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MAY 28 2013
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Volusia County
FLORIDA
Public Works Department
Solid Waste Division

May 23, 2013

SOLID WASTE SECTION
MAY 28 2013

Mr. F. Thomas Lubozynski, P.E.
Air &Waste Program Administrator
Florida Department of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767

RE: Volusia County – Tomoka Farms Road Landfill — N Cell Exp.
Landfill Gas Collection System Expansion Sequence 1A Completion NotificationFacility ID: 1270117
Permit No. 0078767-030-SO-01

Dear Mr. Lubozynski:

I am submitting this certification report for the Volusia County (County) Phase III Sequence 1A landfill Gas Construction project at the Tomoka Farms Road Landfill (Landfill).

This report provides certification of construction of the North Cell Landfill Gas Collection System Construction for Closure – Sequence 1A. This sequence of closure included the relocation of 645 LF of 16" gas line header, 4" force main, and 2" air line along the north and west slopes of the North Cell. With the 16" gas line header being relocated up slope this project also included converting 5 existing wells to remote well heads. This sequence also included running new lateral connections for existing wells along the west slope to allow for sufficient cover in closure. Construction at the Tomoka Farms Road Landfill was carried out starting on February 5, 2012 with substantial completion on March 9, 2012.

If you should have any questions regarding this request please do not hesitate to contact me at (386) 947-2952

Sincerely,

Junos Reed

Junos Reed, P.E.
Civil Engineer III
Volusia County, Solid Waste Division

cc: Mr. Richard Tedder, P.E. FDEP, Solid Waste Program Administrator, Tallahassee
Mr. Lenny Marion, Director, Volusia County Solid Waste Division
Ms. Jennifer Stirk, Environmental Specialist III, Volusia County SWD (File)
Mr. Carlo Lebron, P.E., Vice-President, HDR Engineering, Inc.

ADM-13-114

3151 East New York Avenue, DeLand, FL 32724
Tel: 386-943-7889 FAX: 386-943-7904
www.volusia.org/recycle

Report of Construction
February 2013 – March 2013
NORTH CELL LANFILL GAS CONSTRUCION FOR CLOSURE SEQUENCE 1A
TOMOKA FARMS ROAD LANDFILL

Presented to:

Volusia County Solid Waste Division
1990 Tomoka Farms Road
Daytona Beach, Fl 32124

Presented by:

Volusia County Solid Waste Construction Engineer
1990 Tomoka Farms Road
Daytona Beach, Fl 32124

Florida Board of Professional Engineers
Certification No. 66408

Junos Reed
5-23-13

Junos Reed, P.E.
Florida Registration No. 66408

May, 2013

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Project Summary

This report provides certification of construction of the North Cell Landfill Gas Collection System Construction for Closure – Sequence 1A. This sequence of closure included the relocation of 645 LF of 16" gas line header, 4" force main, and 2" air line along the north and west slopes of the North Cell. With the 16" gas line header being relocated up slope this project also included converting 5 existing wells to remote well heads. This sequence also included running new lateral connections for existing wells along the west slope to allow for sufficient cover in closure. Construction at the Tomoka Farms Road Landfill was carried out starting on February 5, 2012 with substantial completion on March 9, 2012.

Site Background

Tomoka Farms Road Landfill (Landfill) is an active municipal solid waste landfill that is owned and operated by Volusia County. It is located at 1990 Tomoka Farms Road, Volusia County, Florida. This sequence of closure was designed by HDR Engineering, Inc. with Shaw Environmental and Infrastructure, Inc, (Shaw) as the primary construction contractor. Junos Reed, P.E. with Volusia County Solid Waste provided the construction quality assurance for the project. The landfill has a methane gas to energy plant onsite which is operated by Fortistar Methane Group. The primary means of methane gas destruction is by Fortistar, a backup flare station is located adjacent to the methane to energy plant and is used in cases of excess gas or a plant shut down.

Contact List

The parties involved in this project are listed below:

Owner:

Volusia County Solid Waste Division
1990 Tomoka Farms Road
Daytona Beach, Florida 32124
(386) 947-2952

Closure Sequence 1A Design Engineer:

HDR Engineer, Inc.
200 West Forsyth Street, Suite 800
Jacksonville, Florida 32202
(904) 367-6025

Construction Contractor:

Shaw Environmental and Infrastructure, Inc
4171 Essen Lane
Baton Rouge, LA 70809
(225) 987-6803

Construction Quality Assurance and Record Documentation:

Volusia County Solid Waste Division
1990 Tomoka Farms Road
Daytona Beach, Florida 32124
(386) 947-2952

Surveyor:

Sliger & Associates, Inc
3621 Nova Road
Port Orange, Florida 32127
(386) 761-5385

Gas to Energy Developer:

Fortistar Methane Group
1990 Tomoka Farms Road
Daytona Beach, Florida 32124
(386) 239-9730

Summary of Construction

North Cell Closure – Sequence 1A

Construction at the Tomoka Farms Road Landfill commenced on February 5, 2012 with substantial completion on March 9, 2012. The design include the relocation of 645 LF of 16" gas line header, 4" force main, and 2" air line along the north and west slopes of the North Cell. With the 16" gas line header being relocated up slope this project also included converting 5 existing wells to remote well heads. This sequence also included running new lateral connections for existing wells along the west slope to allow for sufficient cover in closure. In total the North Cell Landfill Gas Collection System Construction for Closure – Sequence 1A included the installation of the following quantities as recorded by the contractor.

- 645 feet of 16" HDPE SDR 17 header piping
- 701 feet of 6" HDPE SDR 11 sub header lateral piping
- 961 feet of 4" HDPE SDR 11 sub header lateral piping
- 2354 feet of 4" HDPE SDR 11 condensate force main piping
- 2506 feet of 2" HDPE SDR 9 compressed air main piping
- Two Header/Airline/Condensate access point
- Convert 5 existing vertical wells to remote wells
- Once condensate force main isolation valve assembly

Lateral Tie-In Connections

Existing wells EW-8, EW-64, EW-65, EW-66, and EW-67 were converted to remote wells with the lateral lines connected to the new 16" header line. In addition new lateral lines were installed from EW-5, EW-9, EW-11, EW-12A, and EW-68 to the new 16" header line. All of the new lateral connections were installed with 2" compressed air and 4" condensate force main lines.

16" Header Installation

The 16" header line was installed from the point of connection on the North Slope to the point of connection on the west slope with little deviation from the design drawings. The header was installed with a minimum of a 3% slope from the high to the points of connection to the existing header on the north and west slopes. The existing header was removed from the point of connection on the north slope up to the point at which it crossed under the existing access road on the west slope. At the abandonment points a slip cap was installed. As the County re-grades the west slope and moves the access road to the west in preparation for closure, additional sections of the existing header will be removed as necessary.

Horizontal Well Retrofits

As part of the previous construction (sequence 1) the Horizontal collectors were converted to vertical wellheads and drip traps for the collection of condensate. As part of this construction (sequence 1A) Horizontal Collectors HC-1A, HC-1B, HC-2A, HC-2B, HC-3A, HC-3B, HC-4A, HC-4B, HC-5A, HC-5B, HC-6A, and HC-6B were fitted with 2" QED AP-2 pumps for dewatering. 4" condensate force main and 2"

compressed air lines were installed to each of the Horizontal Collectors and connected to the existing system on the South and North slopes respectively.

Additional Information of construction activities can be found in the daily logs.

Appendix A

Daily Field Reports

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A			Date: 2/4/2013	Day: Monday
Project Site: Tomoka Farms Road Landfill			Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange			CQA: Junos Reed (County of Volusia)	
Weather Conditions:				
Temperature		Weather Conditions		Precipitation
Min	45	Morning:	Afternoon	
Max	71	Clear	Clear	0" Rain
Contractor's Employees / Title			**Equipment Used / On Site**	
Johnny		Supervisor/Operator	John Deer 200D Excavator	
Isaac		Operator/Technician	John Deer 650J Dozer	
			John Deer Off Road Dump Truck	
			Kubuta RTV 900	
			Chevy Silverado 2500 HD	
Work Performed:				
Pre-welding pipe and taking material deliveries				

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A	Date: 2/5/2013	Day: Tuesday
Project Site: Tomoka Farms Road Landfill	Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange	CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min		Morning:	Afternoon	
Max				" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Johnny	Supervisor/Operator	John Deer 200D Excavator
Isaac	Operator/Technician	John Deer 650J Dozer
		John Deer Off Road Dump Truck
		Kubuta RTV 900
		Chevy Silverado 2500 HD

Work Performed:

Pre-welding pipe and taking material deliveries

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 2/6/2013	Day: Wednesday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	
Weather Conditions:			
Temperature		Weather Conditions	Precipitation
Min		Morning:	Afternoon
Max			" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Johnny	Supervisor/Operator	John Deer 200D Excavator
Isaac	Operator/Technician	John Deer 650J Dozer
		John Deer Off Road Dump Truck
		Kubuta RTV 900
		Chevy Silverado 2500 HD

Work Performed:

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A	Date: 2/7/2013	Day: Thursday
Project Site: Tomoka Farms Road Landfill	Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange	CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min		Morning:	Afternoon	
Max				" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Johnny	Supervisor/Operator	John Deer 200D Excavator
Isaac	Operator/Technician	John Deer 650J Dozer
		John Deer Off Road Dump Truck
		Kubuta RTV 900
		Chevy Silverado 2500 HD

Work Performed:

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A			Date: 2/8/2013	Day: Friday
Project Site: Tomoka Farms Road Landfill			Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange			CQA: Junos Reed (County of Volusia)	
Weather Conditions:				
Temperature		Weather Conditions		Precipitation
Min	59	Morning:	Afternoon	
Max	82	Clear	Clear	0" Rain
Contractor's Employees / Title			**Equipment Used / On Site**	
Johnny		Supervisor/Operator	John Deer 200D Excavator	
Isaac		Operator/Technician	John Deer 650J Dozer	
			John Deer Off Road Dump Truck	
			Kubuta RTV 900	
			Chevy Silverado 2500 HD	
Work Performed:				
No work performed on site today				

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 2/11/2013	Day: Monday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	59	Morning:	Afternoon	
Max	85	Clear	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Pre-welding pipe and working on jobsite trailer

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 2/12/2013	Day: Tuesday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	61	Morning:	Afternoon	
Max	86	Clear	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Abandon the portion of existing 18" header that is being replaced. At each tie in location the a pvc slip cap was installed on the abandoned section of pipe. Blind flanges were installed on the header that will be tied into.

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 2/13/2013	Day: Wednesday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	61	Morning:	Afternoon	
Max	84	Clear	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Tied into the existing 2" air and 4" force main near EW-68 and installed 80 LF of 2" air and 4" force main and tee stub ups for EW-68

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 2/14/2013	Day: Thursday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	61	Morning:	Afternoon	
Max	79	Rain	Rain	.25" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Crew showed up and worked in jobsite trailer for a half day.

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 2/15/2013	Day: Friday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	61	Morning:	Afternoon	
Max	81	Clear	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Repaired Bentonite plugs for HC-1A, HC-2A, and HC-5A.

Exposed air and force main lines by the header for the new lines that will run to HC-3A and HC-6A.

Installed 40 lf of 2" airline and 4" force main for the pumps to be installed in HC-3A and HC-6A.

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 2/16/2013	Day: Saturday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	
Weather Conditions:			
Temperature		Weather Conditions	Precipitation
Min	57	Morning:	Afternoon	
Max	75	Clear	Clear	0" Rain
Contractor's Employees / Title		**Equipment Used / On Site**	
Evan	Site Superintendent	John Deer 200D Excavator	
Sam	Operator/Technician	John Deer 650J Dozer	
Steve	Operator/Technician	John Deer Off Road Dump Truck	
Johnny	Operator/Technician	Kubuta RTV 900	
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD	
Work Performed:			
Pre-welding lateral lines, air lines and force mains lines for remote wells.			
Lowering wells, air, and vacuum risers for EW-6, EW-7, EW-8, EW-64, EW-65, EW-66R, EW-67.			

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 2/18/2013	Day: Monday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	45	Morning:	Afternoon	
Max	75	Clear	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Air testing pre welded laterals. All passed see air test reports

Exposed and converted EW-8, EW-64, EW-65, EW-66, and EW-67 to remote wells

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A			Date: 2/19/2013	Day: Tuesday
Project Site: Tomoka Farms Road Landfill			Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange			CQA: Junos Reed (County of Volusia)	
Weather Conditions:				
Temperature		Weather Conditions		Precipitation
Min	52	Morning:	Afternoon	
Max	77	Clear	Clear	0" Rain
Contractor's Employees / Title			**Equipment Used / On Site**	
Evan		Site Superintendent	John Deer 200D Excavator	
Sam		Operator/Technician	John Deer 650J Dozer	
Steve		Operator/Technician	John Deer Off Road Dump Truck	
Johnny		Operator/Technician	Kubuta RTV 900	
Isaac		Operator/Technician	3 Chevy Silverado 2500 HD	
Work Performed:				
Removed existing 2" air and 4" vacuum lines from EW-6 to EW-11 and 12A.				
Installed new 2" air , 4" force main, and 6" vacuum lines from EW-6 to EW-11 and EW-12A				
Pre welding 2" air, 4" force main, and 4" vacuum lines for the lateral connection to EW-5				

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A	Date: 2/20/2013	Day: Wednesday
Project Site: Tomoka Farms Road Landfill	Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange	CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	60	Morning:	Afternoon	
Max	79	Clear	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Located lines and tie-in location for HC-1B, HC-2B, and HC-4B

Installed new 2" air and 4" force main lines to HC-3B, HC-5B, and HC-6B.

Removed 2" air, 4" force main, and 6" vacuum lines from their tie-in points west to the leachate dewatering sump.

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A			Date: 2/20/2013	Day: Wednesday
Project Site: Tomoka Farms Road Landfill			Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange			CQA: Junos Reed (County of Volusia)	
Weather Conditions:				
Temperature		Weather Conditions		Precipitation
Min	60	Morning:	Afternoon	
Max	79	Clear	Clear	0" Rain
Contractor's Employees / Title			**Equipment Used / On Site**	
Evan		Site Superintendent	John Deer 200D Excavator	
Sam		Operator/Technician	John Deer 650J Dozer	
Steve		Operator/Technician	John Deer Off Road Dump Truck	
Johnny		Operator/Technician	Kubuta RTV 900	
Isaac		Operator/Technician	3 Chevy Silverado 2500 HD	

Work Performed:

Located air and force main line tie-in locations for HC-1B, HC-2B, and HC-4B

Installed new 2" air and 4" force main lines to HC-3B, HC-5B, and HC-6B.

Removed 2" air, 4" force main, and 6" vacuum lines from their tie-in points west to the leachate dewatering sump. These lines were discovered to be too shallow and will need to be reinstalled deeper.

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A			Date: 2/22/2013	Day: Thursday
Project Site: Tomoka Farms Road Landfill			Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange			CQA: Junos Reed (County of Volusia)	
Weather Conditions:				
Temperature		Weather Conditions		Precipitation
Min	60	Morning:	Afternoon	
Max	79	Clear	Clear	0" Rain
Contractor's Employees / Title			**Equipment Used / On Site**	
Evan		Site Superintendent	John Deer 200D Excavator	
Sam		Operator/Technician	John Deer 650J Dozer	
Steve		Operator/Technician	John Deer Off Road Dump Truck	
Johnny		Operator/Technician	Kubuta RTV 900	
Isaac		Operator/Technician	3 Chevy Silverado 2500 HD	
Work Performed:				
Located air and force main line tie-in locations for HC-1B, HC-2B, and HC-4B				
Installed new 2" air and 4" force main lines to HC-1B, HC-2B, and HC-4B.				

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 2/23/2013	Day: Friday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	65	Morning:	Afternoon	
Max	82	Clear	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Installed six AP2 pumps in Horizontal Collectors 1B, 2B, 3B, 4B, 5B, and 6B

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A			Date: 2/25/2013	Day: Monday
Project Site: Tomoka Farms Road Landfill			Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange			CQA: Junos Reed (County of Volusia)	
Weather Conditions:				
Temperature		Weather Conditions		Precipitation
Min	60	Morning:	Afternoon	
Max	85	Clear	Rain	0.2" Rain
Contractor's Employees / Title			**Equipment Used / On Site**	
Evan		Site Superintendent	John Deer 200D Excavator	
Sam		Operator/Technician	John Deer 650J Dozer	
Steve		Operator/Technician	John Deer Off Road Dump Truck	
Johnny		Operator/Technician	Kubuta RTV 900	
Isaac		Operator/Technician	3 Chevy Silverado 2500 HD	
Work Performed:				
Installed 2" air, 4" force main, and 6" vacuum line from new 16" header to EW-6 and from EW-6 to EW-11 and EW-12A.				

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A			Date: 2/26/2013	Day: Tuesday
Project Site: Tomoka Farms Road Landfill			Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange			CQA: Junos Reed (County of Volusia)	
Weather Conditions:				
Temperature		Weather Conditions		Precipitation
Min	72	Morning:	Afternoon	
Max	78	Clear	Rain	0.3" Rain
Contractor's Employees / Title			**Equipment Used / On Site**	
Evan		Site Superintendent	John Deer 200D Excavator	
Sam		Operator/Technician	John Deer 650J Dozer	
Steve		Operator/Technician	John Deer Off Road Dump Truck	
Johnny		Operator/Technician	Kubuta RTV 900	
Isaac		Operator/Technician	3 Chevy Silverado 2500 HD	
Work Performed:				
Installed 2" air, 4" force main, and 6" vacuum line from the new 16" Header to EW-5.				
Installed the lateral piping in CMP were in will be under the new road.				

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A			Date: 2/27/2013	Day: Wednesday
Project Site: Tomoka Farms Road Landfill			Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange			CQA: Junos Reed (County of Volusia)	
Weather Conditions:				
Temperature		Weather Conditions		Precipitation
Min	61	Morning:	Afternoon	
Max	76	Partly Cloudy	Clear	0" Rain
Contractor's Employees / Title			**Equipment Used / On Site**	
Evan		Site Superintendent	John Deer 200D Excavator	
Sam		Operator/Technician	John Deer 650J Dozer	
Steve		Operator/Technician	John Deer Off Road Dump Truck	
Johnny		Operator/Technician	Kubuta RTV 900	
Isaac		Operator/Technician	3 Chevy Silverado 2500 HD	
Work Performed:				
Installed approximately 200 LF of 2" air, 4" force main, and 16" header from the tie-in on the North Slope which included Tee's for lateral lines running to EW-9, EW-67, EW-8.				

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 2/28/2013	Day: Thursday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	47	Morning:	Afternoon	
Max	77	Partly Cloudy	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Installed 2" air, 4" force main, and 4" vacuum lateral lines from wells EW-8, EW-65, and EW-66 to the new 16" Header Line.

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 3/1/2013	Day: Friday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	47	Morning:	Afternoon	
Max	66	Partly Cloudy	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Installed approximately 225 LF of 2" air, 4" force main, and 16" header line including Tee's and Risers for EW-64, EW-65, EW-66, EW-7, and AP-2.

Installed 2" air, 4" force main, and 4" vacuum lateral lines from EW-64 to the new 16" header.

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 3/4/2013	Day: Monday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	
Weather Conditions:			
Temperature		Weather Conditions	Precipitation
Min 35	Morning:	Afternoon	
Max 62	Clear	Clear	0" Rain
Contractor's Employees / Title		**Equipment Used / On Site**	
Evan	Site Superintendent	John Deer 200D Excavator	
Sam	Operator/Technician	John Deer 650J Dozer	
Steve	Operator/Technician	John Deer Off Road Dump Truck	
Johnny	Operator/Technician	Kubuta RTV 900	
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD	
Work Performed:			
Tied in 2" air, 4" force main, and 4" vacuum laterals from EW-6, EW-11, and EW-12A to the new 16" header.			
Installed approximately 200 LF of 2" air, 4" force main, and 16" header, including 80LF within 24" CMP for the road crossing.			

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 3/5/2013	Day: Tuesday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	45	Morning:	Afternoon	
Max	75	Clear	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

The crew spent the day dressing up the hill from the previous day's activities and worked in the job site trailer.

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 3/6/2013	Day: Wednesday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	50	Morning:	Afternoon	
Max	67	Clear	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Installed approximately 20LF of 2" air, 4" force main, and 16" header to the connection point of the existing header on the west slope. The crew spent the rest of the day pumping up the 2" air, 4" force main, and 16" header for the air test.

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 3/7/2013	Day: Thursday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	50	Morning:	Afternoon	
Max	67	Clear	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Installed well heads on EW-66, EW-67, EW-68, EW-64,EW-65, EW-4, EW-5, EW-6, EW-11, AND EW-12A

Installed approximately 120 LF of 2" air, 4" force main, and 4" Vacuum lateral lines from EW-5 to the new 16" Header and made the connection to the header.

Daily Field Report

Project Name: North Cell Closure - Sequence 1-A		Date: 3/8/2013	Day: Friday
Project Site: Tomoka Farms Road Landfill		Contractor: Shaw Environmental	
Project Location: Volusia County, Fl/Port Orange		CQA: Junos Reed (County of Volusia)	

Weather Conditions:

Temperature		Weather Conditions		Precipitation
Min	52	Morning:	Afternoon	
Max	73	Clear	Clear	0" Rain

Contractor's Employees / Title		**Equipment Used / On Site**
Evan	Site Superintendent	John Deer 200D Excavator
Sam	Operator/Technician	John Deer 650J Dozer
Steve	Operator/Technician	John Deer Off Road Dump Truck
Johnny	Operator/Technician	Kubuta RTV 900
Isaac	Operator/Technician	3 Chevy Silverado 2500 HD

Work Performed:

Tied the new 16" header to the existing header on the north and west slopes. Once it was determined there were no leaks in the connections the tie in locations were backfilled and dressed up. The crew spent the rest of the day dressing up the hill and packing up there trailer. This was the last day of work on the project.

Appendix B

Construction Photographs

West Slope Header Point of Connection

Existing Header Abandonment

4" Condensate Force Main & 2" Compressed Air Line to EW-68

4" Condensate Force Main & 2" Compressed Air Line to Horizontal Collector

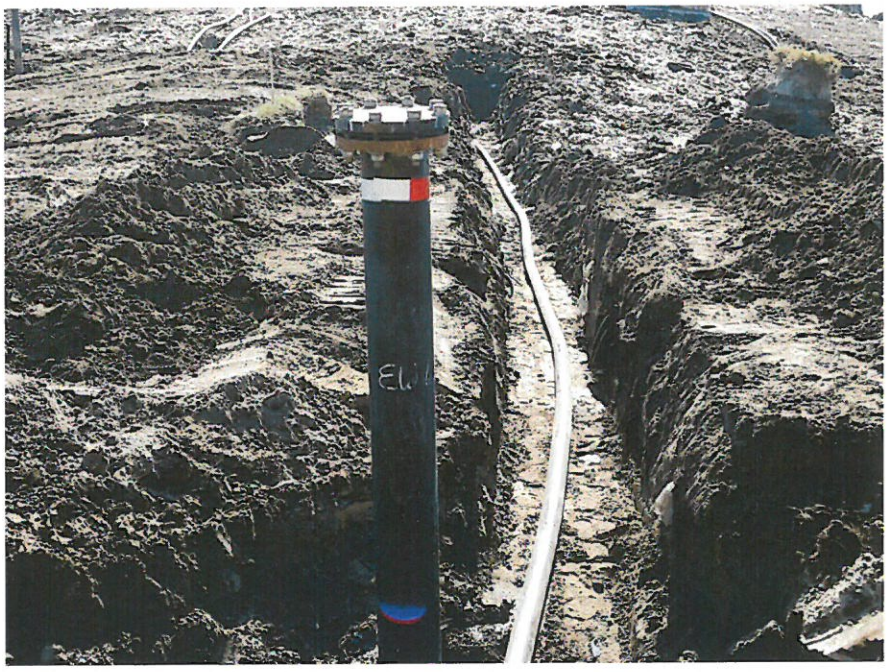
Expose existing lateral connection on West Slope

Converting to Existing Well to Remote Wellhead

New Lateral lines from EW-67R

Installing new 16" Header Line

Trenching for New Lateral Lines

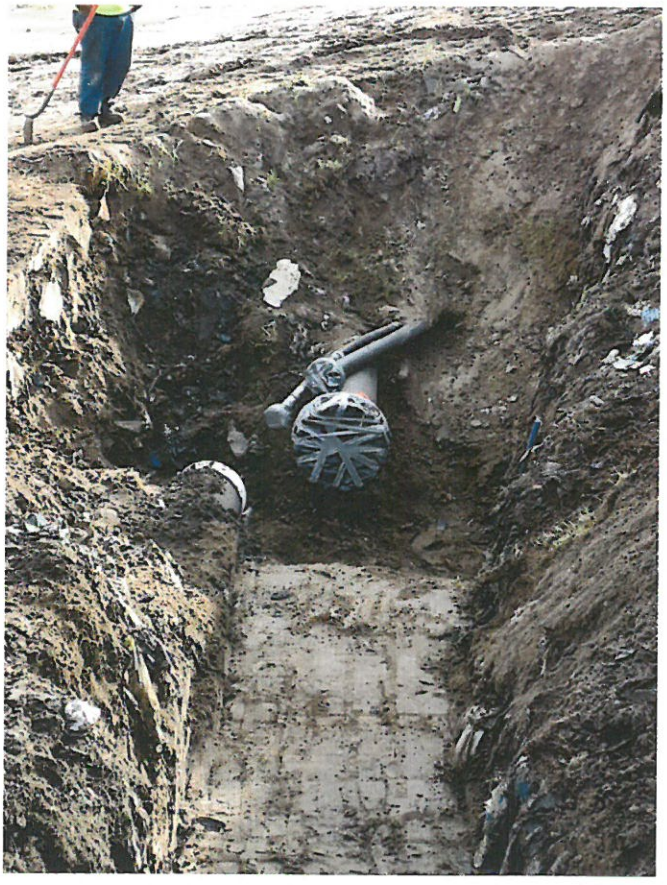


Converting EW-64 to Remote Wellhead

Running New Lateral Lines from EW-12A to EW-6

Installing new Air and Force Main for Horizontal Collectors on South Slope

Installing new Air and Force Main for Horizontal Collectors on South Slope



Point of Connection to Existing Header on North Slope

Trench for new 16" Header on North Slope

Header Tie-In on North Slope with Existing Header Abandoned

Installing New Header on North Slope

Lateral Connection from EW-8 to New Header

Lateral Connection from EW-8 to New Header

New Remote Wellheads on New Header

Access Point at High Point of New Header

New Header Installation Along South Slope

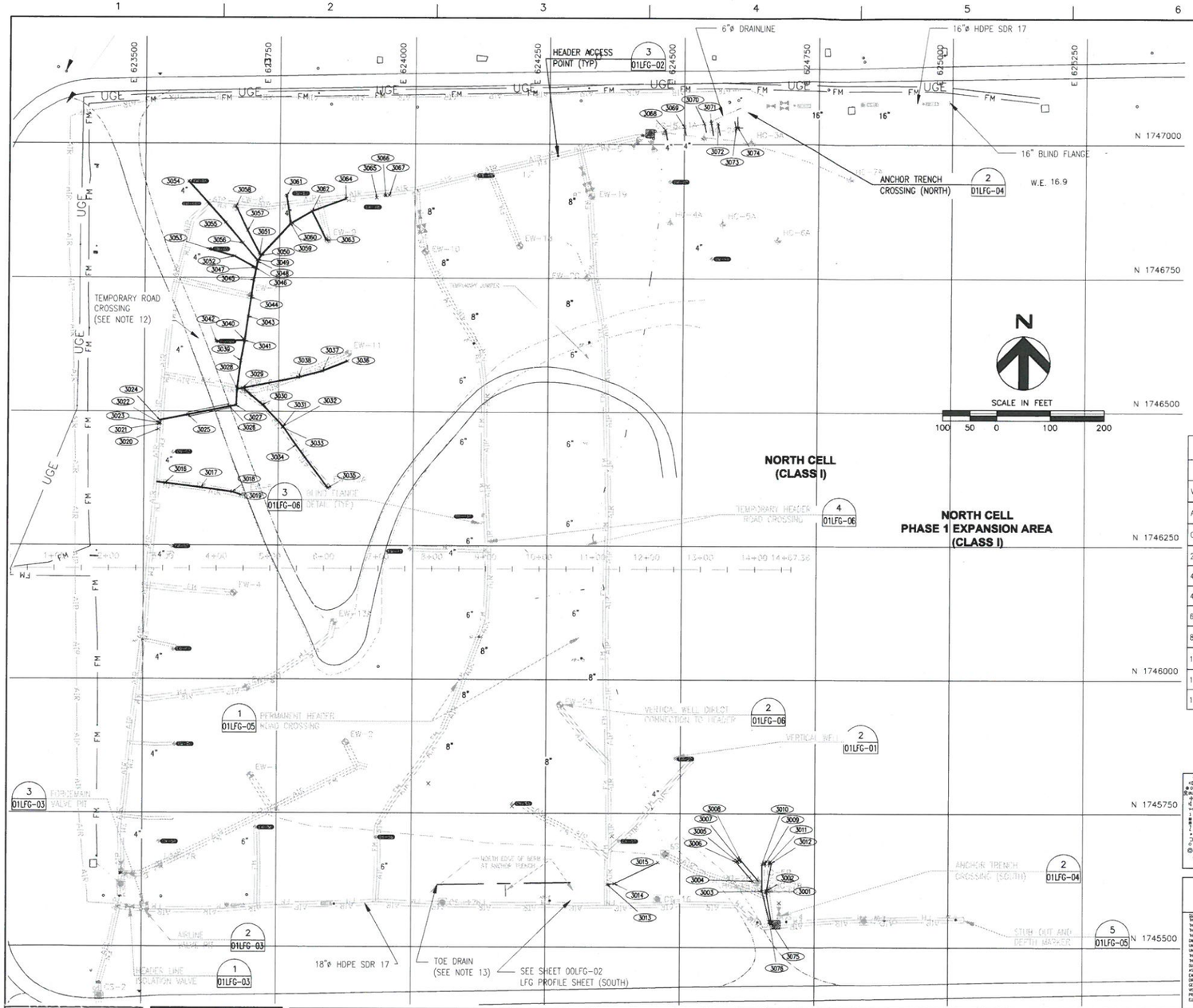
Point of Connection to Existing Header with Access Point

Point of Connection to Existing Header with Access Point

New Lateral Piping from EW-5 to Existing Header

Appendix C

Record Drawings



LEGEND

- LIMITS OF LINER
- LIMITS OF CONSTRUCTION
- 1080 EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- LFG PIPE TO BE ABANDONED
- LFG PIPE ABANDONED IN PLACE
- NEW HDPE SDR 17 LFG HEADER (SIZE VARIES)
- HP DENOTES HIGH POINT IN HEADER
- NEW HDPE SDR 11 LATERAL PIPE (SIZE VARIES)
- EXISTING LFG HEADER PIPE (SIZE VARIES)
- EXISTING LFG LATERAL PIPE (SIZE VARIES)
- EXISTING LFG HORIZONTAL PIPE (SIZE VARIES)
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND LEACHATE FORCEMAIN
- LCR-1 EXISTING LEACHATE CLEANOUT RISER
- HC-7B EXISTING HORIZONTAL LFG WELLHEAD
- EW-1 EXISTING LFG WELL
- LCRS EXISTING LEACHATE RISER SUMP
- CS-2 EXISTING CONDENSATE SUMP
- EXISTING HEADER ISOLATION VALVE
- ISOLATION VALVE
- CS-2 CONDENSATE SUMP
- EW-1 LFG WELL
- EW-24 CONNECTION TO EXISTING VERTICAL WELLS
- EW-16AR UPSLOPE WELLHEAD
- AP-2 ACCESS POINTS
- 30.64 / 20 SURVEY MONUMENTS
- CP-3 CONNECTION POINTS TO EXISTING LFG SYSTEM

NOTES:

1. AERIAL TOPOGRAPHY WAS TAKEN FROM AERIAL SURVEY PERFORMED BY AERIAL CARTOGRAPHICS OF AMERICA ON MAY 7, 2011.
2. LIMITS OF LINER OBTAINED FROM THE TOMOKA LANDFILL LINER AS-BUILT DRAWING BY MAPTECH, INC. ON OCTOBER 4, 2005 AND FROM THE CLASS I CELL FILL SEQUENCING PLAN DRAWING PREPARED BY SCS ENGINEERS AND SUBMITTED TO FDEP ON AUGUST 14, 2009.
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4. CONTRACTOR TO PERFORM PRE CONSTRUCTION SURVEY AS SPECIFIED IN THE SPECIFICATIONS.
5. EXISTING EDGE OF LINER LOCATION ALONG THE NORTH SLOPE IS APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING LINER EDGE PRIOR TO CONSTRUCTION.
6. EXISTING CLEANOUT LOCATIONS AND UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING CLEANOUTS AND UTILITY LOCATIONS PRIOR TO CONSTRUCTION.
7. REBAR SPACED EVERY 50' O.C. ALTERNATING SIDES.
8. CONTRACTOR SHALL PROVIDE ADDITIONAL SUBHEADER TO ALLOW FOR EXPANSION.
9. 6" SUBHEADER BETWEEN ACCESS POINTS AP-12 AND AP-13, AP-14 AND AP-15 SHALL BE EXPOSED UNTIL FILLING OPERATIONS ON TOP DECK HAVE BEEN COMPLETED.
10. ALL ABANDONED LATERAL LINES TO BE CUT AND CAPPED. SEE DETAIL 5 ON SHEET 01LFG-06.
11. CONTRACTOR TO PROVIDE A TEMPORARY JUMPER AND UP SLOPE WELLHEAD UNTIL FILLING OPERATIONS HAVE BEEN COMPLETED.
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13. **CONTRACTOR TO CONNECT LANDFILL GAS COLLECTION SYSTEM FROM NEWLY INSTALLED HEADER LINE TO HIGH POINTS OF TOE DRAIN. LATERAL SHALL BE SLOPED TO HEADER AWAY FROM TOE DRAIN A MINIMUM OF 3% OUTSIDE OF WASTE. WELLHEAD SHALL CONSIST OF 2" BALL VALVE AND SAMPLE PORTS ON EITHER SIDE. LATERALS SHALL BE SAME SIZE DIAMETER AS TOE DRAIN. CONNECTION TO HEADER SHALL BE WITH BRANCH SADDLE.**
14. **DRAIN LINE TO LCR –B TO BE CUT AND CAPPED AT LCR –8.**

PHASE III A CONSTRUCTION TABLE

ITEM DESCRIPTION	UNIT	QUANTITY
VERTICAL LFG WELLHEAD	EA	21
ACCESS POINT	EA	14
CONDENSATE SUMP	EA	5
2"ø HDPE SDR 9 AIRLINE	LF	5,992
4"ø HDPE SDR 9 CONDENSATE FORCEMAIN	LF	5,848
4"ø HDPE SDR 11 LATERAL	LF	1,147
6"ø HDPE SDR 11 LATERAL	LF	1,416
8"ø HDPE SDR 11 SUB-HEADER	LF	1,264
10"ø HDPE SDR 11 SUB-HEADER	LF	35
16"ø HDPE SDR 17 HEADER	LF	595
18"ø HDPE SDR 17 HEADER	LF	1,596

AS-BUILT LEGEND

AS-BUILT ABBREVIATIONS:

SLIGER & ASSOCIATES, INC. PROFESSIONAL LAND SURVEYORS
3921 NOVA ROAD • PORT ORANGE, FL. 32127 • (386) 761-5385
AS-BUILT SURVEY

NOT A BOUNDARY SURVEY.
AS-BUILT SURVEY OF:
SANITARY SEWER FORCE MAIN & FITTINGS
SANITARY SEWER GRAVITY LINE & SERVICES
POTABLE WATERMAIN, VALVES, FITTINGS, & SERVICES
FIRE LINE, VALVES, FITTINGS, & SERVICES
RECLAIM WATERMAIN, VALVES, FITTINGS & SERVICES
STORM SEWER PIPE/STRUCTURES
PAVING/CURB
GRADING
RETENTION/SWALE AREAS
ABOVE GROUND IMPROVEMENTS AS DIRECTED BY CLIENT
GAS MAIN, VALVES, FITTINGS & SERVICES
ELECTRIC

SURVEYOR'S CERTIFICATE
I HEREBY CERTIFY THAT THIS PLAT MEETS THE MINIMUM TECHNICAL STANDARDS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 5J-17.05, FLORIDA ADMINISTRATIVE CODE, PURSUANT TO SECTION 472.027, FLORIDA STATUTES.

J.E. ZAPERT, P.L.S. NO. 4046
STEVEN T. KRUEGER, P.L.S. NO. 4722
C.O. VAN KLEECK, JR., P.S.M. NO. 6149
MICHAEL S. MURPHY P.S.M. NO. 6208

"NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER."

AS-BUILT SURVEY 03-09-2013
JOB # 13-0201 CAD TECH: JM CHECK: JZ

REVISION #	DATE	BY

9-23-13

HDR Engineering, Inc.
201 W Forsyth St
Jacksonville, FL 32202
FLORIDA CA 00000219

ISSUE	DATE	DESCRIPTION
1	09/11	DRAFT

PROJECT MANAGER	C. LEBRON, P.E.
DESIGNED BY	M. AUSTIN
DESIGNED BY	
DESIGNED BY	
DRAWN BY	M. AUSTIN
CHECKED BY	
PROJECT NUMBER	0000000000170244

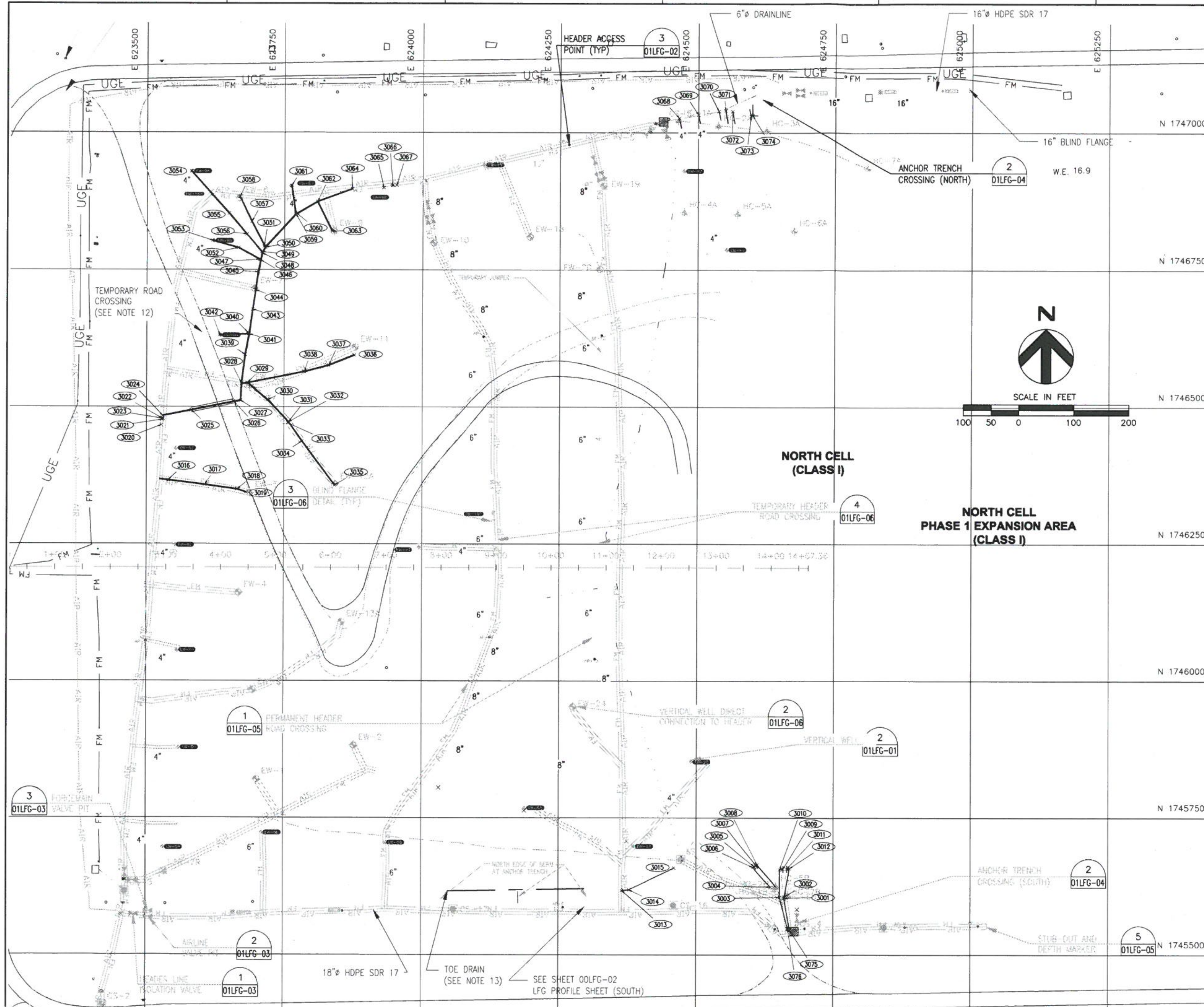
Volusia County FLORIDA

CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

PHASE III - PART A
LFG SYSTEM EXPANSION

FILENAME	00LFG-01.dwg
SCALE	AS SHOWN

SHEET **00LFG-01**



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AS-BUILT LEGEND

AS-BUILT ABBREVIATIONS:

SLIGER & ASSOCIATES, INC.
PROFESSIONAL LAND SURVEYORS

AS-BUILT SURVEY

SURVEYOR'S CERTIFICATE

5-23-13

HDR

1	09/11	DRAFT
ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	C. LEBRON, P.E.
DESIGNED BY	M. AUSTIN
DESIGNED BY	
DESIGNED BY	
DRAWN BY	M. AUSTIN
CHECKED BY	
PROJECT NUMBER	000000000170244

Volusia County FLORIDA

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TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

PHASE III - PART A
LFG SYSTEM EXPANSION

FILENAME	00LFG-01.dwg
SCALE	AS SHOWN

SHEET **00LFG-01**

1 2 3 4 5 6 7 8

N

SCALE IN FEET

100 50 0 100 200

POINT TABLE

POINT #	NORTHING	EASTING	TOP ELEV	DESCRIPTION	LATITUDE	LONGITUDE
3001	1745404.1191	626174.2804	31.37	VCL21 VCL21	29.0806145	-81.0538212
3001	1745603.8356	624660.3376	30.78	10"X6" & 2" & 4" TEE	29.0808110	-81.0555286
3002	1745606.0404	624661.1491	31.21	2"&4" 90°	29.0808131	-81.0555276
3003	1745605.0587	624652.8129	31.78	6"2"4" 45°	29.0808122	-81.0555370
3004	1745623.8285	624635.7031	35.71	6"2"4" TOP OF PIPE	29.0808307	-81.0555563
3005	1745661.5268	624606.6936	44.50	6"2"4" TEE	29.0808680	-81.0555891
3006	1745659.8923	624604.4204	44.07	6"2"4" 90°	29.0808664	-81.0555917
3007	1745663.2785	624610.4356	45.14	6"2"4" TEE	29.0808698	-81.0555849
3008	1745664.4774	624612.4175	45.29	6"2"4" 90°	29.0808710	-81.0555826
3009	1745656.8403	624658.8355	43.94	2"4" TEE	29.0808634	-81.0555303
3010	1745655.9221	624652.5499	43.70	2"4" 90°	29.0808625	-81.0555374
3011	1745657.0468	624665.4020	44.87	2"4" TEE	29.0808636	-81.0555229
3012	1745657.8083	624670.0141	45.35	2"4" 90°	29.0808644	-81.0555177
3013	1745617.5539	624365.6030	30.51	8"X4" & 2" & 4" TEE	29.0808243	-81.0558609
3014	1745618.9522	624378.9625	31.46	4" & 4" & 2" 22° BEND	29.0808257	-81.0558459
3015	1745658.7151	624459.7694	41.69	4" & 4" & 2" 90° BEND	29.0808651	-81.0557548
3016	1746366.4467	623539.5131	52.60	6" & 2" TIE IN	29.0815650	-81.0607932
3017	1746357.9043	623606.2011	67.46	6" & 2" TOP OF PIPE	29.0815566	-81.0607180
3018	1746349.8517	623664.9032	78.54	6" & 2" TOP OF PIPE	29.0815487	-81.0606518
3019	1746344.2679	623681.0705	81.66	6" & 2" 90° BEND	29.0815432	-81.0606336
3020	1746466.7094	623526.6129	50.26	16" HEADER & 2" TIE IN & END 4"	29.0816643	-81.0608079
3021	1746476.6494	623527.6491	51.31	16"X8" ACCESS RISOR	29.0816741	-81.0608067
3022	1746478.4510	623527.9336	48.30	4" ACCESS RISOR	29.0816759	-81.0608064
3023	1746478.1469	623530.0291	49.63	2" ACCESS RISOR	29.0816756	-81.0608040
3024	1746483.6257	623528.9465	51.92	16" & 4" & 2" 90° BEND	29.0816810	-81.0608052
3025	1746493.9676	623581.2383	59.00	24" CASING	29.0816913	-81.0607463
3026	1746509.9561	623658.2201	73.04	24" CASING	29.0817072	-81.0606595
3027	1746511.7399	623670.7197	79.51	16" & 4" & 2" 90° BEND	29.0817090	-81.0606454
3028	1746542.2386	623672.3871	84.76	16"X6" & 4" & 2" TEE	29.0817392	-81.0606435
3029	1746543.6945	623683.2296	88.80	16"X6" & 4" & 2" WYE	29.0817406	-81.0606313
3030	1746512.6258	623720.2807	95.52	6" & 4" & 2" TOP OF PIPE	29.0817099	-81.0605895
3031	1746472.3968	623758.6962	105.08	6" TOP OF PIPE	29.0816701	-81.0605461
3032	1746471.9230	623758.2953	104.75	4" TOP OF PIPE	29.0816696	-81.0605466
3033	1746470.1480	623757.8105	104.84	2" TOP OF PIPE	29.0816679	-81.0605471
3034	1746437.5469	623783.3251	113.45	2" TOP OF PIPE	29.0816356	-81.0605183
3035	1746357.1108	623842.1904	128.65	6" & 4" & 2" 90° BEND	29.0815560	-81.0604519
3036	1746594.5373	623877.0641	137.85	6" & 4" & 2" 90° BEND	29.0817911	-81.0604128
3037	1746575.7898	623831.2045	126.68	6" & 4" & 2" TOP OF PIPE	29.0817725	-81.0604645
3038	1746564.3992	623787.0176	113.20	6" & 4" & 2" TOP OF PIPE	29.0817612	-81.0605143
3039	1746595.1373	623678.9344	87.28	16" & 4" & 2" TOP OF PIPE	29.0817916	-81.0606362
3040	1746636.0488	623683.1889	88.12	4" 90° & 4" & 2" TEE	29.0818321	-81.0606315
3041	1746633.1267	623686.0912	88.61	16"X4" TEE	29.0818292	-81.0606282
3042	1746631.1028	623632.9778	74.01	16"X4" TEE TO WELL & 2"& 4" 90°	29.0818271	-81.0606881
3043	1746677.9920	623692.3502	91.84	16" & 2" & 4" TOP OF PIPE	29.0818736	-81.0606212
3044	1746713.3639	623697.8702	95.54	16"X4" & 2" & 4" TEE	29.0819086	-81.0606150
3045	1746745.8927	623702.6849	97.45	16"X8" & 2" & 4" TEE AV2	29.0819408	-81.0606096
3046	1746768.0685	623706.3539	95.12	16"X4" TEE	29.0819628	-81.0606055
3047	1746768.9132	623704.5927	93.39	4" 90° & 2" & 4" TEE	29.0819636	-81.0606074
3048	1746780.3298	623709.7167	94.38	16"X4" TEE	29.0819749	-81.0606017
3049	1746782.8510	623708.6527	93.04	4" 90° & 2" & 4" TEE	29.0819774	-81.0606029
3050	1746790.9040	623715.2279	93.65	16"X4" TEE	29.0819854	-81.0605955
3051	1746792.5492	623712.8701	92.11	4" 90° & 2" & 4" TEE	29.0819870	-81.0605981
3052	1746789.9835	623666.3424	81.02	4" & 2" & 4" TOP OF PIPE	29.0819845	-81.0606506
3053	1746802.7929	623619.7243	65.81	6"X4" WELL TIE & 2" & 4" 90° BEND	29.0819971	-81.0607032
3054	1746929.1066	623580.1488	57.30	6"X4" WELL TIE & 2" & 4" 90° BEND	29.0821221	-81.0607479
3055	1746852.6184	623649.5646	70.97	4" & 4" & 2" TOP OF PIPE	29.0820464	-81.0606696
3056	1746814.7486	623681.5283	82.14	4" & 4" & 2" TOP OF PIPE	29.0820090	-81.0606335
3057	1746837.7808	623690.5980	79.14	4" & 4" & 2" TOP OF PIPE	29.0820318	-81.0606233
3058	1746882.6952	623668.5706	69.39	6"X4" TIE IN & 2" & 4" 90° BEND	29.0820762	-81.0606482
3059	1746851.1884	623770.9561	82.38	16"X4" TEE	29.0820451	-81.0605327
3060	1746853.5410	623770.6940	80.69	4" 90° & 2" & 4" TEE	29.0820475	-81.0605330
3061	1746903.0004	623763.2127	64.86	6"X4" TIE IN &2" &4" 90° BEND	29.0820964	-81.0605415
3062	1746874.0102	623810.0517	75.57	6"X4" TEE & 2" & 4" TEE	29.0820678	-81.0604886
3063	1746820.2962	623836.8463	91.46	2" & 4" & 4" 90° BEND	29.0820146	-81.0604584
3064	1746897.1276	623872.4405	66.07	16" TIE IN & 2" & 4" TOP	29.0820907	-81.0604183
3065	1746899.6740	623928.7879	74.65	4" FM VALVE	29.0820933	-81.0603547
3066	1746904.1518	623945.5242	66.81	2" & 4" TEES	29.0820977	-81.0603359
3067	1746904.0738	623952.6905	66.95	2" & 4" TIE IN EXIST	29.0820977	-81.0603278
3068	1747026.7120	624464.9430	35.52	2" & 4" TEES	29.0822195	-81.0557502
3069	1747032.2328	624500.4028	34.04	2" & 4" TEES	29.0822250	-81.0557103
3070	1747039.1492	624537.6659	33.06	2" & 4" TEES	29.0822319	-81.0556682
3071	1747040.0823	624549.9304	33.13	2" & 4" TEES	29.0822328	-81.0556544
3072	1747038.9916	624562.9675	33.46	2" & 4" TEES TIE IN EXIST	29.0822317	-81.0556397
3073	1747029.9055	624596.1446	38.57	2" & 4" TEES	29.0822228	-81.0556023
3074	1747031.2584	624599.2369	38.10	2" & 4" 90° CUT	29.0822241	-81.0555988
3075	1745546.0807	624670.4681	33.12	2" AIR VALVE	29.0807538	-81.0555171
3076	1745548.1716	624666.7522	33.36	4" FM VALVE	29.0807558	-81.0555213

LEGEND

- LIMITS OF LINER
- LIMITS OF CONSTRUCTION
- 1080 — EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- LFG PIPE TO BE ABANDONED
- LFG PIPE ABANDONED IN PLACE
- NEW HDPE SDR 17 LFG HEADER (SIZE VARIES)
- HP — DENOTES HIGH POINT IN HEADER
- NEW HDPE SDR 11 LATERAL PIPE (SIZE VARIES)
- EXISTING LFG HEADER PIPE (SIZE VARIES)
- EXISTING LFG LATERAL PIPE (SIZE VARIES)
- EXISTING LFG HORIZONTAL PIPE (SIZE VARIES)
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND LEACHATE FORCEMAIN
- LCR-1 — EXISTING LEACHATE CLEANOUT RISER
- HC-7B — EXISTING HORIZONTAL LFG WELLHEAD
- EW-1 — EXISTING LFG WELL
- LCRS — EXISTING LEACHATE RISER SUMP
- CS-2 — EXISTING CONDENSATE SUMP
- EXISTING HEADER ISOLATION VALVE
- ISOLATION VALVE
- CS-2 — CONDENSATE SUMP
- EW-1 — LFG WELL
- EW-24 — CONNECTION TO EXISTING VERTICAL WELLS
- EW-16AR — UPSLOPE WELLHEAD
- AP-2 — ACCESS POINTS
- 30.64 20 — SURVEY MONUMENTS
- CP-3 — CONNECTION POINTS TO EXISTING LFG SYSTEM

D C B A

AS-BUILT LEGEND

WATER SERVICE; COUPLING OR SLEEVE; GV GV GATE VALVES; BUTTERFLY OR GEARED GATE VALVE; CROSSES; TEES/TAPPING SLEEVES; BENDS; VERTICAL BEND; WM WM WATER METERS; AIR RELEASE VALVES; BACKFLOW PREVENTER; REDUCERS; PLUG; BLOW OFF/SERVICE; CD CLEAN OUTS; SEWER SERVICE; SANITARY MANHOLE

FH FIRE HYDRANTS; FIRE DEPARTMENT CONNECTION; STORM INLET/CONTROL STRUCTURE; MITERED END SECTION/ENDWALL; STORM MANHOLE; HEADWALL; SANITARY MANHOLE; LP LIGHT POLES; 0+00 O/L OR 0+00 O/R; STA: 0+00 OFFSET: 0'LT OR STA: 0+00 OFFSET: 0'RT; DESIGNATES STATION AND OFFSET LEFT OR RIGHT; GROUND ELEVATION; HARDSCAPE ELEVATION

AS-BUILT ABBREVIATIONS:

SW=SINGLE WATER SERVICE
DW=DOUBLE WATER SERVICE
SS=SINGLE SEWER SERVICE
DS=DOUBLE SEWER SERVICE
SR=SINGLE REUSE SERVICE
DR=DOUBLE REUSE SERVICE
SERV=SERVICE
WTR=WATER
WL AND W/L=WATERLINE
WM AND W/M= WATER MAIN
FL=FIRELINE IRG=IRRIGATION
RWM=RAW WATER MAIN
RU = RE-USE WATER
FM AND F/M = FORCE MAIN
SAN = SANITARY STM=STORM
LPS=LOW PRESSURE SEWER
UD=UNDERDRAIN SVC=SERVICE
SD= STORM DRAIN
FDC=FIRE DEPARTMENT CONNECTION I.D.=INSIDE DIAMETER
SPC=STATE PLANE COORDINATE MJ=MECHANICAL JOINT
ERCP-ELLIPTICAL REINFORCED CONRETE PIPE
ID=IDENTIFICATION GEN=GENERATOR A/C=AIR CONDITIONER
N&D=NAIL AND DISK IRC=IRON ROD AND CAP LB=LICENSED BUSINESS NGS=NATIONAL GEODETIC SURVEY ADA=AMERICANS WITH DISABILITIES ACT
WV = WATER VALVE
GV = GATE VALVE
PV=PLUG VALVE
BFV=BUTTERFLY VALVE
FH AND F/H= FIRE HYDRANT
FS=FIRE SERVICE
RED=REDUCER BO=BLOW OFF
TS&V=TAPPING SLEEVE AND VALVE
ARV=AIR RELEASE VALVE
CR=CROSS CO AND C/O=CLEANOUT
BFP=BACKFLOW PREVENTER
ASSY=ASSEMBLY
NR=NOT RAISED NS=NOT SET
NTS=NOT TO SCALE
GRND=GROUND ELEVATION
TOE=TOE OF SLOPE TC=TOP COVER
RD=ROOF DRAIN ELEC=ELECTRIC
SA=SLIGER AND ASSOCIATES INC.
R=RADIUS IRR=IRRIGATION
RCP=REINFORCED CONCRETE PIPE
PVC =POLY VINYL CHLORIDE
DIP=DUCTILE IRON PIPE
CIP=CAST IRON PIPE
HDPE=HIGH DENSITY POLYETHYLENE
CCP=CORRUGATED PLASTIC PIPE
CMP=CORRUGATED METAL PIPE
ASPH=ASPHALT CONC = CONCRETE
PVMT=PAVEMENT PERF=PERFORATED
FOW=FRONT OF WALK
BOW=BACK OF WALK SDW=SIDEWALK
BOC=BACK OF CURB
EP AND E/P=EDGE OF PAVEMENT
EOP=END OF PIPE HH=HANDHOLE
MH=MANHOLE MB=METER BOX
HDWL=HEADWALL JB=JUNCTION BOX
DCS=DRAINAGE CONTROL STRUCTURE
MES=MITERED END SECTION
LWB=LOCATOR WIRE BOX
POLY=POLYETHYLENE TUBING
NGVD=NATIONAL GEODETIC VERTICAL DATUM
USC & GC=UNITED STATES COAST AND GEODETIC SURVEY
NAVD=NORTH AMERICAN VERTICAL DATUM R/W=RIGHT OF WAY
STA=STATION OS AND O/S=OFFSET
L AND LT=LEFT R AND RT=RIGHT
DIST=DISTANCE LF = LINEAR FEET
BM=BENCHMARK BLDG=BUILDING
TYP=TYPICAL TEMP=TEMPORARY
MAINT=MAINTENANCE EXIST=EXISTING
CL AND C/L=CENTERLINE PNT=POINT
PL AND P/L=PROPERTY LINE
BL AND B/L=BASE LINE
DDR=DIRECTIONAL DRILL REPORT
I/P/C=INFORMATION PER CONTRACTOR
TOP=TOP OF PIPE TON=TOP OF NUT
INV=INVERT PP=POWER POLE
EL AND ELEV=ELEVATION VERT=VERTICAL
TOB=TOP OF BANK COR=CORNER
EOW=EDGE OF WATER H/C=HANDICAP
SP=SPACE &=AND
LAT=LATITUDE W/ =WITH
LON=LONGITUDE R=RADIUS
FG=FINISHED GRADE

REVISION # DATE: BY:

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PROFESSIONAL LAND SURVEYORS
LICENSED BUSINESS CERTIFICATION # 3019
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3921 NOVA ROAD • PORT ORANGE, FL 32127 • (386) 761-5385
WWW.SLIGERASSOCIATES.COM

AS-BUILT SURVEY

SURVEYOR'S NOTES NOTICE:
THIS IS NOT A BOUNDARY SURVEY.
THERE MAY BE ADDITIONAL RESTRICTIONS AND/OR OTHER MATTERS THAT ARE NOT SHOWN ON THIS PLAT OF SURVEY/SKETCH OF DESCRIPTION THAT MAY BE FOUND IN THE PUBLIC RECORDS OF THIS COUNTY.
THIS SURVEY/ SKETCH PREPARED WITHOUT BENEFIT OF AN ABSTRACT.
DIMENSIONS ARE SHOWN IN FEET AND DECIMALS THEREOF.
UNLESS OTHERWISE SHOWN, RECORD DISTANCES AND DIRECTIONS AND FIELD MEASURED DISTANCES AND DIRECTIONS ARE THE SAME.
UNDERGROUND FOUNDATIONS, IF ANY, NOT LOCATED.
THE PERCENT OF SLOPE DEPICTED ON SANITARY SEWER AND/OR STORM SEWER LINES WAS DERIVED FROM PIPE INVERT DATA ACQUIRED ONLY AT THE STRUCTURES AT THE TERMINATION OF THE UTILITY LINE. THE REMAINDER OF THE UTILITY LINE WAS NOT VISUALLY INSPECTED BY THE SURVEYOR.
AS-BUILT PIPE LENGTHS ARE MEASURED TO CENTERLINE OF MANHOLES, CLEAN OUTS, JUNCTION BOXES, INLETS, YARD DRAINS, THE END OF MITERED END SECTIONS AND OUTSIDE EDGE OF HEADWALLS.
DIRECTIONAL DRILLS ARE LOCATED USING MARKER PIPES AT THE ENDS OF PIPE ONLY, THE APPROXIMATE ROUTE DEPICTED ON THIS DRAWING IS GENERATED FROM THE DRILL REPORTS AND INFORMATION FROM THE CONTRACTOR AND MAY NOT BE THE ACTUAL LOCATION WHICH WAS NOT VISUALLY LOCATED.
PRESSURE PIPE LOCATION AND ELEVATION DETERMINED FROM MARKER PIPES SET BY CONTRACTOR.
ELEVATIONS BASED ON SITE DATUM.

NOT A BOUNDARY SURVEY.
AS-BUILT SURVEY OF:
SANITARY SEWER FORCE MAIN & FITTINGS
SANITARY SEWER GRAVITY LINE & SERVICES
POTABLE WATERMAIN, VALVES, FITTINGS, & SERVICES
FIRE LINE, VALVES, FITTINGS, & SERVICES
RECLAIM WATERMAIN, VALVES, FITTINGS & SERVICES
STORM SEWER PIPE/STRUCTURES
PAVING/CURB
GRADING
RETENTION/SWALE AREAS
ABOVE GROUND IMPROVEMENTS AS DIRECTED BY CLIENT
GAS MAIN, VALVES, FITTINGS & SERVICES
ELECTRIC

-INDICATES AS-BUILT INFORMATION
AS-BUILT SURVEY 03-09-2013
LAST FIELD DATE
JOB # 13-0201 CAD TECH: JM CHECK: JZ

SURVEYOR'S CERTIFICATE
I HEREBY CERTIFY THAT THIS PLAT MEETS THE MINIMUM TECHNICAL STANDARDS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 5J-17.05, FLORIDA ADMINISTRATIVE CODE, PURSUANT TO SECTION 472.027, FLORIDA STATUTES.

J.E. ZAPERT, P.L.S. NO. 4046
STEVEN T. KRUGER, P.L.S. NO. 4722
C.O. VAN KLEECK, JR., P.S.M. NO. 6149
MICHAEL S. MURPHY P.S.M. NO. 6208

"NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER."

5-23-13

HDR
HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
1	09/11	DRAFT

PROJECT MANAGER	C. LEBRON, P.E.
DESIGNED BY	M. AUSTIN
DESIGNED BY	
DESIGNED BY	
DRAWN BY	M. AUSTIN
CHECKED BY	
PROJECT NUMBER	0000000000170244

Volusia County
FLORIDA

CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA
NOT FOR CONSTRUCTION

PHASE III - PART A
LFG SYSTEM EXPANSION

0 1" 2"

FILENAME	00LFG-01.dwg
SCALE	AS SHOWN

SHEET
00LFG-01-1