WASTE MANAGEMENT

VISTA LANDFILL, LLC
242 W. Keene Road
Apopka, FL 32703

October 9, 2013

Mr. Thomas Lubozynski, P.E.
Florida Department of Environmental Protection (FDEP)
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803

RECEIVED
OCT 10 2013
DEP Central Dist.

Subject: Orange County – SW WACS# 87081
Vista landfill Class III, DEP Permit No. SO48-0165969-020
Section 2 – Specific Condition E. Gas Management System Requirement No. 3
Gas System Certification of Construction Completion Report
2013 Gas Collection System Expansion Project **Event No. 2**

Dear Mr. Lubozynski:

Please find enclosed two original copies of the subject reports dated July 2013 prepared by Carlson Environmental Consultants, PC (CEC). The enclosed report documents the subject construction event.

Construction activities began July 22, 2013 with completion on July 31, 2013. Construction consisted of installing three horizontal gas extraction wells, wellheads and lateral pipe and fittings.

Notice was provided prior to starting and construction was completed in accordance with the approved gas management system design, drawings, and specifications approved the subject DEP Permit.

If you have any questions during your review, please feel free to contact me at 407-902-1469, sgrant@wm.com or Seth Nunes, P.E. of CEC, at 863-634-7185, snunes@cecenv.com.

Sincerely,

Sheree Grant
Waste Management Florida Market Area Engineer

C: Kim Rush, P.E., FDEP Solid Waste
Jay Davoll, P.E. City of Apopka Engineer
John Kasper, P.E. Orange County EPD Air Program
Craig Pelton, – WMIF Gas Operations Manager
Deborah Perez, WMIF District Manager
Paul Bermillo, WMIF Environmental Protection Manager
Seth Nunes, P.E., CEC Engineer of Record

From everyday collection to environmental protection, Think Green® Think Waste Management.

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CEC

CARLSON ENVIRONMENTAL CONSULTANTS, PC

LANDFILL GAS, AIR PERMITTING, AND REGULATORY COMPLIANCE SERVICES

September 3, 2013

Mr. Craig Pelton
Gas Operation Manager
Vista Landfill LLC
242 West Keene Road
Apopka, Florida 32703

Subject: Construction Certification Report
Landfill Gas Collection System Expansion – 2013 Phase 2
Vista Landfill – Apopka, Florida

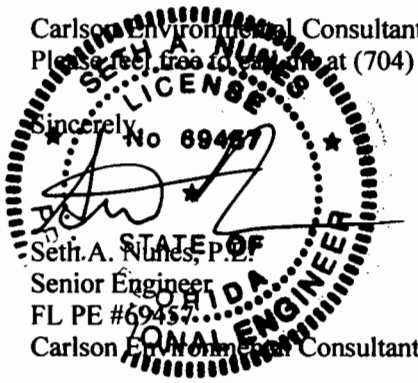
Dear Mr. Pelton:

Per your request, Carlson Environmental Consultants, PC (CEC) is submitting this Construction Certification Report to Vista Landfill LLC (VLL) for the gas collection system expansion project (Project) at the Vista Landfill (Landfill) located in Apopka, Florida. This certification report documents the construction activities from the beginning of construction of the landfill gas collection system expansion on July 22, 2013 through final completion of the construction project on July 31, 2013. The Construction Certification Report provides a project description, daily field reports, construction photographs, additional construction documentation, and final as-built drawings.

Based on the information provided to CEC by VLL and by CEC's on-site inspections, it is my professional opinion that the landfill gas collection system expansion project was performed in accordance with the Project Plans and Specifications or the documented modifications depicted in this Report. A signed and sealed Certification of Construction Completion of a Solid Waste Management Facility (DEP Form 62-701.900(2)) is attached to this letter.

Carlson Environmental Consultants, PC is pleased to have assisted Vista Landfill LLC with this project. Please feel free to call me at (704) 283-9765 if you have any questions or require additional information.

Sincerely,



Seth A. Nunes, P.E.
Senior Engineer
FL PE #69457
Carlson Environmental Consultants, PC

RECEIVED
OCT 10 2013
DEP Central Dist.

Attachments

cc: Ms. Sheree Grant – VLL
Ms. Deborah Perez - VLL

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

1479 SCILLY CAY LANE
JUPITER, FL 33458
OFFICE 863.634.7185

Reset Form | Print Form

Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form # 62-701.900(2)
Form Title Certification of Construction Completion of a Solid Waste Management Facility
Effective Date May 19, 1994

Certification of Construction Completion of a Solid Waste Management Facility

DEP Construction Permit No: SO48-0165969-020 County: Orange

Name of Project: 2013 LFG System Expansion - Phase 2

Name of Owner: Vista Landfill, LLC

Name of Engineer: Carlson Environmental Consultants, PC - Seth A. Nunes, P.E.

Type of Project: Landfill Gas System Expansion Construction

Cost: Estimate $50,000 Actual $ 50,000

Site Design Quantity: 2,500 ton/day Site Acreage: 102 Acres

Deviations from Plans and Application Approved by DEP (attach additional pages as needed):

No substantial deviations from the Plans, see attached Certification Report.

Address and Telephone No. of Site: 242 West Keene Road, Apopka, Florida 32703

Telephone: (407) 886-2920

Name(s) of Site Supervisor: Deborah Perez

Date Site inspection is requested: As soon as possible

This is to certify that, with the exception of any deviation noted above, the construction of the project has been completed in substantial accordance with the plans authorized by Construction

Permit No.: SO48-0165969-020 Dated: November 29, 2012

Date: September 3, 2013

SETH A. NUNES LICENSE No. 69457 STATE OF FLORIDA PROFESSIONAL ENGINEER

Signature of Professional Engineer

Northwest District
160 Governmental Center
Pensacola, FL 32501-5794
850-595-8360

Northeast District
7825 Baymeadows Way, Ste. B200
Jacksonville, FL 32256-7590
904-448-4300

Central District
3319 Maguire Blvd., Ste. 232
Orlando, FL 32803-3767
407-894-7555

Southwest District
3804 Coconut Palm Dr.
Tampa, FL 33619
813-744-6100

South District
2295 Victoria Ave., Ste. 364
Fort Myers, FL 33901-3881
941-332-6975

Southeast District
400 North Congress Ave.
West Palm Beach, FL 33401
561-681-6600

CONSTRUCTION CERTIFICATION REPORT

2013 LANDFILL GAS COLLECTION SYSTEM EXPANSION
PHASE II
VISTA LANDFILL – APOPKA, FLORIDA

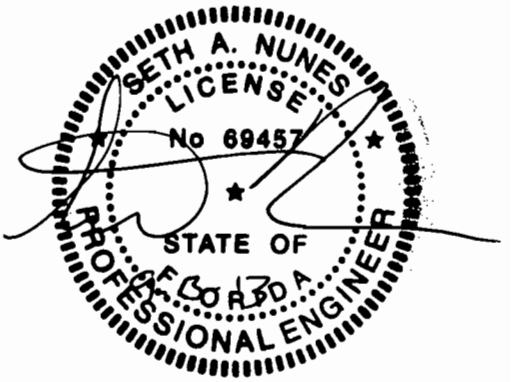
Presented to:

Vista Landfill, LLC
242 West Keene Road
Apopka, FL 32703
(407) 886-2920

By:

Carlson Environmental Consultants, PC
305 South Main Street
Monroe, NC 28112
(704) 283-9765

September 2013



CONSTRUCTION CERTIFICATION REPORT
2013 LANDFILL GAS COLLECTION SYSTEM EXPANSION – PHASE II
VISTA LANDFILL – APOPKA, FLORIDA

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- PEAVEY & ASSOCIATES, INC.
- CEC

APPENDIX A

PROJECT SUMMARY

PROJECT SUMMARY
2013 LANDFILL GAS COLLECTION SYSTEM EXPANSION – PHASE II
VISTA LANDFILL – APOPKA, FLORIDA

Project Timeframe: July 22, 2013 to July 31, 2013

Parties Involved:

Site Owner: Vista Landfill LLC (VLL)
242 West Keene Road
Apopka, FL 32703
Phone: (407) 886-2920

VLL Gas Operations Manager: Craig Pelton
VLL District Manager: Deborah Perez
VLL Market Area Engineer: Sheree Grant

Contractor: Ryan's Services, Inc.
7356 NW 83rd Ct.
Okeechobee, FL 34972
Phone: (863) 634-1673

RSI Construction Superintendent: Ryan Casperson
RSI Foreman/Operator: Kevin Casperson

Surveyor: Peavey & Associates Survey & Mapping PA (Peavey)
9399 North Lake Buffum Road
Fort Meade, FL 33841
Phone: (863) 738-4960

Peavey Surveyor: Deborah L. Peavey, P.S.M.

Design Drawings & Specifications:

Bid Drawings: No Bid Drawings or Bid Documents were prepared for this Project.

Project Description:

LFG Horizontal Collectors

The LFG system was expanded into Cell 3 by installing three (3) horizontal collectors and connecting them to the existing gas collection system.

New Horizontal Collectors Installed

HC-5	HC-6
HC-7	

The horizontal collectors were constructed of solid and perforated 6-inch SDR 17 HDPE piping. The design for horizontal collectors consisted of excavating a trench sloping toward a low point or horizontal collector sump at a minimum of 3% slope. The low point or horizontal collector sump is an over-excavation along the trench line to assist in draining liquids from the horizontal collector and is backfilled with stone material. The trench is then backfilled with approximately 12-inches of stone material. Next, the 6-inch SDR 17 perforated pipe is placed in the center of the trench. An additional 12-inches of stone material is then placed over the top of the perforated piping. The stone material is then covered with a layer of geotextile fabric along the length of the trench. The horizontal collector is then backfilled with previously excavated materials and bucket compacted to its pre-construction grades.

The three (3) horizontal collectors were installed between 200-250 feet from the Cell 3 perimeter berm with 150-200 feet spacing between each horizontal collector. Each horizontal collector is approximately 400 feet long.

LFG Piping

The 6-inch SDR 17 perforated HDPE piping transitions to 6-inch SDR 17 solid HDPE piping at the toe of the Cell 2/Cell 3 slope. From this location solid 6-inch SDR 17 HDPE piping extends up the Cell 2 slope for connection to the existing LFG collection system. For HC-5 and HC-6, the solid lateral piping extends up the slope to the existing vacuum riser located adjacent to EW-7. At this location the vacuum riser is modified to allow for connection of three (3) wellheads at one location (HC-5, HC-6, and EW-7). For HC-7, the solid lateral piping extends up the slope to the existing vacuum riser located adjacent to EW-8. At this location the vacuum riser was modified to allow for connection of two (2) wellheads at one location (HC-7 and EW-8). The solid lateral piping was covered with approximately 6-inches of clean soil along the slope of Cell 2.

APPENDIX B

DAILY FIELD REPORTS

CEC

CARLSON ENVIRONMENTAL CONSULTANTS, PC

LANDFILL GAS, AIR PERMITTING, AND REGULATORY COMPLIANCE SERVICES

Site:	Vista Landfill	**Date:**	7/22/2013	**Day of Week:**	Monday
Temperature:	90°/75°	**Weather:**	PC afternoon rain		
Time Onsite:	9:45 am	**Time Leaving:**	5:00 pm		

Labor - Employees	Hours		Labor	Hours	
Peter J. Walls	7.50				

EQUIPMENT	EQUIPMENT
Back hoe	
Bobcat	

Instrument Calibration (Cal. Gas)		CH4 (%-VOL)	CO2 (%-VOL)	O2 (%-VOL)
Inst. Model	Serial Number			
Cal Gas Manufacturer	Manufacture Date	Expiration Date	Lot / ID number	

Work Performed – Description of Item (Example, Monitoring, SEM, etc)	Contractor:
Preconstruction Meeting and start work.	Ryan's Service, Inc.

Notes:

Ryan is getting equipment ready and his men start fusion welding 6" SDR 17 HDPE perforated pipe together in 200 foot lengths. Preconstruction meeting was held at 10:30 until lunch time. The project was discussed to point out limits and requirements for this project. The horizontal collectors were discussed and were recommended to be set to a 4% grade. The northern line was set up with a surface that was going straight across while the other two had step ups as the current floor stepped up on the new waste lift. Discussed how to set the pipes. The northern and central lines would connect into EW-7 and the southern line would connect into EW-8. Discussed the issue of having to move the railway ties. Waste Management wanted everything done this week and could stay beyond the landfill hours. Had to close up what they had opened by the end of the day. Ryan asked if they ended not at the end of the well at the end of the day then could they leave a little of the trench open as long as they placed barriers around the hole to prevent someone accidently falling in. Waste Management agreed to this.

After lunch, Ryan and I laid out the 3 lines for the horizontal collectors. 170' from the northern toe of slope to the first line and then 150' btw this line and the next two lines. The last line is about 220' from the southern berm of Cell 3. Ryan started clearing the railway ties from the toe of the slope for the northern central line. He is ready to start digging tomorrow morning and his men are still fusion welding the pipe into 200' sticks.

Ryan stopped work today at 5 pm.

CEC

CARLSON ENVIRONMENTAL CONSULTANTS, PC

LANDFILL GAS, AIR PERMITTING, AND REGULATORY COMPLIANCE SERVICES

Site:	Vista Landfill	**Date:**	7/23/2013	**Day of Week:**	Tuesday
Temperature:	85°/73°	**Weather:**	MC rain lunch time		
Time Onsite:	7:30 am	**Time Leaving:**	6:45 pm		

Labor - Employees	Hours		Labor	Hours	
Peter J. Walls	10.0				

EQUIPMENT	EQUIPMENT
Back hoe	
8 yd Off-road Truck	
Bobcat	

Instrument Calibration (Cal. Gas)		CH4 (%-VOL)	CO2 (%-VOL)	O2 (%-VOL)
Inst. Model	Serial Number			
Cal Gas Manufacturer	Manufacture Date	Expiration Date	Lot / ID number	

Work Performed – Description of Item (Example, Monitoring, SEM, etc)	Contractor:
Excavate and install perforated pipe and stone.	Ryan's Service, Inc.

Notes:

Ryan's men continue fusion welding 6" SDR 17 HDPE perforated pipe together in 200 foot lengths. They also are welding the 6" SDR 17 HDPE solid pipe together in 200 foot lengths. They also inventoried the shipment of supplies from ISCO. The following is a list of the materials delivered:

1240 feet - 6" SDR 17 perforated pipe
1000 feet - 6" SDR 17 solid pipe
3 – 6" HDPE butt caps
4 well head assemblies
assorted elbows and Ts

Ten loads of stone was delivered to the site as ordered by Waste Management.

Ryan excavates the sump down 12 feet where protective sand is encountered at the start of the northern horizontal gas well line. The trench then starts 2 feet higher at 10 feet depth to slope up both across the cell and then up the slope of Cell 2. The grade across to the high point in the center of the cell was measured with a laser. For this to fit across on this line a 3% slope was used for this segment. Ryan was guided in excavating the trench by having the depth checked with every 10 feet of progress. In this segment the trench had to rise 0.3' for every 10' of length excavated. This was continued to the high point after 200' of excavation.

The bobcat was used to take the stone and place it in the sump (+2') and trench about a foot thick. A 40' stick of solid pipe was welded to a 200' length of perforated pipe. Another 200' length was welded to these. The pipe was laid in the trench with the solid going up the slope and the perforated starting in the sump. Another foot of stone was installed over the pipe and then a layer of geotextile was laid over the stone. C&D waste was then backfilled with a walk-in compaction by the back hoe over this

installation.

The excavation now continued down at a 4% grade from the high point. Ryan was guided in excavating the trench by having the depth checked every 10 feet. In this segment the trench had to lower 0.4' for every 10' of length excavated. For today, the excavation completed was 320' in length. Stone, perforated pipe and geotextile was installed over 290' leaving only 40' open. The hole was protected with equipment and tape overnight so that no one could accidently fall in the hole. The C&D waste had been walked in to close this trench for 280' of completed install of the northern horizontal gas well.

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CARLSON ENVIRONMENTAL CONSULTANTS, PC

LANDFILL GAS, AIR PERMITTING, AND REGULATORY COMPLIANCE SERVICES

Site:	Vista Landfill	**Date:**	7/24/2013	**Day of Week:**	Wednesday
Temperature:	87°/76°	**Weather:**	MC rain lunch time	on/off drizzle pm	
Time Onsite:	7:30 am	**Time Leaving:**	6:15 pm		

Labor - Employees	Hours		Labor	Hours	
Peter J. Walls	9.0				

EQUIPMENT	EQUIPMENT
Back hoe	
8 yd Off-road Truck	
Bobcat	

Instrument Calibration (Cal. Gas)		CH4 (%-VOL)	CO2 (%-VOL)	O2 (%-VOL)
Inst. Model	Serial Number			
Cal Gas Manufacturer	Manufacture Date	Expiration Date	Lot / ID number	

Work Performed – Description of Item (Example, Monitoring, SEM, etc)	Contractor:
Excavate and install perforated pipe and stone.	Ryan's Service, Inc.

Notes:

Ryan continues to excavate the northern trench until it is completed for a total of 380' in length. Ryan was guided in excavating the trench by having the depth checked every 10 feet of progress. In this segment, the trench had to lower 0.4' for every 10' of length excavated.

The bobcat was again used to take the stone and place it in the trench and end sump (+2') about a foot thick. The pipe was cut as needed to fit the trench, 380' total. The end of the pipe was covered and tied with a piece of geotextile since this is a low point and any fluid should easily flow into the protective cover sand. Another foot of stone was installed over the pipe and then a layer of geotextile was laid over the stone. C&D waste was then backfilled with a walk-in compaction by the back hoe over this installation of today. Lengths of pipe were installed vertically above the stone in the trench at the change of grades so that the as-built locations can be surveyed at the end of the project.

Ryan excavates the sump down 6 feet at the start of the central horizontal gas well line. The trench then starts 2 feet higher at a 4 foot depth to slope down across the cell and then up the slope on Cell 2. The trench grade was measured with a laser. A 4% slope was used for this segment. Ryan was guided in excavating the trench by having the depth checked with every 10 feet of progress. In this segment the trench had to lower 0.4' for every 10' of length excavated. This continued today across the cell for about 140' of trench that had been excavated.

The bobcat was used to take the stone and place it in the sump (+2') and trench about a foot thick. A 40' stick of solid 6" SDR 17 HDPE pipe was welded to a 200' length of 6" SDR 17 HDPE perforated pipe. Another 200' length was welded to these. The pipe was laid in the trench with the solid going up the slope where some soil support will be needed to keep a positive grade and the perforated starting in the sump and continuing along the trench. Another foot of stone was installed over the pipe and then a

layer of geotextile was laid over the stone. C&D waste was then backfilled with a walk-in compaction by the back hoe over this installation.

For today, the excavation of the central horizontal collector was completed for 140' in length. Stone, perforated pipe and geotextile was installed for 110' of length which leaves only 40' open. The hole was protected with equipment and tape overnight so that no one could accidently fall in the hole. The C&D waste had been walked in to close off 100' of this trench as completed for the central horizontal collector. To repeat the northern trench had been completely installed with its backfill for a total of 380'.

CEC

CARLSON ENVIRONMENTAL CONSULTANTS, PC

LANDFILL GAS, AIR PERMITTING, AND REGULATORY COMPLIANCE SERVICES

Site:	Vista Landfill	**Date:**	7/25/2013	**Day of Week:**	Thursday
Temperature:	86°/75°	**Weather:**	MC on/off drizzle pm		
Time Onsite:	7:30 am	**Time Leaving:**	6:15 pm		

Labor - Employees	Hours		Labor	Hours	
Peter J. Walls	9.0				

EQUIPMENT	EQUIPMENT
Back hoe	
8 yd Off-road Truck	
Bobcat	

Instrument Calibration (Cal. Gas)		CH4 (%-VOL)	CO2 (%-VOL)	O2 (%-VOL)
Inst. Model	Serial Number			
Cal Gas Manufacturer	Manufacture Date	Expiration Date	Lot / ID number	

Work Performed – Description of Item (Example, Monitoring, SEM, etc)	Contractor:
Excavate and install perforated pipe and stone.	Ryan's Service, Inc.

Notes:

Ryan continues to excavate the central horizontal collector in sections until it is completed for a total of 400' in length. Ryan was guided in excavating the trench by having the depth checked every 10 feet of progress. The excavation was continued at 4% down to the midway point (200'). In this segment the trench had to lower 0.4' for every 10' of length excavated. The sump was about 12 feet deep. In the next section, the trench was brought up at a 4% for 50', then 8% for another 50' and then back to 4% for the last 100'. This change in grade was to keep a positive flow to the sump and to allow a reasonable depth of the trench as it stepped up on the new lift. The trench grade was measured with a laser. 4 and 8 % slopes were used for this segment. Ryan was guided in excavating the trench by having the depth checked with every 10 feet of progress. In this segment the trench had to raise either 0.4' or 0.8', respectively, for every 10' of length excavated. This continued today across the cell until the central horizontal collector had been completed. Approximately another 10 loads of stone are delivered today.

The bobcat was used to take the stone and place it in the trench and sump (+2') about a foot thick. The 6" SDR 17 perforated pipe was fitted to the trench and a cap was placed on the end of the pipe. Another foot of stone was installed over the pipe and then a layer of geotextile was laid over the stone. C&D waste was then backfilled with a walk-in compaction by the back hoe over this installation of today. Lengths of pipe were installed vertically above the stone in the trench at the change of grades so that the as-built well locations can be surveyed at the end of the project. This was worked in sections until the horizontal was complete. FDEP makes a half hour visit to observe the installation of these wells in the morning around 10:30.

For today, the excavation of the central horizontal collector was completed, with 260' today. Stone, perforated pipe and geotextile was installed for 290' of length. The waste had been walked in to close off a 300' length of this trench as completed for the central horizontal collector today. This makes a total 400' length for the completed central horizontal collector, perforated length.

CEC

CARLSON ENVIRONMENTAL CONSULTANTS, PC

LANDFILL GAS, AIR PERMITTING, AND REGULATORY COMPLIANCE SERVICES

Site:	Vista Landfill	**Date:**	7/26/2013	**Day of Week:**	Friday
Temperature:	93°/75°	**Weather:**	PC and Sunny		
Time Onsite:	7:30 am	**Time Leaving:**	5:45 pm		

Labor - Employees	Hours		Labor	Hours	
Peter J. Walls	8.0				

EQUIPMENT	EQUIPMENT
Back hoe	
8 yd Off-road Truck	
Bobcat	

Instrument Calibration (Cal. Gas)		CH4 (%-VOL)	CO2 (%-VOL)	O2 (%-VOL)
Inst. Model	Serial Number			
Cal Gas Manufacturer	Manufacture Date	Expiration Date	Lot / ID number	

Work Performed – Description of Item (Example, Monitoring, SEM, etc)	Contractor:
Excavate and install perforated pipe and stone.	Ryan's Service, Inc.

Notes:

Ryan excavates the sump down 6 feet at the start of the southern horizontal collector line. The trench then starts 2 feet higher at a 4 foot depth to slope down across the cell and then up the slope on Cell 2. Ryan excavates the southern well trench in sections until it is completed for a total of 400' in length. Ryan was guided in excavating the trench by having the depth checked every 10 feet of progress. The excavation drops at 4% grade to the midway point (200'), the sump. In this segment the trench had to lower 0.4' for every 10' of length excavated. The second sump was about 12 feet deep. In the next half, the trench was brought up at a 4% for approximately 50', 8% for approximately 50' and then back to 4 % for the last 100' or so. This change in grade was to keep a positive flow to the sump and to allow a reasonable depth of the trench as it stepped up on the new lift. The trench grade was measured with a laser. 4 and 8 % slopes were used for this segment. Ryan was guided in excavating the trench by having the depth checked with every 10 feet of progress. In this segment the trench had to raise either 0.4' or 0.8', respectively, for every 10' of length excavated. This was done all in one day across the cell with the southern horizontal collector being completed.

The bobcat was used to take the stone and place it in the sumps (+2') and the trench about a foot thick. A 40' stick of solid pipe was welded to a 200' length of perforated pipe. Another 200' length was welded to these. The pipe was laid in the trench with the solid going up the slope and the perforated starting in the sump and going down. A cap was connected to the end of the pipe. Another foot of stone was installed over the pipe and then a layer of geotextile was laid over the stone. C&D waste was then backfilled with a walk-in compaction by the back hoe over this installation. Lengths of pipe were installed vertically above the stone in the trench at the change of grades so that the as-built locations can be surveyed at the end of the project. This was worked in sections until the horizontal collector was complete.

For today, a total of 400' length of trench was installed to complete the entire southern horizontal collector, perforated length.

CEC

CARLSON ENVIRONMENTAL CONSULTANTS, PC

LANDFILL GAS, AIR PERMITTING, AND REGULATORY COMPLIANCE SERVICES

Site:	Vista Landfill	**Date:**	7/29/2013	**Day of Week:**	Monday
Temperature:	90°/74°	**Weather:**	PC and Sunny		
Time Onsite:	8:30 am	**Time Leaving:**	5:00 pm		

Labor - Employees	Hours		Labor	Hours	
Peter J. Walls	8.0				

EQUIPMENT	EQUIPMENT
Back hoe	
8 yd Off-road Truck	
Bobcat	

Instrument Calibration (Cal. Gas)		CH4 (%-VOL)	CO2 (%-VOL)	O2 (%-VOL)
Inst. Model	Serial Number			
Cal Gas Manufacturer	Manufacture Date	Expiration Date	Lot / ID number	

Work Performed – Description of Item (Example, Monitoring, SEM, etc)	Contractor:
Excavate and install solid pipe and install well head.	Ryan's Service, Inc.

Notes:

Ryan excavates a shallow lateral trench from both the northern and central horizontal collectors with the back hoe up the slope of the landfill to gas extraction well EW-7. The 200' lengths of solid 6" HDPE SDR 17 pipe were welded to add-ons and to the two solid extensions that are attached to the two new horizontal collectors so that a wellhead for each horizontal collector can be installed at the EW-7 vacuum riser location. The new wellheads for HC-5 (northern horizontal collector) and HC-6 (central horizontal collector) are assembled and attached to the vacuum riser at EW-7. A couple of tees and an elbow are attached to the existing vacuum riser so that all 3 well heads can be connected to the same vacuum source.

Once these are completed then the lateral piping trenches are backfilled and soil is placed underneath the central horizontal collector lateral connection which is sitting off the ground at the base of the slope. This basically finishes the work for today and completes the construction of the northern and central horizontal collectors for this project. Ryan's staff is performing cleanup at the site.

CEC

CARLSON ENVIRONMENTAL CONSULTANTS, PC

LANDFILL GAS, AIR PERMITTING, AND REGULATORY COMPLIANCE SERVICES

Site:	Vista Landfill	**Date:**	7/30/2013	**Day of Week:**	Tuesday
Temperature:	91°/76°	**Weather:**	PC and Sunny		
Time Onsite:	7:30 am	**Time Leaving:**	4:00 pm		

Labor - Employees	Hours		Labor	Hours	
Peter J. Walls	8.0				

EQUIPMENT	EQUIPMENT
Back hoe	
8 yd Off-road Truck	
Bobcat	

Instrument Calibration (Cal. Gas)		CH4 (%-VOL)	CO2 (%-VOL)	O2 (%-VOL)
Inst. Model	Serial Number			
Cal Gas Manufacturer	Manufacture Date	Expiration Date	Lot / ID number	

Work Performed – Description of Item (Example, Monitoring, SEM, etc)	Contractor:
Excavate and install solid pipe and install well head.	Ryan's Service, Inc.

Notes:

Ryan excavates a shallow lateral trench from the southern horizontal collector with the back hoe up the slope of the landfill to gas extraction well EW-8. The 200' lengths of 6" SDR 17 HDPE solid pipe were welded to add-ons and to the solid extension that is attached to the new horizontal collector so that a wellhead for the new horizontal collector can be installed at the EW-8 location. The new wellhead is constructed and attached near the vacuum riser connection to EW-8. A tee and an elbow are attached to the existing vacuum riser so that both wellheads (one existing and one new horizontal collector) are connected to the same vacuum source. This was constructed.

Once this is completed then the lateral piping trench is backfilled. This basically completes the construction of the southern horizontal collector for this project today. This was completed in the morning. The surveyor is still coming out tomorrow in the morning. Ryan finds out where the site wants us to excavate soil to cover the flagging left on the slope after the installation of the solid pipes. The soil was hauled up to the top of the slope so that a 6" layer of soil can be pushed down on these sections of slope. Small amounts were hauled to the toe of the slope so that they could be pushed up the slope. Once the area was covered Ryan wheeled off the lengths of solid pipe that was put on the slopes. Ryan's staff is performing cleanup at the site. Ryan's staff exited the site for the day.

CEC

CARLSON ENVIRONMENTAL CONSULTANTS, PC

LANDFILL GAS, AIR PERMITTING, AND REGULATORY COMPLIANCE SERVICES

Site:	Vista Landfill	**Date:**	7/31/2013	**Day of Week:**	Wednesday
Temperature:	90°/75°	**Weather:**	PC and Sunny		
Time Onsite:	7:30 am	**Time Leaving:**	2:30 pm		

Labor - Employees	Hours		Labor	Hours	
Peter J. Walls	6.0				

EQUIPMENT	EQUIPMENT
Back hoe	
8 yd Off-road Truck	
Bobcat	

Instrument Calibration (Cal. Gas)		CH4 (%-VOL)	CO2 (%-VOL)	O2 (%-VOL)
Inst. Model	Serial Number			
Cal Gas Manufacturer	Manufacture Date	Expiration Date	Lot / ID number	

Work Performed – Description of Item (Example, Monitoring, SEM, etc)	Contractor:
Clean up and Survey and Walk through.	Ryan's Service, Inc.

Notes:

Ryan continues to clean up and to move all C&D waste that had not been put back into the trench, up to the working face. The clean-up included placing the extra pipe and wellhead up on top of the landfill as directed by landfill staff.

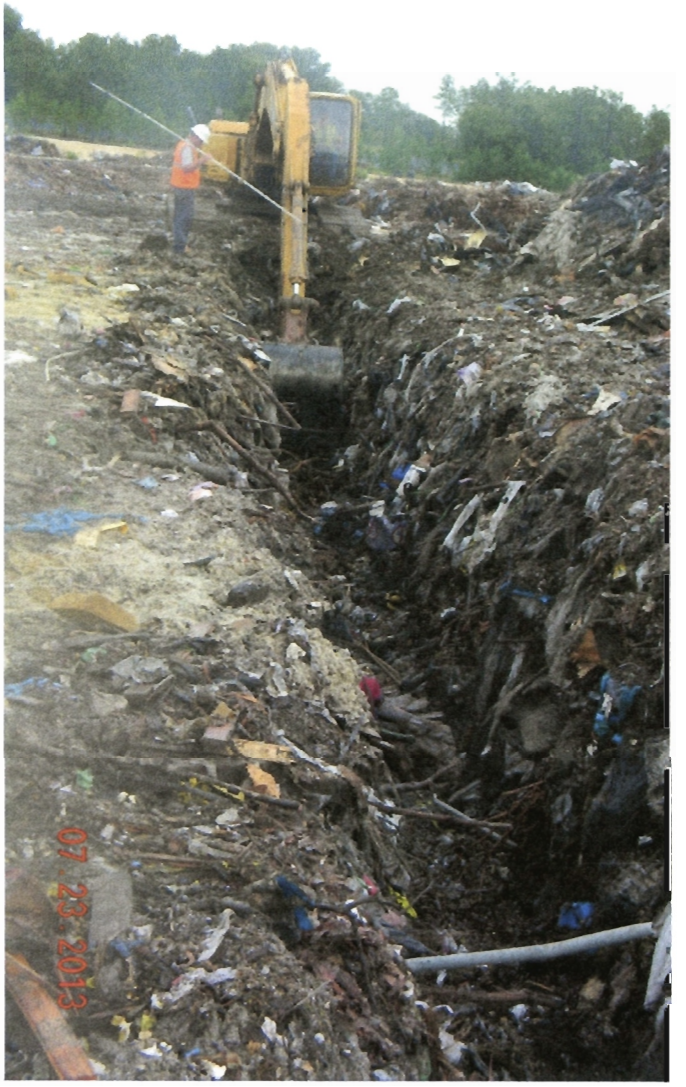
The surveyor showed up and I went around with him to make sure that he took all the necessary shots for the as-built drawing for this project. After the survey had been completed I went around to make sure the clean-up was complete with all extra pipe and supplies being put up on top of the landfill. The vertical pipes that were used for the survey were included with this clean-up. Ryan's staff finishes the cleanup of the site. Ryan's group leaves the site around 11 am having completed all their tasks.

Met up with Sheree Grant to perform a final walk through of the project in the early afternoon. Made a drive around the site to point out the key features of the project. Sheree appeared pleased with the way the site was left and with the way the completion of the project was performed. Mentioned that CEC staff had said they would be out for their regular operating adjustment of the gas system tomorrow and thus they would adjust these 3 new wellheads into the system at that time.

I left the site in early afternoon, having completed the project.

APPENDIX C

CONSTRUCTION PHOTOGRAPHS

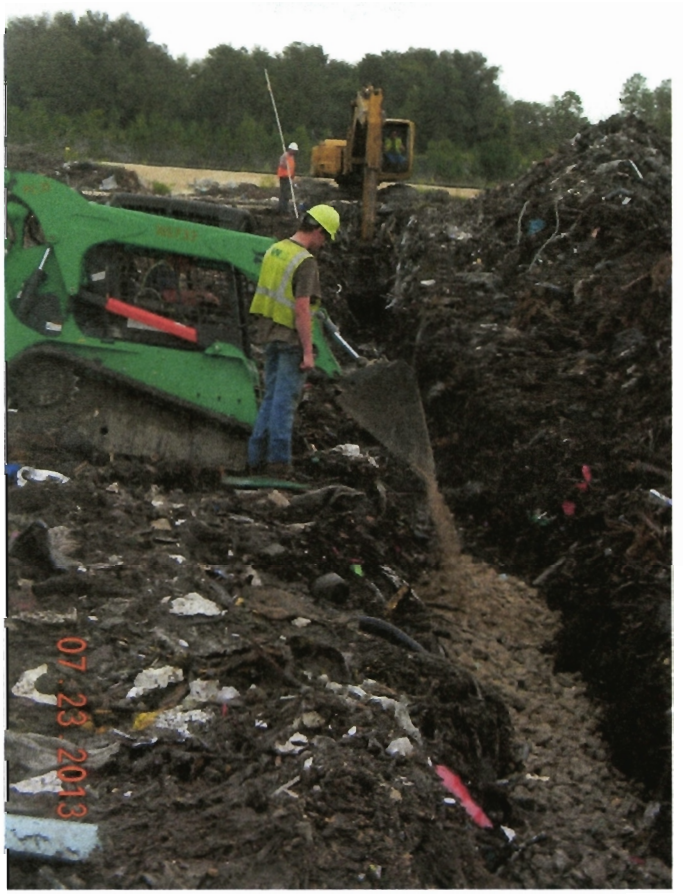


Excavating the northern horizontal collector trench.

The excavated horizontal collector trench with the first sump behind the PVC pipe.

The backhoe excavating the trench with the guide for checking the trench depth.

The guide checking the trench depth in 10-foot increments.



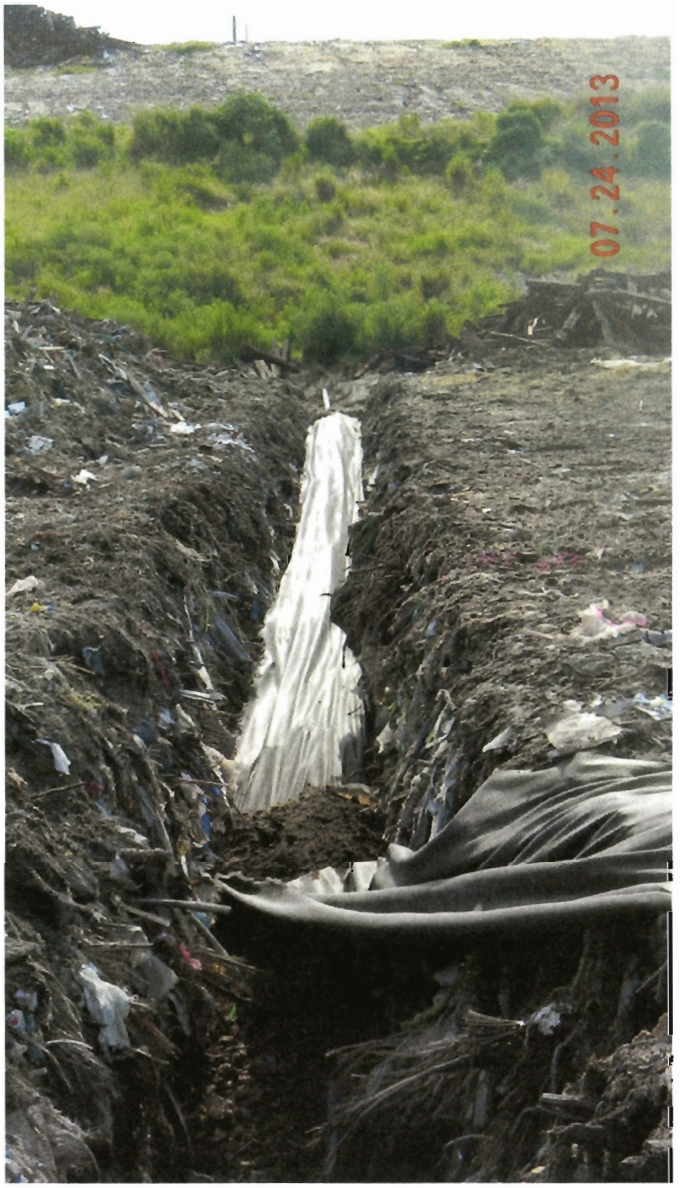
First layer of stone for the horizontal collector
is being placed.

First layer of stone has been placed while some of the excess C&D waste is being placed in an off-road truck which is then hauled to the landfill face for disposal.

Perforated 6" SDR 17 HDPE pipe and the top layer of stone for the horizontal collector is placed.

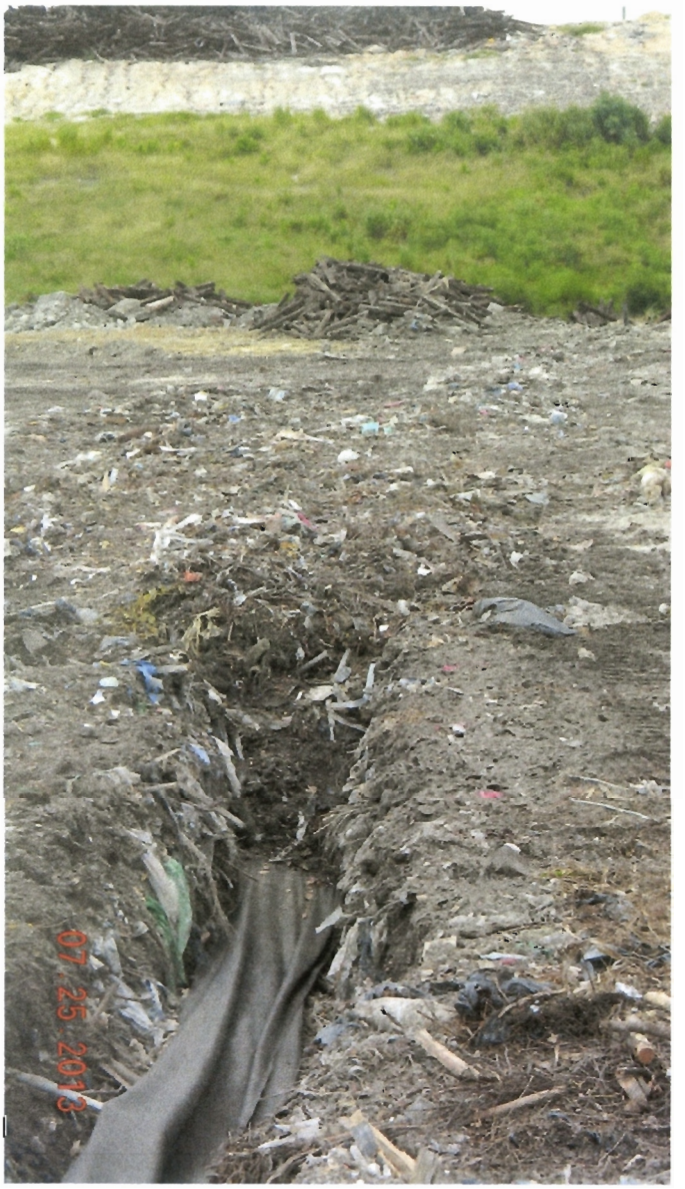
Perforated horizontal collector pipe with the top layer of stone being placed for the horizontal collector construction.

The horizontal collector pipe and stone in place in the trench.



Geotextile being placed over the stone in the horizontal collector trench.

Filling the remaining depth of the excavated trench over the geotextile in the with the previously excavated C&D. The C&D waste is walked in by the backhoe after it was placed for compaction.



C&D having been walked in over the geotextile
and the horizontal collector in the trench.

Completed horizontal collector installed with survey markers.

Southern horizontal collector installed with survey markers.

Shallow lateral trenches taken up the slope for the wellheads to be installed for both the northern, HC-5 (left) and central, HC-6 (right) horizontal collectors next to existing gas extraction well EW-7 vacuum riser.

Shallow lateral trench taken up the slope for the wellhead to be installed for the Central, HC-6 horizontal collector (see straight across the landfill floor) with the existing gas extraction well EW-7 to its left. The alignment of the southern horizontal (HC-7) is on the landfill floor to the far right.

Fusion welding the tees and elbows for header connections for the 3 wellheads (see below).

The two well heads for the north (HC-5) and central (HC-6) horizontal collectors now attached to the vacuum riser of gas extraction well EW-7.

Backfilling the shallow trench for the lateral pipe
up to the central horizontal collector (HC-6) for the wellhead.

The wellhead for the south horizontal collector (HC-7) (on left) installed and attached to the vacuum riser of gas extraction well EW-8 (on right).

The shallow lateral trench for the 6" SDR 17 HDPE pipe had been backfilled up to the wellhead for HC-7.

Pushing the 6 inches of clean soil over the disturbed areas from the installation of the lateral piping up the slope to the wellheads.

The shallow lateral trenches for the northern and central horizontal collectors have been covered with clean soil on the slope; see the V shape on the right side of the photo.

The shallow trench for the solid pipe has been backfilled up from the south horizontal collector (HC-7) to its wellhead on top of the slope adjacent to EW-8.

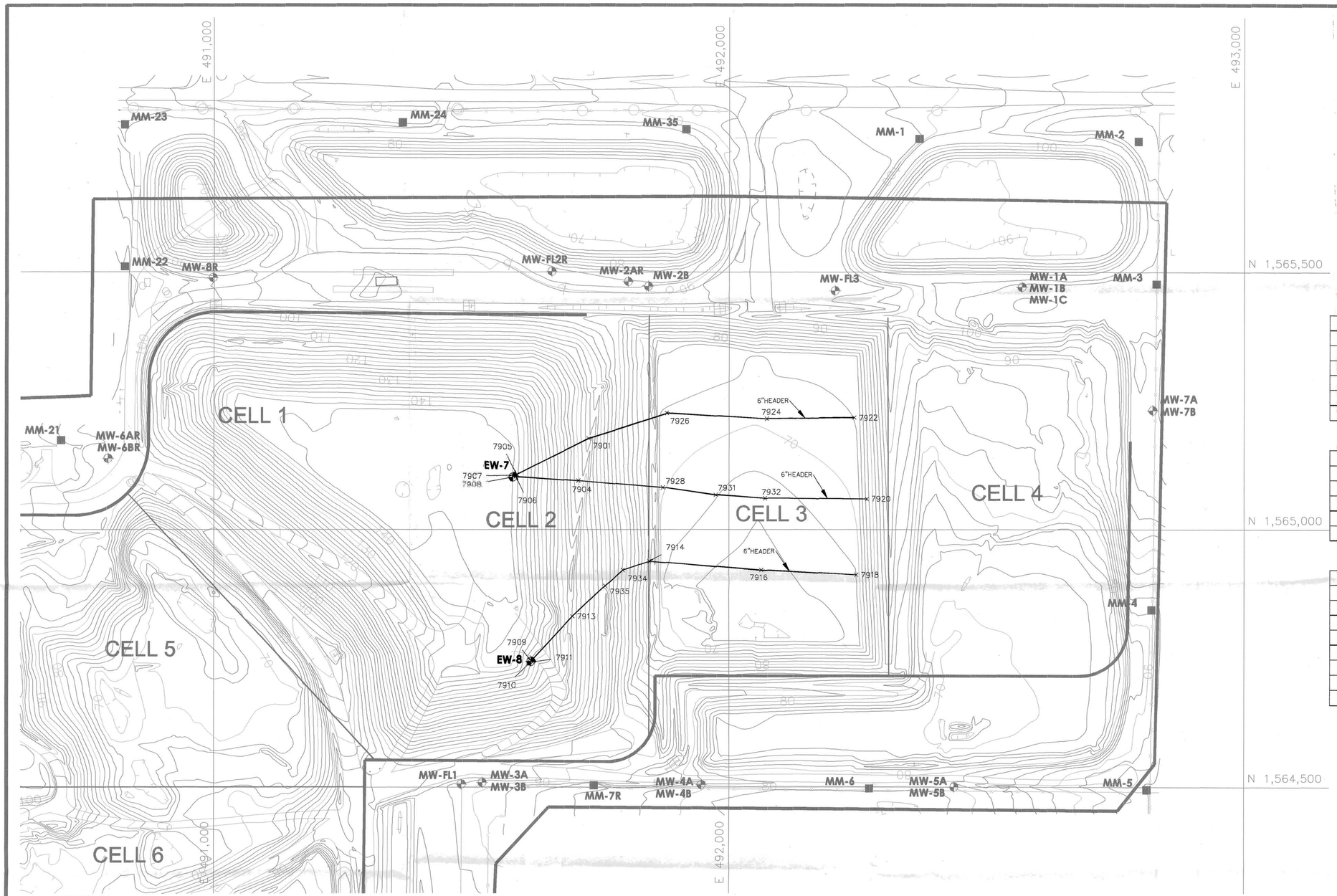
The shallow lateral trench for the southern horizontal collector has been covered with clean soil on the slope; see the central part of the photo.

This is the start of the central horizontal collector, HC-6 (marker pipe with red on top). Solid pipe comes out of C&D waste and is exposed at the base of the slope. This is where the pipe had to have soil placed under the pipe to provide support for it.

APPENDIX D

AS-BUILT DRAWINGS

Peavey & Associates, Inc.



AS-BUILT POINT DATA TABLE

Point number	Northing	Easting	Elevation	Ground Elevation	Description
7907	1565104.58	491581.19	141.84	142.70	6" lateral
7908	1565101.71	491581.45	141.77		ew 7 well
7905	1565105.65	491588.04	141.33		6" lateral
7901	1565175.51	491727.70	102.94	105.61	top 6" header
7926	1565224.30	491879.13	76.53	80.99	top gravel
7924	1565213.79	492073.24	80.33	83.33	top gravel
7922	1565216.02	492242.35	75.79	86.88	top gravel
7906	1565101.63	491586.61	141.02	142.70	6" lateral
7904	1565093.76	491707.39	108.07	110.90	top 6" header
7928	1565081.34	491871.59	77.90	80.91	top gravel
7931	1565066.78	491974.33	75.10	82.35	top gravel
7932	1565060.54	492069.94	72.56	82.25	top gravel
7920	1565059.25	492267.22	87.40	90.95	top gravel
7909	1564742.91	491615.61	137.15		ew8 well
7910	1564740.41	491614.31	137.21	137.89	6" lateral
7911	1564740.90	491618.57	136.33		6" lateral
7913	1564829.65	491696.33	119.63	126.37	top 6" header
7934	1564920.67	491793.98	-		6" header
7935	1564890.05	491759.48	-		6" header
7914	1564937.96	491845.10	79.72	82.78	top gravel
7916	1564921.04	492062.87	73.04	80.00	top gravel
7918	1564911.73	492246.99	86.65	90.95	top gravel

LEGEND

EXISTING FEATURES

- PROPERTY BOUNDARY
- PERMITTED LIMITS OF WASTE
- 10-FOOT CONTOUR LINE
- 2-FOOT CONTOUR LINE
- CELL BOUNDARY
- GROUNDWATER MONITORING WELL
- METHANE MONITORING DATA
- LFG HEADER/LATERAL
- LFG AIR SUPPLY LINE
- LFG CONDENSATE FORCEMAIN
- LFG HORIZONTAL COLLECTOR
- LFG WELLHEAD
- HORIZONTAL COLLECTOR SUMP

PROPOSED LFG 2013

- LFG HEADER/LATERAL
- LFG AIR SUPPLY LINE
- LFG CONDENSATE FORCEMAIN
- EW-5 LFG VERTICAL EXTRACTION WELL
- CS-3 LFG CONDENSATE SUMP
- LFG AIR/FM STUB UP
- LFG HEADER SAMPLE PORT
- LFG AIR/FM VALVES

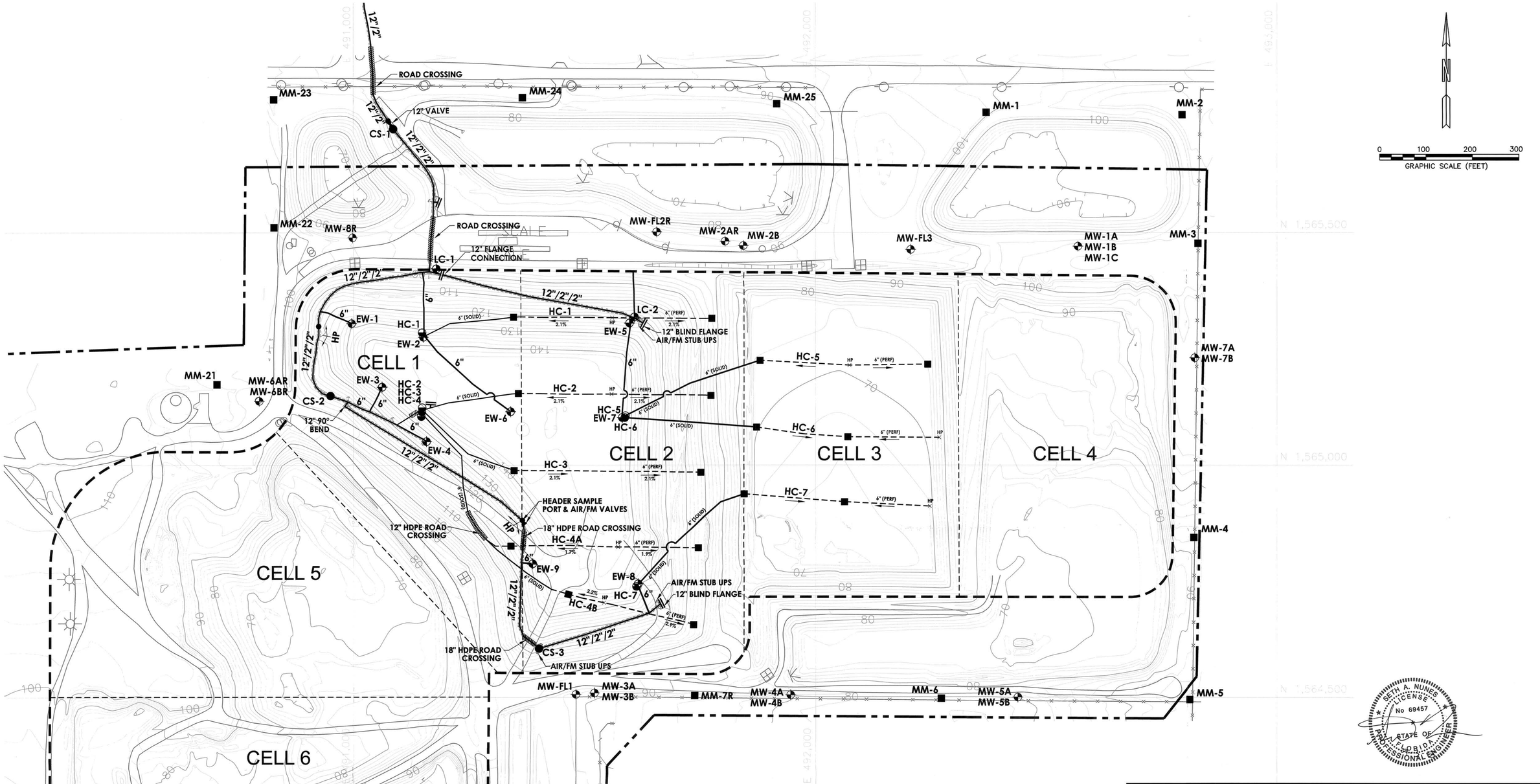
NOTES

1. AERIAL TOPOGRAPHY COMPILED BY PICKETT AND ASSOCIATES, INC. FROM AERIAL PHOTOGRAPH FLOWN ON JANUARY 14, 2013.
2. AS-BUILT SURVEY COMPLETED BY PEAVEY & ASSOCIATES DATED JULY 31, 2013.
3. NOTE THAT SOME LFG SYSTEM FEATURES MAY BE DIFFERENT THAN SHOWN HERE DUE TO MODIFICATIONS MADE BY WMIF OR THEIR CONTRACTORS.

Peavey & Associates
SURVEYING & MAPPING PA
9399 N LAKE BUFFUM RD
FORT MEADE, FL 33841
PHONE: 863-738-4960
FLORIDA BUSINESS NO.7779

DEBORAH L. PEAVEY, PSM
CERTIFICATE NO. 6349
STATE OF FLORIDA
PROFESSIONAL SURVEYOR & MAPPER
FLORIDA REGISTRATION NUMBER 6349
7/31/2013
SURVEY DATES

DRAWING TITLE:	AS-BUILT LFG SITE PLAN
PROJECT:	LANDFILL GAS COLLECTION AND CONTROL SYSTEM 2013 LFG SYSTEM EXPANSION
SITE:	WASTE MANAGEMENT INC. OF FLORIDA VISTA LANDFILL APOPKA, FLORIDA
DWG.	wm vista gas 7-31-2013a.dwg
REV.	0
SCALE	1" = 100'
DESIGN DATE	APRIL 2013
SHEET	1 OF 1



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DRAWING TITLE:
AS-BUILT LFG SITE PLAN (JULY 31, 2013)

PROJECT:
LANDFILL GAS COLLECTION AND CONTROL SYSTEM
2013 LFG SYSTEM EXPANSION - PHASE 2

SITE:
WASTE MANAGEMENT INC. OF FLORIDA
VISTA LANDFILL
APOPKA, FLORIDA

CARLSON ENVIRONMENTAL CONSULTANTS, PC
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MONROE, NORTH CAROLINA 28112
FLORIDA COA# 27045
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CEC PROJECT NO. 101.07.17	DWG. VISTA.LFG.2.2013.ASB	REV. 0
SCALE 1" = 100'		SHEET 1 OF 1
DATE AUGUST 2013		