



## **APPLICATION FOR A COASTAL ZONE ACT STATUS DECISION**

**State of Delaware  
Department of Natural Resources & Environmental Control  
Office of the Secretary**

December 5, 2012  
Cherry Island Landfill Gas Pipeline  
Cherry Island Renewable Energy LLC (CIRE)

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## CZA Status Decision Application Instructions

1. Complete all parts of the application. For questions which are not applicable to your project, do not leave blank; present a statement that clearly states why the section is not applicable to your project.
2. Because all applicants' projects are different, this word document template will provide you flexibility for needed space to answer the questions. Please insert additional lines for text where needed for your application. If appropriate, attach extra pages referencing each answer by the corresponding question number.
3. Submit eight complete hard copies of the application to:

State of Delaware  
Department of Natural Resources & Environmental Control  
Office of the Secretary  
89 Kings Highway  
Dover, DE 19901

In addition to the eight hard copies, submit a complete electronic "pdf" copy of the permit application on cd-rom.

4. Comply, if required, or as requested by the DNREC Secretary, with [7 Delaware Code, Chapter 79, Section 7902](#). If requested, but not completed, your application will not be considered administratively complete until this form is reviewed.
5. Be sure to include your permit application fee of \$3,000; otherwise the application will not be considered administratively complete. Make checks payable to the "State of Delaware."
6. Be advised that the application for a Delaware Coastal Zone Act Status Decision is a public document, which may be displayed at DNREC offices, public libraries, and the web, among others. If this application requires you to place confidential information or data in the application to make it administratively complete, note the Delaware Freedom of Information Act ([29 Delaware Code, Chapter 100](#)) and [DNREC's Freedom of Information Act Regulation](#), Section 6 (Requests for Confidentiality), for the proper procedure in requesting confidentiality.

*Note: This application template was last revised by DNREC on August 31, 2007. Please discard any previous versions.*

**PART 1**

**CERTIFICATION BY APPLICANT**

Under the penalty of perjury pursuant to 11 Delaware Code §1221-1235, I hereby certify that all the information contained in this Delaware Coastal Zone Act Status Decision Application and in any attachments is true and complete to the best of my belief.

I hereby acknowledge that all information in this application will be public information subject to the Delaware Freedom of Information Act, except for clearly identified proprietary information agreed to by the Secretary of the Department of Natural Resources & Environmental Control.

DONALD A. GESICK

Print Name of Applicant



Signature of Applicant

GENERAL MANAGER - ENERGY SOLUTIONS

Title

13/DEC/2011

Date

## PART 2

### APPLICANT INFORMATION AND SITE IDENTIFICATION

2.1 Identification of the applicant:

Company Name: Cherry Island Renewable Energy LLC (CIRE)  
Address: 301 Jackson Street, Columbus, OH  
Telephone: 812-377-2642  
Fax: 812-377-9694

2.2 Primary contact:

Don Gesick, Manager  
CIRE, LLC  
301 Jackson Street  
Columbus, IN 47201  
Office: 812-377-2642  
Mobile: 812-447-5623  
Fax: 812-377-9694

2.3 Site of proposed project (if different than above):

A 12" HDPE pipeline to convey landfill gas (LFG) is proposed from the Delaware Solid Waste Authority's (DSWA) Cherry Island Landfill in Wilmington, DE to various industrial end users. A locus map and detailed section maps of the pipeline route are included in the attached plan set (DSWA Cherry Island Landfill LFG pipeline Project, December 2011).

2.4 Authorized agent (if any): N/A

Name:  
Address:  
Telephone:  
Fax:

*If you have an authorized agent for this status decision process, provide written authorization from client for being the authorized agent.*

2.5 Is the applicant claiming confidentiality in any section of their application?

NO

If yes, see instructions on page 3.

## **PART 3**

### **PROJECT SUMMARY**

Cherry Island Renewable Energy, LLC (CIRE), a company of Cummins Power Generation, proposes to construct a 12” HDPE pipeline to convey landfill gas (LFG) from the Delaware Solid Waste Authority’s (DSWA) Cherry Island Landfill (CIL) located in Wilmington, DE to various industrial end users.

The LFG generated at the landfill will be utilized as an alternative energy and substitute to natural gas. The LFG will be used in combined heat and power applications (generation of electrical power to offset existing demand) and/or as an alternative boiler fuel.

Prior to distribution via the proposed pipeline, LFG will be pre-treated with a hydrogen sulfide gas pre-treatment system located on the CIL property. The pre-treatment system will include tanks and a control system in a cargo container. The CIL site will also have a siloxane filter skid including a utility flare, and a “pigging launch station” which includes piping with valves. The remainder of the project area involves only the pipeline and associated valves. Construction of associated power generation facilities at the industrial end user locations is not included as part of this application and will be permitted separately by the end users. To date, one end user (Croda, Inc.) has filed an Application for a Coastal Zone Permit, which is under DNREC review at the time of this submittal.

The pipeline will be installed in most areas by conventional open cut trenching. To avoid all direct impacts to wetlands and subaqueous lands, crossings of such areas will be accomplished by subsurface drilling. A plan set of the pipeline route is included as an attachment. The plan set provides specifications for the drilling method and information on the proposed sediment and erosion controls.

**PART 4**

**PROJECT INFORMATION**

4.1 Is the proposed project entirely or partly a new, or improved, or extended pier or other ship docking facility?

NO

If yes, will it be used at least in part for bulk cargo transfers by the applicant?

NO

If no, please explain what it will handle:

The facility is a pipeline to convey landfill gas from the Delaware Solid Waste Authority's Cherry Island Landfill (Wilmington, DE) to industrial end users.

4.2 Is this project entirely for pollution control purposes?

NO

4.3 Is this project a new research and development facility?

NO

4.4 Is this project a new or expanding (flow rate) public sewage wastewater treatment plant?

NO

4.5 Will the proposed project meet the following definition of "Manufacturing" as found in the [Coastal Zone Act](#): "Manufacturing means the mechanical or chemical transformation of organic or inorganic substances into new products, characteristically using power driven machines and materials handling equipment, and including establishments engaged in assembling component parts of manufactured products, provided the new product is not a structure or other fixed improvement."

NO

If no, explain what kind of activity will be carried out at this project site:

The proposed pipeline will be used to convey landfill gas from the Cherry Island Landfill to industrial end users.

4.6 Will the project have the following equipment or facilities?

- a. Smoke stacks NO
- b. Tanks YES
- c. Distillation or reaction columns NO
- d. Chemical processing equipment NO
- e. Scrubbing towers NO

- f. Pickling equipment NO
- g. Waste treatment lagoons NO
- h. Smelters NO
- i. Incinerators NO

4.7 Will the project use 20 acres or more?

NO

How many acres will it use? 9.9 acres

*Note: 9.9 acres is the total area of land that will be disturbed for installation of the proposed pipeline. The majority of these impacts are temporary land disturbances associated with pipeline trenching and associated temporary impacts within the 40-foot pipeline right-of-way during construction. The 9.9 acre total does not include the pipeline sections that will be installed beneath subaqueous lands by horizontal directional drilling.*

4.8 Does this facility appear in Appendix B of the Coastal Zone Act Regulations (the list of the nonconforming uses)?

YES. A portion of the proposed pipeline will be installed within the boundaries of the Port of Wilmington.

4.9 Will the proposed activity described in this application occur entirely within the lines delineating the area of nonconformity for this site, as seen in the Appendices of the Regulations?

NO

4.10 Will the proposed activity or use straddle this line?

YES. A portion of the proposed pipeline will be installed within the boundaries of the Port of Wilmington. The pipeline will also continue to the north of the Port of Wilmington and to the south of the Port of Wilmington to industrial end user locations.

If yes, describe what equipment, facilities, or machinery will be within the delineated area of nonconformity AND what will be outside of this area of nonconformity:

*Equipment within the area of nonconformity (Port of Wilmington):* As part of this phase and permit, the only equipment on the port property will be the LFG pipeline, isolation valves, and a pigging receiving station for cleaning and inspection of the pipe. The receiving station will consist of additional piping and valves, but no structures or other facilities.

*Equipment outside of the area of nonconformity:* At the Cherry Island Landfill (CIL) site where the pipeline originates, there will be a hydrogen sulfide gas pre-treatment system including tanks and a control system in a cargo container. The CIL site will also have a siloxane filter skid including a utility flare, and a “pigging launch station”

which includes piping with valves. The CIL site and all other parcels outside of the area of nonconformity will also include the LFG pipeline.

4.11 Is the proposed project or use part of a manufacturing use that was in operation prior to and on June 28, 1971?

NO

4.12 Has this facility ever been granted a Coastal Zone Act Permit?

NO

4.13 Does the new or expanded use involve any change in existing:

- a. processes? YES
- b. facilities? YES
- c. buildings? NO
- d. emissions discharge? YES

If yes, please explain each in detail.

The new use will require process, facility, and air emission discharge changes. A pipeline and hydrogen sulfide gas pre-treatment equipment will be constructed. As described under Section 4.10, the pre-treatment system will be installed at the Cherry Island Landfill (CIL) site where the pipeline originates, including tanks and a control system in a cargo container. The CIL site will also have a siloxane filter skid including a utility flare, and a “pigging launch station” which includes piping with valves.

Gas emissions for the DSWA Cherry Island facility will be reduced as the gas will no longer be combusted on site, but will be sent to end users to be used as an alternative energy source to offset existing fossil fuel use. Estimated changes in air emissions are summarized in the table on the following page.

## Air Emissions

Pollutant	Existing Emissions		Net Increase/Decrease		New Total Emissions		Percent Change (compare tons/year)
	Lbs/day	Tons/year	Lbs/day	Tons/year	Lbs/day	Tons/year	
CO2		215,800		-214,875		925	-99.58
CO		54.86		-54.59		0.27	-99.56
NOx		22.86		-22.75		0.11	-99.56
SOx		45.06		-45.05		0.01	-99.98
PM		15.36		-15.29		0.07	-99.54

### Assumptions:

1. Assumes existing potential LFG flow limit (Title V annual limit of 3,780 MMscf/yr LFG) that could currently be flared will be conveyed in the pipeline to end users for beneficial use. Any emissions reductions taken by end users related to existing flaring of gas are a subset of the reductions shown in this table.
2. Existing emissions assume a TRS concentration of 300 ppmv from analytical testing. While the pipeline is in operation, an H2S filter will remove sulfur to reduce TRS in treated gas; however, to be conservative, it is assumed the Si treatment skid flare will be fired off of sour untreated LFG.
3. CO2 emissions from flaring include CH4 combusted completely to CO2, and also pass through CO2 in the LFG.
4. Existing emission is based on emissions factors for the existing ZULE enclosed flares.
5. Emissions during project operation include the siloxane skid flare used to combust gases generated from the regeneration cycle of the filter. Remaining gas will be conveyed off site in the pipeline, and will be emissions at end user/host sites.
6. Emissions factors for enclosed 140 scfm siloxane skid flare from a manufacturer.
7. Existing and project emissions assume 48% methane in LFG based on analytical data.

4.14 Will this project directly or indirectly increase plant production over present capacity?  
NO

If yes, explain in what way and by how much:  
N/A

4.15 Will this project result in the production of any new products, either directly or indirectly, at this facility?  
NO

4.16 List materials and/or ingredients to be utilized by this proposed project and how they will be transported to the site.

The proposed pipeline will convey landfill gases that are already generated by the landfill and allow for their reuse as an energy supply to industrial end users. The only materials required for ongoing pipeline operations will be (1) utility water supplied from the City of Wilmington water system and (2) granular nitrogen-phosphorus-potassium (N-P-K) fertilizer for the pre-treatment system, which will be transported to the Cherry Island Landfill portion of the site by delivery trucks.

## PART 5

### PROJECT SITE AND ZONING

- 5.1 In a separate attachment, provide a map of appropriate scale to clearly show the site. Mark important natural features and project buildings and processing equipment of the proposed project such as roads, wetlands, railway sidings, drainage ways, tanks, sewer systems, water mains, wells, etc.

See attached plan set figures.

- 5.2 What is the current SIC code for the proposed use?

4900 (Electric, Gas and Sanitary Services)

- 5.3 What is the current zoning and planned land use of the proposed project site?

Current zoning and land uses for the parcels along the proposed pipeline route include:

- General Industrial
- Manufacturing
- Commercial/Manufacturing
- Heavy Industrial

No changes in land use are proposed.

- 5.4 Will the proposed project require a zoning change?

NO

- 5.5 Will this project require new supporting facilities?

YES

If yes, describe each facility, and how it will be used:

Supporting facilities for the pipeline will include a gas pre-treatment system as described above in Part 4.10.

## PART 6

### PROJECT DESCRIPTION AND PROJECT IMPACTS

#### 6.1 Project Description

- a. *How does the project relate to any existing manufacturing operations and facilities?*

The proposed pipeline will convey landfill gas (LFG) from the Delaware Solid Waste Authority's (DSWA) Cherry Island Landfill (CIL) located in Wilmington, DE to various industrial end users. The pipeline will allow LFG already generated and combusted at CIL to be utilized as an alternative energy and substitute to natural gas. The LFG will be used in combined heat and power (CHP) applications (generation of electrical power to offset existing demand) and/or as an alternative boiler fuel at the end user locations.

Construction of associated power generation facilities at the industrial end user locations is not included as part of this application and will be permitted separately by the end users. To date, one end user (Croda, Inc., New Castle, DE) has filed an Application for a Coastal Zone Permit, which is under DNREC review at the time of this submittal. The anticipated power generation facilities at the end user locations are described below in section 6.1.d.

- b. *What effects will there be, if any on land use acreage, manufacturing production capacity, modification of current product lines, and safety risks to the public and to company employees?*

No effects are anticipated for land use acreage, manufacturing production capacity, or current product lines. Because the pipeline will be buried underground, safety and exposure risks to the public and employees are minimal.

- c. *Is this project or use a complete, single project, or is it part of a long-term, large-scale project that has other components that may need approval under the Coastal Zone Act at a later date?*

As stated above, additional components of the project include installation of power generation facilities at the industrial end user locations. Permitting for these facilities will be submitted separately by the various industrial end users. One related application has already been submitted for Coastal Zone Act review (Croda, Inc.).

- d. *If it is part of a larger project, describe the entire project in detail and mention ALL major machinery, facilities, land, products, and processes involved.*

The power generation facilities currently proposed for the Croda site include two (2) new Cummins C1100 N6C lean burn, spark ignited engine generator sets rated for Continuous Duty at 1100 kW each at 12.47 kV. Each generator system will be housed in a sound-attenuated, modular enclosure. The heat recovery equipment will be located within the adjacent power house.

The two (2) engine generator will normally operate in parallel operation with the grid and will produce the base load electrical requirements for the Croda facility. The new 12.47 kV switchgear is also designed to allow for Renewable Net Metering under Delmarva's new Renewable Net Metering tariff.

The hot exhaust gas and jacketwater for each engine will be recovered to produce useable thermal energy. Each engine will produce 3.85 MMBTU/Hr of 208 degree F hot water. The recovered hot water will offset thermal energy currently being produced by existing boilers.

## 6.2 Environmental Impacts

- a. *Air Quality:* Air quality will be improved as overall air emissions will be reduced as summarized in Section 4.13.
- b. *Local Surface And Ground Water Quality:* No impacts to local surface and ground water quality are anticipated.
- c. *Surface and Groundwater Withdrawals:* No withdrawals of surface water or groundwater are proposed.
- d. *Solid And Hazardous Waste Generation:* The proposed project will not result in the generation of solid waste or hazardous waste.
- e. *Noise:* No noise impacts are anticipated.
- f. *Odors:* No free emission of odors is anticipated. The entire proposed pipeline system is closed.
- g. *Local Aesthetic Quality:* No changes or impacts to local aesthetic quality are anticipated.
- h. *Other Notable Factors Not Listed Above:* No other notable factors are anticipated.
- i. *Potential to Pollute (due to equipment malfunction, human error, etc):* In the event that power supply to the site was interrupted, no gas would be conveyed through the pipeline until power was restored. If the pipeline was cut (e.g. during a future construction activity) gas could be released, but otherwise there is no way for gas to be released from the system. In the event of a pipeline cut, the pipeline monitoring system would detect a drop in pressure, which would trigger the alarm system. Isolation valves are located throughout the pipeline, and the appropriate isolation valve(s) would be immediately closed to stop the release of gas.

## 6.3 Other Project Impacts (Positive and Negative impacts)

- a. *Economic:* The proposed pipeline is anticipated to provide economic benefits for the industrial end users by supplying a lower cost energy source.
- b. *County And Municipal Comprehensive Plans/ Zoning:* The proposed pipeline is consistent with existing county and municipal plans and zoning.
- c. *Effect Upon Neighboring Land Uses:* The proposed pipeline is not anticipated to have any impact on neighboring land uses.
- d. *Supporting Facilities Impacts:* Supporting facilities for the pipeline (i.e. pre-treatment facility) are not anticipated to have any impact on the environment, economics of the area, zoning, neighboring land uses or aesthetic

***END OF APPLICATION***

***ATTACHEMENTS TO FOLLOW***

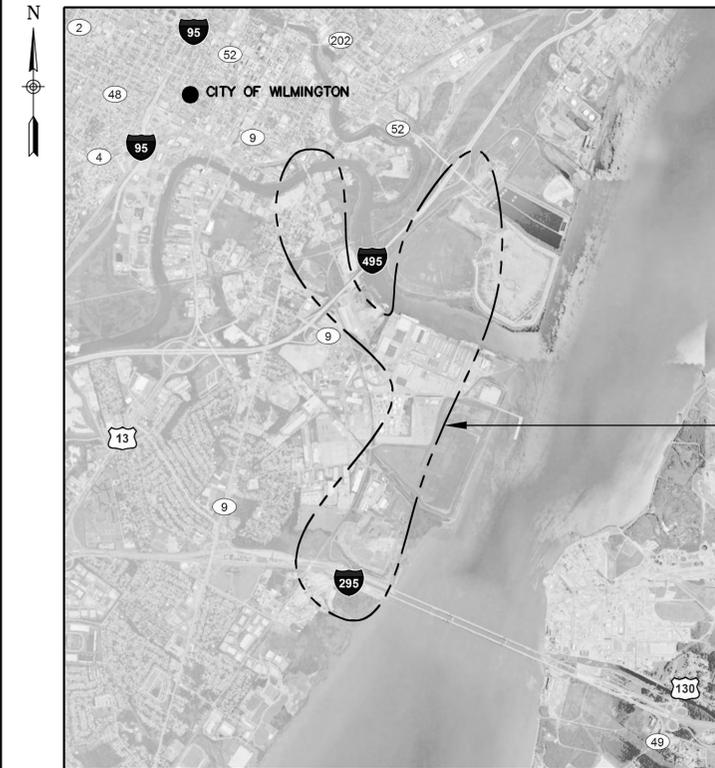
# ***ATTACHMENT***

PERMIT DRAWING SET

# CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)

DRAFT DECEMBER 2011

DSWA CHERRY ISLAND LANDFILL  
LFG PIPELINE PROJECT



LOCATION PLAN  
NOT TO SCALE

INDEX

CITY OF WILMINGTON/NEW CASTLE COUNTY  
DELAWARE

DECEMBER, 2011

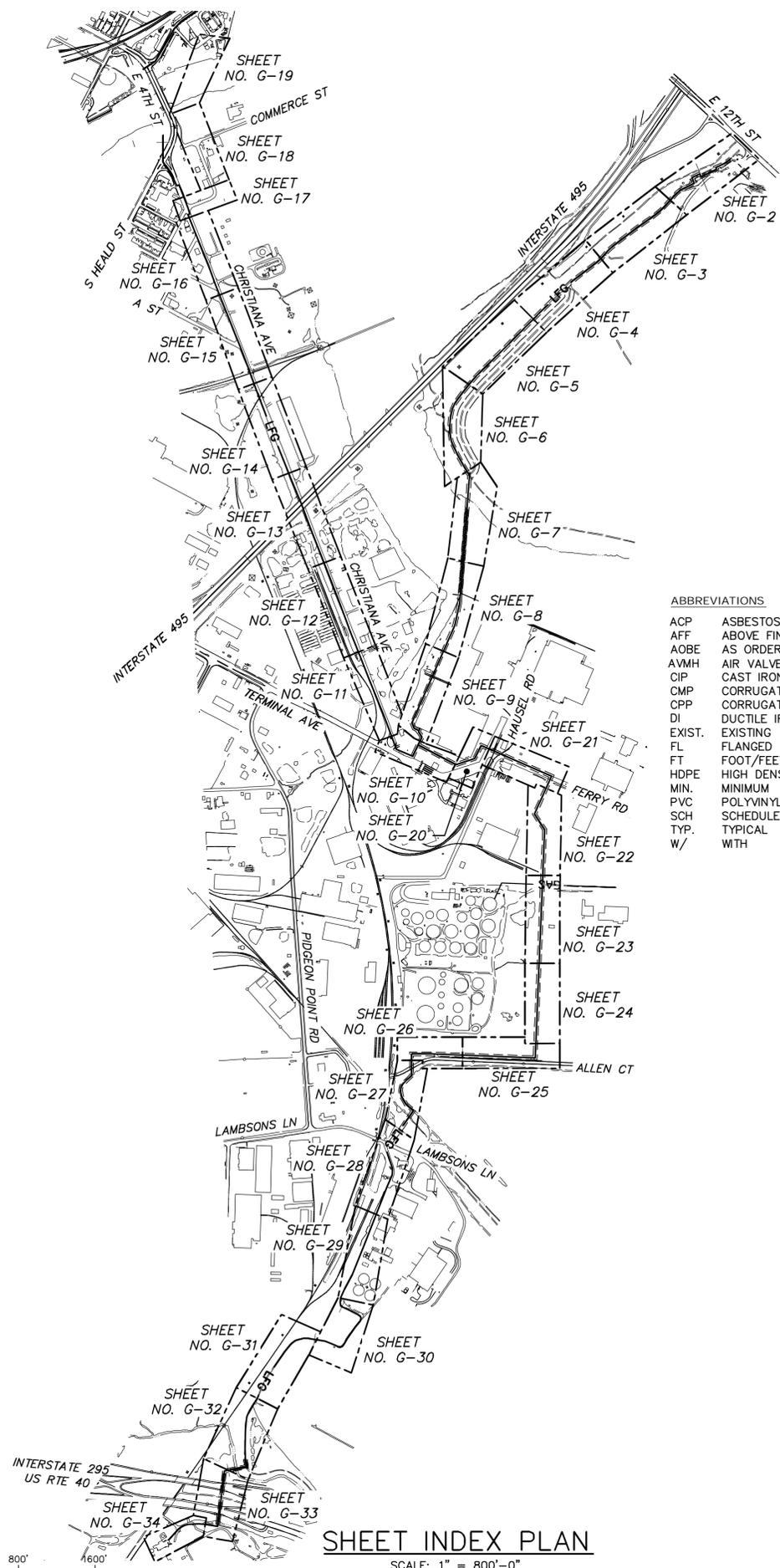
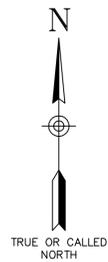
SHEET NO.	TITLE	FILE NO.	SHEET NO.	TITLE	FILE NO.
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19	PIPELINE PLAN AND PROFILE	1362.001-22F	ES2	E&S NARRATIVE & SOIL MAP	1362.001-44F
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			ES4	E&S DETAILS	1362.001-46F



I, undersigned, hereby certify that I have the authority to make this application; that I have read and understand the conditions contained in the Standard Plan application; that I shall cause all land clearing, grading, and or development to be done pursuant to all limitations and conditions set forth by this agreement; that I authorize the right of entry for periodic on-site inspections by the State of Delaware, Department of Natural Resources and Environmental Control compliance personnel and/or their authorized agents."

CIRE, Donald A. Gesick, Manager \_\_\_\_\_ Date  
301 Jackson Street  
Columbus, IN 47201  
(812) 377-2642

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY MISUSE, REFUSE OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL GOVERN.



**SHEET INDEX PLAN**  
SCALE: 1" = 800'-0"

**GENERAL CONSTRUCTION NOTES**

- BUSINESSES AFFECTED BY CONSTRUCTION ARE TO BE NOTIFIED BY TELEPHONE A MINIMUM OF THREE (3) BUSINESS DAYS PRIOR TO ENTERING THE PROPERTY. BUSINESSES TO BE NOTIFIED INCLUDE THE FOLLOWING:
  - JOHNSON AND JOHNSON
  - MATERIAL TRANSIT INC.
  - CRODA
  - DIAMOND STATE PORT CORP. (PORT AUTHORITY)
  - DELAWARE SOLID WASTE AUTHORITY (DSWA)
  - US ARMY CORPS OF ENGINEERS (USACE)
  - DELAWARE RIVER AND BAY AUTHORITY (DRBA)
- CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE EROSION SEDIMENT AND STORMWATER CONTROL PERMIT. CONTACT DNREC DIVISION OF SOIL & WATER CONSERVATION AND SEAN SWEENEY OF BARTON AND LOGUIDICE (B&L) BY EMAIL AND PHONE NO LESS THAN 24 HOURS PRIOR TO CONDUCTING ANY STREAM OR WETLAND CROSSING. WHEN CONTACTING DNREC AND B&L INCLUDE THE CROSSING LOCATION (PROPERTY OWNER OR NEAREST ROAD), APPROXIMATE STATION, AND GENERAL PERMIT (GP) NUMBER FOUND ON THE APPLICABLE DRAWING PAGE. CONTACT INFORMATION IS:
  - 302-739-9921 PHONE
  - B&L PHONE - 717-737-8326, EXT. 2315
  - B&L EMAIL - [ssweeney@bartonandloguidice.com](mailto:ssweeney@bartonandloguidice.com)
- CONTRACTOR IS RESPONSIBLE FOR PROTECTING PIPE AND EXCAVATION. A MAX 200 LF OF EXCAVATION SHALL REMAIN OVERNIGHT AND SHALL BE SECURED FROM ENTRY.
- THE PIPELINE SHALL BE BACKFILLED WITH A MINIMUM OF 3' OF COVER. MINIMUM COVER REQUIREMENTS ARE WAIVED WHERE CASING PIPE IS UTILIZED. CONTRACTOR MAY ADJUST SLOPE OF PIPE TO MAINTAIN MINIMUM SOIL COVER.
- UNTREATED SEED (ANNUAL RYE GRASS) SHALL BE USED FOR SOIL STABILIZATION EXCEPT WHERE TURF GRASS WAS THE ORIGINAL VEGETATION.
- DAMAGED PIPE OR CUTS AND ABRASIONS IMPACTING 10% OF PIPE WALL THICKNESS SHALL BE REMOVED OR REPLACED WITH NEW PIPE.
- PIPE STORAGE LOCATIONS SHALL BE SECURED BY CONTRACTOR.
- CLEAN PIPE OF SHAVINGS PRIOR TO JOINING PIPE SECTIONS. PIPE SHAVINGS TO BE COLLECTED AND DISPOSED OFF-SITE. CONTRACTOR SHALL EXERCISE CONSTANT CARE TO MAINTAIN A CLEAN PIPE INTERIOR, INCLUDING WATER.
- EXISTING UTILITIES (LOCATION, SIZES AND INVERTS) SHOWN ON THE PLANS HAVE BEEN PLOTTED FROM FIELD SURVEYS AND RECORD MAPS AND ARE NOT CERTIFIED AS TO THE ACCURACY OF THEIR LOCATION OR COMPLETENESS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS AND DEPTHS OF ALL UTILITIES AND STRUCTURES IN THE PATH OF OR CLOSELY PARALLEL TO, OR UNDER THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DELAYS OR DAMAGES OCCURRING AS A RESULT OF INCORRECTLY LOCATED UTILITIES. ANY DAMAGE TO FACILITIES SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE. NO EXTENSIONS OF CONTRACT, NO TIME OR MONETARY DAMAGE CLAIMS SHALL BE ALLOWED AS A RESULT OF REVISED DESIGN LOCATIONS OR TIME ALLOWED TO DO SAME WHICH RESULT FROM EXISTING UTILITIES BEING FOUND IN DIFFERENT LOCATIONS THAN SHOWN ON THESE DRAWINGS.
- UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXISTING LANDSCAPE FEATURES LOCATED WITHIN OR OUTSIDE OF DESIGNATED RIGHTS-OF-WAY OR PERMANENT EASEMENTS WHICH ARE DISTURBED OR DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION, (INCLUDING BUT NOT LIMITED TO: CULVERT PIPES, SWALES, TREES, SHRUBS, BUSHES, PLANTERS, SIGNS, ASPHALT DRIVES, CONCRETE DRIVES, GRAVEL DRIVES, FENCES, AND WALKWAYS) SHALL BE RESTORED AND/OR REPLACED IN KIND, SIZE, MATERIAL AND TYPE AS APPLICABLE, BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. DRIVEWAY CULVERTS MAY NOT BE SHOWN ON THE PLANS FOR CLARITY. CONTRACTOR SHALL SAW CUT ASPHALT AND CONCRETE PAVEMENT AT ROAD AND DRIVEWAY CROSSINGS, UNLESS OTHERWISE SPECIFIED.
- THE CONTRACTOR SHALL COORDINATE THE TEMPORARY SUPPORT AND/OR RELOCATION OF UTILITY POLES, WHERE NECESSARY, WITH THE RESPECTIVE UTILITY. SUCH COORDINATION AND SUPPORT SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ANY SURVEY OR RIGHT-OF-WAY MONUMENTS DISTURBED DURING CONSTRUCTION. THE CONTRACTOR SHALL EMPLOY A LICENSED LAND SURVEYOR TO RESTORE ALL DISTURBED MONUMENTS TO THEIR ORIGINAL LOCATION.
- RESTORE ALL SURFACES TO AS GOOD OR BETTER CONDITION THAN BEFORE CONSTRUCTION AS SOON AS POSSIBLE FOLLOWING COMPLETION OF WORK IN ANY AREA. DRIVES AND ROADS SHALL BE PASSABLE WITHIN 24 HOURS OF PIPE INSTALLATION.
- UNLESS OTHERWISE NOTED, THE LIMITS OF DISTURBANCE WILL BE EQUAL TO THE TEMPORARY RIGHT-OF-WAY.
- STORM WATER CULVERT PIPING ACROSS ROADWAYS AND DRIVEWAYS WHICH MUST BE DISTURBED FOR THE INSTALLATION OF THE LANDFILL GAS PIPELINE SHALL BE RESTORED TO WORKING CONDITION IMMEDIATELY UPON COMPLETION OF THE LANDFILL GAS PIPELINE IN THAT LOCATION. NO EXTRA PAYMENT WILL BE MADE FOR REPLACEMENT OF CULVERTS THAT ARE DAMAGED DURING EXCAVATION. CULVERTS THAT ARE NOT SUITABLE FOR REUSE, AS DETERMINED BY ENGINEER, SHALL BE REPLACED IN KIND.
- TEMPORARY AND PERMANENT EASEMENTS IDENTIFIED ON THESE DRAWINGS ARE CONSIDERED PRELIMINARY. FINAL DELINEATION OF EASEMENTS SHALL BE FROM FINAL EASEMENT MAPS TO BE PROVIDED BY THE ENGINEER OR OWNER.
- TRENCHES BENEATH ROADWAYS, DRIVEWAYS AND OTHER AREAS OF VEHICULAR EGRESS SHALL BE BACKFILLED TO SURFACE RESTORATION SUBGRADE ABOVE PIPE LINING WITH EXCAVATION BACKFILL OR APPROVED EQUAL.

MISS UTILITY ONE CALL SYSTEM TELEPHONE NUMBER: 1-800-257-7777  
PROJECT ONE CALL SERIAL NUMBER:

**GENERAL PROJECT NOTES**

- PIPELINE EASEMENT IS GENERALLY 20' WIDE, WITH THE PIPELINE BEING PLACED IN THE CENTER OF THE EASEMENT AREA. AN ADDITIONAL 10' TEMPORARY EASEMENT IS AVAILABLE ON EITHER SIDE OF THE PIPELINE EASEMENT FOR CONSTRUCTION PURPOSES. IN SOME LOCATIONS PIPELINE EASEMENT IS 40' WIDE, WITH A 10' TEMPORARY EASEMENT ON EITHER SIDE.
- A HORIZONTAL/VERTICAL CONTROL POINT FROM THE AERIAL SURVEY IS LOCATED ON SHEET G29.
- TOPOGRAPHY AND SITE FEATURES OBTAINED FROM 2011 AERIAL SURVEY CONDUCTED BY T-3 GLOBAL STRATEGIES, INC. PROPERTY LINES OBTAINED FROM NEW CASTLE COUNTY GIS DATABASES AND FROM THE DELAWARE SOLID WASTE AUTHORITY (DSWA).
- WORK IN CITY OF WILMINGTON RIGHT-OF-WAY SUBJECT TO TERMS AND CONDITIONS OF ENCROACHMENT AGREEMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ELECTRICAL AND UTILITY POLES ALONG PIPELINE ROUTE.
- THE PIPELINE CROSSING OF LANDOWNERS IS SUBJECT TO THE TERMS AND CONDITIONS OF THE EASEMENT AGREEMENTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF ROCK OR OTHER UNSUITABLE BACKFILL MATERIAL. ENGINEER WILL MAKE DETERMINATION FOR UNSUITABLE BACKFILL. IF DISPOSAL OF EXCAVATION MATERIAL IS REQUIRED, CONTACT ENGINEER TO DETERMINE IF PIPE BEDDING MATERIAL IS NEEDED.
- FOLLOWING CONSTRUCTION, THE PIPE SHALL BE SUBJECTED TO A PRESSURE TEST IN ACCORDANCE WITH 49 CFR 192. TEST PRESSURE SHALL BE 125 PSI FOR MIN. OF 8 HOURS. THE PIPELINE HAS BEEN DESIGNED WITH AN MAOP OF 83 PSI AT 73° F.
- CONTRACTOR TO PURGE THE COMPLETED PIPE AFTER BARTON AND LOGUIDICE ACCEPTANCE OF THE PRESSURE TEST. CONTRACTOR TO DEVELOP A PURGING PLAN USING INERT GAS BETWEEN AIR AND COMBUSTIBLE GAS (METHANE) IN ACCORDANCE WITH OPERATION MANUAL.
- NO EXCAVATION IS ALLOWED WITHIN WETLANDS.
- NO CONSTRUCTION EQUIPMENT OR VEHICLES ARE ALLOWED OUTSIDE OF THE TEMPORARY CONSTRUCTION RIGHT-OF-WAY.
- DAMAGED FENCING IS TO BE REPLACED WITH EQUAL OR BETTER WITHIN 10 DAYS.
- DAMAGED SIDEWALKS ARE TO BE REPLACED WITH EQUAL OR BETTER WITHIN 21 DAYS.
- DRIVEWAYS DISTURBED DURING CONSTRUCTION ARE TO BE REPAIRED TO PRE-CONSTRUCTION CONDITIONS WITHIN 21 DAYS AFTER PIPE INSTALLATION.
- RED LINE MARK-UP DRAWINGS ARE TO BE SUBMITTED BY CONTRACTOR TO BARTON AND LOGUIDICE NO LATER THAN FOURTEEN (14) DAYS AFTER CONSTRUCTION COMPLETION IN EACH MUNICIPALITY. THIS INCLUDES GPS/SURVEY DATA OF PIPE PLACEMENT MIN. XYZ LOCATIONS AT CHANGES IN DIRECTION OR SLOPE.
- BRUSH AND TREE CUTTINGS WILL BE CHIPPED UNLESS LANDOWNER DESIRES CUT WOOD. GRUBBING DEBRIS WILL BE REMOVED FROM SITE FOR PROPER AND LEGAL DISPOSAL.

**ABBREVIATIONS**

ACP	ASBESTOS CEMENT PIPE
AFF	ABOVE FINISHED FLOOR
AOBE	AS ORDERED BY ENGINEER
AVMH	AIR VALVE MANHOLE
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED POLYETHYLENE PIPE
DI	DUCTILE IRON
EXIST.	EXISTING
FL	FLANGED
FT	FOOT/FEET
HDPE	HIGH DENSITY POLYETHYLENE
MIN.	MINIMUM
PVC	POLYVINYL CHLORIDE
SCH	SCHEDULE
TYP.	TYPICAL
W/	WITH

Checked by \_\_\_\_\_  
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 In charge of \_\_\_\_\_  
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 By: scs  
 SYR

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE) 115 ROUTE 46 WEST SUITE 100 MOUNTAIN LAKE, NJ 07046  
1-973-316-8041 (PHONE) 1-973-394-5830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (B&L) 1104 FERNWOOD AVENUE SUITE 501 CAMP HILL, PA 17011 (717) 737-8326 (PHONE) (717) 737-8328 (FAX)

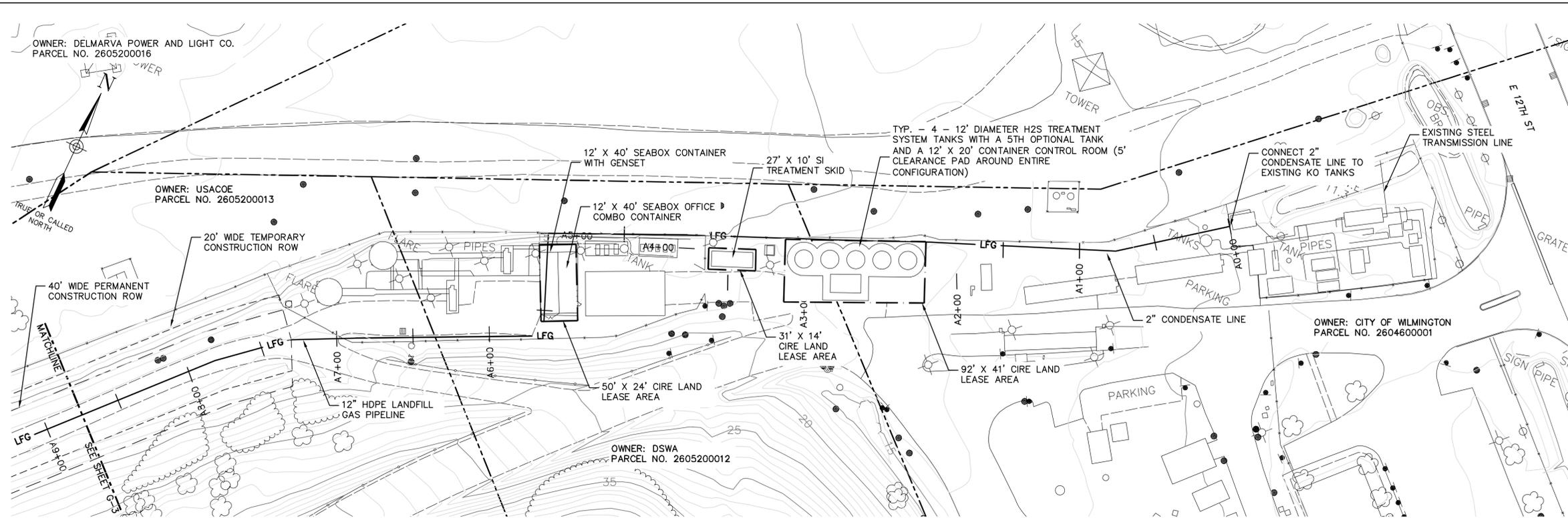
By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**SHEET INDEX PLAN  
 AND GENERAL NOTES**  
 CITY OF WILMINGTON  
 NEW CASTLE COUNTY, DELAWARE



DATE: _____
Date DECEMBER, 2011
Scale AS SHOWN
Sheet Number G-1
File Number 1362.001-02F



**PLAN**  
SCALE: 1" = 40'-0"

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED ON PIPE RACKS FROM OIL LOCATION TO EDGE OF GRAVEL ROAD, AS SEEN ON THIS SHEET. THE LFG PIPELINE WILL BE BURIED BELOW GROUND USING THE OPEN CUT TRENCHING METHOD.
  5. EROSION AND SEDIMENT CONTROL MEASURES MUST COMPLY WITH INFORMATION PROVIDED ON SHEET ES1 AS WELL AS DETAILS FOUND ON SHEET ES2 AND ES3.
  6. REFER TO DETAIL SHEETS G35-G39 FOR ADDITIONAL CONSTRUCTION INFORMATION.
  7. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

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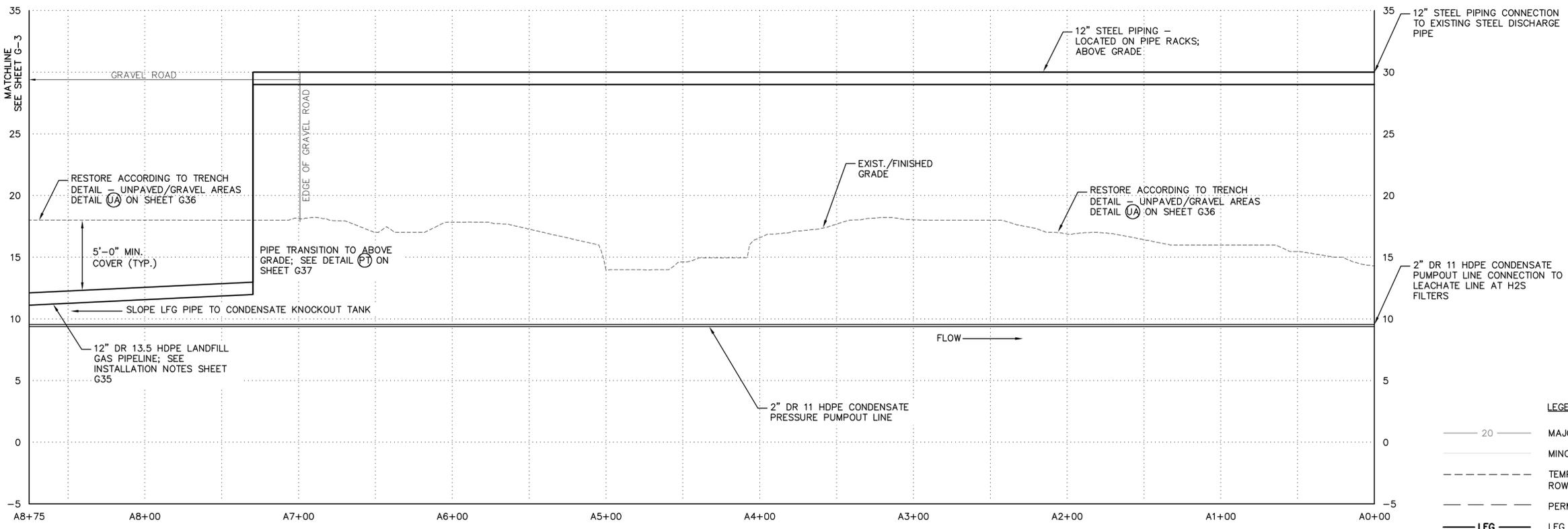
LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE F-100 MOUNTAIN LAKE, NJ 07046 (732) 316-6041 (PHONE) 1-973-394-5630 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGGIO (BAL) 1104 FERNWOOD AVENUE SUITE 501 CAMP HILL, PA 17011 (717) 737-8338 (PHONE) (717) 737-8338 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

NO.	REVISIONS

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON



**PROFILE**  
HORIZONTAL SCALE: 1" = 40'-0"  
VERTICAL SCALE: 1" = 5'-0"

- LEGEND
- 20 — MAJOR CONTOUR
  - MINOR CONTOUR
  - - - - - TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
  - - - - - PERMANENT CONSTRUCTION ROW
  - LFG — LFG PIPELINE
  - - - - - PROPERTY BOUNDARY
  - - - - - WATERWAY
  - — — — CONDENSATE LINE
  - - - - - GRAVEL ROADWAY
  - — — — ASPHALT ROADWAY
  - - - - - NEW EQUIPMENT CLEARANCE PAD

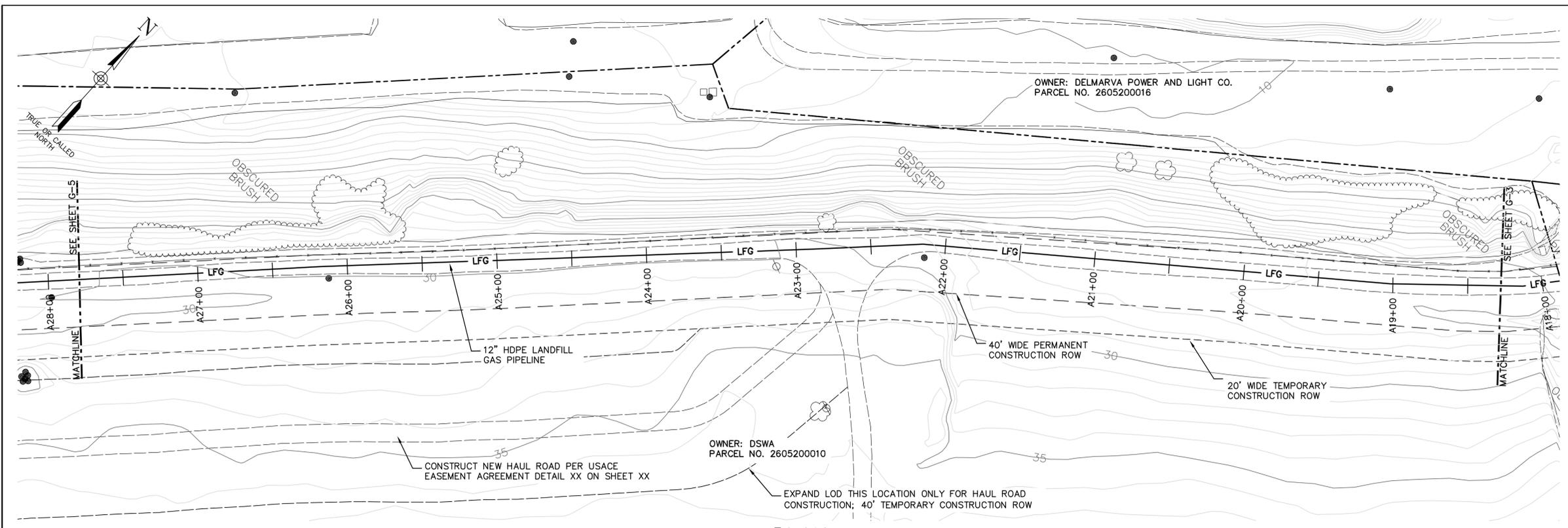
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 File Number: 1362.001-03F

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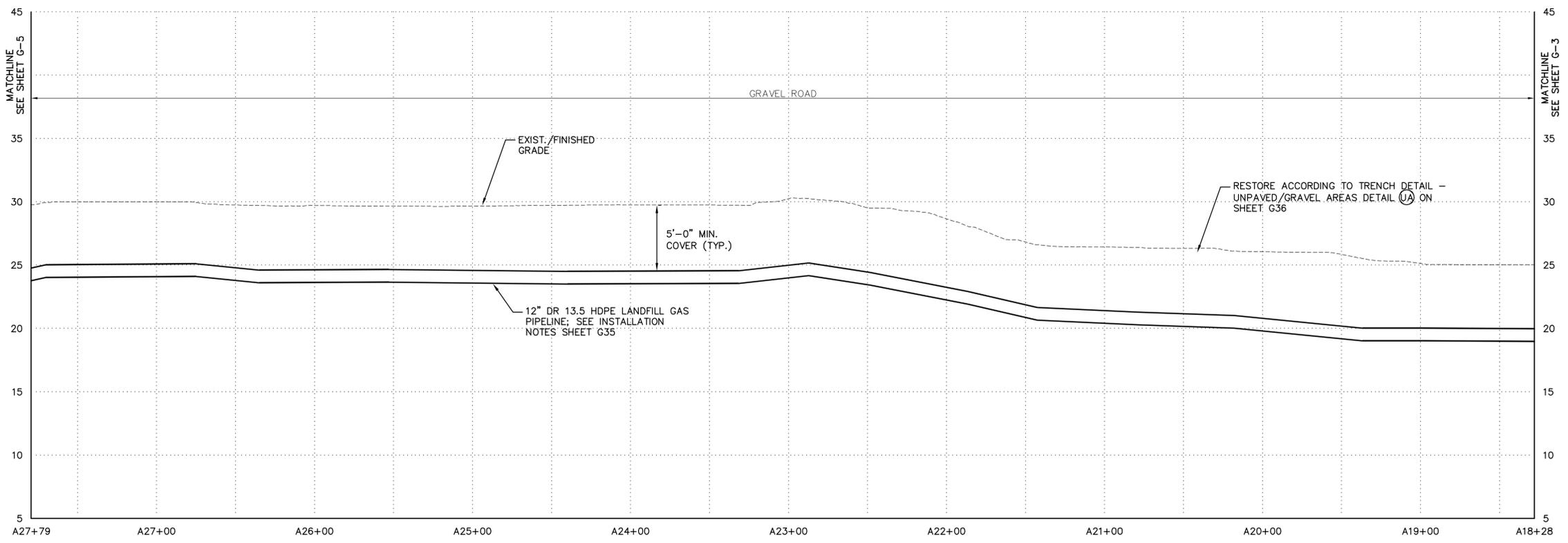




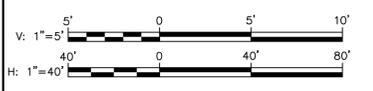
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 Drawn by: AND  
 Designed by: SCS  
 In charge of: SCS  
 Checked by: SYR  
 By: scs



**PLAN**  
 SCALE: 1" = 40'-0"



**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"



- NOTES:
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  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
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  6. REFER TO DETAIL SHEETS G35-G39 FOR ADDITIONAL CONSTRUCTION INFORMATION.
  7. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1-100 MOUNTAIN LAKE, NJ 07046  
 1-973-316-8041 (PHONE) 1-973-394-9830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 SHAR HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By: \_\_\_\_\_ Date: \_\_\_\_\_  
 Ck'd: \_\_\_\_\_ Date: \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON

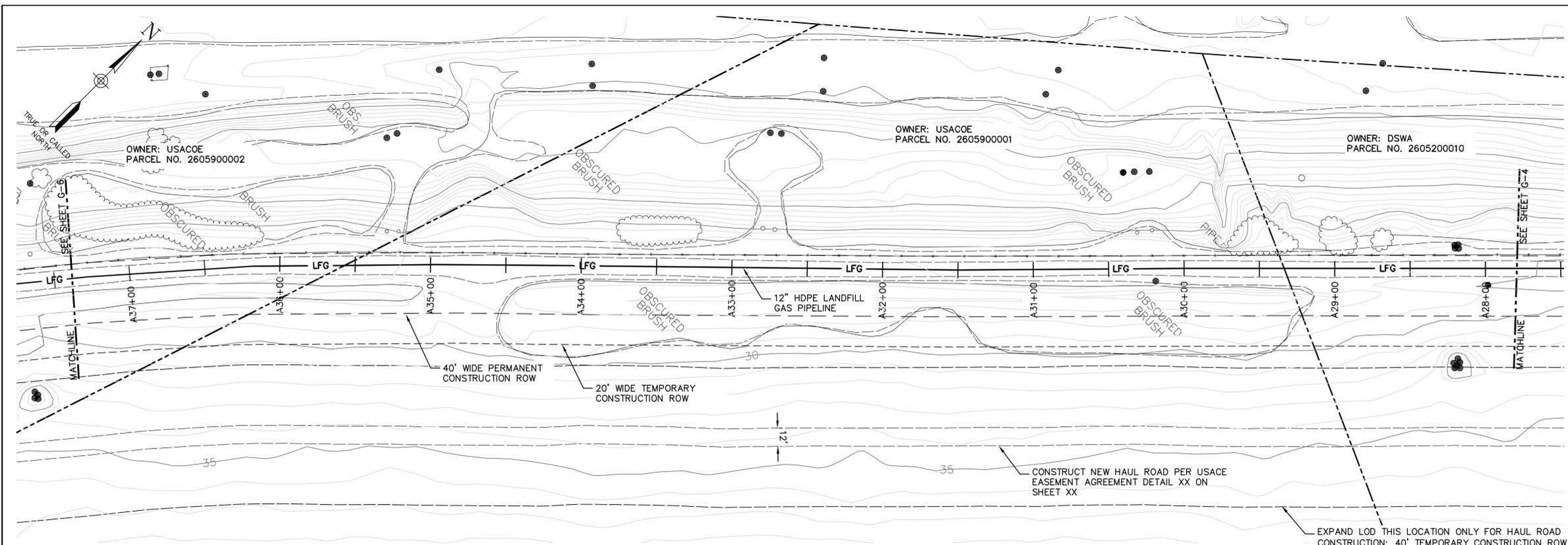


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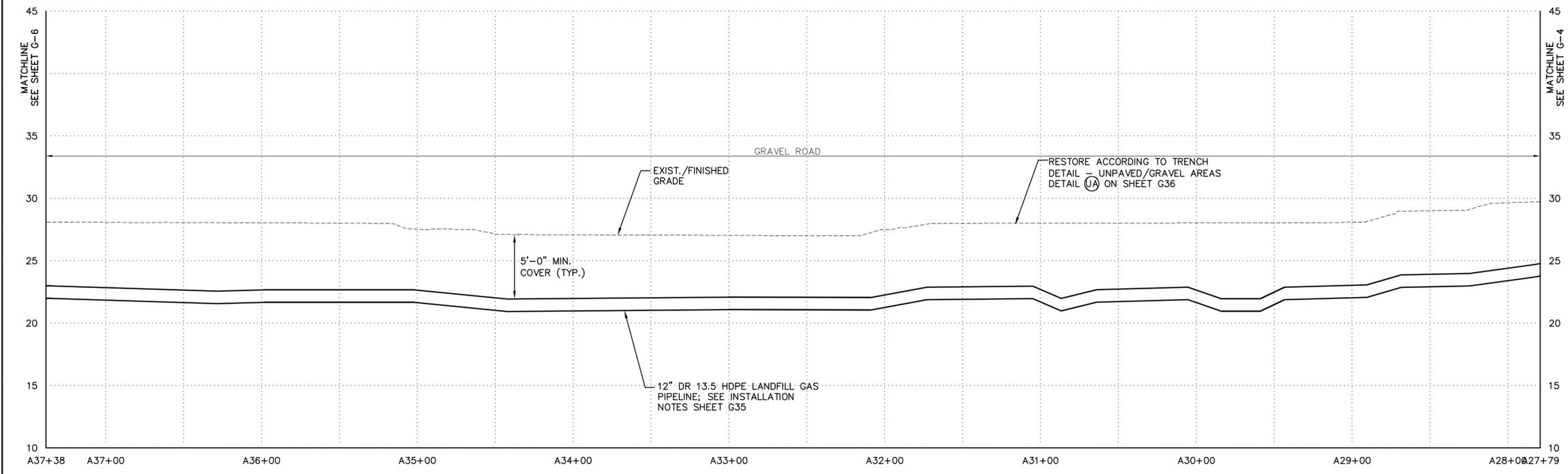
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	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY

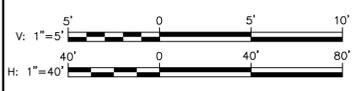
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 Designed by SCS  
 In charge of SCS  
 Checked by  
 SYR By: scs



**PLAN**  
 SCALE: 1" = 40'-0"



**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"



**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY

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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1000 MIDDLETOWN LAKES, NJ 07044  
 1-973-316-8041 (PHONE) 1-973-394-5830 (FAX)

OWNER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 EAST HAVEN, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

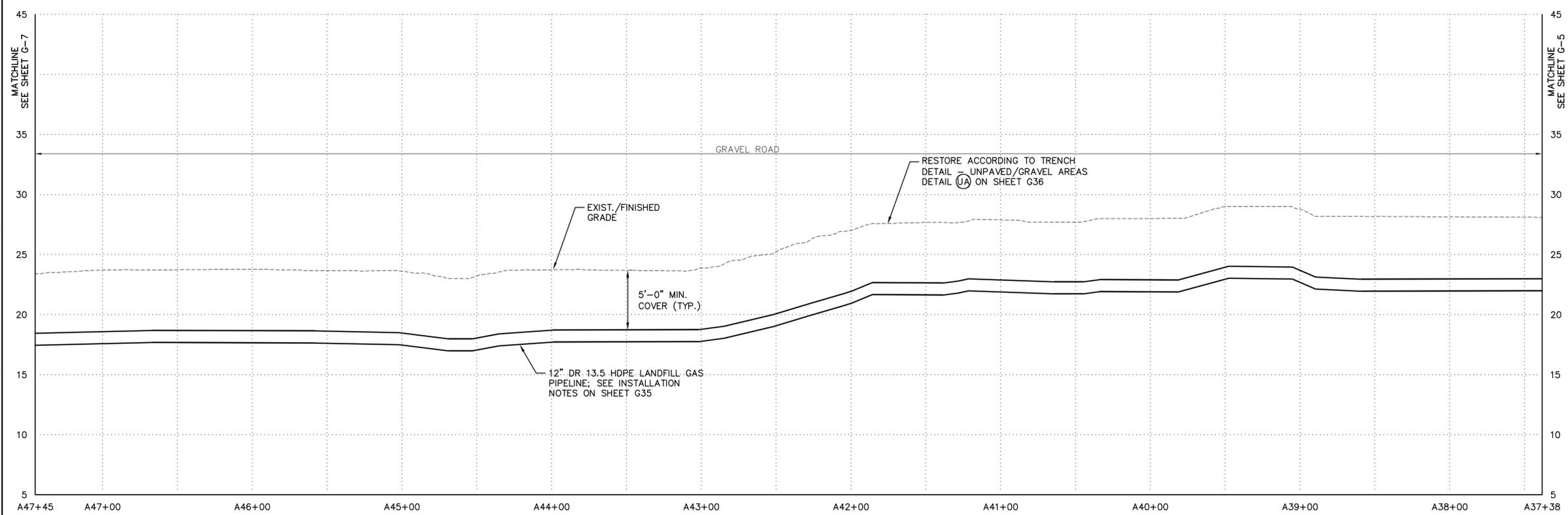
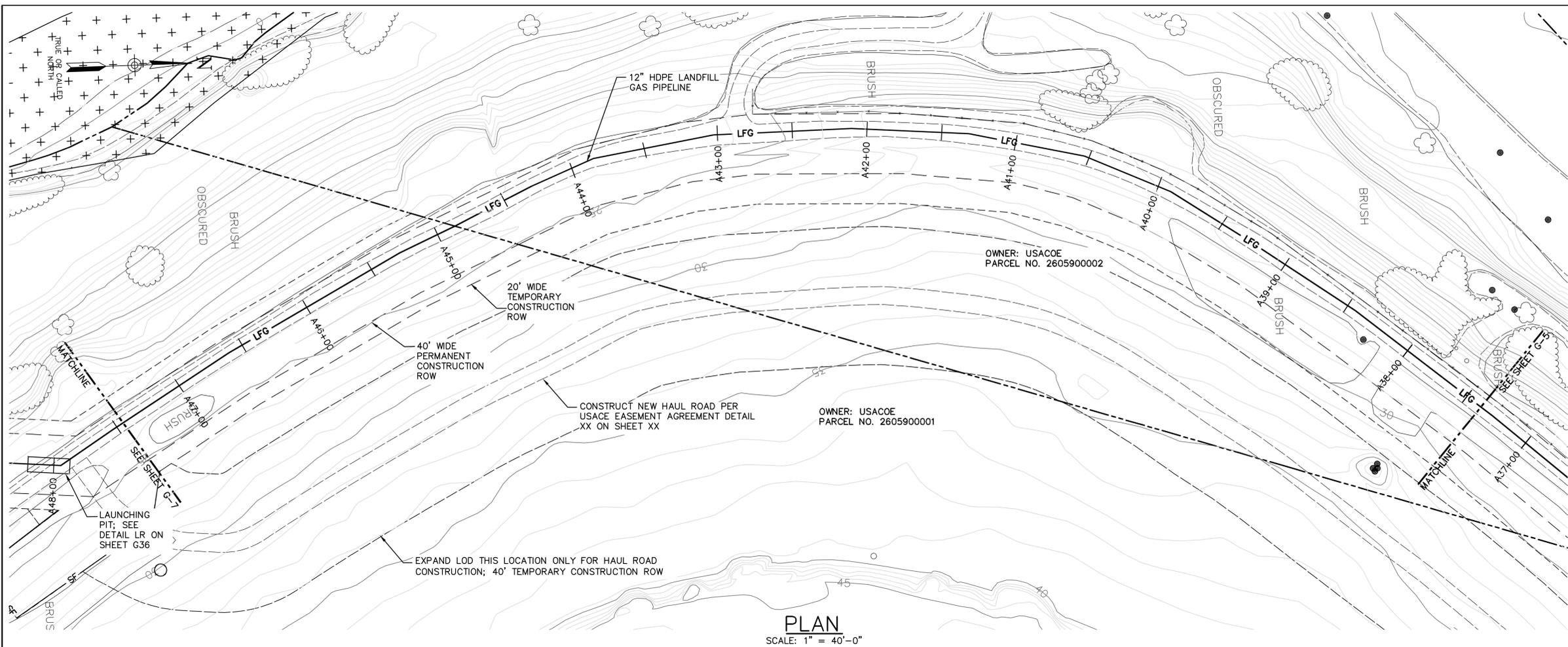
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REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 CITY OF WILMINGTON  
 NEW CASTLE COUNTY, DELAWARE



DATE: \_\_\_\_\_  
 Date  
 DECEMBER, 2011  
 Scale  
 AS SHOWN  
 Sheet Number  
**G-5**  
 File Number  
 1362.001-06F



- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1-100 MOUNTAIN LAKE, NJ 07046  
1-973-316-8041 (PHONE) 1-973-394-9830 (FAX)

OWNER/APPLICANT: BARTON AND LOGGIDICE (B&L) 1154 FERNWOOD AVENUE SUITE 501 BIRK BEACH, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Ck'd: \_\_\_\_\_ Date: \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

BARTON & LOGGIDICE, P.C.

CITY OF WILMINGTON  
NEW CASTLE COUNTY, DELAWARE



**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY
	WETLANDS

DATE: \_\_\_\_\_  
Date  
DECEMBER, 2011

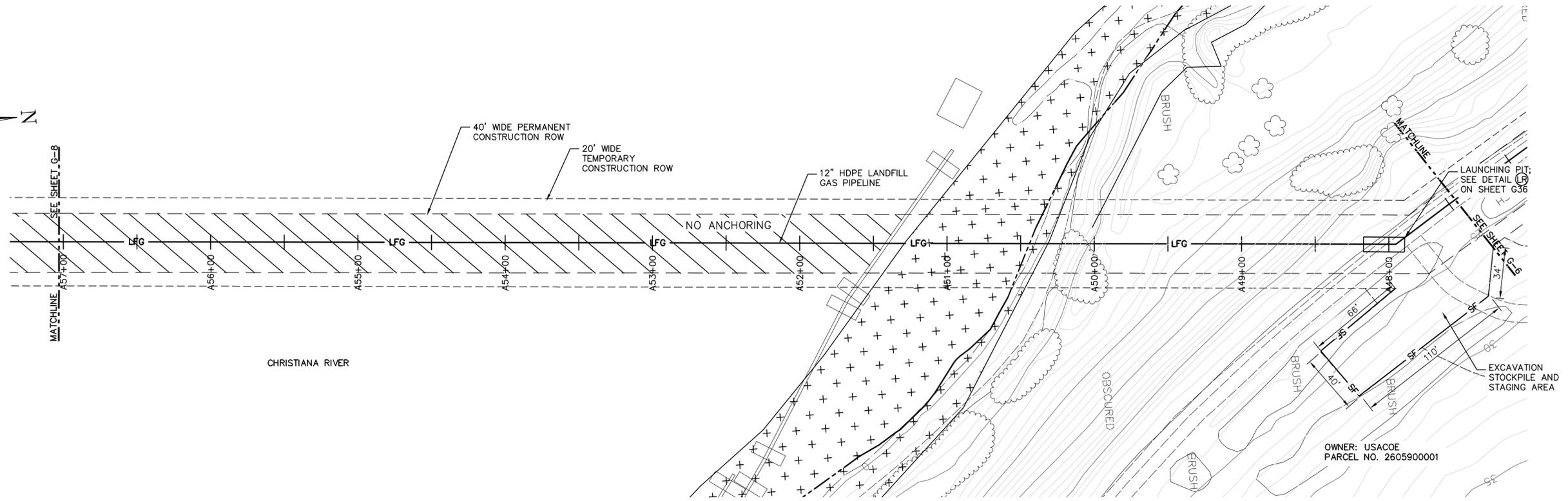
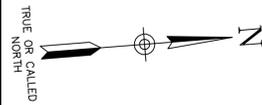
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File Number  
1362.001-07F

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Plotted: Dec 14, 2011 - 9:27AM By: sca  
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**PLAN**

SCALE: 1" = 40'-0"

OWNER: USACOE  
 PARCEL NO. 2605900001

**NOTES:**

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3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
4. CONTRACTOR SHALL NOT ENTER THE WETLANDS. WETLANDS ARE NOT INCLUDED IN THE LIMIT OF DISTURBANCE.
5. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

**LEGEND**

- 20 —— MAJOR CONTOUR
- MINOR CONTOUR
- - - - - TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
- PERMANENT ROW
- LFG —— LFG PIPELINE
- - - - - PROPERTY BOUNDARY
- WATERWAY
- CONDENSATE LINE
- - - - - GRAVEL ROADWAY
- ASPHALT ROADWAY
- WETLANDS
- ▨▨▨▨▨▨▨▨ NO ANCHORING
- SF —— SILT FENCE



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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1-1000 MOUNTAIN LAKE, NJ 07094  
 1-973-316-8041 (PHONE) 1-973-394-5830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGGIDICE (B&L) 1104 FERNWOOD AVENUE SUITE 501 EAST HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**PIPELINE  
 PLAN AND PROFILE**

NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON

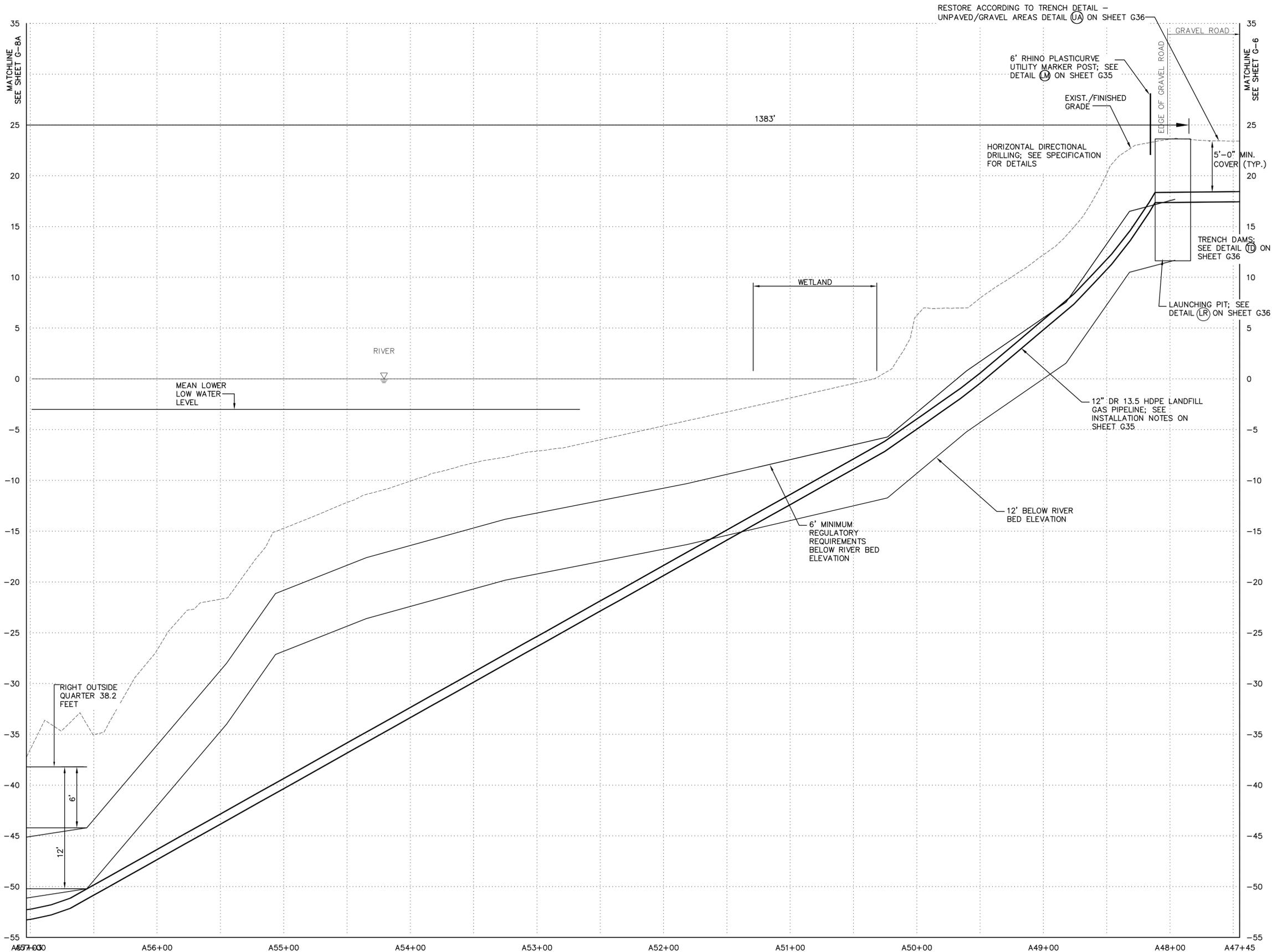


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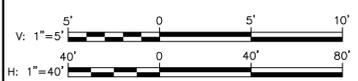
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File Number  
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**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"



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  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING OPEN CUT TRENCHING METHOD TO THE POINT OF LAUNCHING PIT AS SEEN ON THIS SHEET. THE LANDFILL GAS PIPELINE WILL THEN BE PLACED USING DIRECTIONAL DRILLING METHODS UNDER THE RIVER, AS SEEN ON THIS SHEET.
  5. SOURCE OF WATER DATA IS BASED ON MEAN LOWER LOW WATER LEVEL (MLLW). ALL ELEVATIONS FOR DREDGING OPERATIONS AND RIVER BED ELEVATIONS OBTAINED FROM THE DEPARTMENT OF THE ARMY IN SURVEYS DATED 2007. ELEVATIONS WERE BASED ON THREE FEET BELOW MLLW.
  6. REGULATORY REQUIREMENTS SPECIFY PIPELINES MUST BE AT LEAST SIX (6) FEET BELOW THE RIVER BED ELEVATION AT THE SHIP CROSSING LOCATION. PROPOSED LFG PIPELINE WILL BE AT LEAST TWELVE (12) FEET BELOW RIVER BED ELEVATION IN THE SHIP CROSSING LOCATION BASED ON FUTURE DREDGING DEPTHS.
  7. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGGIDICE, P.C. ANY REUSE OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGGIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL GOVERN.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1-100 MOUNTAIN LAKE, NJ 07046 1-973-316-8041 (PHONE) 1-973-394-5830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGGIDICE (B&L) 1154 FERNWOOD AVENUE SUITE 501 SHIP HILL, PA 17011 (717) 737-8338 (PHONE) (717) 737-8338 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

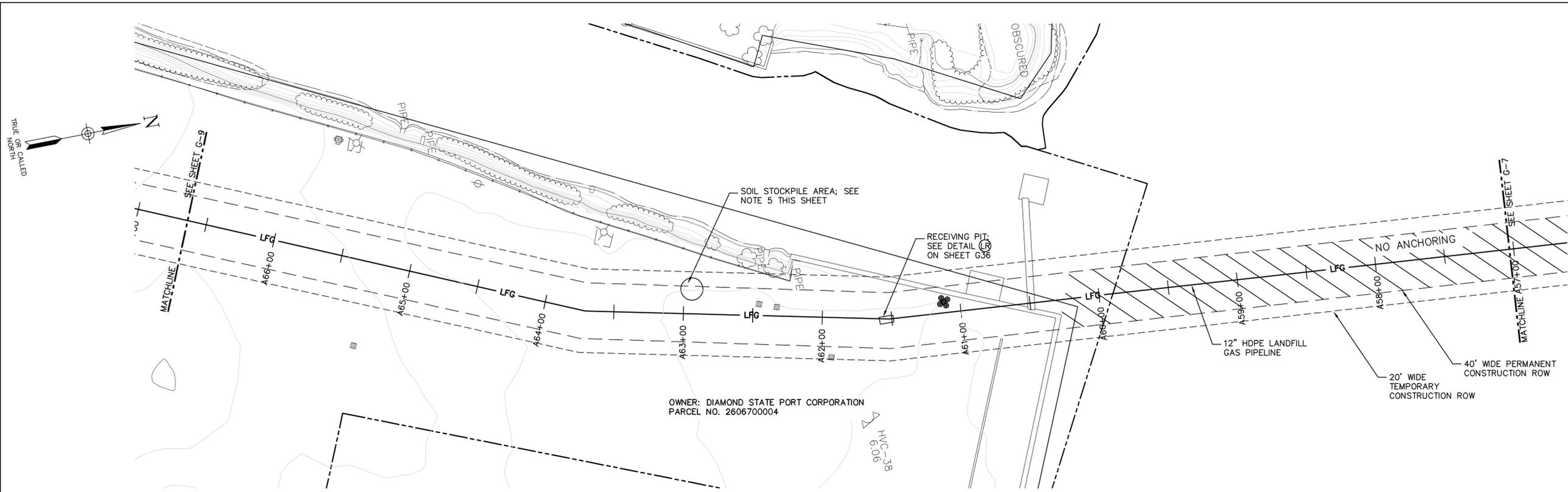
REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**Barton & Loggidge, P.C.**

CITY OF WILMINGTON  
 NEW CASTLE COUNTY, DELAWARE

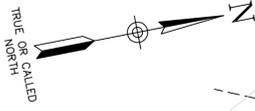
DATE: \_\_\_\_\_  
 Date: DECEMBER, 2011  
 Scale: AS SHOWN  
 Sheet Number: G-7B  
 File Number: 1362.001-09F



**PLAN**

SCALE: 1" = 40'-0"

OWNER: DIAMOND STATE PORT CORPORATION  
 PARCEL NO. 2606700004



**NOTES:**

1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES, AERIAL SURVEY CONDUCTED MAY 2011.
4. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.
5. EXCAVATED SOIL FROM RECEIVING PIT SHALL BE STORED IN STOCKPILE AS SHOWN OR IN DUMPTRUCKS. STOCKPILE WILL BE COVERED WITH PLASTIC AND SECURED WITH BALLASTING MATERIAL.

**LEGEND**

- 20 —— MAJOR CONTOUR
- MINOR CONTOUR
- - - - - TEMPORARY CONSTRUCTION ROW/  
LIMIT OF DISTURBANCE (LOD)
- PERMANENT ROW
- LFG —— LFG PIPELINE
- - - - - PROPERTY BOUNDARY
- WATERWAY
- CONDENSATE LINE
- - - - - GRAVEL ROADWAY
- ASPHALT ROADWAY
- ▨▨▨▨▨ NO ANCHORING

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL GOVERN.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1000 MOUNTAIN LAKE, NJ 07046  
 1-973-316-8041 (PHONE) 1-973-394-5830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (B&L) 1104 FERNWOOD AVENUE SUITE 501 SHARPS HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

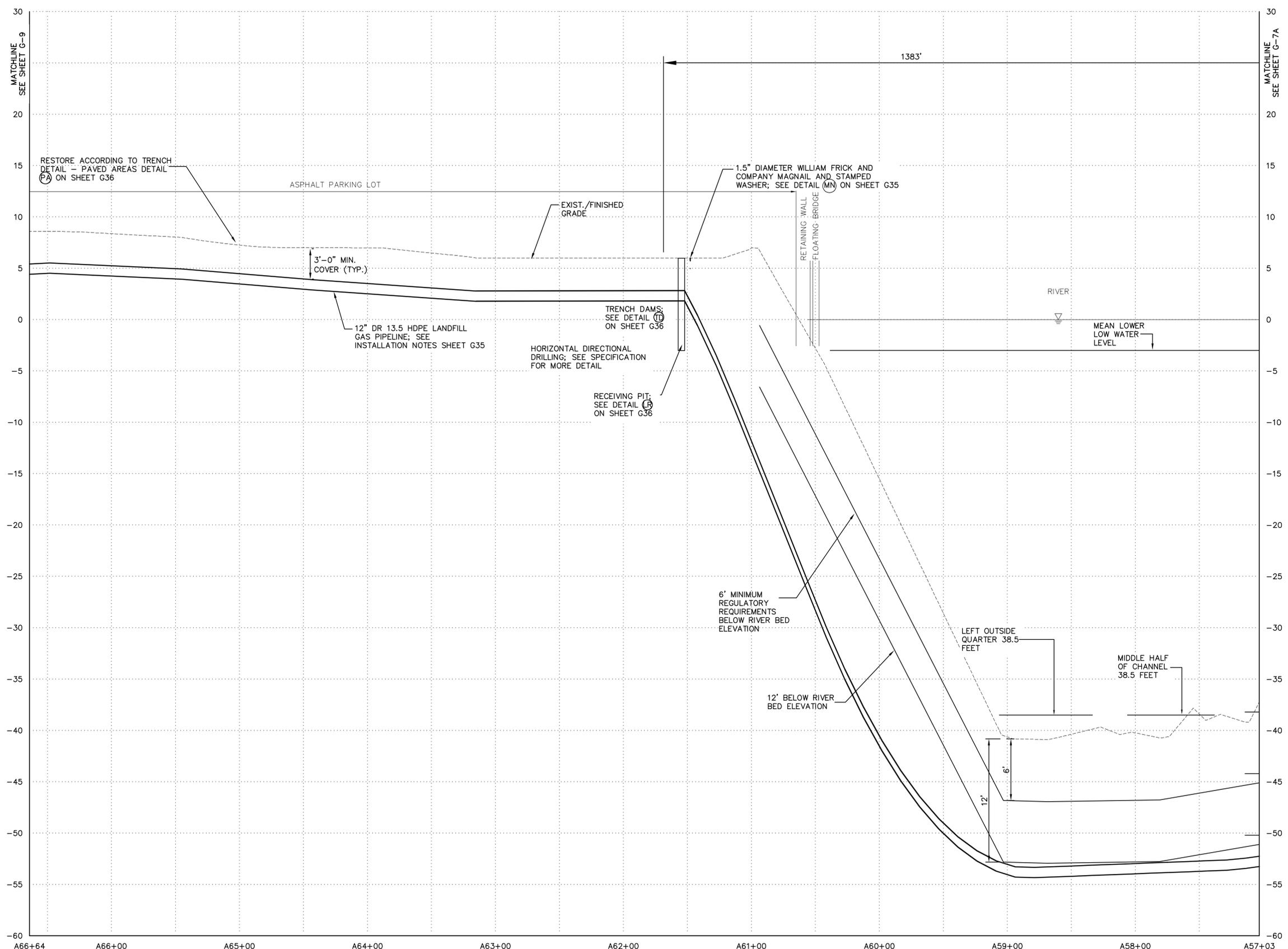
PIPELINE PLAN

CITY OF WILMINGTON NEW CASTLE COUNTY, DELAWARE

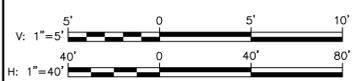


DATE: \_\_\_\_\_  
 Date DECEMBER, 2011  
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 Sheet Number G-8A  
 File Number 1362.001-10F

Plotted: Dec 14, 2011 - 9:30AM  
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 Drawn by: AND  
 Checked by: SCS  
 In charge of: SCS



**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"



- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING DIRECTIONAL DRILLING METHODS UNDER THE RIVER, AS SHOWN ON THIS SHEET. THE REMAINING LANDFILL GAS PIPELINE, AS SEEN ON THIS SHEET, WILL BE PLACED USING OPEN CUT TRENCHING METHODS.
  5. SOURCE OF WATER DATA IS BASED ON MEAN LOWER LOW WATER LEVEL (MLLW). ALL ELEVATIONS FOR DREDGING OPERATIONS AND RIVER BED ELEVATIONS OBTAINED FROM THE DEPARTMENT OF THE ARMY IN SURVEYS DATED 2007. ELEVATIONS WERE BASED ON THREE FEET BELOW MLLW.
  6. REGULATORY REQUIREMENTS SPECIFY PIPELINES MUST BE AT LEAST SIX (6) FEET BELOW THE RIVER BED ELEVATION AT THE SHIP CROSSING LOCATION. PROPOSED LFG PIPELINE WILL BE AT LEAST TWELVE (12) FEET BELOW RIVER BED ELEVATION IN THE SHIP CROSSING LOCATION BASED ON FUTURE DREDGING DEPTHS.
  7. THE LIMIT OF DISTURBANCE IN PAVED AREAS WILL BE LIMITED TO THE 3' TRENCH.
  8. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

**LEGEND**

	20	MAJOR CONTOUR
		MINOR CONTOUR
		TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
		PERMANENT ROW
		LFG PIPELINE
		PROPERTY BOUNDARY
		WATERWAY
		CONDENSATE LINE
		GRAVEL ROADWAY
		ASPHALT ROADWAY

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGGIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGGIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 1104 FERNWOOD AVENUE SUITE 501  
 SHAR HILL, PA 17011 (717) 737-8328 (PHONE)  
 (717) 737-8328 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGGIDICE  
 1841 1104 FERNWOOD AVENUE SUITE 501  
 SHAR HILL, PA 17011 (717) 737-8328 (PHONE)  
 (717) 737-8328 (FAX)

By: \_\_\_\_\_ Date: \_\_\_\_\_  
 Ck'd: \_\_\_\_\_ Date: \_\_\_\_\_

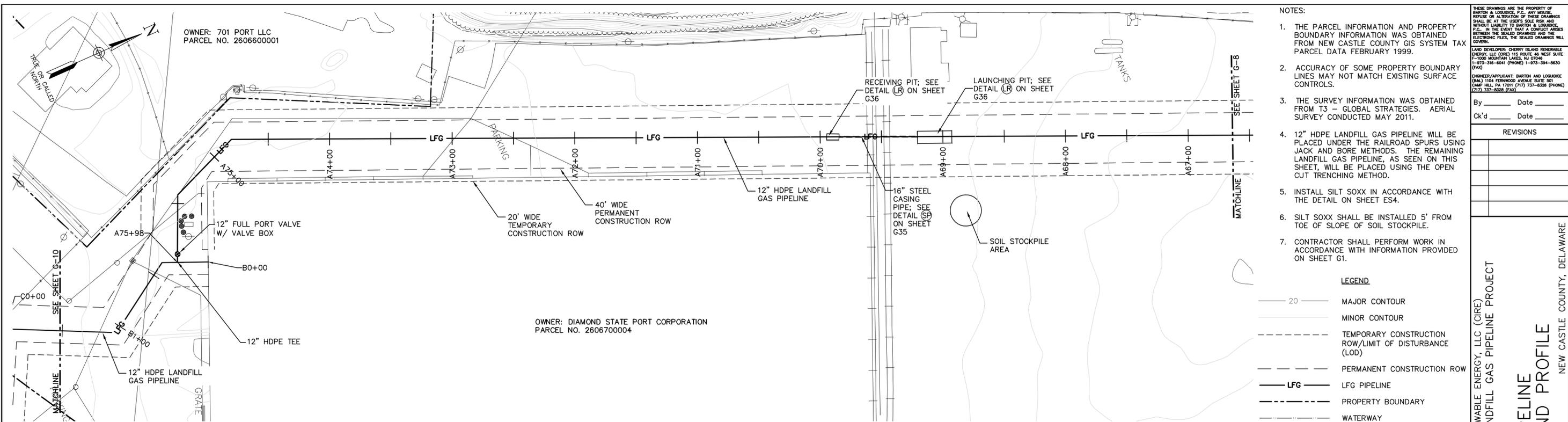
REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**Barton & Loggidge, P.C.**

DATE: \_\_\_\_\_  
 Date: DECEMBER, 2011  
 Scale: AS SHOWN  
 Sheet Number: G-8B  
 File Number: 1362.001-11F

CITY OF WILMINGTON  
 NEW CASTLE COUNTY, DELAWARE



OWNER: DIAMOND STATE PORT CORPORATION  
PARCEL NO. 2606700004

**PLAN**  
SCALE: 1" = 40'-0"

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED UNDER THE RAILROAD SPURS USING JACK AND BORE METHODS. THE REMAINING LANDFILL GAS PIPELINE, AS SEEN ON THIS SHEET, WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  5. INSTALL SILT SOXX IN ACCORDANCE WITH THE DETAIL ON SHEET ES4.
  6. SILT SOXX SHALL BE INSTALLED 5' FROM TOE OF SLOPE OF SOIL STOCKPILE.
  7. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

**LEGEND**

	20	MAJOR CONTOUR
		MINOR CONTOUR
		TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
		PERMANENT CONSTRUCTION ROW
		LFG PIPELINE
		PROPERTY BOUNDARY
		WATERWAY
		CONDENSATE LINE
		GRAVEL ROADWAY
		ASPHALT ROADWAY
		BUTTERFLY VALVE
		SILT SOXX

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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE) 115 ROUTE 46 WEST SUITE 1-1000 MIDDLETOWN LAKES, NJ 07044  
1-973-316-8041 (PHONE) 1-973-394-5830 (FAX)

ENGINEER/APPLICANT: BARTON & LOGGIDICE (B&L) 1104 FERNWOOD AVENUE SUITE 501 SHARPSHILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
Ck'd \_\_\_\_\_ Date \_\_\_\_\_

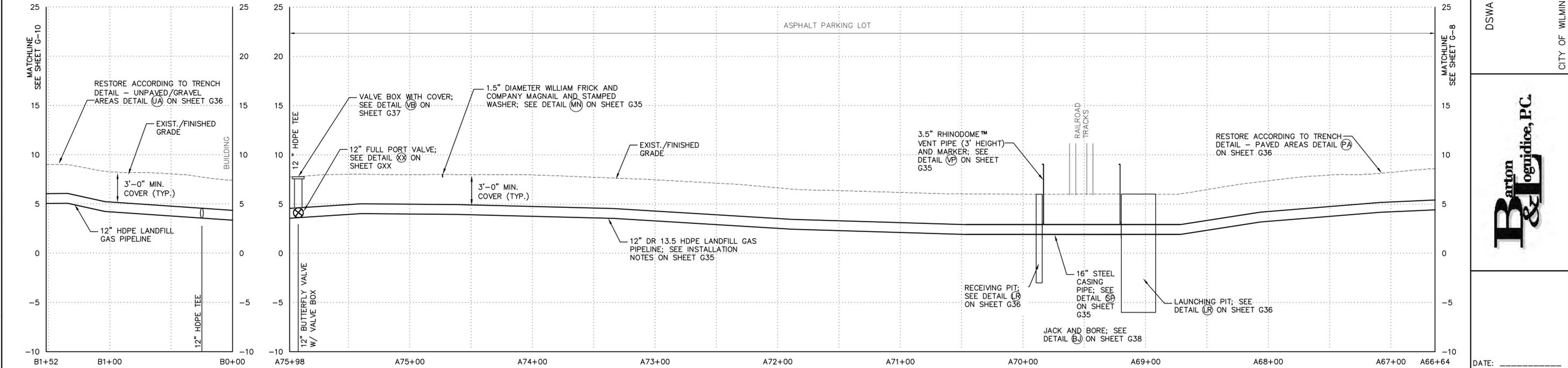
REVISIONS


CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**Barton & Loggidge, P.C.**

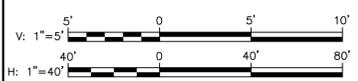
PIPELINE  
PLAN AND PROFILE

CITY OF WILMINGTON  
NEW CASTLE COUNTY, DELAWARE



**PROFILE**  
HORIZONTAL SCALE: 1" = 40'-0"  
VERTICAL SCALE: 1" = 5'-0"

**PROFILE**  
HORIZONTAL SCALE: 1" = 40'-0"  
VERTICAL SCALE: 1" = 5'-0"



Checked by \_\_\_\_\_  
 Drawn by \_\_\_\_\_ AND \_\_\_\_\_  
 Designed by \_\_\_\_\_ SCS  
 In charge of \_\_\_\_\_ SCS  
 Plotted: Dec 14, 2011 - 9:31AM  
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DATE: \_\_\_\_\_

Date  
DECEMBER, 2011

Scale  
AS SHOWN

Sheet Number  
G-9

File Number  
1362.001-12F

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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1000 MOUNTAIN LAKE, NJ 07046 1-973-316-8041 (PHONE) 1-973-394-5830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 SHARPS HILL, PA 17011 (717) 737-8335 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

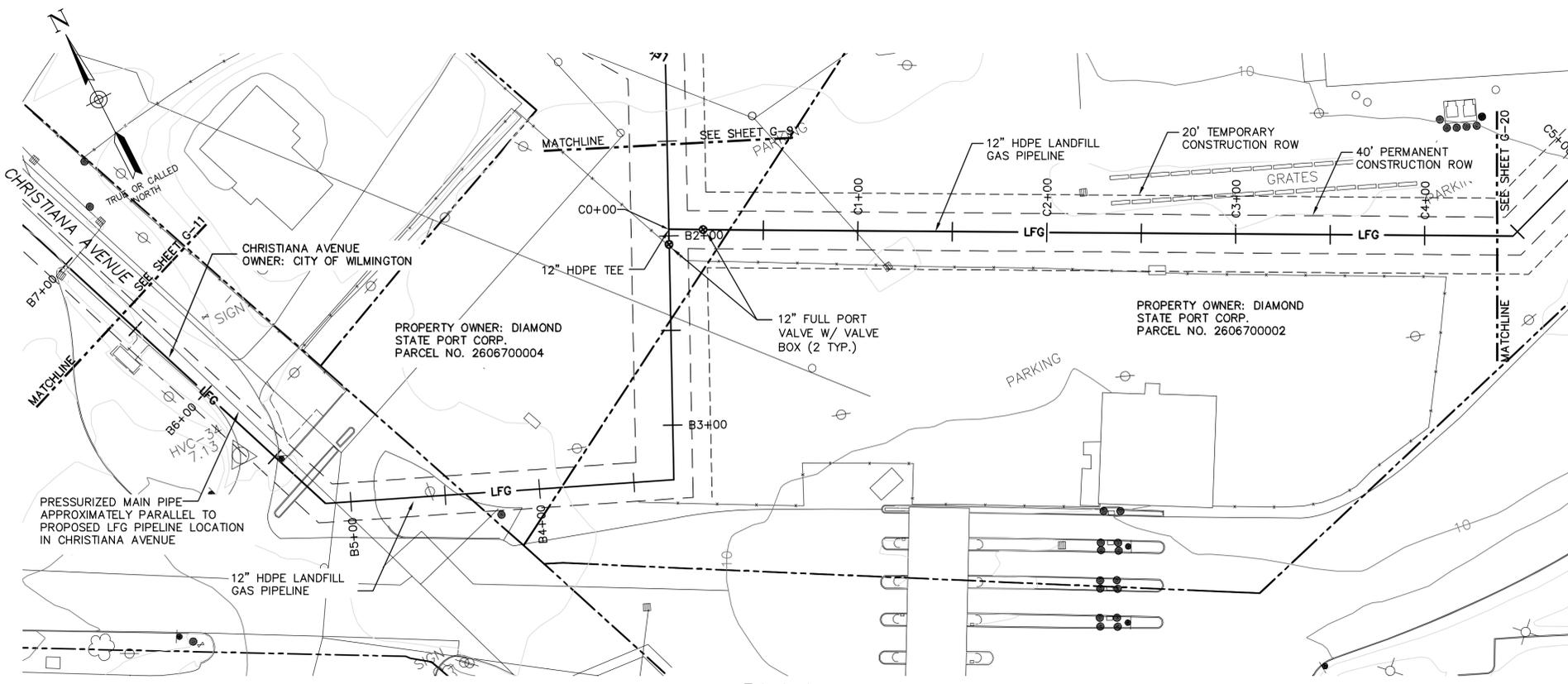
REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
 PIPELINE PLAN AND PROFILE  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON



DATE: \_\_\_\_\_  
 Date DECEMBER, 2011  
 Scale AS SHOWN  
 Sheet Number G-10  
 File Number 1362.001-13F

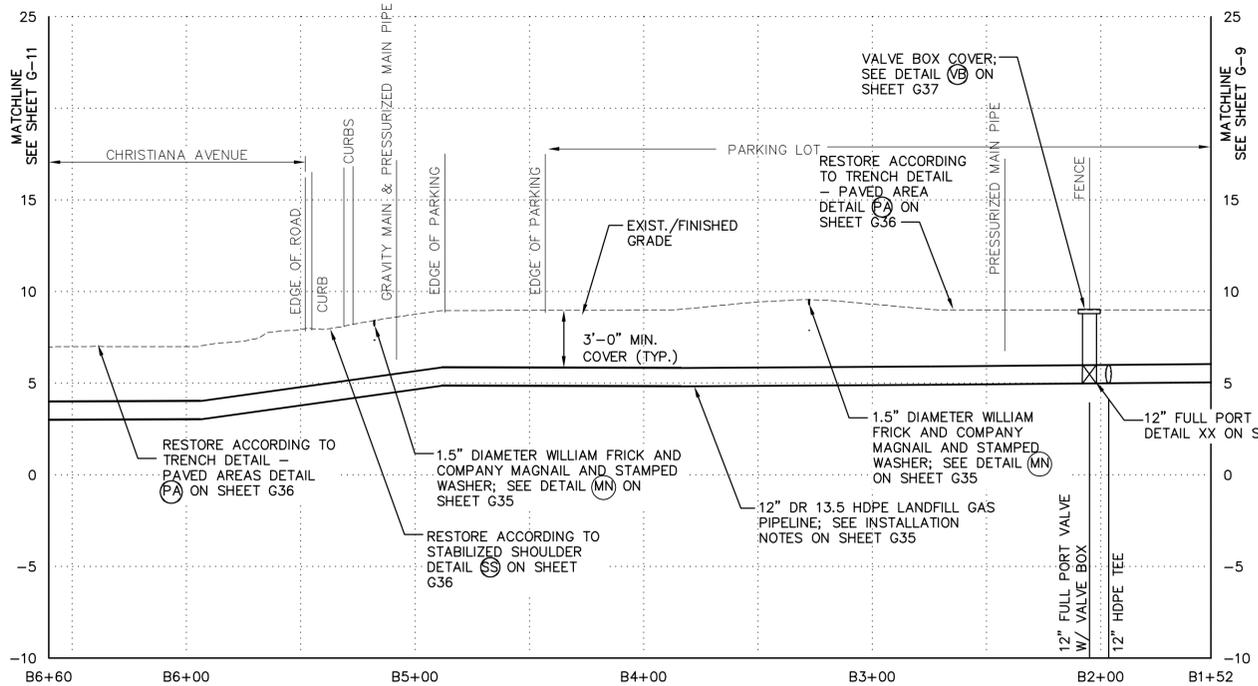
- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  5. IN PAVED AREAS, LIMIT OF DISTURBANCE WILL BE LIMITED TO 3' TRENCH.
  6. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.



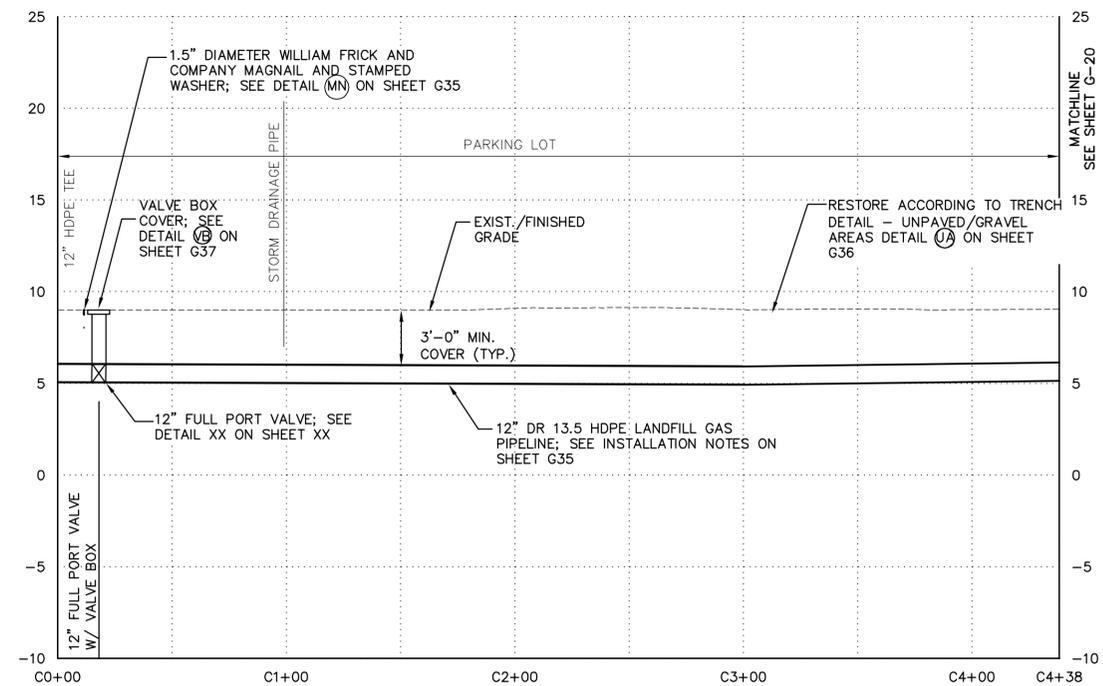
**PLAN**  
 SCALE: 1" = 40'-0"

**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY
	FULL PORT VALVE

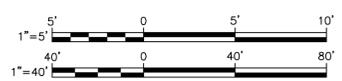


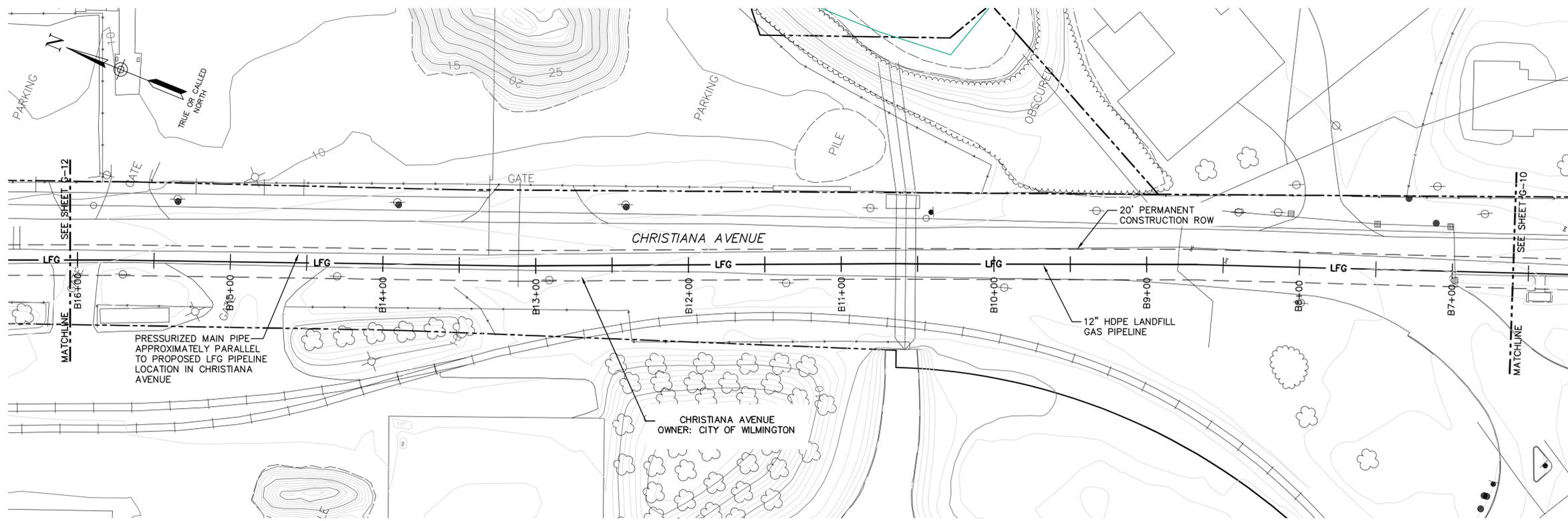
**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"



**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"

Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS In charge of \_\_\_\_\_ SCS  
 Plotted: Dec 14, 2011 - 10:34AM By: and  
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**PLAN**

SCALE: 1" = 40'-0"

**NOTES:**

1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
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OWNER/DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 48 WEST SUITE 1000 MOUNTAIN LAKE, NJ 07096  
 (973) 316-8041 (PHONE) 1-873-394-5830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 HART HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

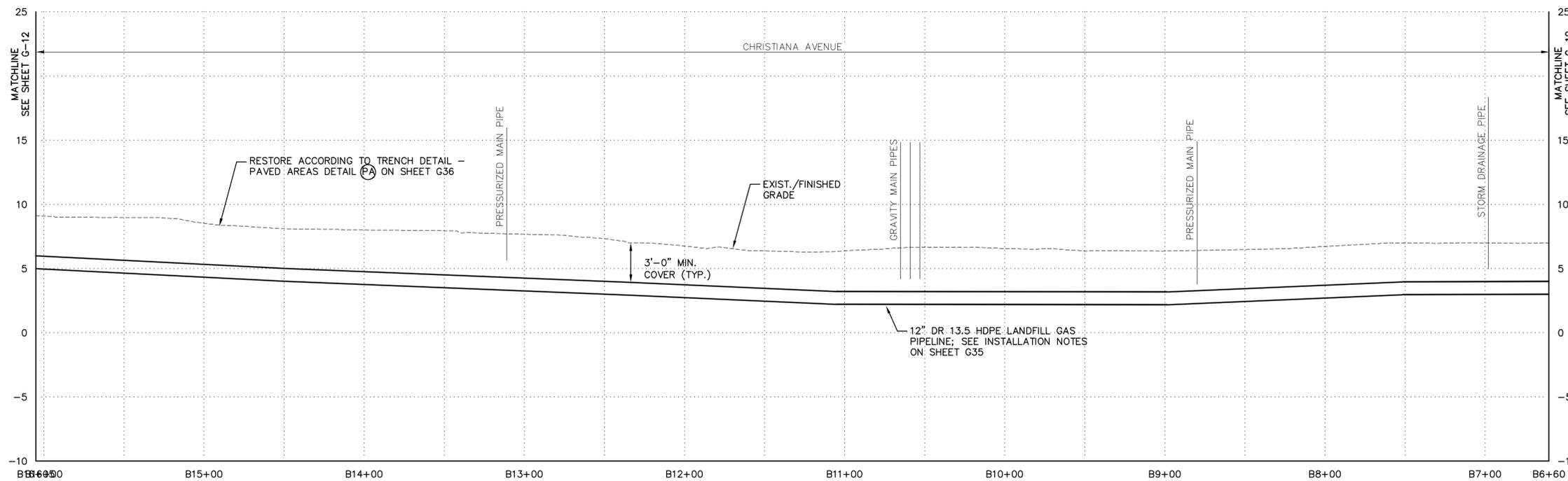
REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**Barton & Loguidice, P.C.**

PIPELINE  
 PLAN AND PROFILE

CITY OF WILMINGTON  
 NEW CASTLE COUNTY, DELAWARE



**PROFILE**

HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"

**LEGEND**

- 20 — MAJOR CONTOUR
- MINOR CONTOUR
- - - - - TEMPORARY CONSTRUCTION ROW
- PERMANENT CONSTRUCTION ROW
- LFG — LFG PIPELINE
- - - - - PROPERTY BOUNDARY
- WATERWAY
- CONDENSATE LINE
- - - - - GRAVEL ROADWAY
- ASPHALT ROADWAY

DATE: \_\_\_\_\_

Date DECEMBER, 2011

Scale AS SHOWN

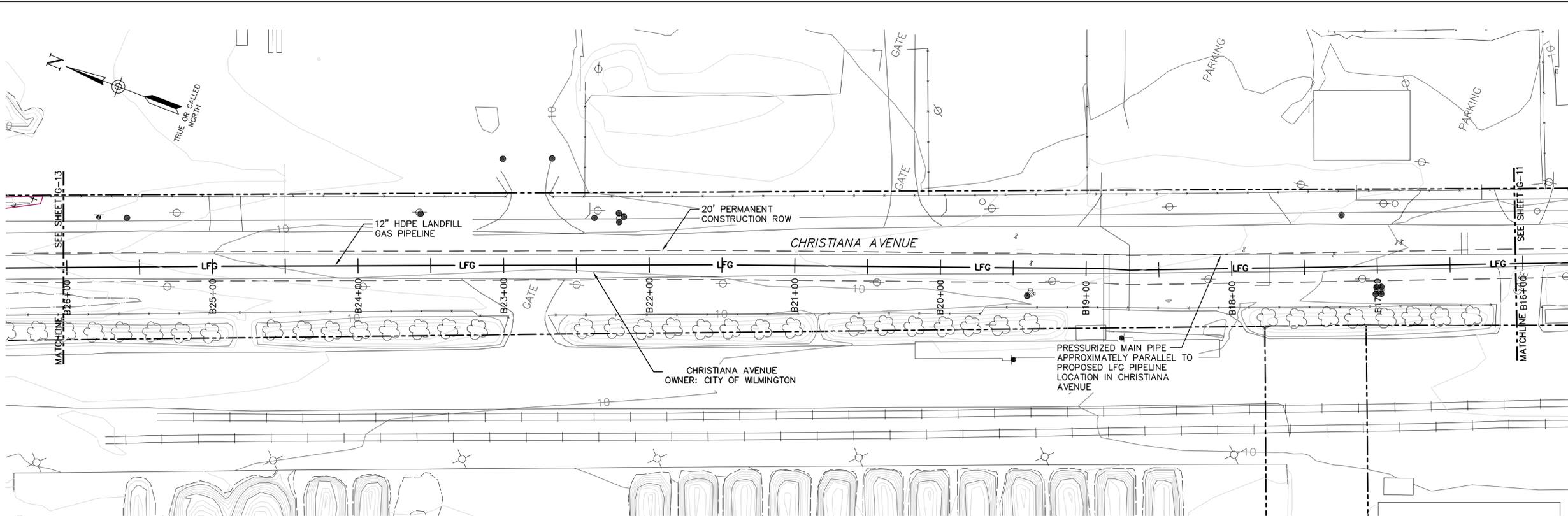
Sheet Number

G-11

File Number

1362.001-14F





**PLAN**  
SCALE: 1" = 40'-0"

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
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  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  5. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.
  6. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGGIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGGIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SCALED DRAWINGS AND THE ELECTRONIC FILES, THE SCALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
1500 NEWTOWN LAKES, NJ 07068  
1-973-316-8041 (PHONE) 1-973-384-5830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGGIDICE  
1841 1104 FERWOOD AVENUE SUITE 501  
DARTMOUTH, PA 17011 (717) 737-8328 (PHONE)  
(717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
Ck'd \_\_\_\_\_ Date \_\_\_\_\_

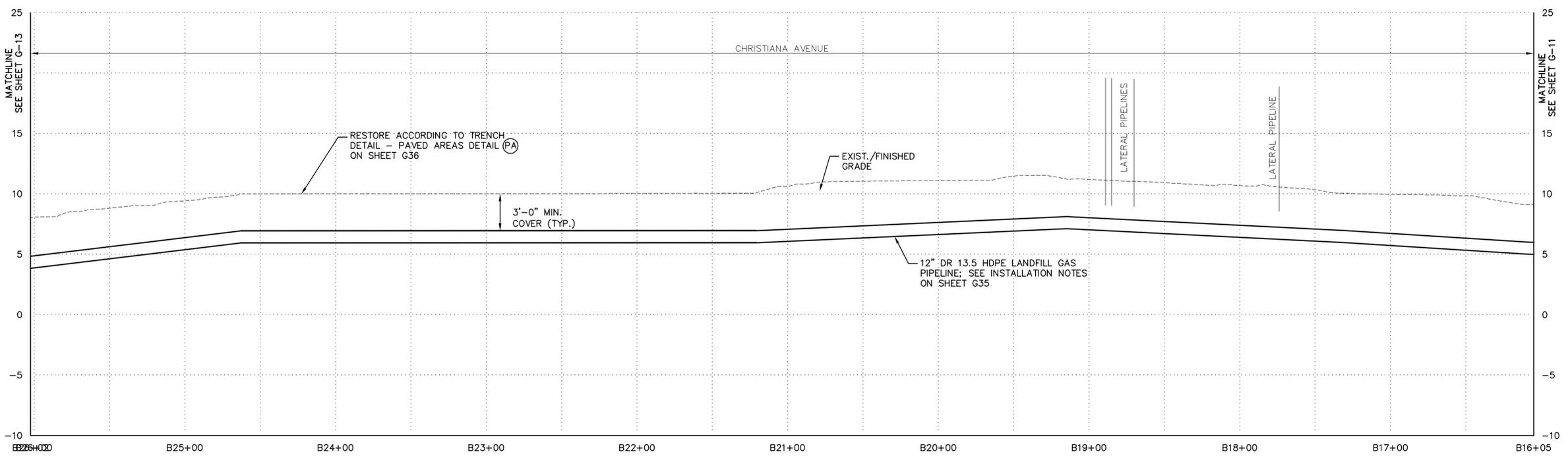
REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**Barton & Loggidge, P.C.**

PIPELINE  
PLAN AND PROFILE

CITY OF WILMINGTON  
NEW CASTLE COUNTY, DELAWARE

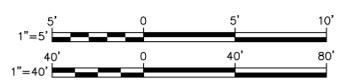


**PROFILE**  
HORIZONTAL SCALE: 1" = 40'-0"  
VERTICAL SCALE: 1" = 5'-0"

LEGEND

	20	MAJOR CONTOUR
		MINOR CONTOUR
		TEMPORARY CONSTRUCTION ROW
		PERMANENT CONSTRUCTION ROW
	LFG	LFG PIPELINE
		PROPERTY BOUNDARY
		WATERWAY
		CONDENSATE LINE
		GRAVEL ROADWAY
		ASPHALT ROADWAY

Checked by \_\_\_\_\_  
Drawn by \_\_\_\_\_ AND \_\_\_\_\_  
Designed by \_\_\_\_\_ SCS  
In charge of \_\_\_\_\_ SCS



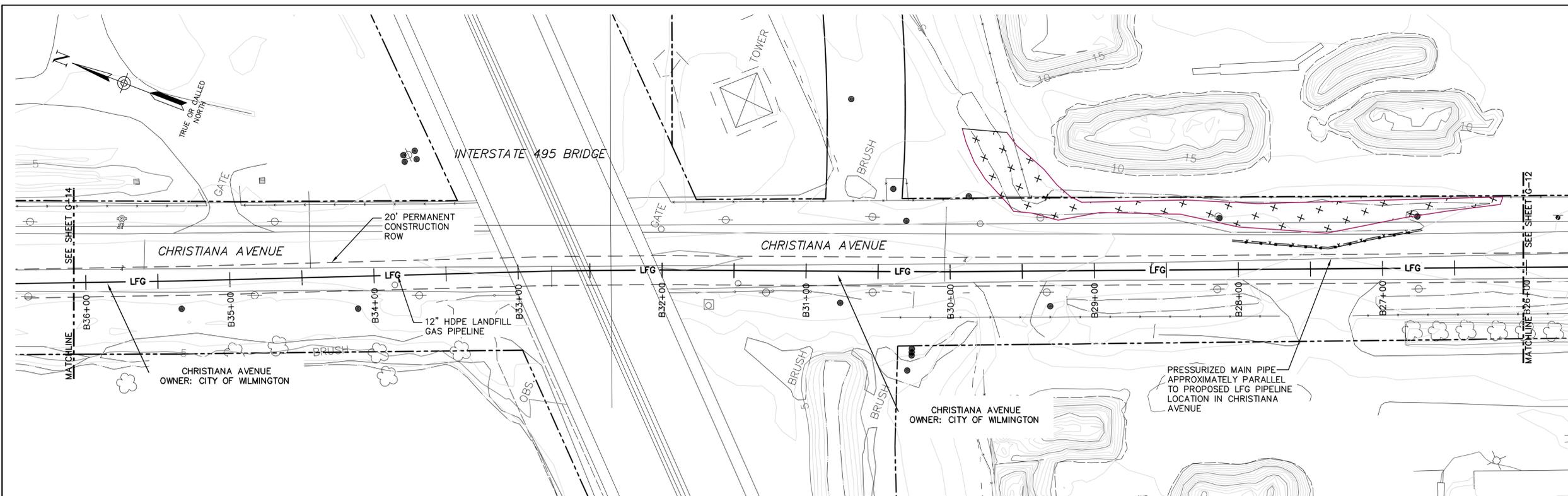
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DATE: \_\_\_\_\_  
Date  
DECEMBER, 2011

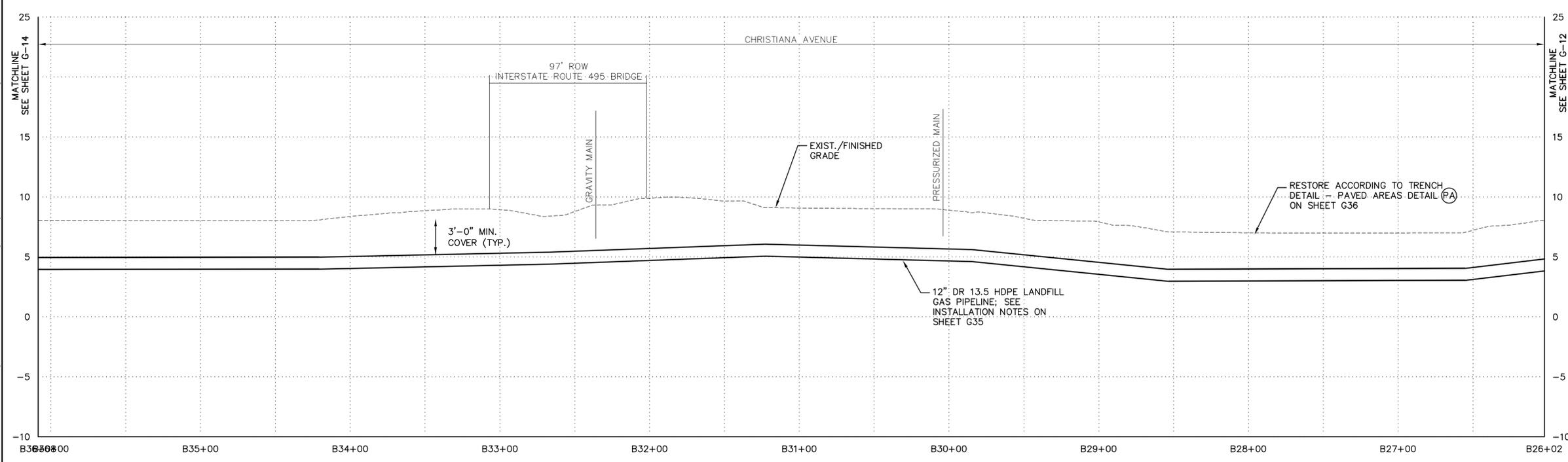
Scale  
AS SHOWN

Sheet Number  
**G-12**

File Number  
1362.001-15F



**PLAN**  
SCALE: 1" = 40'-0"



**PROFILE**  
HORIZONTAL SCALE: 1" = 40'-0"  
VERTICAL SCALE: 1" = 5'-0"

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
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  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  5. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.
  6. INSTALL PROTECTIVE FENCING 10' FROM WETLANDS BOUNDARIES IN AREAS WHERE DISTURBANCE WILL OCCUR WITHIN 20' OF WETLANDS BOUNDARIES. SEE PLAN VIEW FOR APPROXIMATE LOCATION OF PROTECTIVE FENCING. CONTRACTOR SHALL NOT ENTER THE WETLANDS. WETLANDS ARE NOT INCLUDED IN THE LIMIT OF DISTURBANCE.
  7. INSTALL PROTECTIVE FENCING IN ACCORDANCE WITH DETAIL ON SHEET E3.
  8. INSTALL SILT SOXX IN FRONT OF PROTECTIVE FENCING IN ACCORDANCE WITH DETAIL ON SHEET E3.
  9. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY
	WETLANDS
	SILT SOXX
	PROTECTIVE FENCE

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE) 115 ROUTE 46 WEST SUITE 1-100 MOUNTAIN LAKE, NJ 07046  
1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 EAST HILL, PA 17011 (717) 737-8338 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
Ck'd \_\_\_\_\_ Date \_\_\_\_\_

NO.	REVISIONS

CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE)  
DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**PIPELINE PLAN AND PROFILE**

NEW CASTLE COUNTY, DELAWARE  
CITY OF WILMINGTON



DATE: \_\_\_\_\_  
Date  
DECEMBER, 2011

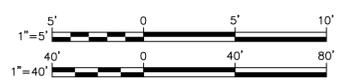
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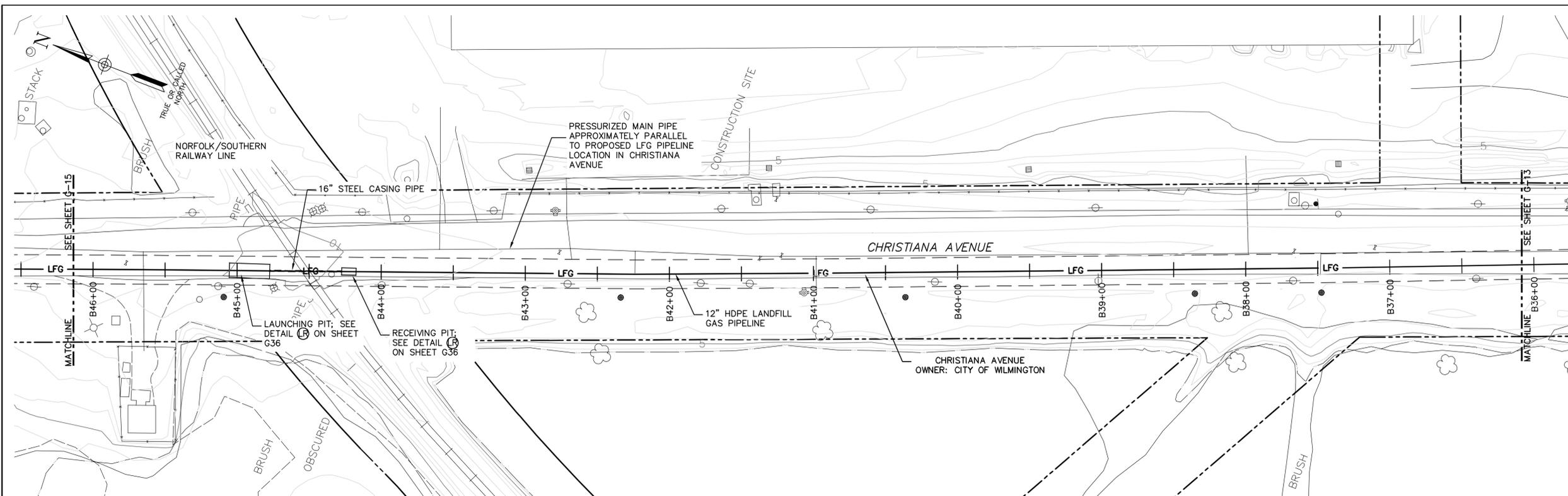
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**G-13**

File Number  
1362.001-16F

Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS \_\_\_\_\_ In charge of \_\_\_\_\_ SCS \_\_\_\_\_

Plotted: Dec 14, 2011 - 10:43AM SYR By: and  
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- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED UNDER RAILROAD SPURS USING THE JACK AND BORE METHOD. LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD FOR THE REMAINDER OF THE PIPELINE ROUTE DEPICTED ON THIS SHEET.
  5. SOIL FROM LAUNCH AND RECEIVE PITS WILL BE STORED IN DUMP TRUCKS ON SITE UNTIL PIPELINE PLACEMENT IS COMPLETE.
  6. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.
  7. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

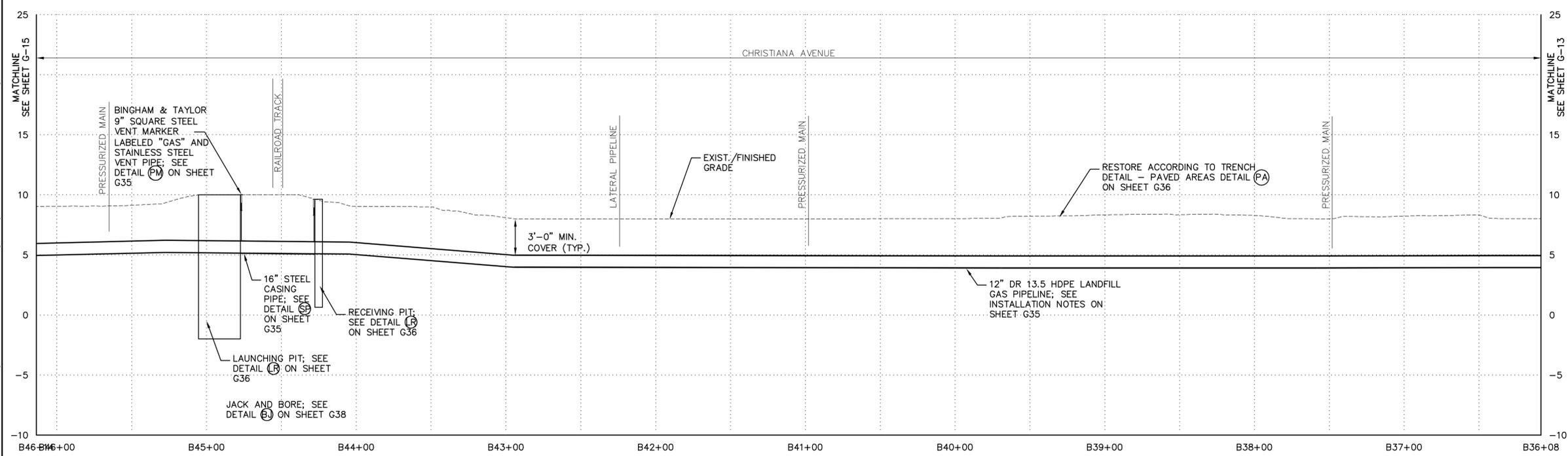
LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1-100 MOUNTAIN LAKE, NJ 07046  
PHONE: 1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501  
DARTMOUTH, PA 17011 (717) 737-8338 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
PIPELINE PLAN AND PROFILE  
NEW CASTLE COUNTY, DELAWARE  
CITY OF WILMINGTON

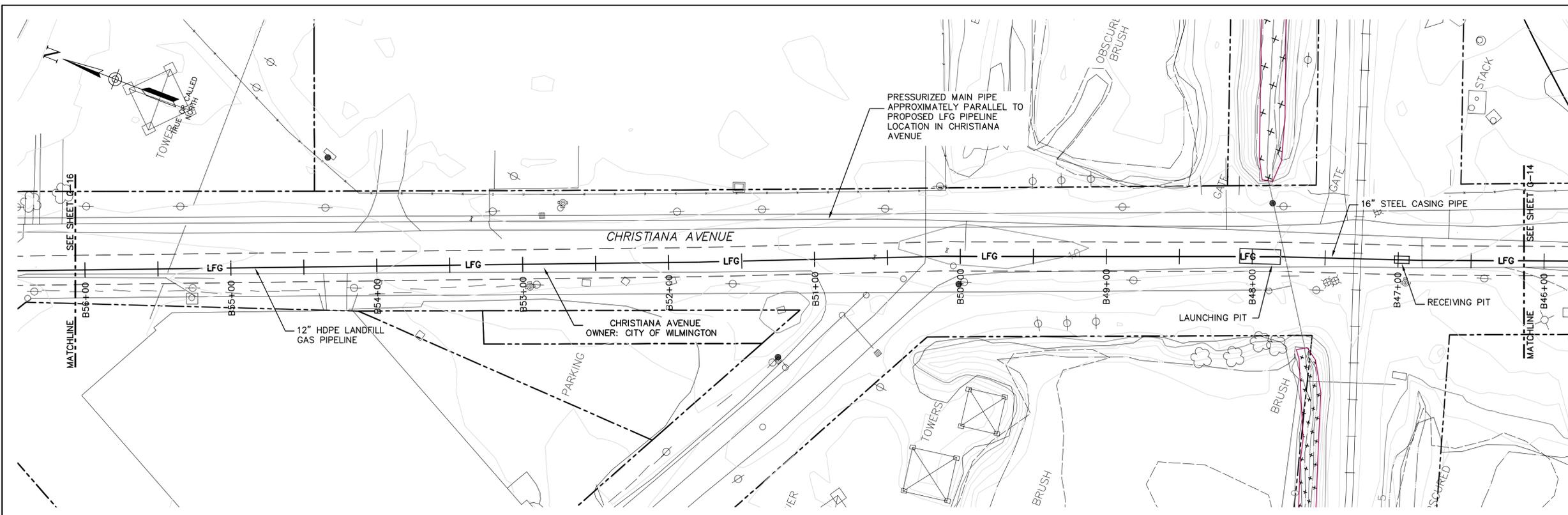


- LEGEND
- 20 MAJOR CONTOUR
  - MINOR CONTOUR
  - TEMPORARY CONSTRUCTION ROW
  - PERMANENT CONSTRUCTION ROW
  - LFG LFG PIPELINE
  - PROPERTY BOUNDARY
  - WATERWAY
  - CONDENSATE LINE
  - GRAVEL ROADWAY
  - ASPHALT ROADWAY

Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS In charge of \_\_\_\_\_ SCS

DATE: \_\_\_\_\_  
Date DECEMBER, 2011  
Scale AS SHOWN  
Sheet Number G-14  
File Number 1362.001-17F

Plotted: Dec 14, 2011 - 10:43AM SYR By: and  
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**PLAN**  
SCALE: 1" = 40'-0"

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED UNDER RAILROAD SPURS USING THE JACK AND BORE METHOD. LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD FOR THE REMAINDER OF THE PIPELINE ROUTE DEPICTED ON THIS SHEET.
  5. SOIL FROM LAUNCH AND RECEIVE PITS WILL BE STORED IN DUMP TRUCKS ON SITE UNTIL PIPELINE PLACEMENT IS COMPLETE.
  6. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.
  7. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

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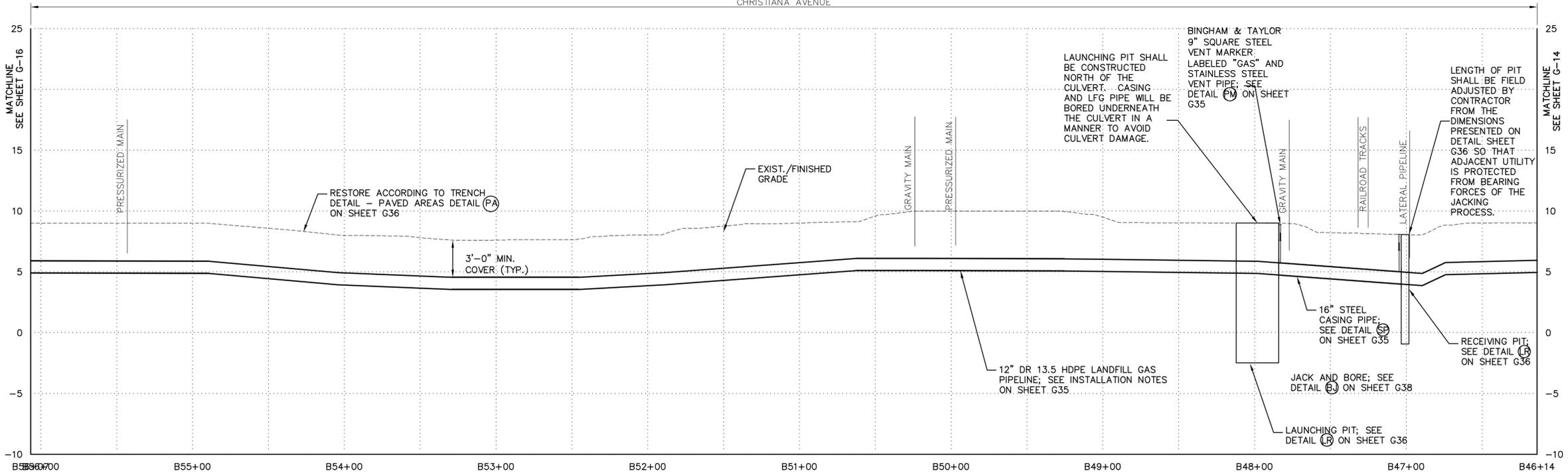
LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE) 115 ROUTE 46 WEST SUITE 1-1000 MOUNTAIN LAKE, NJ 07046  
1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (E&M) 1104 FERNWOOD AVENUE SUITE 501  
SARASOTA, FL 34237 (771) 737-8338 (PHONE) (771) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON



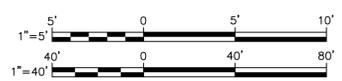
**PROFILE**  
HORIZONTAL SCALE: 1" = 40'-0"  
VERTICAL SCALE: 1" = 5'-0"

**LEGEND**

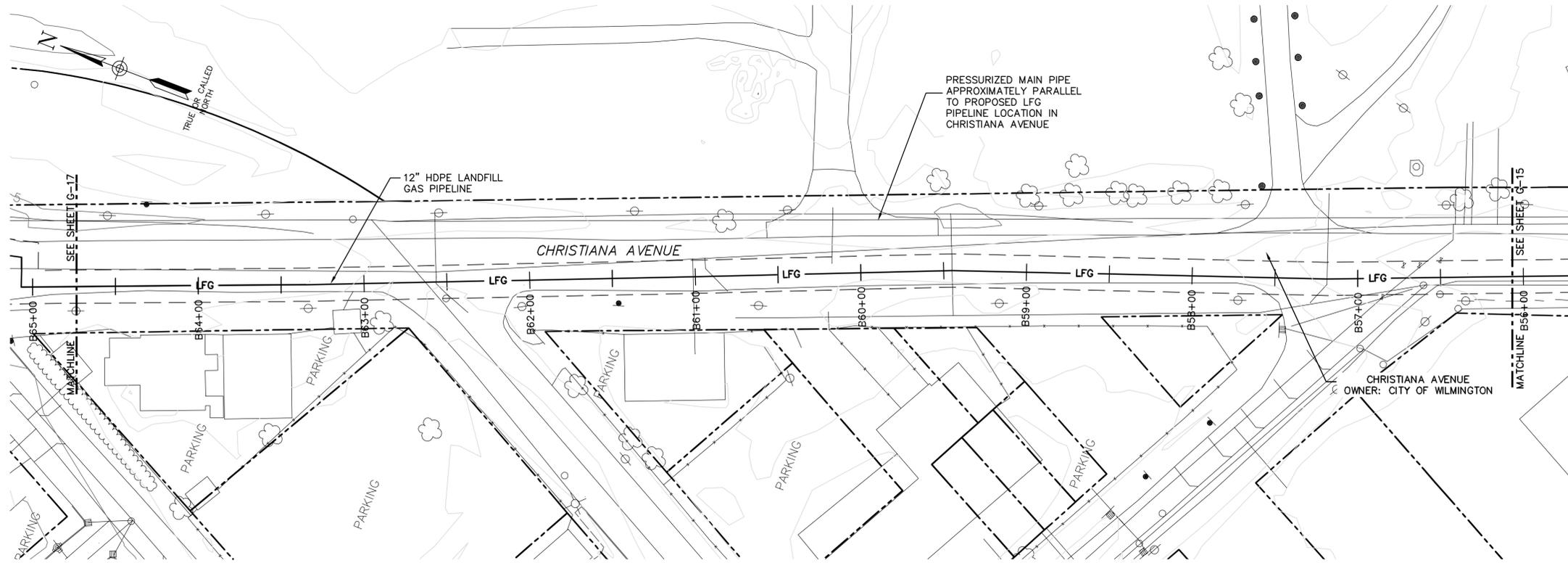
	20 MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY

DATE: \_\_\_\_\_  
Date  
DECEMBER, 2011  
Scale  
AS SHOWN  
Sheet Number  
**G-15**  
File Number  
1362.001-18F

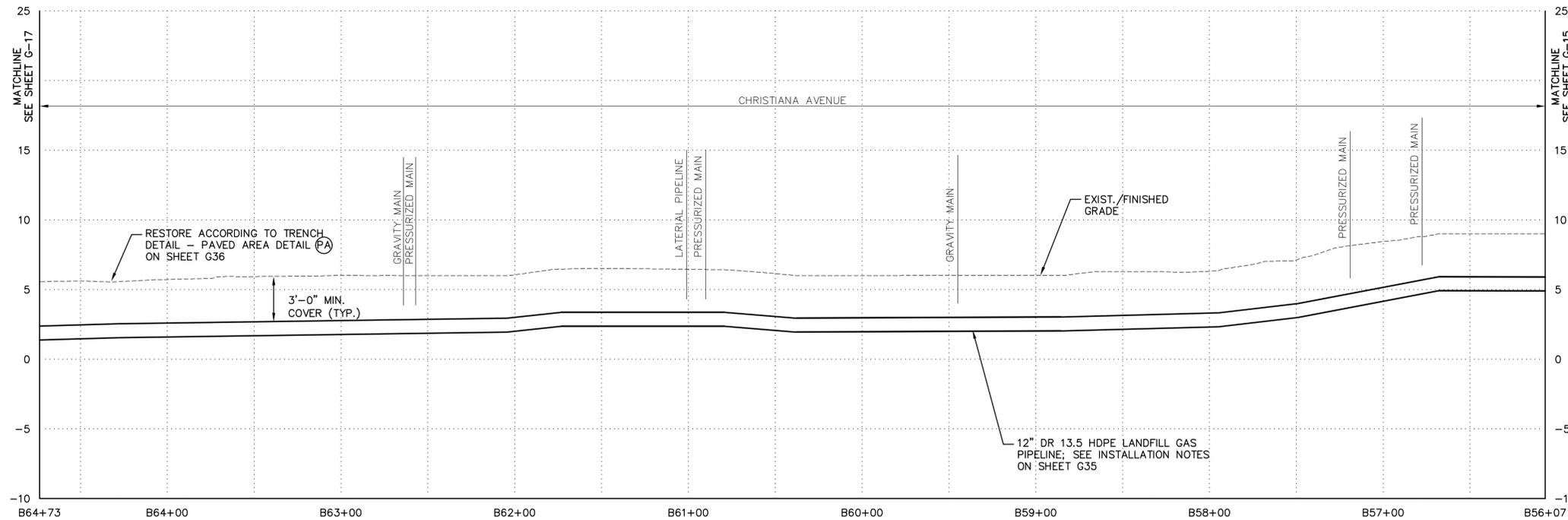
Checked by \_\_\_\_\_ AND \_\_\_\_\_  
 Drawn by \_\_\_\_\_  
 Designed by \_\_\_\_\_  
 In charge of \_\_\_\_\_  
 SCS



Plotted: Dec 14, 2011 - 10:44AM  
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**PLAN**  
 SCALE: 1" = 40'-0"



**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"

**NOTES:**

1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
5. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.
6. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGGIO, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGGIO, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.  
 LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 4-1000 MIDDLETOWN LAKES, NJ 07044 1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)  
 ENGINEER/APPLICANT: BARTON AND LOGGIO (BAL) 1104 FERNWOOD AVENUE SUITE 501 SAN MAR, PA 17011 (717) 737-8338 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

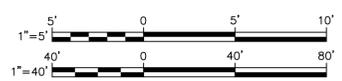
CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 CITY OF WILMINGTON  
 NEW CASTLE COUNTY, DELAWARE



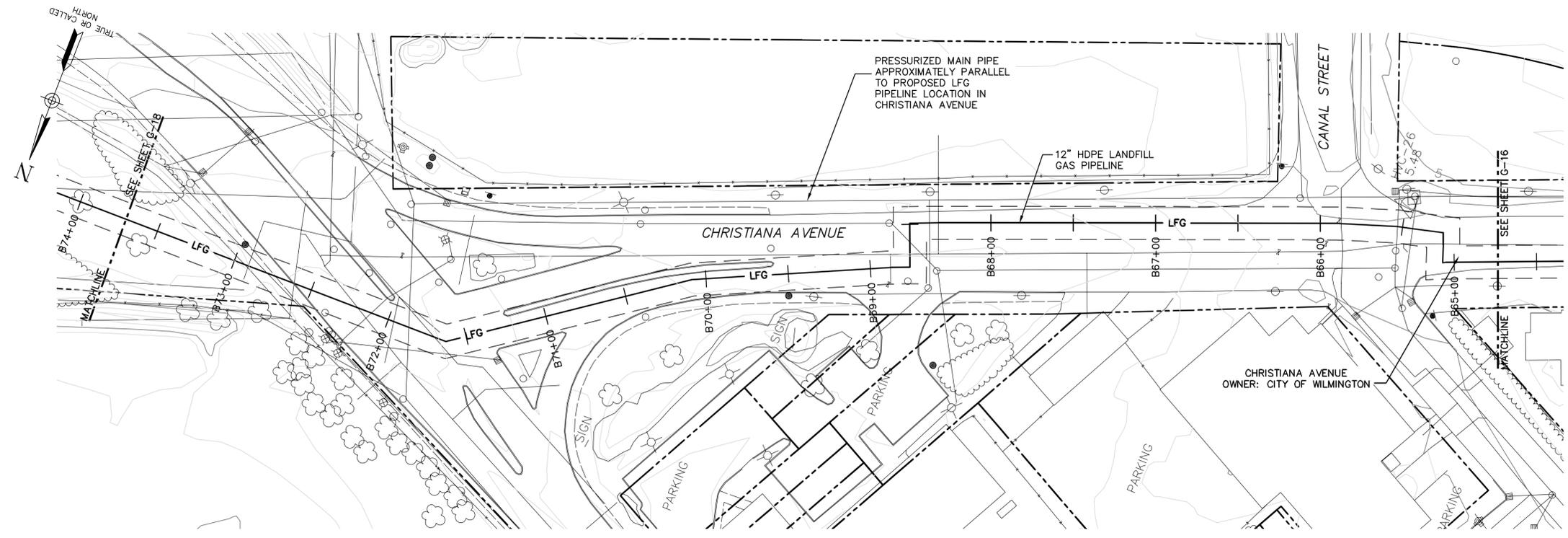
**LEGEND**

- 20 — MAJOR CONTOUR
- MINOR CONTOUR
- - - - - TEMPORARY CONSTRUCTION ROW
- - - - - PERMANENT CONSTRUCTION ROW
- LFG — LFG PIPELINE
- - - - - PROPERTY BOUNDARY
- - - - - WATERWAY
- CONDENSATE LINE
- - - - - GRAVEL ROADWAY
- ASPHALT ROADWAY

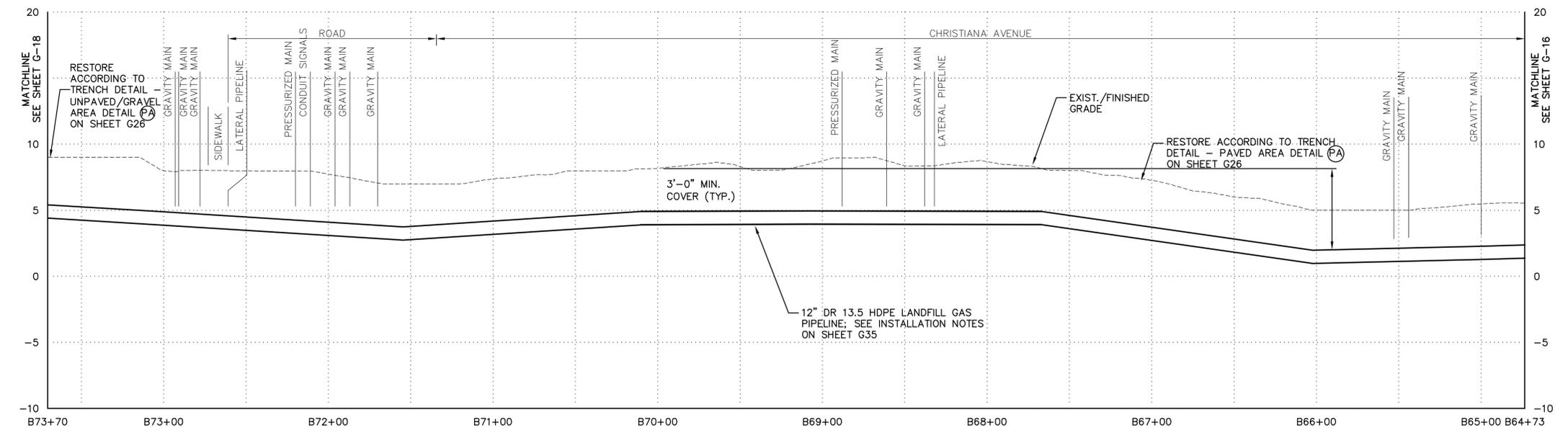
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 Sheet Number  
**G-16**  
 File Number  
 1362.001-19F



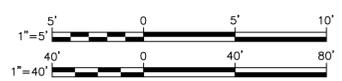
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 Checked by: AND Drawn by: SCS In charge of: SCS



**PLAN**  
SCALE: 1" = 40'-0"



**PROFILE**  
HORIZONTAL SCALE: 1" = 40'-0"  
VERTICAL SCALE: 1" = 5'-0"



**NOTES:**

1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
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4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
5. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.
6. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

THESE DRAWINGS ARE THE PROPERTY OF  
 BARTON & LOGUIDICE, P.C. ANY REUSE,  
 REVISION OR ALTERATION OF THESE DRAWINGS  
 SHALL BE AT THE USER'S SOLE RISK AND  
 WITHOUT LIABILITY TO BARTON & LOGUIDICE,  
 P.C. IN THE EVENT THAT A CONFLICT ARISES  
 BETWEEN THE SEALED DRAWINGS AND THE  
 ELECTRONIC FILES, THE SEALED DRAWINGS WILL  
 GOVERN.  
 LAND DEVELOPER: CHERRY ISLAND RENEWABLE  
 ENERGY, LLC (GRE) 115 ROUTE 46 WEST SUITE  
 1-973-316-8041 (PHONE) 1-973-394-6830  
 FAX  
 ENGINEER/APPLICANT: BARTON AND LOGUIDICE  
 (B&L) 1104 FERNWOOD AVENUE SUITE 501  
 WILMINGTON, DE 19804 (PHONE) 302-426-1100  
 (FAX) 302-426-1101

By: \_\_\_\_\_ Date: \_\_\_\_\_  
 Ck'd: \_\_\_\_\_ Date: \_\_\_\_\_

REVISIONS	

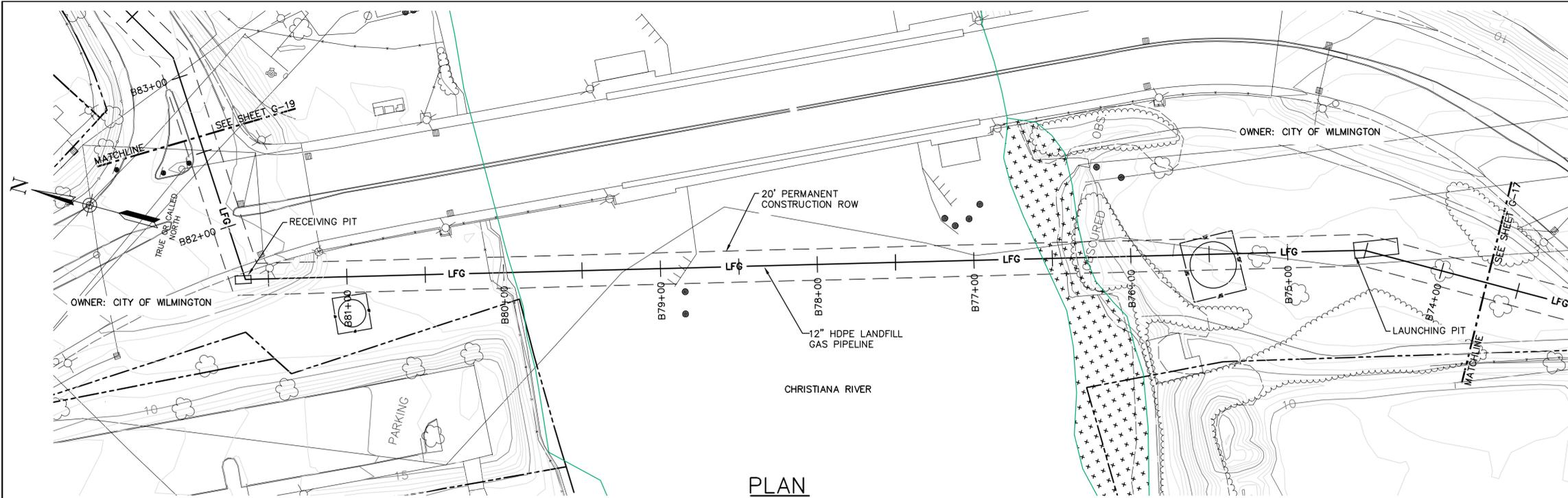
CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE  
PLAN AND PROFILE**  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON



**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY

DATE: \_\_\_\_\_  
 Date: DECEMBER, 2011  
 Scale: AS SHOWN  
 Sheet Number: G-17  
 File Number: 1362.001-20F



**PLAN**

SCALE: 1" = 40'-0"

**NOTES:**

1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE DIRECTIONAL DRILLING METHOD.
5. SOURCE OF WATER DATA IS BASED ON MEAN LOWER LOW WATER LEVEL (MLLW). ALL ELEVATIONS FOR DREDGING OPERATIONS AND RIVER BED ELEVATIONS WERE OBTAINED FROM THE DEPARTMENT OF THE ARMY IN SURVEYS DATED 2007. ELEVATIONS WERE BASED ON THREE FEET BELOW MLLW.
6. REGULATORY REQUIREMENTS SPECIFY PIPELINES MUST BE AT LEAST SIX (6) FEET BELOW THE RIVER BED ELEVATION AT THE SHIP CROSSING LOCATION. PROPOSED LFG PIPELINE WILL BE NINE (9) FEET BELOW RIVER BED ELEVATION IN THE SHIP CROSSING LOCATION.
7. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

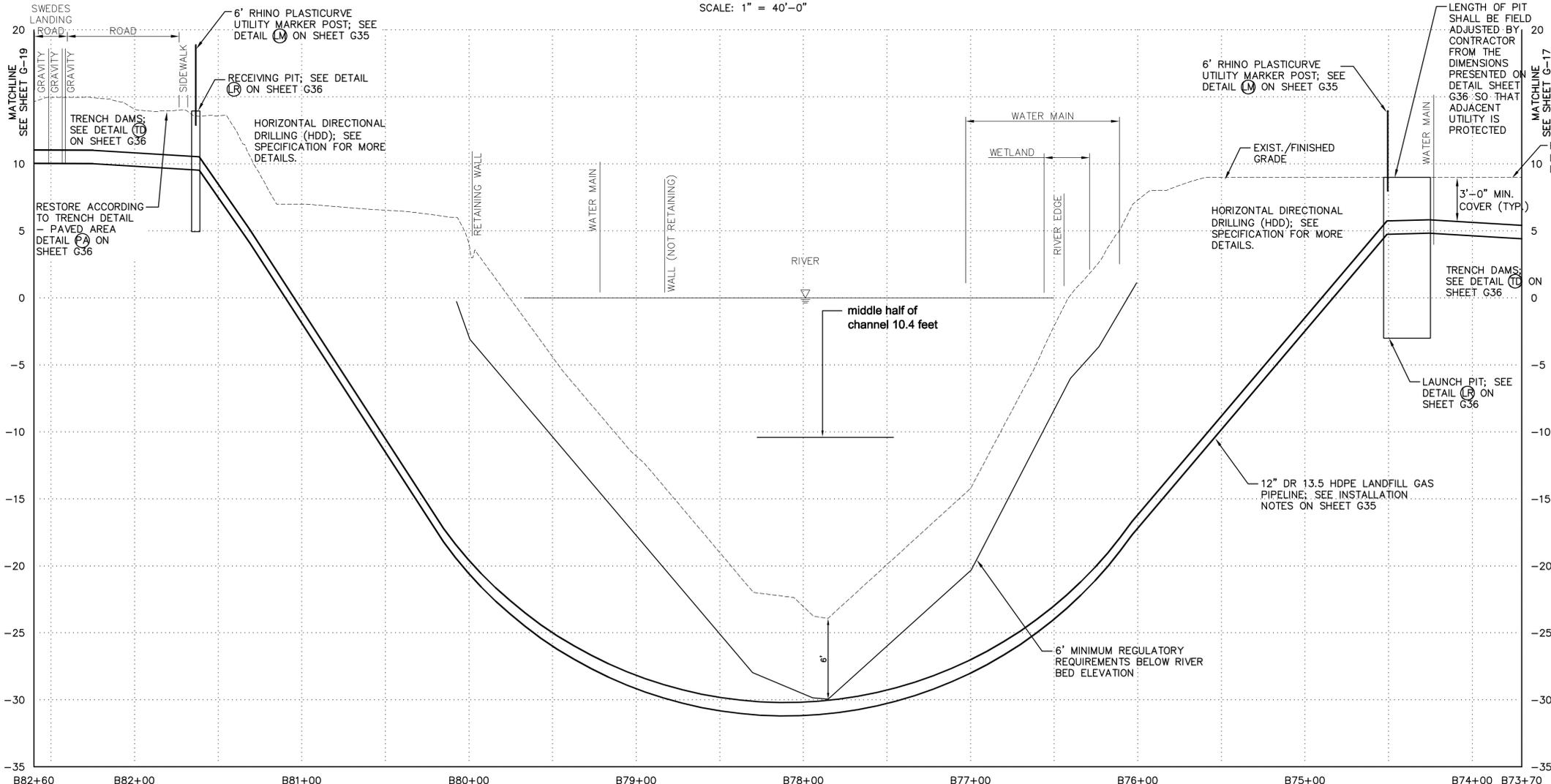
THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1-100 MOUNTAIN LAKE, NJ 07046 1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 SHIP HILL, PA 17011 (717) 737-8338 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	



**PROFILE**

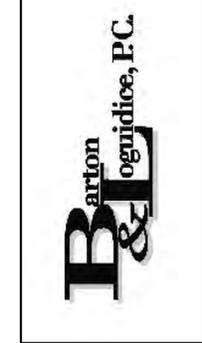
HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"



**LEGEND**

- 20 — MAJOR CONTOUR
- MINOR CONTOUR
- - - - - TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
- PERMANENT CONSTRUCTION ROW
- LFG PIPELINE
- - - - - PROPERTY BOUNDARY
- WATERWAY
- - - - - CONDENSATE LINE
- - - - - GRAVEL ROADWAY
- ASPHALT ROADWAY
- WETLANDS
- SF — SILT FENCE

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
 PIPELINE PLAN AND PROFILE  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON



DATE: _____
Date DECEMBER, 2011
Scale AS SHOWN
Sheet Number G-18
File Number 1362.001-21F

Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_  
 Designed by \_\_\_\_\_ SCS  
 In charge of \_\_\_\_\_ SCS  
 Plotted: Dec 14, 2011 - 10:46AM SYR By: and  
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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE) 115 ROUTE 46 WEST SUITE 1-1000 MOUNTAIN LAKE, NJ 07046 1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGGIO (B&L) 1104 FERNWOOD AVENUE SUITE 501 SHARPS HILL, PA 17011 (717) 737-8338 (PHONE) (717) 737-8328 (FAX)

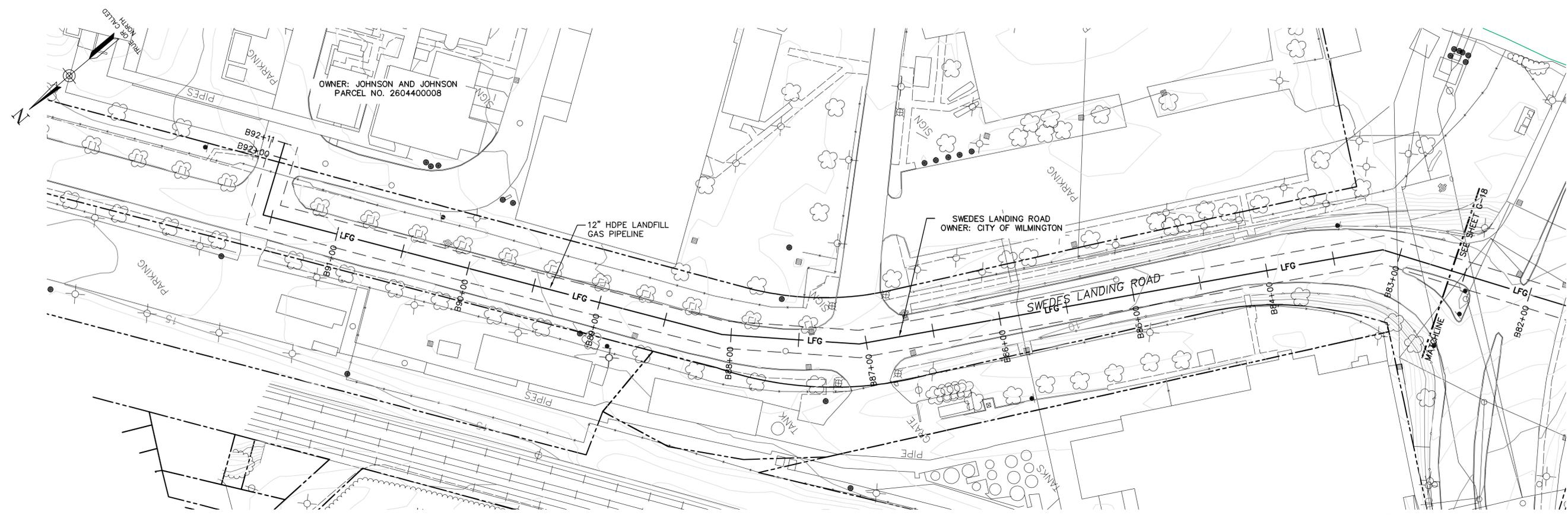
By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
 PIPELINE  
 PLAN AND PROFILE  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON



DATE: \_\_\_\_\_  
 Date  
 DECEMBER, 2011  
 Scale  
 AS SHOWN  
 Sheet Number  
 G-19  
 File Number  
 1362.001-22F

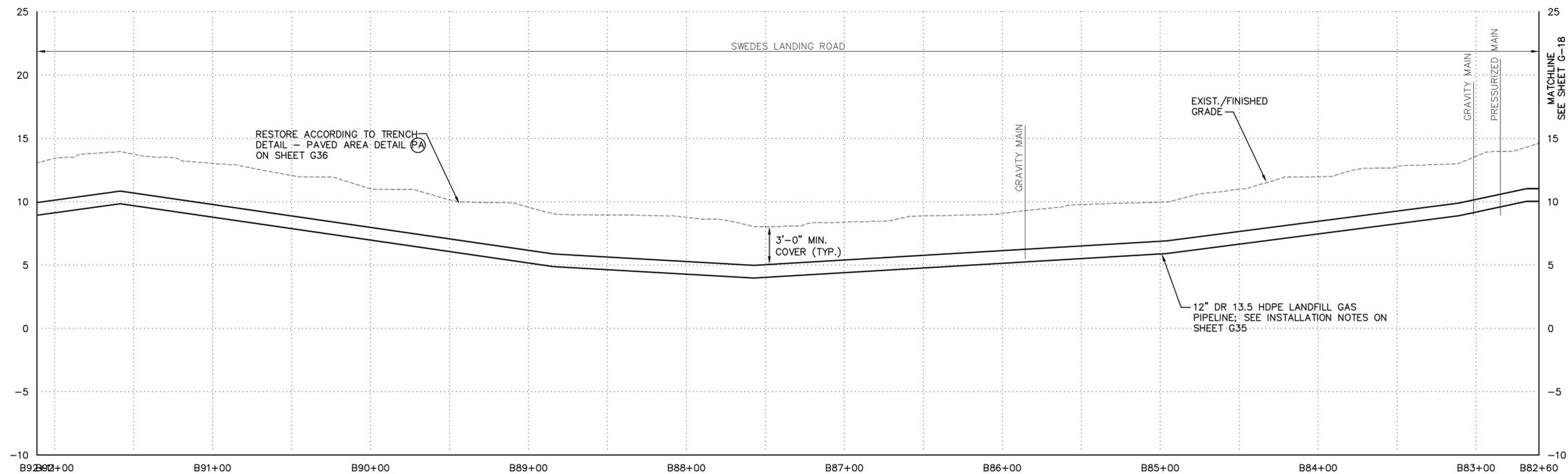


**PLAN**

SCALE: 1" = 40'-0"

**NOTES:**

1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
5. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.
6. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH INFORMATION PROVIDED ON SHEET G1.

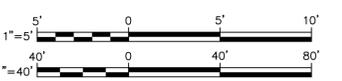


**PROFILE**

HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"

**LEGEND**

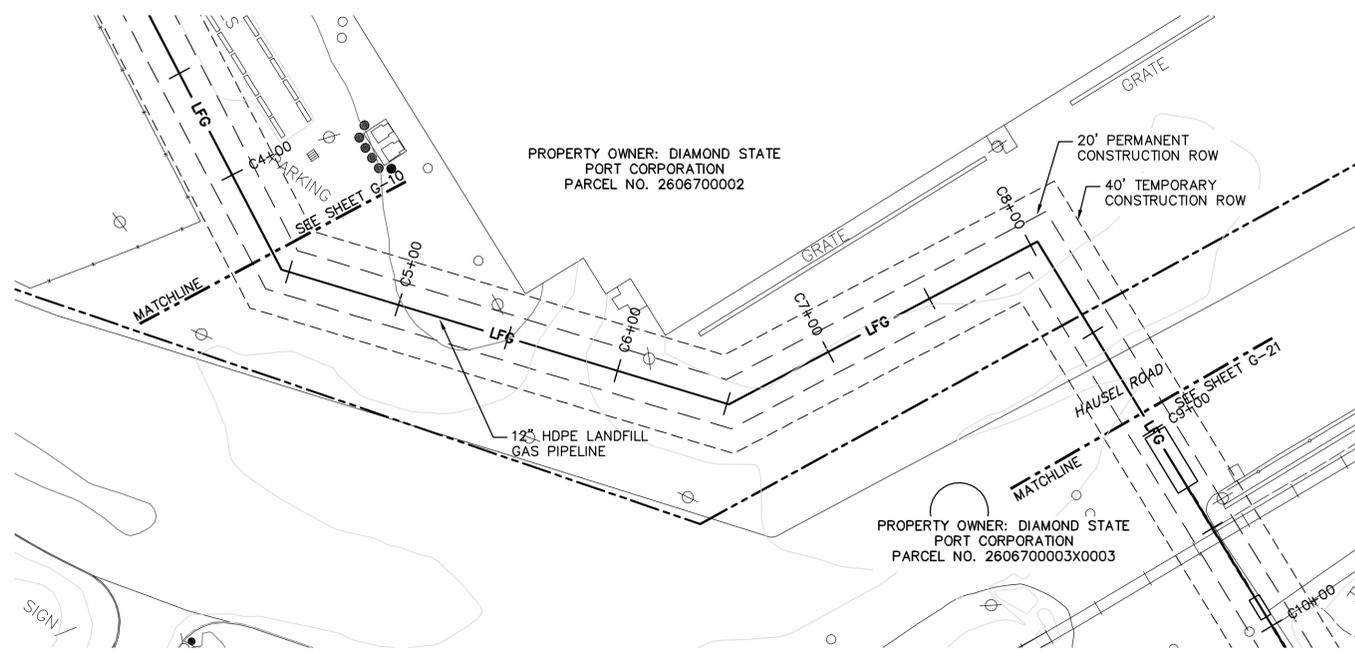
- 20 — MAJOR CONTOUR
- MINOR CONTOUR
- - - - - TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
- - - - - PERMANENT CONSTRUCTION ROW
- LFG — LFG PIPELINE
- - - - - PROPERTY BOUNDARY
- WATERWAY
- CONDENSATE LINE
- - - - - GRAVEL ROADWAY
- ASPHALT ROADWAY



Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS \_\_\_\_\_ In charge of \_\_\_\_\_ SCS \_\_\_\_\_

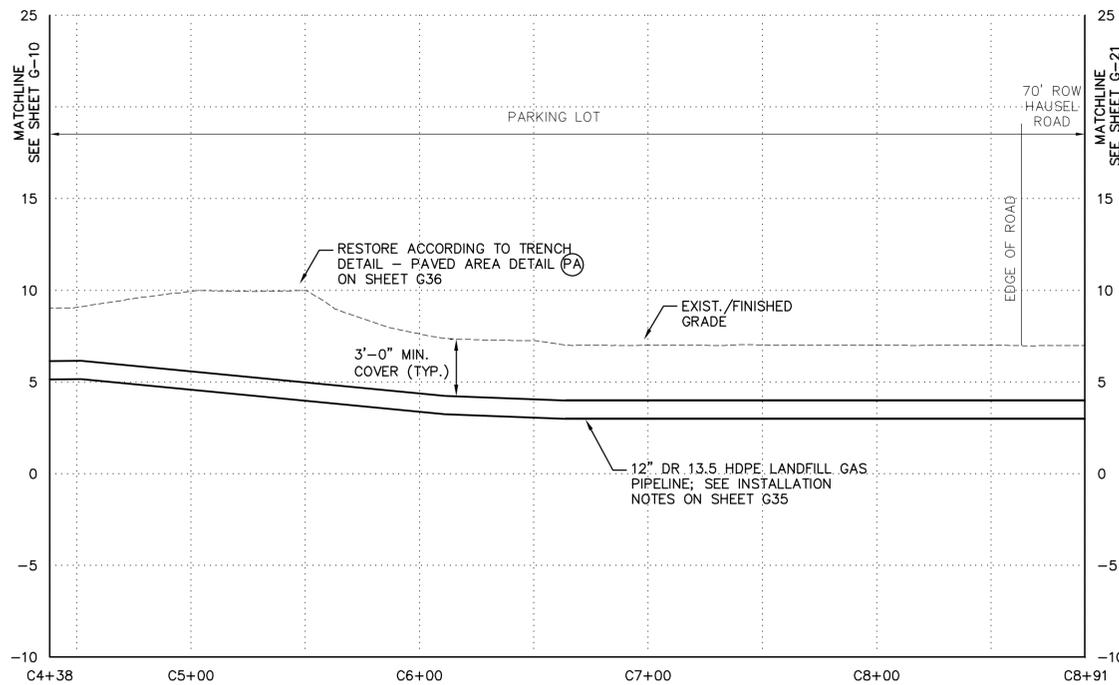
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By \_\_\_\_\_  
 S1R  
 Dec 14, 2011 - 10:49AM



**PLAN**

SCALE: 1" = 40'-0"



**PROFILE**

HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"



**NOTES:**

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4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
5. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1000 MIDDLETOWN LAKE, NJ 07044  
 1-973-316-8041 (PHONE) 1-973-394-5830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (B&L) 1154 FERNWOOD AVENUE SUITE 501 SHARPSVILLE, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**PIPELINE  
 PLAN AND PROFILE**

CITY OF WILMINGTON  
 NEW CASTLE COUNTY, DELAWARE



LEGEND	
— 20 —	MAJOR CONTOUR
— — — —	MINOR CONTOUR
- - - - -	TEMPORARY CONSTRUCTION ROW
— — — —	PERMANENT CONSTRUCTION ROW
— LFG —	LFG PIPELINE
- - - - -	PROPERTY BOUNDARY
— — — —	WATERWAY
— — — —	CONDENSATE LINE
— — — —	GRAVEL ROADWAY
— — — —	ASPHALT ROADWAY

DATE: \_\_\_\_\_  
 Date  
 DECEMBER, 2011

Scale  
 AS SHOWN

Sheet Number  
**G-20**

File Number  
 1362.001-23F

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE) 115 ROUTE 46 WEST SUITE 1000 MOUNTAIN LAKE, NJ 07046  
 1-973-316-8041 (PHONE) 1-973-394-5830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (EML) 1104 FERNWOOD AVENUE SUITE 501 SHARPS HILL, PA 17011 (717) 737-8338 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

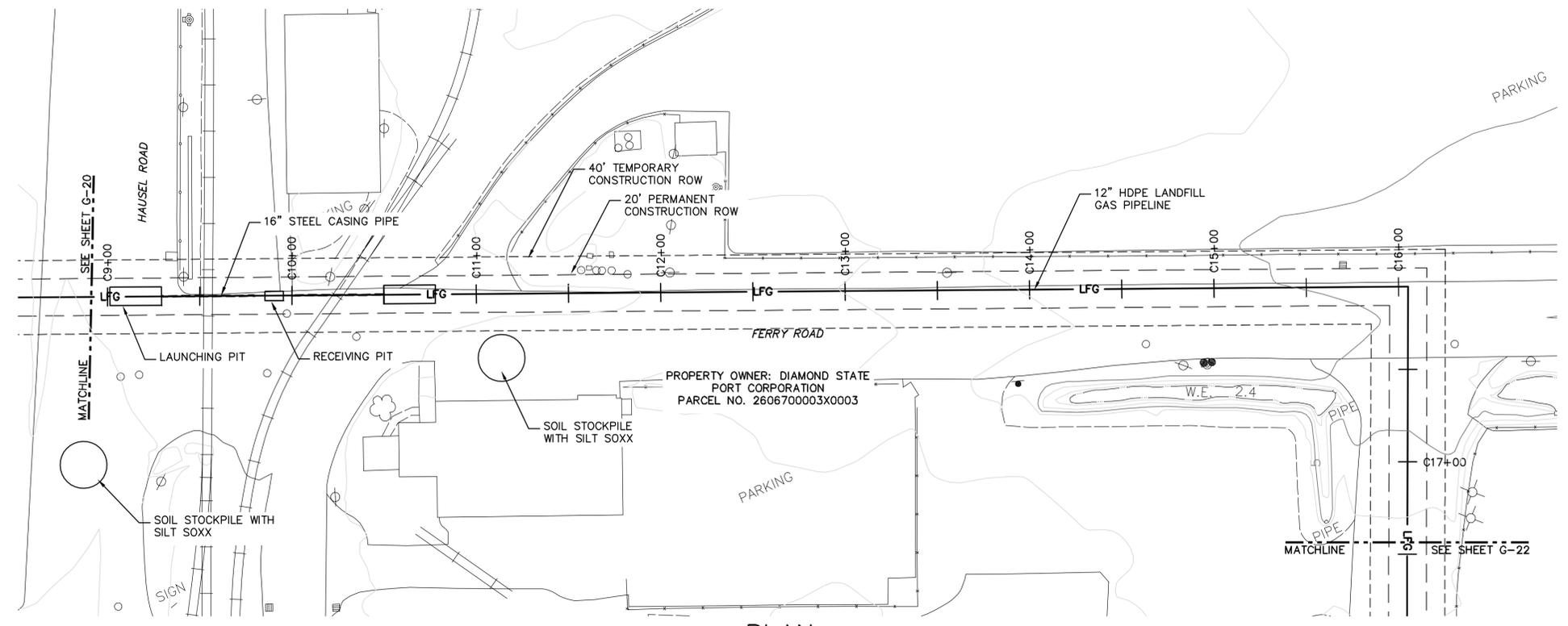
REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON

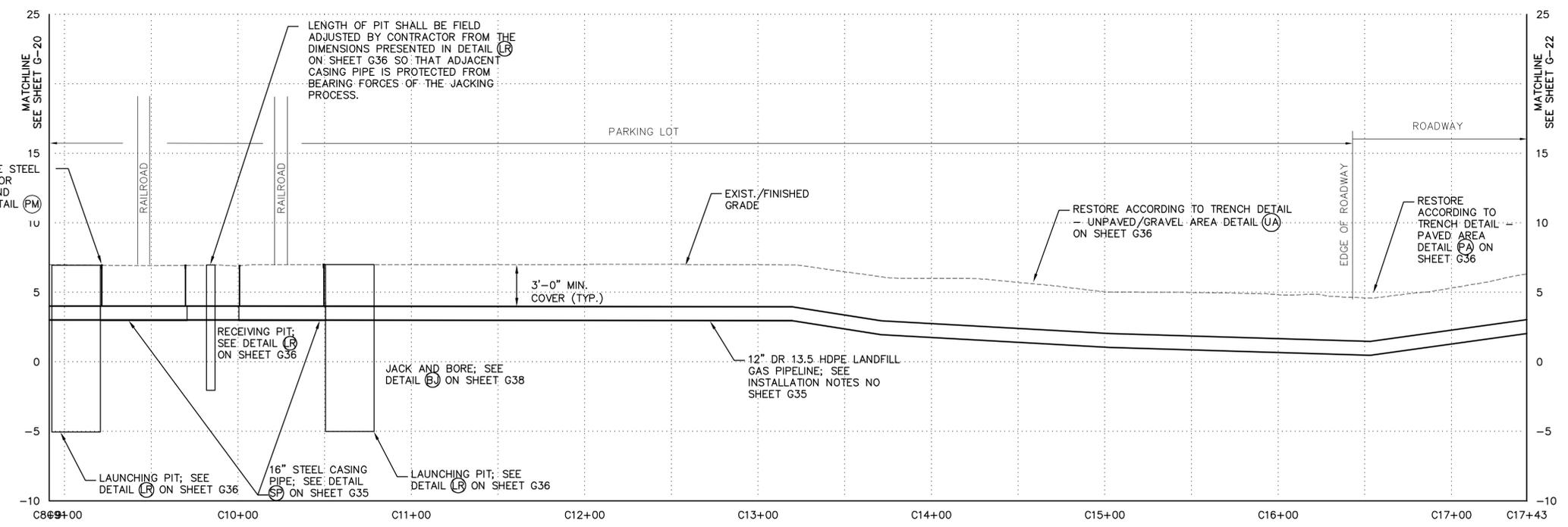


DATE: \_\_\_\_\_  
 Date  
 DECEMBER, 2011  
 Scale  
 AS SHOWN  
 Sheet Number  
**G-21**  
 File Number  
 1362.001-24F

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED UNDER RAILROAD SPURS USING THE JACK AND BORE METHOD. THE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD FOR THE REMAINDER OF THE PIPELINE ROUTE DEPICTED ON THIS SHEET.
  5. IN PAVED AREAS, LIMIT OF DISTURBANCE WILL BE LIMITED TO 3' TRENCH.
  6. SILT SOXX TO BE INSTALLED A MINIMUM OF 5' FROM TOE OF SLOPE OF SOIL STOCKPILE.



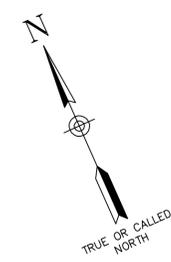
**PLAN**  
 SCALE: 1" = 40'-0"



**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"

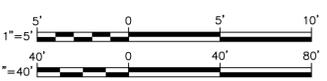
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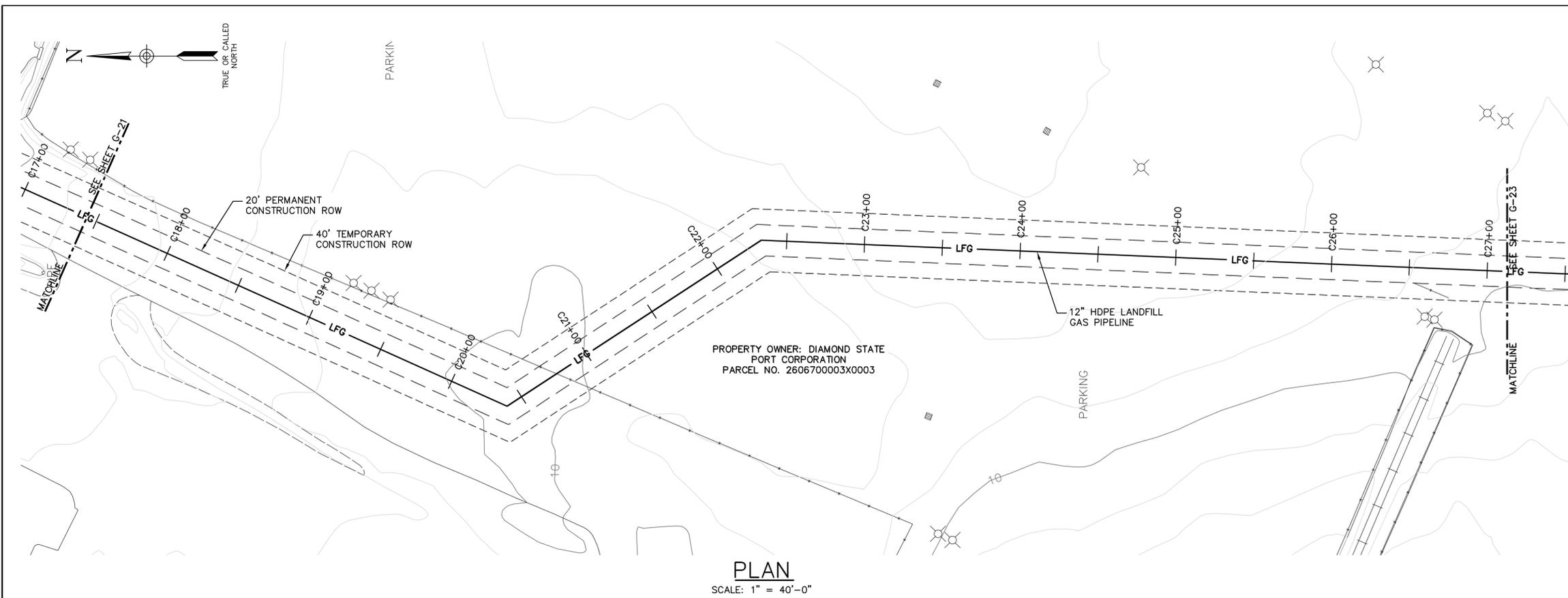
	20	MAJOR CONTOUR
		MINOR CONTOUR
		TEMPORARY CONSTRUCTION ROW
		PERMANENT CONSTRUCTION ROW
	<b>LFG</b>	LFG PIPELINE
		PROPERTY BOUNDARY
		WATERWAY
		CONDENSATE LINE
		GRAVEL ROADWAY
		ASPHALT ROADWAY
		SILT SOXX



Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS \_\_\_\_\_ In charge of \_\_\_\_\_ SCS \_\_\_\_\_

Plotted: Dec 14, 2011 - 10:59AM  
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**PLAN**  
 SCALE: 1" = 40'-0"

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  5. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1-100 MOUNTAIN LAKE, NJ 07046 1-973-316-8041 (PHONE) 1-973-394-5830 (FAX)

ENGINEER/APPLICANT: BARTON & LOGUIDICE (B&L) 1104 FERNWOOD AVENUE SUITE 501 SHARPS HILL, PA 17011 (717) 737-8338 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

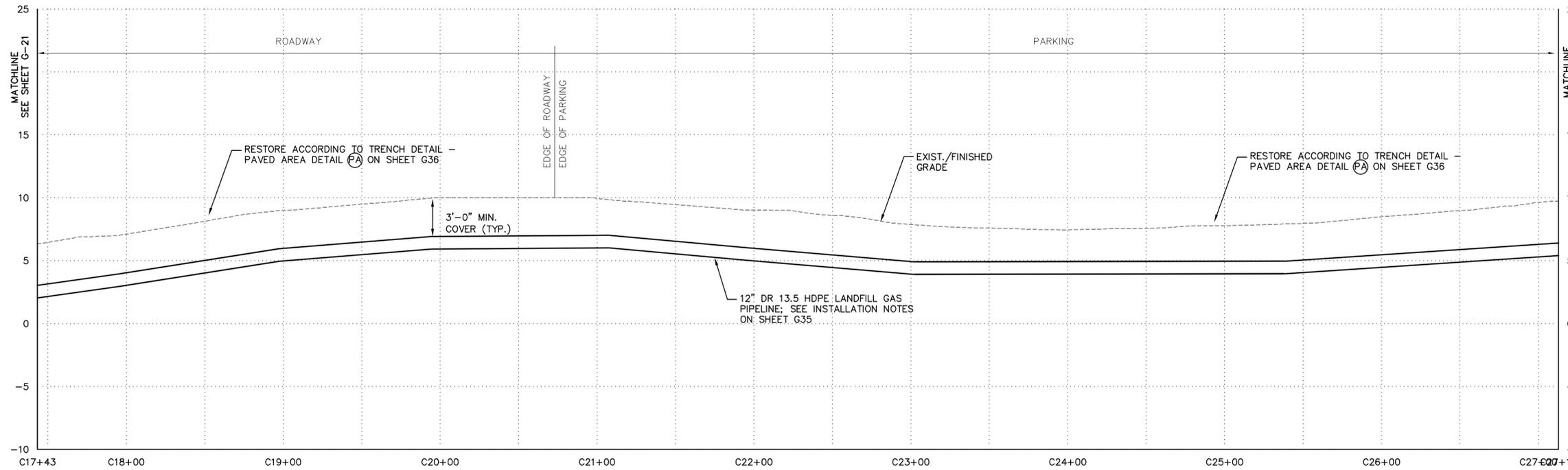
REVISIONS

NO.	DESCRIPTION	DATE

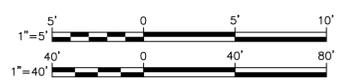
CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**PIPELINE PLAN AND PROFILE**

CITY OF WILMINGTON NEW CASTLE COUNTY, DELAWARE



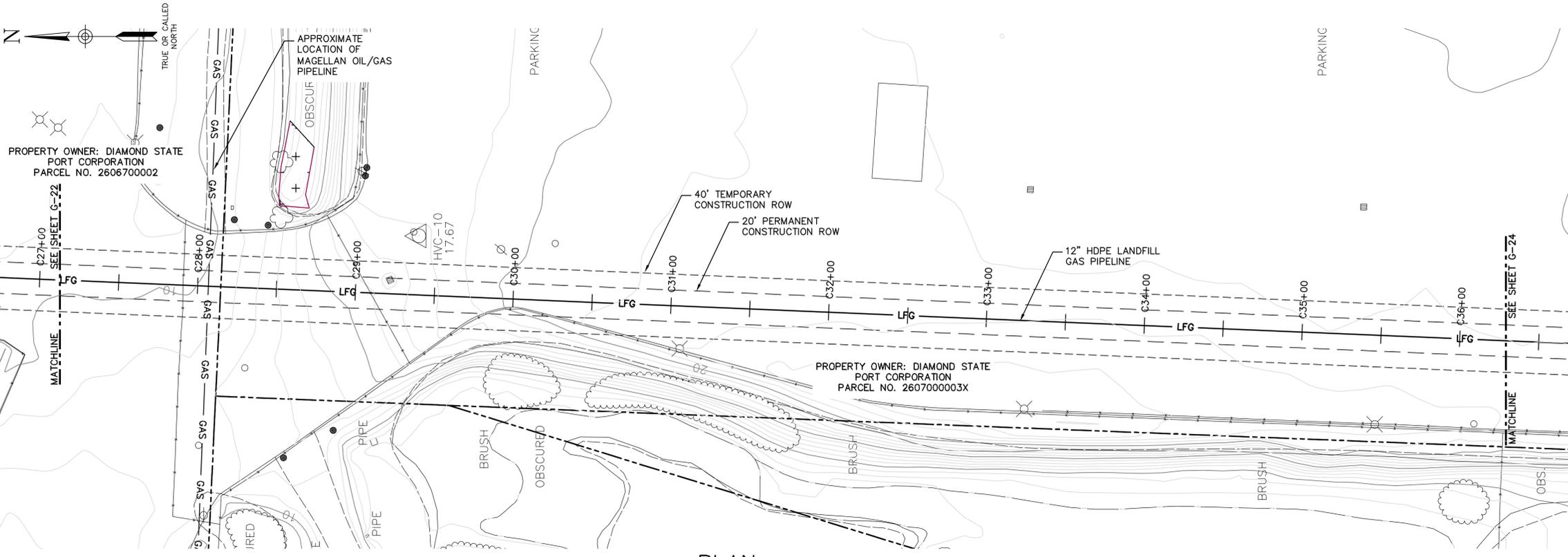
**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"



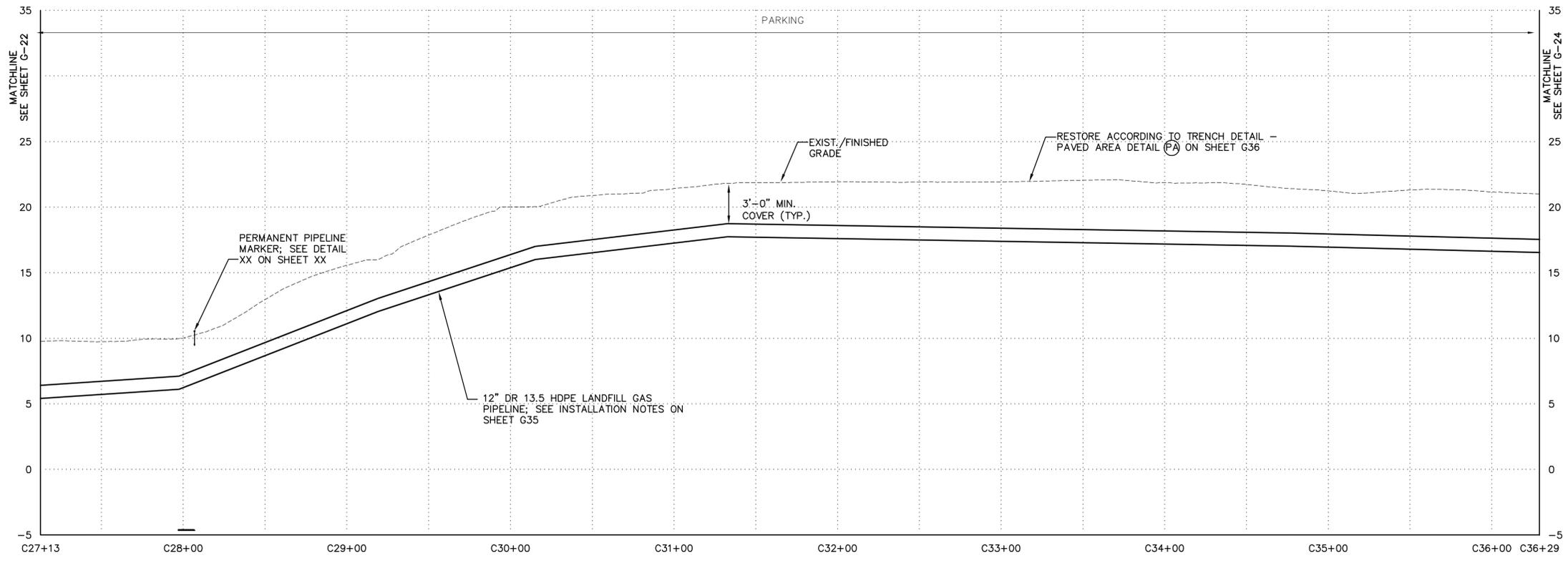
- LEGEND**
- 20 — MAJOR CONTOUR
  - MINOR CONTOUR
  - - - - - TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
  - - - - - PERMANENT CONSTRUCTION ROW
  - LFG — LFG PIPELINE
  - - - - - PROPERTY BOUNDARY
  - - - - - WATERWAY
  - - - - - CONDENSATE LINE
  - - - - - GRAVEL ROADWAY
  - - - - - ASPHALT ROADWAY

**Barton & Loguidice, P.C.**

DATE: \_\_\_\_\_  
 Date: DECEMBER, 2011  
 Scale: AS SHOWN  
 Sheet Number: G-22  
 File Number: 1362.001-25F



**PLAN**  
SCALE: 1" = 40'-0"



**PROFILE**  
HORIZONTAL SCALE: 1" = 40'-0"  
VERTICAL SCALE: 1" = 5'-0"

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  5. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.
  6. CONTRACTOR SHALL REMAIN A MINIMUM DISTANCE OF 20' FROM WETLANDS BOUNDARIES. WETLANDS ARE NOT INCLUDED IN THE LIMIT OF DISTURBANCE.

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1000 MOUNTAIN LAKE, NJ 07046  
1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERWOOD AVENUE SUITE 501 EAST HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**PIPELINE PLAN AND PROFILE**

CITY OF WILMINGTON  
NEW CASTLE COUNTY, DELAWARE



**LEGEND**

	20	MAJOR CONTOUR
		MINOR CONTOUR
		TEMPORARY CONSTRUCTION ROW
		PERMANENT CONSTRUCTION ROW
		LFG PIPELINE
		PROPERTY BOUNDARY
		WATERWAY
		CONDENSATE LINE
		GRAVEL ROADWAY
		ASPHALT ROADWAY
		WETLANDS

DATE: \_\_\_\_\_  
Date  
DECEMBER, 2011

Scale  
AS SHOWN

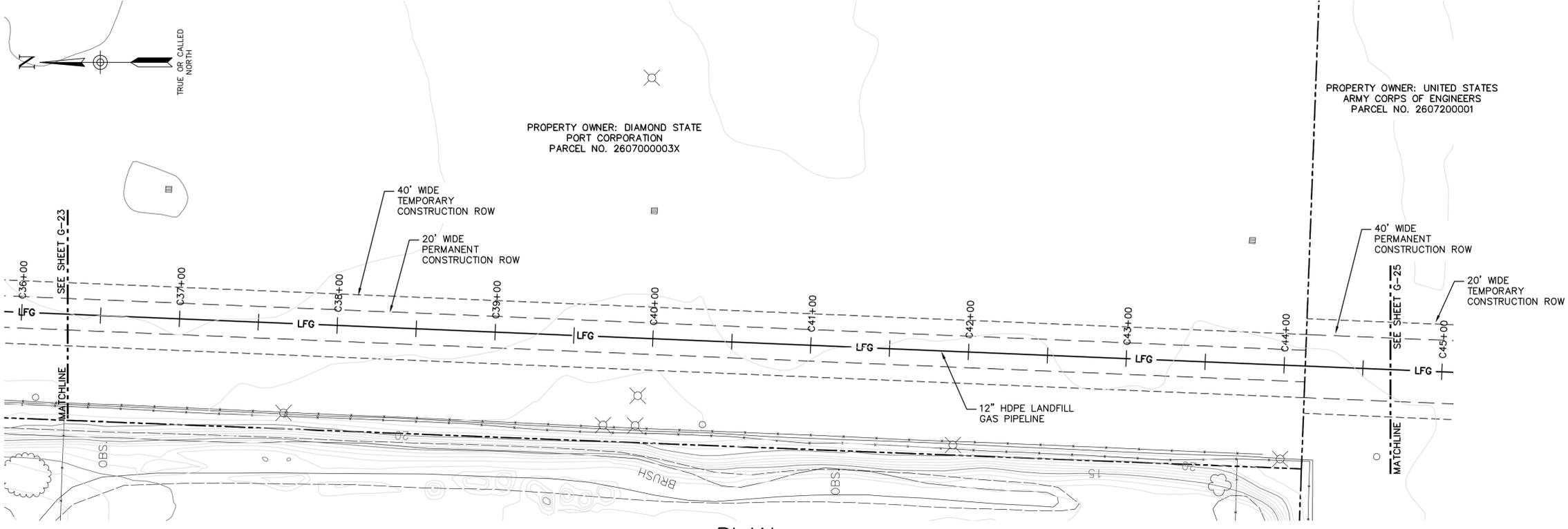
Sheet Number  
**G-23**

File Number  
1362.001-26F

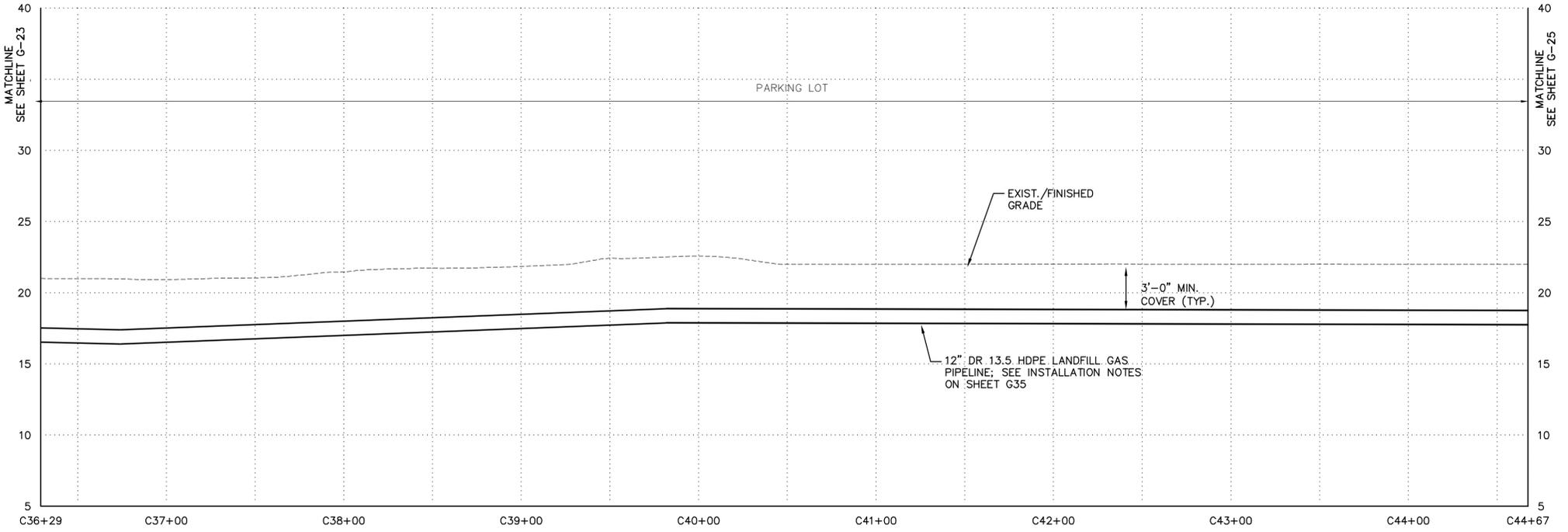
Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ Designed by \_\_\_\_\_ In charge of \_\_\_\_\_ SCS

Plotted: Dec 14, 2011 - 11:00AM  
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Plotted: Dec 14, 2011 - 11:02AM  
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 Drawn by AND  
 Designed by SCS  
 In charge of SCS



**PLAN**  
 SCALE: 1" = 40'-0"



**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"

**LEGEND**

	20	MAJOR CONTOUR
		MINOR CONTOUR
		TEMPORARY CONSTRUCTION ROW
		PERMANENT CONSTRUCTION ROW
	<b>LFG</b>	LFG PIPELINE
		PROPERTY BOUNDARY
		WATERWAY
		CONDENSATE LINE
		GRAVEL ROADWAY
		ASPHALT ROADWAY

- NOTES:**
- THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  - ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  - THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  - 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  - IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.

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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1-100 MOUNTAIN LAKE, NJ 07046  
 1-973-316-8041 (PHONE) 1-973-394-5830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (B&L) 1104 FERWOOD AVENUE SUITE 501 SHARPS HILL, PA 17011 (717) 737-8338 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**PIPELINE PLAN AND PROFILE**

CITY OF WILMINGTON  
 NEW CASTLE COUNTY, DELAWARE



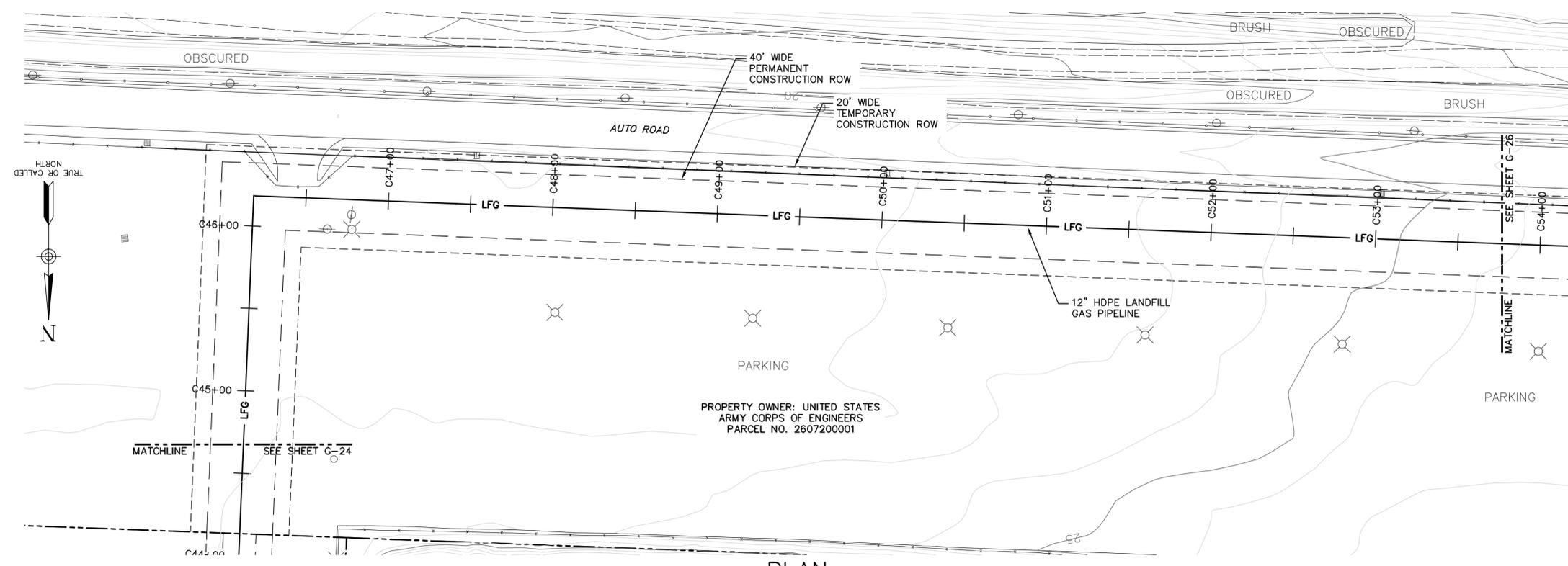
DATE: \_\_\_\_\_  
 Date  
 DECEMBER, 2011

Scale  
 AS SHOWN

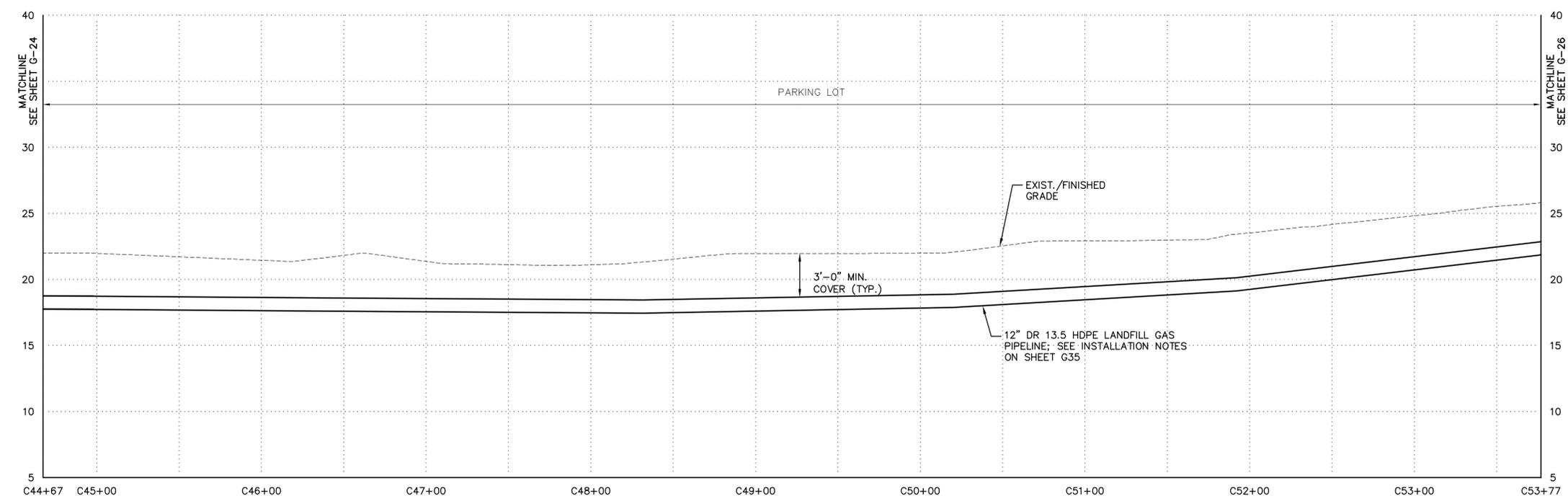
Sheet Number  
**G-24**

File Number  
 1362.001-27F

Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS \_\_\_\_\_ In charge of \_\_\_\_\_ SCS \_\_\_\_\_  
 Plotted: Dec 14, 2011 - 11:04AM SYR By: and  
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**PLAN**  
 SCALE: 1" = 40'-0"



**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  5. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGGIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGGIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.  
 LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1-1000 MOUNTAIN LAKE, NJ 07046 1-973-316-8041 (PHONE) 1-973-394-5830 (FAX)  
 ENGINEER/APPLICANT: BARTON AND LOGGIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 SHARPS HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

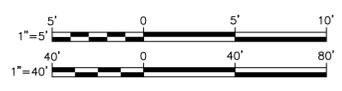
CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON

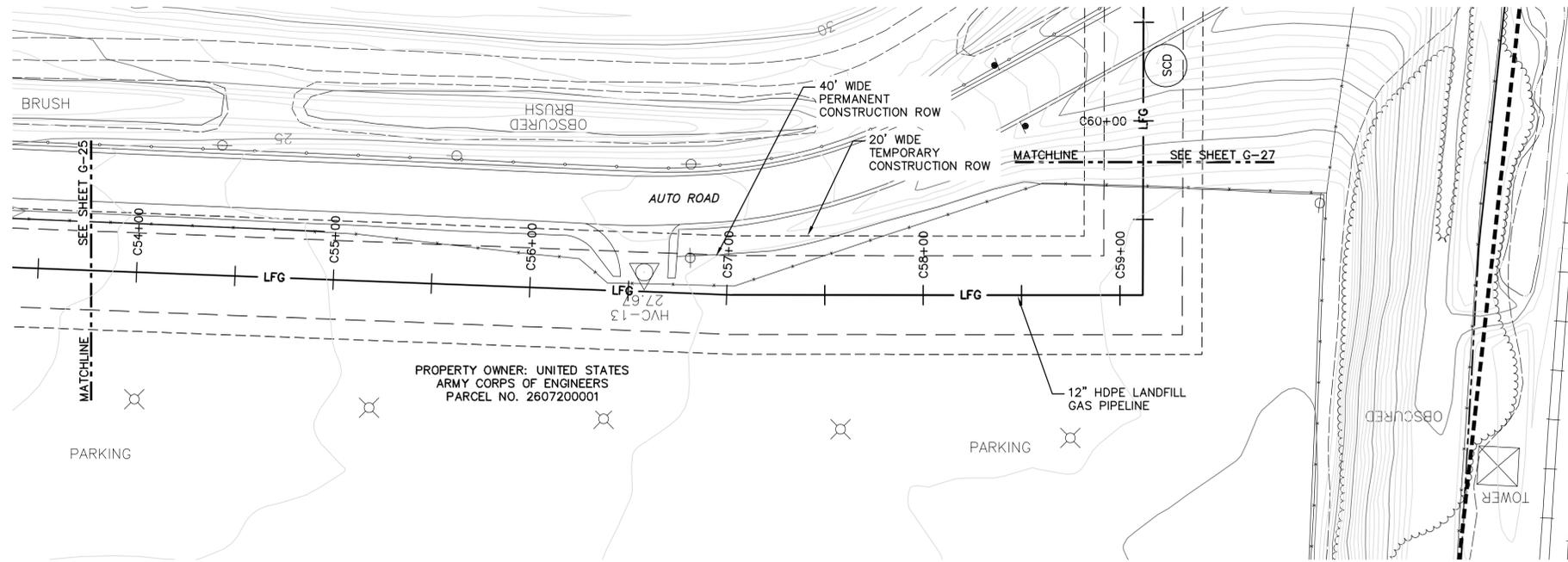
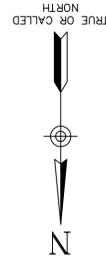


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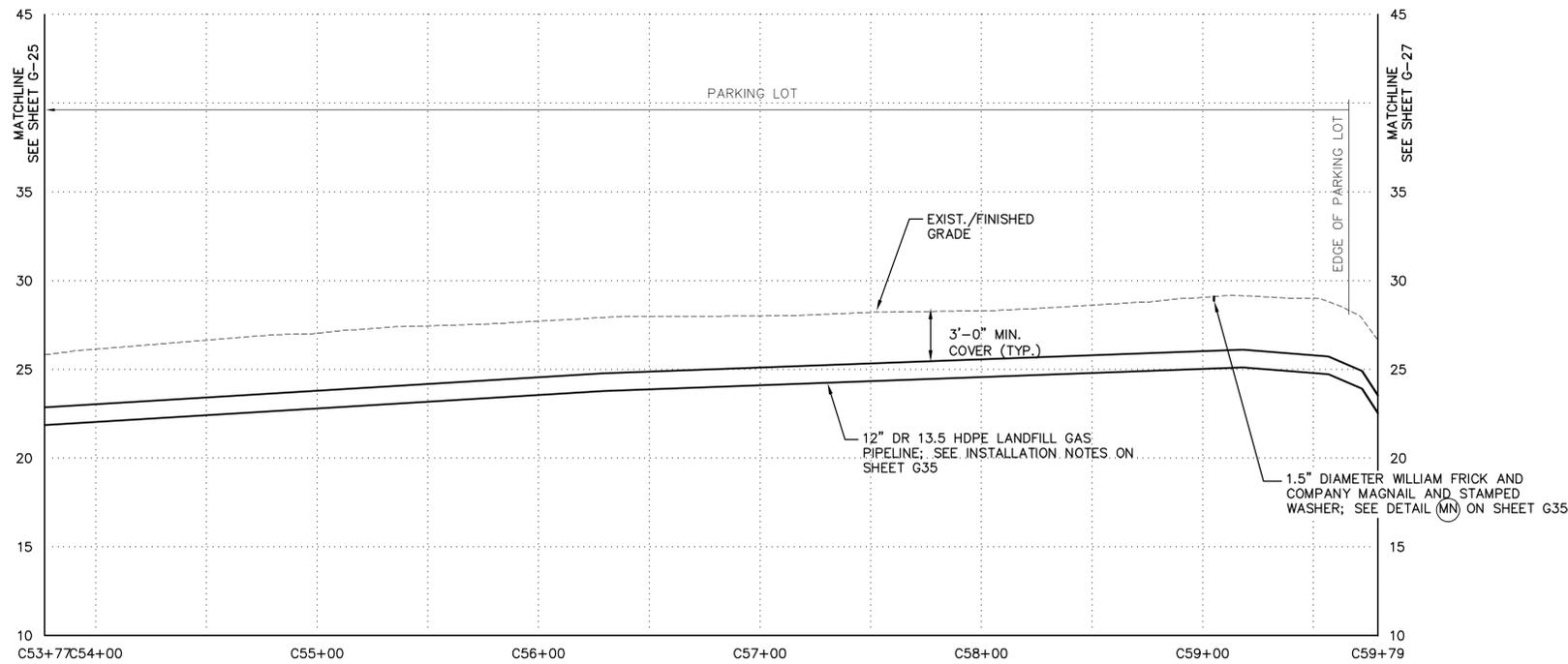
	20	MAJOR CONTOUR
		MINOR CONTOUR
		TEMPORARY CONSTRUCTION ROW
		PERMANENT CONSTRUCTION ROW
	LFG	LFG PIPELINE
		PROPERTY BOUNDARY
		WATERWAY
		CONDENSATE LINE
		GRAVEL ROADWAY
		ASPHALT ROADWAY

DATE: \_\_\_\_\_  
 Date  
 DECEMBER, 2011  
 Scale  
 AS SHOWN  
 Sheet Number  
**G-25**  
 File Number  
 1362.001-28F





**PLAN**  
 SCALE: 1" = 40'-0"



**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"



**NOTES:**

1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
5. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.
6. INSTALL STONE CHECK DAM (SCD) IN ACCORDANCE WITH DETAIL ON SHEET ES3

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE) 115 ROUTE 46 WEST SUITE 1000 MOUNTAIN LAKE, NJ 07046  
 1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501  
 SAMP MIL, PA 17011 (717) 737-8328 (PHONE)  
 (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**PIPELINE  
 PLAN AND PROFILE**

CITY OF WILMINGTON  
 NEW CASTLE COUNTY, DELAWARE



**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY
	STONE CHECK DAM

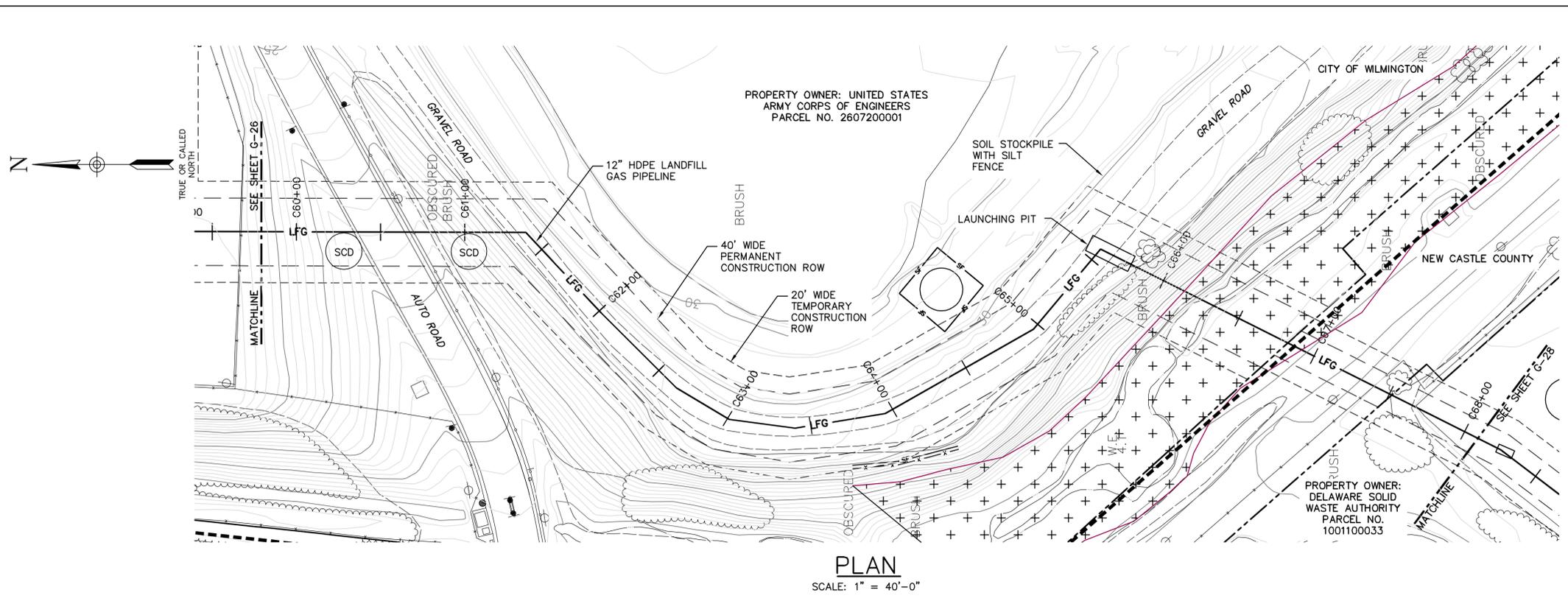
DATE: \_\_\_\_\_  
 Date  
 DECEMBER, 2011

Scale  
 AS SHOWN

Sheet Number  
**G-26**

File Number  
 1362.001-29F

Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS In charge of \_\_\_\_\_ SCS  
 Plotted: Dec 14, 2011 - 11:30AM SYR By: and  
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- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  5. CONSTRUCTION VEHICLES SHALL EXIT THE SITE THROUGH USE OF THE GRAVEL ROAD ENTRANCE TO PIGEON POINT LANDFILL AND CONTINUE TRAVEL ONTO THE ASPHALT PARKING LOT OWNED BY DSWA.
  6. INSTALL SILT FENCE A MINIMUM OF 5' FROM TOE OF SLOPE OF SOIL STOCKPILE.
  7. INSTALL PROTECTIVE FENCING 10' FROM WETLANDS BOUNDARIES IN AREAS WHERE DISTURBANCE WILL OCCUR WITHIN 20' OF WETLANDS BOUNDARIES. SEE PLAN VIEW FOR APPROXIMATE LOCATION OF PROTECTIVE FENCING. CONTRACTOR SHALL NOT ENTER THE WETLANDS. WETLANDS ARE NOT INCLUDED IN THE LIMIT OF DISTURBANCE.
  8. INSTALL PROTECTIVE FENCING IN ACCORDANCE TO DETAIL ON SHEET E3.
  9. INSTALL SILT FENCE IN FRONT OF PROTECTIVE FENCING IN ACCORDANCE TO DETAIL ON SHEET E3.
  10. INSTALL STONE CHECK DAMS (SCD) IN ACCORDANCE WITH DETAIL ON SHEET E3.
  11. CONTRACTOR SHALL ADHERE TO ALL NOTES CONTAINED ON SHEET G1.

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 4000 MOUNTAIN LAKE, NJ 07046  
 1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 SHAR HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

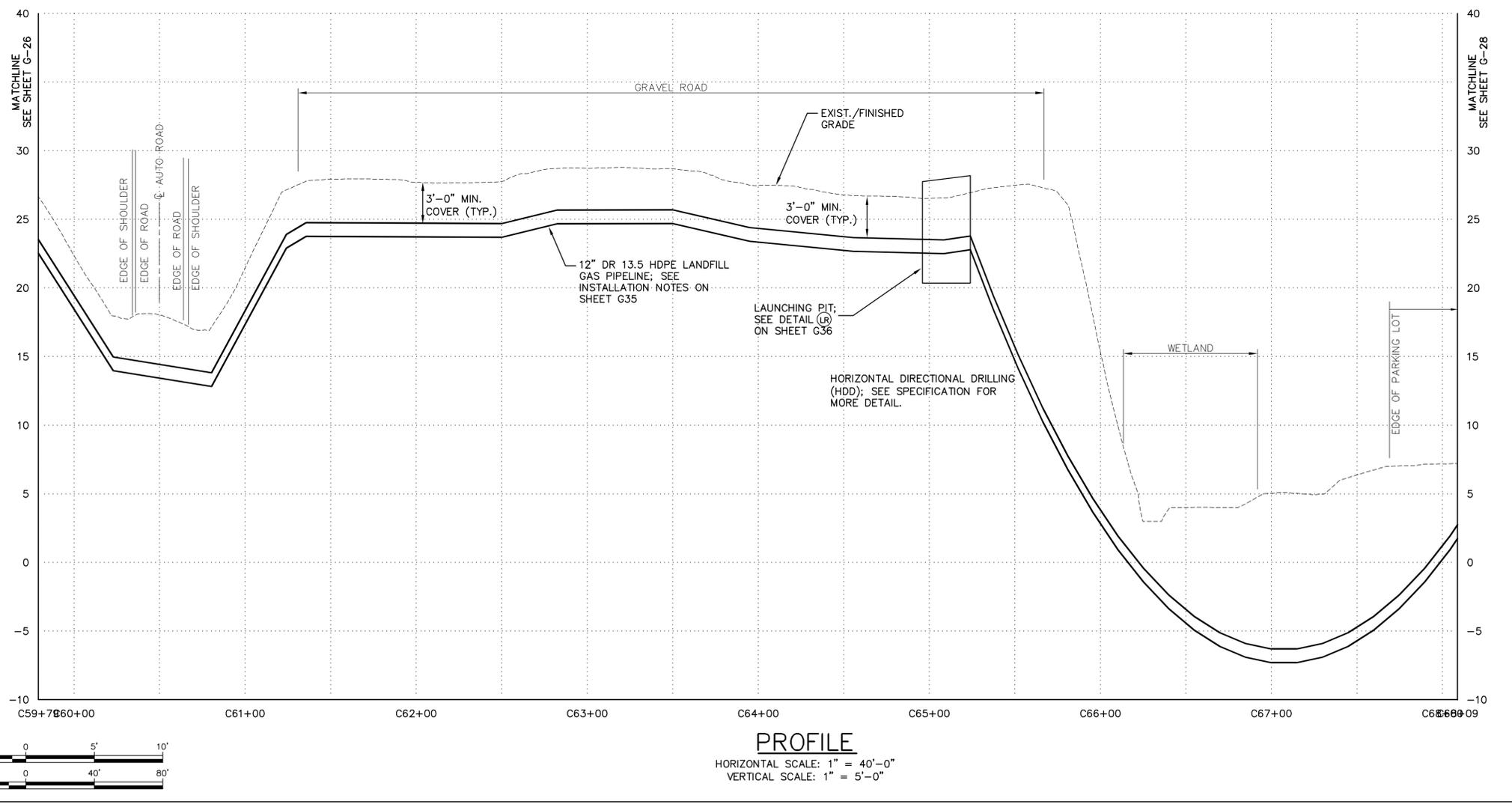
By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON

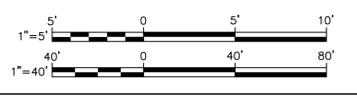


DATE: \_\_\_\_\_  
 Date  
 DECEMBER, 2011  
 Scale  
 AS SHOWN  
 Sheet Number  
**G-27**  
 File Number  
 1362.001-30F



**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY
	WETLANDS
	MUNICIPAL BOUNDARY
	SILT FENCE
	PROTECTIVE FENCE
	STONE CHECK DAM



THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE) 115 ROUTE 46 WEST SUITE 1000 MOUNTAIN LAKE, NJ 07046  
 1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)

ENGINEER/APPLICANT: BARTON & LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 BIRK BEACH, PA 17011 (717) 737-8338 (PHONE) (717) 737-8328 (FAX)

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  5. INSTALL SILT SOXX A MINIMUM OF 5' FROM TOE OF SLOPE OF SOIL STOCKPILE.
  6. IN PAVED AREAS, LIMIT OF DISTURBANCE WILL BE LIMITED TO 3' TRENCH.
  7. CONTRACTOR SHALL ADHERE TO ALL NOTES CONTAINED ON SHEET G1.
  8. SOIL STOCKPILES ON PAVED AREAS WILL BE COVERED WITH PLASTIC AND BALLASTED.

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON



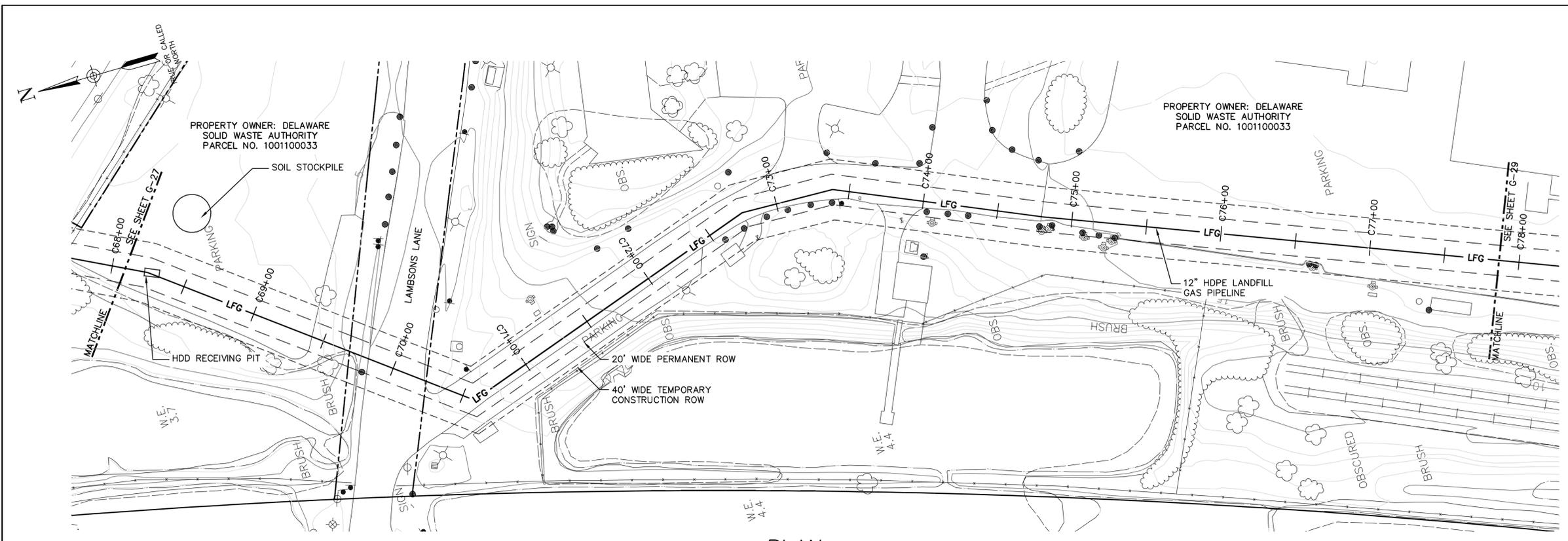
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 Date

DECEMBER, 2011

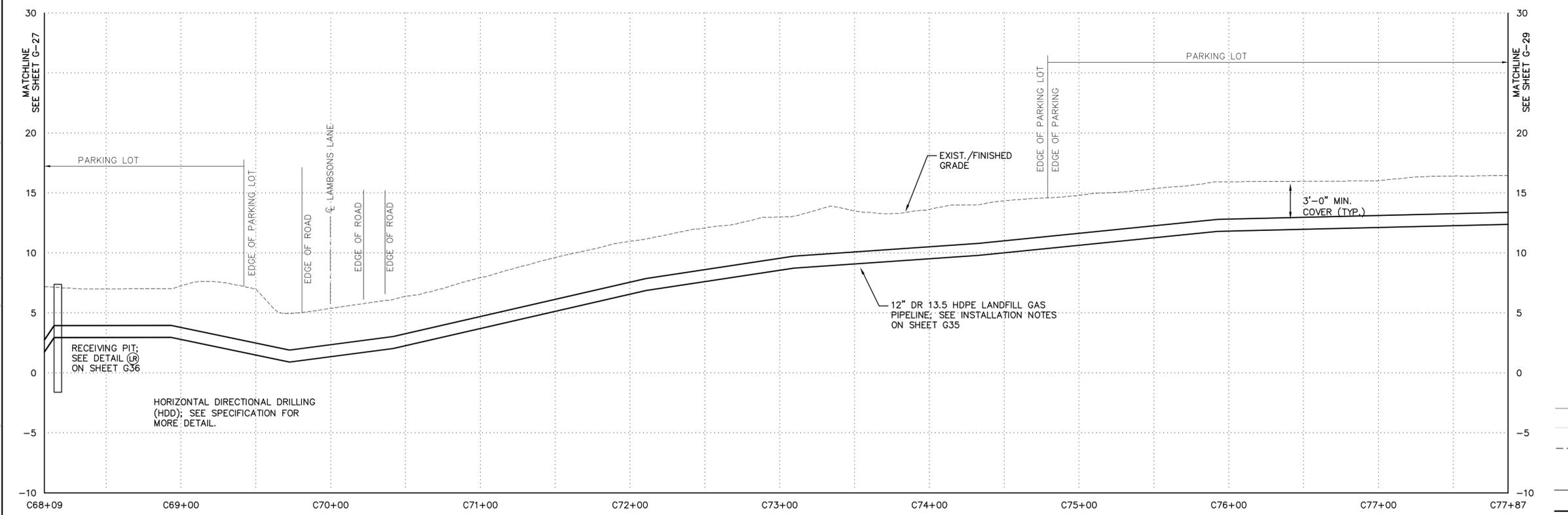
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Sheet Number **G-28**

File Number 1362.001-31F



**PLAN**  
 SCALE: 1" = 40'-0"



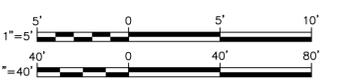
**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"

**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY

Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS In charge of \_\_\_\_\_ SCS

Plotted: Dec 14, 2011 - 11:37AM  
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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CRE) 115 ROUTE 46 WEST SUITE 1000 MOUNTAIN LAKE, NJ 07046  
1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 SHAW HILL, PA 17011 (717) 737-8338 (PHONE) (717) 737-8328 (FAX)

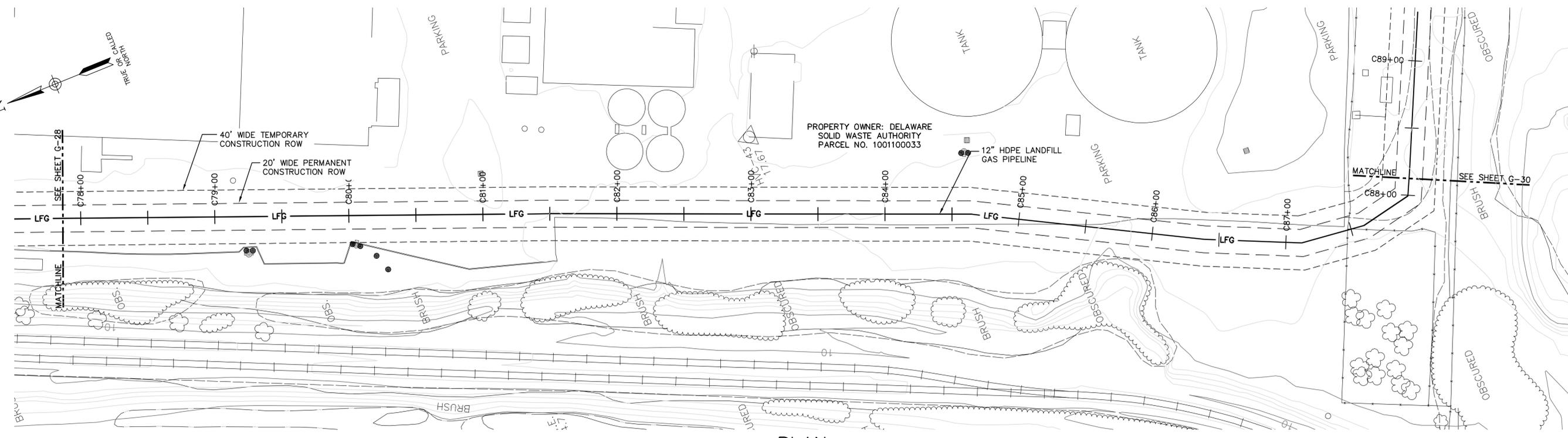
By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
 PIPELINE PLAN AND PROFILE  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON



DATE: \_\_\_\_\_  
 Date DECEMBER, 2011  
 Scale AS SHOWN  
 Sheet Number G-29  
 File Number 1362.001-32F

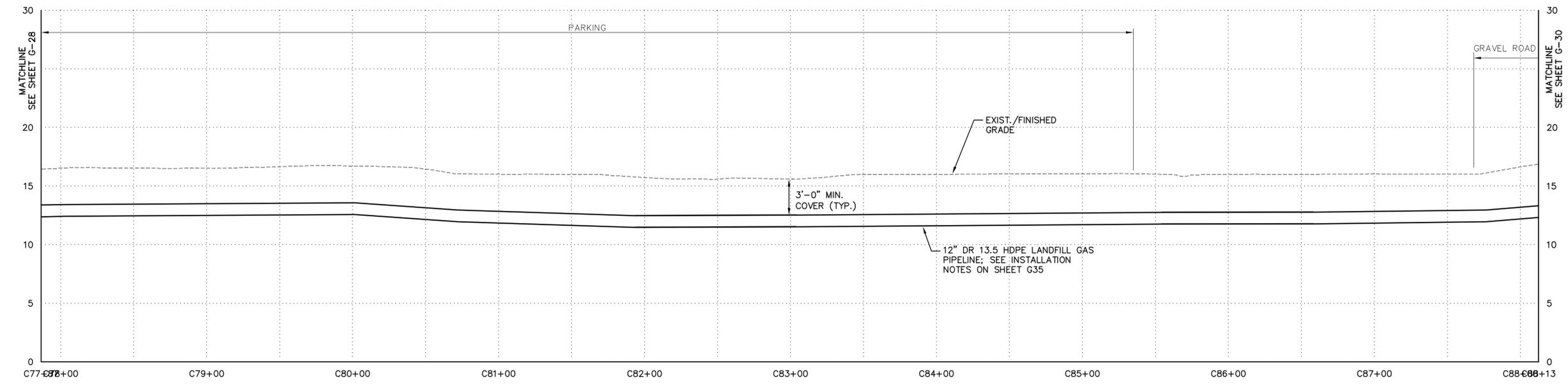


**PLAN**  
 SCALE: 1" = 40'-0"

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  5. IN PAVED AREAS, LIMIT OF DISTURBANCE WILL BE LIMITED TO 3' TRENCH.
  6. CONTRACTOR SHALL ADHERE TO ALL NOTES CONTAINED ON SHEET G1.
  7. SOIL STOCKPILES ON PAVED AREAS WILL BE COVERED WITH PLASTIC AND BALLASTED.

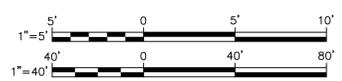
**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY

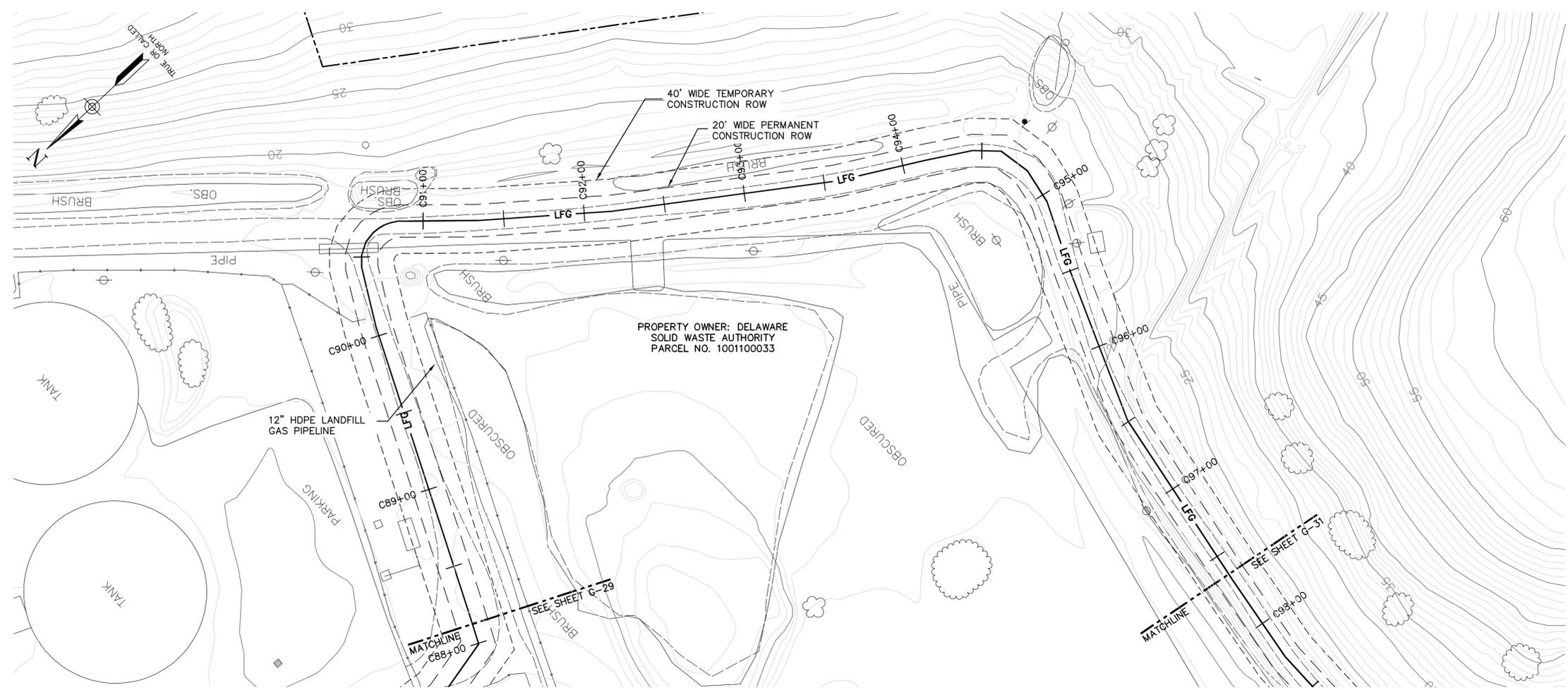


**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"

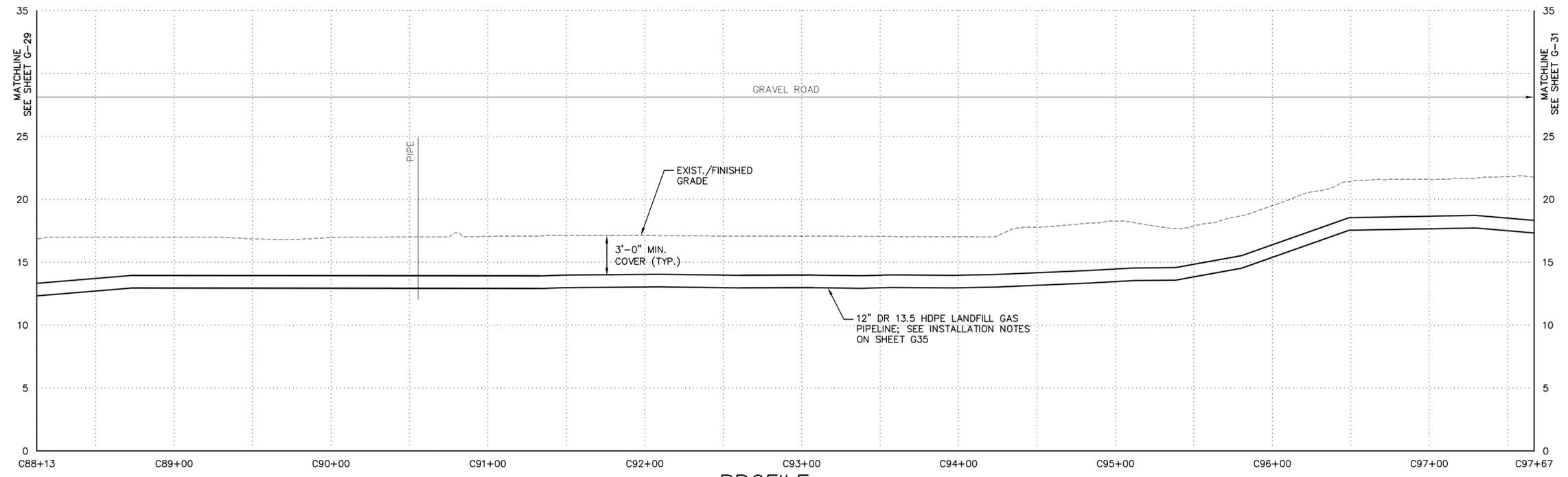
Checked by \_\_\_\_\_ AND \_\_\_\_\_ Drawn by \_\_\_\_\_ SCS \_\_\_\_\_ In charge of \_\_\_\_\_ SCS \_\_\_\_\_  
 Plotted: Dec 14, 2011 - 11:32AM SYR By: and  
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Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS In charge of \_\_\_\_\_ SCS  
 Plotted: Dec 14, 2011 - 11:35AM SYR By: and  
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**PLAN**  
 SCALE: 1" = 40'-0"



**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  5. CONTRACTOR SHALL ADHERE TO ALL NOTES CONTAINED ON SHEET G1.

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGGIDICE, P.C. ANY REUSE OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGGIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.  
 LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 100 MOUNTAIN LAKE, NJ 07046 1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)  
 ENGINEER/APPLICANT: BARTON AND LOGGIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 SHARPSVILLE, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 CITY OF WILMINGTON NEW CASTLE COUNTY, DELAWARE

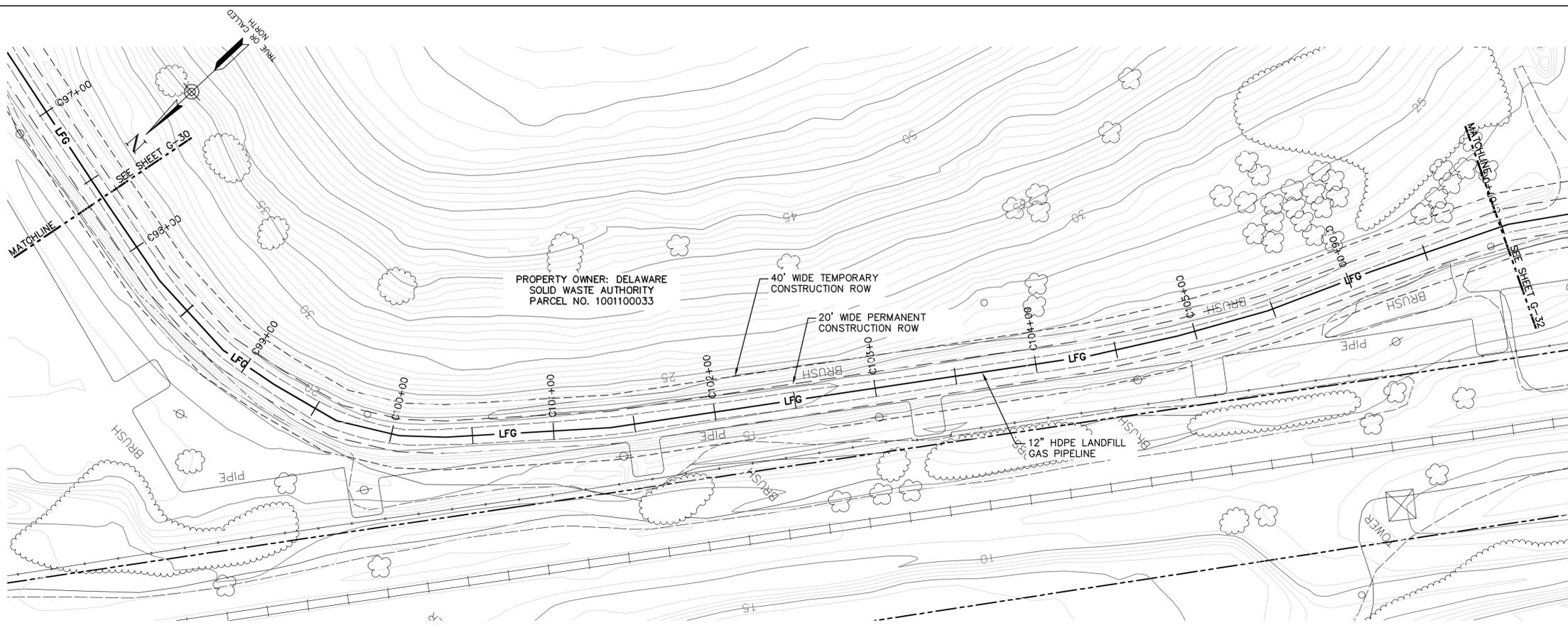


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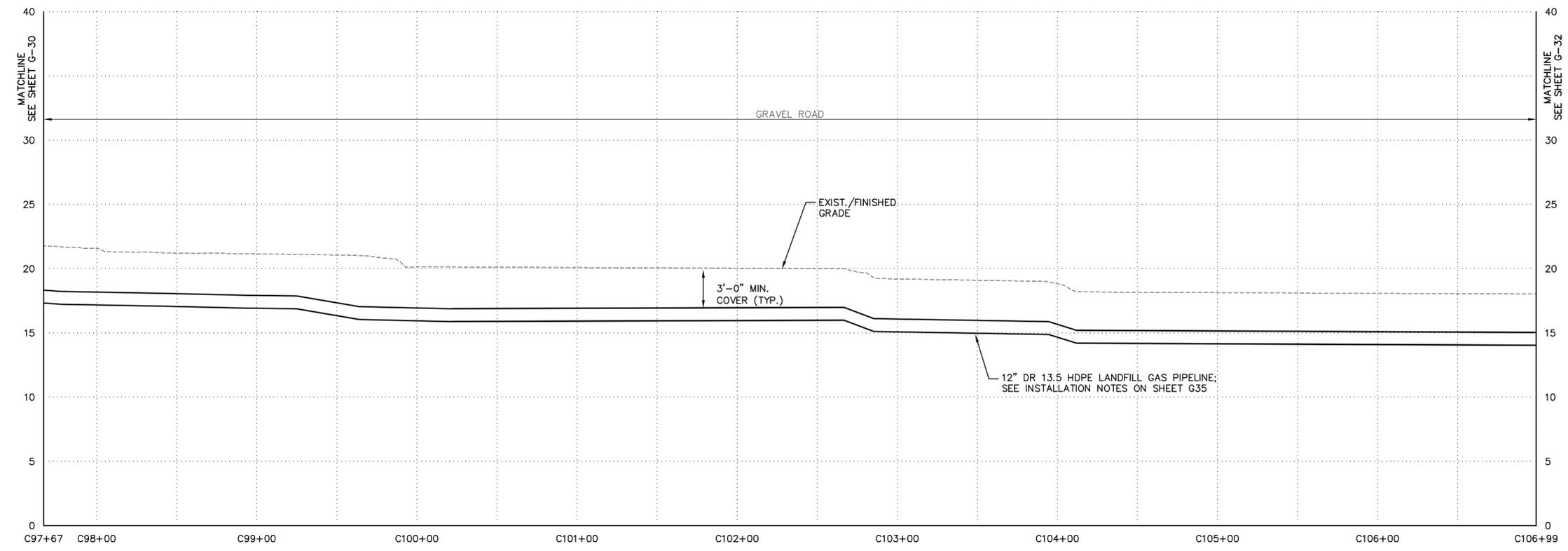
	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY

DATE: \_\_\_\_\_  
 Date DECEMBER, 2011  
 Scale AS SHOWN  
 Sheet Number **G-30**  
 File Number 1362.001-33F

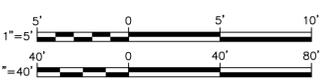
Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS \_\_\_\_\_ In charge of \_\_\_\_\_ SCS \_\_\_\_\_  
 Plotted: Dec 14, 2011 - 11:36AM SYR By: and  
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**PLAN**  
 SCALE: 1" = 40'-0"



**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"



- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
  5. CONTRACTOR SHALL ADHERE TO ALL NOTES CONTAINED ON SHEET G1.

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGGIDICE, P.C. ANY REUSE OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGGIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL GOVERN.  
 LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CRE) 115 ROUTE 46 WEST SUITE 1000 MOUNTAIN LAKE, NJ 07046 1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)  
 ENGINEER/APPLICANT: BARTON AND LOGGIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 SHARPS HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON

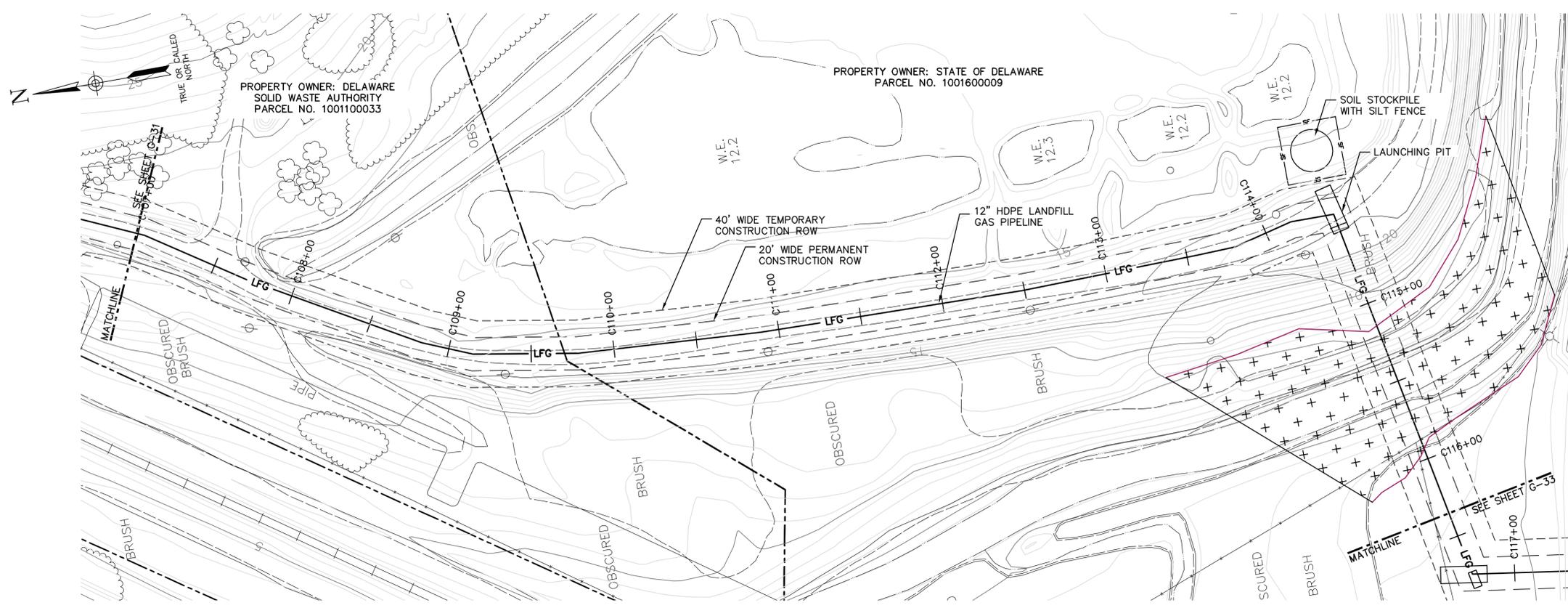


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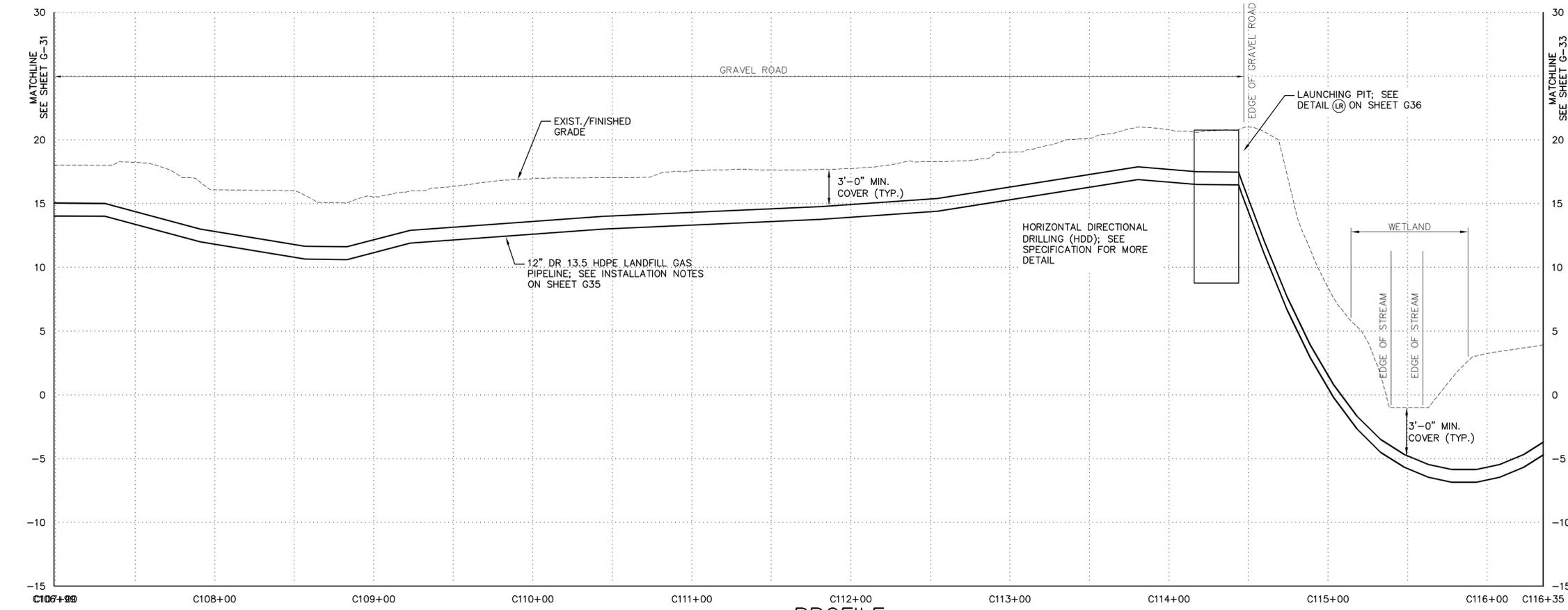
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	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY

DATE: \_\_\_\_\_  
 Date  
 DECEMBER, 2011  
 Scale  
 AS SHOWN  
 Sheet Number  
**G-31**  
 File Number  
 1362.001-34F

Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS \_\_\_\_\_ In charge of \_\_\_\_\_ SCS \_\_\_\_\_  
 Plotted: Dec 14, 2011 - 11:38AM SYR By: and  
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**PLAN**  
 SCALE: 1" = 40'-0"



**PROFILE**  
 HORIZONTAL SCALE: 1" = 40'-0"  
 VERTICAL SCALE: 1" = 5'-0"

**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY
	SILT FENCE
	WETLANDS

- NOTES:**
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD. THE LANDFILL GAS PIPELINE WILL BE PLACED USING DIRECTIONAL DRILLING METHODS UNDER THE STREAM, AS SEEN ON THIS SHEET.
  5. INSTALL SILT FENCE A MINIMUM OF 5' FROM TOE OF SLOPE OF SOIL STOCKPILE.
  6. CONTRACTOR SHALL STAY A MINIMUM DISTANCE OF 20' FROM WETLANDS BOUNDARIES. WETLANDS ARE NOT INCLUDED IN THE LIMIT OF DISTURBANCE.
  7. CONTRACTOR SHALL ADHERE TO ALL NOTES CONTAINED ON SHEET G1.

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGGINS, P.C. ANY REUSE OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGGINS, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.  
 LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1000 MOUNTAIN LAKE, NJ 07096 1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)  
 ENGINEER/APPLICANT: BARTON & LOGGINS (B&L) 1104 FERNWOOD AVENUE SUITE 501 BIRK BEACH, PA 17011 (717) 737-8338 (PHONE) (717) 737-8328 (FAX)

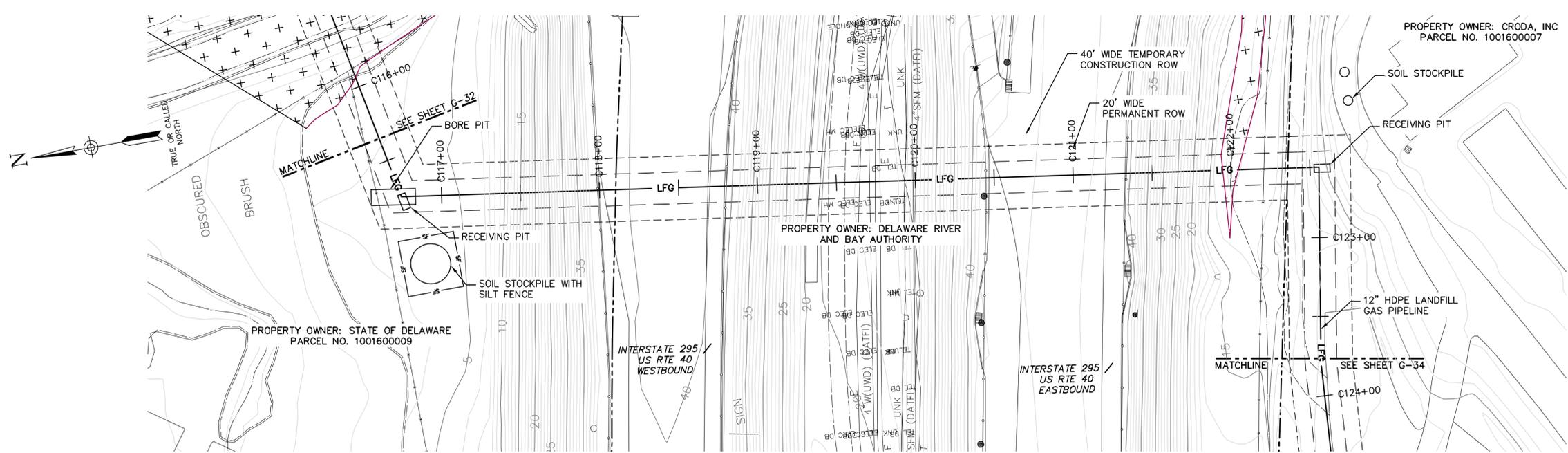
By \_\_\_\_\_ Date \_\_\_\_\_  
 Ckd \_\_\_\_\_ Date \_\_\_\_\_

NO.	REVISIONS

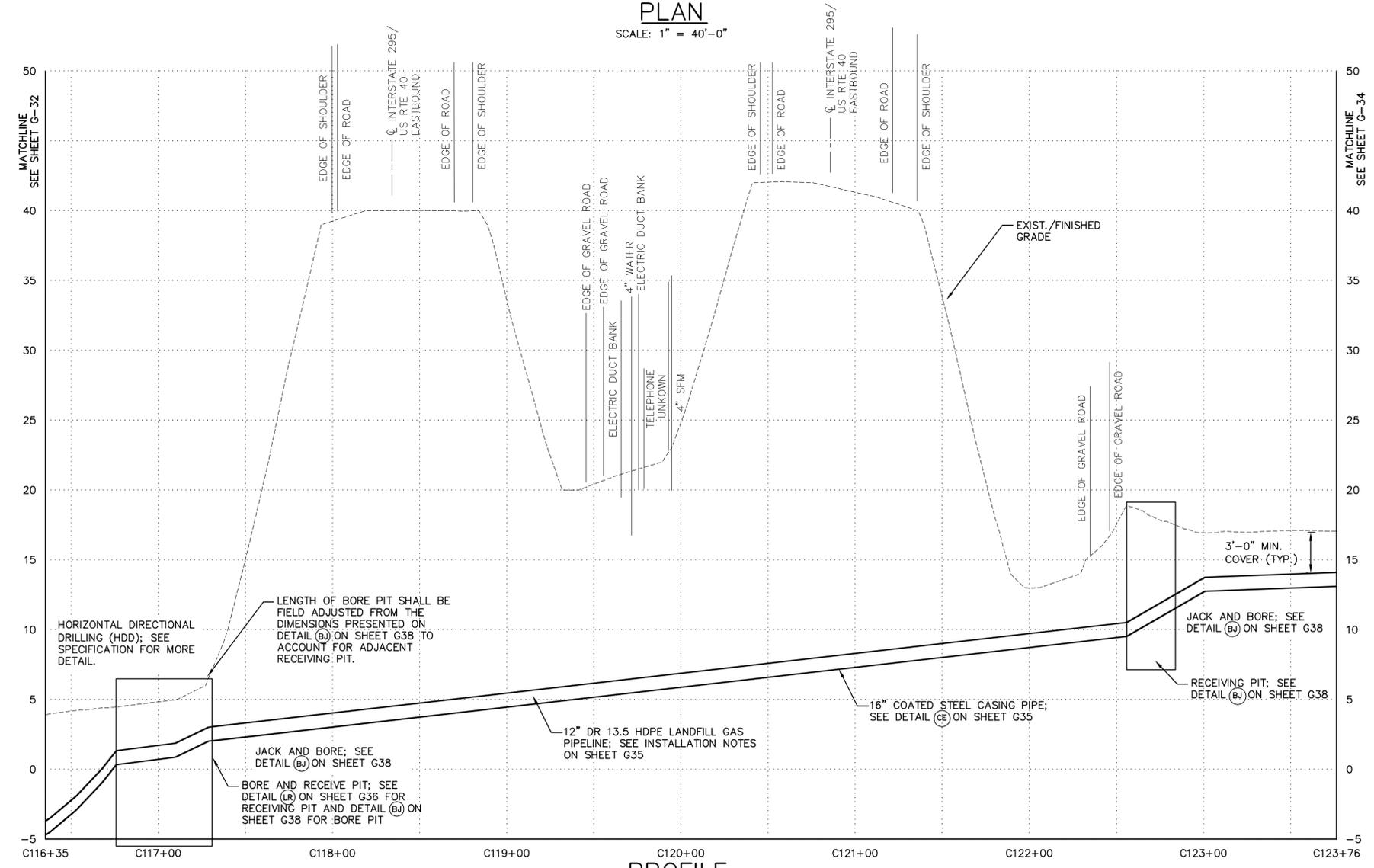
CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON



DATE: \_\_\_\_\_  
 Date  
 DECEMBER, 2011  
 Scale  
 AS SHOWN  
 Sheet Number  
**G-32**  
 File Number  
 1362.001-35F



**PLAN**  
SCALE: 1" = 40'-0"



**PROFILE**  
HORIZONTAL SCALE: 1" = 40'-0"  
VERTICAL SCALE: 1" = 5'-0"

- NOTES:
1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
  2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
  3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
  4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD. THE LANDFILL GAS PIPELINE WILL BE PLACED USING DIRECTIONAL DRILLING METHODS UNDER I-295.
  5. INSTALL SILT FENCE A MINIMUM OF 5' FROM TOE OF SLOPE OF SOIL STOCKPILE.
  6. INSTALL SILT SOXX A MINIMUM OF 5' FROM TOE OF SLOPE OF SOIL STOCKPILE.
  7. CONTRACTOR MAY REQUIRE MULTIPLE SOIL STOCKPILES ON CRODA PROPERTY FOR STORAGE OF RECEIVING PIT SOIL. CONTRACTOR SHALL STORE PILES IN EXISTING PAVED ROAD.
  8. CONTRACTOR SHALL STAY A MINIMUM DISTANCE OF 20' AWAY FROM THE WETLANDS BOUNDARIES; WETLANDS ARE NOT INCLUDED IN THE LIMIT OF DISTURBANCE.
  9. CONTRACTOR SHALL ADHERE TO ALL NOTES CONTAINED ON SHEET G1.
  10. SOIL STOCKPILES ON PAVED AREAS WILL BE COVERED WITH PLASTIC AND BALLASTED.

THESE DRAWINGS ARE THE PROPERTY OF BARTON & LOGUIDICE, P.C. ANY REUSE, REVISION OR ALTERATION OF THESE DRAWINGS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BARTON & LOGUIDICE, P.C. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL PREVAIL.

LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE) 115 ROUTE 46 WEST SUITE 100 NEWCASTLE, DE 19720  
1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 BIRK HILL, PA 17011 (717) 737-8338 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON

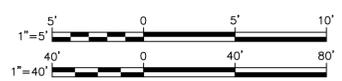


**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY
	SILT FENCE
	SILT SOXX
	WETLANDS

DATE: \_\_\_\_\_  
Date  
DECEMBER, 2011  
Scale  
AS SHOWN  
Sheet Number  
**G-33**  
File Number  
1362.001-36F

Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS In charge of \_\_\_\_\_ SCS  
 Plotted: Dec 14, 2011 - 11:39AM  
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 By: SYR  
 SCS



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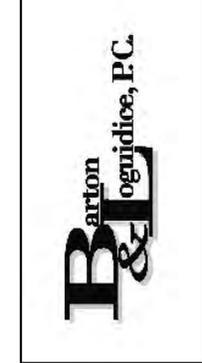
LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (GRE) 115 ROUTE 46 WEST SUITE 1000 MOUNTAIN LAKE, NJ 07094  
1-973-316-8041 (PHONE) 1-973-394-6830 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 CAMP HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

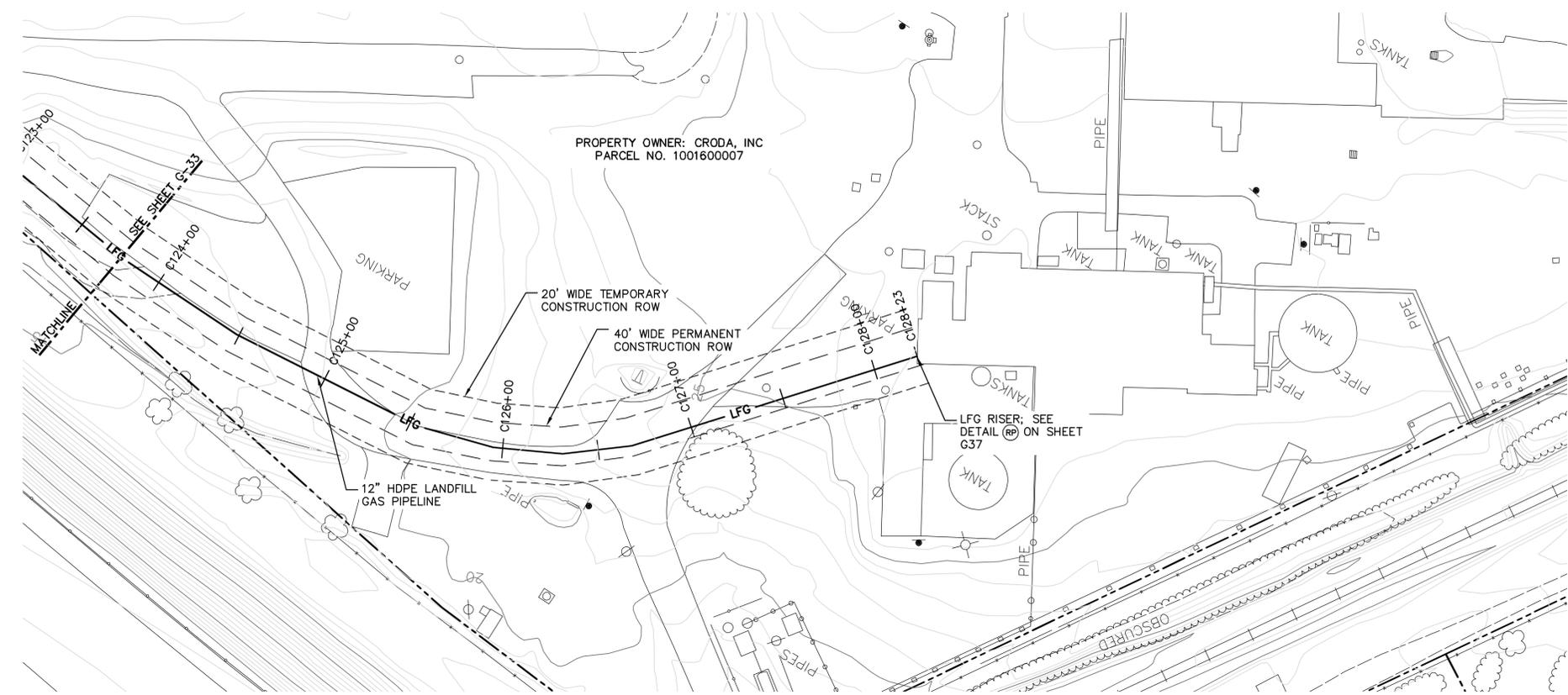
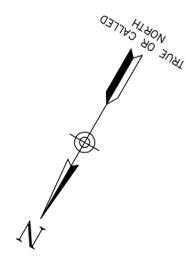
CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
**PIPELINE PLAN AND PROFILE**  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON



DATE: \_\_\_\_\_  
Date  
DECEMBER, 2011  
Scale  
AS SHOWN  
Sheet Number  
**G-34**  
File Number  
1362.001-37F

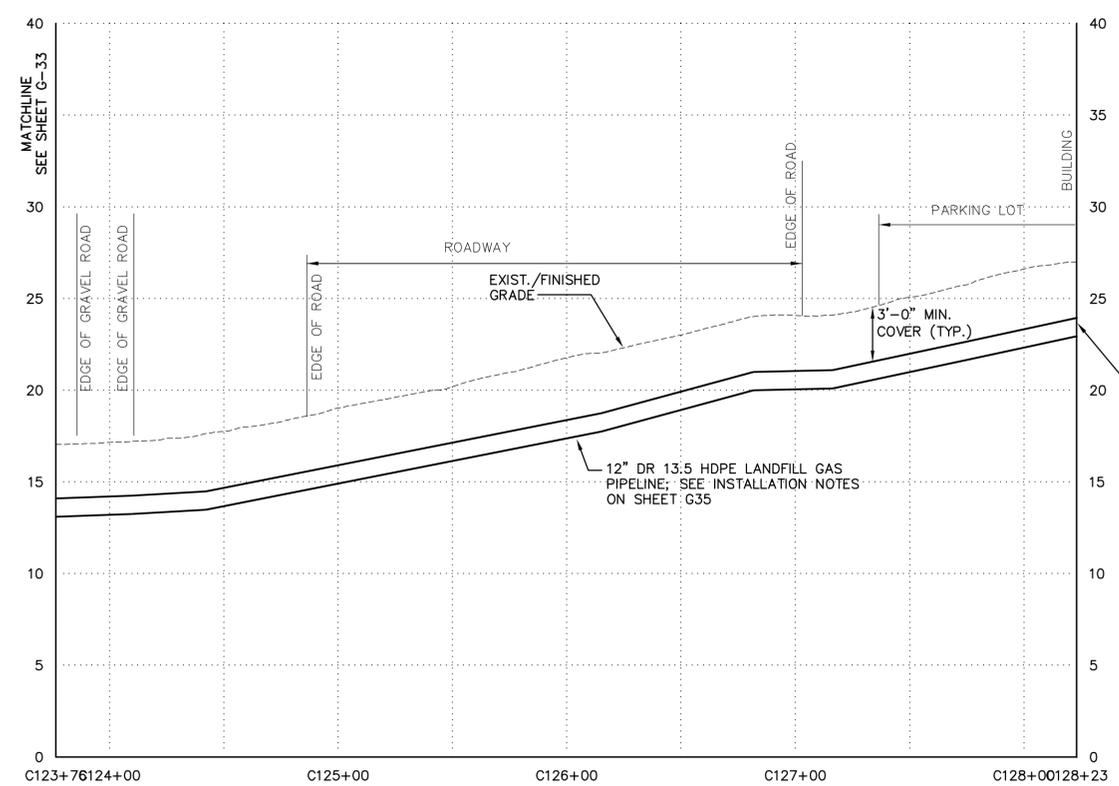
NOTES:

1. THE PARCEL INFORMATION AND PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM NEW CASTLE COUNTY GIS SYSTEM TAX PARCEL DATA FEBRUARY 1999.
2. ACCURACY OF SOME PROPERTY BOUNDARY LINES MAY NOT MATCH EXISTING SURFACE CONTROLS.
3. THE SURVEY INFORMATION WAS OBTAINED FROM T3 - GLOBAL STRATEGIES. AERIAL SURVEY CONDUCTED MAY 2011.
4. 12" HDPE LANDFILL GAS PIPELINE WILL BE PLACED USING THE OPEN CUT TRENCHING METHOD.
5. IN PAVED AREAS, LIMIT OF DISTURBANCE IS LIMITED TO 3' TRENCH.
6. CONTRACTOR SHALL ADHERE TO ALL NOTES CONTAINED ON SHEET G1.
7. SOIL STOCKPILES ON PAVED AREAS SHALL BE COVERED WITH PLASTIC AND BALLASTED.



**PLAN**

SCALE: 1" = 40'-0"

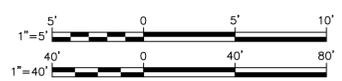


**PROFILE**

HORIZONTAL SCALE: 1" = 40'-0"  
VERTICAL SCALE: 1" = 5'-0"

**LEGEND**

	MAJOR CONTOUR
	MINOR CONTOUR
	TEMPORARY CONSTRUCTION ROW/LIMIT OF DISTURBANCE (LOD)
	PERMANENT CONSTRUCTION ROW
	LFG PIPELINE
	PROPERTY BOUNDARY
	WATERWAY
	CONDENSATE LINE
	GRAVEL ROADWAY
	ASPHALT ROADWAY



Checked by \_\_\_\_\_ AND \_\_\_\_\_ In charge of \_\_\_\_\_ SCS  
 Drawn by \_\_\_\_\_ SCS  
 Plotted: Dec 14, 2011 - 11:40AM  
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**BILL OF MATERIALS FURNISHED BY CONTRACTOR**

TAG NO	DESCRIPTION
1	COATED STEEL CASING PIPE: PIPE: 16-INCH DIAMETER, .312-INCH WALL THICKNESS MIN. 35,000 PSI YIELD STRENGTH, ASTM A 53, GRADE A OR B ERW, OR TO API 5L. COATING: COAL TAR EPOXY, 16-20 MIL DRY FILM FINISHED THICKNESS, APPLY IN TWO COATS TO CLEANED AND PRIMED SURFACE.
2	CASING VENT PIPE IN ROADWAY: BINGHAM & TAYLOR 9" SQUARE STEEL THAT READ "GAS". BOX DIMENSIONS WILL BE 16" HIGH WITH AN 8 1/2" OPENING FOR VENT PIPE. THE BASE OF THE BOX WILL BE 14" SQUARE. SUBSTITUTES SHALL BE SUBJECT TO ENGINEER'S APPROVAL.
3	CASING VENT PIPE NOT IN ROADWAY: (a) 3-INCH NOMINAL DIA. SCH. 40 STEEL PIPE, CONFORMING TO ASTM A 53, GRADE B ERW OR TO API 5L. (b) 3-INCH MARKER POST, YELLOW/WHITE IN COLOR, BY RHINO MODEL: VENTGUARD™ UTILITY MARKER. CONFORMING TO D.O.T. REGULATIONS OR EQUAL AS APPROVED BY ENGINEER.
4	VENT SCREEN: BRONZE INSECT SCREEN
5	CASING END SEALS: 12 INCH CARRIER PIPE TO 16-INCH CASING PIPE; LINK-SEAL THUNDERLINE MODULAR SEALS, MODEL "C" OR "L" OR OTHER AS APPROVED BY ENGINEER.
6	CASING SPACERS: 304 STAINLESS STEEL CASING SPACERS, PIPELINE SEAL & INSULATOR, INC., MODEL S OR EQUAL AS APPROVED BY ENGINEER
7	LINE MARKER SIGN AND POST: 6" RHINO PLASTICURVE™ UTILITY MARKER POST WITH STICKER THAT READS "WARNING: GAS PIPELINE - FOR EMERGENCY CALL 811-800-XXX-XXX - BEFORE DIGGING CALL 811 (INCLUDE 811 LOGO) - CHERRY ISLAND RENEWABLE ENERGY, LLC 115 ROUTE 46 WEST SUITE F-1000 MOUNTAIN LAKES, NJ 07046. SUBSTITUTES SHALL BE SUBJECT TO ENGINEER'S APPROVAL.
8	PIPELINE SHALL BE 12" HDPE DR 13.5 (DR 11 AT DIRECTIONAL DRILLING LOCATIONS) PERFORMANCE PIPE DRISCOPE PIPE 8100 SERIES, ASTM D3350, PE 4710/PE 100. THIS PIPE SHALL CONTAIN A CO-EXTRUDED YELLOW SHELL. SUBSTITUTIONS SHALL BE SUBJECT TO ENGINEER'S APPROVAL.
9	ELECTROFUSION FITTINGS - ????. MAX FITTING 45'. FITTINGS GREATER THAN 45' REQUIRE MIN. 2' OF STRAIGHT PIPE TO BE USED PRIOR TO ANOTHER FITTING. LOCATION OF 90° LARGE RADIUS FITTINGS SHALL BE APPROVED BY ENGINEER.
10	VALVES SHALL BE FULL PORT IN ACCORDANCE WITH DETAIL VB ON SHEET G37.

**INSTALLATION NOTES**

- PROVIDE THE FOLLOWING INFORMATION ON ALL PIPELINE MARKERS AND VENTS:

"WARNING - GAS PIPELINE" (1-INCH HIGH BLACK LETTERS WITH 1/4-INCH STROKE ON WHITE BACKGROUND)  
 CALL 811 LOGO - OPERATOR'S NAME AND ADDRESS - TELEPHONE NUMBER INCLUDING AREA CODE WHERE OPERATOR CAN BE REACHED AT ALL TIMES".

IN ADDITION TO THE ABOVE INFORMATION, ALSO PROVIDE OPERATING PRESSURE AND DEPTH BELOW GRADE AT MARKER LOCATION FOR ALL PIPELINE MARKERS AND VENTS ON NORFOLK SOUTHERN RIGHTS-OF-WAY.

- CONTRACTOR SHALL PROVIDE OVERNIGHT PRESSURE TEST OF 100 PSI AT 5,000 TO 8,000 LF INTERVALS DURING CONSTRUCTION.

- INSTALL PIPELINE MARKER SIGNS MEETING THE FOLLOWING REQUIREMENTS:
  - EVERY 150 FEET FROM STA. A37+00 TO A51+00.
  - 500' MAX
  - CHANGES IN PIPE DIRECTION
  - PER PLANS
  - PROPERTY BOUNDARIES
  - EACH SIDE OF PUBLIC ROADWAYS AND RAILROAD CROSSINGS

ABBREVIATIONS	
ADPT	ADAPTOR
DI	DUCTILE IRON
ID	INTERIOR DIAMETER
LFG	LANDFILL GAS
OC	ON CENTER
OD	OUTER DIAMETER
SS	STAINLESS STEEL
TYP	TYPICAL

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 LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE F-1000 MOUNTAIN LAKES, NJ 07046 1-973-316-6041 (PHONE) 1-973-394-8630 (FAX)  
 ENGINEER/APPLICANT: BARTON AND LOGUIDICE (BAL) 1104 FERNWOOD AVENUE SUITE 501 CHAMP HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS	

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
 INSTALLATION NOTES AND  
 BILL OF MATERIALS  
 CITY OF WILMINGTON NEW CASTLE COUNTY, DELAWARE

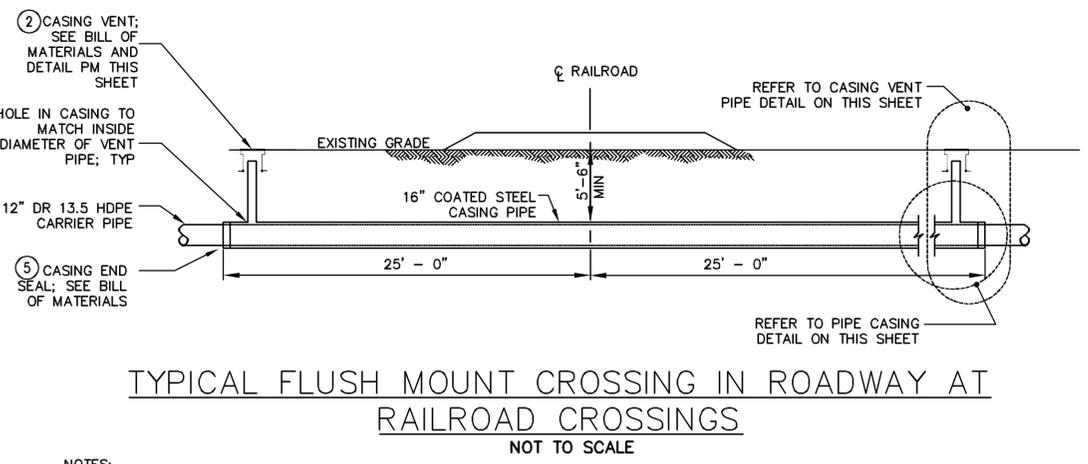


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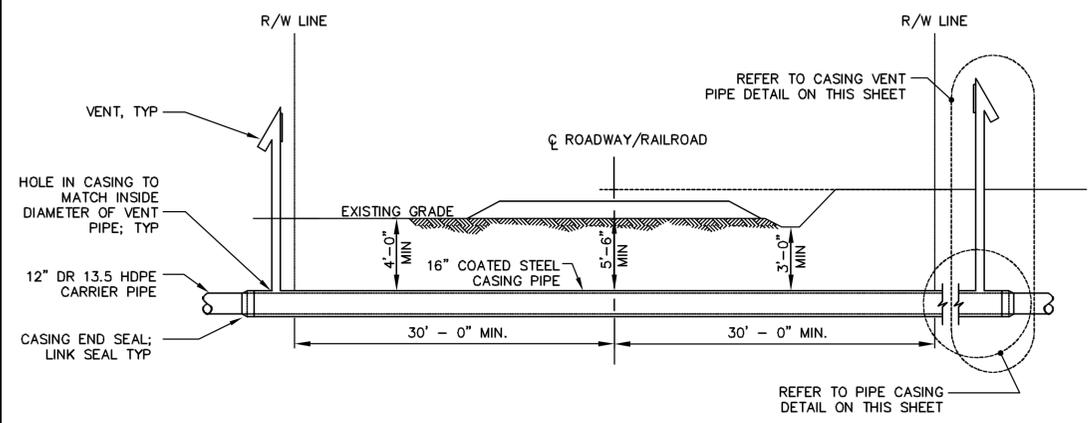
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 Date  
 DECEMBER, 2011  
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**G35**  
 File Number  
 1362.001-38F

	CARRIER PIPE	CASING PIPE
CONTENTS TO BE HANDLED	LFG	CARRIER PIPE
NORMAL OPERATING PRESSURE	50 PSI	
NOMINAL SIZE OF PIPE	12"	16"
OUTSIDE DIAMETER	12.64"	
INSIDE DIAMETER	10.749"	
WALL THICKNESS	0.944"	.375"
WEIGHT PER FOOT	15.38 LBS/FT	
MATERIAL	HDPE	STEEL
PROCESS OF MANUFACTURE	LFG	
SPECIFICATION	ASTM D2513	
GRADE OR CLASS	PE4710	
TEST PRESSURE	75 PSI	
TYPE OF JOINT	BUTT FUSION	WELDED
TYPE OF COATING	NONE	
DETAILS OF CATHODIC PROTECTION	NONE	SEE DETAIL XX ON SHEET XX
DETAILS OF SEALS OR PROTECTION AT END OF CASING	SEE DETAIL XX ON SHEET XX	SEE DETAIL XX ON SHEET XX
CHARACTER OF SUBSURFACE MATERIAL	SANDY SILT	SANDY SILT
APPROXIMATE GROUND WATER LEVEL	~2'	~2'
SOURCE OF INFORMATION ON SUBSURFACE CONDITIONS	EXPLORATORY BORINGS	EXPLORATORY BORINGS

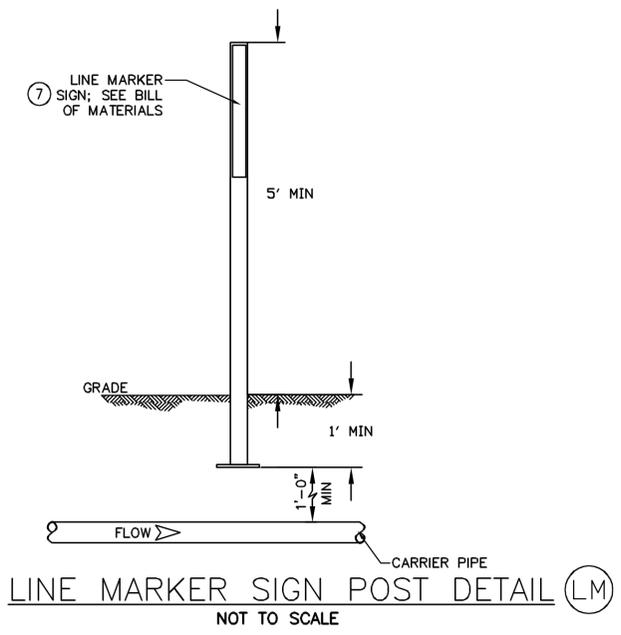
PIPE DATA SHEET (PD)



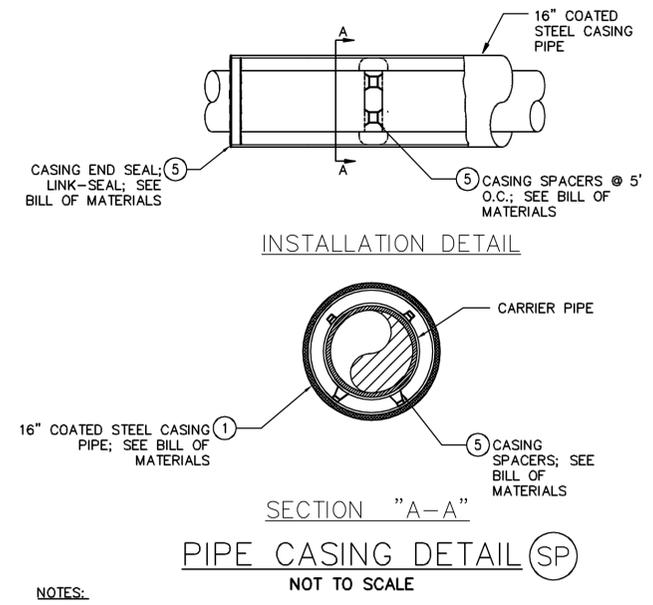
- NOTES:
- SEE PLAN AND PROFILE SHEET FOR LENGTHS OF PIPE CASINGS.



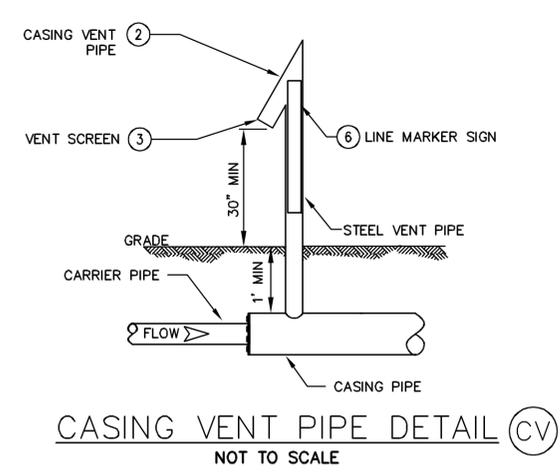
- NOTES:
- SEE PLAN AND PROFILE SHEET FOR LENGTHS OF PIPE CASINGS.



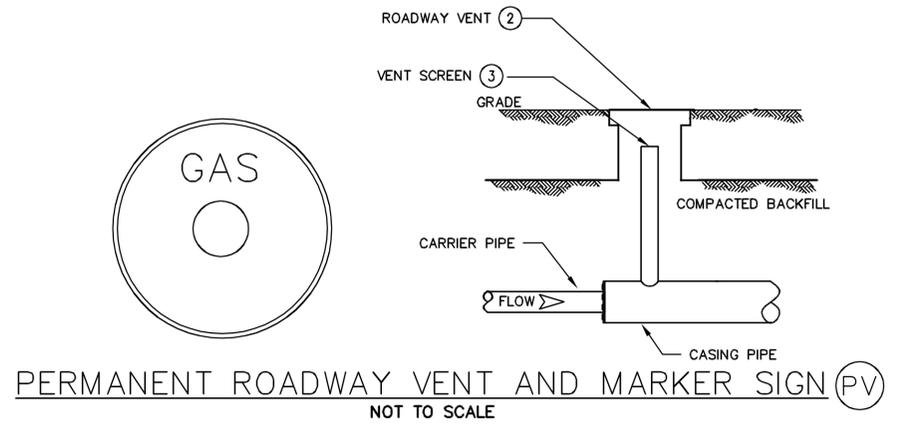
- NOTES:
- LINE MARKER SIGN SHALL BE A 6' RHINO PLASTICURVE™ UTILITY MARKER POST. THE LINE MARKER SIGN WILL CONTAIN A STICKER THAT READS "WARNING: GAS PIPELINE - FOR EMERGENCY CALL CIRE 1-800-XXX-XXX - BEFORE DIGGING CALL 811 (INCLUDE 811 LOGO) - CHERRY ISLAND RENEWABLE ENERGY, LLC 115 ROUTE 46 WEST SUITE F-1000 MOUNTAIN LAKES, NJ 07046. SUBSTITUTES SHALL BE SUBJECT TO ENGINEER'S APPROVAL.
  - IF DISTURBED, LINE MARKER SIGN SHALL BE REPLACED.
  - SEE INSTALLATION NOTES THIS SHEET



- NOTES:
- INSTALL PIPE CASING BY BORING AND JACKING OR DIRECTIONAL DRILLING.
  - INSTALL PIPE CASING WHEN LANDFILL GAS PIPELINE IS WITHIN 3' OF AN EXISTING UTILITY LINE.
  - EXTEND CASING PIPE 1' BEYOND LIMIT OF 3' OFFSET OF EXISTING UTILITY LINE.



- NOTES:
- CASING VENT PIPE WILL BE 3" STEEL PIPE WITH A 3.5" RHINO VENTGUARD™ UTILITY MARKER FITTED OVER TOP THE STEEL PIPE. THE VENTGUARD™ MARKER WILL INCLUDE A STICKER THAT READS "WARNING: BURIED GAS PIPELINE - FOR EMERGENCY CALL CIRE 1-800-XXX-XXX - BEFORE DIGGING CALL 811 (INCLUDE 811 LOGO) - CHERRY ISLAND RENEWABLE ENERGY, LLC 115 ROUTE 46 WEST SUITE F-1000 MOUNTAIN LAKES, NJ 07046.
  - PAINT TOP 1'-6" OF VENT PIPE WITH 2 COATS OF WHITE PAINT, PAINT REST OF PIPE WITH 2 COATS OSHA YELLOW
  - ALL PAINT AND PRIMER SUPPLIED BY CONTRACTOR.
  - LINE MARKER SIGN TO BE INSTALLED FACING THE ROAD.
  - EXTEND VENT LINES IN LOCATIONS SUBJECT TO HIGH WATER ABOVE THE MAXIMUM ELEVATION OF HIGH WATER AND SUPPORT AND PROTECT.
  - INSTALL VENT LINES - MINIMUM OF 4 FEET VERTICALLY FROM AERIAL ELECTRICAL WIRES OR GREATER IF REQUIRED BY NATIONAL ELECTRICAL SAFETY CODE.
  - LOCATE VENTS AT LOCATIONS TO MINIMIZE IMPACT WITH EXISTING LAND USE.



- NOTES:
- PIPELINE VENT AND MARKER SHALL BE BINGHAM & TAYLOR 9" SQUARE STEEL THAT READ "GAS". BOX DIMENSIONS WILL BE 16" HIGH WITH AN 8 1/2" OPENING FOR VENT PIPE. THE BASE OF THE BOX WILL BE 14" SQUARE. SUBSTITUTES SHALL BE SUBJECT TO ENGINEER'S APPROVAL.
  - VENT PIPE SHALL EXTEND A MINIMUM OF 3" INTO THE BOX AND BE LOCATED A MINIMUM OF 3" FROM THE GROUND SURFACE.
  - VENT PIPE SHALL CONTAIN A VENT SCREEN - SEE BILL OF MATERIALS ITEM NUMBER 4.
  - SOIL BELOW THE 14" SQUARE FLANGE AT THE BOTTOM OF THE BOX SHALL BE COMPACTED.
  - LOCATE IN ROADWAY, ON EITHER SIDE OF RAILWAY LINES.

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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE F-1000 MOUNTAIN LAKES, NJ 07046 (PHONE) 1-800-316-6041 (PHONE) 1-973-384-5630 (FAX)

ENGINEER/APPLICANT: BARTON & LOGUIDICE (B&L) 1104 FERNWOOD AVENUE SUITE 501 CHERRY HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

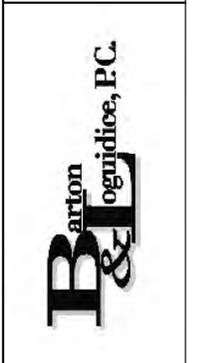
By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

NO.	REVISIONS

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

DETAILS

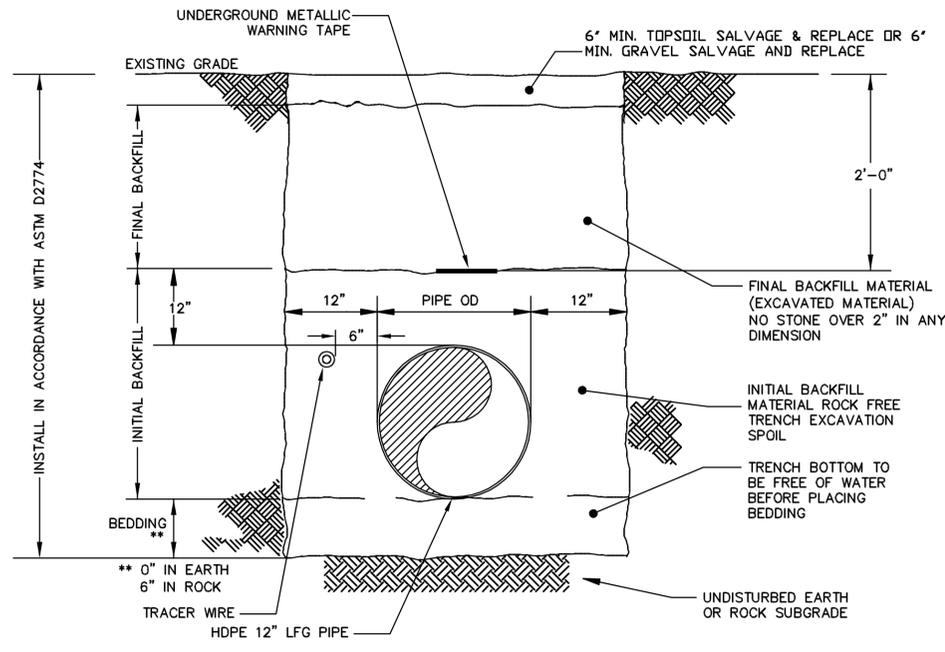
NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON



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 Date DECEMBER, 2011  
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 File Number 1362.001-39F

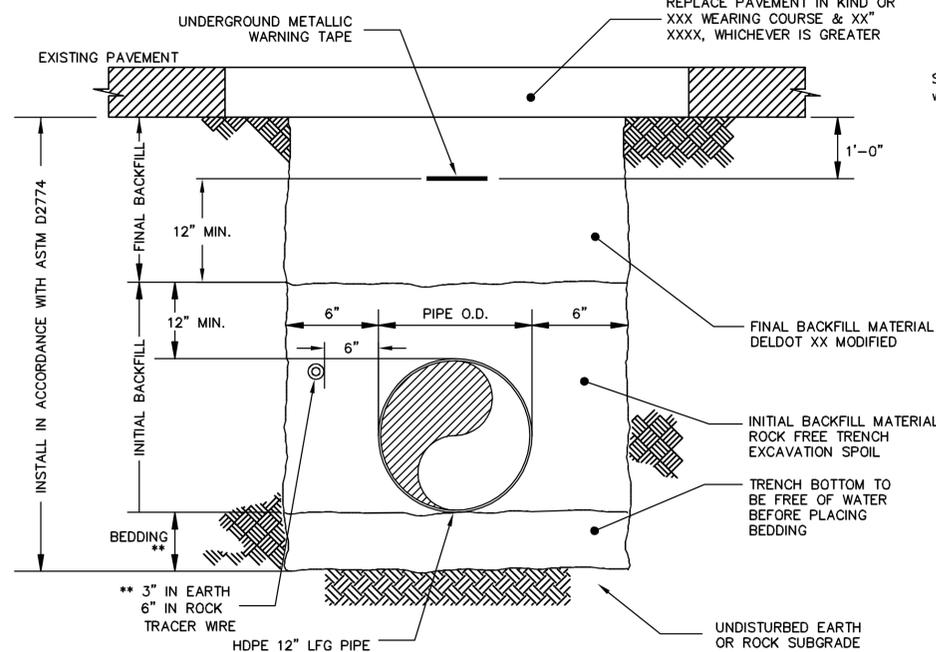
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TRENCH DETAIL-UNPAVED/GRAVEL AREAS (UA)  
NOT TO SCALE

NOTES:

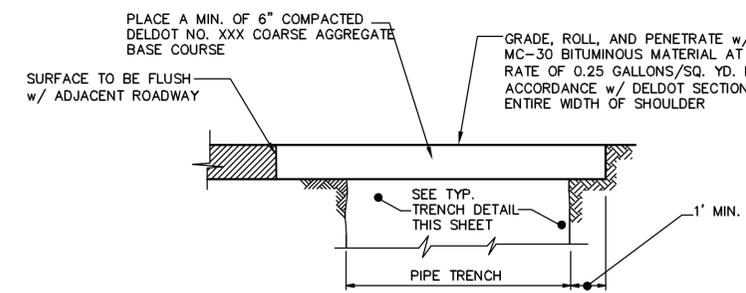
1. MINIMUM 3' SOIL COVER REQUIRED OVER PIPE. SOIL DEPTH CAN BE ACHIEVED WITH EARTH FILL IF COMPATIBLE WITH ADJACENT TOPOGRAPHY.
2. THE TRACER WIRE SHALL BE A 12 GAUGE WATERPROOF COPPER WIRE. TRACE WIRE SHALL BE CONNECTED INTO THE TEST STATIONS LOCATED, AS PER DRAWING. DETAIL (MP) FOR PLAN LOCATION OF TRACE WIRE.
3. PIPE SHALL BE INSTALLED IN CENTER LINE OF TRENCH, AS SHOWN ON THE DRAWINGS.
4. METALLIC WARNING TAPE, MANUFACTURED BY RHINO™ SHALL BE BRIGHT YELLOW IN COLOR, CONTINUOUSLY PRINTED WITH "CAUTION BURIED LANDFILL GAS PIPELINE BELOW," MINIMUM OF 6" BY 4 MILS THICK, MANUFACTURED FOR DIRECT BURIAL AND DETECTABLE. COLOR AND PRINTING SHALL BE PERMANENT, UNAFFECTED BY MOISTURE AND SOIL. METALLIC TAPE SHALL BE PLACED 12" ABOVE HDPE PIPE OR TRACE WIRE.



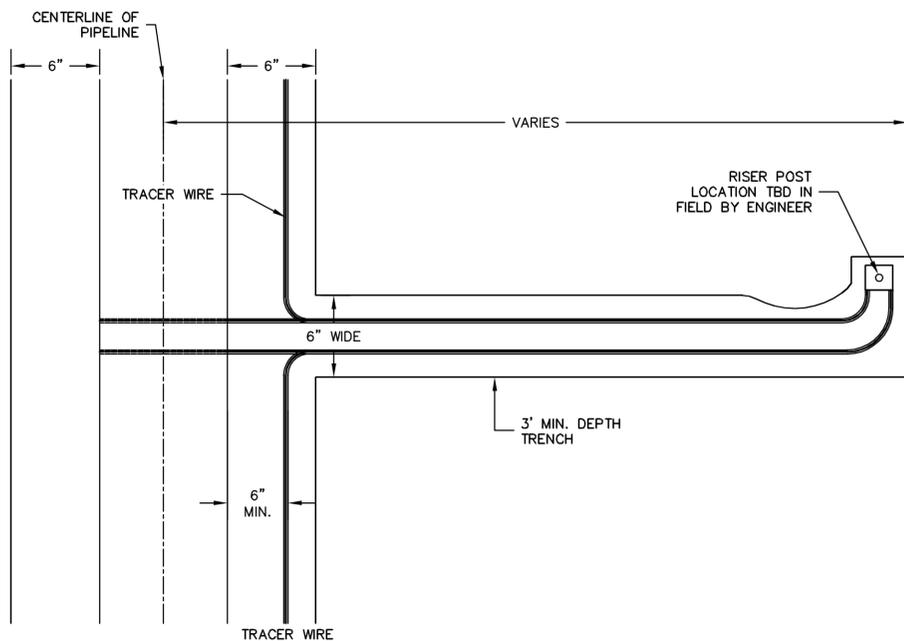
TRENCH DETAIL-PAVED AREAS (PA)  
NOT TO SCALE

NOTES:

1. MINIMUM 3' SOIL COVER REQUIRED OVER PIPE. SOIL DEPTH CAN BE ACHIEVED WITH EARTH FILL IF COMPATIBLE WITH ADJACENT TOPOGRAPHY.
2. THE TRACER WIRE SHALL BE A 12 GAUGE WATERPROOF COPPER WIRE. TRACER WIRE SHALL BE CONNECTED INTO THE RHINO TRIVIEW™ TEST STATIONS LOCATED, AS PER DRAWING. DETAIL (MP) FOR PLAN LOCATION OF TRACE WIRE.
3. PIPE SHALL BE INSTALLED IN CENTER LINE OF TRENCH, AS SHOWN ON THE DRAWINGS.
4. METALLIC WARNING TAPE, MANUFACTURED BY RHINO™ SHALL BE BRIGHT YELLOW IN COLOR, CONTINUOUSLY PRINTED WITH "CAUTION BURIED LANDFILL GAS PIPELINE BELOW," MINIMUM OF 6" BY 4 MILS THICK, MANUFACTURED FOR DIRECT BURIAL AND DETECTABLE. COLOR AND PRINTING SHALL BE PERMANENT, UNAFFECTED BY MOISTURE AND SOIL. TAPE SHALL BE PLACED 24" ABOVE HDPE PIPE OR TRACE WIRE.
5. DO NOT PLACE FINAL PAVEMENT FOR A MINIMUM OF 60 DAYS TO ALLOW FOR SETTLEMENT OF BACKFILL.



STABILIZED SHOULDER DETAIL (SS)  
NOT TO SCALE



TRENCH DETAIL-MARKER PLAN  
NOT TO SCALE

NOTES:

1. TRACER WIRE SHALL BE INSTALLED WITH BURIED PIPE LAYING A MINIMUM OF 2" FROM HDPE PIPE WITHIN THE PIPELINE RIGHT-OF-WAY. WHERE NECESSARY THE WIRE SHALL CROSS UNDER THE HDPE PIPE, MAINTAINING A MINIMUM 2" DISTANCE FROM THE PIPE AND MUST REMAIN A MINIMUM OF 3" BELOW GROUND LEVEL. TRACER WIRE SHALL BE LOCATED NEAR THE TOP OF THE PIPE IN TRENCH.
2. MARKER POSTS SHALL BE RHINO PLASTICURVE™ AS SHOWN ON DETAIL SHEET 1. THE MARKING POST SHALL HAVE A MINIMUM OF 12" BURIED DIRECTLY IN THE SOIL. THE MARKING SYSTEM SHALL BE BURIED DIRECTLY ABOVE THE PIPELINE, OR AS DIRECTED BY THE ENGINEER. SUBSTITUTES SHALL BE SUBJECT TO ENGINEER'S APPROVAL.
3. TEST STATIONS SHALL BE THE RHINO TRIVIEW™ TEST STATION KIT MODEL WITH INTERNAL TERMINALS CONTAINING TWO (2) HOLES, YELLOW IN COLOR WITH A 3" REFLECTIVE BAND, BLACK CAP COVER WITH CAP LOCK, AND INCLUDES TRACE WIRE, WHICH SHALL CONSIST OF A 12 GAUGE WATERPROOF COPPER WIRE. WIRE SHALL BE CONNECTED INTO THE RHINO TRIVIEW™ TEST STATIONS LOCATED IN THE PIPELINE RIGHT-OF-WAY. SUBSTITUTES SHALL BE SUBJECT TO ENGINEER'S APPROVAL.
4. THE RHINO PLASTICURVE™ MARKER POSTS AND TRIVIEW™ TEST STATIONS SHALL READ "WARNING: BURIED GAS PIPELINE, BEFORE DIGGING IN THIS AREA OR IN AN EMERGENCY CALL: 1-XXX-XXX-XXXX". TELEPHONE NUMBER SHALL BE CONFIRMED PRIOR TO ORDERING.
5. THE RHINO PLASTICURVE™ MARKING SYSTEM SHALL BE LOCATED AS DETAILED ON THE DRAWINGS OR AS APPROVED BY THE ENGINEER.
6. A MAXIMUM SPACING OF 2000' IS REQUIRED BETWEEN RHINO TRIVIEW™ TEST STATIONS, AS DETAILED ON THE DRAWINGS, OR AS APPROVED BY THE ENGINEER.
7. TRACER WIRE: TRENCH BOTTOM TO A DEPTH OF 3' AND A MINIMUM OF 6" WIDE, FREE OF WATER BEFORE PLACING TRACE WIRE. WIRE MUST REMAIN A MINIMUM OF 3" BELOW GROUND LEVEL, AS SHOWN ON THE DRAWINGS.
8. TRACER WIRE MUST CONNECT INTO RHINO TRIVIEW™ TEST STATIONS. WIRE SHALL BE 12 GAUGE SOLID COPPER WILL YELLOW INSULATION COLOR.
9. CONTRACTOR SHALL DEMONSTRATE ELECTRICAL CONTINUITY BETWEEN TEST STATIONS PRIOR TO PIPE BEING PLACED INTO SERVICE.

SANDBAG TRENCH DAM DETAIL (TD)  
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NEW HAUL ROAD DETAIL (HR)  
NOT TO SCALE

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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 48 WEST SUITE 1-100 MOUNTAIN LAKE, NJ 07046 1-973-316-6041 (PHONE) 1-973-384-5830 (FAX)  
ENGINEER/APPLICANT: BARTON AND LOGGIO (BAL) 1104 FERNWOOD AVENUE SUITE 501 CAMP HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
Ck'd \_\_\_\_\_ Date \_\_\_\_\_

NO.	REVISIONS

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

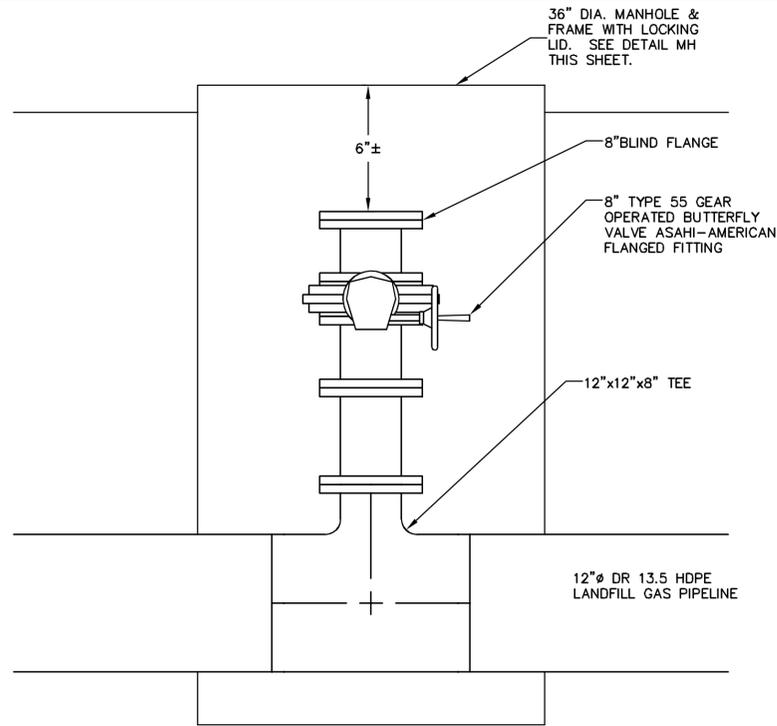
DETAILS

NEW CASTLE COUNTY, DELAWARE  
CITY OF WILMINGTON



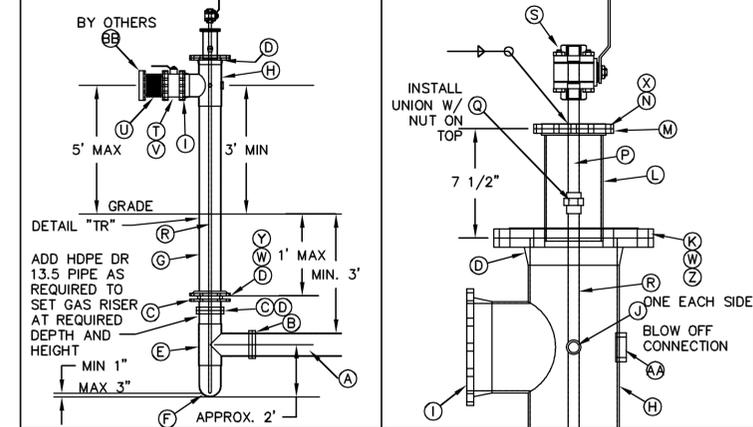
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OCTOBER 2011

DATE: \_\_\_\_\_  
Date DECEMBER, 2011  
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Sheet Number G37  
File Number 1362.001-40F



**BOLLARD DETAIL**  
NOT TO SCALE

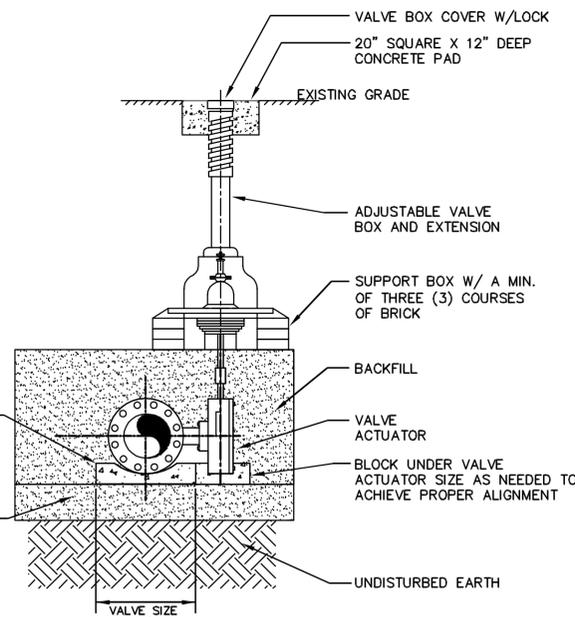
NOTE: INSTALL MIN. 2 EACH, 6" BOLLARDS, 3' ABOVE GRADE FOR PROTECTION



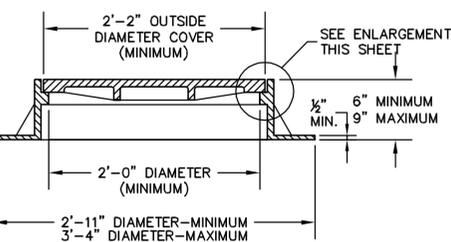
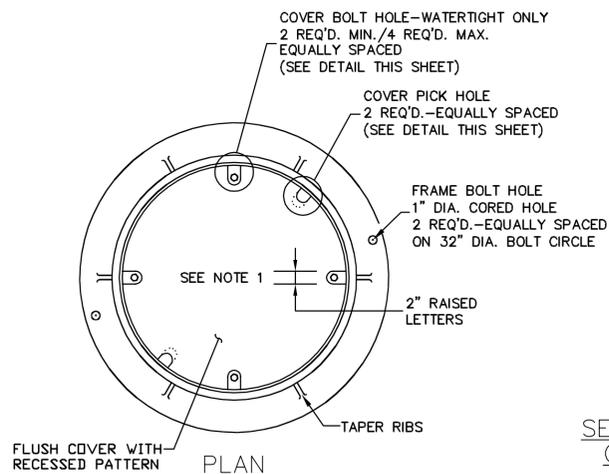
BB	1	6"	WOOD	---	BLIND FLANGE FOR SHIP.
AA	1	2" 3000#	304 SS	---	2" NPT 3000# X 12" THREAD-O-LETS
Z	12	7/8" X 3"	B7 & 2H	---	7/8" X 3" LG BOLT & HVY HEX NUT
Y	12	7/8" X 7" LG	304 SS	---	7/8" X 7" LG STUDS & HVY HEX NUTS
X	1	4" 150# X 1/8"	---	---	4" 150# GASKET, BOLT & NUT SET
W	2	6" 150# X 1/8"	RED RBR	---	150# X 1/8" RED RUBBER GASKET
V	16	3/4" NC X 2"	B7	---	3/4" NC X 2" LG BOLTS FOR VALVE
U	1	6" 150# X 10" LG	SS	---	LG FLANGED EXPANSION JOINT
T	1	6" 150#	CI	---	150# LUGGED STYLE BUTTERFLY VALVE
S	1	3/4" NPT	304 SS	---	3/4" NPT SS LOCKING HANDLE BALL VALVE
R	1	3/4" SCH 80	PVC	POE&MITRE	3/4" SCH80 PVC TUBE CUT TO SUIT MITRE END
Q	1	3/4" NPT SCH 80	PVC	---	3/4" NPT SCH 80 PVC THD UNION
P	1	3/4" SCH 40 X 6"	304 SS	TBE	3/4" X 6" LG THD SS NIPPLE
N	1	4" 150# RF BF	304 SS	---	4" 150# RF BF DRILL 1-1/16" IN CENTER
M	1	4" 150# RF WN	304 SS	---	4" 150# RF SO FLANGE
L	1	4" 10S	304 SS	PBE	4" 10S NP X 8" LG
K	1	6" 150# RF BF	304 SS	AS SHOWN	150# RF BF W/ 4" NP HOLE
J	2	1" 3000#	304 SS	---	1" NPT 3000# X 12" THREAD-O-LETS
I	2	6" 150# RFWN	304 SS	BW	150# RF WN FLANGE 10S BORE
H	1	6" X 6" 10S	304 SS	BW	SCH 10S BW REDUCING TEE
G	1	6" 10S	304 SS	BBE	SCH 10S GAS RISER BOE&POE LEN AS REQ
F	1	6" X 8" DR 11	PE	BW	SCH 10S CUP
E	1	6" 150# DR 11	PE	---	TEE PE
D	2	6" 150# FLANGE	D.I.	---	ZINC BOLT NUTS, WASHERS
C	1	6" X 8" REDUCER DR 11	HDPE	ELECTROFUSE	PE-DR11 REDUCER
B	2	8" DR11	PE	BUTT FUSE	PE 150# FLANGE ADAPTOR
A	1	8" DR11	PE	BUTT FUSE	PE DR11 GAS LINE
MK#	QTY	SIZE	MTRL	PREP	DESCRIPTION & NOTES

**RISER PIPE DETAIL**  
NOT TO SCALE

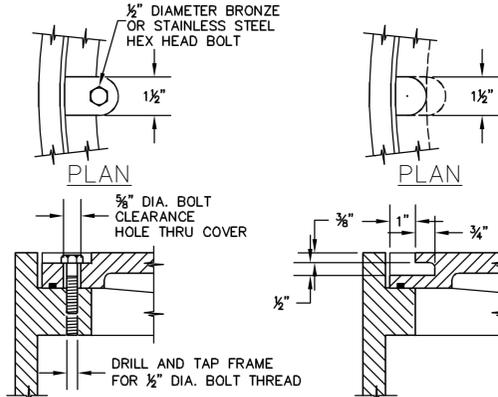
**PIPE EVACUATION VALVE**  
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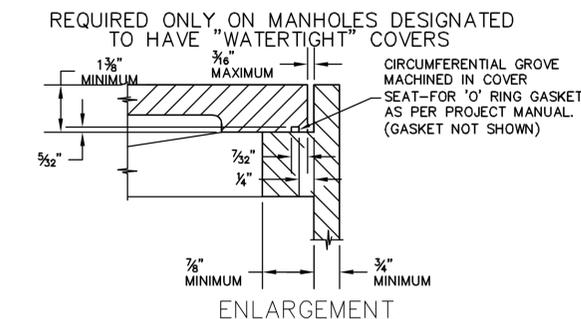
**FULL PORT VALVE, VALVE BOX AND COVER DETAIL**  
NOT TO SCALE



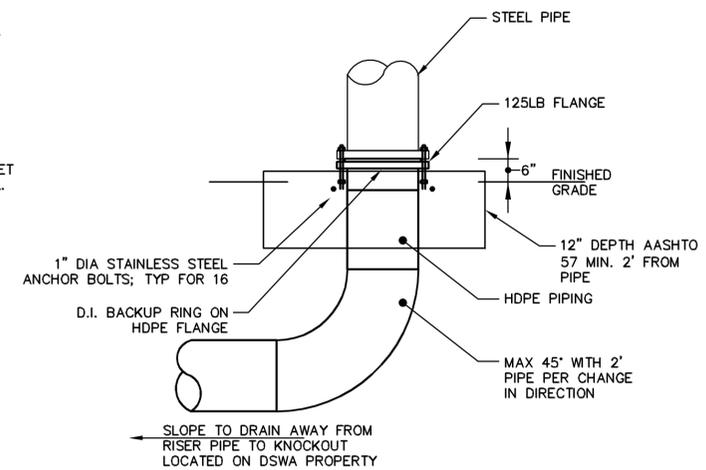
**STANDARD AND WATERTIGHT MANHOLE FRAME AND COVER FURNISHED BY CONTRACTOR**  
NOT TO SCALE



**SECTIONAL ELEVATION COVER BOLT HOLE**      **SECTIONAL ELEVATION COVER PICK HOLE**



**ENLARGEMENT**



**HDPE PIPING TRANSITION TO ABOVE GROUND PIPING DETAIL**  
NOT TO SCALE

- NOTES:**
- FULL PORT VALVE SHALL BE THE SAME SIZE AS PIPELINE UNLESS APPROVED OTHERWISE BY ENGINEER.
  - FULL PORT BALL VALVE SHALL BE A POLYETHYLENE VALVE OF THE SAME PIPE DIAMETER. THE SHELL SHALL BE MADE OF PE4710 BLACK RESIN SUITABLE FOR USE WITH LANDFILL GAS AND FUSION WELDABLE TO PE4710 PIPE AND HAVING A MINIMUM DR 11. VALVE SHALL COMPLY WITH 49CFR192, ASME B16.40 AND ASTM D-2513 STANDARDS AND BE LABELED FOR TRACEABILITY BY MANUFACTURER. VALVE SHALL BE RATED FOR AT LEAST 100 PSI (6.9 BARS) AND FITTED WITH STANDARD 2" SQUARE NUT OPERATOR. ACCEPTABLE VALVES INCLUDE KEROTEST, "POLYBALL", BROEN "BALLONMAX". SUBSTITUTES SHALL BE SUBJECT TO ENGINEER'S APPROVAL.
  - VALVE BOX COVER AND LOCK SHALL BE BINGHAM & TAYLOR 5 1/2" SHAFT 2-PIECE SCREW TYPE ADJUSTABLE VALVE BOX. DIMENSION A = XX, DIMENSION B = XX, DIMENSION C = XX, DIMENSION F = XX. SUBSTITUTES SHALL BE SUBJECT TO ENGINEER'S APPROVAL.

- NOTES:**
- MANHOLE COVERS SHALL CONTAIN THE LETTERING "GAS".
  - ALL MANHOLE FRAMES AND COVERS SHALL BE FOR HEAVY DUTY TRAFFIC, AASHTO HIGHWAY LOADING CLASS HS-20.
  - ALL MANHOLE COVERS AND FRAMES SHALL HAVE 26" DIA. COVER WITH A 22" DIA. MANHOLE CLEARING. MANHOLE COVER MUST HAVE LOCKING LID. MANHOLE FRAME AND COVER SHALL BE MODEL: BARRY PATTERN & FOUNDRY ROUND B1600 SERIES FOR H-20 LOADING. SUBSTITUTIONS SHALL BE SUBJECT TO ENGINEER'S APPROVAL.

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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 48 WEST SUITE P-1000 MOUNTAIN LAKE, NJ 07096 (973-316-6041 (PHONE) 1-973-304-5630 (FAX)

ENGINEER/APPLICANT: BARTON AND LOGGIO (BAL) 1104 FERNWOOD AVENUE SUITE 501 CAMP HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By: \_\_\_\_\_ Date: \_\_\_\_\_  
 Ck'd: \_\_\_\_\_ Date: \_\_\_\_\_

REVISIONS

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT

**DETAILS**

CITY OF WILMINGTON  
 NEW CASTLE COUNTY, DELAWARE

**Barton & Loggio, P.C.**

**DRAFT**  
 OCTOBER 2011

**DATE:** \_\_\_\_\_  
 Date: DECEMBER, 2011  
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 File Number: 1362.001-41F

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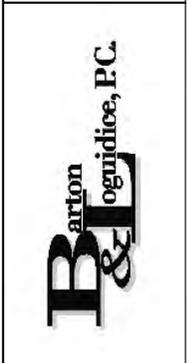
LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE F-100 MOUNTAIN LAKE, NJ 07046 (PHONE) 1-973-316-6041 (PHONE) 1-973-394-5630 (FAX)

ENGINEER/APPLICANT: BARTON & LOGGIO (B&L) 1104 FERNWOOD AVENUE SUITE 501 CAMP HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

NO.	REVISIONS

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
 CITY OF WILMINGTON  
 NEW CASTLE COUNTY, DELAWARE



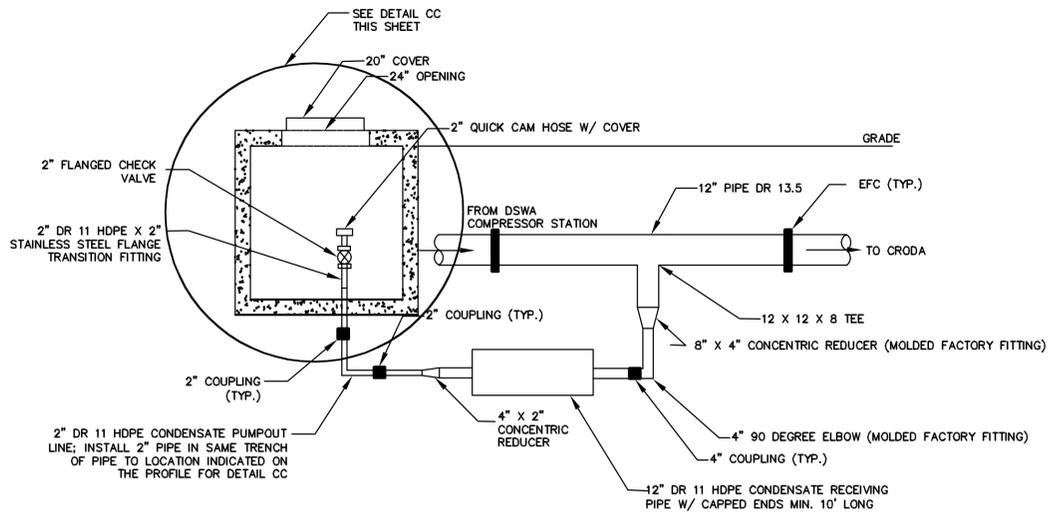
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 Date DECEMBER, 2011

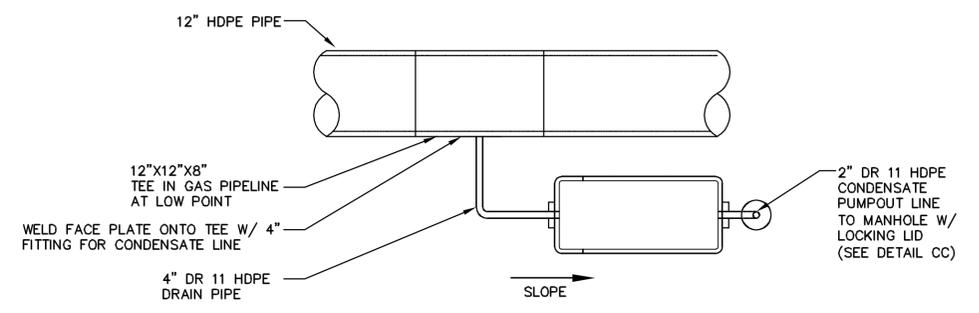
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PROFILE

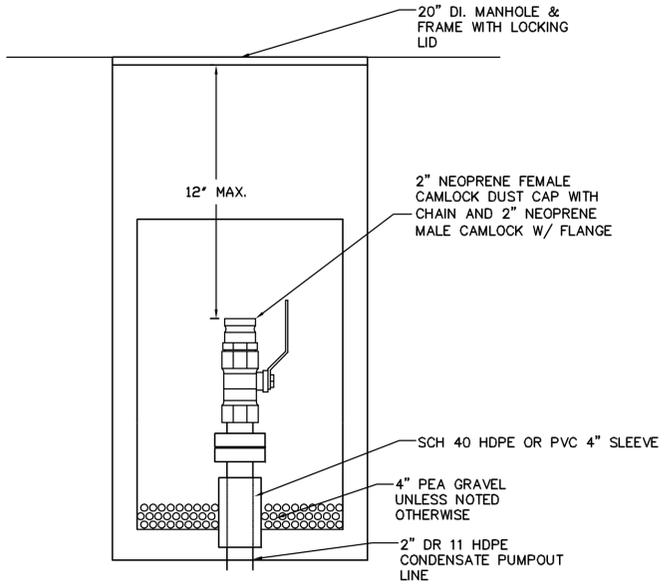


PLAN VIEW

**CONDENSATE SUMP DETAIL**

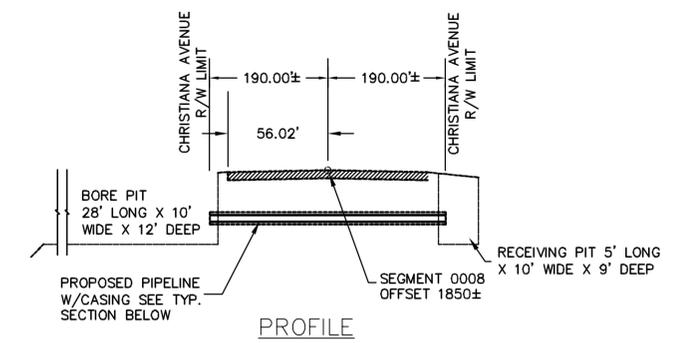
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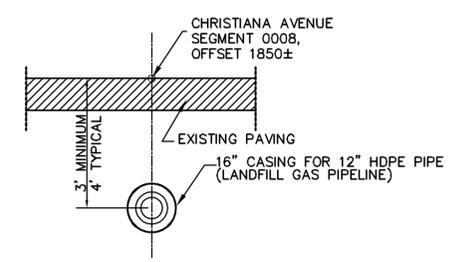


**CONDENSATE COLLECTION  
 FURNISHED BY CONTRACTOR (CC)**

NO SCALE



PROFILE



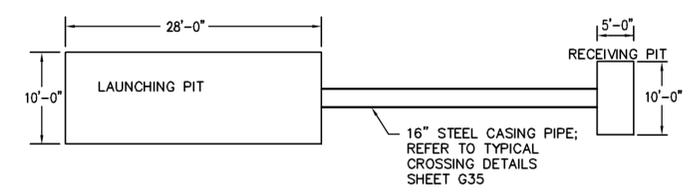
SECTION

**BORE/JACK INSTALLATION (BJ)**

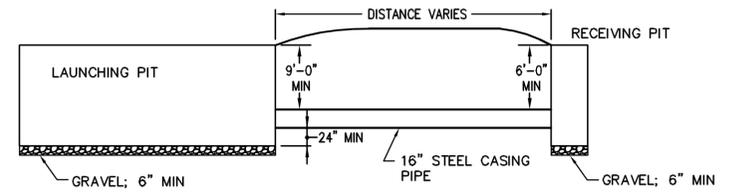
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NOTES:

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF DELDOT PUBLICATION XXX.



PLAN



ELEVATION

**LAUNCHING AND RECEIVING PIT DETAIL (LR)**

NOT TO SCALE

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 In charge of \_\_\_\_\_ SCS

**EROSION AND SEDIMENT POLLUTION CONTROL PLAN**

THIS NARRATIVE IS TO ACCOMPANY THE EROSION AND SEDIMENT POLLUTION CONTROL PLAN SHOWN ON THE DRAWINGS (AND REFERENCED SECTIONS, PROFILES, AND DETAILS), AND SHALL BE CONSIDERED AN ACTUAL PART OF SAID EROSION AND SEDIMENT POLLUTION CONTROL (E&SPC) PLAN.

UNLESS OTHERWISE EXPRESSLY STATED, THE CONTRACTOR IS RESPONSIBLE FOR THE IMPLEMENTATION OF THIS E&SPC PLAN SHOWN HEREUPON THESE DRAWINGS AND IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.

**A. GENERAL STATEMENT OF THE PROJECT**

- 1. CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) IS PROPOSING TO CONSTRUCT A LANDFILL GAS (LFG) PIPELINE IN THE CITY OF WILMINGTON AND NEW CASTLE COUNTY, DELAWARE.
2. THE PROJECT WILL INVOLVE THE CONSTRUCTION OF A HDPE PIPELINE TO TRANSPORT LFG FOR USE IN INDUSTRIAL PROCESSES.
3. IN GENERAL, SEDIMENT-LADEN RUNOFF FROM THE PROJECT SITE WILL BE CONTROLLED BY SILT FENCE AND STABILIZED AFTER PLACEMENT OF PIPE WITHIN FOURTEEN (14) DAYS.
4. FOLLOWING COMPLETION OF SOIL DISTURBANCE OR REDISTURBANCE, TEMPORARY OR PERMANENT STABILIZATION WITH SEED AND MULCH SHALL BE COMPLETED WITHIN 14 CALENDAR DAYS TO THE SURFACE OF DISTURBED AREAS NOT ACTIVELY UNDER CONSTRUCTION.
5. ALL SOIL REMOVED FROM THE TRENCHES, DURING CONSTRUCTION, WILL BE USED TO RESTORE THE TRENCH TO PRE-CONSTRUCTION GRADES AND CONDITION. IF THE SOIL EXCAVATED FROM THE TRENCH CANNOT BE USED AS FILL MATERIAL, DUE TO THE NATURE OF THE EXCAVATED SOIL, THE CONTRACTOR WILL CONTACT THE ENGINEER TO ARRANGE FOR DISPOSAL METHODS.
6. ALL AREAS OF CONSTRUCTION FOR THIS PROJECT WILL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS. THEREFORE, STORMWATER FLOWS AND CONCENTRATIONS POST-CONSTRUCTION SHALL BE CLOSELY EQUIVALENT TO THE PRE-CONSTRUCTION CONDITIONS.
7. CONSTRUCTION IS ANTICIPATED TO BEGIN IN MARCH 2012 AND CONTINUE THROUGH SEPTEMBER 2012.
8. TOTAL SITE GROSS ACREAGE FOR THE PIPELINE PROJECT = 26.9 ACRES; TOTAL DISTURBED ACREAGE FOR THE PIPELINE PROJECT CONSTRUCTION = 9.9 ACRES.
9. DRAINAGE, EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT SHALL BE IN ACCORDANCE WITH THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS, AS AMENDED, AND THE NEW CASTLE COUNTY DRAINAGE CODE, AS AMENDED.
10. REVIEW AND/OR APPROVAL OF THE SEDIMENT AND STORMWATER MANAGEMENT PLAN SHALL NOT RELIEVE THE CONTRACTOR/PROPERTY OWNER FROM HIS OR HER RESPONSIBILITIES FOR COMPLIANCE WITH THE REQUIREMENTS OF THE SEDIMENT AND STORMWATER REGULATIONS, AS AMENDED, NOR SHALL IT RELIEVE THE CONTRACTOR/PROPERTY OWNER FROM ERRORS OR OMISSIONS ON THE APPROVED PLAN.
11. ACREAGE OF DISTURBED AREA: ~10 ACRES. LIMITS OF DISTURBANCE MUST BE DELINEATED IN THE FIELD WITH STAKES (MIN. 2' ABOVE GROUND) WITH A FLUORESCENT GREEN TAPE ATTACHED TO STAKE.
12. THE APPLICANT SHALL NOTIFY DNREC, SEDIMENT AND STORMWATER MANAGEMENT PROGRAM, IN WRITING FIVE (5) DAYS PRIOR TO BEGINNING CONSTRUCTION. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
13. INITIAL EARTH DISTURBANCE SHALL BE LIMITED TO THOSE AREAS NECESSARY TO INSTALL SEDIMENT AND EROSION CONTROL MEASURES.
14. PIPELINE PROJECT OWNER/DEVELOPER IS NOT THE SAME LANDOWNER OF PARCELS CONTAINING THIS DEVELOPMENT PROJECT. THE PROJECT IS LINEAR IN NATURE (UNDERGROUND UTILITY). DUE TO THE NATURE OF THIS PROJECT, THE PIPELINE MAY BE UNDER CONSTRUCTION ON TWO OR MORE CONTIGUOUS LOTS.
15. FINAL SURFACE GRADING SHALL NOT IMPAIR SURFACE DRAINAGE, CREATE AN EROSION HAZARD OR CREATE A SOURCE OF SEDIMENT TO ANY ADJACENT WATERCOURSE OR PROPERTY OWNER.
16. ANY SEDIMENT TRANSPORTED OFF-SITE TO ROADS OR RIGHTS OF WAY INCLUDING DITCHES SHALL BE REMOVED IMMEDIATELY. ANY DAMAGE TO DITCHES SHALL BE REPAIRED AND STABILIZED TO ORIGINAL CONDITION.
17. ALL DISTURBED SOIL SURFACES, INCLUDING STOCKPILES AND PERIMETER SEDIMENT CONTROLS ARE SUBJECT TO EROSION AND SHALL BE STABILIZED EITHER TEMPORARILY OR PERMANENTLY WITHIN FOURTEEN (14) DAYS.
18. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED PERIODICALLY AND AFTER EACH RAINFALL. MAINTENANCE MUST BE PERFORMED AFTER EACH INSPECTION AS NECESSARY. ANY ERODED AREAS SHALL BE STABILIZED AND ANY ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF ACCORDING TO PLAN.
19. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL COMPLY WITH THE MOST RECENT COPY OF THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK.
20. SHOULD QUESTIONS ARISE REGARDING THE MAINTENANCE OF EROSION AND SEDIMENT CONTROL PRACTICES, THE SITE CONTRACTOR SHALL CONTACT THE CONSULTING ENGINEER EXPEDITIOUSLY FOR TECHNICAL ASSISTANCE.
21. IF THE APPROVED PLAN IS NOT SUFFICIENT TO ADDRESS EROSION AND SEDIMENT CONTROL, ADDITIONAL SEDIMENT AND STORMWATER MANAGEMENT PRACTICES MAY BE REQUIRED AND THE PLAN REQUIRED TO BE MODIFIED, AS DEEMED NECESSARY BY DNREC.

**B. SOILS AND TOPOGRAPHY INFORMATION**

- 1. THE MAJORITY OF THE SOILS WITHIN THE PROJECT SITE ARE MAPPED; UPLAND (Up), WITH A SMALLER PORTION OF THE PIPELINE CONTAINING SOILS LABELED UDORTHTENTS - REFUSE SUBSTRATUM (UsB), UDORTHTENTS - WET SUBSTRATUM (UwA) AND OTHELLO SILT LOAM (O1A). THE FOLLOWING IS A BRIEF DESCRIPTION OF EACH SOILS SERIES:
A.UPLAND (Up): THIS SERIES CONSISTS OF SOIL GENERALLY CONSIDERED FILL MATERIAL. THIS SOIL IS USUALLY URBAN LAND WITH FLAT GRADES.
B.UDORTHTENTS - REFUSE SUBSTRATUM (UsB): THIS SERIES CONSISTS OF REFUSE/RUBBLE MATERIAL OVER EARTH FILL. SOILS ARE WELL DRAINED WITH 0-5% SLOPES.
C.UDORTHTENTS - WET SUBSTRATUM (UwA): THIS SERIES CONSISTS OF VERY DEEP, MODERATELY WELL DRAINED SOILS. SLOPES RANGE FROM 0-2%.
D.OTHELLO SILT LOAM (O1A): THIS SERIES CONSISTS OF POORLY DRAINED SOILS WITH 0-2% SLOPES FORMED FROM SILTY EOLIAN DEPOSITS AND/OR FLUVIOMARINE SEDIMENTS.

THE EXISTING TOPOGRAPHY THROUGHOUT THE SITE CONSISTS OF FLAT, LOW-LYING AND IN PLACES MARSHY AREAS. APPROXIMATELY THIRTY-SIX PERCENT (36%) OF THE CITY OF WILMINGTON (A MAJORITY OF THE SITE IS LOCATED IN THE CITY OF WILMINGTON) IS WATER.

**C. GENERAL EROSION AND SEDIMENT CONTROL METHODS/PROCEDURES**

- 1. THE SMALLEST PRACTICAL AREA OF STABLE LAND SURFACE WILL BE DISTURBED.
2. CLEAN FILL MATERIAL INCLUDING CLEARING AND GRUBBING DEBRIS ACCUMULATION WILL BE PROPERLY DISPOSED OF IN A LAWFUL MANNER.
3. EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS, INCLUDING CLEARING AND GRUBBING.

- 4. WITHIN THIRTY (30) DAYS, PERMANENT STABILIZATION IS REQUIRED WHEN A DISTURBED AREA IS BROUGHT TO GRADE OR FINAL EARTHMOVING HAS BEEN COMPLETED. WHERE IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA IMMEDIATELY AFTER THE FINAL EARTHMOVING HAS BEEN COMPLETED OR WHERE CONSTRUCTION ACTIVITY CEASES FOR MORE THAN TWENTY (20) DAYS, TEMPORARY STABILIZATION MEASURES SHALL BE IMPLEMENTED PROMPTLY.
5. SOIL/TOPSOIL STOCKPILES SHALL BE IMMEDIATELY SEEDED AND MULCHED IF THEY ARE TO REMAIN FOR MORE THAN 20 DAYS. STOCKPILES ARE TO BE PLACED IN A LOCATION WHERE THEY WILL NOT INTERFERE WITH CONSTRUCTION ACTIVITIES AND ARE NOT TO BE LOCATED WITHIN THE FLOW PATH OF A NATURAL OR CONSTRUCTED WATERWAY. STOCKPILE AREAS ARE TO HAVE SIDE SLOPES OF 2H:1V OR FLATTER AND SHALL NOT EXCEED 35 FEET IN HEIGHT.
6. AT NO TIME WILL SEDIMENT OR SEDIMENT-LADEN RUNOFF BE ALLOWED TO LEAVE THE SITE AND ENTER WATERS OF THE STATE OF DELAWARE WITHOUT FIRST PASSING THROUGH A SEDIMENT FILTERING DEVICE. SHOULD SITE CONDITIONS, CONSTRUCTION PROCEDURES, ETC. ALTER THE APPROVED PLAN TO THE POINT WHERE SEDIMENT AND SEDIMENT-LADEN RUNOFF IS NOT BEING CONTROLLED AND FILTERED BEFORE IT LEAVES THE SITE, ADDITIONAL EROSION CONTROL FACILITIES ARE TO BE IMPLEMENTED. INSTALL EROSION CONTROL FACILITIES AT THE DIRECTION OF THE ENGINEER AND DNREC TO PROVIDE COMPREHENSIVE CONTROL OF SEDIMENT BEFORE IT LEAVES THE SITE.
7. SHOULD THE CONTRACTOR CHOOSE TO DEVIATE FROM THE APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING APPROVALS FOR THE MODIFICATION FROM THE DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL OR OTHER REVIEWING AGENCY AS APPROPRIATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COSTS ASSOCIATED WITH SAID APPROVALS (I.E., ENGINEER'S DESIGN COSTS, APPLICATION FEES, ETC.).
8. ACCELERATED EROSION AND SEDIMENTATION WILL BE LIMITED BY STABILIZING THE DISTURBED AREAS AS SOON AS POSSIBLE AND BY KEEPING THE AMOUNT OF DISTURBED AREA TO A MINIMUM.
9. EROSION AND SEDIMENT CONTROL FACILITIES REQUIRED OR NECESSARY TO PROTECT AREAS FROM EROSION DURING THE STABILIZATION PERIOD SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION OF THE CONTRIBUTING DRAINAGE AREA IS COMPLETED. UPON COMPLETION OF PERMANENT STABILIZATION, UNNECESSARY OR UNUSABLE CONTROL MEASURES AND FACILITIES SHALL BE REMOVED, THE DISTURBED AREAS CREATED BY THIS ACTIVITY SHALL BE BROUGHT TO FINAL GRADE AND THE SOILS SHALL BE IMMEDIATELY STABILIZED.
10. TEMPORARY STABILIZATION, AS REFERRED TO IN THIS NARRATIVE, INVOLVES PREPARING THE SOIL SURFACE, SPREADING THE TEMPORARY SEED MIXTURE (REFER TO ITEM E.3 OF THIS NARRATIVE) AND PROVIDING AN ANCHORED MULCH OR EROSION CONTROL MATTING, IF APPLICABLE. IF TEMPORARY STABILIZATION ACTIVITIES FALL OUTSIDE OF THE ALLOWABLE SEEDING DATES, AN ANCHORED MULCH IS TO BE PLACED WITHOUT SEEDING.
11. PERMANENT STABILIZATION OF LAWN AREAS, AS REFERRED TO IN THIS NARRATIVE, INVOLVES PREPARING THE SOIL SURFACE, SEEDING AND PROVIDING AN ANCHORED MULCH OR EROSION CONTROL MATTING, IF APPLICABLE. PERMANENT STABILIZATION IS CONSIDERED TO BE UNIFORM EROSION RESISTANT PERENNIAL VEGETATION ESTABLISHED TO THE POINT WHERE THE SURFACE SOIL IS CAPABLE OF RESISTING EROSION DURING RUNOFF EVENT. THE STANDARD FOR THIS VEGETATIVE COVER WILL BE A UNIFORM COVERAGE OR DENSITY OF 70% ACROSS THE ENTIRE DISTURBED AREA.
12. OFFSITE BORROW AREAS AND/OR WASTE DISPOSAL AREAS SHALL HAVE AN APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN PRIOR TO THE START OF ANY EARTHMOVING ACTIVITIES IN THESE OFFSITE AREAS. THE CONTRACTOR SHALL MAKE PROVISIONS FOR THESE OFFSITE AREAS AND SHALL BE RESPONSIBLE FOR ENSURING THAT EACH OFFSITE AREA HAS AN APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN BY DNREC IN WHICH THE OFFSITE AREA IS LOCATED.
13. TO PREVENT OR REDUCE THE MOVEMENT OF DUST FROM DISTURBED SOIL SURFACES A SPRINKLING METHOD SHALL BE USED. THE SITE SHALL BE SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST AND REPEATED AS NEEDED. THIS WILL BE COMPLETED WITH THE USE OF A WATER TRUCK.
14. THE PERMITTEE AND/OR CO-PERMITTEE SHALL CONTACT DNREC FOR CLARIFICATION OF ANY REQUIREMENTS CONTAINED IN THE EROSION AND SEDIMENT CONTROL PLAN.

**D. STAGING OF EARTHMOVING ACTIVITIES**

THE INTENT OF ITEM D OF THE EROSION AND SEDIMENT POLLUTION CONTROL PLAN NARRATIVE IS TO DESCRIBE THE CRITICAL EARTHMOVING/CONSTRUCTION ACTIVITIES WHICH MUST OCCUR IN ORDER TO PROVIDE A COMPREHENSIVE PLAN FOR THE CONTROL OF SEDIMENT-LADEN RUNOFF FROM THE PROJECT AREA AND FOR THE BYPASS OF OFFSITE CLEAN WATER THROUGH OR AROUND THE WORK AREA. THIS PLAN IS NOT INTENDED TO DESCRIBE THE WORK ACTIVITIES ASSOCIATED WITH THE PROPOSED CONSTRUCTION PROJECT.

**PRECONSTRUCTION ACTIVITIES**

- 1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR, BEING THE OPERATOR OF THE SITE, IS TO BE ADDED AS A CO-PERMITTEE TO THE APPROVED NPDES PERMIT FOR DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
2. A PRE-CONSTRUCTION MEETING (UNLESS WAIVED BY DNREC) MUST BE HELD PRIOR TO COMMENCING CONSTRUCTION. CONTACT DELAWARE DNREC DIVISION OF SOIL & WATER CONSERVATION AT 302-739-9921 TO SCHEDULE A MEETING. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
3. AT LEAST THREE (3) DAYS BEFORE STARTING EARTHMOVING AND DEMOLITION ACTIVITIES, CONTRACTOR(S) INVOLVED IN SAID ACTIVITIES SHALL NOTIFY THE MISS UTILITY OF DELMARVA ONE CALL SYSTEM AT 1-800-282-8555 FOR BURIED UTILITIES LOCATION. THE CONTRACTOR SHALL COORDINATE HIS WORK ACTIVITIES WITH THE UTILITY COMPANIES AND THE OWNER.
4. SCHEDULE CONSTRUCTION SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
5. CLEARLY MARK AREAS WHICH ARE NOT TO BE DISTURBED BY LIMIT OF DISTURBANCE MARKERS AND FLAGS AS NOTED ON THE DRAWINGS.
6. INSTALL SILT SOXX AROUND EXCAVATED AREAS FOR SAFETY PURPOSES.
STAGE 1: INSTALLATION OF INITIAL EROSION CONTROL FACILITIES
1. STAGE 1 ACTIVITIES MAY NOT OCCUR UNTIL THE PRE-CONSTRUCTION ACTIVITIES ARE COMPLETE.
2. INSTALL SILT FENCE AND/OR SILT SOXX RUNS AS NEEDED FOR STOCKPILE RUNOFF CONTROL. ADDITIONAL SILT FENCE AND/OR SILT SOXX SHALL BE AVAILABLE TO FILTER SMALL AMOUNTS OF GROUNDWATER ENCOUNTERED DURING EXCAVATION.
3. INSTALL GEOTEXTILE DEWATERING BAGS WHEN NECESSARY.
4. INSTALL PROTECTIVE FENCING AROUND WETLANDS LOCATIONS IN AREAS WHERE DISTURBANCE IS WITHIN 20' OF WETLANDS BOUNDARIES, AS NOTED ON THE DRAWINGS.
STAGE 2: CONSTRUCTION OF LANDFILL GAS PIPELINE
1. STAGE 2 ACTIVITIES MAY NOT OCCUR UNTIL THE STAGE 1 ACTIVITIES ARE COMPLETE.
2. PERFORM FILL WORK IN ACCORDANCE WITH ITEMS C.2 AND C.7 OF THIS EROSION AND SEDIMENT POLLUTION CONTROL PLAN NARRATIVE.
3. BRING AREAS TO FINAL GRADE AND IMMEDIATELY STABILIZE IN ACCORDANCE WITH ITEM C.10 OF THIS EROSION AND SEDIMENT POLLUTION CONTROL PLAN NARRATIVE.
STAGE 3: CLEANUP ACTIVITIES AND BEST MANAGEMENT PRACTICES
1. STAGE 3 ACTIVITIES MAY NOT OCCUR UNTIL THE PREVIOUS WORK ACTIVITIES HAVE BEEN COMPLETED AND THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED AS DEFINED IN ITEM C.11 OF THIS EROSION AND SEDIMENT POLLUTION CONTROL PLAN NARRATIVE.
2. PERMANENTLY STABILIZE THE REMAINING DISTURBED AREAS CREATED BY THE CONSTRUCTION ACTIVITIES.

- 3. REMOVE SEDIMENT DEPOSITS COLLECTED BEHIND THE INSTALLED EROSION CONTROL FILTERING DEVICES (SILT FENCE RUNS, SILT SOXX RUNS, BAG FILTERS) AND EITHER USE FOR ONSITE GRADING AND STABILIZE WITH SEED AND AN ANCHORED MULCH OR HAUL THIS MATERIAL OFFSITE TO A SPOIL AREA WITH AN APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN.
4. ONCE CONSTRUCTION TRAFFIC HAS CEASED FROM ENTERING AND LEAVING THE SITE, REMOVE THE SILT SOXX MATERIAL AND STABILIZE WITH SEED AND AN ANCHORED MULCH.
5. REMOVE PROTECTIVE FENCING FROM WETLANDS LOCATIONS AFTER COMPLETION OF PERMANENT STABILIZATION.

**E. TEMPORARY CONTROL MEASURES AND FACILITIES**

- 1. SILT FENCE
A. SILT FENCES SHALL BE PLACED AROUND THE SOIL STOCKPILES LOCATED IN VEGETATED AREAS TO FILTER RUNOFF BEFORE IT LEAVES THE CONSTRUCTION SITE.
B. SILT FENCE IS NOT PERMITTED IN ANY AREA OF CONCENTRATED FLOWS SUCH AS DITCHES, SWALES, OR CHANNELS.
C. INSTALL SILT FENCE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS AND DETAILS AS SHOWN ON THE DRAWINGS.
D. INSPECT SILT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL EVENT. MAKE THE REQUIRED REPAIRS WITHIN 48 HOURS.
E. ACCUMULATED SEDIMENTS SHALL BE REMOVED AS REQUIRED TO KEEP THE FENCE FUNCTIONAL. REMOVE DEPOSITS WHERE ACCUMULATION REACHES 1/2 THE ABOVE-GROUND HEIGHT OF THE FENCE.
F. THE REMOVED SEDIMENT SHALL BE USED FOR ON SITE GRADING AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH.
G. ADHERE TO MANUFACTURER'S RECOMMENDATION FOR REPLACING SILT FENCE DUE TO WEATHERING.
H. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, REMOVE FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS. BRING THE DISTURBED AREA TO GRADE AND PERMANENTLY STABILIZE.
2. SILT SOXX
A. THE PRIMARY PURPOSE OF A SILT SOXX IS TO REDUCE RUNOFF VELOCITY AND TRAP SEDIMENT; VELOCITY IS REDUCED, WATER IS IMPOUNDED BEHIND THE MEASURE, AND SEDIMENT FALLS OUT OF SUSPENSION.
B. SILT SOXX CAN USED IN SENSITIVE AREAS WHERE CONTROL OF WEEDS AND INVASIVE PLANT SPECIES IS DESIRED.
C. SILT SOXX SHALL BE INSTALLED ON A LINE OF EQUAL ELEVATION (CONTOUR). THEY MAY BE INSTALLED AT INTERMEDIATE POINTS UP SLOPES AS WELL AS AT THE BOTTOM, AS SHOWN IN THE DETAIL DRAWINGS. THE ENDS SHALL CURVE UP SLIGHTLY (6") TO IMPOUND RUNOFF.
D. SILT SOXX SHALL NOT BE USED IN OR ACROSS A FLOWING NATURAL CHANNEL SUCH AS DITCHES, SWALES, OR CHANNELS.
E. SILT SOXX ARE NOT TO BE INSTALLED SO THAT RUNOFF WILL FLOW ALONG THE SOXX IN A CONCENTRATED MANNER.
F. SILT SOXX SHALL BE PLACED AROUND SOIL STOCKPILES LOCATED IN PAVED AREAS TO FILTER RUNOFF BEFORE IT LEAVES THE CONSTRUCTION SITE.
G. INSTALL SILT SOXX IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS AND DETAILS AS SHOWN ON THE DRAWINGS.
H. INSPECT SILT SOXX AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL EVENT. MAKE THE REQUIRED REPAIRS WITHIN 48 HOURS.
I. ACCUMULATED SEDIMENTS SHALL BE USED FOR ON SITE GRADING AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH.
J. ADHERE TO MANUFACTURER'S RECOMMENDATION FOR REPLACING SILT SOXX DUE TO WEATHERING.
K. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, OPEN THE SILT SOXX IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND ALLOW FOR DECOMPOSITION. BRING THE DISTURBED AREA TO GRADE AND PERMANENTLY STABILIZE.
3. TEMPORARY VEGETATIVE COVER
A. PREPARE SOIL STOCKPILE IN ACCORDANCE WITH THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK, SECTION 3.4.3.2.
B. SOW UNTREATED ANNUAL RYE GRASS AT THE RATE OF 125 POUNDS PER ACRE (4 POUNDS PER 1,000 SQ. FEET) BY HYDROSEEDER.
C. SPREAD SEED BETWEEN FEBRUARY 1 AND OCTOBER 31.
4. PUMPED GEOTEXTILE DEWATERING BAG
A. PROVIDE ACF ENVIRONMENTAL, INC., DIRTBAG 53 OR 55 OR ENGINEER APPROVED EQUAL PLACED ON A GRAVEL BED TO ALLOW WATER TO FLOW IN ALL DIRECTIONS. THE GEOTEXTILE FABRIC SHALL BE A TYPE GD-IV. THE DEWATERING BAG SHALL HAVE A N OPENING LARGE ENOUGH TO ACCOMMODATE A FOUR (4) INCH DISCHARGE HOSE WITH ATTACHED STRAP TO TIE OFF THE HOSE TO PREVENT THE PUMPED WATER FROM ESCAPING FROM THE BAG WITHOUT BEING FILTERED.
B. THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR ONE HALF THE MAXIMUM RATE SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS.
C. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME HALF FULL. A SUPPLY OF SPARE FILTER BAGS SHALL BE KEPT AVAILABLE ONSITE FOR REPLACEMENT OF THOSE BAGS WHICH HAVE BEEN USED OR WHICH HAVE FAILED.
D. SEDIMENT COLLECTED FROM THE DEVICE SHALL BE REMOVED AND USED FOR ON SITE GRADING AND IMMEDIATELY STABILIZED WITH SEED AND MULCH OR BE REMOVED FROM SITE TO A PROPER DISPOSAL FACILITY. THE BAG MAY NOT BE BURIED ON SITE.
E. THE DEWATERING BAG SHALL BE PLACED SO THE INCOMING WATER FLOWS INTO AND THROUGH THE BAG, AND THEN FLOW OFF THE SITE WITHOUT CREATING MORE EROSION. THE NECK SHOULD BE TIED OFF TIGHTLY TO STOP THE WATER FROM FLOWING OUT OF THE BAG WITHOUT GOING THROUGH THE WALLS.
5. PROTECTIVE FENCE
A. LOCATE PROTECTIVE FENCE AS APPROVED BY THE ENGINEER AROUND WETLANDS, WITH THE EXACT DIMENSIONS OF THE FENCING TO BE DETERMINED BY THE ENGINEER. NO CLEARING OR GRUBBING ACTIVITIES ARE PERMITTED WITHIN THE FENCED AREA.
B. FENCING TO BE USED SHALL BE 48-INCH-HIGH "INTERNATIONAL ORANGE" PLASTIC (POLYETHYLENE) WEB FENCING SECURED TO CONVENTIONAL METAL "T" OR "U" POSTS DRIVEN TO A MINIMUM DEPTH OF 18 INCHES ON SIX-FOOT-MAXIMUM CENTERS.
C. THE FENCE SHALL HAVE THE FOLLOWING PROPERTIES:
TENSILE YIELD: SQ. AVG. 2,000 LBS PER 4-FOOT WIDTH
ULTIMATE TENSILE YIELD: AVG. 2,900 LBS PER 4-FOOT WIDTH
ELONGATION AT BREAK (%): GREATER THAN 1,000%
CHEMICAL RESISTANCE: INERT TO MOST CHEMICALS AND ACIDS

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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1-1000 MOUNTAIN LAKE, NJ 07046 1-973-316-6041 (PHONE) 1-973-384-5630 (FAX)
ENGINEER/APPLICANT: BARTON AND LOGGIORE (B&L) 1104 FERNWOOD AVENUE SUITE 501 CHAMP HILL, PA 17011 (717) 737-8328 (PHONE) (717) 737-8328 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_
Ck'd \_\_\_\_\_ Date \_\_\_\_\_

Table with 2 columns: REVISIONS, Description of revision.

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)
DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT
EROSION AND SEDIMENT CONTROL PLAN NARRATIVE
NEW CASTLE COUNTY, DELAWARE
CITY OF WILMINGTON



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D. PROTECTIVE FENCING SHALL BE IN PLACE BEFORE ANY GRADING ACTIVITIES BEGIN AND IS TO BE KEPT IN GOOD REPAIR FOR THE DURATION OF THE CONSTRUCTION ACTIVITIES.

E. REMOVE FENCING MATERIALS ONLY AFTER CONSTRUCTION ACTIVITY HAS CEASED ON THE SITE. DO NOT LEAVE POST FASTENERS ON SITE AFTER FENCE REMOVAL.

**F. PERMANENT CONTROL MEASURES AND FACILITIES**

1. GRASS COVER: LAWN AREAS FOR BUSINESS SECTORS.

A. REFER TO DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK, SECTION 3.4.3.3 FOR SITE PREPARATION, SEEDING METHODS, WEED CONTROL, ETC.

B. PROVIDE THE FOLLOWING SEEDING MIXTURE DEPENDANT UPON LOCATION OF CONSTRUCTION – SEE DRAWINGS FOR DETAILS. SEEDING MAY BE PLANTED OUTSIDE OF THE SPECIFIED SEEDING TIME UPON APPROVAL BY THE ENGINEER:

i. IN RECREATION AREAS – WELL DRAINED

TALL FESCUE  
FORMULA APPLICATION RATE (LB/ACRE): 150  
SEEDING DATES: 2/1 – 4/30, AND 8/15 – 10/30

KY BLUEGRASS (BLEND)  
FORMULA APPLICATION RATE (LB/ACRE): 20  
SEEDING DATES: 2/1 – 4/30, AND 8/15 – 10/30

PERENNIAL RYEGRASS  
FORMULA APPLICATION RATE (LB/ACRE): 20  
SEEDING DATES: 2/1 – 4/30, AND 8/15 – 10/30

ii. IN RECREATION AREAS – POORLY DRAINED

CREEPING RED FESCUE  
FORMULA APPLICATION RATE (LB/ACRE): 50  
SEEDING DATES: 2/1 – 4/30, AND 8/15 – 10/30

CHEWINGS FESCUE  
FORMULA APPLICATION RATE (LB/ACRE): 90  
SEEDING DATES: 2/1 – 4/30, AND 8/15 – 10/30

iii. ROADSIDES – WELL DRAINED

PERENNIAL RYEGRASS  
FORMULA APPLICATION RATE (LB/ACRE): 50  
SEEDING DATES: 2/1 – 4/30, AND 8/15 – 10/30

FLATPEA  
FORMULA APPLICATION RATE (LB/ACRE): 15  
SEEDING DATES: 2/1 – 4/30, AND 8/15 – 10/30

iv. ROADSIDES – POORLY DRAINED

TALL FESCUE (TURF-TYPE)  
(BLEND OF 3 CULTIVARS)  
FORMULA APPLICATION RATE (LB/ACRE): 150  
SEEDING DATES: 2/1 – 4/30, AND 8/15 – 10/30

C. EVERY BAG OF SEED IS REQUIRED BY LAW TO HAVE AN ANALYSIS TAG ATTACHED TO IT. THIS TAG CONTAINS ESSENTIAL INFORMATION ABOUT THE CONTENT AND QUALITY OF THE TURF SEED THEREIN.

D. SOW SEED UNIFORMLY WITH A BROADCAST SEEDER, DRILL, CULTIPACKER OR HYDROSEEDER. ALL SEED WILL BE APPLIED AT THE RECOMMENDED RATE AND PLANTING DEPTH. DRILL SEEDING IS THE PREFERRED METHOD, ESPECIALLY WHEN LIGHT, FLUFFY SEEDS ARE IN THE MIX. WHEN HYDROSEEDING IS THE CHOSEN METHOD OF APPLICATION, THE TOTAL RATE OF SEED SHOULD BE INCREASED BY 25% OVER THE RATES RECOMMENDED. SEED MIXTURES LOADED INTO BOXES OR CONTAINERS, SUCH AS THOSE FOUND ON DRILL SEEDERS, SHOULD BE AGITATED TO PREVENT STRATIFICATION IN THE BOX. SOME SEEDERS ARE ALSO EQUIPPED WITH MULTIPLE BOXES TO SEPARATE THE SEED BY SPECIES, RESULTING IN EVEN DISTRIBUTION.

E. SEED THAT HAS BEEN BROADCAST MUST BE COVERED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPED INTO PLACE USING A ROLLER OR CULTIPACKER. IF HYDROSEEDING IS USED AND THE SEED AND FERTILIZER IS MIXED, THEY WILL BE MIXED ON SITE AND THE SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

F. IMMEDIATELY AFTER SEEDING, PROVIDE AN ANCHORED STRAW MULCH SPREAD UNIFORMLY IN A CONTINUOUS BLANKET AT A RATE SPECIFIED IN FIGURE 3.4.5A IN THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK. REFER TO ITEM F-2 OF THIS NARRATIVE FOR MULCH PLACEMENT AND ANCHORING REQUIREMENTS.

G. DAILY IRRIGATION CAN BE CRITICAL IN ESTABLISHING PERMANENT VEGETATION DURING DRY OR HOT WEATHER OR ON ADVERSE SITE CONDITIONS.

H. SPRING SEEDINGS MAY REQUIRE AN APPLICATION OF FERTILIZER BETWEEN SEPTEMBER 1 AND OCTOBER 15, AT LEAST EVERY TWO YEARS. FALL SEEDINGS MAY REQUIRE THE SAME BETWEEN MARCH 15 AND MAY 1 THE FOLLOWING YEAR. IF SLOW RELEASE FERTILIZER IS USED, FOLLOW-UP FERTILIZATIONS MAY NOT BE NECESSARY FOR SEVERAL YEARS. LIME ACCORDING TO SOIL TEST RECOMMENDATIONS AT LEAST ONCE EVERY FIVE YEARS.

2. MULCH

A. STRAW MULCH SHALL BE APPLIED OVER SEEDED AREAS IMMEDIATELY AFTER SEEDING.

B. SPREAD STRAW MULCH UNIFORMLY, IN A CONTINUOUS BLANKET, AT A MINIMUM RATE OF 70–90 POUNDS PER 1,000 SQUARE FEET (2 TONS PER ACRE).

C. MULCH MAY BE SPREAD BY HAND OR WITH AN ACCEPTABLE MECHANICAL BLOWER. MACHINES WHICH CUT MULCH INTO SHORT PIECES WILL NOT BE PERMITTED.

**G. MAINTENANCE/CONTRACTOR'S RESPONSIBILITIES FOR THE TERM OF THIS PROJECT**

1. CONTRACTOR SHALL IMPLEMENT THE EROSION AND SEDIMENT POLLUTION CONTROL PLAN IN ACCORDANCE WITH THE DRAWINGS AND THE APPLICABLE PERMITS.

2. DNREC PERSONNEL SHALL HAVE THE RIGHT TO CONDUCT ON-SITE INSPECTIONS OF LAND DISTURBING ACTIVITIES.

3. THE FACILITIES SHALL BE INSPECTED AND REPAIRED, IF NECESSARY, AFTER EACH RAINFALL EVENT OR AT A PERIOD NOT TO EXCEED ONE WEEK. PREVENTATIVE AND MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND ANCHORING OF THE MULCH SHALL BE PERFORMED WITHIN 48 HOURS. SEDIMENT COLLECTED FROM THE EROSION CONTROL STRUCTURES SHALL BE PLACED UPSTREAM OF THOSE CONTROLS AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH OR HAULED OFFSITE TO A DISPOSAL AREA WITH AN APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN.

4. AT NO TIME WILL SEDIMENT-LADEN RUNOFF BE ALLOWED TO LEAVE THE SITE AND ENTER WATERS OF THE STATE OF DELAWARE WITHOUT FIRST PASSING THROUGH A SEDIMENT FILTERING DEVICE. IF EROSION CONTROL FACILITIES FAIL TO PERFORM AS EXPECTED, ALTERNATIVE FACILITIES OR MODIFICATIONS OF THOSE FACILITIES INSTALLED WILL BE REQUIRED.

5. PERMANENTLY SEEDED AREAS THAT BECOME ERODED SHALL HAVE THE TOPSOIL REPLACED, THE EROSION CONTROL MATTING REPLACED (IF APPLICABLE), THE GRASS RESEWN AND MULCH REAPPLIED AND ANCHORED. IF EROSION PERSISTS, THE AREA SHALL BE EITHER LINED WITH SOD OR STABILIZED WITH ROCK RIPRAP AT THE DISCRETION OF THE ENGINEER.

6. A COPY OF THE APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN SHALL BE KEPT AVAILABLE FOR INSPECTION ON THE CONSTRUCTION SITE THROUGHOUT THE TERM OF THE PROJECT.

7. THE INTENT OF THIS PLAN/NARRATIVE IS TO INDICATE GENERAL MEANS OF COMPLIANCE WITH THE REQUIREMENTS OF TITLE 7 OF CHAPTER 40 OF THE DELAWARE CONSTITUTION OF 1897. THIS INCLUDES ALL ACTS EFFECTIVE AS OF NOVEMBER 1, 2011, UP TO AND INCLUDING 78 DELAWARE LAWS, C. 203. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IMPLEMENT THESE METHODS, PLUS ADDITIONAL METHODS, AS MAY BE NECESSARY BECAUSE OF CONDITIONS CREATED BY LOCALIZED SITE CONDITIONS AND/OR CONSTRUCTION PROCEDURES IN ORDER TO ASSURE COMPLIANCE WITH APPLICABLE LAW. IT WILL FURTHER BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN EROSION AND SEDIMENT CONTROL FACILITIES SO THAT THEY PERFORM AS REQUIRED BY APPLICABLE LAW.

8. FINES AND RELATED COSTS RESULTING FROM THE CONTRACTOR'S FAILURE TO PROVIDE ADEQUATE PROTECTION AGAINST SOIL EROSION AND FOR ANY VIOLATIONS OF TITLE 7 OF CHAPTER 40 OF THE DELAWARE CONSTITUTION OF 1987 AND THE RULES AND REGULATIONS PROMULGATED THEREUNDER SHALL BE BORNE BY THE CONTRACTOR.

**H. MAINTENANCE/OWNER'S RESPONSIBILITIES**

1. MAINTENANCE OF PERMANENT STORMWATER AND E&SPC FACILITIES BECOMES THE RESPONSIBILITY OF THE OWNER IN PERPETUITY UPON COMPLETION OF CONSTRUCTION AND ACCEPTANCE BY OWNER, SUBJECT TO THE TERMS OF THE WARRANTY PERIOD SPECIFIED IN THE CONTRACT DOCUMENTS.

**I. SITE POLLUTION PREVENTION (CONTRACTOR RESPONSIBILITY)**

1. MATERIAL INVENTORY

A. DOCUMENT THE STORAGE AND USE OF THE FOLLOWING MATERIALS:

- i. CEMENT AND CONCRETE
- ii. PAINTS (ENAMEL AND LATEX)
- iii. CLEANING SOLVENTS
- iv. FERTILIZERS
- v. PETROLEUM BASED PRODUCTS

2. GOOD HOUSEKEEPING PRACTICES

- A. STORE ONLY ENOUGH PRODUCT ON-SITE REQUIRED TO PERFORM THE JOB.
- B. MATERIALS SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR ORIGINAL LABELED CONTAINERS. CONTAINERS SHALL BE COVERED WHEN NOT IN USE.
- C. WHEN POSSIBLE, ALL OF A PRODUCT SHALL BE CONSUMED PRIOR TO DISPOSAL OF THE CONTAINER.
- D. MANUFACTURER'S INSTRUCTIONS FOR DISPOSAL SHALL BE STRICTLY ADHERED TO.
- E. THE SITE FOREMAN SHALL DESIGNATE SOMEONE TO INSPECT BMPs DAILY.

3. WASTE MANAGEMENT PRACTICES

- A. WASTE MATERIALS SHALL BE COLLECTED AND STORED IN A DUMPSTER AT A LOCATION THAT DOES NOT READILY DRAIN TO A WATERBODY.
- B. WASTE MATERIALS SHALL BE SALVAGED AND/OR RECYCLED WHENEVER POSSIBLE.
- C. THE DUMPSTERS SHALL BE EMPTIED A MINIMUM FREQUENCY OF ONCE EVERY TWO WEEKS, OR MORE IF NECESSARY. THE LICENSED TRASH HAULER IS RESPONSIBLE FOR CLEANING OUT DUMPSTERS AND MAINTAINING DUMPSTER FLUIDS.
- D. TRASH SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE DELAWARE LAWS.
- E. TRASH CANS SHALL BE PLACED AT ALL LUNCH SPOTS AND LITTERING IS STRICTLY PROHIBITED. RECYCLE BINS SHALL BE PLACED NEAR THE CONSTRUCTION TRAILER.
- F. IF FERTILIZER BAGS CANNOT BE STORED IN A WEATHER-PROOF LOCATION, THEY SHALL BE KEPT ON A PALLET AND COVERED WITH PLASTIC SHEETING WHICH IS OVERLAPPED AND ANCHORED.
- G. PIPE SHAVINGS SHALL BE COLLECTED DAILY AND PLACED INTO THE DUMPSTER FOR DISPOSAL.

4. EQUIPMENT MAINTENANCE PRACTICES

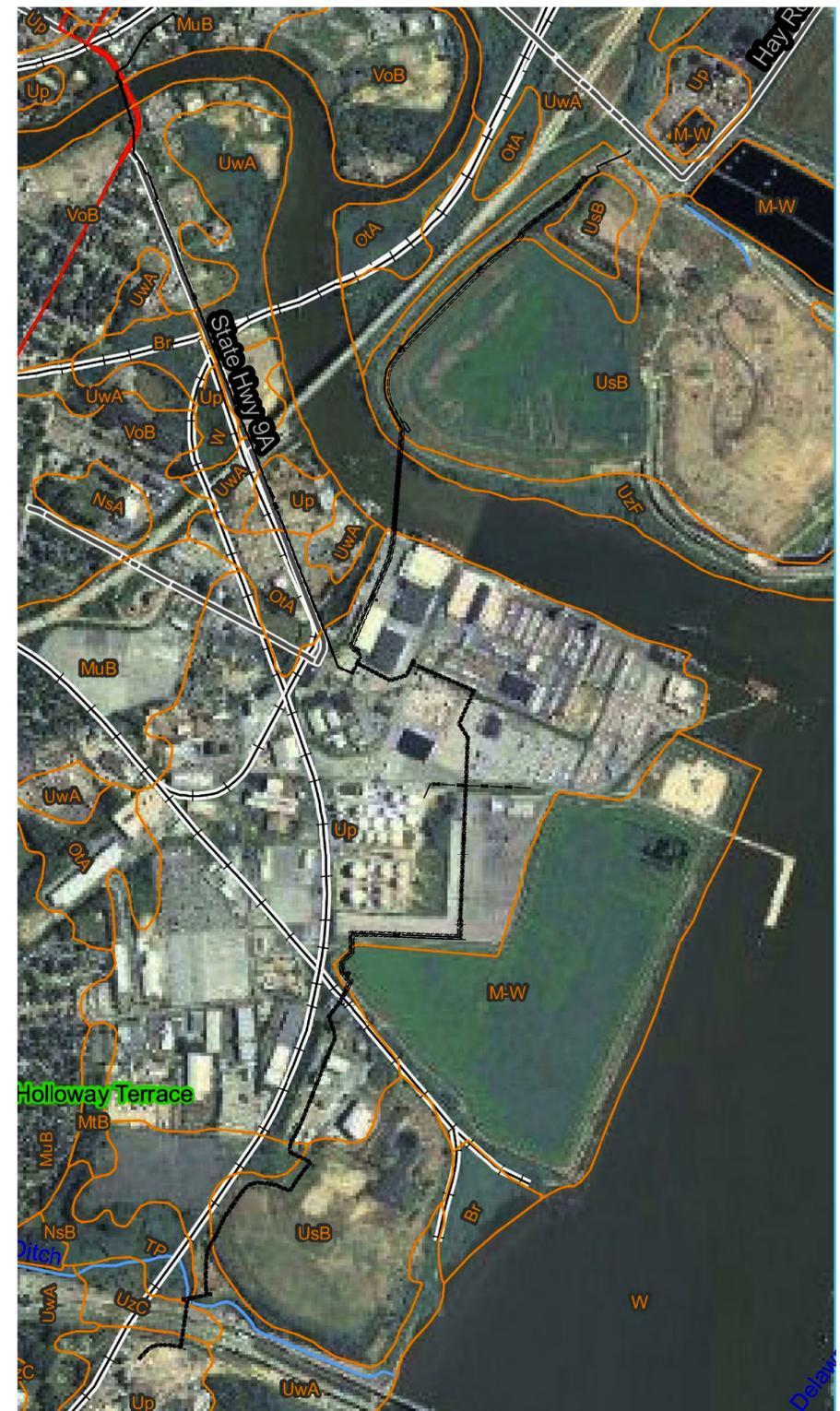
- A. IF POSSIBLE, EQUIPMENT SHOULD BE TAKEN OFF-SITE TO COMMERCIAL FACILITIES FOR WASHING AND MAINTENANCE
- B. IF MAINTENANCE IS PERFORMED ON-SITE, VEHICLES SHALL BE WASHED WITH HIGH-PRESSURE WATER SPRAY WITHOUT DETERGENTS IN AN AREA CONTAINED BY AN IMPERVIOUS BERM.
- C. DRIP PANS SHALL BE USED TO CONTAIN ENGINE FLUIDS FOR EQUIPMENT MAINTENANCE PERFORMED ON-SITE.
- D. EQUIPMENT SHALL BE INSPECTED FOR LEAKING FLUIDS ON A DAILY BASIS.
- E. WASHOUT FROM CONCRETE TRUCKS SHALL BE DISPOSED OF IN A TEMPORARY PIT FOR HARDENING AND THEN PROPER DISPOSAL.
- F. FUEL NOZZLES SHALL BE EQUIPPED WITH AUTOMATIC SHUT-OFF VALVES.
- G. ALL USED PRODUCTS SUCH AS OIL, ANTIFREEZE, SOLVENTS AND TIRES SHALL BE DISPOSED OF IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS.

5. EDUCATION

- A. BEST MANAGEMENT PRACTICES (BMPs) FOR CONSTRUCTION SITE POLLUTION CONTROL SHALL BE A PART OF REGULAR JOB PROGRESS MEETINGS.
- B. INFORMATION REGARDING WASTE MANAGEMENT, EQUIPMENT MAINTENANCE AND SPILL PREVENTION SHALL BE PROMINENTLY POSTED IN THE CONSTRUCTION (JOB SITE) TRAILER.

6. CONTACT INFORMATION

- A. CONTACT INFORMATION FOR REPORTING SPILLS THROUGH DNREC 24-HOUR TOLL FREE NUMBER SHALL BE PROMINENTLY POSTED.
- B. CONTACT INFORMATION: 800-662-8802.



SOIL MAP  
NOT TO SCALE

PIPELINE LOCATION IS APPROXIMATE

- Up: URBAN, FLAT LAND
- UWA: UODRTHENTS – WET SUBSTRATUM; 0–2% SLOPES; FLATS, KNOLLS FROM FLUVIOMARINE SEDIMENTS; MODERATELY WELL DRAINED
- UsB: UODRTHENTS – REFUSE SUBSTRATUM; 0–5% SLOPES; LOW HILLS FROM REFUSE/RUBBLE MATERIAL OVER MINE SPOIL OR EARTHY FILL; WELL DRAINED
- MuB: MATTAPEX – URBAN LAND COMPLEX; 0–5% SLOPES; FLATS, DEPRESSIONS, SWALES FROM SILTY EOLIAN DEPOSITS OVER FLUVIOMARINE SEDIMENTS; MODERATELY WELL DRAINED
- VoB: URBAN LAND; OTHELLO COMPLEX; 0–5% SLOPES; FLATS, DEPRESSIONS, SWALES FROM SILTY EOLIAN DEPOSITS AND/OR FLUVIOMARINE SEDIMENTS; POORLY DRAINED
- OtA: OTHELLO SILT LOAM; 0–2% SLOPES; FLATS, DEPRESSIONS, SWALES, DRAINAGEWAYS FROM SILTY EOLIAN DEPOSITS AND/OR FLUVIOMARINE SEDIMENTS; POORLY DRAINED
- UzC: UODRTHENTS; 0–10% SLOPES; KNOLLS, FLATS FROM FLUVIOMARINE SEDIMENTS; WELL DRAINED
- UzF: UODRTHENTS; 10–30% SLOPES; KNOLLS, HILLSLOPES FROM FLUVIOMARINE SEDIMENTS; WELL DRAINED

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LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 46 WEST SUITE 1-100 MOUNTAIN LAKE, NJ 07096  
1-973-316-6041 (PHONE) 1-973-394-5630 (FAX)

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By \_\_\_\_\_ Date \_\_\_\_\_  
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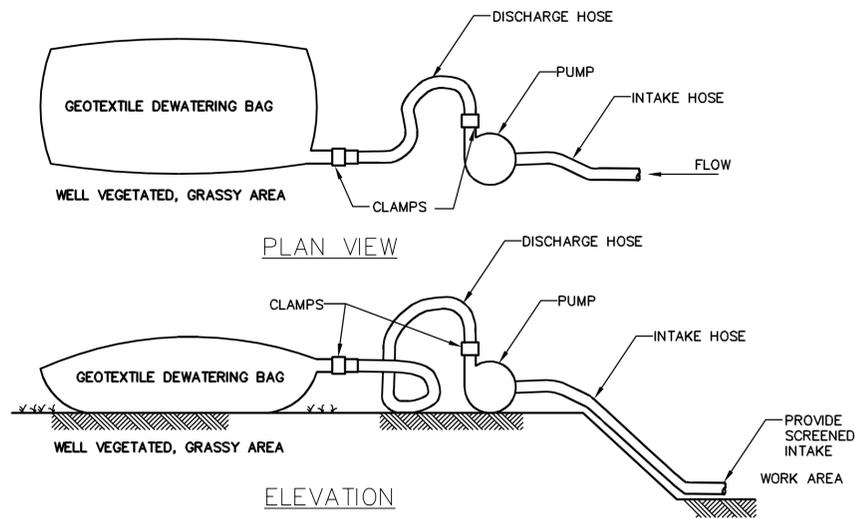
REVISIONS

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
EROSION AND SEDIMENT CONTROL  
PLAN NARRATIVE AND SOIL MAP  
CITY OF WILMINGTON, NEW CASTLE COUNTY, DELAWARE



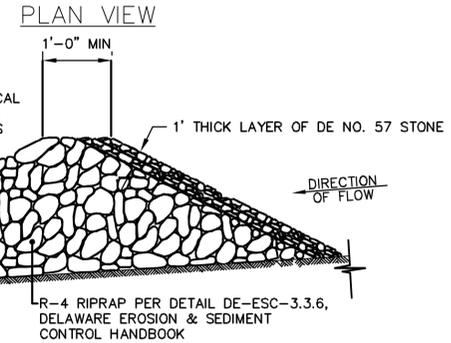
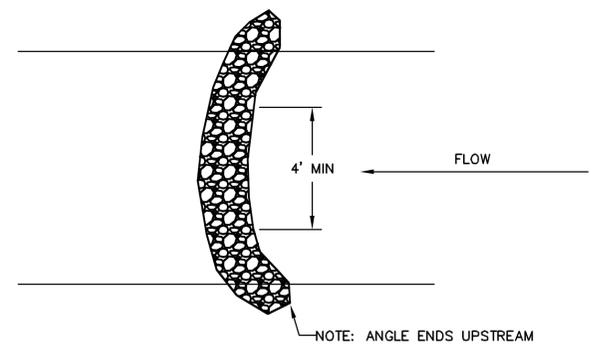
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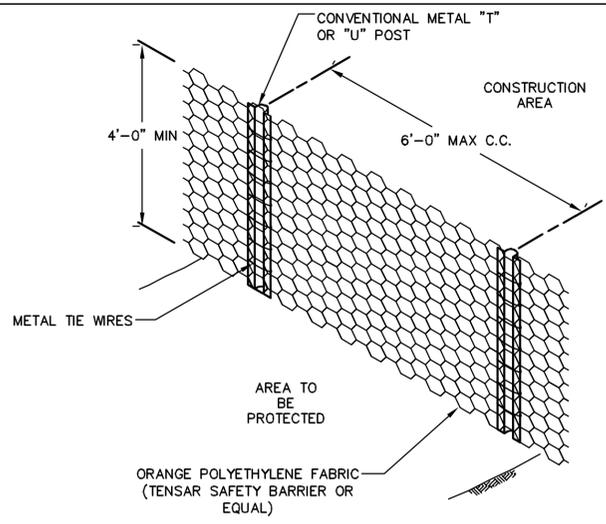
**GEOTEXTILE DEWATERING BAG (GB)**  
NOT TO SCALE

- NOTES:**
- REFER TO ITEM E.4 OF THE EROSION AND SEDIMENT POLLUTION CONTROL PLAN NARRATIVE FOR INSTALLATION AND MAINTENANCE REQUIREMENTS.
  - GEOTEXTILE DEWATERING BAG SHALL BE PLACED IN A LOCATION ALLOWING EASE OF CLEAN-OUT AND DISPOSAL OF THE TRAPPED SEDIMENT. THE LOCATION SHALL MINIMIZE THE INTERFERENCE WITH CONSTRUCTION ACTIVITIES AND PEDESTRIAN TRAFFIC.
  - THE STORAGE VOLUME OF THE DEWATERING BAG SHALL EQUAL PUMP DISCHARGE (G.P.M) X 32 = CUBIC FOOT STORAGE.
  - THE GEOTEXTILE DEWATERING BAG SHALL BE ACF DIRTBAG OR ENGINEER APPROVED EQUIVALENT.
  - LIQUIDS REMOVED DURING TRENCH DEWATERING WILL BE PASSED THROUGH THE GEOTEXTILE DEWATERING BAG.



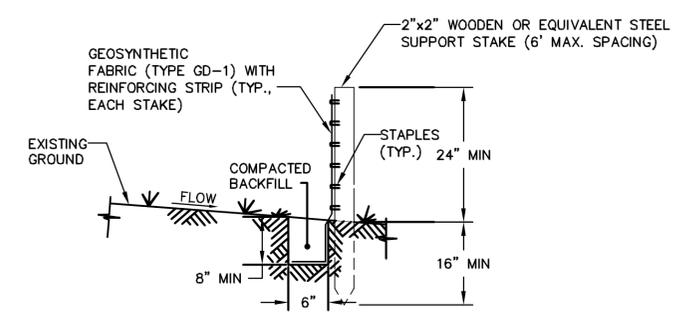
**STONE CHECK DAM (SCD)**  
NOT TO SCALE

- NOTES:**
- PROVIDE A U-SHAPED STONE CHECK DAM IN THE AREA OF THE DRAINAGE SWALE ON BOTH SIDES OF AUTO ROAD AS SHOWN ON THE DRAWINGS. STONE CHECK DAM IS TO HAVE A 12" MINIMUM HEIGHT.
  - STONE CHECK DAM SHALL BE CHECKED REGULARLY. MAINTAIN BY REPLACING STONE WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE OUTLET AND DRESSING IT SHOULD IT BECOME DISPLACED. A STOCKPILE OF AGGREGATE WILL BE MAINTAINED ON SITE FOR THIS PURPOSE.



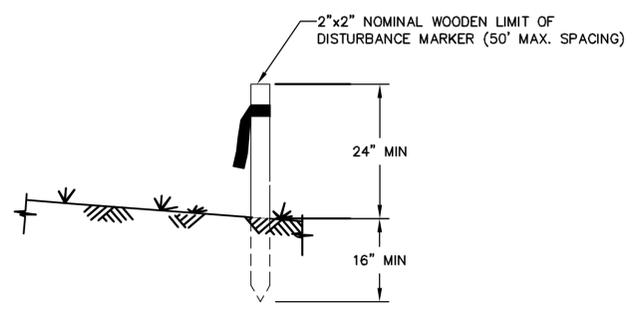
**PROTECTIVE FENCE (PF)**  
NOT TO SCALE

- NOTES:**
- REFER TO ITEM E.5 OF THE EROSION AND SEDIMENT POLLUTION CONTROL PLAN NARRATIVE FOR MATERIAL, INSTALLATION AND MAINTENANCE REQUIREMENTS.
  - PROTECTIVE FENCE TO BE INSTALLED AT ALL WETLANDS LOCATIONS WHERE DISTURBANCE IS WITHIN 20' OF WETLAND DELINEATION.
  - PROTECTIVE FENCE TO BE LOCATED 10' OUTSIDE OF THE WETLANDS DELINEATION FLAGS.



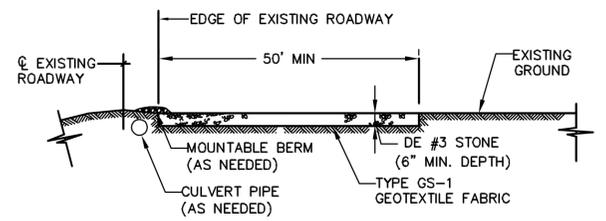
**SILT FENCE (SF)**  
NOT TO SCALE

- NOTES:**
- SILT FENCE TO BE GEOFAB, ENVIROFENCE, OR ENGINEER APPROVED EQUIVALENT.
  - ENDS OF SILT FENCE TO BE PLACED UPSLOPE TO CONTAIN RUNOFF
  - GEOSYNTHETIC FABRIC TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
  - WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
  - MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

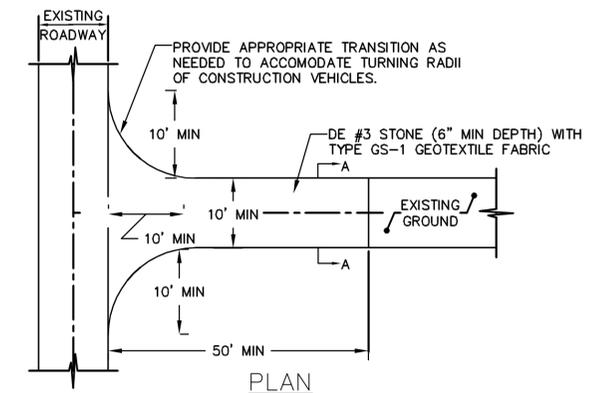


**LIMIT OF DISTURBANCE MARKER (DM)**  
NOT TO SCALE

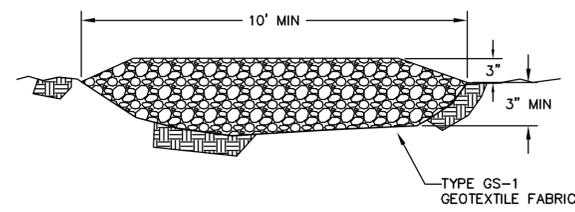
- NOTES:**
- LOD MARKERS SHALL BE PLACED EVERY 50' THE ENTIRE LENGTH OF THE PIPELINE CONSTRUCTION PROJECT TO DELINEATE THE LIMIT OF DISTURBANCE DUE TO CONSTRUCTION.
  - ALL LOD MARKERS SHALL BE PAINTED GREEN OR FITTED WITH FLUORESCENT GREEN SURVEY TAPE.



**PROFILE**



**PLAN**



**SECTION A-A**

**STABILIZED CONSTRUCTION ENTRANCE (SCE)**  
NOT TO SCALE

- NOTES:**
- INSTALL STABILIZED CONSTRUCTION ENTRANCE USING DE #3 STONE. LENGTH OF ENTRANCE MAY NOT BE LESS THAN 50 FEET. STONE WILL BE PLACED AT A MINIMUM THICKNESS OF 6 INCHES. WIDTH OF THE ENTRANCE SHALL BE A MINIMUM OF 10 FEET, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
  - THE GEOTEXTILE SHALL BE TYPE GS-1; MIRAFI 600X, AMOCO 2006 OR GEOTEX 315ST OR ENGINEER APPROVED EQUIVALENT; PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
  - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
  - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
  - VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
  - PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

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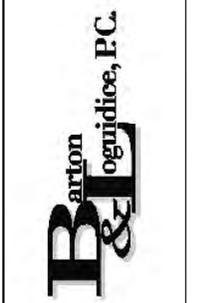
LAND DEVELOPER: CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE) 115 ROUTE 48 WEST SUITE P-100 MOUNTAIN LAKE, NJ 07046 (1-973-316-6041 (PHONE) 1-973-384-5630 (FAX)

ENGINEER/APPLICANT: BARTON & LOGGIO (BAL) 1104 FERNWOOD AVENUE SUITE 501 CAMP HILL, PA 17011 (717) 737-8338 (PHONE) (717) 737-8338 (FAX)

By \_\_\_\_\_ Date \_\_\_\_\_  
 Ck'd \_\_\_\_\_ Date \_\_\_\_\_

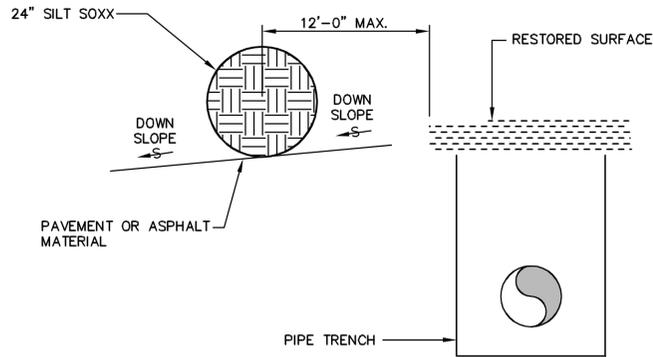
NO.	REVISIONS

CHERRY ISLAND RENEWABLE ENERGY, LLC (CIRE)  
 DSWA CHERRY ISLAND LANDFILL GAS PIPELINE PROJECT  
 EROSION AND SEDIMENT CONTROL  
 DETAILS  
 NEW CASTLE COUNTY, DELAWARE  
 CITY OF WILMINGTON



DATE: \_\_\_\_\_  
 Date  
 DECEMBER, 2011  
 Scale  
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 Sheet Number  
 ES3  
 File Number  
 1362.001-44F

Checked by \_\_\_\_\_ Drawn by \_\_\_\_\_ AND \_\_\_\_\_ Designed by \_\_\_\_\_ SCS  
 In charge of \_\_\_\_\_ SCS  
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**TEMPORARY SILT SOXX DETAIL** (SS)  
 NOT TO SCALE

**NOTES:**

1. REFER TO ITEM E.2 OF THE EROSION AND SEDIMENT POLLUTION CONTROL PLAN NARRATIVE FOR MATERIAL, INSTALLATION AND MAINTENANCE REQUIREMENTS.
2. SILT SOXX SHALL BE PLACED A MINIMUM OF 5 FEET FROM TOE OF SLOPE TO PROVIDE ADEQUATE AREA FOR SEDIMENT STORAGE AND TO FACILITATE MAINTENANCE OF THE SEDIMENT CONTAINMENT AREA. IF 5 FEET IS NOT AVAILABLE DUE TO CONSTRUCTION RESTRICTIONS, A SECOND ROW OF SILT SOXX MAY BE REQUIRED.
3. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS, AFTER EACH RAINFALL OF 0.5" OR MORE WITHIN A 12 HOUR PERIOD, OR DAILY DURING PROLONGED RAINFALL. MEASURES SHALL BE CLEANED AND REPAIRED AS REQUIRED.
4. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE MEASURE HEIGHT. ACCUMULATED SEDIMENTS SHALL BE USED FOR ON SITE GRADING AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH.
5. IN ORDER TO PREVENT WATER FLOWING AROUND THE ENDS OF THE SILT SOXX, THE ENDS OF THE SILT SOXX MUST BE CONSTRUCTED POINTING UPSLOPE SO THE ENDS ARE AT A HIGHER ELEVATION.
6. DRAINAGE AREAS:  
 MAXIMUM DRAINAGE AREA TRIBUTARY TO 100' OF SILT SOXX SHALL BE 0.5 ACRE.
7. THE FOLLOWING ARE MAXIMUM SLOPE LENGTHS TO SILT SOXX MEASURES:  
SLOPE  
 1:2 25'  
 1:3 80'  
 1:4 130'  
 1:5 200'
8. SHEET FLOW OF WATER SHOULD BE PERPENDICULAR TO THE SILT SOXX AT IMPACT AND RELATIVELY UNCONCENTRATED.
9. WHEN CONSTRUCTION IS COMPLETED ON SITE, THE SILT SOXX MAY BE DISPERSED WITH A LOADER, RAKE, BULLDOZER OR OTHER DEVICE TO BE INCORPORATED IN THE SOIL OR LEFT ON TOP OF THE SOIL FOR FINAL SEEDING TO OCCUR. THE MESH NETTING MATERIAL WILL BE COLLECTED AND DISPOSED OF IN NORMAL TRASH CONTAINERS OR REMOVED BY THE CONTRACTOR. IN CASES WHERE BIODEGRADABLE OR PHOTODEGRADABLE PRODUCTS ARE USED, THEY MAY BE LEFT ON SITE AT THE DIRECTION OF THE ENGINEER.

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By \_\_\_\_\_ Date \_\_\_\_\_  
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