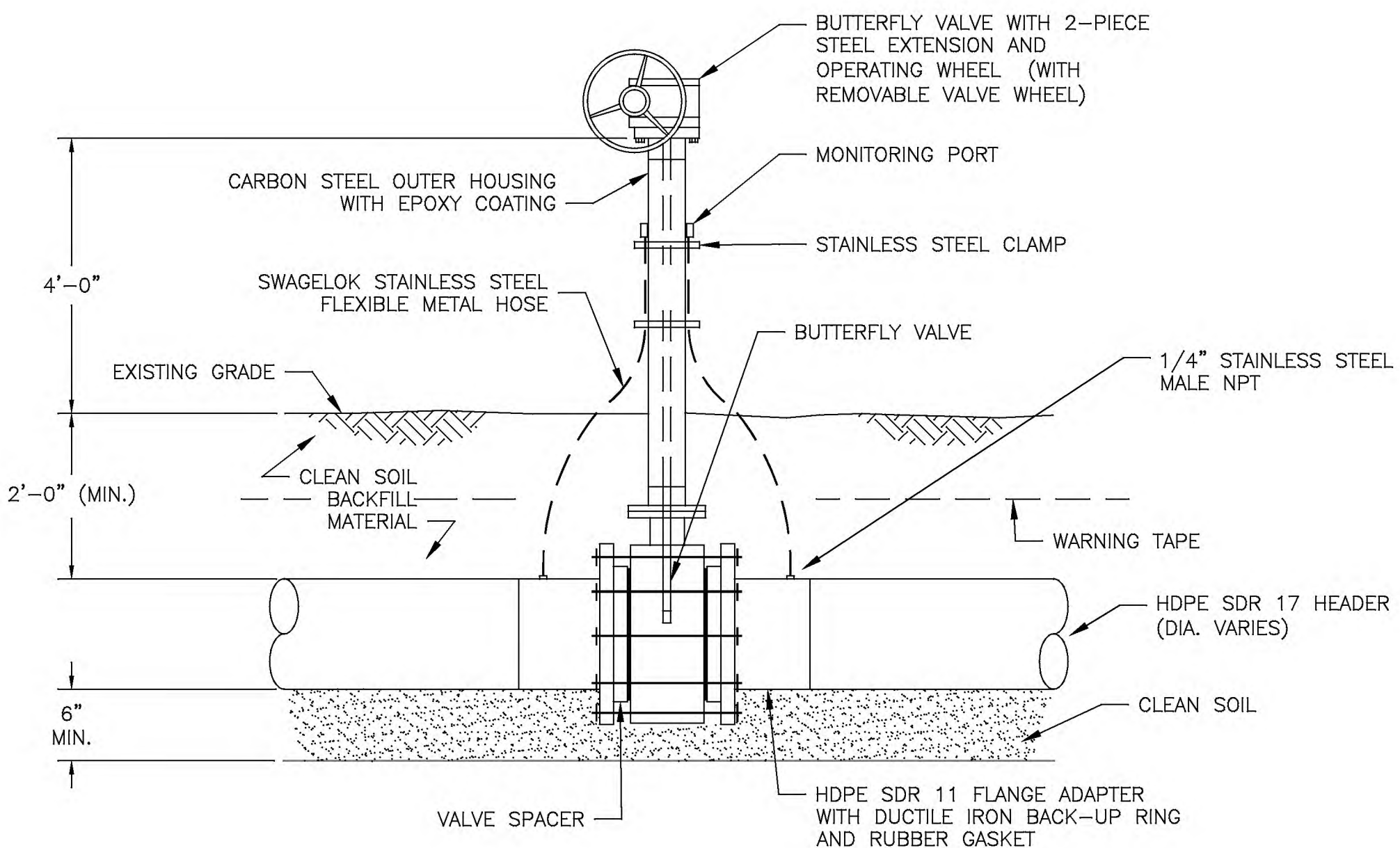
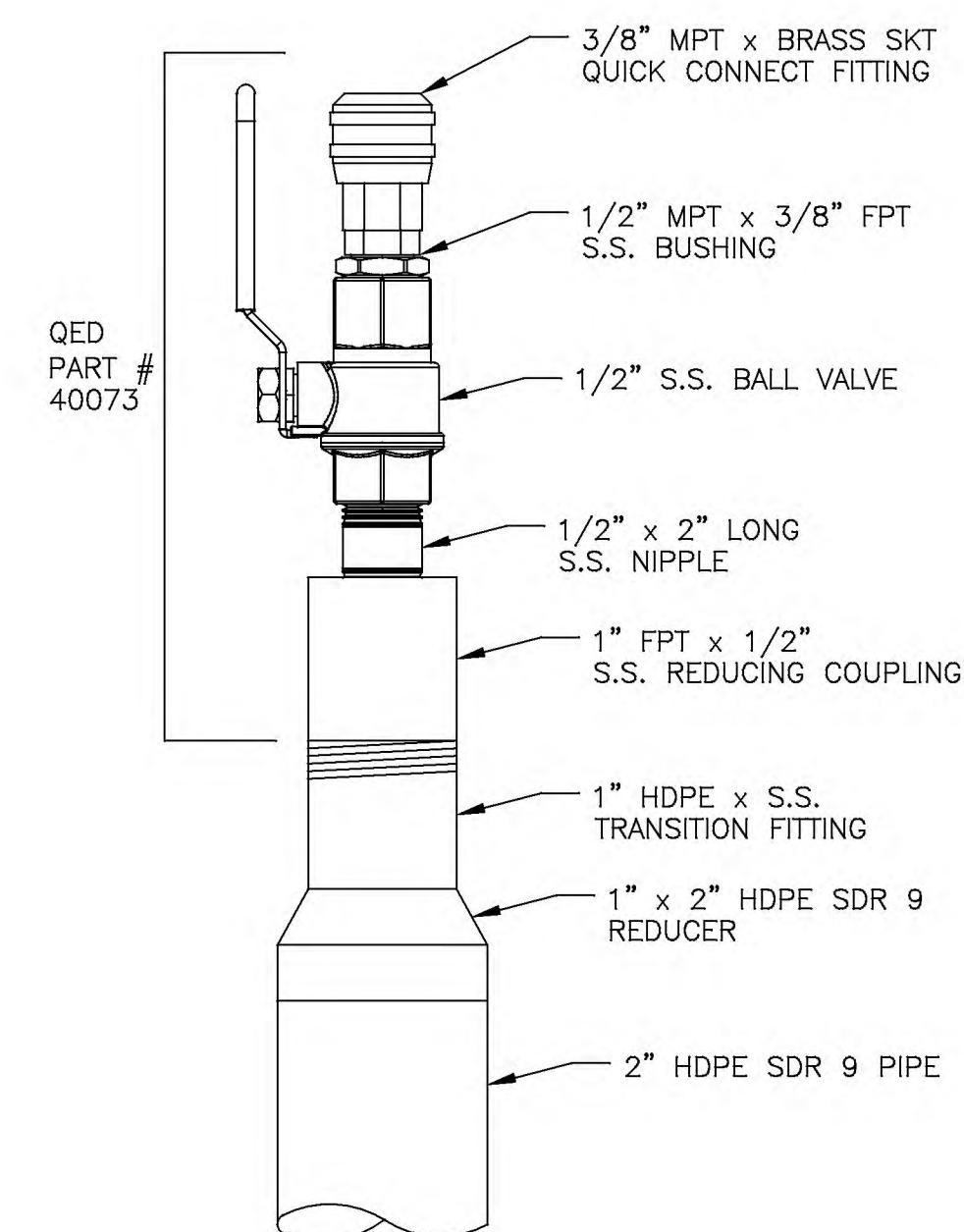
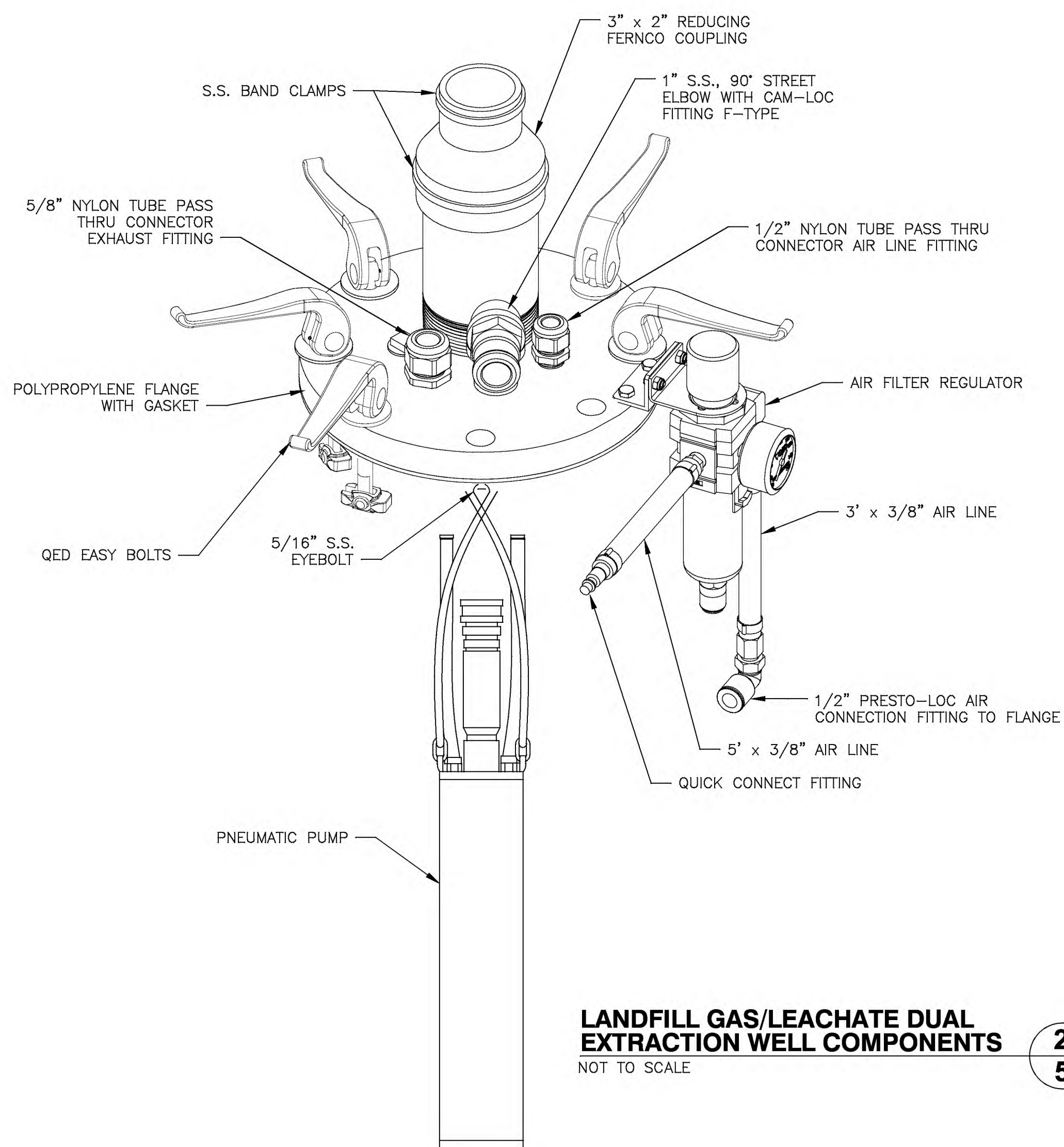
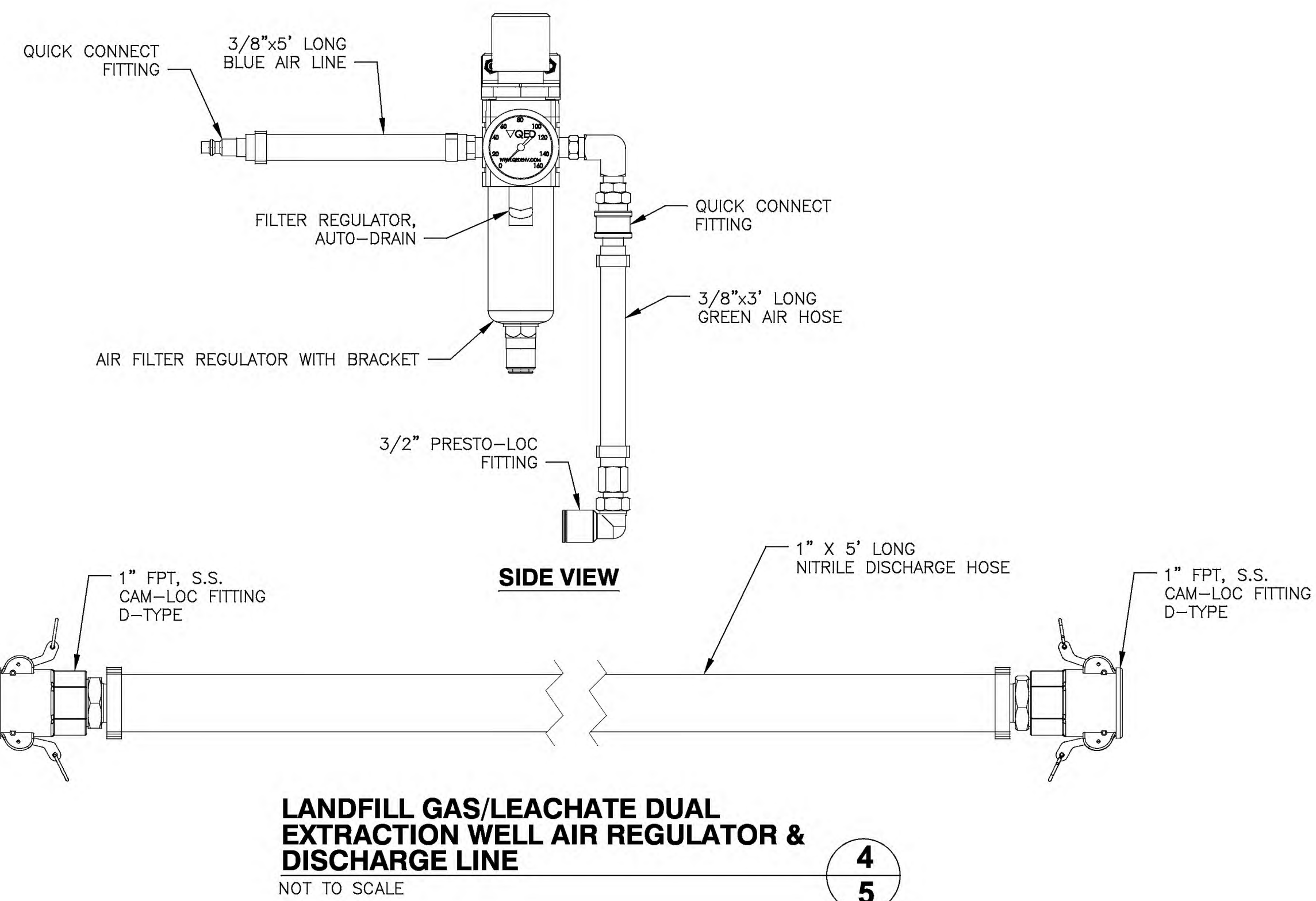
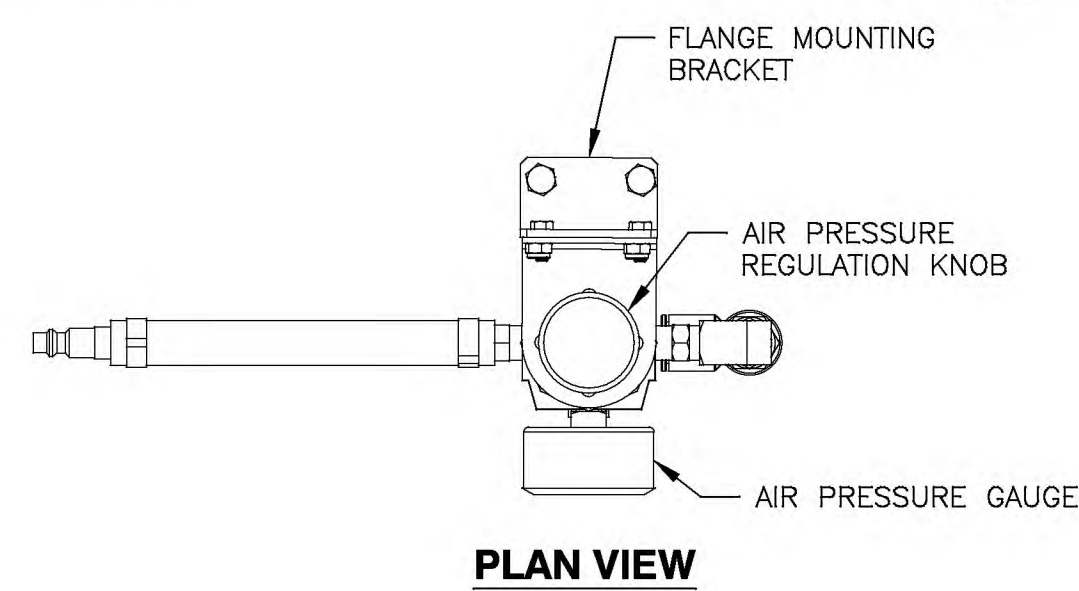
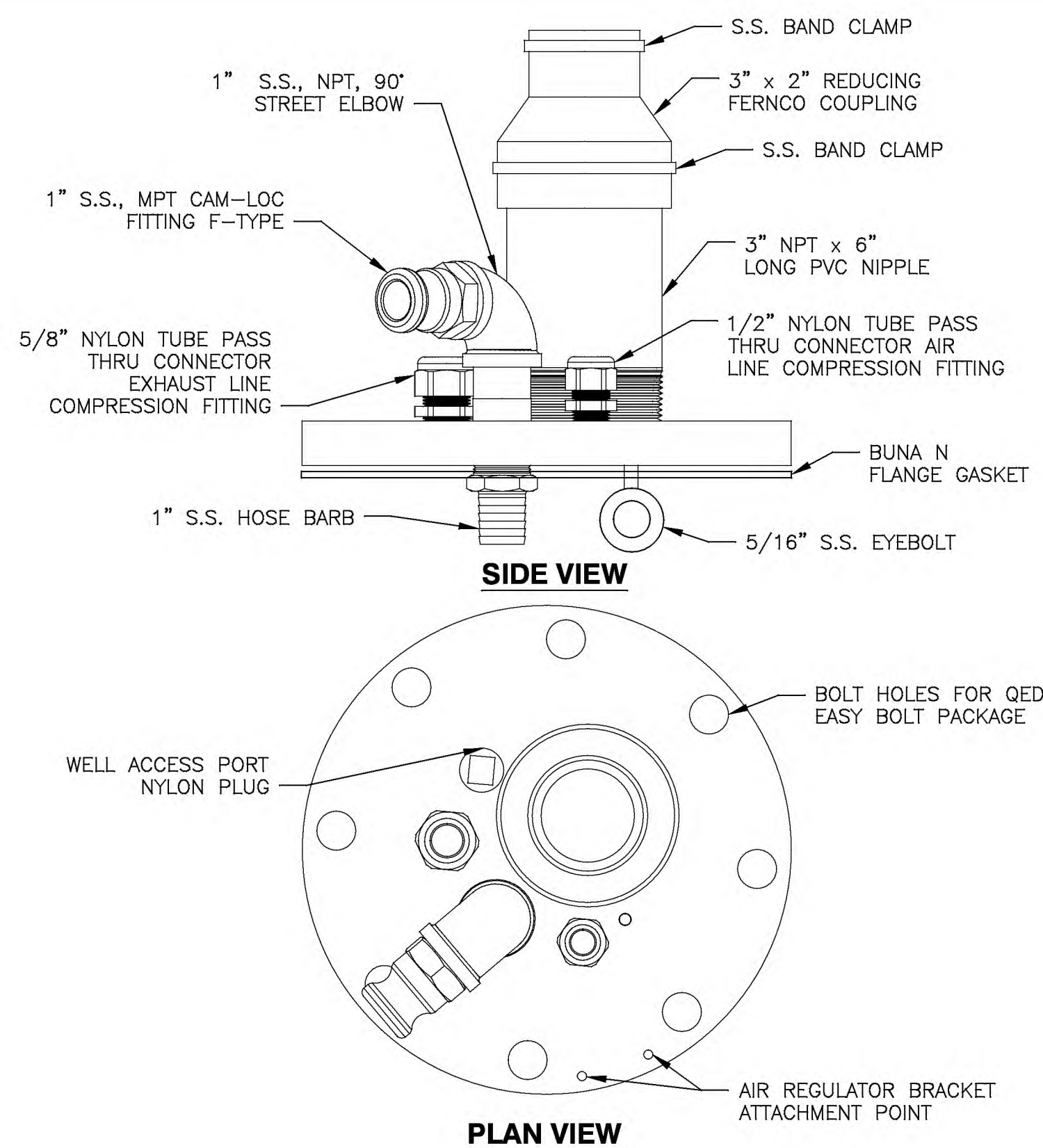
LORAIN COUNTY II LANDFILL

**2018 PHASE II LFG SYSTEM
CONSTRUCTION
RECORD DRAWING
DETAILS**

DATE: 2/27/19	DRAWN BY: TEK	REV.	DATE	DESCRIPTION	CK. BY



DRAWING:
3
OF 5



STATE OF OHIO
BRIAN P. BARNINGER
E-73061
REGISTERED
PROFESSIONAL ENGINEER
Brian Barninger
03/04/19

LORAIN COUNTY II LANDFILL

2018 PHASE II LFG SYSTEM CONSTRUCTION RECORD DRAWING DETAILS

DATE: 2/27/19
DRAWN BY: TEK

REV.	DATE	DESCRIPTION	CK. BY

REPUBLIC SERVICES

BEL ENVIRONMENTAL ENGINEERING

DRAWING: **4** OF **5**

2018 LORAIN PHASE I AS-BUILT SURVEY POINTS				
Point #	Northing	Easting	Elevation	Description
2027	597855.935270	2059094.055130	909.49	6IN LAT (2/3/0) GS
2028	597903.741026	2059082.348504	906.20	18IN CMP T/PIPE
2029	597903.527699	2059082.558124	908.89	18IN CMP GS
2030	597942.899196	2059070.686112	907.77	18IN CMP GS
2031	597942.942897	2059069.919199	904.46	18IN CMP T/PIPE
2032	597969.261302	2059062.444820	905.43	6IN TEE (2/3/0) TEE GS
2033	597969.322183	2059063.106613	903.75	6IN TEE (2/3/0) TEE T/PIPE
2034	597994.683063	2059047.140461	902.85	6IN LAT (2/3/0) T/PIPE
2035	597994.842041	2059046.943683	906.80	6IN LAT (2/3/0) GS
2036	598032.011722	2059013.867725	900.92	6IN LAT (2/3/0) T/PIPE
2037	598032.256620	2059013.979709	905.70	6IN LAT (2/3/0) GS
2038	598054.849535	2059039.543135	906.06	6IN LAT (2/3/0) GS
2039	598054.904697	2059039.464824	902.20	6IN LAT (2/3/0) T/PIPE
2040	598087.669638	2059078.437405	905.77	6IN 90 (2/3/0) 90 GS
2041	598087.305663	2059077.352753	903.97	6IN 90 (2/3/0) 90 T/PIPE
2042	598103.506216	2058946.857044	904.79	6IN LAT (2/3/0) GS
2043	598103.451020	2058947.403118	897.24	6IN LAT (2/3/0) T/PIPE
2044	598131.758891	2058921.224975	903.32	12IN X 6IN TEE (2/3/0) 90 GS
2045	598132.447647	2058920.934277	900.63	12IN X 6IN TEE (2/3/0) 90 T/PIPE
2046	598442.880334	2058972.534824	890.32	6IN 90 (2/3/0) 90 GS
2047	598445.297065	2058972.827125	887.98	6IN 90 (2/3/0) 90 T/PIPE
2048	598493.451468	2058963.297546	886.43	6IN LAT (2/3/0) GS
2049	598493.509201	2058963.631749	883.35	6IN LAT (2/3/0) T/PIPE
2050	598540.875310	2058952.962851	882.94	6IN LAT (2/3/0) GS
2051	598541.618100	2058953.028011	881.04	6IN LAT (2/3/0) T/PIPE
2052	598589.788332	2058941.111000	880.68	6IN LAT (2/3/0) GS
2053	598590.861089	2058940.582478	878.24	6IN LAT (2/3/0) T/PIPE
2054	598640.165647	2058930.256048	877.52	6IN 90 (2/3/0) 90 GS
2055	598641.883732	2058931.520511	875.03	6IN 90 (2/3/0) 90 T/PIPE
2056	598450.491831	2058602.049169	863.86	6IN 90 (2/3/0) 90 GS
2057	598449.322058	2058601.373961	861.73	6IN 90 (2/3/0) 90 T/PIPE
2058	598465.942632	2058554.964519	860.34	6IN LAT (2/3/0) GS
2059	598466.685823	2058554.480441	857.51	6IN LAT (2/3/0) T/PIPE
2060	598488.728047	2058508.212286	857.90	6IN LAT (2/3/0) GS
2061	598489.267457	2058508.770215	854.65	6IN LAT (2/3/0) T/PIPE
2062	598514.964173	2058467.546836	853.71	6IN LAT (2/3/0) GS
2063	598514.650567	2058466.905022	849.79	6IN LAT (2/3/0) T/PIPE
2064	598543.858458	2058428.223880	846.22	6IN LAT (2/3/0) GS
2065	598543.663064	2058427.654683	842.83	6IN LAT (2/3/0) T/PIPE
2066	598573.915049	2058391.204462	835.00	6IN 90 (2/3/0) 90 GS
2067	598574.291720	2058389.789627	832.44	6IN 90 (2/3/0) 90 T/PIPE
2073	598018.604689	2059381.391063	897.79	6IN TEE T/PIPE
2074	598007.128224	2059342.680203	899.84	6IN LAT T/PIPE
2075	597991.860299	2059295.236436	902.57	6IN LAT T/PIPE
2076	597974.987991	2059249.512324	905.19	6IN 90 T/PIPE
2080	598130.890000	2058919.410000	899.12	(2/3/0) TEE T/PIPE
2081	598122.170000	2058882.920000	899.40	(2/3/0) T/PIPE
2082	598099.730000	2058841.470000	893.92	(2/3/0) TEE T/PIPE
2083	598117.490000	2058825.170000	902.80	6IN TEE (2/3/0) TEE GS
2084	598118.040000	2058825.040000	891.42	6IN TEE (2/3/0) TEE T/PIPE
2085	598157.450000	2058777.740000	894.64	6IN LAT (2/3/0) GS
2086	598157.530000	2058776.940000	887.72	6IN LAT (2/3/0) T/PIPE
2087	598174.180000	2058753.280000	885.17	6IN TEE (2/3/0) TEE T/PIPE
2088	598087.560000	2058849.480000	894.27	6IN LAT (2/3/0) T/PIPE
2089	598088.230000	2058849.970000	903.31	6IN LAT (2/3/0) GS
2090	598043.920000	2058874.490000	904.92	6IN LAT (2/3/0) GS
2091	598044.290000	2058874.120000	896.28	6IN LAT (2/3/0) T/PIPE
2092	598003.020000	2058899.630000	906.58	6IN LAT (2/3/0) GS
2093	598002.470000	2058899.010000	899.09	6IN LAT (2/3/0) T/PIPE
2094	597959.570000	2058924.470000	907.83	6IN TEE (2/3/0) GS
2095	597961.080000	2058925.320000	901.53	6IN TEE (2/3/0) T/PIPE
2096	597898.180000	2058857.230000	910.17	6IN LAT GS
2097	597898.870000	2058857.860000	907.40	6IN LAT T/PIPE
2098	597866.160000	2058819.340000	914.42	6IN 90 GS
2099	597867.390000	2058820.210000	911.71	6IN 90 T/PIPE (APPROX.)
2101	597960.290000	2058928.750000	908.02	EW-324R2 GS
2102	598085.540000	2059079.390000	905.43	EW-318R2 GS
2103	598114.310000	2058824.470000	903.31	EW-319R2 GS
2104	598175.690000	2058757.360000	889.73	EW-334R2 REMOTE GS
2105	598176.350000	2058756.950000	888.63	6IN 90 T/PIPE
2106	598174.660000	2058757.040000	889.46	6IN 90 GS
2107	598248.800000	2058766.880000	881.59	EW-334R2 GS
2108	598248.310000	2058768.540000	880.87	8X6 TEE GS
2109	598247.730000	2058768.140000	879.47	8X6 TEE T/PIPE
2110	598195.140000	2058710.870000	885.16	(2/3/0) GS
2111	598195.430000	2058710.240000	882.09	(2/3/0) T/PIPE
2112	598195.800000	2058663.580000	882.79	(2/3/0) GS
2113	598193.870000	2058662.670000	879.12	(2/3/0) T/PIPE
2114	598191.730000	2058625.900000	879.06	6IN LAT (2/3/0) GS
2115	598192.380000	2058624.070000	875.98	6IN LAT (2/3/0) T/PIPE
2116	598214.560000	2058594.020000	869.56	(2/3/0) GS
2117	598214.350000	2058592.890000	865.78	(2/3/0) T/PIPE
2118	598225.510000	2058546.420000	861.84	6IN (2/3/0) GS
2119	598225.490000	2058545.260000	856.54	6IN (2/3/0) T/PIPE
2120	598231.400000	2058485.610000	851.40	6IN FLANGE T/PIPE
2121	598231.700000	2058483.500000	851.18	12IN TEE T/PIPE
2122	598229.530000	2058480.610000	851.42	(2/3/0) T/PIPE
2123	598229.080000	2058479.490000	852.19	12IN CMP T/PIPE
2124	598221.490000	2058440.780000	849.57	12IN CMP T/PIPE
2125	598220.950000	2058439.520000	848.72	(2/3/0) T/PIPE
2126	598152.530000	2058650.840000	890.71	EW-320R2 GS
2127	598150.450000	2058647.960000	890.67	6IN TEE GS
2128	598151.910000	2058647.340000	887.08	6IN TEE T/PIPE
2129	598096.120000	2058669.050000	903.58	6IN LAT (2/3/0) GS
2130	598096.490000	2058668.330000	900.74	6IN LAT (2/3/0) T/PIPE
2131	598051.380000	2058682.940000	914.86	6IN LAT (2/3/0) GS
2132	598052.560000	2058682.880000	914.00	6IN LAT (2/3/0) T/PIPE
2133	598002.580000	2058700.440000	924.78	6IN LAT (2/3/0) GS

2134	598001.910000	2058700.020000	921.33	6IN LAT (2/3/0) T/PIPE
2135	597955.470000	2058700.980000	926.64	6IN 90 (2/3/0) 90 GS
2136	597955.860000	2058700.980000	923.93	6IN 90 (2/3/0) 90 T/PIPE
2137	597951.120000	2058699.200000	926.90	EW-325R2 GS
2138	598210.590000	2059291.420000	901.45	24IN CMP T/PIPE
2139	598155.750000	2059314.600000	898.04	24IN CMP T/PIPE
2141	599037.576068	2058347.590890	795.94	12 HDR (2/4/0) GS
2142	599038.257571	2058347.902613	791.86	12 HDR (2/4/0) T/PIPE
2143	599019.011776	2058393.834305	800.80	12 HDR (2/4/0) GS
2144	599020.023698	2058393.933079	796.84	12 HDR (2/4/0) T/PIPE
2145	599002.016341	2058440.434572	805.84	12 HDR (2/4/0) GS
2146	599002.413127	2058440.468099	801.39	12 HDR (2/4/0) T/PIPE
2147	598988.018993	2058486.774397	809.73	12 HDR (2/4/0) GS
2148	598989.001742	2058486.292969	805.54	12 HDR (2/4/0) T/PIPE
2149	598972.136482	2058534.454986	813.33	12 HDR (2/4/0) GS
2150	598972.729462	2058534.379374	809.41	12 HDR (2/4/0) T/PIPE
2151	598956.742638	2058584.670395	812.61	12IN TEE T/PIPE
2152	598957.545896	2058582.727100	812.45	12IN FLANGE T/PIPE
2153	597588.370880	2059417.131659	873.33	6IN TEE GS
2154	597589.890436	2059416.617927	867.21	6IN TEE T/PIPE
2155	597606.746891	2059369.584475	881.61	6IN LAT GS
2156	597606.461944	2059368.723365	878.83	6IN LAT T/PIPE
2157	597626.246379	2059326.596784	888.97	6IN LAT T/PIPE
2158	597625.047778	2059325.695042	892.45	6IN LAT GS
2159	597640.612352	2059277.435992	897.89	6IN 90 GS
2160	597640.492460	2059277.479938	894.67	6IN 90 GS
2162	598139.481261	2059798.300651	846.94	12IN HDR @ 24IN CMP T/PIPE
2163	598153.939526	2059830.155740	842.36	24IN CMP T/PIPE
2164	598124.352543	2059758.562873	854.94	12IN X 6IN TEE (2/4/0) T/PIPE
2165	598120.146575	2059724.995284	865.66	12IN HDR (2/4/0) GS
2166	598119.024035	2059726.330465	862.65	12IN HDR (2/4/0) TS
2167	598111.394767	2059627.410000	878.31	12IN HDR (2/4/0) GS
2168	598112.415777	2059628.006958	873.97	12IN HDR (2/4/0) T/PIPE
2169	598110.324122	2059582.685624	882.59	6IN LAT (2/4/0) GS
2170	598111.339491	2059584.736438	879.59	6IN LAT (2/4/0) T/PIPE
2171	598110.242640	2059584.233760	882.18	12IN TEE GS
2172	598110.554400	2059584.859648	879.47	12IN TEE T/PIPE
2173	598057.325275	2059571.313903	888.84	6IN LAT (2/4/0) GS
2174	598057.364595	2059572.357178	883.14	6IN LAT (2/4/0) T/PIPE
2175	598012.324311	2059551.150039	891.31	6IN 90 (2/4/0) 90 GS
2176	598012.655483	2059551.794905	887.83	6IN 90 (2/4/0) 90 T/PIPE
2177	598119.526494	2059514.034728	889.66	12IN HDR 6IN TEE (2/4/0) TEE GS
2178	598117.757625	2059514.996637	884.34	12IN HDR 6IN TEE (2/4/0) TEE T/PIPE
2179	598111.793657	2059574.865653	880.76	12IN X 6IN TEE (2/4/0) T/PIPE
2180	598125.484572	2059475.053568	893.82	12IN HDR (2/4/0) GS
2181	598127.139211	2059475.004527	886.65	12IN HDR (2/4/0) T/PIPE
2182	598086.040137	2059478.687910	894.81	6IN LAT (2/4/0) GS
2183	598086.183120	2059479.069555	887.65	6IN LAT (2/4/0) T/PIPE
2184	598057.976955	2059438.927233	890.93	6IN LAT (2/4/0) T/PIPE
2185	598035.163679	2059406.575226	893.48	6IN TEE (2/4/0) T/PIPE
2186	598022.189174	2059382.800096	895.64	6IN TEE (2/4/0) T/PIPE
2187	598015.590494	2059420.197476	895.77	6IN LAT T/PIPE
2188	597991.933728	2059436.194524	897.94	6IN 90 T/PIPE
2189	598130.675023	2059428.360238	895.90	12IN HDR TEE (2/4/0) TEE GS
2190	598130.573364	2059428.704346	889.06	12IN HDR TEE (2/4/0) TEE T/PIPE
2191	598140.660966	2059366.065488	900.57	12IN HDR GS
2192	598139.753277	2059365.804223	892.99	12IN HDR T/PIPE
2193	598144.022566	2059323.765225	902.03	12IN HDR TEE (2/4/0) GS
2194	598144.945265	2059323.347375	894.80	12IN HDR TEE (2/4/0) T/PIPE
2195	598124.033470	2059325.021328	903.56	12IN HDR (2/4/0) GS
2196	598124.855555	2059324.312429	896.91	12IN HDR (2/4/0) T/PIPE
2197	598154.072600	2059316.503409	902.39	24IN CMP GS
2198	598153.619529	2059316.889611	895.94	24IN CMP T/PIPE
2199	598210.887355	2059291.715153	903.05	24IN CMP GS
2200	598212.159893	2059290.878332	900.38	24IN CMP T/PIPE
2201	598232.790246	2059282.638268	902.43	12IN HDR TEE (2/4/0) TEE GS
2202	598232.101229	2059283.250519	900.64	12IN HDR TEE 2/4/0) TEE T/PIPE
2203	598237.297178	2059281.667587	900.63	12IN HDR VALVE T/PIPE
2204	598281.583430	2059256.612863	901.08	12IN HDR GS
2205	598281.439800	2059257.136355	898.33	12IN HDR T/PIPE (APPROX)
2206	598232.194012	2059225.750389	903.53	12IN HDR TEE (2/4/0) TEE GS
2207	598236.438238	2059225.803792	899.30	12IN HDR TEE (2/4/0) TEE T/PIPE
2208	598237.779629	2059223.523201	884.22	12IN VALVE T/PIPE
2209	598110.974769	2059574.165892	883.95	12IN X 6IN TEE (2/4/0) GS
2210	598443.795348	2058975.208936	889.81	EW-365 GS
2211	598446.970424	2058600.776935	863.62	EW-358 GS
2212	598729.764250	2059530.609166	856.25	EW-341R2 GS
2214	597217.286037	2057993.652016	913.86	EW-57R3 GS
2215	597216.456919	2057992.757545	913.70	2/3/0 90 GS
2216	597216.263776	2057993.053726	911.66	2/3/0 90 T/PIPE
2217	597212.930400	2058049.270775	914.85	2/3/0 GS
2218	597212.747654	2058049.161157	910.37	2/3/0 T/PIPE
2219	597207.280556	2058098.439476	914.85	2/3/0 GS
2220	597206.426051	2058098.836158	908.83	2/3/0 T/PIPE
2221	597202.032861	2058163.321065	913.47	8X6 TEE 2/3/0 90 GS
2222	597202.165382	2058162.954056	906.48	8X6 TEE 2/3/0 90 T/PIPE
2223	597523.501163	2057935.634932	871.36	2/3/0 VALVE GS
2224	597523.831477	2057935.765900	868.53	2/3/0 VALVE T/PIPE
2225	597485.841290	2057972.211384	878.98	2/3/0 GS
2226	597486.287347	2057972.916312	876.28	2/3/0 T/PIPE
2227	597453.189017	2058002.69604	890.42	2/3/0 TEE GS
2228	597467.046135	2058050.122424	891.24	2/3/0 GS
2229	597467.301826	2058050.284908	888.16	2/3/0 T/PIPE
2230	597486.727909	2058099.810292	891.96	2/3/0 GS
2231	597486.987287	2058100.276415	888.91	2/3/0 T/PIPE
2232	597505.810434	2058145.284130	893.10	2/3/0 GS
2233	597506.331233	2058145.621316	890.06	2/3/0 T/PIPE
2234	597528.544252	2058184.376030	894.08	2/3/0 TEE GS
2235	597530.022483	2058186.341773	894.72	EW-151R GS
2236	597538.352920	2058193.607613	896.57	2/3/0 GS