October 29, 2018
File No. 09215600.07

Mr. Philip Ciaravella
Solid Waste Section
Florida Department of Environmental Protection
2600 Blair Stone Road, MB 4565
Tallahassee, FL 32399

Subject: Southeast County Landfill (SCLF), Hillsborough County
Operation Permit Minor Modification Application
Responses to Request for Additional Information (RAI)
WACS No. 41193
DEP Application No. 35435-026-SO-MM Revised Leachate Management Plan

Dear Mr. Ciaravella:

The Hillsborough County Transportation and Utilities Services, Solid Waste Management Division (SWMD) submitted a minor modification application to update the Leachate Management Plan (LMP) and the Operations Plan on August 3, 2018. On behalf of the SWMD, SCS Engineers (SCS) submits the following responses to your Request for Additional Information (RAI) in a letter dated September 5, 2018.

We have provided additional information, where applicable. If a response modifies a section of the application, the respective section(s) is updated accordingly. A complete version of the documents that include all revisions made in responding to this RAI are attached to this letter, using a strikethrough (e.g., deleted) and underline (added) format, to facilitate review. Copies of the revised documents with all changes accepted are also provided as attachments to this response letter.

For ease of review, each Florida Department of Environmental Protection (FDEP) comment is reiterated in **bold type**, followed by our response. The following are our responses:

1. **Figure 3.1 – Please address the following regarding Figure 3-1. (Paragraph 62-701.400 F.A.C.)**

- **The connection between Phase II and Phase III Shown on the Figure 3-1 included in the November 2015 Conformed Leachate Management Plan is not shown on the submitted Figure 3-1. Please revise to show the connection.**
- **Please show the approximate location of the suction line in the cleanout associated with PS-2 on the drawing. Please revise.**
- **Do the grayed-out lines represent cell division berms?**

Response: Figure 3.1 of the LMP has been updated to show the Leachate Collection and Removal System (LCRS) connection between Phase II and Phase III. Additionally, the approximate location of the Pump Station 2 (PS-2) suction line intake is identified in the

updated figure. The gray lines represent the toe of slope and the top of the Southeast County Landfill (SCLF) Phase Division Berms. The line type has been added to the legend of the October 2018 LMP Figure 3.1. The October 2018 revised LMP with changes tracked in strikethrough and underline is included with this response to the RAI as Attachment 1. A conformed LMP with all changes accepted is included as Attachment 2.

2. **Section 4.1.2 – Please provide further detail explaining why operation of PS-B as proposed will provide reasonable assurance that Phases I-VI will maintain leachate head over the liner of 12 inches or less during routine landfill operation. This compliance issue is being addressed as part of the Consent Order and Corrective Action Plan currently under Department review. (Paragraph 62-701.500(8)(b) F.A.C.)**

Response: There are no proposed changes to the operation of Pump Station B (PS-B). The intent of the subject minor modification application is to update the existing LMP to include supplemental dewatering points Dewatering Well-1 (DW-1), DW-2, and PS-2. Additionally, the LMP updates account for the Biosolids Composting Area and the Ash-Reuse Area temporary forcemains and leachate handling procedures.

The above referenced supplementary dewatering points were installed as part of continued dewatering efforts. Although their operation will result in reduced the liquid level depth throughout the landfill, this minor modification application does not address liquid level depth requirements at PS-B. The compliance issue regarding the head over the liner at PS-B will be addressed as part of the ongoing Consent Agreement, Corrective Action Plan, and Alternate Procedure discussions between the SWMD and the FDEP.

3. **Section 4.1.3 – Please revise to state that PS-2 also collects liquids from the cut-off trench.**

Response: Section 4.1.3 of the updated LMP has been revised to indicate that PS-2 is hydraulically connected to the cut-off trench and pumping directly affects the liquid level measurements observed at Monitoring Port 2-2 (MP 2-2) and MP 2-3. The October 2018 revised LMP with changes tracked in strikethrough and underline is included with this response to the RAI as Attachment 1. A conformed LMP with all changes accepted is included as Attachment 2.

Sections 8.2.1and 8.2.2 – Given the issues keeping the sump flowing in the compost area please develop a metric of how much ponding is acceptable in this area before maintenance is required. (Paragraph 62-701.500(8)(a) F.A.C.)

Response: The SWMD will install a staff gauge near the compost area sump to monitor liquid levels in the Biosolids Composting Area. Section 8.2.1 has been revised to indicate that the SWMD will maintain liquid levels in the compost area below an elevation of 199 feet National Geodetic Vertical Datum 1929, referred to as the maintenance level. Additional pumping and leachate trucking will be initiated if the leachate levels in the compost area exceed the maintenance level. The maintenance level corresponds to one foot below the top of the containment berm according to the July 9, 2018, semi-annual survey. If the proposed metric presented above and in the LMP is approved by FDEP, SWMD will submit a survey

indicating the northing, easting, and elevation of the staff gauge with the appropriate monthly report.

The Ash-Reuse area has not experienced issues related to ponding leachate, and the SWMD is currently considering interim cover options to eliminate Ash-Reuse Study Area leachate production as the screening phase has concluded.

4. **Along with a revised Operations Plan that clearly shows all revisions, please provide one complete "clean" copy, which will be referenced in the permit modification.**

Response: The October 2018 revised Operations Plan with changes tracked in strikethrough and underline is included with this response to the RAI as **Attachment 3**. A conformed Operations Plan with all changes accepted is included as **Attachment 4.**

Please do not hesitate to contact us at (813) 804-6716 should you have any questions or require additional information.

Sincerely,

Kollan L. Spradlin, P.E.
Project Professional
SCS ENGINEERS

Ken E. Guilbeault, P.G.
Project Director
SCS ENGINEERS

KLS/KEG:kls

cc: Kimberly Byer, SWMD
Larry Ruiz, SWMD
Joseph O'Neill, SWMD
Melissa Madden, FDEP
Cory Dilmore, FDEP
Steve Morgan, FDEP
Ron Cope, EPC

Attachments

Attachment 1

Leachate Management Plan Phases I-VI and The Capacity Expansion Area Southeast County Landfill Hillsborough County, Florida

Hillsborough County - Public Utilities Department
Solid Waste Management Group (SWMG)
332 N. Falkenburg Road
Tampa, FL 33619

Florida Board of Professional Engineers
Certificate No. 00004892

SCS ENGINEERS

09215600.07 | October 2018

3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619
813-621-0080

LEACHATE MANAGEMENT PLAN
PHASES I-VI AND THE
CAPACITY EXPANSION AREA
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

Presented To:
Hillsborough County
Public Utilities Department
Solid Waste Management Group (SWMG)
332 N. Falkenburg Road
Tampa, FL 33619

Presented From:

SCS ENGINEERS
3922 Coconut Palm Drive, Suite 102
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Kollan L. Spradlin, P.E.
FL Reg. No. 82852

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1.0 LEACHATE MANAGEMENT

The Hillsborough County Southeast County Facility (Facility) includes the Southeast County Landfill (SCLF), which is permitted by the Florida Department of Environmental Protection (FDEP) as a Class I landfill for Phases I-VI and the Capacity Expansion Area (CEA). This Leachate Management Plan (LMP) includes Phases I-VI and Sections 7, 8, and 9 of the CEA.

This plan will give the SCLF employees a general understanding of the requirements for managing the leachate generated from the Class I landfill operations within the Phases I-VI and CEA disposal areas. As defined in Rule 62-701.200(59), Florida Administrative Code (FAC), leachate is liquid that has passed through or emerged from solid waste and may contain soluble, suspended, or miscible materials. Leachate must be contained and kept separate from any groundwater or surface waters.

2.0 LEACHATE GENERATION

One of the goals of the landfill design and daily operation is to minimize leachate production from the landfill to reduce the cost associated with leachate treatment and thus minimize the potential environmental contamination risks. The methods described in this section can be used separately or simultaneously to achieve leachate reduction.

Leachate is generated as water passes through solid waste or as liquids drain from solid waste materials. Water may be from stormwater infiltration, irrigation, groundwater, or other sources added to the waste material. Liquids from the solid waste include moisture from food or waste products and fluids disposed of in the waste. Water and liquids that drain through or from the waste materials eventually drain via gravity into the collection systems at the bottom of the Class I disposal areas. Once collected, the leachate is pumped to the leachate storage tank. From the storage tank the leachate can be conveyed to the on-site Leachate Treatment and Reclamation Facility (LTRF) for treatment or hauled off site for treatment at a permitted wastewater treatment facility.

In addition, leachate is generated in the form of condensate from the collection of landfill gas (LFG) from Phases I-VI and the CEA. Condensate is managed by several methods, including drainage back to the landfill or collection in sumps at low areas. While ~~landfill gas~~LFG condensate collection and transmission are not addressed in the leachate management plan, condensate management is addressed within the Gas Collection and Control System (GCCS) Plan for the SCLF referenced as part of the SCLF Title V operating permit. This plan should be referenced for details regarding condensate management.

3.0 LEACHATE COLLECTION SYSTEMS

The leachate collection system for Phases I-VI and the leachate collection and detection systems for the CEA are depicted in **Figure 3-1** and **Figure 3-2**, respectively. Additional descriptions of these systems are provided in the following sections.

3.1 PHASES I-VI LEACHATE COLLECTION

Phases I-VI of the Facility were constructed directly above a waste clay settling area for a former phosphate mine known as Lonesome Phosphate Mine or Boyette Mine. The Phases I-VI landfill is approximately 162.4 acres. The settling area, also known as Settling Area No. 1, was built on natural ground with a perimeter dike constructed of sand borrowed from surrounding areas. As part of the phosphate mining operations, waste phosphatic clay and other soils were washed and phosphate minerals removed from the surrounding soils.

The washed waste phosphatic clays and soils were pumped to the settling areas and allowed to settle to the bottom of the settling ponds. The low-permeability waste phosphatic clays now form the bottom containment liner for the disposal of waste in the Phase I-VI area. A single layer of 36-mil chlorosulfonated polyethylene (CSPE) ~~or high density polyethylene (HDPE) liner depending on the phase, liner is~~ tied into the waste phosphatic clay layer as a side containment liner barrier.

The leachate collection and removal system for Phases I-VI consists of crushed granite rock and tire-chip-filled trenches, 8-inch diameter perforated Schedule 80 polyvinyl chloride (PVC) pipes in granite rock-filled trenches, and 8-inch diameter perforated high density polyethylene (HDPE) pipes in granite rock-filled trenches. The gravel- and tire-filled trenches drain to the 8-inch pipes which then drain to Pump Station B (PS-B) located in the Phase VI disposal area. PS-B was designed to be the ultimate low point for the entire footprint of Phases I-VI after final placement of waste material and loading of the waste phosphatic clays. As the waste phosphatic clays are loaded, the clays settle. Excess water from within the clays is squeezed out during the loading of the clays and enters the leachate collection system.

3.2 CAPACITY EXPANSION AREA LEACHATE COLLECTION

3.2.1 Section 7

3.2.1.1 Leachate Collection System

Section 7 of the CEA landfill is approximately 12.5 acres. The dimensions of Section 7 are approximately 750 feet long (southwest to northeast) and 800 feet wide (northwest to southeast). Section 7 was designed with a double-liner system—one for leachate collection on the primary liner and the other for detection (secondary liner) of any leachate that may leak through the collection liner. A 300-mil bi-planar geocomposite was installed on the top of each of the 60-mil HDPE geomembranes to convey leachate toward collection trenches. Twelve inches of drainage sand and 12 inches of chipped tires were placed above the primary collection system to provide additional drainage collection and provide puncture protection of the underlying HDPE liners.

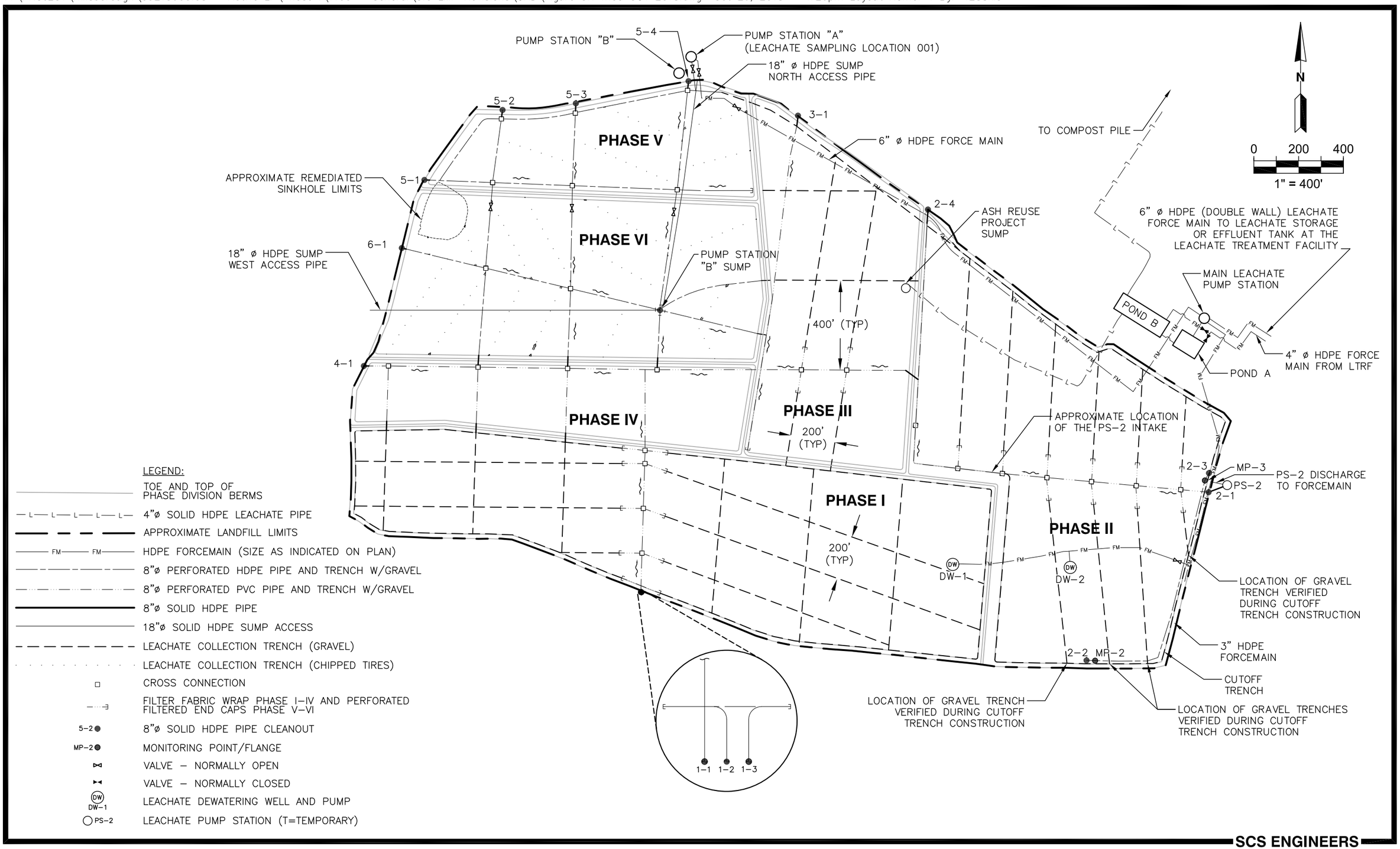

FIGURE 3.1. PHASES I–VI LEACHATE COLLECTION AND REMOVAL SYSTEM
HILLSBOROUGH COUNTY
OCTOBER 2018

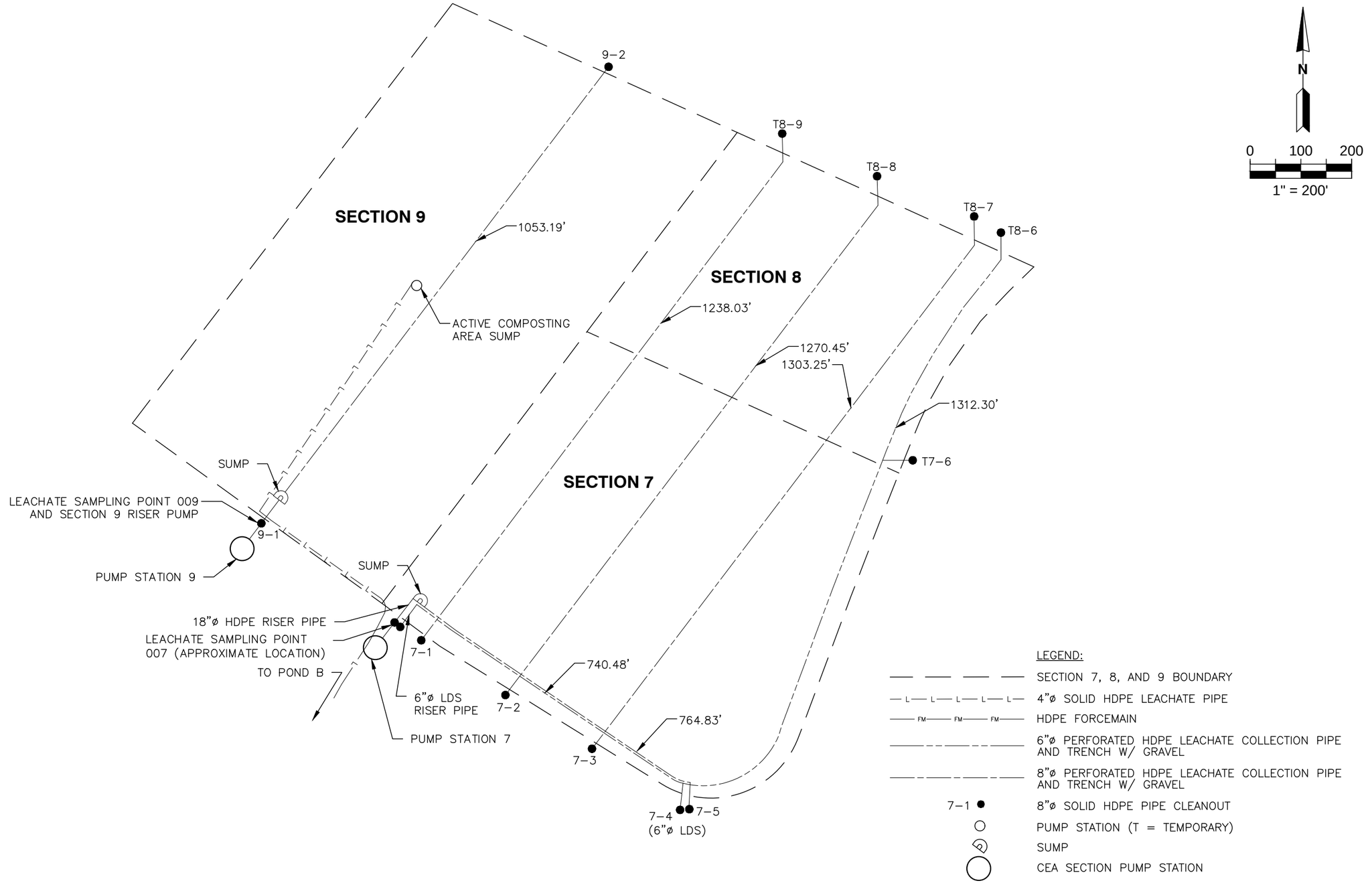

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FIGURE 3.2. CAPACITY EXPANSION AREA (SECTIONS 7, 8, AND 9) – LEACHATE COLLECTION AND REMOVAL SYSTEM
HILLSBOROUGH COUNTY
OCTOBER 2018

Leachate travels through the primary geocomposite and sand/tire-chip drainage layer and is collected in the leachate collection trench. This trench consists of 8-inch perforated HDPE leachate collection pipes and gravel wrapped in a geotextile to minimize migration of sand into the pipes. Leachate that collects in the trench flows to a collection header and then toward a collection sump in the southwest corner of Section 7. The sump was designed as the lowest point in Section 7 and was filled with gravel. A riser pipe was installed in the gravel fill of the sump and contains a submersible pump for leachate removal.

3.2.1.2 Leachate Detection System

The leachate detection system of Section 7 consists of a bi-planar geocomposite between the primary and secondary geomembranes. The geocomposite drains leachate toward an 8-inch perforated HDPE pipe in a gravel-filled trench. The lateral pipes drain to a main header on the southwest end of Section 7. The main header drains to the low point of Section 7 containing a sump with gravel fill and a riser pipe. Leachate is removed from the Section 7 leachate detection system via the riser pipe using an above-grade pump.

During standard practices, the detection system is expected to collect a small volume of leachate. Leakage rates collected in the detection system will be used to monitor the performance of the collection system. The action leakage rate for the CEA is discussed in Section 9.3.2.~~3.~~

3.2.2 Section 8

3.2.2.1 Leachate Collection System

Section 8 of the CEA is approximately 6.8 acres. The dimensions of Section 8 are approximately 500 feet long (southwest to northeast) and 660 feet wide (northwest to southeast). Section 8 was designed with a double-liner system—one for leachate collection (primary liner) and the other (secondary liner) for detection of any leachate that may leak through the collection liner. A

300-mil tri-planar geocomposite was installed on the top of each of the 60-mil HDPE geomembranes to convey leachate toward leachate collection trenches. Twelve inches of drainage sand and 12 inches of chipped tires were placed above the primary collection system to provide additional drainage collection and provide puncture protection of the underlying HDPE liners.

The design of Section 8 included connecting the leachate collection and detection system components to Section 7. Therefore, leachate travels through the upper geocomposite and sand/tire drainage layer and is collected in the leachate collection trenches in Section 8. These trenches consist of an 8-inch perforated HDPE leachate collection pipe and several feet of gravel wrapped in woven geotextile. Leachate that collects in the Section 8 trenches continues to flow though Section 7 trenches. Once in the Section 7 collection system, leachate drains to the sump in the southwest corner of Section 7.

3.2.2.2 Leachate Detection System

The leachate detection system of Section 8 consists of a tri-planar geocomposite between the primary and secondary geomembranes. The Section 8 tri-planar geocomposite was connected to the Section 7 bi-planar geocomposite. The geocomposite drains leachate to 8-inch perforated HDPE pipes in gravel filled trenches. The trenches flow through Sections 7 and 8. The lateral pipes drain to a main header on the southwest end of Section 7. The main header drains to the leachate sumps in the southwest corner of Section 7 as described in previous sections.

During standard practices the detection system should collect a small amount of leachate. Leakage rates collected in the Section 8 detection system cannot be measured independently from Section 7; however, since each system is connected, the total leakage measured in the Section 7 sump will be used to monitor the performance of the Sections 7 and 8 leachate detection systems.

3.2.3 Section 9

3.2.3.1 Leachate Collection System

Section 9 of the CEA landfill is approximately 15.2 acres. Section 9 is approximately 980 feet long (southwest to northeast) and 580 feet wide (northwest to southeast). The primary leachate collection system is composed of a combination of synthetic materials and natural granular materials. A geocomposite consisting of an HDPE geonet with the top and bottom sides bonded to a geotextile is directly above the primary 60-mil HDPE geomembrane. The geocomposite is overlain by a 12-inch-thick natural granular (sand) drainage layer and a 12-inch-thick chipped-tire drainage layer.

Leachate flows by gravity to a central leachate collection trench that conveys the leachate to the leachate collection sump on the south side of Section 9. The leachate collection pipe is a perforated 8-inch-diameter SDR 11 HDPE pipe surrounded by gravel and geotextile. From the sumps, leachate is pumped via a 6-inch SDR 11 HDPE forcemain to the LTRF located northeast of Sections 7 and 8.

3.2.3.2 Leachate Detection System

The leachate detection system for Section 9 includes a geocomposite consisting of a HDPE geonet with the top and bottom sides bonded to a geotextile installed between the primary and secondary geomembranes. Leachate entering the secondary Leachate Collection and Removal System (LCRS) flows by gravity through the geonet to the leak-detection trench. The trench, constructed at a slope of approximately 0.75%, conveys leachate to a leachate-detection sump on the south side of Section 9. From the sump, leachate is pumped via a 6-inch SDR 11 HDPE forcemain to the LTRF.

During standard practices, the detection system is expected to collect a small volume of leachate. Leakage rates collected in the detection system will be used to monitor the performance of the collection system. The action leakage rate for the CEA is discussed in Section 9.3.~~3~~2.

4.0 LEACHATE TRANSMISSION

A schematic of the leachate management system at the SCLF is shown in Figure 4-1. The following sections provide additional details for the transmission components of the leachate management system at the SCLF.

4.1 PHASES I-VI

4.1.1 Pump Station A (PS-A)

PS-A consists of an 8-foot inside-diameter below-grade concrete sump with a single submersible pump. From PS-A, leachate is pumped to the Main Leachate Pump Station (MLPS) via force main. The pump operation is set with the "on" float at 42 inches from the sump bottom and the "off" float at 18 inches from the sump bottom.

If a high-level condition occurs, the PS-A sump control panel will shut down Pump Station B (PS-B). It will also transmit a signal, via a transceiver, with the sump condition to the control computer in the LTRF, the effluent/leachate storage tank (T6), and the landfill administration office located at the scalehouse at the entrance of the SCLF. If PS-A will be inoperable for more than 8 hours, leachate from PS-B will be pumped through the bypass line directly to the MLPS.

4.1.2 Pump Station B (PS-B)

PS-B sump (located in Phase VI) is the primary leachate collection point for Phases I-VI. Upon consolidation of the phosphatic clay liner, the low point for the final collection and removal of leachate within the landfill is projected to be at the PS-B sump location. The LCRS for the landfill was designed to drain to the PS-B sump.

PS-B sump consists of an 8-foot square (inside dimension) below-grade concrete vault. The vault has two 18-inch diameter HDPE horizontal access pipes, the main access pipe leading to PS-A, and an alternate access pipe leading toward the western perimeter of the landfill between cleanouts 4-1 and 6-1.

The primary pumps used to remove leachate from the PS-B sump ~~is a~~are self-priming pumps each with a capacity of 150 gallons per minute (gpm). If the primary pumps fail~~s~~, the operations contractor ~~has a~~can obtain a secondary vacuum-assisted diesel pump that may be used as backup. PS-B sump is equipped with a level indicator located at the control panel near PS-A, and the SWMG monitors the liquid level daily to ensure that the levels noted below are maintained. Maintaining the operation of PS-B as proposed will provide reasonable assurance that Phases I-VI will maintain a leachate head over the liner of 12 inches or less during routine landfill operation.

PS-B pumps leachate to PS-A via a vacuum-assisted pump. The bubbler leveling system with an "on" sensor is set at 24 inches above the sump bottom and the "off" sensor is set at 15 inches from the bottom. The settings provide for free flow of leachate into the landfill lower sump area from the surrounding Phase I-VI disposal areas

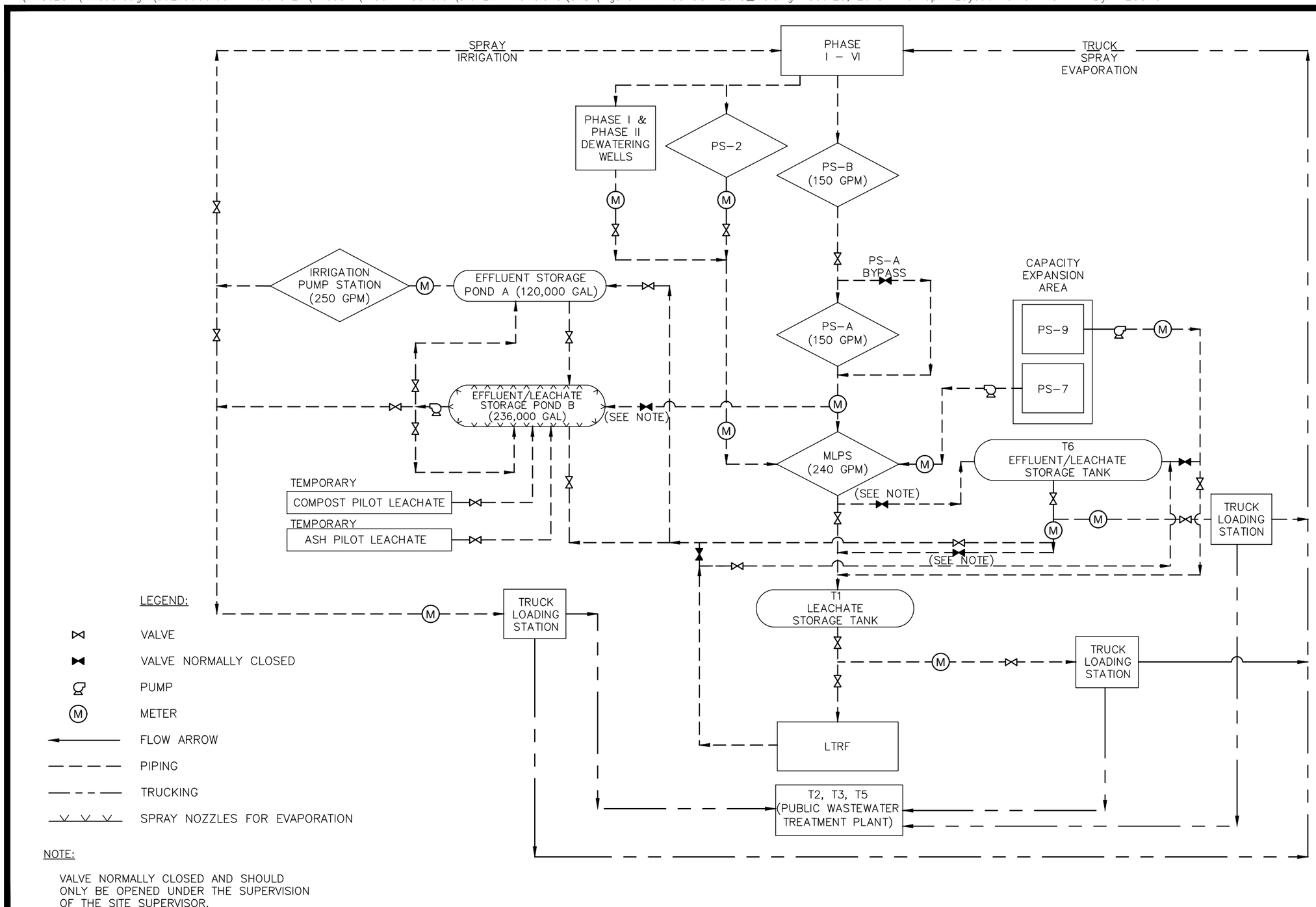

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FIGURE 4.1. LEACHATE MANAGEMENT SYSTEM SCHEMATIC
HILLSBOROUGH COUNTY
OCTOBER 2018

4.1.3 Pump Station ~~6 (TPS-6)~~2 (PS-2)

~~The Temporary Pump Station 6 (TPS-6) was removed from service in September 2014 due to low flow production. The low leachate withdrawal from this area is an indication that the landfill PS-B sump has settled such that the leachate from all Phases is flowing by gravity to PS-B.~~ Pump Station 2 (PS-2) consists of a vacuum assisted pump with a 3-inch HDPE suction line into the Phase II clean out 2-1 (CO 2-1). The pump discharges via a 3-inch HDPE buried forcemain directly into the MLPS. The pump will be operated by SWMG staff to supplement leachate removal from Phase II of the landfill and the Phase II Cut-off Trench. The primary goal of this pump is to maintain the leachate level in the Monitoring Port No. 2 (MP 2-2) and Monitoring Port No. 3 (MP 2-3) below 30-inches. The CO 2-1 connection to the Phase II Cut-off Trench and the Phase II header allows PS-2 to influence the liquid level in MP 2-2 and MP 2-3. The leachate quantities will be recorded by an electronic flow meter.

4.1.4 Dewatering Wells

Dewatering wells were installed to provide supplemental leachate removal from Phases I and II. One well nest was installed in Phase I and one in Phase II. Each well nest consists of two 8-inch diameter HDPE well casings set within one 36-inch diameter borehole that spans from ground surface, through the waste, to 1-foot below the top of the clay liner. Each of the well casings contains a pneumatic pump connected to a 3-inch diameter HDPE buried forcemain conveying the leachate to the MLPS. The wells are topped with an all-weather polyethylene dual extraction well cap and 2-inch LFG wellhead. The Phase I leachate extraction wells are designated DW 1-1 and DW 1-2, and the Phase II leachate extraction wells are designated DW 2-1 and DW 2-2. The pneumatic pump counters will estimate the leachate quantities.

4.2 CAPACITY EXPANSION AREA

4.2.1 Section 7 – Pump Station 7 (PS-7)

The leachate collection and leachate detection system piping for Sections 7 and 8 drain to sumps in the southwest corner of Section 7 as shown in **Figure 3-2**. The leachate detection sump is pumped to the leachate collection sump by an above-grade pump located at PS-7. The leachate collection sump pumps leachate using a submersible pump in the sump to the MLPS via an underground force main.

There are separate pumps for the leachate collection (submersible pump) and detection (above grade pump) sideslope risers. The levels in each sump are controlled with pressure transducers at the bottom of the riser pipes. These transducers are programmed for a high-level alarm at 48 inches, pump on at 24 inches, and pump off at 12 inches. All elevations are from the bottom of the Section 7 sump. Flow measurements are taken using readings from magnetic flow meters on each discharge line. Separate sampling ball valves allow separate leachate samples to be taken from either the collection or detection sumps.

4.2.2 Section 8 – (No Pumping Systems)

Section 8 was constructed by connecting the leachate collection and detection systems to the Section 7 systems. No pumping systems are included in the Section 8 design. Section 8 uses the sumps and pumps for Section 7 to pump leachate to the MLPS.

4.2.3 Section 9 – Pump Station 9 (PS-9)

The Section 9 area includes sideslope riser pipes—two for the primary leachate collection and one for the leachate detection systems—with submersible pumps. All the pumps for the Section 9 area are controlled by a separate control panel located on the south side of Section 9. Leachate is conveyed by a buried forcemain which connects to the existing forcemain on the south side of Section 7. The forcemain then continues to the leachate storage tank (T1) or effluent/leachate storage tank (T6) northeast of the CEA.

The Section 9 pumps are controlled by a bubbler level sensing system at the PS-9 control panel. The standard practice bubbler settings for the leachate collection pumps from the bottom of the sump are high-level alarm at 36 inches, lag pump on at 33 inches, lead pump on at 27 inches, and low level alarm at six inches. The standard practice bubbler settings for the detection pump from the bottom of the sump are high-level alarm at 36 inches, pump on at 27 inches, and pump off at 21 inches.

In addition, the Section 9 pumps are deactivated when the leachate storage tank (T1) senses a high-level alarm.

4.3 MAIN LEACHATE PUMP STATION (MLPS)

The MLPS consists of a 7-foot-square (inside dimension) below-grade concrete sump with dual submersible pumps (i.e., one operating and one stand-by). Each submersible pump is rated to pump at a maximum discharge rate of 240 gpm. The operating pump is set for a 24-hour operation cycle with the "on" float at 48 inches from the sump bottom and the "off' float at 24 inches from the sump bottom.

If a high-level condition occurs at the MLPS sump, the control panel will shut down PS-7, PS-A, ~~and~~ PS-B, PS-2, and all pneumatic pumps. It will also transmit a signal, via a transceiver, with the sump condition to the control computer in the LTRF effluent/leachate storage tank (T6 ~~and the administration office~~). Maintenance and inspection of the MLPS pump are described in Section 10.0.

From the MLPS, leachate is pumped to the 575,000-gallon leachate storage tank (T1) or to the 575,000-gallon effluent/leachate storage tank (T6) [effluent/leachate storage tank (T6)—for emergency use only, as described in Section 7.0] at the LTRF.

5.0 LEACHATE STORAGE TANK (T1)

Leachate from Phases I-VI and the CEA is currently stored in a 575,000-gallon (maximum capacity) glass-fused-to-steel aboveground raw leachate holding tank before being treated or hauled. The leachate level in the leachate storage tank (T1) is maintained to provide for the maximum storage capacity possible. The leachate storage tank (T1) is maintained with an average low level of six feet (as measured from the ~~top~~ bottom of the tank) or 173,000 gallons to ensure that enough leachate is available for the LTRF to operate 3 days without interruptions. When the level in the leachate storage tank (T1) is below six feet, leachate hauling and spray evaporation will be temporarily reduced or stopped. Similarly, an action level is established for a high level of 11 feet (from ~~top~~ bottom of tank) in the leachate storage tank (T1). A level of 11 feet provides a storage capacity in the leachate storage tank (T1) of 259,000 gallons (4 days' storage) to allow continuous operation of the landfill pump stations. When levels are above 11 feet, treatment, hauling, and/or spray evaporation will be increased.

If a high-level alarm condition occurs (at ~~16~~ 17.5 feet) in the leachate storage tank (T1), the LTRF will continue to operate, and the MLPS, PS-9, ~~PS-10,~~ and the LTRF filtrate pumps will be shut down. A signal indicating the leachate storage tank (T1) condition will be sent to the control computer in the LTRF ~~and the administration office~~. When a high-level alarm condition exists, additional hauling trucks will be used to transport the leachate to a ~~(~~WWTP~~)~~, thus lowering the leachate level in the tank.

5.1 T1 SECONDARY CONTAINMENT SYSTEM

The LTRF leachate tank system is located within a concrete containment area. The secondary containment area has two sumps for stormwater drainage with 6-inch diameter HDPE pipes. The gate valves from the HDPE pipes are normally closed, in the event of an uncontrolled release. The gate valves are occasionally opened to release stormwater from the impoundment as needed. The LTRF secondary containment area was designed to hold 110% of the volume of the largest storage tank in case of failure of the tanks. Therefore, the concrete flooring and containment walls will be inspected weekly for cracks or structural deficiencies as discussed in Section 5.3. Any cracks will be immediately sealed using flexible concrete grout. Any structural deficiencies will be identified and corrective action taken to repair the walls.

5.2 T1 LIQUID LEVEL MONITORING

The leachate storage tank (T1) contains an overflow pipe. The overflow pipe is installed outside of the storage tank, with the tank sidewall penetration within 30 inches of the top of the sidewall of the tank. The tank is equipped with liquid level indicators that are float-operated with a direct readout. The level gauge boards are mounted in a highly visible location on the exterior of the tank. ~~A visual and audible alarm (a light and horn) is located on the gauge boards to alert staff to a potential problem before overflow.~~ The tank level is recorded daily on the leachate reporting forms. An example form is provided in Appendix A.

5.3 T1 EXTERIOR AND INTERIOR INSPECTIONS

The following describes the inspections of the leachate storage tank (T1) and procedures to be followed after the inspections:

- Overfill Prevention System: The overfill prevention system components will be inspected weekly. These components include level sensors, gauges, high-level alarm, and automatic shutoff controls.
- Tank Exterior: The exterior of the tanks and the secondary containment system will be inspected weekly for adequacy of the impressed current cathodic protection system, leaks, corrosion, and maintenance deficiencies. The control panel for the impressed current cathodic protection system (located on the outside of the secondary containment walls next to the truck loading station) will be inspected to ensure that it is working properly. In addition, the inspection includes evaluating structural damage to the tank, damage to the coating system, loose connections, corrosion, visible leaks, and maintenance deficiencies. The inspector will also look for any structural damage to the concrete slab, peeling of the paint system, and visible leaks.
- Tank Interior: The interior of the tanks will be inspected whenever the tanks are drained or at least every three years. The inspector will look for any damage to the interior coating system, structural damage, cracking of the tank, visible leaks, and any accumulation of sludge.
- Procedures for Corrective Actions: If inspections reveal any deficiencies with the tank or the secondary containment system that could result in the system's failing to contain the leachate, the SWMG shall take immediate action to correct the situation by assessing the problem and coordinating the required actions. Failures or damage to the tanks will be repaired by the tank manufacturer or a designated contractor. The SWMG shall notify the manufacturer or designated contractor of the situation; the tank manufacturer or designated contractor will remediate the tanks and prepare a detailed damage-assessment report. FDEP will be notified in writing of the situation and of the proposed corrective action.

Inspection Reports: Inspection reports and reports of any remedial action measures taken will be maintained at the SCLF and will be made available to FDEP upon request. The weekly inspection report form is provided in Appendix A. All reports will be maintained for the life of the tanks and the containment system.

6.0 LEACHATE TREATMENT AND RECLAMATION FACILITY (LTRF)

In December 1994, the SWMG constructed an on-site LTRF. The LTRF system and operation are described in detail in the *General Process and Operation Manual for the Powder Activated Carbon Treatment (PACT) System, Volume III*, prepared by Zimpro Environmental, Inc. dated March 1994.

Process tanks and equipment are maintained in accordance with *General Process and Operation Manual for the Powder Activated Carbon Treatment (PACT) PACT System*, dated March 1994.

After treatment, the leachate is pumped through a 4-inch-diameter single-walled HDPE pipe to the effluent storage pond (Pond A) or the effluent/leachate storage tank (T6) described in Section 7.0. The effluent from the LTRF must meet pre-treatment standards before being pumped to a tanker truck for transport to Hillsborough County's wastewater treatment facilities.

7.0 EFFLUENT/LEACHATE STORAGE TANK (T6)

The effluent/leachate storage tank (T6) is a welded steel aboveground tank with a maximum capacity of 575,000 gallons. The effluent/leachate storage tank (T6) receives treated leachate (effluent) from the LTRF and pumps effluent to the effluent storage pond (Pond A) or stores the effluent for transport to Hillsborough County's wastewater treatment facilities. If leachate must be stored in the effluent/leachate storage tank (T6) from the MLPS while the leachate storage tank (T1) is repaired or inspected, normal operations at the LTRF will stop. Once the leachate storage tank (T1) is repaired or inspected, the leachate stored in the effluent/leachate storage tank (T6) will be pumped back to the leachate storage tank (T1). The effluent/leachate storage tank (T6) will be cleaned of leachate before effluent storage resumes.

The following standard and special setting conditions are applicable to T6:

1. Pump effluent from the LTRF to the effluent/leachate storage tank (T6) (standard practice).
2. Pump effluent from the effluent/leachate storage tank (T6) to Pond A or the truck loading area (standard practice).
3. Pump leachate from the MLPS to the effluent/leachate storage tank (T6) (special condition).
4. Pump leachate from the effluent/leachate storage tank (T6) to the leachate storage tank (T1) (special condition).

7.1 T6 SECONDARY CONTAINMENT SYSTEM

The secondary containment system for the effluent/leachate storage tank (T6) can contain a minimum of 110% of the total volume of the tank. The effluent/leachate storage tank (T6) provides 575,000 gallons of maximum storage.

The secondary containment system consists of a 60-mil HDPE geomembrane lined basin. The tank is constructed at the bottom of the basin on a reinforced concrete pad and surrounded by a 6-inch thick reinforced concrete walkway. The lined basin is connected at the walkway slab and runs up 3H:1V sideslopes where it is anchored at a 12-foot wide berm.

The precipitation collected in the containment area is pumped into the adjacent stormwater management system via a horizontal submersible pump and sideslope riser. The sideslope riser system includes an additional camlock connection to be used for emergency effluent/leachate removal using an additional pump. Any spilled leachate and/or effluent that accumulates in the secondary sump is pumped to the leachate storage tank (T1) via a suction line originating from the horizontal centrifugal pump at the loading pad. The centrifugal pump is equipped with valves to operate in suction mode to remove any spilled effluent/leachate from the secondary sump. The submersible sump pump is manually operated to remove stormwater or used as an alternate for effluent/leachate removal.

Accumulated precipitation will be removed within 24 hours of observation. The precipitation will be pumped into the adjacent stormwater management system.

Accumulated liquid in the trench drain that is not precipitation resulting from a recent storm event will be treated as effluent and pumped into the effluent/leachate storage tank (T6).

7.2 T6 LIQUID LEVEL MONITORING

The effluent/leachate storage tank (T6) contains an 8-inch overflow pipe. The overflow pipe is installed outside of the effluent/leachate storage tank (T6) with the tank sidewall penetration within 30 inches of the top of the sidewall of the tank. The tank is equipped with liquid level indicators that are float operated with a direct readout. The ~~gauge level boards~~control panel is mounted in a highly visible location on the exterior of the tank. ~~A~~ When the high-level alarm condition occurs (at 17.5 feet), a visual and audible alarm (a light and horn) ~~are~~ located ~~on~~ at the ~~gauge boards~~ control panel to alert staff of a potential problem before overflow. The effluent/leachate storage tank (T6) level is recorded daily on the leachate reporting forms provided in Appendix A.

7.3 T6 EXTERIOR AND INTERIOR INSPECTIONS

The following describes the inspections of the effluent/leachate storage tank (T6) and steps to be followed after the inspections.

- Overfill Prevention System: The overfill prevention system components will be inspected weekly. These components include level sensors, gauges, high-level alarm, and automatic shutoff controls.
- Tank Exterior: The exterior of the tank and the secondary containment system will be inspected weekly for adequacy of the cathodic protection system, leaks, corrosion, and maintenance deficiencies. In addition, the inspection includes an evaluation of any structural damage to the tank, damage to the coating system, loose connections, corrosion, visible leaks, and maintenance deficiencies. The inspector will also look for any structural damage to the concrete slab or HDPE lining of the secondary containment system, peeling of the paint system, and visible leaks.
- Tank Interior: The interior of the tank will be inspected whenever the tank is drained or at least every three years. The inspector will look for any damage to the interior coating system, structural damage, cracking of the tank, visible leaks, and accumulation of sludge.
- Procedures for Corrective Actions: If inspections reveal any deficiencies with the tank or the secondary containment system that could result in failure of the system to contain the leachate, the SWMG shall take immediate action to correct the situation by assessing the problem and coordinating the required actions. Failures or damage to the tanks will be repaired by the tank manufacturer or a designated contractor. The SWMG shall notify the manufacturer or designated contractor of the situation; the tank manufacturer or designated contractor will remediate the tanks and prepare a detailed damage assessment report. FDEP will be notified in writing of the situation and of the proposed corrective action.
- Inspection Reports: Inspection reports and reports of any remedial action measures taken will be maintained at the SCLF and will be made available to FDEP upon request. The weekly inspection report form is provided in Appendix A. All reports will be maintained for the life of the tanks and the containment system.

7.4 ACID MIXER AND TANK

The acid dosing pumps at the effluent/leachate storage tank (T6) pump station inject sulfuric acid into the 4-inch effluent pipe. Landfill personnel monitor the pH by pulling grab samples from the sampling port or reading from the pH meter at the control panel, thereby allowing the acid dosing to

be optimized and preventing large swings in pH. The acid dosing rate is controlled by an operator at the control panel using the pH readout to adjust the acid dose to achieve the appropriate pH range. Also, the system includes controls between the acid dosing pumps and the pH meter to allow automatic acid dosing. The acid dosing pump controls are connected to the booster pump controls so acid dosing will only occur when the booster pumps are running. In addition, when the booster pumps are signaled off, the acid dosing pumps stop and the booster pumps continue to run for approximately 30 seconds to allow the piping system to be flushed of any residual acid.

8.0 LEACHATE AND EFFLUENT DISPOSAL

Leachate is disposed of at the SCLF by various methods, including treatment at the on-site LTRF, hauling of raw leachate via tanker truck to a Hillsborough County Wastewater Treatment Facility (WWTF), and truck-mounted spray evaporation of raw leachate within the contained working surface. Effluent from the on-site LTRF is disposed of by an effluent spray irrigation system, effluent evaporation, or transporting effluent via tanker trucks to a county WWTF.

8.1 EFFLUENT STORAGE POND

The effluent storage pond (Pond A) receives treated leachate (effluent) from the LTRF or the effluent/leachate storage tank (T6). The pond is lined with 80-mil HDPE and provides for temporary effluent storage of 120,000 gallons plus one foot of freeboard. Using the existing staff gauge in the pond, Pond A is maintained at a maximum depth of 3.7 feet (elevation 136.9) and a minimum depth of six inches. The minimum depth of six inches provides head over the liner to prevent damage due to uplift from wind and other elements. Off-site hauling could increase if levels in Pond A reach the maximum level of 3.7 feet. In addition, an overflow pipe allows flow from Pond A into Pond B. Similarly, if levels are below six inches, irrigation, evaporation, and off-site hauling from Pond A will be temporarily reduced.

The following standard and special setting conditions are applicable at Effluent Storage Pond A:

1. Pump effluent from Pond A to spray irrigation system (standard condition).
2. Pump effluent from Pond A to truck loading arm (standard condition).
3. Recirculate effluent in Pond A to stabilize pH (special condition).

8.2 EFFLUENT/LEACHATE STORAGE POND B

The effluent/leachate storage pond (Pond B) provides an additional storage volume of 236,000 gallons and is located next to Pond A, as shown in **Figure 3-1**. Pond B was designed with one foot of storage for the 25-year/24-hour storm and one foot of freeboard. The pond was designed to store either raw leachate or effluent; however, Pond B's primary use is for additional storage of effluent from the LTRF or the effluent/leachate storage tank (T6). If the need for leachate storage arises, the SWMG will notify FDEP before using the pond for leachate storage. The notification to FDEP will include the reason(s) for leachate storage in the pond and the anticipated duration.

Pond B was designed with an upper and lower 60-mil HDPE geomembrane. An HDPE geonet was installed between the two liners. The subbase for the lower geomembrane consists of six inches of soil with a saturated hydraulic conductivity of 1×10^{-5} centimeters per second or less, installed over the on-site soil which was cleared of vegetation and graded. Supplemental effluent evaporation in Pond B is provided using a spray evaporation system. The spray evaporation nozzle system was designed around the perimeter of the pond and consists of 30 nozzles, with an estimated flow capacity of 17 gpm per nozzle and a 510-gpm pump.

In general, the SWMG operates the spray evaporation system manually and only during the hours the landfill is open. The spray evaporation system is not operated during windy conditions (i.e., over 10 miles per hour) to prevent overspray outside the limits of the pond liner system.

The following standard and special setting conditions are applicable at Effluent/Leachate Storage Pond B:

1. Effluent storage and spray evaporation operation in Pond B (standard practice).

2. Leachate storage in Pond B (special condition).
3. Resuming effluent storage in Pond B following leachate storage (special condition).

8.2.1 Pilot Compost Leachate

The SWMG operates a temporary compost project on top of Section 7-9 of the CEA. The project is managed in accordance with the "Composting Operation & Maintenance Plan" dated September 2015. Excess runoff from the active compost windrows area will be treated as leachate and drains into a sump built within the compost bermed area. The sump is connected to a diesel vacuum assisted pump that maintains the liquid below an elevation of 199 feet NVD 1929 (the maintenance level). The pump discharge is routed within an aboveground HDPE pipe to the double-lined Pond B. All liquids in Pond B are either pumped into trucks to be hauled to a WWTP or pumped (via MLPS) to the LTRF for on-site treatment. If liquid levels are not maintained below 199 feet NVD 1929 by the vacuum assisted diesel pump, additional leachate pumping and trucking will be initiated. At the completion of this project, the diesel pump and HDPE pipe will be removed.

8.2.2 Pilot Ash-Reuse Leachate

The SWMG operates a temporary ash-reuse project on top of Phase III. The project is managed in accordance with the "Temporary Ash Aggregate Screening and Storage Project Operation & Maintenance Plan" dated August 2017. The runoff within the project bermed area is treated as leachate and drains into a sump. The sump is connected to a diesel vacuum assisted pump. The pump discharge is routed within an aboveground HDPE pipe to the double-lined Pond B. All liquids in Pond B are either pumped into trucks to be hauled to a WWTP or pumped (via MLPS) to the LTRF for on-site treatment. At the completion of this project, the diesel pump and HDPE pipe will be removed.

8.3 EFFLUENT IRRIGATION

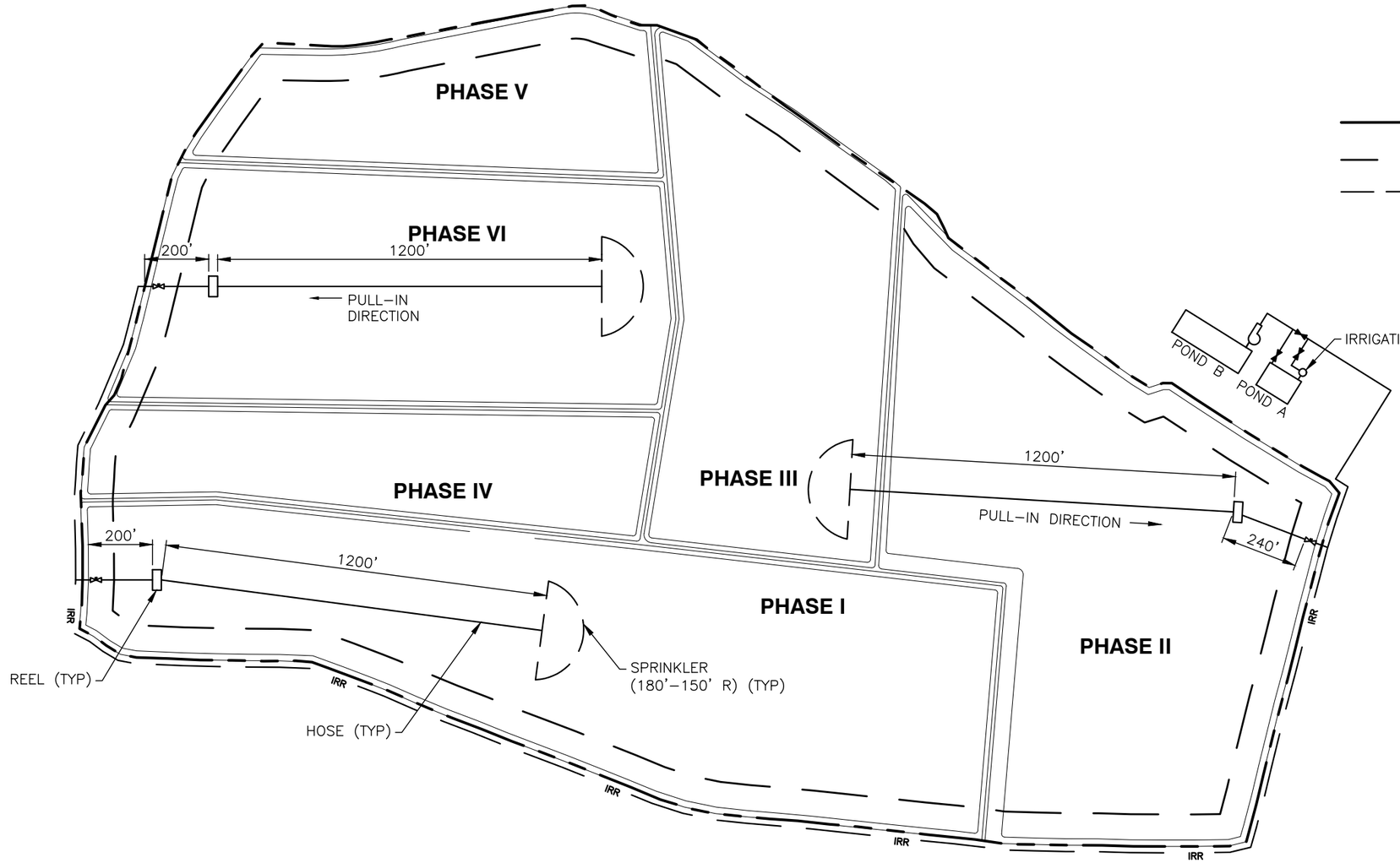
8.3.1 Effluent Irrigation Pump Station

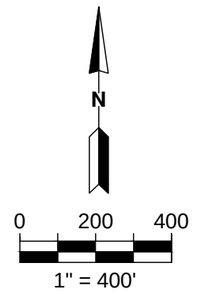
The effluent irrigation pump station consists of a 5-foot square (inside dimension) below-grade concrete sump with dual vertical turbine pumps (one operating and one stand-by). From the effluent irrigation pump station, effluent is pumped to the spray irrigation system on the landfill. The pump in operation is set manually depending on weather conditions.

The effluent irrigation pump station is hydraulically connected to Effluent Pond A, and Effluent Pond A is hydraulically connected via pipe to Effluent/Leachate Pond B; therefore, if the effluent irrigation pump station reaches high level, it will drain to Ponds A and B and not overflow. Ponds A and B are visually monitored by landfill operations personnel and if high level conditions occur, steps are initiated as described in Sections 8.1 and 8.2 for Ponds A and B, respectively.

8.3.2 Effluent Spray Irrigation on Phases I-VI

The SWMG operates a mobile irrigation system consisting of two irrigation reels. The mobile irrigation reels in **Figure 8-1** are shown positioned on the west side of Phase I and on the east side of Phase II. These locations are shown for information purposes only since the position will change due to operational constraints with waste filling in Phase I-VI. Only effluent will be disposed of through the spray irrigation system.





LEGEND:

- APPROXIMATE LANDFILL LIMITS
- 100' SPRAY IRRIGATION MINIMUM SETBACK
- IRR 6"ø HDPE IRRIGATION HEADER
- GATE VALVE – NORMALLY CLOSED
- PUMP
- SOLENOID VALVE (TYP)

NOTE:

THE SPRAY IRRIGATION SPRINKLER REELS ARE MOBILE AND ARE MOVED AS NEEDED. THE LOCATIONS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY.

SCS ENGINEERS

FIGURE 8.1. LOCATION OF IRRIGATION SPRINKLER REELS
HILLSBOROUGH COUNTY
OCTOBER 2018

The operational sequence of the mobile reel irrigators is as follows:

- Before each irrigation event, the medium-density polyethylene (PE) hose is stretched out with a vehicle (approximately 1,200 linear feet). At the end of the PE hose is a spray nozzle that applies the effluent across a large area to maximize evaporation and prevent runoff from draining into the stormwater system.
- Once both PE hoses have been stretched out across the top of the landfill, personnel manually turn on the irrigation pump. The pumps maintain an operating pressure in the irrigation reel. The reel is equipped with a drive system that automatically reels in the PE hose and spray irrigation nozzle at a preset rate (i.e., 200 feet per hour).
- At the end of the irrigation cycle, personnel manually turn off the irrigation pump.

Spray irrigation occurs under the following conditions:

- Spray irrigation is applied at a rate of one pass per day with a maximum application rate of 0.30 inch per day of effluent. Under no circumstances is effluent allowed to discharge as runoff to adjacent stormwater systems. Effluent is not sprayed during severe weather conditions or in quantities that may cause runoff, surface seeps, wind-blown spray outside of the landfill footprint, or ponding on the cover.
- Spraying takes place only when rainfall runoff into the on-site retention areas down gradient from the spray areas has terminated for two hours based on daily inspections of the influent point to each related retention area.
- Spray irrigation of effluent is not conducted within 100 feet of the landfill liner perimeter trench, on slopes steeper than 10%, nor on areas with permanent final cover.
- Spray irrigation may be used on areas with bare ground (little or no grass) or on areas which have been seeded to help with grass growth. These areas will not allow runoff to the stormwater system, as described in this Section.
- Spray irrigation of treated effluent will only be conducted only between 8:00 A.M. and 4:00 P.M.

The leachate reporting forms provided in Appendix A are completed monthly and submitted at least quarterly to FDEP and the Environmental Protection Commission (EPC) by the 15th of January, April, July, and October of each year. At a minimum, the following data are recorded daily.

- Effluent sprayed in gal/day.
- Rainfall on site in inches/day and time of day.
- Observed runoff influent to retention areas (yes and/or no).
- Time of day of inspection.

8.4 LEACHATE AND EFFLUENT EVAPORATION VIA TRUCK-MOUNTED SPRAYING

Evaporation is employed as a supplemental method of disposing of leachate. The supplemental evaporation of leachate involves spraying small quantities of leachate—an average of 9,700 gallons per day—from a spray bar mounted on the rear of a tank truck onto active-fill areas of the landfill. This approach has been used successfully at the SCLF since 1984. The advantages of this method are the reduction of leachate by evaporation, the promotion of the decomposition of organic matter in the landfilled refuse, and dust control.

The SWMG monitors the rate of application, soil moisture conditions, and the specific landfill areas used so that this leachate disposal method does not generate runoff. Leachate spray evaporation is applied under the following conditions.

- Leachate is only sprayed on active-fill areas, including the working face, and areas with the required six inches of initial cover.
- Leachate is not sprayed on areas with intermediate or final cover, seeded or unseeded.
- The maximum grade leachate may be sprayed on is 10H:1V slope. Areas within 150 feet of a 4H:1V or steeper sideslope may not be sprayed on. At all times, areas receiving leachate are controlled to prevent leachate runoff from entering the stormwater system.
- Leachate is not sprayed when it is raining.
- The tank truck spray bar method maximizes evaporation. The application rate of leachate will be such that leachate does not accumulate on the landfill surface nor infiltrate quickly into the covered refuse. Evaporation is the main goal of this leachate disposal method.
- Leachate is not sprayed at the end of the day on the initial cover of the working face or other areas. Spraying is done early in the morning after any dew evaporates and continues until early afternoon or until all available areas have been sprayed.

The SWMG evaporates leachate and effluent in full conformance with Chapter 62-701, FAC. The SWMG notifies FDEP of all evaporated quantities in the monthly water balance reports.

8.5 EFFLUENT AND LEACHATE TRUCK LOADING FACILITIES

8.5.1 Truck Loading Procedures

Truck loading facilities are located at the LTRF, Effluent Pond A, and the effluent/leachate storage tank (T6).

The truck loading stations include a loading arm for discharging stored leachate or effluent from the leachate storage tank (T1), effluent/leachate storage tank (T6) and Ponds A/B to a transfer tanker for disposal. Tanker trucks remove the liquid from the LTRF, effluent/leachate storage tank (T6), or Ponds A/B and transport the liquid to a County WWTF.

The truck loading facilities are equipped with flow meters that provide readout of the gallons of liquid that have been pumped into the tanker trucks. The capacity of each tanker truck is approximately 6,000 to 8,000 gallons, and the leachate tankers are normally filled. If the flow meter gauges are inoperable or not accurate, the quantity of leachate removed can be determined by converting the weight for the truck scale weight tickets to gallons (tons x 2,000 lb/ton/8.34 lb/gal = gallons).

Appendix A includes a Leachate Hauling/Disposal Reporting Form for use when loading leachate or effluent for off-site disposal. The daily field data entry form provided in Appendix A includes recording leachate storage tank (T1) levels. The external level indicators provide a measured indication of the depth of the leachate or effluent in the storage tanks. Information required includes the time of day and the level indicated on the side of the storage tank. Each reading of the storage tanks should be conducted at approximately the same time each day. This will provide the landfill operations personnel with a relative basis for comparing the amount of leachate stored daily and generated daily.

The SWMG has its own tanker trucks as well as a contract with haulers and WWTFs to haul and treat leachate stored in the tanks for disposal. The private tanker vehicles are required to have onboard pump systems or provide portable pumps if the storage system pumps fail.

8.5.2 Wastewater Treatment Facilities

Leachate can be disposed of offsite at a county-owned WWTF. Agreements exist with the Hillsborough County Public Utilities Department (PUD) allowing the discharge of leachate or effluent to three (3) of Hillsborough County's WWTFs (Valrico, Falkenburg, and South County WWTF). Hillsborough County and private contract fleets are used to haul the leachate to a lift station designated by PUD which discharges to one of the approved WWTFs. Leachate will be measured by a flow meter as the tanker trucks are loaded at the LTRF truck loading stations.

9.0 LEACHATE FLOW MEASUREMENT, DATA COLLECTION, AND REPORTING

9.1 GENERAL LEACHATE FLOW MEASUREMENT

Once collected, the leachate is pumped to the leachate storage tank (T1). From the storage tank (T1), the leachate can be conveyed to the on-site LTRF for treatment or hauled off-site to a permitted wastewater treatment facility. Leachate quantities from each landfill area are measured via flow meters at each pump station that can provide readout of gallons of liquid removed.

If leachate is classified as a hazardous waste, it will be managed in accordance with Chapter 62-730, FAC, "Hazardous Waste."

9.1.1 Effluent Quality

To provide reasonable assurance of adequate leachate treatment, the SWMG samples and analyzes the treated leachate (effluent) semi-annually for primary and secondary drinking water parameters and EPA priority pollutants. Samples will be taken after the LTRF has achieved steady-state conditions with regard to its treatment capability or within 30 days after downtime due to maintenance or repairs, whichever is less.

In addition, effluent grab samples before disposal are taken for the following parameters at the frequency indicated:

Parameter	Frequency	Units
pH	weekly	Std. Units
BOD_5	monthly	mg/L
COD	monthly	mg/L
TSS	monthly	mg/L
NO_3-N	monthly	mg/L
TDS	monthly	mg/L

9.1.2 Biosolids Quantity and Disposal

The biosolids from the LTRF are disposed of at the SCLF if they are found to be non-hazardous and pass the paint filter test. The biosolids are sampled and analyzed annually for EPA priority pollutants, the toxicity characteristic leaching procedure (TCLP), and for the following parameters:

Parameters	Units
Total nitrogen	percent (dry weight)
Total phosphorus	percent (dry weight)
Total potassium	percent (dry weight)
Arsenic	mg/kg (dry weight)
Cadmium	mg/kg (dry weight)
Copper	mg/kg (dry weight)
Lead	mg/kg (dry weight
Mercury	mg/kg (dry weight)
Molybdenum	mg/kg (thy weight)
Nickel	mg/kg (dry weight)
Selenium	mg/kg (dry weight)
Zinc	mg/kg (dry weight)
pH	std. units
Solids	percent

If the biosolids are found to be hazardous, the material will be managed in accordance with Chapter 62-730, FAC, "Hazardous Waste."

9.2 PHASES I-VI MONITORING

9.2.1 Flow Measurement

For Phases I-VI, the leachate quantity is recorded by flow meters at PS-A. SWMG personnel record flow meter readings each day the SCLF is open and the quantities are reported to FDEP. Sample leachate reporting forms are included in Appendix A.

9.2.2 PS-B Settlement Plates

Four settlement plates were installed at the bottom of each corner of the vault for PS-B in Phase VI. The rods for these plates have been extended during operation of the landfill. The elevation of these plates will be measured annually ~~prior to commencement of operations in the Phase VI disposal area.~~ The historical measurements are ~~provided in Appendix C~~maintained at the Administration Building. The rods for the settlement plates will be less accurate as operations continue due to deformation from settlement of the waste between the top of waste and PS-B. If, after two consecutive annual measurements from any of the four settlement plates there is no change in elevation, that settlement plate is assumed to be malfunctioning and will not be measured in future events. The settlement at malfunctioning settlement plates is assumed to be the same as the settlement measured at adjacent functioning plates.

9.2.3 Bottom Liner Clay Evaluation

Approximately one year before a particular phase of Phases I-VI is entered, an in-situ, undisturbed, clay sample will be collected from beneath the phase proposed to be filled. The collected clay sample will be tested and the shear strengths computed.

The in-situ, undisturbed, clay sample will be tested either using a direct shear test (ASTM D-3080) or tri-axial test (ASTM D-2850/4767) method to determine the clay strength. Three individual testing points—covering the existing, proposed filling, and proposed final build-out pressures—will be conducted. A representative phi and cohesion value will be determined to cover proposed filling and final build-out strengths.

Slope stability models, using both sliding block and circular failure methods, will be conducted on the proposed filling and the final-build out conditions. If a factor of safety (FS) of 1.5 or greater is achieved for a particular filling scenario, that particular phase is deemed complete and no further testing for that phase is necessary. If a particular filling scenario does not achieve a FS of 1.5 or greater, recommendations for filling the phase will be provided.

Results of the slope stability models, along with a report and recommendations signed and sealed by a professional engineer, will be submitted to FDEP for approval at least six months before filling begins in that phase.

9.3 CAPACITY EXPANSION AREA MONITORING

9.3.1 Flow Measurement

Under standard practice, leachate from Sections 7 and 8 is collected from the sump risers in the southwest corner of Section 7 at PS-7 and leachate from Section 9 is collected from the south slide slope riser at PS-9. The leachate from Sections 7 and 8 is pumped to the MLPS and then via force main to the leachate storage tank (T1). The leachate force main from PS-9 is tied into the MLPS force main to the leachate storage tank (T1); therefore, leachate is pumped directly from Section 9 to the leachate storage tank (T1). The leachate quantities from Section 9 and the MLPS are recorded by separate flow meters before the flow combines in the force main to the leachate storage tank (T1). SWMG personnel record flow meter readings each day the SCLF is open, and report the quantities to FDEP. Sample leachate reporting forms are included in Appendix A.

9.3.2 Leachate Detection Action Leakage Rate

The action leakage rate (ALR) is defined in 40 CFR 265.302 as the maximum design flow rate that the leak detection system (LDS) can remove without the leachate head on the bottom of the liner exceeding one foot. In accordance with Rule 62-701.400(3)(c)2., FAC, the LDS should be designed to limit the head in the LDS to less than one inch of head or the thickness of the geocomposite.

The ALR for Sections 7 and 8 is 100 gal/acre/day. The total estimated footprint area of Sections 7 and 8 is approximately 19.3 acres. An initial response ALR of 1,930 gpd (19.3 acres x 100 gal/acre/day) will be used for the flow rate measured from Sections 7 and 8. The leachate flow from the Section 7 and 8 LDS system is measured by the flow meter from the LDS pump in the southeast corner sump of Section 7.

The ALR for Section 9 is 306 gal/acre/day. The total estimated footprint of Section 9 is 15.2 acres. An initial response ALR of 4,651 gpd will be used for the flow rate measured from Section 9. The

leachate flow from the Section 9 LDS system is measured by the flow meter from the LDS submersible pump in the south end sump of Section 9.

Initial ALR actions will include the following.

- Check the pump and flow meter at the LDS sideslope riser for proper operation.
- Increase the pumping rate from the LDS to lower the stored levels of leachate. A pocket or slug of leachate may have been conveyed to the LDS riser. Upon further pumping, the levels or flow rates may be lowered below the ALR.
- Check the cover or capping systems over Sections 7 and 8 or Section 9 to reduce infiltration into the LDS.
- Continue monitoring the flow rates out of the LDS, based on the recommendations above to determine further action, if needed.

If the ALR for Sections 7, 8, or 9 is exceeded, FDEP and EPC will be notified and a written assessment provided within seven days. The written assessment shall demonstrate continued compliance with the double-liner requirements specified in Rule 62-701.400(3)(c)2, FAC, or a corrective action plan and schedule for implementation shall be submitted for FDEP approval.

9.4 MAIN LEACHATE PUMP STATION

Operation of the MLPS is described in Section 4.3.

9.5 LEACHATE TREATMENT AND RECLAMATION FACILITY

Sampling of the LTRF effluent and biosolids is described in Sections 9.1.1 and 9.1.2.

10.0 MAINTENANCE AND INSPECTION

10.1 LEACHATE COLLECTION SYSTEM SCHEDULE FOR MAINTENANCE AND INSPECTION

The leachate facilities are inspected daily. The leachate collection and removal systems will be water pressure cleaned or video inspected as needed during the duration of the permit. The leachate system components will also be maintained as needed. Routine maintenance for these components at the SCLF is performed following the schedule in Table 10.1.

10.2 STORAGE TANK MAINTENANCE AND INSPECTION

Storage tank maintenance and inspection procedures are discussed in Sections 5.0 and 7.0.

Table 10.1 Schedule For Maintenance

Component	Frequency	Performance Criteria	Corrective Action
Pump Station A (PS-A)	Pump: semi-annual. Sump: annual.	Pump is unable to maintain the required levels in the sump. Inspect for sediment in sump and adequacy of level controls by testing the automatic on/off float settings (see LMP Section 4.1.1 for PS-A float settings).	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours. If PS-A cannot be repaired before pumping is required, the bypass line will be used to pump leachate from PS-B directly to the MLPS. For level controls (i.e., floats and control panel), if testing fails, remedial measures will be initiated immediately by contacting an electrician and the condition will be corrected within 48 hours. Excessive sediment in the sump will be removed within two weeks after inspection.
Pump Station B (PS-B)	Pump: semi-annual. 18-inch access pipes; at time of permit renewal.	Pump is unable to maintain the required levels in the sump. Inspect for adequacy of level controls. Manually pump sump until air enters the pump; at that time bubbler should read between 0 to 4 inches (see LMP Section 4.1.2 for PS-B sensor settings). If blockage of the 4-inch suction line or the bubbler pressure tube is	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours. For level controls failure, remedial measures will be initiated immediately by contacting DCC and the condition will be corrected within 48 hours. If needed, water

Component	Frequency	Performance Criteria	Corrective Action
		suspected, remove the suction line for inspection.	pressure clean the interior of the 4-inch suction line. The 18-inch access pipes will be water pressure cleaned and video inspected as needed at time of permit renewal. If the 18-inch access pipes are not performing adequately, the SWMG will submit to FDEP and EPC an evaluation report with proposed remedy.
Main Leachate Pump Station (MLPS)	Pump: semi-annual. Sump: annual.	Pump is unable to maintain the required levels in the sump. Inspect for sediment in sump and adequacy of level controls by testing the automatic on/off float settings (see LMP Section 4.3 for MLPS float settings).	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours. For level controls (i.e., floats and control panel), if testing fails remedial measures will be initiated immediately by contacting an electrician and the condition will be corrected within 48 hours. Excessive sediment in the sump will be removed within two weeks after inspection.
Storage Pond A	Surface: annual.	Empty, water pressure clean, and remove sediment. Visually inspect geomembrane for punctures, seam continuity, and defects around concrete sump.	Defects found will be repaired before reusing the pond.
Storage Pond B	Surface: annual Leak detection: weekly.	Empty, water pressure clean, and remove sediment. Visually inspect geomembrane for punctures, seam continuity, and defects around concrete sump. If leak detection rate is higher than 1,500 gpd, empty pond and inspect geomembrane for defects.	Defects found will be repaired before reusing the pond.
Storage Tanks	Exterior: weekly. Interior: whenever the tank is drained or every three years.	Inspect for adequacy of the cathodic protection system, leaks, corrosion, level controls, and maintenance deficiencies	Deficiencies that could result in failure of the tank or leaks will be corrected before reusing the tank. For level controls failure, remedial measures will be initiated immediately by contacting an electrician and the condition will be corrected within 48 hours.
Section 7 Pump	Semi-annual.	Pump is unable to maintain the required levels in the sump.	Pump inspected for damage or other problems and repaired or replaced as needed.

Component	Frequency	Performance Criteria	Corrective Action
			Replacement pump will be installed within 24 hours.
Section 9 Pump	Semi-annual.	Pump is unable to maintain the required levels in the sump.	Pump inspected for damage or other problems and repaired or replaced as needed.
Leachate collection and removal system	Twice during permit period	Water pressure clean or video inspect as needed at the existing cleanout locations.	If any component is not performing adequately or if a problem is shown by the video inspection, the SWMG will submit to FDEP and EPC an evaluation report with proposed remedy.

11.0 CONTINGENCY PLANS

FDEP and EPC will be notified of any equipment failure or event that disrupts the routine operation of the leachate management system. If the need for storing leachate in Pond B and/or the effluent/leachate storage tank (T6) arises as described in Sections 8.2 and 7.0, respectively, the SWMG will notify the FDEP and EPC. The person responsible for operation of the SCLF is the Landfill Operations Manager (currently Mr. Larry E. Ruiz). The Landfill Operations Manager reports to the Solid Waste Management Group Director (currently Ms. Kimberly A. Byer). The SWMG will continue to evaluate the accuracy and applicability of this leachate management plan and will propose modifications as necessary to accomplish the objectives of the leachate management plan and continue the proper management of leachate at the SCLF. The following sections provide information regarding contingency operations for specific events which may occur at the SCLF.

11.1 REPLACEMENT OF FLOW METERS

If a flow meter ceases to operate, maintenance personnel will remove the instrument and insert a spare flow meter. If the spare flow meter is not available or not working, a pipe spool piece will be inserted in its place to allow the leachate to flow from the transfer pump. The instrument will be shipped to the service representative or manufacturer for repair or replacement. It is anticipated that the instrument could be removed from service for up to three months. This schedule includes the issue of a Hillsborough County purchase order, shipping, and maintenance time or new part delivery. During this time, leachate production will be determined by recording the run-time meter on the transfer pumps. Leachate production of a specific pump can be estimated by taking the difference in the run-time readings and the rated pump test flow rate.

11.2 STORAGE TANK SECONDARY CONTAINMENT SPILL COUNTERMEASURES

As discussed in previous sections, the LTRF leachate tank system is contained within a concrete containment area. The containment area has two sumps for stormwater drainage with 6-inch diameter HDPE pipes and gate valves that are normally closed. The effluent/leachate storage tank (T6) is contained within a HDPE liner. The containment area has one secondary sump for stormwater, effluent/leachate drainage. Before draining stormwater from the containment areas, the SWMG will visually inspect the stormwater and the tanks to ensure that no leaks have occurred. If no spills have occurred, the sump valves will be opened to drain the stormwater accumulated in the containment area. Under supervision by the Landfill General Manager (or qualified designee), the sump valves will be closed immediately after the stormwater is drained.

If a liquid spills from the LTRF tankage system, the following will be done.

1. Assess the cause of the spill and correct the condition promptly.
2. If the spill condition is at the leachate storage tank (T1) (575,000 gallons):
    a. Shut down the MLPS and PS-9.
    b. Shut down the LTRF filtrate pumps. The LTRF may continue to operate.
    c. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF.
3. If the spill condition is at the LTRF process tank (T2) or the secondary stage clarifier tank (T3):
    a. Shut down the LTRF.

b. The MLPS continues to operate.
c. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF or into the leachate storage tank (T1).

4. If the spill condition is at the effluent storage tank (T5):
   a. Shut down the LTRF.
   b. The MLPS continues to operate.
   c. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF or into the leachate storage tank (T1).
5. If the spill condition is at the effluent/leachate storage tank (T6):
   a. Shut down the LTRF effluent pumps. The LTRF may continue to operate.
   b. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF or into the leachate storage tank (T1).
6. If the spill condition is at the glycerin ~~methanol~~ tank (red tank at LTRF):
   a. Shut down the LTRF.
   b. Turn the LTRF electrical power off at the circuit breaker located outside the LTRF office on the south wall and evacuate staff.
   c. Shut down the MLPS and PS-9.
   d. Contact the current hazardous waste contractor. The contractor will manage the removal, off-site disposal, and containment area cleanup for ~~methanol~~glycerin.
7. For spill conditions No. 2, 3, and 4 above, after the spilled liquid is removed, SWMG personnel will water pressure wash the containment area and the rinse water will be pumped directly into a tanker truck for disposal at an off-site county WWTF.
8. If the leachate storage tank (T1) will remain out of service for more than 48 hours, the SWMG will resume leachate removal from the SCLF to either the effluent/leachate storage tank (T6) or Storage Pond B. Leachate hauling off site can resume from the effluent/leachate storage tank (T6) or Pond B. If the effluent/leachate storage tank (T6) is unavailable for leachate or effluent storage, Pond B can also be used for back-up storage capacity. Leachate can be diverted back to the leachate storage tank (T1) via the MLPS or to the truck loading facility from Pond B. Leachate can also be diverted back to the leachate storage tank (T1) from the effluent/leachate storage tank (T6).
9. Within 24 hours of the spill occurrence, the SWMG will verbally notify FDEP and EPC. A written report with remedial measures taken will be submitted to FDEP and EPC within seven days after the leachate spill incident.

Appendix A

Leachate Reporting And Inspection Forms

HILLSBOROUGH COUNTY SOUTHEAST COUNTY FACILITY
LEACHATE MANAGEMENT
DAILY FIELD DATA ENTRY FORM

Disposal Area (check one)	Phases I-VI	Sections 7-8	Section 9

Technician:	Start Time:

Location	Date (prior day)	Date (today)	Total
Pump Station A, gal			
Pump Station B, inches			
Condensate Pumps Phases I - VI			
Section 9 Pump #1, gal			
Section 9 Pump #2, gal			
Section 9 LDS, gal[(1)]			
Compost			
Sections 7-8 Pump, gal			
Sections 7-8 LDS, gal[(2)]			
Depth in Pond B, feet[(3)]			
Pond B LDS, gal[(4)]			
Pond B Spray, gal			
Depth in Pond A, feet[(5)]			
Spray Irrigation Pump, gal[(6)]			
Main LTP Leachate Bypass, gal			
Depth in Leachate Tank, feet[(7)]			
Depth in Effluent Tank, feet[(7)]			

Notes:

(1) If rate is greater than 4,651 gallons per day, contact Supervisor immediately.

(2) If rate is greater than 1,930 gallons per day, contact Supervisor immediately.

(3) If greater than 4.4 feet, contact Supervisor immediately.

(4) If rate is greater than 1,500 gallons per day, contact Supervisor immediately.

(5) If greater than 3.7 feet, contact Supervisor immediately.

(6) If runoff observed, STOP irrigation and contact Supervisor immediately.

(7) If level is greater than 15 feet, contact Supervisor immediately.

Comments:

TABLE 1. LEACHATE WATER BALANCE REPORT FORM
MONTH/YEAR
SOUTHEAST COUNTY LANDFILL, HILLSBOROUGH COUNTY, FLORIDA

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII	XXIV	XXV
Day	Rainfall (in.)	Depth in Pond A (ft.)	Depth in Pond B (ft.)	Estimated Depth at PS-B (in.)	Phases I - VI Condensate Meter (gal.)	Leachate Pumped to MLPS from Phases I-VI (gal.)	Leachate Pumped from Sections 7-8 LDS (gal.)	Leachate Pumped to MLPS from Sections 7-8 (gal.)	Leachate Pumped to LTRF from MPLS (gal.)	Leachate Pumped to LTRF from Section 9 (gal.)	Leachate Pumped from Section 9 LDS (gal.)	Compost Leachate (gal.)	Leachate in 575K Tank (gal.)	Effluent in 575K Tank (gal.)	Leachate Treated at LTRF (gal.)	Total Leachate Hauled (gal.)	Leachate Dust Control (Sprayed) (gal.)	Pond A Storage (gal.)	Pond B Storage (gal)	Effluent Sprayed Pond B (gal)	Effluent Irrigation (gal.)	Effluent Dust Control (Sprayed) (gal.)	Total Effluent Hauled (gal.)	Total Evaporation (gal.)
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
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25																								
26																								
27																								
28																								
29																								
30																								
31																								
Total																								
Daily Average																								
Mo. Average																								

Notes:
1. NR = No Records, NA = Not Available.
2. Values in bold are estimated; values in italic are substitute for missing data and are based on averaged values.
3. Daily average is calculated by dividing the total by the actual days measured in the month.
4. Monthly average calculated by dividing the total by the number of days of the month.
5. Column II, Trace is less than 0.01 inches and is not included in total.
6. Columns III and IV, field measured at staff gauges.
7. Columns IX & X, Section 7-8 leak detection pumped into Section 7 leachate sump riser.
8. Column XV and XVI, calculated from depth in 575,000 gal. tanks.
9. Columns VI-XIV, XVII-XIX, and XXII-XXV, quantities from flow meters.
10. Column XXVI includes 80% of the daily values from Columns XIX, XXIII, and XXIV plus 5% of the daily values from column XXII.

TABLE 2. FIELD DATA ENTRY FORM
MONTH/YEAR
SOUTHEAST COUNTY LANDFILL, HILLSBOROUGH COUNTY, FLORIDA

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
																		Leachate Hauled			Effluent Hauled		
Day	Rainfall (in.)	Phases I - VI Condensate Meter (gal.)	Flow Meter Pump Sta. A (gal.)	Reading PS-B (in.)	Section 9 Pump 1 (gal.)	Section 9 Pump 2 (gal.)	Section 9 LDS (gal.)	Compost Leachate (gal.)	Sections 7-8 Pump (gal.)	Sections 7-8 LDS (gal.)	Pond B Depth (ft.)	Pond B Effluent Sprayed (gal)	Pond A Depth (ft.)	Effluent Spray Irrigation (gal.)	Depth in 575K Tank Leachate (ft.)	Depth in 575K Tank Effluent (ft.)	Leachate Treated at LTRF (gal.)	Contractor (gal.)	County (gal.)	Leachate Dust Control (Sprayed) (gal.)	Contractor (gal.)	County (gal.)	Effluent Dust Control (Sprayed) (gal)
1																							
2																							
3																							
4																							
5																							
6																							
7																							
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24																							
25																							
26																							
27																							
28																							
29																							
30																							
31																							
Totals												0		0			0	0	0	0	0	0	0

Notes:

1. NR = No Records, NA = Not Available.
2. Values in bold are estimated; values in italic are substitute for missing data and are based on averaged values
3. Columns I and L include quantities from leak detection system.
4. Column B, trace is less than 0.01 inches.
5. Columns C, D, E, G, H, I, J, K, L, N, P, S-X and Y are quantities from flow meters.
6. Columns M and O measured from staff gages in each pond.

Type of Cover	Phases I-VI acres	Section 9 acres
Open		
Intermediate		
Final		
Not Opened		

TABLE 3. LEACHATE BALANCE SUMMARY
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA
MONTH/YEAR

		Leachate Arriving at LTRF					Leachate Leaving LTRF			Effluent Disposal			Inflow / Outflow For LTRF		
Month	Rainfall (in.)	Condensate from LFG CS-1 (gal.)	Leachate from Section 9 Pumped to LTRF (gal.)	Leachate from Section 7-8 Pumped to LTRF (gal.)	Leachate from Phases I-VI Pumped to LTRF (gal.)	Compost Leachate (gal.)	Total Leachate Hauled from LTRF (gal.)	Leachate Dust Control (Sprayed) (gal.)	Leachate Treated at LTRF (gal.)	Total Effluent Hauled (gal.)	Effluent Dust Control (Sprayed) (gal.)	Effluent Irrigation (gal.)	Total Inflow to LTRF (gal.)	Total Outflow from LTRF (gal.)	Change in Storage[3] (gal.)
January															
February															
March															
April															
May															
June															
July															
August															
September															
October															
November															
December															
YTD Total															

Note:

1. If the bypass at the effluent pond is ever used to pump effluent back to the LTRF, this table must be modified.
2. Change in storage represents total inflow to LTRF minus total outflow from LTRF.

Leachate Treatment Facility Flows

Day	Influent	Total	Effluent	Total
Last				
1		0		0
2		0		0
3		0		0
4		0		0
5		0		0
6		0		0
7		0		0
8		0		0
9		0		0
10		0		0
11		0		0
12		0		0
13		0		0
14		0		0
15		0		0
16		0		0
17		0		0
18		0		0
19		0		0
20		0		0
21		0		0
22		0		0
23		0		0
24		0		0
25		0		0
26		0		0
27		0		0
28		0		0
29		0		0
30		0		0
31		0		0

Southeast County Landfill
Storage Tanks Inspection

Date: _____ Time: _____

			LEACHATE	PROCESS	2ND STAGE CLARIFIER	METHANOL	EFFLUENT #1	EFFLUENT #2
			T1	T2	T3	T4	T5	T6
TANKS	1	Any visible leaks? (Y/N)						
	2	Any dents or scratches evident?						
	3	Any exterior corrosion?						
	4	Level controls in good condition?						
	5	Current Cathodic Protection		N/A	N/A	N/A	N/A	
	6	Volume of Tank (gals)	575,000	220,000	19,000	1,700	3,700	575,000
	7	Material of Construction:	STEEL	STEEL	STEEL	STEEL	STEEL	STEEL
PIPES	8	Any pipes bent or deformed?						
	9	Any joints or connections leak?						
	10	Are the pipes free of corrosion?						
CONTAINMENT	11	Is containment area in good condition?						
	12	Is there non-stormwater in the secondary containment area?						
	13	If no, was the stormwater released?						

Comments: _____

_____

Comments: _____

_____

Comments: _____

_____

Inspector's Signature: _____

SOLID WASTE MANAGEMENT DIVISION
SOUTHEAST COUNTY LANDFILL

LEACHATE HAULING / DISPOSAL REPORTING FORM

DATE: _____

DISPOSAL LOCATION: _____

Time loaded	PRODUCT E / L	LOAD NO.	GALLONS	METER READING START	METER READING END	pH	Time unloaded
		TOTAL:					

Signature: _____
Driver

Signature: _____
Plant Operator

Comments_____

Was sample taken: Y N if yes, sample was taken by: _____Date:_____Time:_____
Initials

E = Effluent (Treated Leachate)
L = Leachate (Raw Leachate)

Note: Gallons are to be recorded and totaled daily.

Attachment 2

Leachate Management Plan Phases I-VI and The Capacity Expansion Area Southeast County Landfill Hillsborough County, Florida

Hillsborough County - Public Utilities Department
Solid Waste Management Group (SWMG)
332 N. Falkenburg Road
Tampa, FL 33619

Florida Board of Professional Engineers
Certificate No. 00004892

SCS ENGINEERS

09215600.07 | October 2018

3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619
813-621-0080

LEACHATE MANAGEMENT PLAN
PHASES I-VI AND THE
CAPACITY EXPANSION AREA
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

Presented To:
Hillsborough County
Public Utilities Department
Solid Waste Management Group (SWMG)
332 N. Falkenburg Road
Tampa, FL 33619

Presented From:

SCS ENGINEERS
3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619

Florida Board of Professional Engineers
Certificate No. 00004892

October 2018
File No. 09215600.07

Kollan L. Spradlin, P.E.
FL Reg. No. 82852

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Appendices

1.0 LEACHATE MANAGEMENT

The Hillsborough County Southeast County Facility (Facility) includes the Southeast County Landfill (SCLF), which is permitted by the Florida Department of Environmental Protection (FDEP) as a Class I landfill for Phases I-VI and the Capacity Expansion Area (CEA). This Leachate Management Plan (LMP) includes Phases I-VI and Sections 7, 8, and 9 of the CEA.

This plan will give the SCLF employees a general understanding of the requirements for managing the leachate generated from the Class I landfill operations within the Phases I-VI and CEA disposal areas. As defined in Rule 62-701.200(59), Florida Administrative Code (FAC), leachate is liquid that has passed through or emerged from solid waste and may contain soluble, suspended, or miscible materials. Leachate must be contained and kept separate from any groundwater or surface waters.

2.0 LEACHATE GENERATION

One of the goals of the landfill design and daily operation is to minimize leachate production from the landfill to reduce the cost associated with leachate treatment and thus minimize the potential environmental contamination risks. The methods described in this section can be used separately or simultaneously to achieve leachate reduction.

Leachate is generated as water passes through solid waste or as liquids drain from solid waste materials. Water may be from stormwater infiltration, irrigation, groundwater, or other sources added to the waste material. Liquids from the solid waste include moisture from food or waste products and fluids disposed of in the waste. Water and liquids that drain through or from the waste materials eventually drain via gravity into the collection systems at the bottom of the Class I disposal areas. Once collected, the leachate is pumped to the leachate storage tank. From the storage tank the leachate can be conveyed to the on-site Leachate Treatment and Reclamation Facility (LTRF) for treatment or hauled off site for treatment at a permitted wastewater treatment facility.

In addition, leachate is generated in the form of condensate from the collection of landfill gas (LFG) from Phases I-VI and the CEA. Condensate is managed by several methods, including drainage back to the landfill or collection in sumps at low areas. While LFG condensate collection and transmission are not addressed in the leachate management plan, condensate management is addressed within the Gas Collection and Control System (GCCS) Plan for the SCLF referenced as part of the SCLF Title V operating permit. This plan should be referenced for details regarding condensate management.

3.0 LEACHATE COLLECTION SYSTEMS

The leachate collection system for Phases I-VI and the leachate collection and detection systems for the CEA are depicted in **Figure 3-1** and **Figure 3-2**, respectively. Additional descriptions of these systems are provided in the following sections.

3.1 PHASES I-VI LEACHATE COLLECTION

Phases I-VI of the Facility were constructed directly above a waste clay settling area for a former phosphate mine known as Lonesome Phosphate Mine or Boyette Mine. The Phases I-VI landfill is approximately 162.4 acres. The settling area, also known as Settling Area No. 1, was built on natural ground with a perimeter dike constructed of sand borrowed from surrounding areas. As part of the phosphate mining operations, waste phosphatic clay and other soils were washed and phosphate minerals removed from the surrounding soils.

The washed waste phosphatic clays and soils were pumped to the settling areas and allowed to settle to the bottom of the settling ponds. The low-permeability waste phosphatic clays now form the bottom containment liner for the disposal of waste in the Phase I-VI area. A single layer of 36-mil chlorosulfonated polyethylene (CSPE) tied into the waste phosphatic clay layer as a side containment liner barrier.

The leachate collection and removal system for Phases I-VI consists of crushed granite rock and tire-chip-filled trenches, 8-inch diameter perforated Schedule 80 polyvinyl chloride (PVC) pipes in granite rock-filled trenches, and 8-inch diameter perforated high density polyethylene (HDPE) pipes in granite rock-filled trenches. The gravel- and tire-filled trenches drain to the 8-inch pipes which then drain to Pump Station B (PS-B) located in the Phase VI disposal area. PS-B was designed to be the ultimate low point for the entire footprint of Phases I-VI after final placement of waste material and loading of the waste phosphatic clays. As the waste phosphatic clays are loaded, the clays settle. Excess water from within the clays is squeezed out during the loading of the clays and enters the leachate collection system.

3.2 CAPACITY EXPANSION AREA LEACHATE COLLECTION

3.2.1 Section 7

3.2.1.1 Leachate Collection System

Section 7 of the CEA landfill is approximately 12.5 acres. The dimensions of Section 7 are approximately 750 feet long (southwest to northeast) and 800 feet wide (northwest to southeast). Section 7 was designed with a double-liner system—one for leachate collection on the primary liner and the other for detection (secondary liner) of any leachate that may leak through the collection liner. A 300-mil bi-planar geocomposite was installed on the top of each of the 60-mil HDPE geomembranes to convey leachate toward collection trenches. Twelve inches of drainage sand and 12 inches of chipped tires were placed above the primary collection system to provide additional drainage collection and provide puncture protection of the underlying HDPE liners.

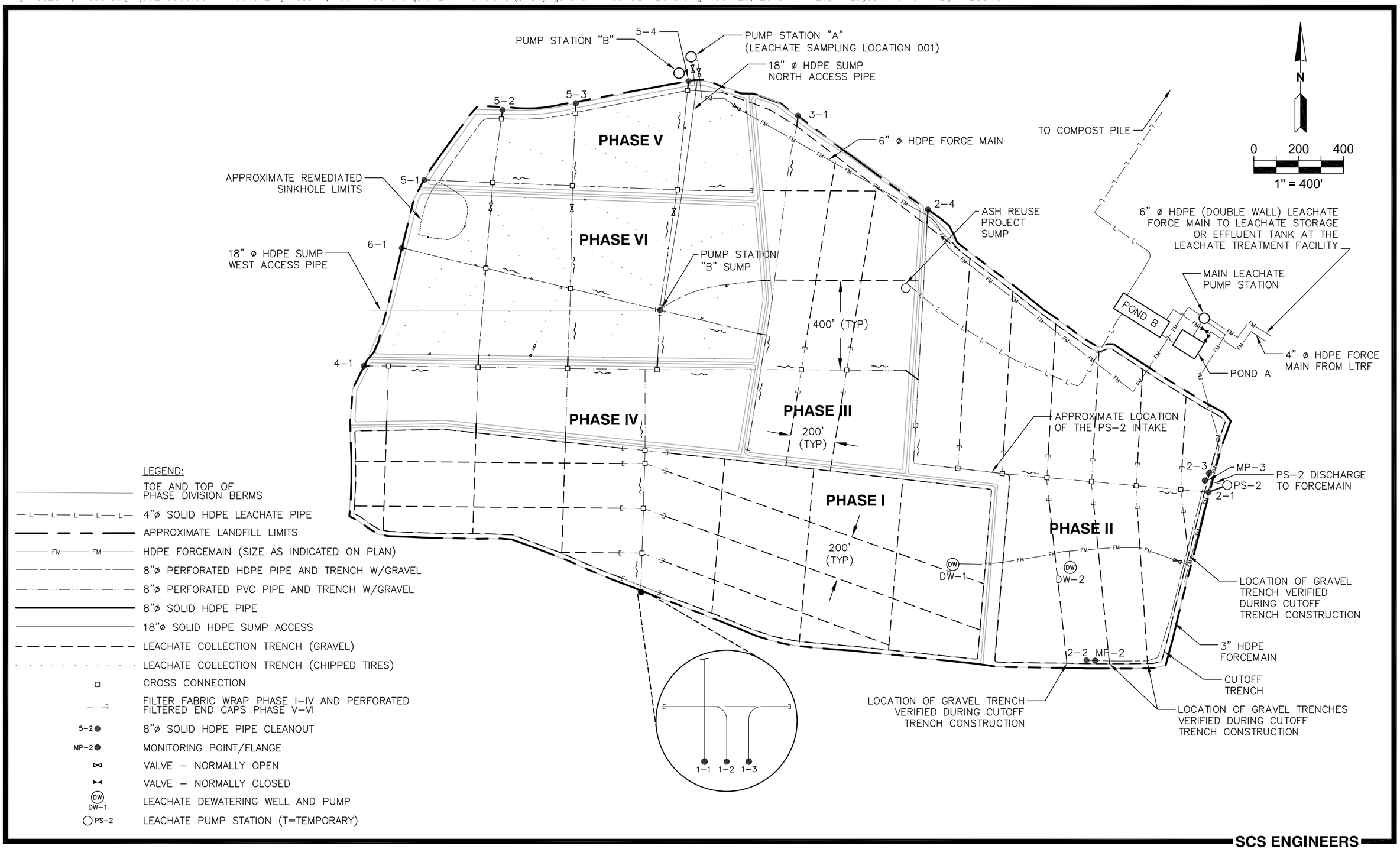
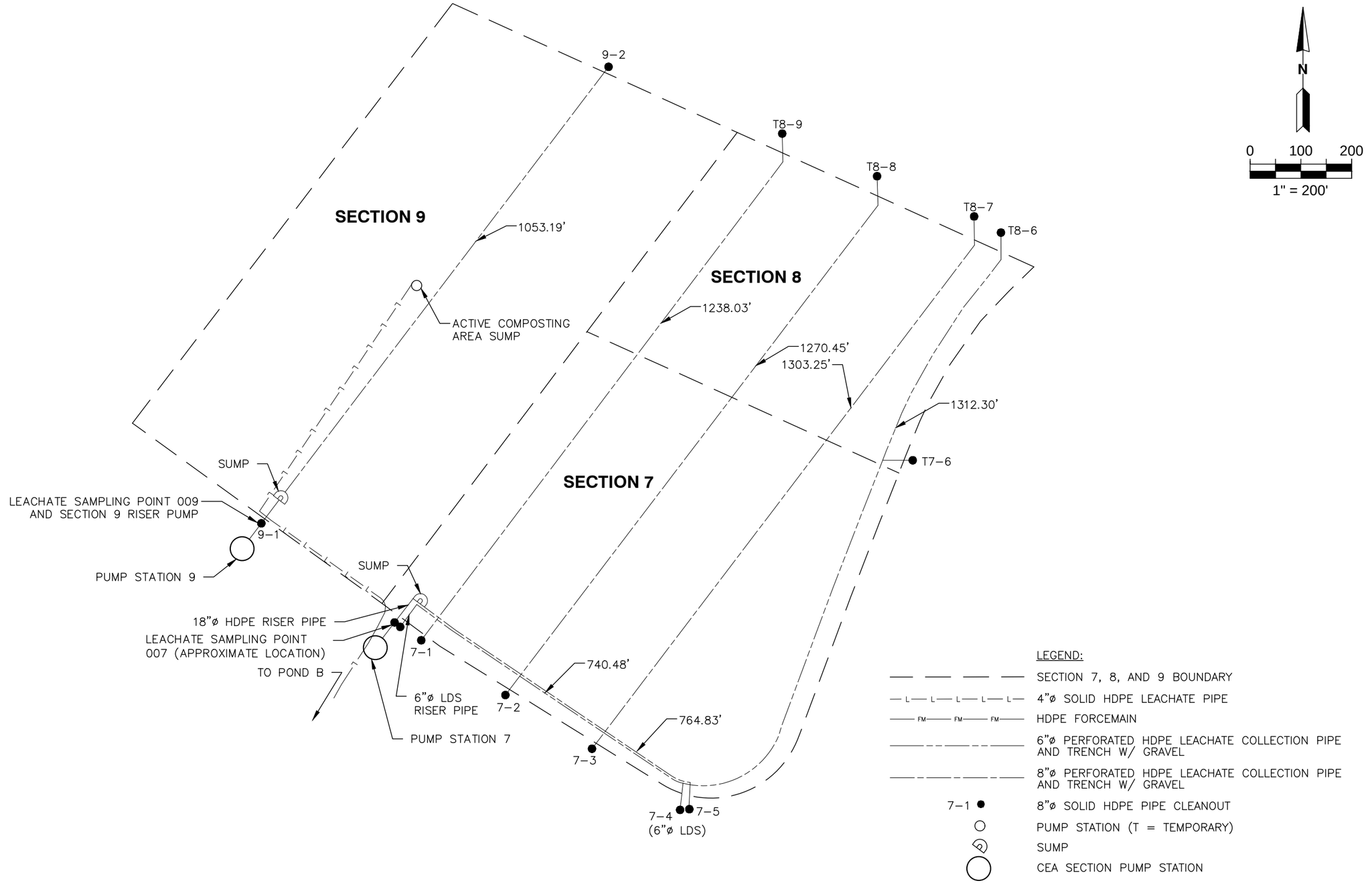


FIGURE 3.1. PHASES I–VI LEACHATE COLLECTION AND REMOVAL SYSTEM
HILLSBOROUGH COUNTY
OCTOBER 2018



SCS ENGINEERS

FIGURE 3.2. CAPACITY EXPANSION AREA (SECTIONS 7, 8, AND 9) – LEACHATE COLLECTION AND REMOVAL SYSTEM
HILLSBOROUGH COUNTY
OCTOBER 2018

Leachate travels through the primary geocomposite and sand/tire-chip drainage layer and is collected in the leachate collection trench. This trench consists of 8-inch perforated HDPE leachate collection pipes and gravel wrapped in a geotextile to minimize migration of sand into the pipes. Leachate that collects in the trench flows to a collection header and then toward a collection sump in the southwest corner of Section 7. The sump was designed as the lowest point in Section 7 and was filled with gravel. A riser pipe was installed in the gravel fill of the sump and contains a submersible pump for leachate removal.

3.2.1.2 Leachate Detection System

The leachate detection system of Section 7 consists of a bi-planar geocomposite between the primary and secondary geomembranes. The geocomposite drains leachate toward an 8-inch perforated HDPE pipe in a gravel-filled trench. The lateral pipes drain to a main header on the southwest end of Section 7. The main header drains to the low point of Section 7 containing a sump with gravel fill and a riser pipe. Leachate is removed from the Section 7 leachate detection system via the riser pipe using an above-grade pump.

During standard practices, the detection system is expected to collect a small volume of leachate. Leakage rates collected in the detection system will be used to monitor the performance of the collection system. The action leakage rate for the CEA is discussed in Section 9.3.2.

3.2.2 Section 8

3.2.2.1 Leachate Collection System

Section 8 of the CEA is approximately 6.8 acres. The dimensions of Section 8 are approximately 500 feet long (southwest to northeast) and 660 feet wide (northwest to southeast). Section 8 was designed with a double-liner system—one for leachate collection (primary liner) and the other (secondary liner) for detection of any leachate that may leak through the collection liner. A

300-mil tri-planar geocomposite was installed on the top of each of the 60-mil HDPE geomembranes to convey leachate toward leachate collection trenches. Twelve inches of drainage sand and 12 inches of chipped tires were placed above the primary collection system to provide additional drainage collection and provide puncture protection of the underlying HDPE liners.

The design of Section 8 included connecting the leachate collection and detection system components to Section 7. Therefore, leachate travels through the upper geocomposite and sand/tire drainage layer and is collected in the leachate collection trenches in Section 8. These trenches consist of an 8-inch perforated HDPE leachate collection pipe and several feet of gravel wrapped in woven geotextile. Leachate that collects in the Section 8 trenches continues to flow though Section 7 trenches. Once in the Section 7 collection system, leachate drains to the sump in the southwest corner of Section 7.

3.2.2.2 Leachate Detection System

The leachate detection system of Section 8 consists of a tri-planar geocomposite between the primary and secondary geomembranes. The Section 8 tri-planar geocomposite was connected to the Section 7 bi-planar geocomposite. The geocomposite drains leachate to 8-inch perforated HDPE pipes in gravel filled trenches. The trenches flow through Sections 7 and 8. The lateral pipes drain to a main header on the southwest end of Section 7. The main header drains to the leachate sumps in the southwest corner of Section 7 as described in previous sections.

During standard practices the detection system should collect a small amount of leachate. Leakage rates collected in the Section 8 detection system cannot be measured independently from Section 7; however, since each system is connected, the total leakage measured in the Section 7 sump will be used to monitor the performance of the Sections 7 and 8 leachate detection systems.

3.2.3 Section 9

3.2.3.1 Leachate Collection System

Section 9 of the CEA landfill is approximately 15.2 acres. Section 9 is approximately 980 feet long (southwest to northeast) and 580 feet wide (northwest to southeast). The primary leachate collection system is composed of a combination of synthetic materials and natural granular materials. A geocomposite consisting of an HDPE geonet with the top and bottom sides bonded to a geotextile is directly above the primary 60-mil HDPE geomembrane. The geocomposite is overlain by a 12-inch-thick natural granular (sand) drainage layer and a 12-inch-thick chipped-tire drainage layer.

Leachate flows by gravity to a central leachate collection trench that conveys the leachate to the leachate collection sump on the south side of Section 9. The leachate collection pipe is a perforated 8-inch-diameter SDR 11 HDPE pipe surrounded by gravel and geotextile. From the sumps, leachate is pumped via a 6-inch SDR 11 HDPE forcemain to the LTRF located northeast of Sections 7 and 8.

3.2.3.2 Leachate Detection System

The leachate detection system for Section 9 includes a geocomposite consisting of a HDPE geonet with the top and bottom sides bonded to a geotextile installed between the primary and secondary geomembranes. Leachate entering the secondary Leachate Collection and Removal System (LCRS) flows by gravity through the geonet to the leak-detection trench. The trench, constructed at a slope of approximately 0.75%, conveys leachate to a leachate-detection sump on the south side of Section 9. From the sump, leachate is pumped via a 6-inch SDR 11 HDPE forcemain to the LTRF.

During standard practices, the detection system is expected to collect a small volume of leachate. Leakage rates collected in the detection system will be used to monitor the performance of the collection system. The action leakage rate for the CEA is discussed in Section 9.3.2.

4.0 LEACHATE TRANSMISSION

A schematic of the leachate management system at the SCLF is shown in Figure 4-1. The following sections provide additional details for the transmission components of the leachate management system at the SCLF.

4.1 PHASES I-VI

4.1.1 Pump Station A (PS-A)

PS-A consists of an 8-foot inside-diameter below-grade concrete sump with a single submersible pump. From PS-A, leachate is pumped to the Main Leachate Pump Station (MLPS) via force main. The pump operation is set with the "on" float at 42 inches from the sump bottom and the "off" float at 18 inches from the sump bottom.

If a high-level condition occurs, the PS-A sump control panel will shut down Pump Station B (PS-B). It will also transmit a signal, via a transceiver, with the sump condition to the control computer in the LTRF, the effluent/leachate storage tank (T6), and the landfill administration office located at the scalehouse at the entrance of the SCLF. If PS-A will be inoperable for more than 8 hours, leachate from PS-B will be pumped through the bypass line directly to the MLPS.

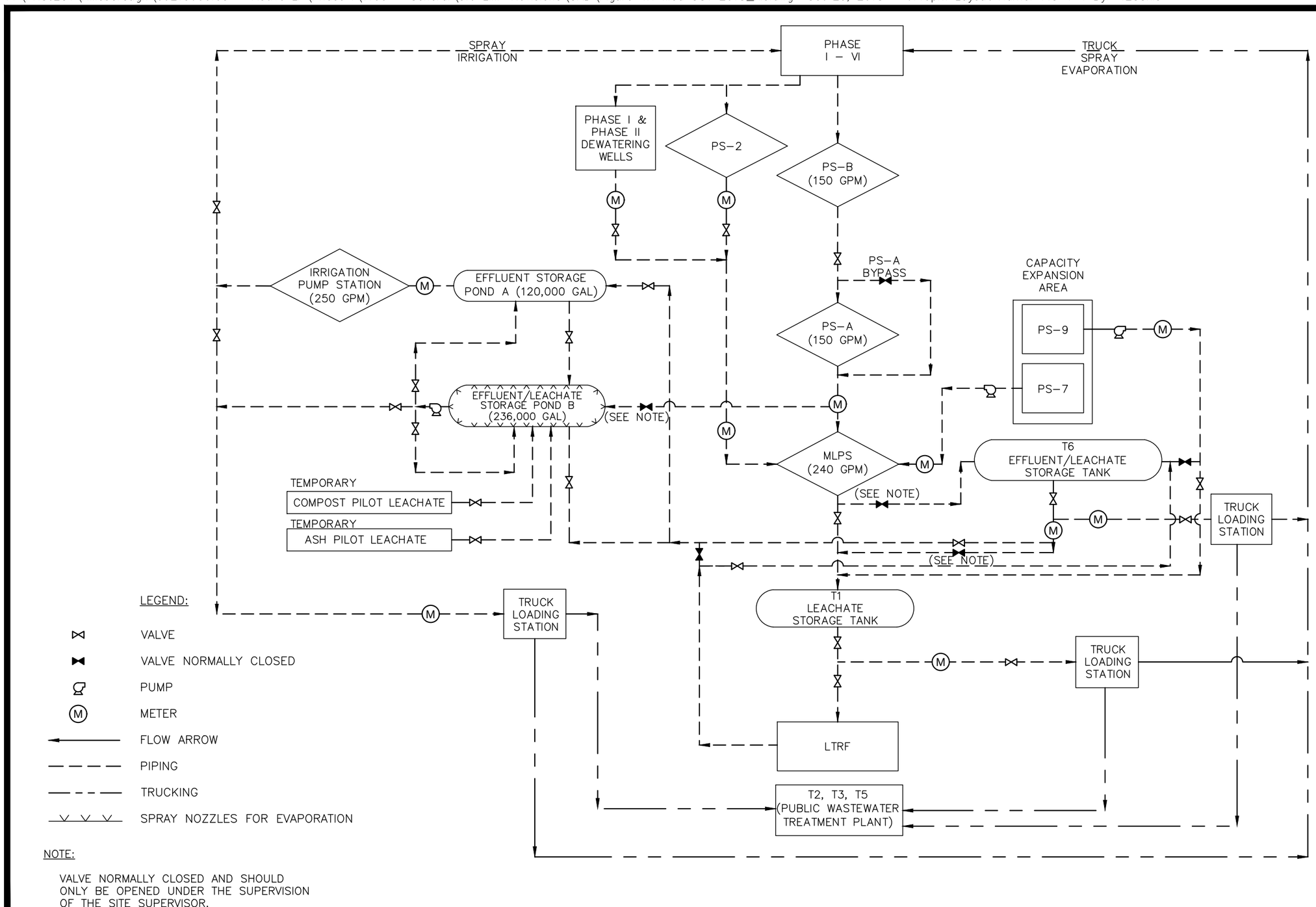
4.1.2 Pump Station B (PS-B)

PS-B sump (located in Phase VI) is the primary leachate collection point for Phases I-VI. Upon consolidation of the phosphatic clay liner, the low point for the final collection and removal of leachate within the landfill is projected to be at the PS-B sump location. The LCRS for the landfill was designed to drain to the PS-B sump.

PS-B sump consists of an 8-foot square (inside dimension) below-grade concrete vault. The vault has two 18-inch diameter HDPE horizontal access pipes, the main access pipe leading to PS-A, and an alternate access pipe leading toward the western perimeter of the landfill between cleanouts 4-1 and 6-1.

The primary pumps used to remove leachate from the PS-B sump are self-priming pumps each with a capacity of 150 gallons per minute (gpm). If the primary pumps fail, the operations contractor can obtain a secondary vacuum-assisted diesel pump that may be used as backup. PS-B sump is equipped with a level indicator located at the control panel near PS-A, and the SWMG monitors the liquid level daily to ensure that the levels noted below are maintained. Maintaining the operation of PS-B as proposed will provide reasonable assurance that Phases I-VI will maintain a leachate head over the liner of 12 inches or less during routine landfill operation.

PS-B pumps leachate to PS-A via a vacuum-assisted pump. The bubbler leveling system with an "on" sensor is set at 24 inches above the sump bottom and the "off" sensor is set at 15 inches from the bottom. The settings provide for free flow of leachate into the landfill lower sump area from the surrounding Phase I-VI disposal areas



SCS ENGINEERS

FIGURE 4.1. LEACHATE MANAGEMENT SYSTEM SCHEMATIC
HILLSBOROUGH COUNTY
OCTOBER 2018

4.1.3 Pump Station 2 (PS-2)

Pump Station 2 (PS-2) consists of a vacuum assisted pump with a 3-inch HDPE suction line into the Phase II clean out 2-1 (CO 2-1). The pump discharges via a 3-inch HDPE buried forcemain directly into the MLPS. The pump will be operated by SWMG staff to supplement leachate removal from Phase II of the landfill and the Phase II Cut-off Trench. The primary goal of this pump is to maintain the leachate level in the Monitoring Port No. 2 (MP 2-2) and Monitoring Port No. 3 (MP 2-3) below 30-inches. The CO 2-1 connection to the Phase II Cut-off Trench and the Phase II header allows PS-2 to influence the liquid level in MP 2-2 and MP 2-3. The leachate quantities will be recorded by an electronic flow meter.

4.1.4 Dewatering Wells

Dewatering wells were installed to provide supplemental leachate removal from Phases I and II. One well nest was installed in Phase I and one in Phase II. Each well nest consists of two 8-inch diameter HDPE well casings set within one 36-inch diameter borehole that spans from ground surface, through the waste, to 1-foot below the top of the clay liner. Each of the well casings contains a pneumatic pump connected to a 3-inch diameter HDPE buried forcemain conveying the leachate to the MLPS. The wells are topped with an all-weather polyethylene dual extraction well cap and 2-inch LFG wellhead. The Phase I leachate extraction wells are designated DW 1-1 and DW 1-2, and the Phase II leachate extraction wells are designated DW 2-1 and DW 2-2. The pneumatic pump counters will estimate the leachate quantities.

4.2 CAPACITY EXPANSION AREA

4.2.1 Section 7 – Pump Station 7 (PS-7)

The leachate collection and leachate detection system piping for Sections 7 and 8 drain to sumps in the southwest corner of Section 7 as shown in **Figure 3-2**. The leachate detection sump is pumped to the leachate collection sump by an above-grade pump located at PS-7. The leachate collection sump pumps leachate using a submersible pump in the sump to the MLPS via an underground force main.

There are separate pumps for the leachate collection (submersible pump) and detection (above grade pump) sideslope risers. The levels in each sump are controlled with pressure transducers at the bottom of the riser pipes. These transducers are programmed for a high-level alarm at 48 inches, pump on at 24 inches, and pump off at 12 inches. All elevations are from the bottom of the Section 7 sump. Flow measurements are taken using readings from magnetic flow meters on each discharge line. Separate sampling ball valves allow separate leachate samples to be taken from either the collection or detection sumps.

4.2.2 Section 8 – (No Pumping Systems)

Section 8 was constructed by connecting the leachate collection and detection systems to the Section 7 systems. No pumping systems are included in the Section 8 design. Section 8 uses the sumps and pumps for Section 7 to pump leachate to the MLPS.

4.2.3 Section 9 – Pump Station 9 (PS-9)

The Section 9 area includes sideslope riser pipes—two for the primary leachate collection and one for the leachate detection systems—with submersible pumps. All the pumps for the Section 9 area are

controlled by a separate control panel located on the south side of Section 9. Leachate is conveyed by a buried forcemain which connects to the existing forcemain on the south side of Section 7. The forcemain then continues to the leachate storage tank (T1) or effluent/leachate storage tank (T6) northeast of the CEA.

The Section 9 pumps are controlled by a bubbler level sensing system at the PS-9 control panel. The standard practice bubbler settings for the leachate collection pumps from the bottom of the sump are high-level alarm at 36 inches, lag pump on at 33 inches, lead pump on at 27 inches, and low level alarm at six inches. The standard practice bubbler settings for the detection pump from the bottom of the sump are high-level alarm at 36 inches, pump on at 27 inches, and pump off at 21 inches.

In addition, the Section 9 pumps are deactivated when the leachate storage tank (T1) senses a high-level alarm.

4.3 MAIN LEACHATE PUMP STATION (MLPS)

The MLPS consists of a 7-foot-square (inside dimension) below-grade concrete sump with dual submersible pumps (i.e., one operating and one stand-by). Each submersible pump is rated to pump at a maximum discharge rate of 240 gpm. The operating pump is set for a 24-hour operation cycle with the “on” float at 48 inches from the sump bottom and the “off’ float at 24 inches from the sump bottom.

If a high-level condition occurs at the MLPS sump, the control panel will shut down PS-7, PS-A, PS-B, PS-2, and all pneumatic pumps. It will also transmit a signal, via a transceiver, with the sump condition to the control computer in the LTRF effluent/leachate storage tank (T6). Maintenance and inspection of the MLPS pump are described in Section 10.0.

From the MLPS, leachate is pumped to the 575,000-gallon leachate storage tank (T1) or to the 575,000-gallon effluent/leachate storage tank (T6) [effluent/leachate storage tank (T6)—for emergency use only, as described in Section 7.0] at the LTRF.

5.0 LEACHATE STORAGE TANK (T1)

Leachate from Phases I-VI and the CEA is currently stored in a 575,000-gallon (maximum capacity) glass-fused-to-steel aboveground raw leachate holding tank before being treated or hauled. The leachate level in the leachate storage tank (T1) is maintained to provide for the maximum storage capacity possible. The leachate storage tank (T1) is maintained with an average low level of six feet (as measured from the bottom of the tank) or 173,000 gallons to ensure that enough leachate is available for the LTRF to operate 3 days without interruptions. When the level in the leachate storage tank (T1) is below six feet, leachate hauling and spray evaporation will be temporarily reduced or stopped. Similarly, an action level is established for a high level of 11 feet (from bottom of tank) in the leachate storage tank (T1). A level of 11 feet provides a storage capacity in the leachate storage tank (T1) of 259,000 gallons (4 days' storage) to allow continuous operation of the landfill pump stations. When levels are above 11 feet, treatment, hauling, and/or spray evaporation will be increased.

If a high-level alarm condition occurs (at 17.5 feet) in the leachate storage tank (T1), the LTRF will continue to operate, and the MLPS, PS-9, and the LTRF filtrate pumps will be shut down. A signal indicating the leachate storage tank (T1) condition will be sent to the control computer in the LTRF. When a high-level alarm condition exists, additional hauling trucks will be used to transport the leachate to a WWTP, thus lowering the leachate level in the tank.

5.1 T1 SECONDARY CONTAINMENT SYSTEM

The LTRF leachate tank system is located within a concrete containment area. The secondary containment area has two sumps for stormwater drainage with 6-inch diameter HDPE pipes. The gate valves from the HDPE pipes are normally closed, in the event of an uncontrolled release. The gate valves are occasionally opened to release stormwater from the impoundment as needed. The LTRF secondary containment area was designed to hold 110% of the volume of the largest storage tank in case of failure of the tanks. Therefore, the concrete flooring and containment walls will be inspected weekly for cracks or structural deficiencies as discussed in Section 5.3. Any cracks will be immediately sealed using flexible concrete grout. Any structural deficiencies will be identified and corrective action taken to repair the walls.

5.2 T1 LIQUID LEVEL MONITORING

The leachate storage tank (T1) contains an overflow pipe. The overflow pipe is installed outside of the storage tank, with the tank sidewall penetration within 30 inches of the top of the sidewall of the tank. The tank is equipped with liquid level indicators that are float-operated with a direct readout. The level gauge boards are mounted in a highly visible location on the exterior of the tank. The tank level is recorded daily on the leachate reporting forms. An example form is provided in Appendix A.

5.3 T1 EXTERIOR AND INTERIOR INSPECTIONS

The following describes the inspections of the leachate storage tank (T1) and procedures to be followed after the inspections:

- Overfill Prevention System: The overfill prevention system components will be inspected weekly. These components include level sensors, gauges, high-level alarm, and automatic shutoff controls.

- Tank Exterior: The exterior of the tanks and the secondary containment system will be inspected weekly for adequacy of the impressed current cathodic protection system, leaks, corrosion, and maintenance deficiencies. The control panel for the impressed current cathodic protection system (located on the outside of the secondary containment walls next to the truck loading station) will be inspected to ensure that it is working properly. In addition, the inspection includes evaluating structural damage to the tank, damage to the coating system, loose connections, corrosion, visible leaks, and maintenance deficiencies. The inspector will also look for any structural damage to the concrete slab, peeling of the paint system, and visible leaks.
- Tank Interior: The interior of the tanks will be inspected whenever the tanks are drained or at least every three years. The inspector will look for any damage to the interior coating system, structural damage, cracking of the tank, visible leaks, and any accumulation of sludge.
- Procedures for Corrective Actions: If inspections reveal any deficiencies with the tank or the secondary containment system that could result in the system's failing to contain the leachate, the SWMG shall take immediate action to correct the situation by assessing the problem and coordinating the required actions. Failures or damage to the tanks will be repaired by the tank manufacturer or a designated contractor. The SWMG shall notify the manufacturer or designated contractor of the situation; the tank manufacturer or designated contractor will remediate the tanks and prepare a detailed damage-assessment report. FDEP will be notified in writing of the situation and of the proposed corrective action.

Inspection Reports: Inspection reports and reports of any remedial action measures taken will be maintained at the SCLF and will be made available to FDEP upon request. The weekly inspection report form is provided in Appendix A. All reports will be maintained for the life of the tanks and the containment system.

6.0 LEACHATE TREATMENT AND RECLAMATION FACILITY (LTRF)

In December 1994, the SWMG constructed an on-site LTRF. The LTRF system and operation are described in detail in the *General Process and Operation Manual for the Powder Activated Carbon Treatment (PACT) System, Volume III*, prepared by Zimpro Environmental, Inc. dated March 1994.

Process tanks and equipment are maintained in accordance with *General Process and Operation Manual for the Powder Activated Carbon Treatment (PACT) PACT System*, dated March 1994.

After treatment, the leachate is pumped through a 4-inch-diameter single-walled HDPE pipe to the effluent storage pond (Pond A) or the effluent/leachate storage tank (T6) described in Section 7.0. The effluent from the LTRF must meet pre-treatment standards before being pumped to a tanker truck for transport to Hillsborough County's wastewater treatment facilities.

7.0 EFFLUENT/LEACHATE STORAGE TANK (T6)

The effluent/leachate storage tank (T6) is a welded steel aboveground tank with a maximum capacity of 575,000 gallons. The effluent/leachate storage tank (T6) receives treated leachate (effluent) from the LTRF and pumps effluent to the effluent storage pond (Pond A) or stores the effluent for transport to Hillsborough County's wastewater treatment facilities. If leachate must be stored in the effluent/leachate storage tank (T6) from the MLPS while the leachate storage tank (T1) is repaired or inspected, normal operations at the LTRF will stop. Once the leachate storage tank (T1) is repaired or inspected, the leachate stored in the effluent/leachate storage tank (T6) will be pumped back to the leachate storage tank (T1). The effluent/leachate storage tank (T6) will be cleaned of leachate before effluent storage resumes.

The following standard and special setting conditions are applicable to T6:

1. Pump effluent from the LTRF to the effluent/leachate storage tank (T6) (standard practice).
2. Pump effluent from the effluent/leachate storage tank (T6) to Pond A or the truck loading area (standard practice).
3. Pump leachate from the MLPS to the effluent/leachate storage tank (T6) (special condition).
4. Pump leachate from the effluent/leachate storage tank (T6) to the leachate storage tank (T1) (special condition).

7.1 T6 SECONDARY CONTAINMENT SYSTEM

The secondary containment system for the effluent/leachate storage tank (T6) can contain a minimum of 110% of the total volume of the tank. The effluent/leachate storage tank (T6) provides 575,000 gallons of maximum storage.

The secondary containment system consists of a 60-mil HDPE geomembrane lined basin. The tank is constructed at the bottom of the basin on a reinforced concrete pad and surrounded by a 6-inch thick reinforced concrete walkway. The lined basin is connected at the walkway slab and runs up 3H:1V sideslopes where it is anchored at a 12-foot wide berm.

The precipitation collected in the containment area is pumped into the adjacent stormwater management system via a horizontal submersible pump and sideslope riser. The sideslope riser system includes an additional camlock connection to be used for emergency effluent/leachate removal using an additional pump. Any spilled leachate and/or effluent that accumulates in the secondary sump is pumped to the leachate storage tank (T1) via a suction line originating from the horizontal centrifugal pump at the loading pad. The centrifugal pump is equipped with valves to operate in suction mode to remove any spilled effluent/leachate from the secondary sump. The submersible sump pump is manually operated to remove stormwater or used as an alternate for effluent/leachate removal.

Accumulated precipitation will be removed within 24 hours of observation. The precipitation will be pumped into the adjacent stormwater management system.

Accumulated liquid in the trench drain that is not precipitation resulting from a recent storm event will be treated as effluent and pumped into the effluent/leachate storage tank (T6).

7.2 T6 LIQUID LEVEL MONITORING

The effluent/leachate storage tank (T6) contains an 8-inch overflow pipe. The overflow pipe is installed outside of the effluent/leachate storage tank (T6) with the tank sidewall penetration within 30 inches of the top of the sidewall of the tank. The tank is equipped with liquid level indicators that are float operated with a direct readout. The control panel is mounted in a highly visible location on the exterior of the tank. When the high-level alarm condition occurs (at 17.5 feet), a visual and audible alarm (a light and horn) located at the control panel to alert staff of a potential problem before overflow. The effluent/leachate storage tank (T6) level is recorded daily on the leachate reporting forms provided in Appendix A.

7.3 T6 EXTERIOR AND INTERIOR INSPECTIONS

The following describes the inspections of the effluent/leachate storage tank (T6) and steps to be followed after the inspections.

- Overfill Prevention System: The overfill prevention system components will be inspected weekly. These components include level sensors, gauges, high-level alarm, and automatic shutoff controls.
- Tank Exterior: The exterior of the tank and the secondary containment system will be inspected weekly for adequacy of the cathodic protection system, leaks, corrosion, and maintenance deficiencies. In addition, the inspection includes an evaluation of any structural damage to the tank, damage to the coating system, loose connections, corrosion, visible leaks, and maintenance deficiencies. The inspector will also look for any structural damage to the concrete slab or HDPE lining of the secondary containment system, peeling of the paint system, and visible leaks.
- Tank Interior: The interior of the tank will be inspected whenever the tank is drained or at least every three years. The inspector will look for any damage to the interior coating system, structural damage, cracking of the tank, visible leaks, and accumulation of sludge.
- Procedures for Corrective Actions: If inspections reveal any deficiencies with the tank or the secondary containment system that could result in failure of the system to contain the leachate, the SWMG shall take immediate action to correct the situation by assessing the problem and coordinating the required actions. Failures or damage to the tanks will be repaired by the tank manufacturer or a designated contractor. The SWMG shall notify the manufacturer or designated contractor of the situation; the tank manufacturer or designated contractor will remediate the tanks and prepare a detailed damage assessment report. FDEP will be notified in writing of the situation and of the proposed corrective action.
- Inspection Reports: Inspection reports and reports of any remedial action measures taken will be maintained at the SCLF and will be made available to FDEP upon request. The weekly inspection report form is provided in Appendix A. All reports will be maintained for the life of the tanks and the containment system.

7.4 ACID MIXER AND TANK

The acid dosing pumps at the effluent/leachate storage tank (T6) pump station inject sulfuric acid into the 4-inch effluent pipe. Landfill personnel monitor the pH by pulling grab samples from the sampling port or reading from the pH meter at the control panel, thereby allowing the acid dosing to

be optimized and preventing large swings in pH. The acid dosing rate is controlled by an operator at the control panel using the pH readout to adjust the acid dose to achieve the appropriate pH range. Also, the system includes controls between the acid dosing pumps and the pH meter to allow automatic acid dosing. The acid dosing pump controls are connected to the booster pump controls so acid dosing will only occur when the booster pumps are running. In addition, when the booster pumps are signaled off, the acid dosing pumps stop and the booster pumps continue to run for approximately 30 seconds to allow the piping system to be flushed of any residual acid.

8.0 LEACHATE AND EFFLUENT DISPOSAL

Leachate is disposed of at the SCLF by various methods, including treatment at the on-site LTRF, hauling of raw leachate via tanker truck to a Hillsborough County Wastewater Treatment Facility (WWTF), and truck-mounted spray evaporation of raw leachate within the contained working surface. Effluent from the on-site LTRF is disposed of by an effluent spray irrigation system, effluent evaporation, or transporting effluent via tanker trucks to a county WWTF.

8.1 EFFLUENT STORAGE POND

The effluent storage pond (Pond A) receives treated leachate (effluent) from the LTRF or the effluent/leachate storage tank (T6). The pond is lined with 80-mil HDPE and provides for temporary effluent storage of 120,000 gallons plus one foot of freeboard. Using the existing staff gauge in the pond, Pond A is maintained at a maximum depth of 3.7 feet (elevation 136.9) and a minimum depth of six inches. The minimum depth of six inches provides head over the liner to prevent damage due to uplift from wind and other elements. Off-site hauling could increase if levels in Pond A reach the maximum level of 3.7 feet. In addition, an overflow pipe allows flow from Pond A into Pond B. Similarly, if levels are below six inches, irrigation, evaporation, and off-site hauling from Pond A will be temporarily reduced.

The following standard and special setting conditions are applicable at Effluent Storage Pond A:

1. Pump effluent from Pond A to spray irrigation system (standard condition).
2. Pump effluent from Pond A to truck loading arm (standard condition).
3. Recirculate effluent in Pond A to stabilize pH (special condition).

8.2 EFFLUENT/LEACHATE STORAGE POND B

The effluent/leachate storage pond (Pond B) provides an additional storage volume of 236,000 gallons and is located next to Pond A, as shown in **Figure 3-1**. Pond B was designed with one foot of storage for the 25-year/24-hour storm and one foot of freeboard. The pond was designed to store either raw leachate or effluent; however, Pond B's primary use is for additional storage of effluent from the LTRF or the effluent/leachate storage tank (T6). If the need for leachate storage arises, the SWMG will notify FDEP before using the pond for leachate storage. The notification to FDEP will include the reason(s) for leachate storage in the pond and the anticipated duration.

Pond B was designed with an upper and lower 60-mil HDPE geomembrane. An HDPE geonet was installed between the two liners. The subbase for the lower geomembrane consists of six inches of soil with a saturated hydraulic conductivity of 1×10^{-5} centimeters per second or less, installed over the on-site soil which was cleared of vegetation and graded. Supplemental effluent evaporation in Pond B is provided using a spray evaporation system. The spray evaporation nozzle system was designed around the perimeter of the pond and consists of 30 nozzles, with an estimated flow capacity of 17 gpm per nozzle and a 510-gpm pump.

In general, the SWMG operates the spray evaporation system manually and only during the hours the landfill is open. The spray evaporation system is not operated during windy conditions (i.e., over 10 miles per hour) to prevent overspray outside the limits of the pond liner system.

The following standard and special setting conditions are applicable at Effluent/Leachate Storage Pond B:

1. Effluent storage and spray evaporation operation in Pond B (standard practice).

2. Leachate storage in Pond B (special condition).
3. Resuming effluent storage in Pond B following leachate storage (special condition).

8.2.1 Pilot Compost Leachate

The SWMG operates a temporary compost project on top of Section 7-9 of the CEA. The project is managed in accordance with the "Composting Operation & Maintenance Plan" dated September 2015. Excess runoff from the active compost windrows area will be treated as leachate and drains into a sump built within the compost bermed area. The sump is connected to a diesel vacuum assisted pump that maintains the liquid below an elevation of 199 feet NVD 1929 (the maintenance level). The pump discharge is routed within an aboveground HDPE pipe to the double-lined Pond B. All liquids in Pond B are either pumped into trucks to be hauled to a WWTP or pumped (via MLPS) to the LTRF for on-site treatment. If liquid levels are not maintained below 199 feet NVD 1929 by the vacuum assisted diesel pump, additional leachate pumping and trucking will be initiated. At the completion of this project, the diesel pump and HDPE pipe will be removed.

8.2.2 Pilot Ash-Reuse Leachate

The SWMG operates a temporary ash-reuse project on top of Phase III. The project is managed in accordance with the "Temporary Ash Aggregate Screening and Storage Project Operation & Maintenance Plan" dated August 2017. The runoff within the project bermed area is treated as leachate and drains into a sump. The sump is connected to a diesel vacuum assisted pump. The pump discharge is routed within an aboveground HDPE pipe to the double-lined Pond B. All liquids in Pond B are either pumped into trucks to be hauled to a WWTP or pumped (via MLPS) to the LTRF for on-site treatment. At the completion of this project, the diesel pump and HDPE pipe will be removed.

8.3 EFFLUENT IRRIGATION

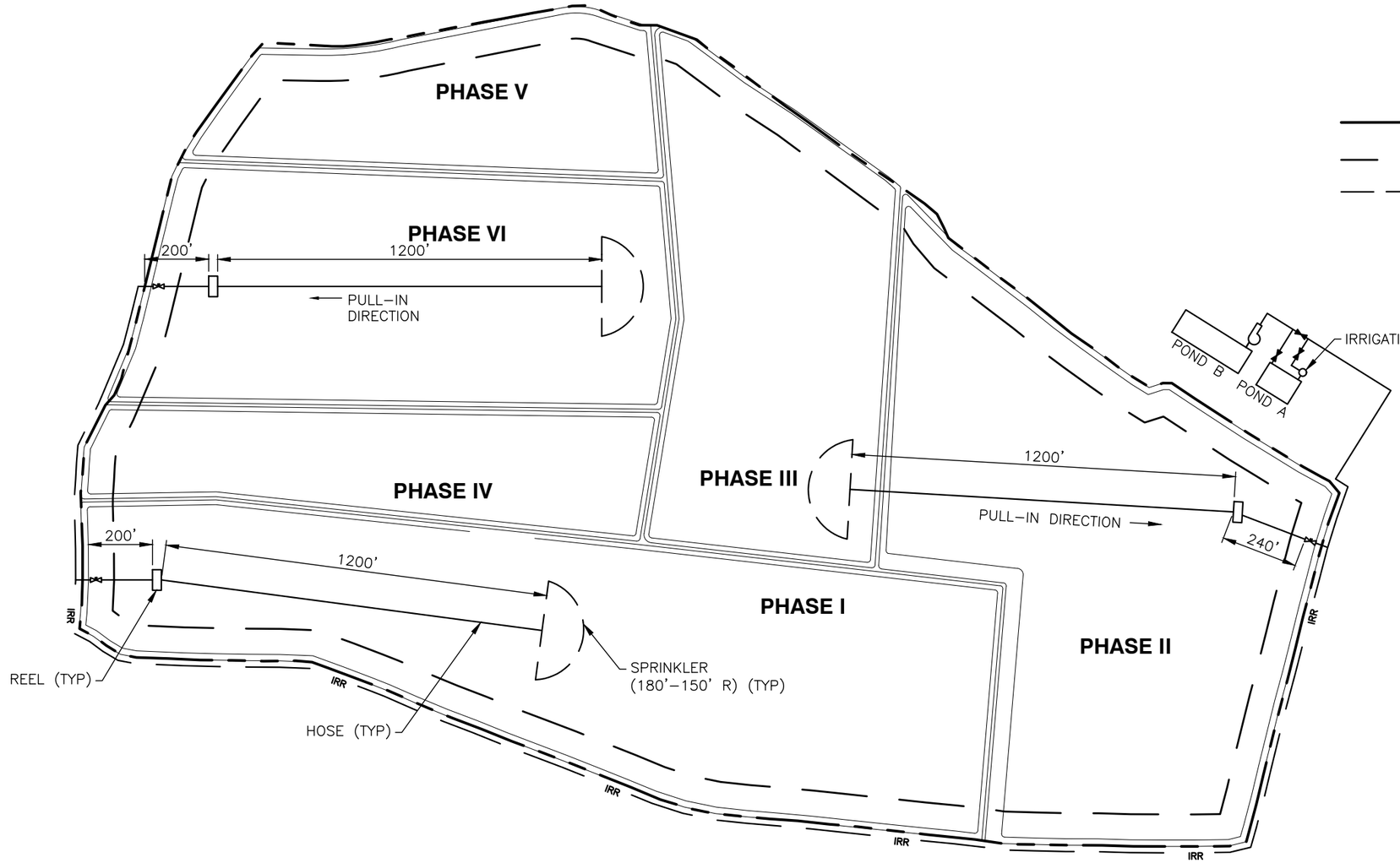
8.3.1 Effluent Irrigation Pump Station

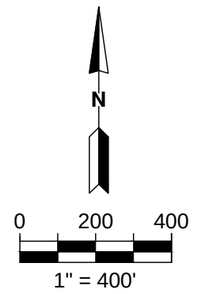
The effluent irrigation pump station consists of a 5-foot square (inside dimension) below-grade concrete sump with dual vertical turbine pumps (one operating and one stand-by). From the effluent irrigation pump station, effluent is pumped to the spray irrigation system on the landfill. The pump in operation is set manually depending on weather conditions.

The effluent irrigation pump station is hydraulically connected to Effluent Pond A, and Effluent Pond A is hydraulically connected via pipe to Effluent/Leachate Pond B; therefore, if the effluent irrigation pump station reaches high level, it will drain to Ponds A and B and not overflow. Ponds A and B are visually monitored by landfill operations personnel and if high level conditions occur, steps are initiated as described in Sections 8.1 and 8.2 for Ponds A and B, respectively.

8.3.2 Effluent Spray Irrigation on Phases I-VI

The SWMG operates a mobile irrigation system consisting of two irrigation reels. The mobile irrigation reels in **Figure 8-1** are shown positioned on the west side of Phase I and on the east side of Phase II. These locations are shown for information purposes only since the position will change due to operational constraints with waste filling in Phase I-VI. Only effluent will be disposed of through the spray irrigation system.





LEGEND:

- APPROXIMATE LANDFILL LIMITS
- 100' SPRAY IRRIGATION MINIMUM SETBACK
- IRR 6"ø HDPE IRRIGATION HEADER
- GATE VALVE – NORMALLY CLOSED
- PUMP
- SOLENOID VALVE (TYP)

NOTE:

THE SPRAY IRRIGATION SPRINKLER REELS ARE MOBILE AND ARE MOVED AS NEEDED. THE LOCATIONS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY.

SCS ENGINEERS

FIGURE 8.1. LOCATION OF IRRIGATION SPRINKLER REELS
HILLSBOROUGH COUNTY
OCTOBER 2018

The operational sequence of the mobile reel irrigators is as follows:

- Before each irrigation event, the medium-density polyethylene (PE) hose is stretched out with a vehicle (approximately 1,200 linear feet). At the end of the PE hose is a spray nozzle that applies the effluent across a large area to maximize evaporation and prevent runoff from draining into the stormwater system.
- Once both PE hoses have been stretched out across the top of the landfill, personnel manually turn on the irrigation pump. The pumps maintain an operating pressure in the irrigation reel. The reel is equipped with a drive system that automatically reels in the PE hose and spray irrigation nozzle at a preset rate (i.e., 200 feet per hour).
- At the end of the irrigation cycle, personnel manually turn off the irrigation pump.

Spray irrigation occurs under the following conditions:

- Spray irrigation is applied at a rate of one pass per day with a maximum application rate of 0.30 inch per day of effluent. Under no circumstances is effluent allowed to discharge as runoff to adjacent stormwater systems. Effluent is not sprayed during severe weather conditions or in quantities that may cause runoff, surface seeps, wind-blown spray outside of the landfill footprint, or ponding on the cover.
- Spraying takes place only when rainfall runoff into the on-site retention areas down gradient from the spray areas has terminated for two hours based on daily inspections of the influent point to each related retention area.
- Spray irrigation of effluent is not conducted within 100 feet of the landfill liner perimeter trench, on slopes steeper than 10%, nor on areas with permanent final cover.
- Spray irrigation may be used on areas with bare ground (little or no grass) or on areas which have been seeded to help with grass growth. These areas will not allow runoff to the stormwater system, as described in this Section.
- Spray irrigation of treated effluent will only be conducted only between 8:00 A.M. and 4:00 P.M.

The leachate reporting forms provided in Appendix A are completed monthly and submitted at least quarterly to FDEP and the Environmental Protection Commission (EPC) by the 15th of January, April, July, and October of each year. At a minimum, the following data are recorded daily.

- Effluent sprayed in gal/day.
- Rainfall on site in inches/day and time of day.
- Observed runoff influent to retention areas (yes and/or no).
- Time of day of inspection.

8.4 LEACHATE AND EFFLUENT EVAPORATION VIA TRUCK-MOUNTED SPRAYING

Evaporation is employed as a supplemental method of disposing of leachate. The supplemental evaporation of leachate involves spraying small quantities of leachate—an average of 9,700 gallons per day—from a spray bar mounted on the rear of a tank truck onto active-fill areas of the landfill. This approach has been used successfully at the SCLF since 1984. The advantages of this method are the reduction of leachate by evaporation, the promotion of the decomposition of organic matter in the landfilled refuse, and dust control.

The SWMG monitors the rate of application, soil moisture conditions, and the specific landfill areas used so that this leachate disposal method does not generate runoff. Leachate spray evaporation is applied under the following conditions.

- Leachate is only sprayed on active-fill areas, including the working face, and areas with the required six inches of initial cover.
- Leachate is not sprayed on areas with intermediate or final cover, seeded or unseeded.
- The maximum grade leachate may be sprayed on is 10H:1V slope. Areas within 150 feet of a 4H:1V or steeper sideslope may not be sprayed on. At all times, areas receiving leachate are controlled to prevent leachate runoff from entering the stormwater system.
- Leachate is not sprayed when it is raining.
- The tank truck spray bar method maximizes evaporation. The application rate of leachate will be such that leachate does not accumulate on the landfill surface nor infiltrate quickly into the covered refuse. Evaporation is the main goal of this leachate disposal method.
- Leachate is not sprayed at the end of the day on the initial cover of the working face or other areas. Spraying is done early in the morning after any dew evaporates and continues until early afternoon or until all available areas have been sprayed.

The SWMG evaporates leachate and effluent in full conformance with Chapter 62-701, FAC. The SWMG notifies FDEP of all evaporated quantities in the monthly water balance reports.

8.5 EFFLUENT AND LEACHATE TRUCK LOADING FACILITIES

8.5.1 Truck Loading Procedures

Truck loading facilities are located at the LTRF, Effluent Pond A, and the effluent/leachate storage tank (T6).

The truck loading stations include a loading arm for discharging stored leachate or effluent from the leachate storage tank (T1), effluent/leachate storage tank (T6) and Ponds A/B to a transfer tanker for disposal. Tanker trucks remove the liquid from the LTRF, effluent/leachate storage tank (T6), or Ponds A/B and transport the liquid to a County WWTF.

The truck loading facilities are equipped with flow meters that provide readout of the gallons of liquid that have been pumped into the tanker trucks. The capacity of each tanker truck is approximately 6,000 to 8,000 gallons, and the leachate tankers are normally filled. If the flow meter gauges are inoperable or not accurate, the quantity of leachate removed can be determined by converting the weight for the truck scale weight tickets to gallons (tons x 2,000 lb/ton/8.34 lb/gal = gallons).

Appendix A includes a Leachate Hauling/Disposal Reporting Form for use when loading leachate or effluent for off-site disposal. The daily field data entry form provided in Appendix A includes recording leachate storage tank (T1) levels. The external level indicators provide a measured indication of the depth of the leachate or effluent in the storage tanks. Information required includes the time of day and the level indicated on the side of the storage tank. Each reading of the storage tanks should be conducted at approximately the same time each day. This will provide the landfill operations personnel with a relative basis for comparing the amount of leachate stored daily and generated daily.

The SWMG has its own tanker trucks as well as a contract with haulers and WWTFs to haul and treat leachate stored in the tanks for disposal. The private tanker vehicles are required to have onboard pump systems or provide portable pumps if the storage system pumps fail.

8.5.2 Wastewater Treatment Facilities

Leachate can be disposed of offsite at a county-owned WWTF. Agreements exist with the Hillsborough County Public Utilities Department (PUD) allowing the discharge of leachate or effluent to three (3) of Hillsborough County's WWTFs (Valrico, Falkenburg, and South County WWTF). Hillsborough County and private contract fleets are used to haul the leachate to a lift station designated by PUD which discharges to one of the approved WWTFs. Leachate will be measured by a flow meter as the tanker trucks are loaded at the LTRF truck loading stations.

9.0 LEACHATE FLOW MEASUREMENT, DATA COLLECTION, AND REPORTING

9.1 GENERAL LEACHATE FLOW MEASUREMENT

Once collected, the leachate is pumped to the leachate storage tank (T1). From the storage tank (T1), the leachate can be conveyed to the on-site LTRF for treatment or hauled off-site to a permitted wastewater treatment facility. Leachate quantities from each landfill area are measured via flow meters at each pump station that can provide readout of gallons of liquid removed.

If leachate is classified as a hazardous waste, it will be managed in accordance with Chapter 62-730, FAC, "Hazardous Waste."

9.1.1 Effluent Quality

To provide reasonable assurance of adequate leachate treatment, the SWMG samples and analyzes the treated leachate (effluent) semi-annually for primary and secondary drinking water parameters and EPA priority pollutants. Samples will be taken after the LTRF has achieved steady-state conditions with regard to its treatment capability or within 30 days after downtime due to maintenance or repairs, whichever is less.

In addition, effluent grab samples before disposal are taken for the following parameters at the frequency indicated:

Parameter	Frequency	Units
pH	weekly	Std. Units
BOD_5	monthly	mg/L
COD	monthly	mg/L
TSS	monthly	mg/L
NO_3-N	monthly	mg/L
TDS	monthly	mg/L

9.1.2 Biosolids Quantity and Disposal

The biosolids from the LTRF are disposed of at the SCLF if they are found to be non-hazardous and pass the paint filter test. The biosolids are sampled and analyzed annually for EPA priority pollutants, the toxicity characteristic leaching procedure (TCLP), and for the following parameters:

Parameters	Units
Total nitrogen	percent (dry weight)
Total phosphorus	percent (dry weight)
Total potassium	percent (dry weight)
Arsenic	mg/kg (dry weight)
Cadmium	mg/kg (dry weight)
Copper	mg/kg (dry weight)
Lead	mg/kg (dry weight
Mercury	mg/kg (dry weight)
Molybdenum	mg/kg (thy weight)
Nickel	mg/kg (dry weight)
Selenium	mg/kg (dry weight)
Zinc	mg/kg (dry weight)
pH	std. units
Solids	percent

If the biosolids are found to be hazardous, the material will be managed in accordance with Chapter 62-730, FAC, "Hazardous Waste."

9.2 PHASES I-VI MONITORING

9.2.1 Flow Measurement

For Phases I-VI, the leachate quantity is recorded by flow meters at PS-A. SWMG personnel record flow meter readings each day the SCLF is open and the quantities are reported to FDEP. Sample leachate reporting forms are included in Appendix A.

9.2.2 PS-B Settlement Plates

Four settlement plates were installed at the bottom of each corner of the vault for PS-B in Phase VI. The rods for these plates have been extended during operation of the landfill. The elevation of these plates will be measured annually The historical measurements are maintained at the Administration Building. The rods for the settlement plates will be less accurate as operations continue due to deformation from settlement of the waste between the top of waste and PS-B. If, after two consecutive annual measurements from any of the four settlement plates there is no change in elevation, that settlement plate is assumed to be malfunctioning and will not be measured in future events. The settlement at malfunctioning settlement plates is assumed to be the same as the settlement measured at adjacent functioning plates.

9.2.3 Bottom Liner Clay Evaluation

Approximately one year before a particular phase of Phases I-VI is entered, an in-situ, undisturbed, clay sample will be collected from beneath the phase proposed to be filled. The collected clay sample will be tested and the shear strengths computed.

The in-situ, undisturbed, clay sample will be tested either using a direct shear test (ASTM D-3080) or tri-axial test (ASTM D-2850/4767) method to determine the clay strength. Three individual testing points—covering the existing, proposed filling, and proposed final build-out pressures—will be conducted. A representative phi and cohesion value will be determined to cover proposed filling and final build-out strengths.

Slope stability models, using both sliding block and circular failure methods, will be conducted on the proposed filling and the final-build out conditions. If a factor of safety (FS) of 1.5 or greater is achieved for a particular filling scenario, that particular phase is deemed complete and no further testing for that phase is necessary. If a particular filling scenario does not achieve a FS of 1.5 or greater, recommendations for filling the phase will be provided.

Results of the slope stability models, along with a report and recommendations signed and sealed by a professional engineer, will be submitted to FDEP for approval at least six months before filling begins in that phase.

9.3 CAPACITY EXPANSION AREA MONITORING

9.3.1 Flow Measurement

Under standard practice, leachate from Sections 7 and 8 is collected from the sump risers in the southwest corner of Section 7 at PS-7 and leachate from Section 9 is collected from the south slide slope riser at PS-9. The leachate from Sections 7 and 8 is pumped to the MLPS and then via force main to the leachate storage tank (T1). The leachate force main from PS-9 is tied into the MLPS force main to the leachate storage tank (T1); therefore, leachate is pumped directly from Section 9 to the leachate storage tank (T1). The leachate quantities from Section 9 and the MLPS are recorded by separate flow meters before the flow combines in the force main to the leachate storage tank (T1). SWMG personnel record flow meter readings each day the SCLF is open, and report the quantities to FDEP. Sample leachate reporting forms are included in Appendix A.

9.3.2 Leachate Detection Action Leakage Rate

The action leakage rate (ALR) is defined in 40 CFR 265.302 as the maximum design flow rate that the leak detection system (LDS) can remove without the leachate head on the bottom of the liner exceeding one foot. In accordance with Rule 62-701.400(3)(c)2., FAC, the LDS should be designed to limit the head in the LDS to less than one inch of head or the thickness of the geocomposite.

The ALR for Sections 7 and 8 is 100 gal/acre/day. The total estimated footprint area of Sections 7 and 8 is approximately 19.3 acres. An initial response ALR of 1,930 gpd (19.3 acres x 100 gal/acre/day) will be used for the flow rate measured from Sections 7 and 8. The leachate flow from the Section 7 and 8 LDS system is measured by the flow meter from the LDS pump in the southeast corner sump of Section 7.

The ALR for Section 9 is 306 gal/acre/day. The total estimated footprint of Section 9 is 15.2 acres. An initial response ALR of 4,651 gpd will be used for the flow rate measured from Section 9. The

leachate flow from the Section 9 LDS system is measured by the flow meter from the LDS submersible pump in the south end sump of Section 9.

Initial ALR actions will include the following.

- Check the pump and flow meter at the LDS sideslope riser for proper operation.
- Increase the pumping rate from the LDS to lower the stored levels of leachate. A pocket or slug of leachate may have been conveyed to the LDS riser. Upon further pumping, the levels or flow rates may be lowered below the ALR.
- Check the cover or capping systems over Sections 7 and 8 or Section 9 to reduce infiltration into the LDS.
- Continue monitoring the flow rates out of the LDS, based on the recommendations above to determine further action, if needed.

If the ALR for Sections 7, 8, or 9 is exceeded, FDEP and EPC will be notified and a written assessment provided within seven days. The written assessment shall demonstrate continued compliance with the double-liner requirements specified in Rule 62-701.400(3)(c)2, FAC, or a corrective action plan and schedule for implementation shall be submitted for FDEP approval.

9.4 MAIN LEACHATE PUMP STATION

Operation of the MLPS is described in Section 4.3.

9.5 LEACHATE TREATMENT AND RECLAMATION FACILITY

Sampling of the LTRF effluent and biosolids is described in Sections 9.1.1 and 9.1.2.

10.0 MAINTENANCE AND INSPECTION

10.1 LEACHATE COLLECTION SYSTEM SCHEDULE FOR MAINTENANCE AND INSPECTION

The leachate facilities are inspected daily. The leachate collection and removal systems will be water pressure cleaned or video inspected as needed during the duration of the permit. The leachate system components will also be maintained as needed. Routine maintenance for these components at the SCLF is performed following the schedule in Table 10.1.

10.2 STORAGE TANK MAINTENANCE AND INSPECTION

Storage tank maintenance and inspection procedures are discussed in Sections 5.0 and 7.0.

Table 10.1 Schedule For Maintenance

Component	Frequency	Performance Criteria	Corrective Action
Pump Station A (PS-A)	Pump: semi-annual. Sump: annual.	Pump is unable to maintain the required levels in the sump. Inspect for sediment in sump and adequacy of level controls by testing the automatic on/off float settings (see LMP Section 4.1.1 for PS-A float settings).	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours. If PS-A cannot be repaired before pumping is required, the bypass line will be used to pump leachate from PS-B directly to the MLPS. For level controls (i.e., floats and control panel), if testing fails, remedial measures will be initiated immediately by contacting an electrician and the condition will be corrected within 48 hours. Excessive sediment in the sump will be removed within two weeks after inspection.
Pump Station B (PS-B)	Pump: semi-annual. 18-inch access pipes; at time of permit renewal.	Pump is unable to maintain the required levels in the sump. Inspect for adequacy of level controls. Manually pump sump until air enters the pump; at that time bubbler should read between 0 to 4 inches (see LMP Section 4.1.2 for PS-B sensor settings). If blockage of the 4-inch suction line or the bubbler pressure tube is	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours. For level controls failure, remedial measures will be initiated immediately by contacting DCC and the condition will be corrected within 48 hours. If needed, water

Component	Frequency	Performance Criteria	Corrective Action
		suspected, remove the suction line for inspection.	pressure clean the interior of the 4-inch suction line. The 18-inch access pipes will be water pressure cleaned and video inspected as needed at time of permit renewal. If the 18-inch access pipes are not performing adequately, the SWMG will submit to FDEP and EPC an evaluation report with proposed remedy.
Main Leachate Pump Station (MLPS)	Pump: semi-annual. Sump: annual.	Pump is unable to maintain the required levels in the sump. Inspect for sediment in sump and adequacy of level controls by testing the automatic on/off float settings (see LMP Section 4.3 for MLPS float settings).	Pump inspected for damage or other problems and repaired or replaced as needed. Replacement pump will be installed within 24 hours. For level controls (i.e., floats and control panel), if testing fails remedial measures will be initiated immediately by contacting an electrician and the condition will be corrected within 48 hours. Excessive sediment in the sump will be removed within two weeks after inspection.
Storage Pond A	Surface: annual.	Empty, water pressure clean, and remove sediment. Visually inspect geomembrane for punctures, seam continuity, and defects around concrete sump.	Defects found will be repaired before reusing the pond.
Storage Pond B	Surface: annual Leak detection: weekly.	Empty, water pressure clean, and remove sediment. Visually inspect geomembrane for punctures, seam continuity, and defects around concrete sump. If leak detection rate is higher than 1,500 gpd, empty pond and inspect geomembrane for defects.	Defects found will be repaired before reusing the pond.
Storage Tanks	Exterior: weekly. Interior: whenever the tank is drained or every three years.	Inspect for adequacy of the cathodic protection system, leaks, corrosion, level controls, and maintenance deficiencies	Deficiencies that could result in failure of the tank or leaks will be corrected before reusing the tank. For level controls failure, remedial measures will be initiated immediately by contacting an electrician and the condition will be corrected within 48 hours.
Section 7 Pump	Semi-annual.	Pump is unable to maintain the required levels in the sump.	Pump inspected for damage or other problems and repaired or replaced as needed.

Component	Frequency	Performance Criteria	Corrective Action
			Replacement pump will be installed within 24 hours.
Section 9 Pump	Semi-annual.	Pump is unable to maintain the required levels in the sump.	Pump inspected for damage or other problems and repaired or replaced as needed.
Leachate collection and removal system	Twice during permit period	Water pressure clean or video inspect as needed at the existing cleanout locations.	If any component is not performing adequately or if a problem is shown by the video inspection, the SWMG will submit to FDEP and EPC an evaluation report with proposed remedy.

11.0 CONTINGENCY PLANS

FDEP and EPC will be notified of any equipment failure or event that disrupts the routine operation of the leachate management system. If the need for storing leachate in Pond B and/or the effluent/leachate storage tank (T6) arises as described in Sections 8.2 and 7.0, respectively, the SWMG will notify the FDEP and EPC. The person responsible for operation of the SCLF is the Landfill Operations Manager (currently Mr. Larry E. Ruiz). The Landfill Operations Manager reports to the Solid Waste Management Group Director (currently Ms. Kimberly A. Byer). The SWMG will continue to evaluate the accuracy and applicability of this leachate management plan and will propose modifications as necessary to accomplish the objectives of the leachate management plan and continue the proper management of leachate at the SCLF. The following sections provide information regarding contingency operations for specific events which may occur at the SCLF.

11.1 REPLACEMENT OF FLOW METERS

If a flow meter ceases to operate, maintenance personnel will remove the instrument and insert a spare flow meter. If the spare flow meter is not available or not working, a pipe spool piece will be inserted in its place to allow the leachate to flow from the transfer pump. The instrument will be shipped to the service representative or manufacturer for repair or replacement. It is anticipated that the instrument could be removed from service for up to three months. This schedule includes the issue of a Hillsborough County purchase order, shipping, and maintenance time or new part delivery. During this time, leachate production will be determined by recording the run-time meter on the transfer pumps. Leachate production of a specific pump can be estimated by taking the difference in the run-time readings and the rated pump test flow rate.

11.2 STORAGE TANK SECONDARY CONTAINMENT SPILL COUNTERMEASURES

As discussed in previous sections, the LTRF leachate tank system is contained within a concrete containment area. The containment area has two sumps for stormwater drainage with 6-inch diameter HDPE pipes and gate valves that are normally closed. The effluent/leachate storage tank (T6) is contained within a HDPE liner. The containment area has one secondary sump for stormwater, effluent/leachate drainage. Before draining stormwater from the containment areas, the SWMG will visually inspect the stormwater and the tanks to ensure that no leaks have occurred. If no spills have occurred, the sump valves will be opened to drain the stormwater accumulated in the containment area. Under supervision by the Landfill General Manager (or qualified designee), the sump valves will be closed immediately after the stormwater is drained.

If a liquid spills from the LTRF tankage system, the following will be done.

1. Assess the cause of the spill and correct the condition promptly.
2. If the spill condition is at the leachate storage tank (T1) (575,000 gallons):
    a. Shut down the MLPS and PS-9.
    b. Shut down the LTRF filtrate pumps. The LTRF may continue to operate.
    c. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF.
3. If the spill condition is at the LTRF process tank (T2) or the secondary stage clarifier tank (T3):
    a. Shut down the LTRF.

b. The MLPS continues to operate.
c. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF or into the leachate storage tank (T1).

4. If the spill condition is at the effluent storage tank (T5):
   a. Shut down the LTRF.
   b. The MLPS continues to operate.
   c. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF or into the leachate storage tank (T1).
5. If the spill condition is at the effluent/leachate storage tank (T6):
   a. Shut down the LTRF effluent pumps. The LTRF may continue to operate.
   b. With a sump pump, transfer the spilled liquid directly into tanker trucks for disposal at an off-site Hillsborough County WWTF or into the leachate storage tank (T1).
6. If the spill condition is at the glycerin tank (red tank at LTRF):
   a. Shut down the LTRF.
   b. Turn the LTRF electrical power off at the circuit breaker located outside the LTRF office on the south wall and evacuate staff.
   c. Shut down the MLPS and PS-9.
   d. Contact the current hazardous waste contractor. The contractor will manage the removal, off-site disposal, and containment area cleanup for glycerin.
7. For spill conditions No. 2, 3, and 4 above, after the spilled liquid is removed, SWMG personnel will water pressure wash the containment area and the rinse water will be pumped directly into a tanker truck for disposal at an off-site county WWTF.
8. If the leachate storage tank (T1) will remain out of service for more than 48 hours, the SWMG will resume leachate removal from the SCLF to either the effluent/leachate storage tank (T6) or Storage Pond B. Leachate hauling off site can resume from the effluent/leachate storage tank (T6) or Pond B. If the effluent/leachate storage tank (T6) is unavailable for leachate or effluent storage, Pond B can also be used for back-up storage capacity. Leachate can be diverted back to the leachate storage tank (T1) via the MLPS or to the truck loading facility from Pond B. Leachate can also be diverted back to the leachate storage tank (T1) from the effluent/leachate storage tank (T6).
9. Within 24 hours of the spill occurrence, the SWMG will verbally notify FDEP and EPC. A written report with remedial measures taken will be submitted to FDEP and EPC within seven days after the leachate spill incident.

Appendix A

Leachate Reporting And Inspection Forms

HILLSBOROUGH COUNTY SOUTHEAST COUNTY FACILITY
LEACHATE MANAGEMENT
DAILY FIELD DATA ENTRY FORM

Disposal Area (check one)	Phases I-VI	Sections 7-8	Section 9

Technician:	Start Time:

Location	Date (prior day)	Date (today)	Total
Pump Station A, gal			
Pump Station B, inches			
Condensate Pumps Phases I - VI			
Section 9 Pump #1, gal			
Section 9 Pump #2, gal			
Section 9 LDS, gal[(1)]			
Compost			
Sections 7-8 Pump, gal			
Sections 7-8 LDS, gal[(2)]			
Depth in Pond B, feet[(3)]			
Pond B LDS, gal[(4)]			
Pond B Spray, gal			
Depth in Pond A, feet[(5)]			
Spray Irrigation Pump, gal[(6)]			
Main LTP Leachate Bypass, gal			
Depth in Leachate Tank, feet[(7)]			
Depth in Effluent Tank, feet[(7)]			

Notes:

(1) If rate is greater than 4,651 gallons per day, contact Supervisor immediately.

(2) If rate is greater than 1,930 gallons per day, contact Supervisor immediately.

(3) If greater than 4.4 feet, contact Supervisor immediately.

(4) If rate is greater than 1,500 gallons per day, contact Supervisor immediately.

(5) If greater than 3.7 feet, contact Supervisor immediately.

(6) If runoff observed, STOP irrigation and contact Supervisor immediately.

(7) If level is greater than 15 feet, contact Supervisor immediately.

Comments:

TABLE 1. LEACHATE WATER BALANCE REPORT FORM
MONTH/YEAR
SOUTHEAST COUNTY LANDFILL, HILLSBOROUGH COUNTY, FLORIDA

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII	XXIV	XXV
Day	Rainfall (in.)	Depth in Pond A (ft.)	Depth in Pond B (ft.)	Estimated Depth at PS-B (in.)	Phases I - VI Condensate Meter (gal.)	Leachate Pumped to MLPS from Phases I-VI (gal.)	Leachate Pumped from Sections 7-8 LDS (gal.)	Leachate Pumped to MLPS from Sections 7-8 (gal.)	Leachate Pumped to LTRF from MPLS (gal.)	Leachate Pumped to LTRF from Section 9 (gal.)	Leachate Pumped from Section 9 LDS (gal.)	Compost Leachate (gal.)	Leachate in 575K Tank (gal.)	Effluent in 575K Tank (gal.)	Leachate Treated at LTRF (gal.)	Total Leachate Hauled (gal.)	Leachate Dust Control (Sprayed) (gal.)	Pond A Storage (gal.)	Pond B Storage (gal)	Effluent Sprayed Pond B (gal)	Effluent Irrigation (gal.)	Effluent Dust Control (Sprayed) (gal.)	Total Effluent Hauled (gal.)	Total Evaporation (gal.)
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3																								
4																								
5																								
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Total																								
Daily Average																								
Mo. Average																								

Notes:
1. NR = No Records, NA = Not Available.
2. Values in bold are estimated; values in italic are substitute for missing data and are based on averaged values.
3. Daily average is calculated by dividing the total by the actual days measured in the month.
4. Monthly average calculated by dividing the total by the number of days of the month.
5. Column II, Trace is less than 0.01 inches and is not included in total.
6. Columns III and IV, field measured at staff gauges.
7. Columns IX & X, Section 7-8 leak detection pumped into Section 7 leachate sump riser.
8. Column XV and XVI, calculated from depth in 575,000 gal. tanks.
9. Columns VI-XIV, XVII-XIX, and XXII-XXV, quantities from flow meters.
10. Column XXVI includes 80% of the daily values from Columns XIX, XXIII, and XXIV plus 5% of the daily values from column XXII.

TABLE 2. FIELD DATA ENTRY FORM
MONTH/YEAR
SOUTHEAST COUNTY LANDFILL, HILLSBOROUGH COUNTY, FLORIDA

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
																		Leachate Hauled			Effluent Hauled		
Day	Rainfall (in.)	Phases I - VI Condensate Meter (gal.)	Flow Meter Pump Sta. A (gal.)	Reading PS-B (in.)	Section 9 Pump 1 (gal.)	Section 9 Pump 2 (gal.)	Section 9 LDS (gal.)	Compost Leachate (gal.)	Sections 7-8 Pump (gal.)	Sections 7-8 LDS (gal.)	Pond B Depth (ft.)	Pond B Effluent Sprayed (gal)	Pond A Depth (ft.)	Effluent Spray Irrigation (gal.)	Depth in 575K Tank Leachate (ft.)	Depth in 575K Tank Effluent (ft.)	Leachate Treated at LTRF (gal.)	Contractor (gal.)	County (gal.)	Leachate Dust Control (Sprayed) (gal.)	Contractor (gal.)	County (gal.)	Effluent Dust Control (Sprayed) (gal)
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2																							
3																							
4																							
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25																							
26																							
27																							
28																							
29																							
30																							
31																							
Totals												0		0			0	0	0	0	0	0	0

Notes:

1. NR = No Records, NA = Not Available.
2. Values in bold are estimated; values in italic are substitute for missing data and are based on averaged values
3. Columns I and L include quantities from leak detection system.
4. Column B, trace is less than 0.01 inches.
5. Columns C, D, E, G, H, I, J, K, L, N, P, S-X and Y are quantities from flow meters.
6. Columns M and O measured from staff gages in each pond.

Type of Cover	Phases I-VI acres	Section 9 acres
Open		
Intermediate		
Final		
Not Opened		

TABLE 3. LEACHATE BALANCE SUMMARY
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA
MONTH/YEAR

		Leachate Arriving at LTRF					Leachate Leaving LTRF			Effluent Disposal			Inflow / Outflow For LTRF		
Month	Rainfall (in.)	Condensate from LFG CS-1 (gal.)	Leachate from Section 9 Pumped to LTRF (gal.)	Leachate from Section 7-8 Pumped to LTRF (gal.)	Leachate from Phases I-VI Pumped to LTRF (gal.)	Compost Leachate (gal.)	Total Leachate Hauled from LTRF (gal.)	Leachate Dust Control (Sprayed) (gal.)	Leachate Treated at LTRF (gal.)	Total Effluent Hauled (gal.)	Effluent Dust Control (Sprayed) (gal.)	Effluent Irrigation (gal.)	Total Inflow to LTRF (gal.)	Total Outflow from LTRF (gal.)	Change in Storage[3] (gal.)
January															
February															
March															
April															
May															
June															
July															
August															
September															
October															
November															
December															
YTD Total															

Note:

1. If the bypass at the effluent pond is ever used to pump effluent back to the LTRF, this table must be modified.
2. Change in storage represents total inflow to LTRF minus total outflow from LTRF.

Leachate Treatment Facility Flows

Day	Influent	Total	Effluent	Total
Last				
1		0		0
2		0		0
3		0		0
4		0		0
5		0		0
6		0		0
7		0		0
8		0		0
9		0		0
10		0		0
11		0		0
12		0		0
13		0		0
14		0		0
15		0		0
16		0		0
17		0		0
18		0		0
19		0		0
20		0		0
21		0		0
22		0		0
23		0		0
24		0		0
25		0		0
26		0		0
27		0		0
28		0		0
29		0		0
30		0		0
31		0		0

Southeast County Landfill
Storage Tanks Inspection

Date: _____ Time: _____

			LEACHATE	PROCESS	2ND STAGE CLARIFIER	METHANOL	EFFLUENT #1	EFFLUENT #2
			T1	T2	T3	T4	T5	T6
TANKS	1	Any visible leaks? (Y/N)						
	2	Any dents or scratches evident?						
	3	Any exterior corrosion?						
	4	Level controls in good condition?						
	5	Current Cathodic Protection		N/A	N/A	N/A	N/A	
	6	Volume of Tank (gals)	575,000	220,000	19,000	1,700	3,700	575,000
	7	Material of Construction:	STEEL	STEEL	STEEL	STEEL	STEEL	STEEL
PIPES	8	Any pipes bent or deformed?						
	9	Any joints or connections leak?						
	10	Are the pipes free of corrosion?						
CONTAINMENT	11	Is containment area in good condition?						
	12	Is there non-stormwater in the secondary containment area?						
	13	If no, was the stormwater released?						

Comments: _____

_____

Comments: _____

_____

Comments: _____

_____

Inspector's Signature: _____

SOLID WASTE MANAGEMENT DIVISION
SOUTHEAST COUNTY LANDFILL

LEACHATE HAULING / DISPOSAL REPORTING FORM

DATE: _____

DISPOSAL LOCATION: _____

Time loaded	PRODUCT E / L	LOAD NO.	GALLONS	METER READING START	METER READING END	pH	Time unloaded
		TOTAL:					

Signature: _____
Driver

Signature: _____
Plant Operator

Comments_____

Was sample taken: Y N if yes, sample was taken by: _____Date:_____Time:_____
Initials

E = Effluent (Treated Leachate)
L = Leachate (Raw Leachate)

Note: Gallons are to be recorded and totaled daily.

Attachment 3

Operations Plan
Phases I-VI and the Capacity Expansion Area (Sections 7, 8, and 9)
Southeast County Landfill
Hillsborough County, Florida

Hillsborough County - Public Utilities Department
Solid Waste Management Group (SWMG)
332 N. Falkenburg Road
Tampa, FL 33619

Florida Board of Professional Engineers
Certificate No. 00004892

SCS ENGINEERS

09215600.07 | October 2018

3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619
813-621-0080

OPERATIONS PLAN
PHASES I-VI AND THE
CAPACITY EXPANSION AREA
(SECTION 7, 8, AND 9)
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

Presented To:
Hillsborough County
Public Utilities Department
Solid Waste Management Group (SWMG)
332 N. Falkenburg Road
Tampa, FL 33619

Presented From:

SCS ENGINEERS
3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619

Florida Board of Professional Engineers
Certificate No. 00004892

October 2018
File No. 09215600.07

Kollan L. Spradlin, P.E.
FL Reg. No. 82852

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Appendices

K. INTRODUCTION

The Southeast County Facility (Facility) includes the Southeast County Landfill (SCLF), which is permitted by the Florida Department of Environmental Protection (FDEP) as a Class I landfill for Phases I-VI and the Capacity Expansion Area. This Operation Plan includes Phases I-VI and Sections 7, 8, and 9 of the Capacity Expansion Area.

The Facility is the final depository for municipal solid waste (MSW) ash residues, non-processables, and bypass wastes from the Solid Waste Management System of Unincorporated Hillsborough County. The Facility also receives solid waste from the cities of Temple Terrace and Tampa, as well as MSW ash residues and bypass wastes from the Waste-to-Energy Incinerator Facilities of the City of Tampa and Hillsborough County. Hazardous waste will not be accepted at the Facility.

This operation plan was prepared in conjunction with an operation permit application; as such, the format follows the requirements of Part K of the Permit Application Form.

K.1 TRAINING

In accordance with Rule 62-701.320(15), Florida Administrative Code (FAC), key supervisory personnel at the Facility have received Landfill Operator Certification training. Operator training includes a 24-hour initial course and 16 hours of continuing education every three years. Spotter training includes an 8-hour initial course and four hours of continuing education every three years. Operator and Spotter training courses are offered by the University of Florida Center for Training, Research and Education for Environmental Occupations (TREEO) and through other FDEP-approved sources. Landfill personnel are encouraged to attend these courses after discussions with the Landfill Manager. The currently available TREEO training courses and schedule are listed in Appendix A. The listing is also available at www.treeo.ufl.edu. Documentation demonstrating that the facility operators and spotters have received the required continuing education is presented in Attachment D.15 of the Phases I-VI and Capacity Expansion Area (Sections 7, 8, and 9) Permit Renewal Application dated June 2013.

As required by Rule 62-701.500(1), FAC, a certified Landfill Operator will be on site when waste is received for disposal at the landfill, and a trained spotter will be on site during all times when waste is deposited at the landfill working face to detect any unauthorized wastes. In addition, the equipment operators have sufficient training and knowledge to move waste and soil and to develop the site in accordance with the design and operational standards described in the operation permit application.

K.2 LANDFILL OPERATION PLAN

K.2.a SWMG Organization and Responsibilities

Hillsborough County (County) owns the Facility and is the applicant for the operation permit. A Landfill Contractor (Contractor), currently Waste Management, Inc. of Florida (WMIF), will operate and maintain the Facility in accordance with the permit conditions under the contract that exists between the County and the Contractor.

The following Hillsborough County Public Utilities Department, Solid Waste Management Group (SWMG) and Contractor personnel are currently responsible for the operations at this Facility:

- Larry E. Ruiz, Landfill Operations Manager (SWMG)
- Ernest Ely, District Landfill Manager (Contractor)

In addition, the following positions are maintained at the Facility: scale-house clerks (SWMG), waste monitors (SWMG), equipment operators (Contractor), spotters (Contractor), laborers (Contractor), security personnel (Contractor), and mechanic (Contractor). At least one trained operator familiar with the landfill operations will be on site at all times while the Facility is open in accordance with Rules 62-701.320(15) and 62-701.500(1), FAC.

K.2.b Contingency Plan

The contingency plan for the Facility is based upon addressing two potential emergencies:

- Equipment failure.
- Large influx of material resulting from a natural disaster such as a hurricane, fire, or from a breakdown at local waste-to-energy facilities.

Sufficient backup equipment will be provided on site for equipment breakdowns and downtime for normal routine equipment maintenance. If primary and backup major equipment (i.e., landfill compactor or bulldozer) fail, one or both of the following contingency measures will be implemented:

- Use existing contracts with contractors and rental equipment dealers to furnish rental equipment on short notice (Appendix B).
- Establish arrangements with other County agencies to furnish equipment.

The Contractor will be responsible for providing equipment and a working force of adequate size and skill to maintain the landfill operation in compliance with all applicable federal, state, and local regulations. If sufficient local personnel are not available, the Contractor will relocate from other facilities sufficient personnel with the proper skills to maintain operations.

Given that a large volume of wastes requiring disposal from a natural disaster is non-putrescible, it can be stored on site temporarily (adjacent to the working face) and landfilled after the state of emergency has ended.

In the case of a large fire, bomb threat, or other unforeseen situation requiring specialized emergency response personnel, 911 will be called for the local Fire Department or Sheriff's Department. Waste handling will be suspended and the affected area will be evacuated, if necessary. The landfill will be temporarily closed until the responding Department determines that the landfill is safe for re-entry. If the Facility will remain closed for more than 48 hours, the incoming waste will be diverted to an alternate facility in an adjacent county.

In case of an accidental spill of oil, fuel, leachate, or chemicals, the spill will be minimized by controlling the source immediately (e.g., by closing the valve, turning-off switch, or taking any other necessary action). The affected area will be protected by diverting vehicular traffic. Building a berm, plugging a drain or ditch, or adding absorbent material will control runoff from the affected area. The affected area will be cleaned, and the effectiveness of the cleanup confirmed by sampling, as needed, depending on the nature of the spilled material. For spill countermeasures of secondary containment at the Leachate Treatment and Reclamation Facility (LTRF) and the effluent/leachate storage tank, refer to Section 11.0 of the Leachate Management Plan (LMP).

K.2.c Waste Type Control

The automated accounting system, clerks at the scalehouse, and the site security fence help discourage unauthorized entry and uncontrolled disposal of unauthorized waste. A sign at the entrance states the general regulations including the types of prohibited solid waste.

A minimum of three random load inspections of solid waste per week will be conducted at the active landfill (See Part K.6 and Appendix C). As an additional control, the SWMG has one waste monitor and the Contractor has at least one trained spotter at the working face to visually inspect each load of waste as it is unloaded and deposited. If any unauthorized special waste (i.e., lead-acid batteries, used oil, yard trash, white goods, and whole tires) is found at the working face during the random inspection or as part of routine operations, the waste will be segregated and removed from the site for recycling or other processing in accordance with FDEP regulations. Items that may contain liquids or gases will be stored upright, undamaged, and in a container as appropriate. The maximum on-site storage will be as follows:

- 50 batteries in a secondary containment covered tray.
- 20 gallons of used oil placed upright in an undamaged container.
- 40 cubic yards (cy) yard trash in one 40-cy roll-off container.
- 75 white goods and lawnmowers placed upright (on the ground) until all liquids, chlorofluorocarbons (CFCs), and Freon are removed. After the metal recycling contractor removes all liquids, CFCs, and Freon, the white goods are marked with spray paint to indicate that they are ready to be placed in the scrap metal containers.
- Scrap metal in two 40-cy roll-off containers (including processed white goods).

These special wastes will be stored next to the working face and removed from the site within 30 days.

Whole tires will be stored and managed at the on-site Waste Tire Processing Facility (WTPF). Lead-acid batteries will be collected by the SWMG's contracted battery recycler. Scrap metal, including white goods and lawnmowers, will be collected and processed by the SWMG's metals recycling

contractor. Propane tanks will be collected by the recycling contractor. Until the SWMG develops a beneficial use for landfill gas, yard trash will be rejected, required to be reloaded, and directed to be taken to the yard trash processing facility at the South County Transfer Station.

If unauthorized waste (i.e., hazardous, polychlorinated biphenyl's (PCBs), untreated biomedical, or free liquid) is found at the working face, the waste will be isolated and the Landfill Manager will be immediately notified. The Landfill Manager is trained in the proper procedure to follow, including notifying the FDEP. Similarly, if suspect waste is found, the waste will be isolated and the Landfill Manager notified. The Landfill Manager will prepare a suspect waste report and ensure that the waste is properly managed (Appendix C). If hazardous wastes are found, the FDEP will be notified immediately and the waste will be isolated and restricted from access until it is removed from the landfill by a qualified hazardous waste contractor. Hazardous wastes will be removed from the Facility within 24 hours.

K.2.c.1 Waste Profile Program

The Waste Profile Program, administered by the SWMG, establishes policies, procedures, and guidelines for managing waste to comply with federal, state, and local regulations for minimizing risks to the environment, public health, and employees posed by non-hazardous and unregulated waste. The Waste Profile Program includes an internal structured reporting format, guidelines, and procedures to assist customers to comply with waste disposal requirements. The SWMG does not accept unauthorized waste for disposal at the landfill. The following are the objectives of the waste profile program:

- Preclude the entry and disposal of hazardous waste into the Facility.
- Preclude leachate developing hazardous waste characteristics.
- Protect the landfill liner.
- Prevent objectionable odors from becoming a problem.
- Ensure that delivered materials can be handled safely.

K.2.c.2 Motor Vehicles

Motor vehicles will not be accepted at the facility; however, mobile homes will be accepted for disposal in the landfill at the active working face if they cannot be recycled. Appliances (white goods) and waste tires from mobile homes must be removed before being accepted at the facility and processed as stated in Section K.2.c.

K.2.c.3 Shredded Waste

The Facility will accept shredded tires. As provided by Chapter 62-711 FAC, the SWMG will use shredded tires for initial cover since shredded tires are an effective initial cover for controlling disease, vectors, odors, litter, and scavenging.

K.2.c.4 Asbestos Waste

Asbestos waste will be accepted at the Facility. The entire footprint of Phases I-VI and the Capacity Expansion Area will be designated as an asbestos disposal area. Before landfilling, the material must be wetted and placed in a leak-tight wrapping. The bags will be placed in a prepared trench at the working face. Materials such as transite paneling and pipe insulation must be wrapped sufficiently to maintain their integrity during disposal. After placement, the bags will be immediately covered with 6 inches of asbestos-free material (i.e., soil or select waste without large or sharp objects that may damage the asbestos packaging). The location, quantity and source of asbestos containing material will be documented. Copies of the asbestos waste shipment records complying with 40 CFR 61-Subpart M will be maintained on site.

K.2.c.5 Wastewater Treatment Biosolids

Biosolids (industrial and domestic sludge) from wastewater treatment systems are accepted for disposal in the landfill. Biosolids will be applied to the working face of the landfill and daily cover applied in accordance with Section K.2.g to control odors. Disposal operations of biosolids will not occur within 50 feet of exterior side slopes

Biosolids from the wastewater treatment facility (WWTF) will be required to pass the paint filter test which will be based on the percent solids of the biosolids produced by the WWTF.

A paint filter test will be initially performed on the biosolids to demonstrate the minimum percent solids content that will pass the paint filter test. Thereafter, the WWTF will be required to provide a report of the percent solids content of the biosolids delivered each day to the Facility. Biosolids from the WWTFs with percent solids content at or above the minimum solids content passing the paint filter test will be accepted at the Facility. In the event the percent solids content from a WWTF is below the minimum solids content, the WWTF must, before disposal at the SCLF, perform and provide documentation that the lower percent solids content passes the paint filter test.

In addition to landfilling, the County manages a solid waste composting operation at the SCLF. The operation co-composts together, a mix of dewatered biosolids received from local, Hillsborough County municipal wastewater treatment plants and yard waste received directly at the landfill from commercial and residential customers. The compost operation covers approximately 7 acres of an inactive area on top of the Capacity Expansion Area (CEA).

Yard waste is ground-up and mixed with biosolids at the facility and formed into windrows on an asphalt pad where it cures over a period of weeks. The material is periodically turned with a mechanical turner and after initial curing, is transferred to a final curing pile on the asphalt pad. Following a few more months of curing the material is put through a mechanical screen for size control and moved to another area on the pad for temporary storage until it is taken away by the customer. The finished compost product is distributed to local farmers and the general public. A more complete description of the compost operation is included in the Composting Operation and Maintenance Plan.

K.2.d Weighing Incoming Waste

All incoming waste will be weighed before disposal in the landfill. The existing scales are fully automated and computerized, with the capability for data storage and retrieval for daily record keeping and reporting. All customers are issued receipts upon exiting the Facility.

K.2.e Traffic Control

The working face area is the most equipment-intensive area of operation for the Facility. In this area, solid waste transportation vehicles arrive, turn around, back up to the working face, and unload the solid waste. Landfill operation equipment will continually spread and compact the solid waste as it is received. During normal operating conditions, only one working face will be active at any given time, with the solid waste at all other areas within the landfill secured by a minimum of 6 inches of initial cover. The working face may alternate as needed between Phases I-VI to the CEA. It is intended that only one working face will be active at a time at either Phases I-VI or the CEA.

The approach to the working face will be maintained in an accessible condition so that two or more vehicles may safely unload simultaneously side by side. When unloading is complete, the vehicles will immediately leave the working face area. Entrance and exit haul roads will be provided (both temporary and permanent) and maintained to facilitate future unloading operations. Contractor personnel will direct traffic as necessary to expedite safe movement of vehicles and to ensure that all waste transport vehicles unload within the designated area.

K.2.f Method and Sequence of Filling Waste

Each phase will be landfilled as shown in the Operating Sequence Plans provided in Appendix E. The lifts in each of the several phases are shown on one sheet to minimize the number of sheets, but each lift is independent of the others.

K.2.f.1 Phases I-VI

One working face will be maintained for the anticipated traffic maneuvering during waste fill operations. Typical lifts consist of two lifts 8 to 10 feet high, to reach the maximum elevation shown on the operating sequence drawings including daily and intermediate cover. Because of the phosphatic clay liner stability in Phases I-VI, at no time shall a lift exceed the maximum height shown on the operating sequence drawings. The initial filling in Phases I-VI was completed in 2010. Waste filling will continue over the existing area as shown on the operating sequence plans. Existing intermediate cover placed over the Phase I-VI area will be removed as landfilling progresses. The remaining air space in Phases I-VI is divided into eleven lifts (13-15, 16A, 17A, 18 - 23) as shown on the drawings.

The Contractor will prepare filling plans in accordance with the sequence drawings 45 days before the development of a new lift. Subsequently, grades for the new lift will be set on grade by a registered engineer, land-surveyor, or by an authorized agent.

Landfilling in Lifts 13 (Sheet 4A) began on the west side of Phase I and proceeded east over Phase I.

Landfilling in Lift 16A (Sheet 4B) begins on the east side of Phase IV and proceeds west over Phases IV and VI.

Landfilling in Lifts 17A (Sheet 4C) begins on the south side of Phase IV and proceeds clockwise over Phases IV, VI, and V until elevation 240 feet has been reached.

Landfilling in Lifts 14 and 15, (Sheet 5A) begins on the west side of Phase II and proceeds counterclockwise over Phases II and III.

Landfilling in Lifts 18-21 (Sheet 6) begins on the south side of Phase I and proceeds counter clockwise over Phases I, II, III and IV.

Landfilling in Lift 22 (Sheet 7) begins on the south side of Phase IV and proceeds from east to west over Phases IV, V and VI.

Landfilling in Lift 23 (Sheet 8) begins in the center of Phases I-VI, near Phase II and proceeds from east to west over Phases I through VI, to the permitted final grades (Elev 255) of the landfill. Upon completion of filling operations in Lift 23, final cover will be placed over the entire Phase I-VI area as described in Section K.7.h.

K.2.f.2 Section 7 of the Capacity Expansion Area

The initial filling in Section 7 was complete as of May 2005. The outer sideslopes have not reached their final design 3H:1V slope. The temporary sideslopes of Section 7 will be filled to reach their maximum design slope of 3H:1V during waste filling operations in Section 9.

The east and south sideslopes as well as most of the top of Section 7 have received intermediate cover. Stormwater runoff from the top of Section 7 sheet flows to a downchute on the southeast corner that discharges to a culvert leading to sedimentation basin C (Sed C). Stormwater runoff from the sideslopes of Section 7 drains to the perimeter ditches, eventually flowing to the culvert to Sed C. Any stormwater that does not infiltrate into the ground at Sed C discharges to Pond C for additional attenuation prior to flowing through the on-site stormwater management system described in Section K.10.

K.2.f.3 Section 8 of the Capacity Expansion Area

The initial filling in Section 8 was completed as of May 2007. Similar to Section 7, the outer sideslopes have not reached their final design slope of 3H:1V. The temporary sideslopes of Section 8 will be filled to reach their design slope during waste filling operations in Section 9.

The east and north sideslopes, as well as most of the top of Section 8 have received intermediate cover. Stormwater runoff from the top of Section 8 discharges to Sed C. Stormwater runoff on the east sideslope drains to perimeter ditches, eventually flowing to the culvert to Sed C. Stormwater runoff on the north sideslope of Section 8 flows easterly along perimeter ditches around the CEA eventually discharging through the culvert to Sed C. Any stormwater that does not infiltrate into the ground in Sed C discharges to Pond C for additional attenuation prior to flowing through the on-site stormwater management system described in Section K.10.

K.2.f.4 Section 9 of the Capacity Expansion Area

One working face will be maintained for the anticipated traffic maneuvering during waste fill operations. Typical lifts consist of two lifts 8 to 10 feet high, to reach the maximum elevation shown on the operating sequence drawings including daily and intermediate cover.

The proposed filling sequence for Section 9 is presented in the drawings provided in Appendix E. The initial filling in Section 9 was completed as of July 2009.

Waste placement in Section 9 has proceeded against the west sideslopes of Sections 7 and 8 and landfilling of fill sequence 9-15 has been completed (CEA Sheet 6). Waste filling will continue incorporating areas of both Sections 7 and 8. As the Operations Fill Sequence Drawings show, filling will proceed to bring the sideslopes of Sections 7, 8, and 9 to their design slope of 3H:1V slopes as

shown on fill sequence 16-18 (CEA Sheets 6 and 7). The filling of Section 7, 8, and 9 areas will bring the combined areas to an approximate elevation of 285 feet as shown on Sheet 8.

K.2.g Waste Compaction and Application of Cover

Waste will be placed at the top or bottom of the working face and spread toward the bottom or top, respectively. Waste will be spread in approximately 2-foot-thick layers and compacted with a minimum of three to five passes of the landfill compactor. The spreading and compacting is intended to be a continuous operation. A minimum in-place waste density of 1,000 pounds/cubic yard (lb/cy) will be achieved.

A minimum of 6 inches of compacted initial cover or tarp will be placed over the waste at the end of each operation day in accordance with 62-701.500(7)(f)1. Auto shredder residue, alone or mixed with soil, recovered screen material street sweepings, screened ditch cleaning soil, and solid waste combustor ash residue may be used as initial cover as allowed by 62-701.500 (7)(e). Before the working face between landfills is moved, the area that will remain inactive will be covered with compacted initial cover, soil, or a mixture of 50 percent unscreened wood mulch and 50 percent soil (no ash), with sufficient thickness (minimum 6 inches) to prevent erosion and the mixing of leachate with stormwater. A minimum of 1 foot of intermediate cover, in addition to the 6-inch initial cover, will be applied and maintained within 7 days of cell completion if additional solid waste will not be deposited within 180 days of cell completion.

When landfilling operations begin again in areas with intermediate cover, the intermediate cover (free of waste) will be stripped from the surface (upper 12 inches) and reused over other areas needing intermediate cover. The stripped intermediate cover will be pushed ahead and used as perimeter berms around the active working face area. The intermediate areas are graded to promote drainage (minimum 2 percent slope) and seeded to prevent erosion.

K.2.h Operation of Leachate, Gas and Stormwater Controls

See Sections K.8, K.9, and K.10 for leachate, gas, and stormwater controls, respectively.

K.2.i Water Quality Monitoring

K.2.i.1 Phases I-VI

Water quality monitoring for Phase I-VI is included in Section L of the Operation Permit Intermediate Modification Application, dated April 2015.

K.2.i.2 Capacity Expansion Area

Water quality monitoring for Sections 7, 8, and 9 is included in Section L of the Operation Permit Intermediate Modification Application, dated April 2015.

K.2.j Leachate Collection and Removal System Maintenance

Refer to the current LMP Report ~~in Appendix C of the April 2015~~ incorporated as part of the current Operation Permit ~~Intermediate Modification Application~~.

K.3 OPERATING RECORD

The operating record will be maintained on site in the Administration Building or at the SWMG office. The operating record will be accessible to the Facility operation personnel and will be available for inspection by FDEP. The records include the following:

- Waste reports
- Operation permits
- Construction and closure permits including any modifications
- Monitoring results, such as water quality testing
- Notifications to FDEP
- Engineering drawings
- Training certifications as required by Chapter 62-701.320(15), FAC

K.4 WASTE RECORDS

K.4.a Amount and Origin of Waste

The amount of solid waste received at the landfill will be weighed and recorded in tons per day in accordance with Rule 62-701.500(4), FAC. Waste reports, including the amount received and county of origin, for the waste types listed in Section K4(b) will be compiled monthly and provided annually to the FDEP.

K.4.b Waste Types

All reports will contain a minimum of the following waste types:

- Class I waste
- Class III waste
- Ash residue
- Other waste

K.4.c Construction and Demolition Debris

If dedicated loads of construction and demolition debris (C&D) are received, an annual report will be submitted to the FDEP as required in subsection 62-701.730(12), FAC and form 62-701.900(7). This report will include tonnage of material types received and recovered based on county of origin.

K.5 ACCESS CONTROLS

The perimeter fence and berms around the Facility prevent the entry of livestock, protect the public from exposure to potential health and safety hazards, and discourage unauthorized entry or uncontrolled disposal of unauthorized materials. 'No trespassing' signs are also posted along the perimeter fence. The SWMG and Contractor personnel will inspect the premises daily. The gate at the Facility entrance and all other gates will be kept locked at all times the landfill is closed, and the Contractor will provide security personnel to guard the Facility during non-operating hours.

K.6 LOAD-CHECKING PROGRAM

The SWMG has established a random-load-checking program as referenced in Part K.2.c to detect and prevent disposal of unauthorized wastes into the landfill. In addition, site access control discourages the disposal of unauthorized and hazardous wastes. A sign at the entrance of the Facility explains the types of waste prohibited at the landfill.

In accordance with Rule 62-701.500(6)(a), FAC, a minimum of three random loads will be checked at the active working face(s) each week. The selected drivers will be directed to discharge their loads at a designated location next to the working face. If any unauthorized special waste (i.e., lead-acid batteries, used oil, yard trash, white goods, and whole tires) is found during the random inspection or as part of routine operations, the waste will be segregated and removed from the site for recycling as described in Part K.2.c. These special wastes will be stored next to the working face and removed from the site within 30 days.

If an unauthorized waste (i.e., hazardous, PCBs, untreated biomedical, or free liquid) is found, the generator of the waste, if known by the driver, will be contacted to determine the waste source. Either the hauling company or the generator of the waste will be directed to remove the unauthorized waste. The random load inspections will be documented on a report from which includes the date and time, name of the hauling company and the driver of the vehicle, the vehicle license number, the source of the waste or generator, and any observations or notes made by the inspector (Appendix C).

The inspector will identify and note all unauthorized waste found during the random load inspection, estimated quantity, and the action taken. The inspector will sign the inspection form that will be retained at the Facility.

If the waste owner cannot be identified, the waste will be evaluated by Contractor personnel in charge. The waste will be isolated and contained and will not be moved until the waste is determined to be acceptable. If it is determined that the waste is not suitable for disposal, the SWMG will be notified for additional assessment and testing of the waste. Subsequently, a record of the decision will be placed into the daily operations file for the Facility.

If any regulated hazardous waste is discovered in a random load check or is identified by an operator or spotter, the Landfill Manager and the FDEP will be notified immediately as well as the generator or hauler, if known. The Landfill Manager is trained in the proper procedure to follow including notifications. If the generator or hauler is not known, the SWMG will be responsible for disposing of the hazardous waste at a properly permitted Facility. The hazardous waste will be isolated and restricted from access until it is removed from the landfill by a qualified hazardous waste contractor. Hazardous wastes will be removed from the site within 24 hours.

As required in Rule 62-701.320(15), FAC and discussed in Part K.1, inspectors, scale-house attendants, equipment operators, and landfill spotters will be trained to identify unacceptable wastes and hazardous wastes.

K.7 SPREADING AND COMPACTING WASTE

All loads coming into the Facility, including small-volume containers, will be delivered to the working face daily. To preserve the prepared base area and to protect the leachate collection system, traffic will be prohibited to operate directly on the chipped tires overlying the drainage layer. Traffic will only be allowed to maneuver on top of the compacted and covered waste. Therefore, the initial lift of all new disposal areas will be accessed by vehicles from the top of the working face. The waste will be spread and compacted from the top, keeping all heavy equipment off the prepared base.

For all subsequent lifts, the waste placement will vary depending on field conditions. Some lifts will be built from the bottom of the active working face. At the discretion of the operator, waste will also be placed from the top of the active working face and spread toward the bottom. Waste will be placed against the covered working face of the previous day's waste. The first cell will act as a means of access and as a berm to guide the placement of waste for the remaining cells. See Part K.2.g for additional information on waste compaction.

The following guidelines will provide an efficient and environmentally sound method of operation for the Facility:

- Portable litter fencing will be placed at the working face where needed to reduce windblown litter.

- Cracks or eroded sections in the surface of any filled and covered area will be repaired and a regular maintenance program will be followed to eliminate pockets or depressions that may develop as waste settles.

- If 12 inches of intermediate cover (free of waste) has been placed over a partially filled area, it will be removed, reused, and stockpiled for later use before the placement of a new lift.

- Tire chips, ash residue from incinerated MSW, tarps, soil, or a 50/50 soil/mulch mix may be used for initial cover. Stormwater runoff will not be allowed from waste-filled areas covered with tire chips or ash. Runoff from outside the bermed working face area will be considered stormwater only if the flow passes over areas that have no exposed waste and have been adequately covered with a tarp or at least 6 inches of compacted soil (or a mixture of soil/mulch) which is free of waste and has been stabilized to control erosion.

- Sufficient cover material will be stockpiled near the working face to provide an adequate supply for initial cover operations. In some areas, daily stockpiling may not be necessary because of the proximity of the borrow area.

K.7.a Waste Layer Thickness and Compaction Frequencies

Landfill personnel will direct all incoming waste to be unloaded at the toe or top of the working face. Waste will be spread in approximately 2-foot-thick layers and compacted with a minimum of three to five passes of the landfill compactors. The spreading and compacting is intended to be a continuous operation, and waste will not be placed in a layer until the previous layer is compacted.

K.7.b First Layer Thickness

For Phases I-VI and Sections 7, 8, and 9, the initial waste layer has been placed. To protect the integrity of the leachate collection system of the landfill, traffic and heavy equipment were not allowed directly on the sand drainage layer.

The procedure for filling and compacting the first layer of waste for future permitted sections at the Capacity Expansion Area will protect the integrity of the liner and leachate collection system. Traffic directly on the protective layer will be prohibited, and the first lift will be accessed by vehicles from the top of the working face. An initial 4-feet-thick lift of selected waste will be placed over the protective layer. The selected waste will be MSW and ash not containing large rigid objects and will be spread and compacted from the top of the working face.

K.7.c Slopes and Lift Depth

The working face slope will be maintained at a slope no steeper than 3H:1V. Each cell will be constructed in a horizontal lift to an approximate height of 8 to 12 feet, with the maximum height as shown on the Drawings provided separately with the Phases I-VI and the Capacity Expansion Area (Sections 7, 8, and 9) Operation Permit Renewal Application as shown in Appendix E.

K.7.d Working Face

Cells will be constructed with slopes no steeper than 3H:1V, and a working face will be maintained to provide unhindered vehicle access to the working face while minimizing exposed areas and unnecessary use of cover material. The working face may alternate as needed between Phases I-VI to the CEA. The working face will be bermed with soil or a 50/50 soil/mulch mix (no ash). The berm will be constructed to prevent the mixing of leachate with stormwater.

K.7.e Initial Cover Controls

At the end of each working day, the waste will be covered with a 6-inch lift of compacted cover material such as soil, a mixture of 50 percent wood mulch and 50 percent soil (or ash), ash, chipped tires, tarps or other materials as approved in 62-701.500(7)(e) FAC, in accordance with 62-701.500(7)(f)1. These cover materials will provide vector control, mitigate windblown litter, reduce the potential for fire, and reduce odors and moisture infiltration into the waste. The initial cover material will be spread over the exposed waste and, with the exception of tarps, compacted by the equipment used to spread the cover (i.e., bulldozer or scraper). The initial cover material will not be removed before placement of successive lifts of waste, with the exception of tarps, which will be removed before placement of successive lifts. Any remaining litter and cleanings from equipment will be placed at the bottom of the completed cell and covered.

Before the working face between landfills is moved, the area that will remain inactive will be covered with compacted cover (free of waste), soil, or a mixture of 50 percent unscreened wood mulch and 50 percent soil (no ash), with sufficient thickness (minimum 6 inches) to prevent erosion and the mixing of leachate with stormwater.

K.7.f Initial Cover Frequency

At the end of each day's operation, the active landfill working face will be thoroughly compacted, and cover material will be spread and compacted to a depth of 6 inches over the day's entire working face and sideslopes in accordance with 62-701.500(7)(f)1. Initial cover material is discussed in Part K.7.e. If needed, the portable barriers that define the working face will be moved to the positions required to define the next day's operation.

The Facility is equipped to excavate and haul cover materials from on-site borrow areas to the working face. Additionally, an elevating scraper is used to excavate and haul cover material from the borrow area to the working face where it can be spread by a scraper or bulldozer.

When using a 50/50 mixture of soil and mulch the following process will be used:

1. The area to be excavated will be identified in advance. The area used for mulch mixing will not be larger than 15 acres.
2. A 4-foot layer of mulch will be placed over the designated excavation area.
3. As the area is excavated, the excavator will take bucket loads of the mulch layer plus 4 feet of soil, mixing the load as it is placed in the dump trucks.
4. The trucks will deliver the load to the working face. As the loads are deposited, additional mixing will occur.
5. The soil/mulch mixture will be spread over the working face using a bull dozer, causing additional mixing.

K.7.g Intermediate Cover

Intermediate cover will be placed and maintained over cells which will not receive additional solid waste or final cover within 180 days as required in Rule 62-701.500(7)(g), FAC. Recovered screen material or a mixture of soil and ground or chipped yard trash provided that soil makes up at least 50 percent by volume of the mixture may be utilized as intermediate cover. The working face will be bermed to reduce stormwater impacts. Sideslopes will be well maintained to minimize erosion. Intermediate cover material will be placed over the landfill surface within 7 days of cell completion if additional waste will not be placed within 180 days. Intermediate cover will be placed to a minimum compacted thickness of 12 inches on top of the 6 inches of compacted initial cover. On-site material will be used for intermediate cover. Specifically, phosphatic waste clays available on site will be mixed with sand and used for intermediate cover.

To conserve the soil/clay mix, a portion of the intermediate cover will be removed immediately before placement of additional solid waste on top of the lift or before placement of additional waste. The soil/clay mix (free of waste) will be stripped and reused as initial or intermediate cover material. The stripped intermediate cover will be pushed ahead as needed for the perimeter interceptor berms constructed around the active working face area. The intermediate cover areas will be graded to promote drainage (minimum 2-percent slope) and seeded to prevent erosion.

K.7.h Final Cover

K.7.h.1 Temporary Final Cover

A temporary final cover consisting of a soil layer will be installed over cells in Phases I-VI and/or the CEA which will not receive additional solid waste. The temporary final cover will consist of a 12-inch layer of soil with a hydraulic conductivity of 1.0 x 10-5 cm/sec. Vegetative cover will be placed on areas which have reached interim final grade in Phases I-VI. These areas will not receive additional waste until the end of the consolidation period before waste can be filled on top of the area. In CEA Sections 7, 8, and 9, the temporary final cover will be installed on the south and east side slopes as shown on the drawings. As required, temporary drainage berms and downchutes will be placed at the working face to control and direct stormwater runoff away from disposal areas.

K.7.h.2 Final Cover

When portions of the Facility are brought to design grades, final cover will be placed over the areas that have attained final elevation within 180 days in accordance with Rule 62-701.500(7)(h), FAC. Vegetative cover will be established. The final cover system and sequence for final cover placement will be submitted with the application for closure at least 90 days before the partial closure of the sideslopes.

K.7.i Scavenging and Salvaging

Except for such operations that are conducted as part of a recycling program, scavenging and salvaging are not permitted at the Facility. If the volume of recyclable goods is sufficient, as determined by the Landfill Manager, those items may be separated from the waste which is to be disposed.

During waste placement on the landfill, recyclable items such as wood, concrete, metals, cardboard, and other recyclables may be manually pulled from the active face, segregated, and placed in the staging area/roll-off containers adjacent to the working face area. With the exception of clean concrete, the remaining materials will be transferred off-site for recycling. The clean concrete will be stored on site until sufficient quantity is stockpiled and used for on-site road base or other on-site uses.

After the recyclable materials have been removed, the remaining materials will be disposed in the active Class I waste disposal area of the landfill.

Any recycling method, other than manual extraction, will only be implemented following review and concurrence by the FDEP.

K.7.j Litter Policing

If necessary, portable litter fences will be placed downwind of the immediate working area to confine most of the windblown material. Litter around the site and the entrance roadways will be collected regularly and picked up within 24 hours, in accordance with Rule 62-701.500(7)(j), FAC.

K.7.k Erosion-Control Procedures

The Facility fill sequence and the drainage facilities have been designed to minimize erosion of landfill sideslopes and washout of adjacent areas. The landfill surface will be inspected daily for cracks, eroded areas, and depressions in the landfill surface. Corrective action will be implemented within 7 days of detection. In areas where standing water develops, the area will be filled, compacted, and graded to provide positive drainage. Where the standing water problem cannot be corrected by proper grading, temporary drainage ditches will be constructed to drain off the standing water. Intermediately covered areas or other areas that discharge to the stormwater management system and which exhibit significant erosion will be repaired as follows:

- If greater than 50 percent of the soil cover material has eroded, the area will be repaired within 7 days.
- If waste or liner is exposed, the area will be repaired by the end of the next working day.

K.8 LEACHATE MANAGEMENT

Please see the current LMP. ~~(Appendix B of the Operation Permit Intermediate Modification dated September 2015).~~

K.9 GAS MONITORING AND MANAGEMENT PROGRAM

K.9.a Gas Monitoring

SWMG personnel shall monitor and record landfill gas (LFG) readings quarterly at the perimeter LFG monitoring wells and in the Administration, LTRF, and Maintenance buildings. The locations of the existing LFG monitoring points are included in Appendix F and are summarized in Table K.9.a.1. The ambient air and areas with slab penetration (areas with plumbing for water and drains) will be monitored inside these structures. The monitoring will be conducted for the Lower Explosive Limit (LEL) of methane using a GEM-500 Infrared Landfill Gas Analyzer (or equivalent). The probes will not be purged. Once the GEM is connected to the sampling port, the valve will be opened and the GEM pump will be started. The GEM reading will be observed and the value will be recorded.

When personnel must enter confined spaces or areas where dangerous gases may be present, the SWMG will follow the requirements in the "Code of Federal Regulations Title 29, Part 1910.146 OSHA" and the safety guidelines outlined in "A Compilation of Landfill Gas and Field Practices and Procedures" prepared by the SWANA Landfill Gas Division Health and Safety Task Force.

If methane is detected in concentrations greater than the regulatory limit (100 percent of the lower explosive limit at the property boundary or 25 percent of the lower explosive limit within structures), the SWMG will evaluate potential measures to correct the exceedances. If an unacceptable concentration of methane is detected in a monitoring location (i.e., a well or an on-site structure), the SWMG will immediately take appropriate actions to protect human health. The SWMG will notify FDEP and will re-monitor the location during each of the next 3 days. During this time the SWMG will evaluate potential causes of the exceedance and will implement procedures to remedy the situation if exceedances persist after the third day. Within 7 days of the initial exceedance, the SWMG will submit a remediation plan to FDEP in accordance with Rule 62-701.530(3)(a) FAC.

Table K.9.a.1 Landfill Gas Monitoring Points

~~Landfill Gas Monitoring Points~~	
I.D.	Probe/Building Location
LFG-1	Property boundary probe: South property boundary
LFG-2	Property boundary probe: Southwest property boundary
LFG-3	Property boundary probe: Northwest property boundary
LFG-4	Property boundary probe: North property boundary
SP-1	Scalehouse/Administration Building
SP-2	Scalehouse/Administration Building
SP-3	Scalehouse/Administration Building
SP-4	Scalehouse/Administration Building
SP-5	Scalehouse/Administration Building
SP-6	Scalehouse/Administration Building
SP-7	Scalehouse/Administration Building
SP-8	Scalehouse/Administration Building
SP-9	Maintenance Building
SP-10	Maintenance Building
SP-11	Maintenance Building
SP-12	Maintenance Building
SP-13	Leachate Treatment Facility Building
SP-14	Leachate Treatment Facility Building
SP-15	Leachate Treatment Facility Building

As described in Part K.7, the SWMG has a program for the placement of cover, which is effective for controlling disease, vectors, objectionable odors, and litter. No objectionable odors have been detected or reported by adjacent property owners. At least quarterly, or more frequently if necessary, qualified personnel from the SWMG will assess the presence of ambient objectionable odors at the perimeter monitoring points shown in Appendix F. If objectionable odors are detected at the property line, the SWMG will implement an odor-monitoring program as required by Rule 62-701.530(3)(b) FAC.

K.9.b Landfill Gas Collection System

The design of the Landfill Gas (LFG) collection system and the subsequent operation is in accordance with the federal New Source Performance Standards (NSPS) for municipal solid waste landfills (Subpart WWW) and Subpart AAAA of the National Emission Standards for Hazardous Air Pollutants (NESHAP), which dictates the operational procedures for the gas collection and control (GCCS).

Landfill gas that is generated in the landfill is currently collected by the system GCCS in Phases I-VI and Sections 7, 8, and 9. Permit No. 35435-016-SC/08 details the requirements of the GCCS. The SCLF continues to remain in compliance with the GCCS operation and Title V permit requirements. The repairs and upgrades to the GCCS in the area of the former sinkhole have been completed and were designed to provide landfill gas collection and extraction per the pre-sinkhole conditions and in accordance with the previously permitted GCCS design intent.

The facility maintains all operational and manufacturer procedural documentation for the blower, flare, control devices, and LFG system components on site in the "LFG Specialties User Manual for Utility Flare System Unit 2162", dated September 2009.

For additional information on the GCCS operating and maintenance procedures and safety protocols, refer to the GCCS Design Plan, the Startup, Shutdown and Malfunction Report (SSM), and current Title V Air Operation Permit.

K.10 STORMWATER-MANAGEMNET SYSTEM

K.10.a Leachate Reduction

K.10.a.1 Stormwater Diversion

K.10.a.1.1 Site Stormwater System

The stormwater system was designed to transport the maximum expected flows from a 24-hour, 25-year rainfall event and minimize the collection of standing water within the disposal areas. To efficiently collect and transport the stormwater runoff away from the disposal areas, the stormwater system will be maintained in good condition, with the proper slopes and free from obstructions. Erosion control measures and corrective action are described in Part K.7.k of the Operation Plan. In addition, the design maintains conformance with the site's Southwest Florida Water Management District (SWFWMD) Stormwater Permit (a copy was submitted in Volume 3 of the Construction Permit Application for the Capacity Expansion Area, Section 7, September 2002). The major stormwater component designs and operations are as follows:

- Interior Stormwater Separation berms are generally designed to be 3 feet high and 3 feet wide across the top with sideslopes of 3H:1V. The separation berms divide the contributing runoff areas to facilitate the collection and handling of stormwater as well as providing separation from leachate.

- Sideslope swales were designed to convey stormwater flow from the sideslopes to the downchutes as shown on the drawings. Sideslope swales will be constructed where needed and as shown on the sequence drawings provided separately with the Phases I-VI and Capacity Expansion Area (Sections 7, 8, and 9).

- Downchutes constructed on the side slopes of the landfill will transport stormwater flow to the perimeter stormwater ditches.

- The perimeter stormwater ditches collect surface water runoff around the site, prevent offsite drainage from entering the landfill area, and drain runoff to the appropriate stormwater ponds and sedimentation basins located around the site.

K.10.a.1.2 Phases I-VI

The Phases I-VI stormwater collection system directs stormwater runoff from the landfill and surrounding sub-shed areas and into stormwater sedimentation basins and detention ponds. The sedimentation basins are designated A-2, A-3, B, C, 2, 3, 4, and 8. The ponds are designated as Ponds A-1, B, C, D, and E, and an evaporation area. As the Phase I-VI areas are filled with waste,

daily and intermediate cover (clean fill) is applied over the waste which promotes drainage away from the waste material. This minimizes the amount of water that is allowed to infiltrate into the waste. Stormwater that comes in contact with the waste in the active working area is considered leachate and will not be allowed to run off into the stormwater management system. The size of the working area will be kept to a minimum to minimize leachate and berms around the working area will separate stormwater from leachate. The runoff will be directed toward downchutes that will be conveyed to one of the basins.

K.10.a.1.3 **Capacity Expansion Area**

The CEA stormwater collection system directs stormwater runoff from the landfill and surrounding sub-shed areas and into the existing stormwater sedimentation basins and detention ponds. The receiving basins are designated as Sed C and Seds 2, 3, 4, and 8, which flow into Ponds C and D, respectively. As the CEA, currently Sections 7, 8 and 9, is filled with waste, it will then be covered with daily and intermediate cover (clean fill) to allow drainage away from the waste. This minimizes the amount of water that is allowed to infiltrate into the waste. Stormwater that comes in contact with the waste (now considered leachate) in the active working area will not be allowed to run off into the stormwater management system. The size of the working area will be kept to a minimum to minimize leachate. Berms around the working area will separate stormwater from leachate. The runoff will be directed toward downchutes and transported via stormwater ditches to Sed C and Pond C. The undeveloped areas of the CEA will collect and drain stormwater runoff to sedimentation basin D (Sed D) and Pond D.

K.10.a.1.4 **Stormwater Management System Improvements**

Improvements to the Stormwater management System (SWMS) at the SCLF were completed in March 2012, see figure in Appendix H. Improvements to the existing SWMS as part of the Stormwater Improvements Project consisted of the following:

1. Conversion of dry retention Basins A, B and C from underdrain systems to wet detention systems (Basin C was converted from dry retention with underdrain system to wet detention system as part of Section 9 construction in April 2008).
2. Restructuring of evaporation areas located north of the scale house and WMIF's maintenance building to increase attenuation with a wet pool design. New Ponds A-1, A-2 and A-3, and existing Basins F and G are interconnected and function as one system that ultimately discharges through modified control structures in Pond B. New Ponds A-2 and A-3 increase retention times of runoff from Phases I-VI with treatment provided in Pond B.
3. Sedimentation ponds between Phases I-VI and the CEA, SED-2, SED-3, SED-4 and SED-8, were constructed provide additional settling areas and reduce sediment transport into Basin D. These sedimentation swales and ponds provide some treatment, but most of the treatment will continue to be provided by the existing Basin D.

K.10.a.1.5 **Other Site Stormwater Basins**

Several other basins located around the site collect stormwater runoff; however, they do not collect runoff from disposal areas. The other basins are mentioned in this plan for informational purposes. Basins E, F and G collect runoff from the scalehouse. Stormwater Detention Basin H collects runoff from the LTRF.

K.10.a.2 Rain Tarps

Rain tarps will be used to cover open areas (areas that have not received waste material yet but are connected to the leachate collection system) to keep stormwater out of the leachate collection system. Water that has collected on top of the rain tarp is considered stormwater and can be pumped to the appropriate stormwater basin that was designed for that area. Before placement of waste, all rain tarps will be removed.

K.10.a.3 Stabilized Slopes

As filling progresses, the top and side slopes that will not receive additional solid waste for 2 or more months will be stabilized. First, compacted fill will be placed over the waste material to keep stormwater from infiltrating into the waste and to promote runoff. The slopes can then be stabilized with vegetative cover, seed, and mulch, or rain tarp covers. Exterior side slopes that are constructed to design grade and interior side slopes that will not receive waste for longer than 180 days will be covered with intermediate cover and either vegetative cover or hydroseed.

K.10.a.4 Closure

As disposal areas reach final elevations as discussed in Part K.7.h, areas may have a final or temporary final cover placed over the waste material that will provide a low permeability cover over the waste and thus minimize long-term infiltration of stormwater into the waste materials as described in Section K.7.h.(1). As stormwater infiltration is cut off, water within the waste will drain to the leachate collection system within the lined area of the landfill. Since infiltration of stormwater will be minimal, the amount of leachate resulting from stormwater infiltration will reduce over time.

The methods described above represent the current plan; however, as operations continue, they may be modified if alternate methods prove more efficient or allow a higher percentage of stormwater runoff, thus resulting in greater leachate minimization.

K.11 EQUIPMENT AND OPERATION

Landfill operation was discussed in Part K.2.

K.11.a Operating Equipment

The landfill is typically operated with the following on-site equipment:

- Steel-wheeled compactors.
- Bulldozers.
- Articulated dump truck.
- Water tank truck.
- Motor grader.
- Excavator.

- Several pickup trucks.
- Other miscellaneous construction and maintenance equipment.

Where appropriate, equipment is fitted with safety cabs and fire extinguishers. The Contractor is required to have back-up equipment available within 24 hours.

K.11.a.1 Equipment Care

Routine preventive maintenance minimizes equipment downtime and increases equipment service life. Therefore, the appropriate operation and maintenance (owner's) manual should be consulted. However, applicable maintenance activities implemented at the site include:

- A routine inspection program;
- Routine lubrication; and,
- Maintenance records up-keep.

Minimal equipment washing using low-volume, high-pressure technique may be performed on lined areas of the landfill that do not have intermediate or final cover. The activity is exempt from industrial wastewater permitting since the wash water is collected by the leachate collection system. Washing will occur within, or adjacent to, the active working face. Runoff will be contained within the limits of the lined landfill and not allowed to comingle with stormwater runoff.

K.11.b Reserve Equipment

Sufficient backup equipment will be provided on site for equipment breakdowns and downtime for normal routine equipment maintenance. Pre-arrangements with contractors and rental equipment dealers will be made to furnish equipment on short notice in the case of a major equipment failure. The Reserve Equipment Agreement is presented in Appendix B.

K.11.c Communications Equipment and Personnel Facilities

Telephones are located at the Administrative and Maintenance Buildings for use in emergencies. Cellular telephones and two-way radios are also used. The Administration Building is equipped with water supply, toilet facilities, emergency first-aid supplies, and electricity. The building also provides shelter for employees in case of inclement weather. The Maintenance Building is equipped with spare parts, tools, equipment, and electrical services for operations and repair.

K.11.d Dust Control

K.11.d.1 Phases I-VI

Dust control outside of the landfill will be provided by applying water sprayed from a water tank truck and will be applied to the unpaved access roads as required to control dust generation. Dust control inside of the landfill will be provided by applying small quantities of leachate as described in Section 8.4 of the LMP.

K.11.d.2 Capacity Expansion Area

Dust control outside of the landfill will be provided by applying water sprayed from a water tank truck and will be applied to the unpaved access roads as required to control dust.

Dust control inside the active waste disposal areas will be provided by applying small quantities of leachate from a spray bar mounted on the rear of a tank truck. Leachate will be sprayed onto the active fill areas of the CEA, including the working face, which includes a berm to prevent runoff, and areas with the required 6 inches of initial cover as required to control dust.

Leachate used as dust control reduces the amount of fresh pond water that would otherwise be sprayed from tanker trucks to control dust on the active fill areas and provides for leachate evaporation. Leachate quantities used for dust control will continue to be reported in the leachate balance report submitted to the FDEP.

The SWMG will monitor the rate of application, soil moisture conditions, and the specific landfill areas used so that this leachate disposal method does not generate runoff. Spray bar leachate spraying will be applied under the following conditions:

- Leachate will only be sprayed on active-fill areas, including the working face that includes a berm to prevent runoff and areas with the required 6 inches of compacted initial cover.
- Leachate will not be sprayed on areas with intermediate or final cover, seeded or unseeded, or on areas that do not have a berm to prevent runoff.
- The maximum grade leachate will be sprayed on is 10H:1V slope. Areas within 150 feet of a 4H:1V or steeper sideslope will not be sprayed. Areas receiving leachate will be controlled at all times to prevent leachate runoff from entering the stormwater system.
- Leachate will not be sprayed during a rainfall event.
- The tank truck spray bar method maximizes evaporation. The application rate of leachate will be such that leachate does not accumulate on the landfill surface nor infiltrate quickly into the covered refuse. The main goal of this leachate disposal method is evaporation rather than recirculation of leachate.
- Leachate will not be sprayed at the end of the day on the initial cover of the working face or other areas. Spraying should be done early in the morning after any dew evaporates and continue until early afternoon or until all available areas have been used.

K.11.e Fire Protection and Chemical Fires

A charged fire extinguisher is kept at the scalehouse, Administration Building, Maintenance Building, and with all landfill equipment all times. Excavated soil will be used for fire control at the working face.

If a load of waste delivered to the site is smoking or on fire, landfill personnel direct the load to the "hot spot" area (an area within the landfill footprint with at least 12 inches of soil cover) where appropriate fire fighting procedures are followed.

Water for fire protection will be supplied from the fire hydrant and intake structure located east of Phase II. A second fire hydrant and intake structure is located south of the LTRF. If there is a small

fire at the working face, waste handling will continue on an alternate working face until the fire is suppressed. If a fire cannot be controlled using materials and personnel already on site, the Fire Department will be immediately contacted and the emergency response plan described in Part K.2.b will be followed. See Part K.2.b for spills and containment of contaminated water such as from fire fighting.

No chemicals will be accepted at the landfill. All waste coming through the scale house will be observed to eliminate unwanted chemicals capable of starting a fire. If a chemical accident does occur, the following steps will be taken:

- Call the local Fire Department (911).
- Contain the fire in a small area until Fire Department arrives. To eliminate inhalation of potentially toxic fumes, fight fire from the upwind side.

K.11.f Litter Control Devices

See Part K.7.j of this Operation Plan.

K.11.g Signs

A sign indicating the hours of operation is located at the Facility entrance. Signs indicating the name of the operating authority, charges for disposal, and identifying the asbestos disposal site are located near the scalehouse area. Traffic flow and speed limit signs are located at various points along the landfill access road.

K.12 ALL-WEATHER ACCESS ROAD

The access roadway enters the site from CR 672. An asphalt paved road travels north from CR 672 and turns east into the Facility. The access road location was selected to minimize impacts to residential and agricultural areas along CR 672. There is a gate on the access roadway at CR 672 and fencing to prevent unauthorized access.

The main access road is a 40-foot-wide roadway with a 24-foot-wide asphalt paved section and 8-foot-wide shoulders constructed within the 100-foot-wide right-of-way. The main access road is paved and extends into the Facility through the property entrance, runs along the south side of the site, and turns north along the east side of the Facility area.

Other on-site roadways will be required on a temporary and permanent basis to serve the borrow area and for maintenance and services of on-site facilities. A stockpile of materials to construct and maintain all-weather roads to the active working face is available on site.

K.13 ADDITIONAL RECORDKEEPING

Operation records, such as permits, plans, inspections and others, are maintained at the Facility and at the SWMG office. The active area of Phases I-VI will be surveyed monthly and the active area of the CEA will be surveyed twice each year to calculate the volume used and to estimate the in-place density.

K.13.a Permit Application Development

The SWMG keeps all information including site investigations, construction records, operation records, inspections, and permits.

K.13.b Monitoring Information Records

The SWMG also keeps all monitoring records on groundwater, surface water, weather, and landfill gas. Copies are regularly submitted to the FDEP and the Environmental Protection Commission of Hillsborough County.

K.13.c Remaining Site Life Estimates

An estimate of the remaining site life for the permitted area will be prepared annually for submission to the FDEP.

K.13.d Archiving and Retrieving Records

Records of the landfill that are more than 3 years old will be available at the Facility.

Appendix A

Training Courses

Updated 4/3/2013

CEUS Currently Approved by the Florida SWMTC for 1/2013-12/2015 for Solid Waste Operators/Spotter

http://landfill.treeo.ufl.edu/Courses.aspx

Course #	Course Title	Course Provider	Landfill	Construction & Demolition Debris	Transfer Station	Materials Recovery Facility	Spotter	
203	8-Hour Initial Training Course for Spotters at Class I,II,III Facilities, Waste Processing Facilities, and C&D Sites	Kohl Consulting, Inc.	8	8	8	8	8	Initial
214	Spotter Training Plan for Land Clearing Debris Site	Wetland Solutions	8	8	8	8	8	Initial
219	8 Hour Initial Training for Spotter	Consolidated Resource Recovery, Inc.	8	8	8	8	8	Initial *Restricted*
248	Spotter Training for Solid Waste Facilities	University of Florida TREEO Center	8	8	8	8	8	Initial
442	24-Hour Initial Training Course for Landfill Operators of Class I, Class II, Class III, and C&D Sites	UF TREEO	16	16	8	8	4	Initial
443	16-Hour Initial Training Course for Operators of Transfer Stations and Material Recovery Facilities	UF TREEO	12	12	8	8	4	Initial
444	SWANA-Transfer Station Design & Operations	SWANA	8	8	8	0	8	Initial
462	8-hour Training Course for Spotters at Landfills, C&D Sites and Transfer Stations	UF TREEO	8	8	8	8	8	Initial
488	8-Hour Spotter Training Class I II III Landfill C&D Sites and Transfer Facilities	Safety Consulting and Training	8	8	8	8	8	Initial
582	16-Hour Initial Traiing Course for Transfer Station and MRF Operators	Kohl Consulting Inc	10	10	8	8	4	Initial
608	24-Hour Initial Training Course for Landfill Operators (Class I III and C&D Sites)	Kohl Consulting, Inc.	16	16	8	8	4	Initial
598	SWANA - Manager of Landfill Operations [MOLO] & Exam	SWANA	16	16	8	8	4	Initial
706	The SWM Combo Class: 24-Hour Initial Trainig Coruse for Landfill Opertors (Class I, II, III and C&D Sites) with 16-Hour Initial MRF/TS Opertor Class and 8-Hour Spotter Class [Initial Only]	Kohl Consulting Inc.	24	24	16	16	8	Initial
700	Construction and Demolition Debris Recycling and Management Workshop	FDEP & SWIX	4	4	4	4	4	
701	SWANA-FL 2012 Summer Conference	SWANA-FL	8	8	4	4	4	
702	2012 NAHMMA Florida Chapter HHW/SQG Workshop and General Session	NAHMMA-Florida Chapter	4	4	4	4	2	
703	16-hour Landfill Operator Refresher Course	Kohl Consulting Inc	16	16				
704	SWANA - WasteCon 2013	SWANA	8	8	7	5	2	
705	The Nitty Gritty of Native Bvegetation on Landfills - eCourse	SWANA	1	1				
706	The SWM Combo Class: 24-Hour Initial Trainig Coruse for Landfill Opertors (Class I, II, III and C&D Sites) with 16-Hour Initial MRF/TS Opertor Class and 8-Hour Spotter Class [Initial Only]	Kohl Consulting Inc.	24	24	16	16	8	
707	OSHA 1910.120 HazWoper Refresher	Burt McKee	4	4	4	4	4	
708	Train-the-Trainer: How to Design & Deliver Effective Training	University of Florida TREEO Center	7	7	7	7	2	
709	Fundamentals of Slope Stability and Settlement for Solid Waste Disposal Facilities	University of Florida TREEO Center	16	16				
710	Basic Water and Wastewater Pump Maintenance	University of Florida TREEO Center	4	4				
711	Pumping Systems Operation and Maintenance	University of Florida TREEO Center	4	4				
712	Basic Electricity for the Non Electrician	American Trainco	2	2	2	2		
713	24-hour HAZWOPER OSHA Training course - online	University of South Florida - OSHA Training Institute	6	6	6	6	3	
714	8-hour HAZWOPER Refresher Training course - Online	Safety Unlimited Inc	4	4	4	4	4	

Course #	Course Title	Course Provider	Landfill	Construction & Demolition Debris	Transfer Station	Materials Recovery Facility	Spotter	
715	8-hour HazWoper Refresher - Operations Level	American Compliance Technologies	4	4	4	4	4	
716	8-hr Hazwoper OSHA Refresher	FDEP	4	4	4	4	4	
717	4-hour OSHA Hazardous Materials Awareness Level Course	Local Environmental Planning Council - District 5 and Citrus County Solid Waste Dept	4	4	4	4	4	
718	4-Hour Refresher Course for Spotters at Landfills, C&D Sites and Transfer Stations	University of Florida TREEO Center	4	4	4	4	4	
719	Waste Screening Refresher	University of Florida TREEO Center	4	4	4	4	4	
720	Hazardous Waste Regulations in Solid Waste Operations and Recycling	University of Florida TREEO Center	8	8	8	8	4	
721	Hazardous Waste Regulations in Solid Waste Operations	University of Florida TREEO Center	4	4	4	4	4	
722	Health and Safety for Solid Waste Workers [am]	University of Florida TREEO Center	4	4	4	4	4	
723	Health and Safety for Solid Waste Workers [pm]	University of Florida TREEO Center	4	4	4	4	4	
724	Health and Safety for Solid Waste Workers [am+pm]	University of Florida TREEO Center	4	4	4	4	4	
725	Solid Waste Workplace Health and Safety Trianing - 4 hours	University of Florida TREEO Center	4	4	4	4	4	
726	IS-00340 Hazardous Materials Management	FEMA Emergency Management Institute	4	4	4	4	4	
727	Is-271.a Anticipating Hazardous Weather & Community Risk, 2nd Edition	FEMA Emergency Management Institute	2	2				
728	Managing Composting Operations	Solid Waste Association of North America [SWANA]	16	16				
729	Personal Protection Equipment (PPE) and Safety Procedures	University of Florida TREEO Center	4	4	4	4	4	
730	Heavy Equipment Safety	University of Florida TREEO Center	4	4	4	4	4	
731	Supervisor Safety Training for Solid Waste Operations Staff	University of Florida TREEO Center	4	4	4	4	4	
732	Permit Required Confined Space Awareness	University of Florida TREEO Center	4	4	4	4	4	
733	8-hour OSHA HazWoper Annual Refresher	University of Florida TREEO Center	4	4	4	4	4	
734	40-Hour OSHA HAZWOPER Training Course	University of Florida TREEO Center	8	8	8	8	4	
735	Hazardous Waste Regulations for Generators	University of Florida TREEO Center	4	4	4	4	4	
736	Exposure to Blooborne and Airborne Pathogens	University of Florida TREEO Center	6	6	6	6	4	
737	Bird and Wildlife Management for Ultiliites	University of Florida TREEO Center	4	4	4	4	2	
738	Beyond 40% - Florida's Pathway to Sustainability"	Solid Waste Association of North America [SWANA] + Recycle Florida Today [RFT]	6	6	6	6	2	
739	Getting Back to Basics with Landfill Gas	University of Florida TREEO Center	8	8			4	
740	Is-632.s Introduction to Debris Operation	Emergency Management Institute	2	2	2	2	2	
741	SI:300 Introduction to Air Pollution Toxicology (1994)	US EPA Air Pollution Training Institute (APTI)	4	4	4	4		
742	4-Hour Spotter Refresher Course for Spotters at Solid Waste Management Facilities in Florida	Kohl Consulting Inc	4	4	4	4	4	
743	Health & Safety Issues for Solid Waste Management Facilities	Kohl Consulting Inc.	8	8	8	8	4	

Course #	Course Title	Course Provider	Landfill	Construction & Demolition Debris	Transfer Station	Materials Recovery Facility	Spotter	
744	The Sense of Smell, Odor, Theory and Odor Control	Kohl Consulting Inc.	4	4	4	4	2	
745	Spotters at Landfills and Transfer Stations: Safety Awareness Review	Kohl Consulting Inc.	4	4	4	4	4	
746	Landfill and Transfer Station Operators: Waste Acceptability and Safety Issues Review	Kohl Consulting Inc.	4	4	4	4	4	
747	Improving Landfill Operations	Kohl Consulting Inc.	4	4				
748	Fires at Landfills and Other Solid Waste Management Facilities	Kohl Consulting Inc.	4	4	4	4	4	
749	Improving Transfer Station Efficiency	Kohl Consulting Inc.			4	4		
750	Landfill Gas Collection and Re-Use	Kohl Consulting Inc.	4	4				
751	Landfills: Past, Present and Future	Kohl Consulting Inc.	4	4			4	
752	Landfills and Transfer Stations: Past, Present and Future	Kohl Consulting Inc.	4	4	4		4	
753	Wet Weather Operations	Kohl Consulting Inc.	4	4	2	2	4	
754	Topics in Solid Waste Management for Landfill Operators, MRF Operators and Transfer Station Operators	Kohl Consulting Inc.	4	4	2	2	2	
755	Wildlife and Plants at Florida Solid Waste Management Facilities	Kohl Consulting Inc.	4	4	4	4	2	
756	Measurement and Improvement of Performance at Solid Waste Management Facilities ("If you Can't Measure it, You Can't Manage It")	Kohl Consulting Inc.	4	4	4	4		
757	CPR / AED	American Safety & Health Institute - American Health Association - American Red Cross	2	2	2	2	2	
758	First Aid	American Safety & Health Institute - American Health Association - American Red Cross	2	2	2	2	2	
759	Refresher Training Course for Experienced Solid Waste Operators - 16hrs	University of Florida TREEO Center	16	16				
760	Refresher Training Course for Experienced Solid Waste Operators - 8hrs	University of Florida TREEO Center	8	8	8	8		
761	Refresher Training Course for Experienced Solid Waste Operators - 4hrs	University of Florida TREEO Center	4	4	4	4	4	
762	U.S. DOT Hazardous Materials/Waste Transportation	University of Florida TREEO Center	6	6	6	6	4	
763	OSHA 10-hour General Industry Safety Outreach Training	Training Consultants Inc.	4	4	4	4	4	
764	NAHMMA 2013 Florida Chapter Annual Conference – General Sessions	North American Hazardous Materials Management Association	10	10	8	8	4	
765	Road-e-o: Heavy Equipment Safety Training	SWANA-FL	4	4	4	4	2	
766	North American Waste-To-Energy Conference NAWTEC 21st Annual	SWANA	4	4		4		
767	Food Waste Recycling Workshop	SWIX & FDEP	5		3		2	
768	Florida Stormwater, Erosion, and Sedimentation Control Inspector Training and Certification Program	FDEP	3	3				

Appendix B

Reserve Equipment Agreement

Ring Power Corporation
10421 Fern Hill Drive
Riverview, FL 33578

Waste Management Inc. /Southeast Landfill
P.O. Box 627
Balm, FL 33503
Location: Hillsborough County Landfill

2/21/2013

Rental Rates effective through 12/31/13
Waste Management is responsible for maintenance and all damages to rental equipment.
Equipment rental is subject to availability.
Transportation cost quoted upon request.

Make	Model	Description	Day Rate	Week Rate	Month Rate	Cleaning Fee
CAT	D8T	Dozer(w/o waste handling arrangement)	$1,900.00	$5,800.00	$16,400.00	$ 2,400.00
CAT	D6T	Dozer(w/o waste handling arrangement)	$1,100.00	$3,300.00	$ 9,100.00	
CAT	D6N	Dozer(w/o waste handling arrangement)	$ 900.00	$2,700.00	$ 7,400.00	
CAT	D5K	Dozer(w/o waste handling arrangement)	$ 620.00	$1,760.00	$ 5,040.00	
CAT	725	Articulated dump truck 18.8 cyd capacity	$1,100.00	$3,200.00	$ 8,700.00	
CAT	329EL	Hydraulic Excavator 2.5 cyd bucket capacity	$ 900.00	$2,600.00	$ 6,900.00	
CAT	613	Scraper 11 cyd bowl capacity	$1,100.00	$3,200.00	$ 8,700.00	
CAT	12M	Motor Grader 14' mold board	$ 800.00	$2,300.00	$ 6,000.00	
CAT	938K	Wheel Loader 3.05 cyd bucket capacity	$ 700.00	$2,000.00	$ 5,000.00	
CAT	416E	Loader Backhoe	$ 200.00	$ 500.00	$ 1,500.00	
CAT	CS56	Single Drum Roller 84" wide drum	$ 500.00	$1,400.00	$ 3,400.00	

*Plus tax & Insurance

Ring Power guarantees Waste Management a suitable rental machine delivered to Hillsborough County Landfill within 24 hours of their request.

Appendix C

Random Inspection and Violation Report

SOLID WASTE FACILITY INSPECTION / VIOLATION REPORT

REPORT TYPE: ☐ INSPECTION ☐ VIOLATION ☐ LF RANDOM INSPECTION

LOCATION: _____ DATE: _____ TIME: _____

DELIVERING COMPANY: FRANCHISE COLLECTOR: ☐ WMI ☐ EB ☐ KR
OTHER: _____

DRIVER NAME: _____ VEHICLE #: _____

VEHICLE TYPE ☐ FEL ☐ RO ☐ RL ☐ SL ☐ SEMI ☐ DUMP
OTHER: _____

CUSTOMER / GENERATOR: _____ TRANSACTION #: _____

TYPE OF WASTE:

☐ YARD WASTE	☐ INDUSTRIAL	☐ AUTO PARTS	☐ BY PASS WASTE
☐ C & DD	☐ INSULATION	☐ ASH RESIDUE	☐ ANIMAL WASTE
☐ FURNITURE	☐ AG WASTE	☐ ROOFING	☐ SPECIAL WASTE
☐ CARDBOARD	☐ FIELD PLASTIC	☐ METALS	
☐ COMMERCIAL WASTE	☐ HOUSEHOLD GARBAGE		
☐ OTHER: _____			

TYPE OF VIOLATION: ☐ FACILITY ☐ LOAD ☐ SAFETY ☐ CONTAINER

DETAILS: _____

DRIVER COMMENTS: _____

RESULTS: ☐ ACCEPTED ☐ REJECTED ☐ RELOAD ☐ ALREADY IN PIT

INSPECTOR'S SIGNATURE: _____

ADDITIONAL COMMENTS: _____

inspect White Copy: Customer Yellow Copy: Inspector Pink Copy: Office

Appendix D

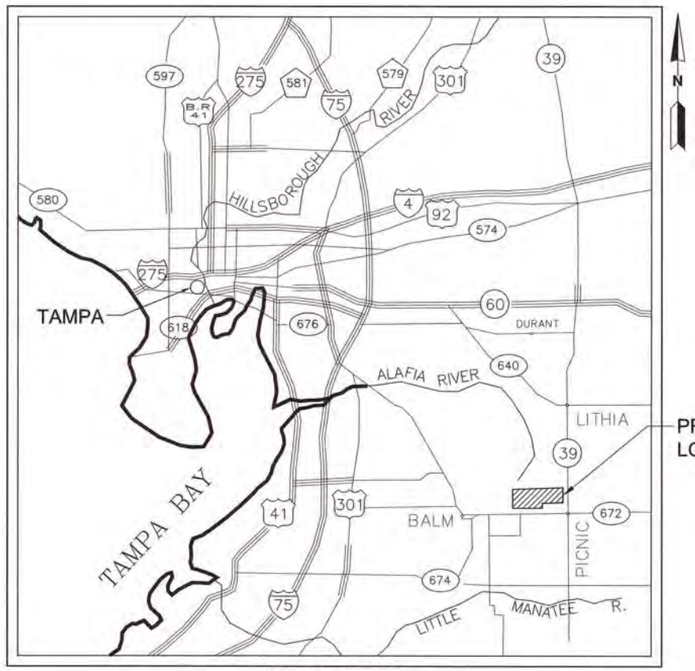
Not Used

Appendix E

Phases I-VI and Capacity Expansion Area Fill Sequencing Plans

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY

TAMPA, FLORIDA
APRIL 2017



PROJECT LOCATION

LOCATION MAP
NOT TO SCALE

INDEX OF DRAWINGS

SHEET	SHEET TITLE
1	COVER SHEET
2	INDEX, LEGENDS AND GENERAL NOTES
3	FACILITY SITE PLAN AND EXISTING TOPOGRAPHY
~~4~~	~~PHASES I TO IV - LIFTS 13 TO 16~~
4A	PHASES I - LIFT 13
4B	PHASES VI, IV, I - LIFT 16A
4C	PHASES IV, VI, V - LIFT 17A
~~5~~	~~PHASES V AND VI - LIFT 17~~
5A	PHASES I, III - LIFTS 14, 15
6	PHASES I TO IV - LIFTS 18 TO 21
7	PHASES V AND VI - LIFT 22
8	PHASES V AND VI - LIFT 23 (FINAL LIFT)
9	SINKHOLE REMEDIATION PLAN
10	LANDFILL CROSS SECTIONS
11	SINKHOLE REMEDIATION CROSS SECTION
12	DETAILS 1
13	DETAILS 2
14	DETAILS 3
15	DETAILS 4

Hillsborough County Florida

BOARD OF COUNTY COMMISSIONERS

SANDRA L. MURMAN	-	DISTRICT 1
VICTOR D. CRIST	-	DISTRICT 2
LESLEY MILLER, JR.	-	DISTRICT 3
STACY R. WHITE	-	DISTRICT 4
KEN HAGAN	-	DISTRICT 5
PAT KEMP	-	DISTRICT 6
AL HIGGINBOTHAM	-	DISTRICT 7

NOTE:

THIS UPDATE TO PHASE I-VI OPERATING SEQUENCE DRAWINGS INCLUDE MODIFICATIONS TO LIFT SEQUENCES 13 THROUGH 17; AS SUCH, SCS ENGINEERS IS ONLY SIGNING AND SEALING SHEETS 4A, 4B, 4C, AND 5A. THE REMAINING LIFT SEQUENCES 18 THROUGH 23 (FINAL LIFT) WILL CONTINUE IN ACCORDANCE WITH THE CURRENTLY FDEP APPROVED OPERATING SEQUENCE DRAWINGS, DATED JUNE 2013, PREPARED, SIGNED AND SEALED BY HDR ENGINEERING, INC.

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS, INC.
4041 PARK OAKS BLVD., SUITE 100
TAMPA, FLORIDA 33610
PH. (813) 621-0080 FAX. (813) 623-6757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892
WWW.SCSENGINEERS.COM

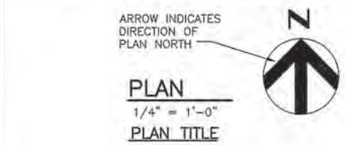
SCS PROJECT NO. 09215600.03

ROBERT B. CURTIS, P.E.
LICENSE NO. 73758

ENGINEERING SYMBOLOGY

9A	LIFT NUMBER
	DAILY PROGRESSION
	FILL PROGRESSION
	DRAINAGE FLOW DIRECTION
	APPROXIMATE PHASE FOOTPRINT
	APPROXIMATE LANDFILL LIMITS
	APPROXIMATE LIFT LIMITS
	APPROXIMATE LIMITS OF BORROW AREA
	APPROXIMATE TEMPORARY FINAL COVER AREA AFTER EACH LIFT
	EXISTING SWALE
	SIDESLOPE DITCH
140	EXISTING CONTOUR
140	PROPOSED CONTOUR
	PROPOSED DOWNCHUTE
BVC	BEGIN VERTICAL CURVE
CTRD	CENTERED
ERCP	ELLIPTICAL REINFORCED CONCRETE PIPE
EVC	END VERTICAL CURVE
150	EXIST. CONTOURS
EXP. JT.	EXPANSION JOINT
I.E.	INVERT ELEVATION
LF	LINEAR FEET
LT	LEFT
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVI	POINT OF VERTICAL INTERSECTION
RT	RIGHT
TYP.	TYPICAL
	VEGETATION
VC	VERTICAL CURVE
ø	DIAMETER
'	FOOT
"	INCH
A	CELL DESIGNATION
S-21	EXISTING DRAINAGE STRUCTURE
TS-4	TEMPORARY DRAINAGE STRUCTURE
	PROPERTY LINE
	STORMWATER STRUCTURE
CDW	DIRECTION OF CONDENSATE/ DEWATERING LIQUID FLOW
LFG	DIRECTION OF LANDFILL GAS FLOW (LFG)

GENERAL SYMBOLOGY



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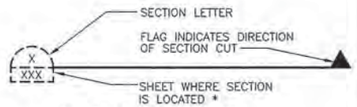

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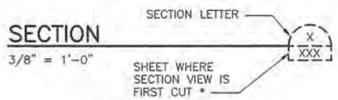

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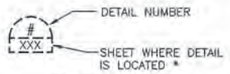
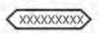


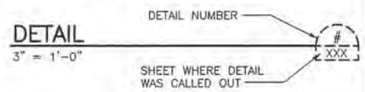
DETAIL MARKER

FOR REFERENCING DETAILS INCLUDED IN DRAWING SET.



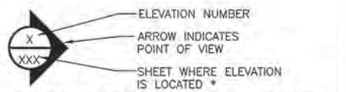
DETAIL MARKER

FOR REFERENCING DETAILS BOUND IN SPECIFICATIONS OR SEPARATE VOLUME.

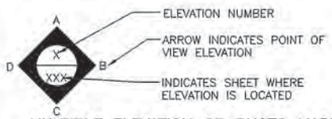


DETAIL TITLE

* FOR COMMON DETAILS AND SECTIONS OR DETAILS THAT ARE CUT OR CALLED OUT ON MULTIPLE SHEETS, THE SHEET NUMBER IS REPLACED BY A DASH (–).



SINGLE ELEVATION OR PHOTO MARKER



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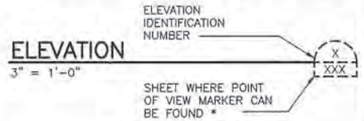


ELEVATION TITLE

ABBREVIATIONS

APPROX – APPROXIMATE, APPROXIMATELY
BLDG – BUILDING
BTM – BOTTOM
CB – CATCH BASIN
CM – CONCRETE MONUMENT
CMP – CORRUGATED METAL PIPE
CONC – CONCRETE
CONT – CONTINUOUS
CORR – CORRUGATED
DET – DETAIL
DIA – DIAMETER
DIM – DIMENSION
DWG – DRAWING
EA – EACH
EOL – EDGE OF LINER
ETC – ET CETERA
ENCL – ENCLOSE, ENCLOSURE
EL – ELEVATION
EQUIP – EQUIPMENT
EXIST – EXISTING
FDEP – FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
FDOT – FLORIDA DEPARTMENT OF TRANSPORTATION
FES – FLARED END SECTION
FIN – FINISHED
FM – FORCE MAIN
GALV – GALVANIZED
GCL – GEOSYNTHETIC CLAY LINER
GFFR – GROUT FILLED FIBER REVETMENT
GR – GRADE
GDL – GEOSYNTHETIC DRAINAGE LINER
GM – GAS MONITORING LOCATION
GP – GAS PROBE
HCSWMG – HILLSBOROUGH COUNTY SOLID WASTE MANAGEMENT GROUP
HDPE – HIGH DENSITY POLYETHYLENE
HP – HIGH POINT
ID – INSIDE DIAMETER
IE – INVERT ELEVATION
LF – LINEAL FEET
LFG – LANDFILL GAS
LLDPE – LINEAR LOW DENSITY POLYETHYLENE
LP – LOW POINT
MES – MITRED END SECTION
MAX – MAXIMUM
MH – MANHOLE
MIN – MINIMUM
MISC – MISCELLANEOUS
MSL – (ABOVE) MEAN SEAL LEVEL
MT – MOUNT
MW – GROUNDWATER MONITORING WELL
N/A – NOT APPLICABLE
N/AVAIL – NOT AVAILABLE
NGVD – NATIONAL GEODETIC VERTICAL DATUM
NIC – NOT IN CONTRACT
No – NUMBER
NTS – NOT TO SCALE
OC – ON CENTER
OD – OUTSIDE DIAMETER
OSHA – OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
PLS – PROFESSIONAL LAND SURVEYOR
PS – PUMP STATION
R – RADIUS
RCP – REINFORCED CONCRETE PIPE
REF – REFERENCE
REQD – REQUIRED
SCH – SCHEDULE
SDR – STANDARD DIMENSION RATIO
SHT – SHEET
SIM – SIMILAR
SS – STAINLESS STEEL
STD – STANDARD
STL – STEEL
STW – STORMWATER MONITORING STATION
TPO – THERMOPLASTIC POLYOLEFIN
TYP – TYPICAL
USC&GS – UNITED STATES COASTAL AND GEODETIC SURVEY
USGS – UNITED STATES GEOLOGICAL SURVEY
WGT – WEIGHT
W.E. – WATER ELEVATION
WWTP – WASTE WATER TREATMENT PLANT

GENERAL NOTES

1. THE EXISTING TOPOGRAPHY, DATED 1/5/2013, WAS OBTAINED FROM DRAWINGS PROVIDED BY PICKETT & ASSOCIATES, INC.
2. THE PROPOSED OPERATING SEQUENCES (LIFTS 13 – 23) ARE BASED ON THE EXISTING TOPOGRAPHY SHOWN ON THE 1/5/2013 AERIAL SURVEY. ACTUAL OPERATING SEQUENCES MAY NEED TO BE MODIFIED IN THE FIELD TO ALLOW FOR LANDFILL SETTLEMENT. REVISED GRADES WILL BE DETERMINED BASED ON THE MAXIMUM DESIGNED 20–FOOT LIFT HEIGHT.
3. THE LANDFILL LINER AND EXISTING DRAINAGE STRUCTURES WERE SURVEYED BY WEIDENER SURVEY AND MAPPING PA ON 2/23/94.

Hillsborough County Florida

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096–193806–001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/3/13

ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

INDEX, LEGENDS AND GENERAL NOTES

0 1" 2"

FILENAME	00G–02.DWG
SCALE	AS SHOWN

DWG No. 2

C:\pwworking\tpa\d0457850\G02.dwg, 6/19/2013 1:13:46 PM

NOTE:
EXISTING TOPOGRAPHY FROM AERIAL PHOTOGRAPHY PROVIDED BY PICKETT AND ASSOCIATES, INC. DATED JANUARY 5, 2013.

Hillsborough County Florida

HDR
HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/7/13
ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE SOUTHEAST COUNTY LANDFILL HILLSBOROUGH COUNTY, FLORIDA

FACILITY SITE PLAN AND EXISTING TOPOGRAPHY

0 1" 2"

FILENAME	00C-03.DWG
SCALE	1" = 300'

DWG No. 3

C:\pwworking\tpa\d2445728\00C-03.dwg, 6/10/2013 1:14:51 PM

PROGRESSION:

1. BEGIN LIFT 13 FILL IN CELL "A", ON WEST SIDE OF PHASE I AND CONTINUE EASTERLY ACROSS PHASE I TO THE PHASE II BOUNDARY.
2. EXTEND DOWNCHUTES 1 AND 2 DURING PLACEMENT OF INTERMEDIATE COVER.

ROBERT B. CURRIS — No. 73758 — STATE OF FLORIDA — PROFESSIONAL ENGINEER
ROBERT B. CURRIS, P.E. LICENSE NO. 73758

REV	DATE	DESCRIPTION	CHK. BY
1	4/7/17	FDEP SUBMITTAL	RBC

SHEET TITLE: PHASE I - LIFT 13

PROJECT TITLE: SOUTHEAST COUNTY LANDFILL FILL SEQUENCE REVISION

CLIENT: HILLSBOROUGH COUNTY PUBLIC WORKS DEPARTMENT SOLID WASTE MANAGEMENT DIVISION TAMPA, FL 33619

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
4041 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610
PH. (813) 621-0080 FAX. (813) 623-6757
FL CERTIFICATE OF AUTHORIZATION NO. 00004892

PROJ. NO.	DWN. BY:	Q/A R/W BY:
09215600.03	RLC	RBC
SCALE: BY: CAR	CHK. BY: RBC	APP. BY: RBC

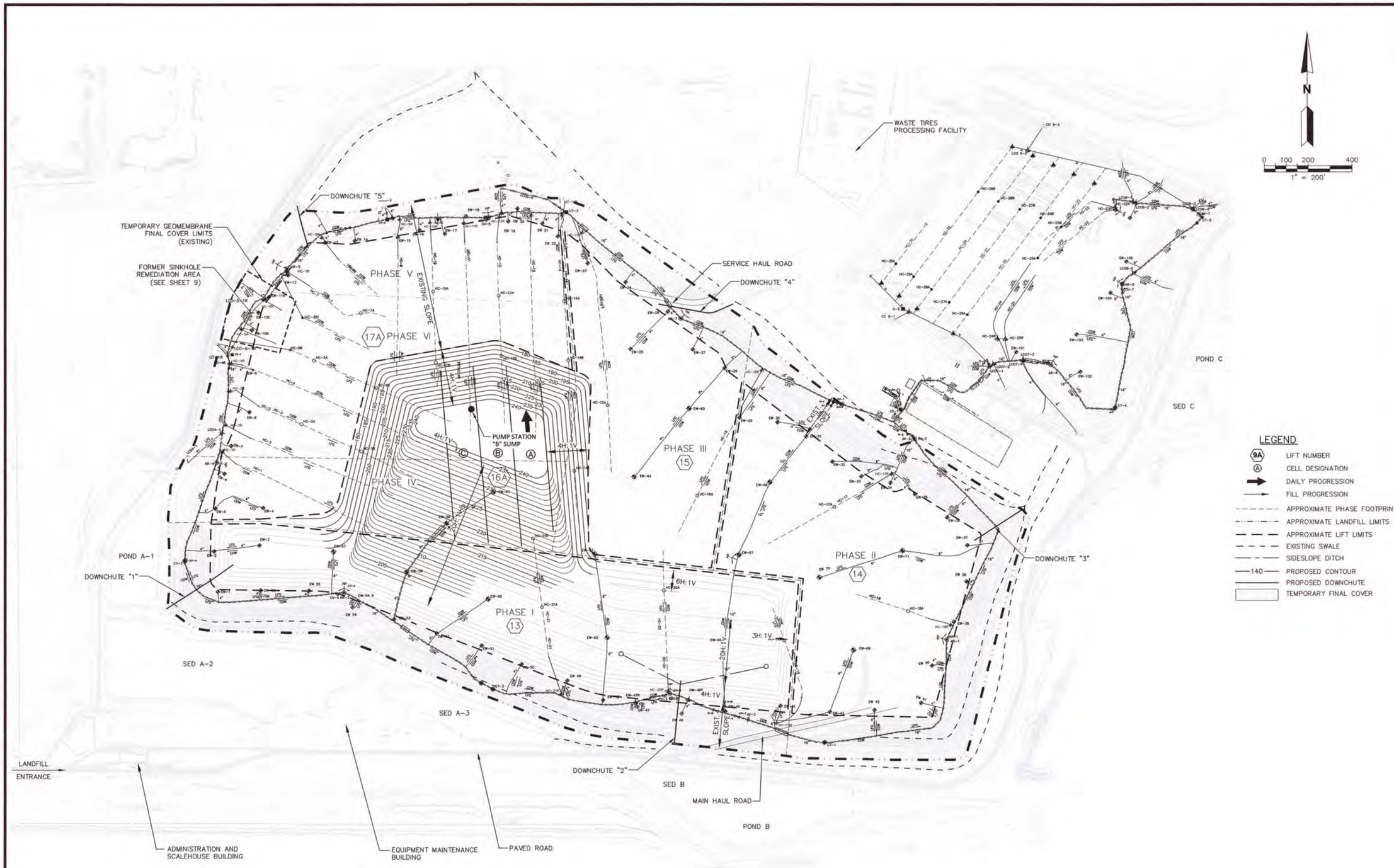
CADD FILE: 09215600.03 – C-4A

DATE: APRIL 2017

SCALE: AS SHOWN

DRAWING NO. 4A

SHEET 4A of 15



PROGRESSION:

BEGIN LIFT 16A FILL IN CELL "A", WEST SIDE OF PHASE III AND CONTINUE WEST-SOUTHWEST ACROSS PHASES VI, IV, AND I TO THE NORTHERN LIMIT OF LIFT 13.

ROBERT B. CURTIS LICENSE NO. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER

REV	DATE	DESCRIPTION	CHK. BY:
1	4/7/17	FDEP SUBMITTAL	RBC

SHEET TITLE: PHASE VI, IV, I - LIFT 16A

PROJECT TITLE: SOUTHEAST COUNTY LANDFILL FILL SEQUENCE REVISION

CLIENT: HILLSBOROUGH COUNTY PUBLIC WORKS DEPARTMENT SOLID WASTE MANAGEMENT DIVISION TAMPA, FL 33619

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
4041 PARK OAKS BLVD., SUITE 510, TAMPA, FL 33610
PH. (813) 621-0080 FAX. (813) 623-6757
FL CERTIFICATE OF AUTHORIZATION NO. 00004892

PROJ. NO.	DWN. BY:	C/A'S RVW. BY:
09215600.03	RLC	RBC
DSN. BY: CAR	CHK. BY: RBC	APP. BY: RBC

CADD FILE: 09215600.03 - C-4B

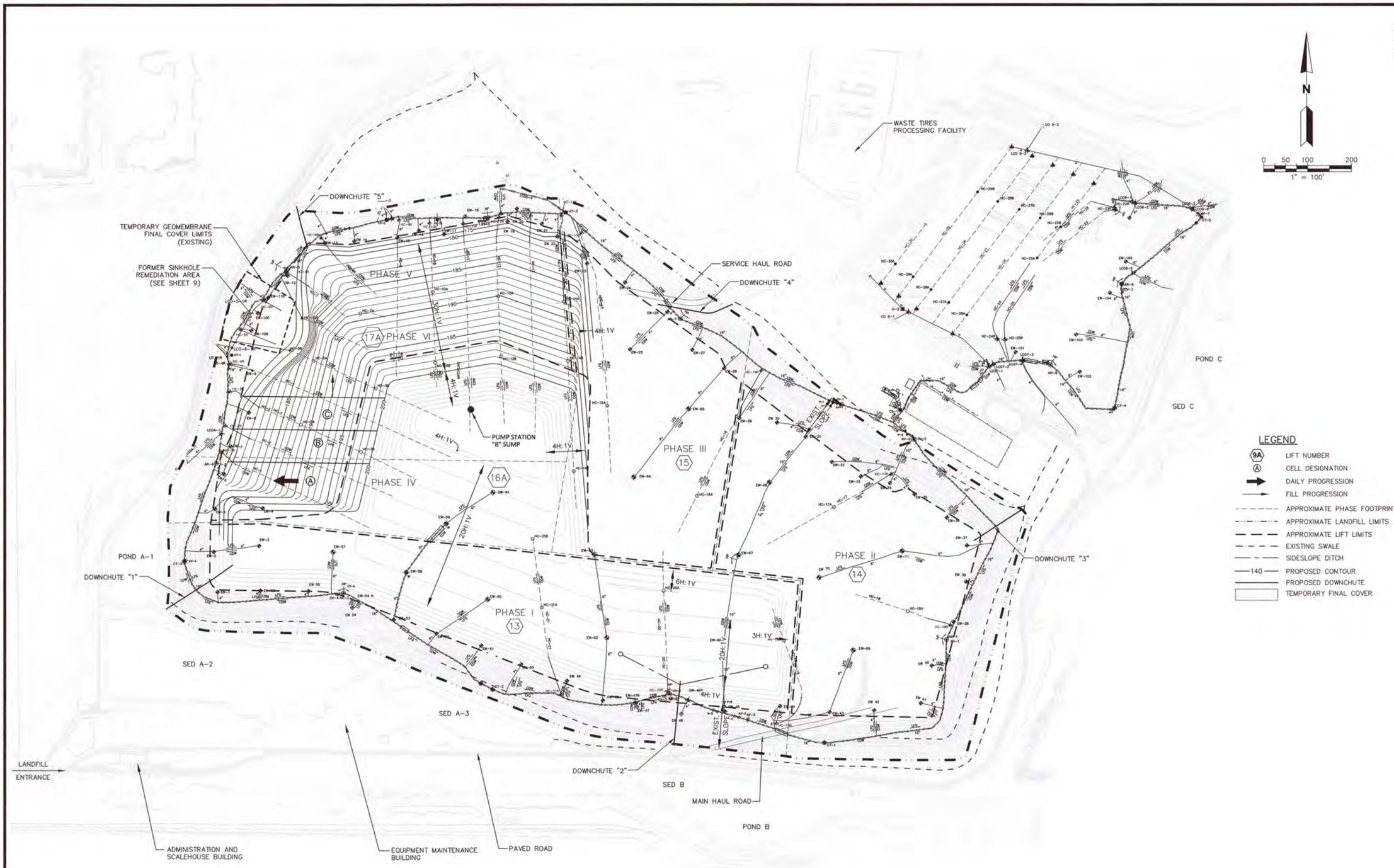
DATE: APRIL 2017

SCALE: AS SHOWN

DRAWING NO. 4B

SHEET 4B of 15

\\Tam-fs02\tampa\dwg\PROJECT\Hillsborough\09215600.03 - Solid Waste\Engineering Drawings\09215600.03 - C-4B.dwg Apr 07, 2017 - 9:51am Layout Name: Plot By: 3630rlc



PROGRESSION:

BEGIN LIFT 17A FILL IN CELL "A", NORTH SIDE OF PHASE I AND CONTINUE CLOCKWISE ACROSS PHASES IV, VI, AND V TO THE WESTERN LIMIT OF PHASE III.

ROBERT C. CURTIS * No. 73758 * STATE OF FLORIDA * PROFESSIONAL ENGINEER

ROBERT C. CURTIS, P.E. LICENSE NO. 73758

REV	DATE	DESCRIPTION	CHK BY
1	4/7/17	FDEP SUBMITTAL	RCC

SHEET TITLE: PHASE IV, VI, V - LIFT 17A

PROJECT TITLE: SOUTHEAST COUNTY LANDFILL FILL SEQUENCE REVISION

CLIENT: HILLSBOROUGH COUNTY PUBLIC WORKS DEPARTMENT SOLID WASTE MANAGEMENT DIVISION TAMPA, FL 33619

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
4041 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610
PH. (813) 621-0080 FAX. (813) 623-6757
FL CERTIFICATE OF AUTHORIZATION NO. 00004892

PROJ. NO.	DWN. BY:	C/A RVW BY:
09215600.03	RLC	RBC
DWG. NO.	CHK. BY:	APP. BY:
09215600.03 - C-4C	RBC	RBC
DATE	CAR	
APRIL 2017		

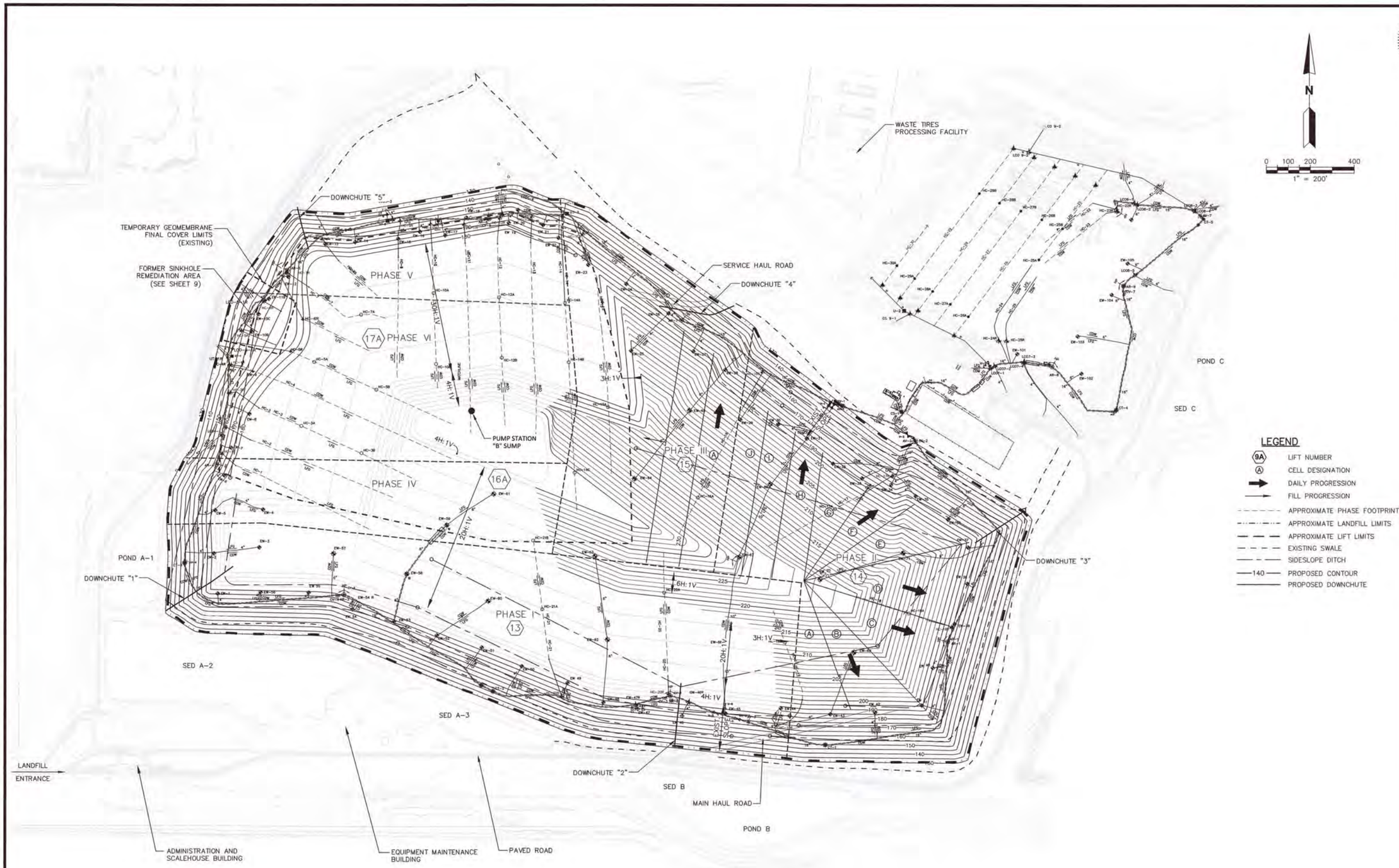
CADD FILE: 09215600.03 - C-4C

DATE: APRIL 2017

SCALE: AS SHOWN

DRAWING NO. 4C

SHEET 4C of 15



PROGRESSION:

BEGIN LIFT 14 FILL IN CELL "A", WEST SIDE OF PHASE II AND CONTINUE COUNTERCLOCKWISE TO THE PHASE III BOUNDARY. BEGIN LIFT 15 ON THE NORTHERN SIDE SLOPES AND PREPARE THE PHASE III SIDE SLOPES AND THE SERVICE LANE ROAD FOR CLOSURE. THEN CONTINUE LIFT 15 FILL IN CELL "A", EAST SIDE PHASE III AND CONTINUE WEST ACROSS PHASE III TO THE WEST SIDE OF PHASE III.

ROBERT L. CURTIS No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER

REV	DATE	DESCRIPTION	CHK BY
1	4/7/17	FDEP SUBMITTAL	RBC

ROBERT L. CURTIS, P.E.
LICENSE NO. 73758

SHEET TITLE
PHASES I, II, III - LIFTS 14, 15

PROJECT TITLE
SOUTHEAST COUNTY LANDFILL
FILL SEQUENCE REVISION

CLIENT
HILLSBOROUGH COUNTY
PUBLIC WORKS DEPARTMENT
SOLID WASTE MANAGEMENT DIVISION
TAMPA, FL 33619

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS, INC.
4041 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610
PH. (813) 621-0080 FAX. (813) 623-6775
FL. CERTIFICATE OF AUTHORIZATION NO. 00004892

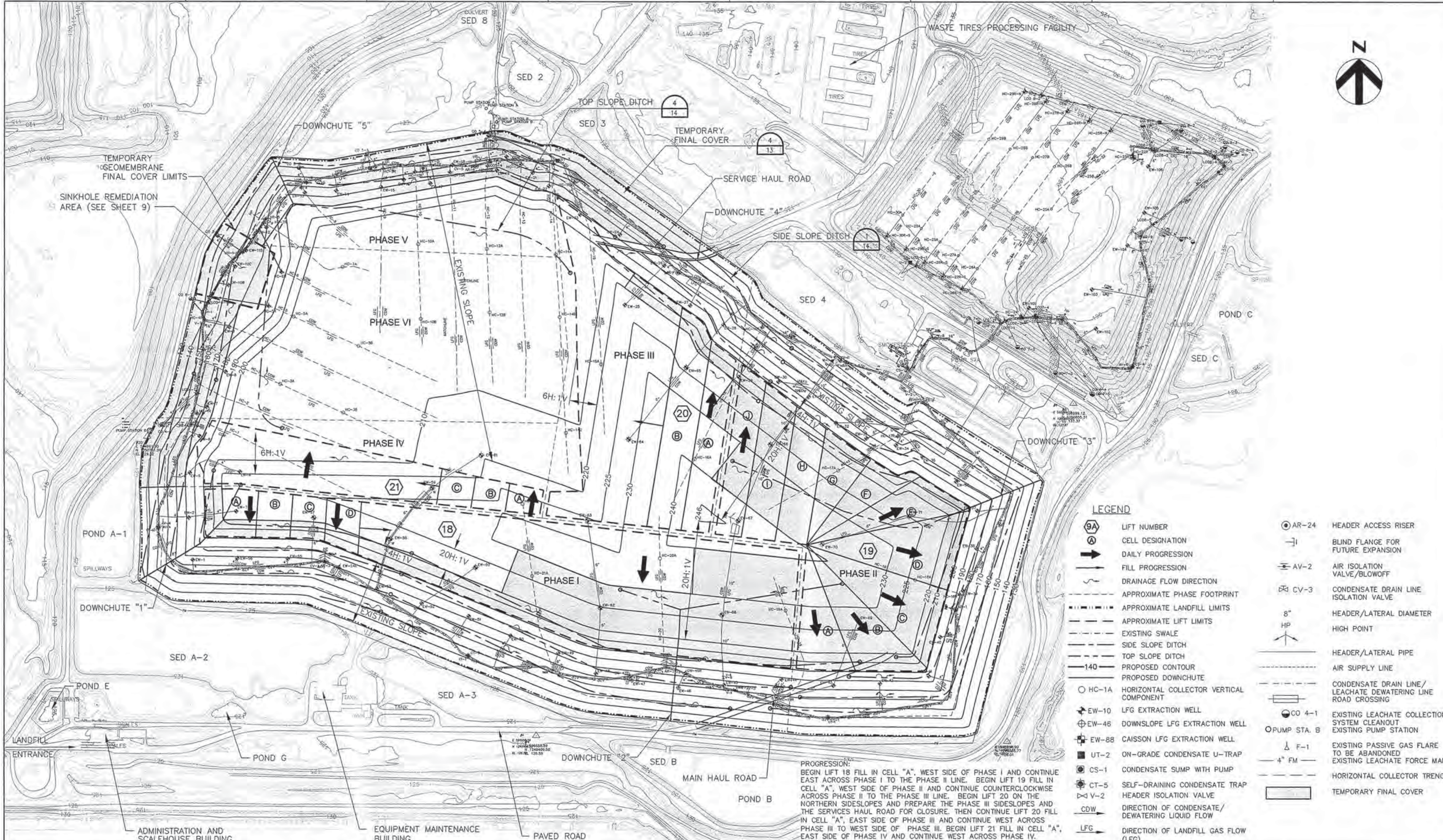
PROJ. NO.	DSN. BY	QA/CK BY
09215600.03	RLC	RBC
DSK. BY	DSK. BY	APP. BY
CAR	RBC	RBC

CADD FILE:
09215600.03 – C–5A

DATE:
APRIL 2017

SCALE:
AS SHOWN

DRAWING NO.
5A
SHEET **5A** of **15**



LEGEND

9A	LIFT NUMBER
A	CELL DESIGNATION
	DAILY PROGRESSION
	FILL PROGRESSION
	DRAINAGE FLOW DIRECTION
	APPROXIMATE PHASE FOOTPRINT
	APPROXIMATE LANDFILL LIMITS
	APPROXIMATE LIFT LIMITS
	EXISTING SWALE
	SIDE SLOPE DITCH
	TOP SLOPE DITCH
140	PROPOSED CONTOUR
	PROPOSED DOWNCHUTE
HC-1A	HORIZONTAL COLLECTOR VERTICAL COMPONENT
EW-10	LFG EXTRACTION WELL
EW-46	DOWNSLOPE LFG EXTRACTION WELL
EW-88	CAISSON LFG EXTRACTION WELL
UT-2	ON-GRADE CONDENSATE U-TRAP
CS-1	CONDENSATE SUMP WITH PUMP
CT-5	SELF-DRAINING CONDENSATE TRAP
V-2	HEADER ISOLATION VALVE
CDW	DIRECTION OF CONDENSATE/ DEWATERING LIQUID FLOW
LFG	DIRECTION OF LANDFILL GAS FLOW (LFG)
AR-24	HEADER ACCESS RISER
	BLIND FLANGE FOR FUTURE EXPANSION
AV-2	AIR ISOLATION VALVE/BLOWOFF
CV-3	CONDENSATE DRAIN LINE ISOLATION VALVE
8"	HEADER/LATERAL DIAMETER
HP	HIGH POINT
	HEADER/LATERAL PIPE
	AIR SUPPLY LINE
	CONDENSATE DRAIN LINE/ LEACHATE DEWATERING LINE
	ROAD CROSSING
CO 4-1	EXISTING LEACHATE COLLECTION SYSTEM CLEANOUT
PUMP STA. B	EXISTING PUMP STATION
F-1	EXISTING PASSIVE GAS FLARE TO BE ABANDONED
4" FM	EXISTING LEACHATE FORCE MAIN
	HORIZONTAL COLLECTOR TRENCH
	TEMPORARY FINAL COVER

PROGRESSION:
BEGIN LIFT 18 FILL IN CELL "A", WEST SIDE OF PHASE I AND CONTINUE EAST ACROSS PHASE I TO THE PHASE II LINE. BEGIN LIFT 19 FILL IN CELL "A", WEST SIDE OF PHASE II AND CONTINUE COUNTERCLOCKWISE ACROSS PHASE II TO THE PHASE III LINE. BEGIN LIFT 20 ON THE NORTHERN SIDESLOPES AND PREPARE THE PHASE III SIDESLOPES AND THE SERVICES HAUL ROAD FOR CLOSURE. THEN CONTINUE LIFT 20 FILL IN CELL "A", EAST SIDE OF PHASE III AND CONTINUE WEST ACROSS PHASE III TO WEST SIDE OF PHASE III. BEGIN LIFT 21 FILL IN CELL "A", EAST SIDE OF PHASE IV AND CONTINUE WEST ACROSS PHASE IV.

Hillsborough County Florida

HDR Engineering, Inc.
5426 Bay Center Drive
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Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

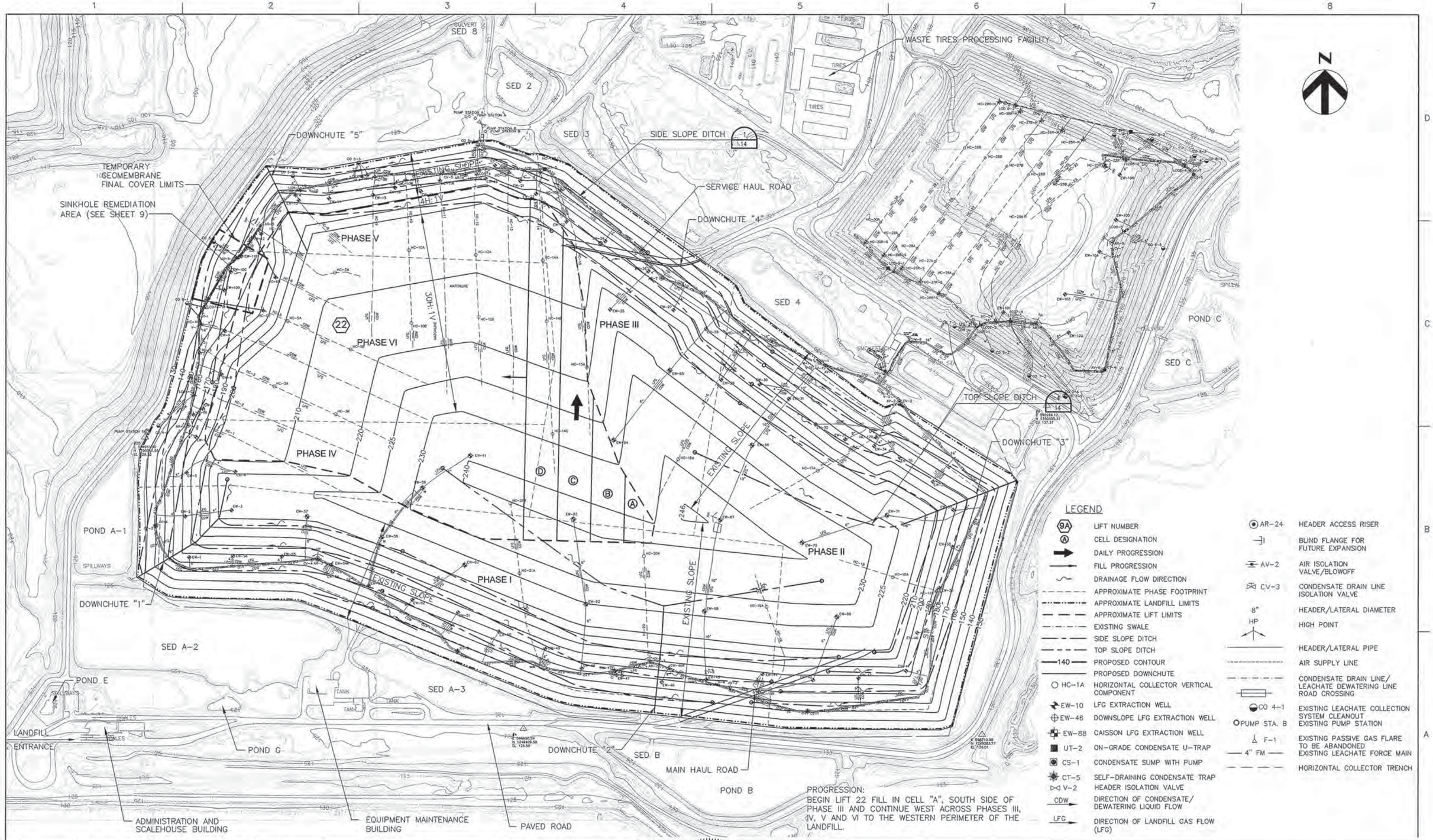
ROBERT B. CURTIS, LICENSE No. 73758, STATE OF FLORIDA, PROFESSIONAL ENGINEER

ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

PHASES I TO IV - LIFTS 18 TO 21

FILENAME	00C-06.DWG
SCALE	1"=200'
DWG No.	6



PROGRESSION:
BEGIN LIFT 22 FILL IN CELL "A", SOUTH SIDE OF PHASE III AND CONTINUE WEST ACROSS PHASES III, IV, V AND VI TO THE WESTERN PERIMETER OF THE LANDFILL.

LEGEND

- 9A — LIFT NUMBER
- A — CELL DESIGNATION
- DAILY PROGRESSION
- FILL PROGRESSION
- DRAINAGE FLOW DIRECTION
- APPROXIMATE PHASE FOOTPRINT
- APPROXIMATE LANDFILL LIMITS
- APPROXIMATE LIFT LIMITS
- EXISTING SWALE
- SIDE SLOPE DITCH
- TOP SLOPE DITCH
- 140 — PROPOSED CONTOUR
- PROPOSED DOWNCHUTE
- HC-1A — HORIZONTAL COLLECTOR VERTICAL COMPONENT
- EW-10 — LFG EXTRACTION WELL
- EW-46 — DOWNSLOPE LFG EXTRACTION WELL
- EW-88 — CAISSON LFG EXTRACTION WELL
- UT-2 — ON-GRADE CONDENSATE U-TRAP
- CS-1 — CONDENSATE SUMP WITH PUMP
- CT-5 — SELF-DRAINING CONDENSATE TRAP
- V-2 — HEADER ISOLATION VALVE
- CDW — DIRECTION OF CONDENSATE/ DEWATERING LIQUID FLOW
- LFG — DIRECTION OF LANDFILL GAS FLOW (LFG)
- AR-24 — HEADER ACCESS RISER
- BLIND FLANGE FOR FUTURE EXPANSION
- AV-2 — AIR ISOLATION VALVE/BLOWOFF
- CV-3 — CONDENSATE DRAIN LINE ISOLATION VALVE
- 8" — HEADER/LATERAL DIAMETER
- HP — HIGH POINT
- HEADER/LATERAL PIPE
- AIR SUPPLY LINE
- CONDENSATE DRAIN LINE/ LEACHATE DEWATERING LINE ROAD CROSSING
- CO 4-1 — EXISTING LEACHATE COLLECTION SYSTEM CLEANOUT
- PUMP STA. B — EXISTING PUMP STATION
- F-1 — EXISTING PASSIVE GAS FLARE TO BE ABANDONED
- 4" FM — EXISTING LEACHATE FORCE MAIN
- HORIZONTAL COLLECTOR TRENCH

Hillsborough County Florida

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER
6/7/13
ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE SOUTHEAST COUNTY LANDFILL HILLSBOROUGH COUNTY, FLORIDA

PHASES V AND VI - LIFT 22

0 1" 2"

FILENAME	00C-07.DWG
SCALE	1"=200'

DWG No. 7

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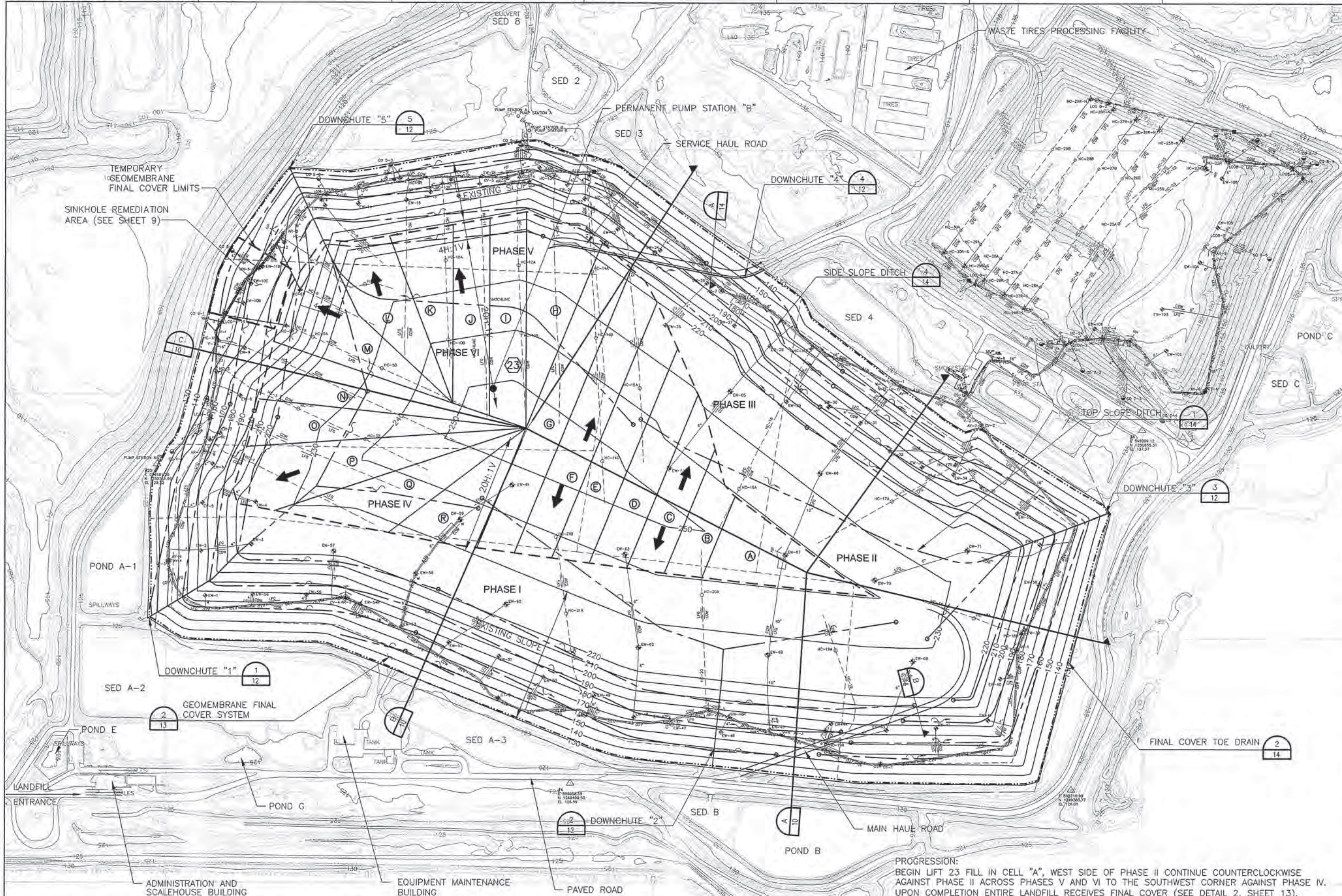

LEGEND

- 9A — LIFT NUMBER
- A — CELL DESIGNATION
- DAILY PROGRESSION
- FILL PROGRESSION
- DRAINAGE FLOW DIRECTION
- APPROXIMATE PHASE FOOTPRINT
- APPROXIMATE LANDFILL LIMITS
- APPROXIMATE LIFT LIMITS
- EXISTING SWALE
- SIDE SLOPE DITCH
- TOP SLOPE DITCH
- 140 — PROPOSED CONTOUR
- PROPOSED DOWNCHUTE
- EW-10 — LFG EXTRACTION WELL
- EW-46 — DOWNSLOPE LFG EXTRACTION WELL
- EW-88 — CAISSON LFG EXTRACTION WELL
- UT-2 — ON-GRADE CONDENSATE U-TRAP
- CS-1 — CONDENSATE SUMP WITH PUMP
- CT-5 — SELF-DRAINING CONDENSATE TRAP
- AR-24 — HEADER ACCESS RISER
- HEADER/LATERAL PIPE
- AIR SUPPLY LINE
- CONDENSATE DRAIN LINE/LEACHATE DEWATERING LINE
- CO 4-1 — EXISTING LEACHATE COLLECTION SYSTEM CLEANOUT
- 4" FM — EXISTING LEACHATE FORCE MAIN
- CDW — DIRECTION OF CONDENSATE /DEWATERING LIQUID FLOW
- LFG — DIRECTION OF LANDFILL GAS FLOW (LFG)

PROGRESSION:
BEGIN LIFT 23 FILL IN CELL "A", WEST SIDE OF PHASE II CONTINUE COUNTERCLOCKWISE AGAINST PHASE II ACROSS PHASES V AND VI TO THE SOUTHWEST CORNER AGAINST PHASE IV. UPON COMPLETION ENTIRE LANDFILL RECEIVES FINAL COVER (SEE DETAIL 2, SHEET 13).

Hillsborough County Florida

HDR
HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
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PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER
6/7/13
ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

PHASES V AND VI - LIFT 23 (FINAL LIFT)

FILENAME	00C-08.DWG	DWG No.	8
SCALE	1"=200'		

N

LIMITS OF FINAL COVER			
DESCRIPTION	NORTHING	EASTING	ELEVATION
W1	1,251,380.1	595,181.34	129.32
W2	1,251,332.6	595,169.56	129.21
W3	1,251,312.3	595,247.07	142.69
W4	1,251,291.4	595,336.55	158.01
W5	1,251,265.5	595,442.88	162.72
W6	1,251,385.8	595,481.43	162.31
W7	1,251,505.8	595,517.36	162.22
W8	1,251,545.4	595,453.35	159.23
W9	1,251,597.7	595,367.51	145.05
W10	1,251,642.4	595,291.38	126.82
W11	1,251,548.6	595,233.61	128.73
W12	1,251,484.4	595,207.36	129.31

LEGEND:

(W1) (W2) WOODEN MARKER POST (LOCATIONS ON TABLE THIS SHEET)

——TD—— TOE DRAIN

— — 155 — — EXISTING CONTOUR

——155—— PROPOSED CONTOUR

NOTES:
1. EXISTING TOPOGRAPHY PROVIDED BY PICKETT AND ASSOCIATES, INC. FROM AERIAL PHOTOGRAPHY DATED JANUARY 5, 2013.
2. LFG SYSTEM NOT SHOWN FOR CLARITY OF DRAWING.
3. EXISTING STORMWATER PIPES TO BE RELOCATED PER STORMWATER PLANS.

Hillsborough County Florida

HDR

HDR Engineering, Inc.
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HDR CA# 4213

ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER	R. SIEMERING
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ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

SINKHOLE REMEDIATION PLAN

0 1" 2"

FILENAME	00C-09.dwg
SCALE	1"=50'

DWG No. 9

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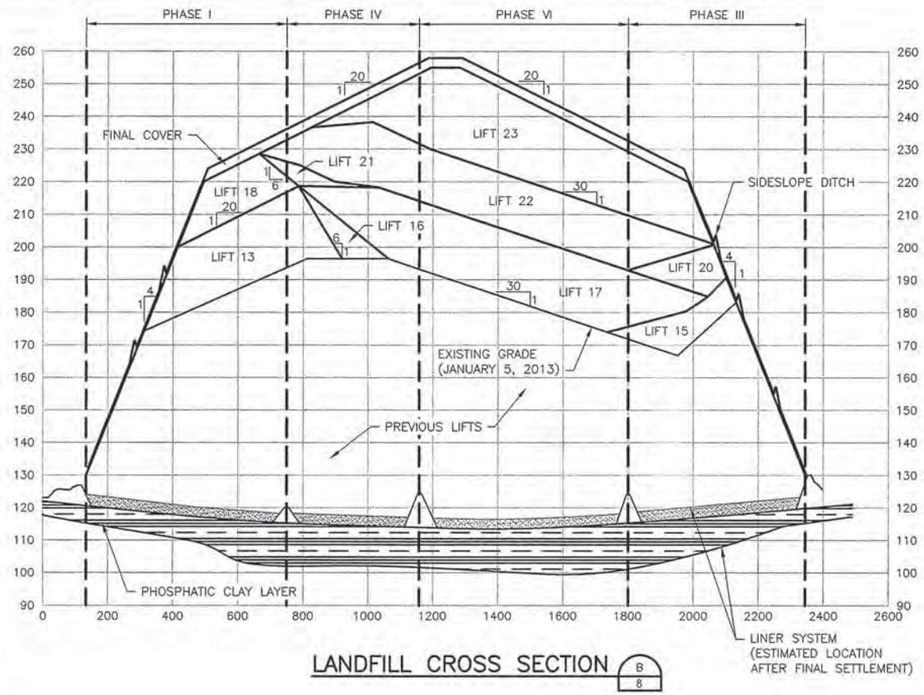
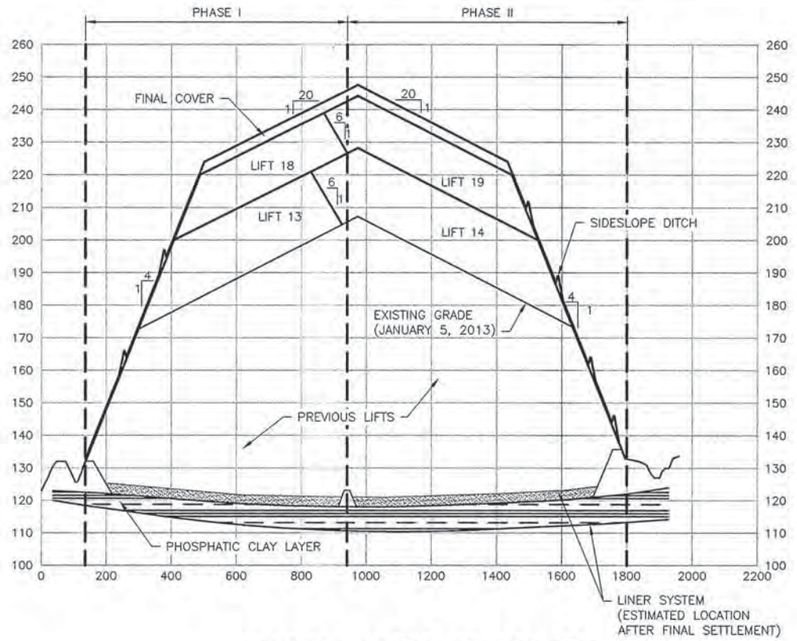
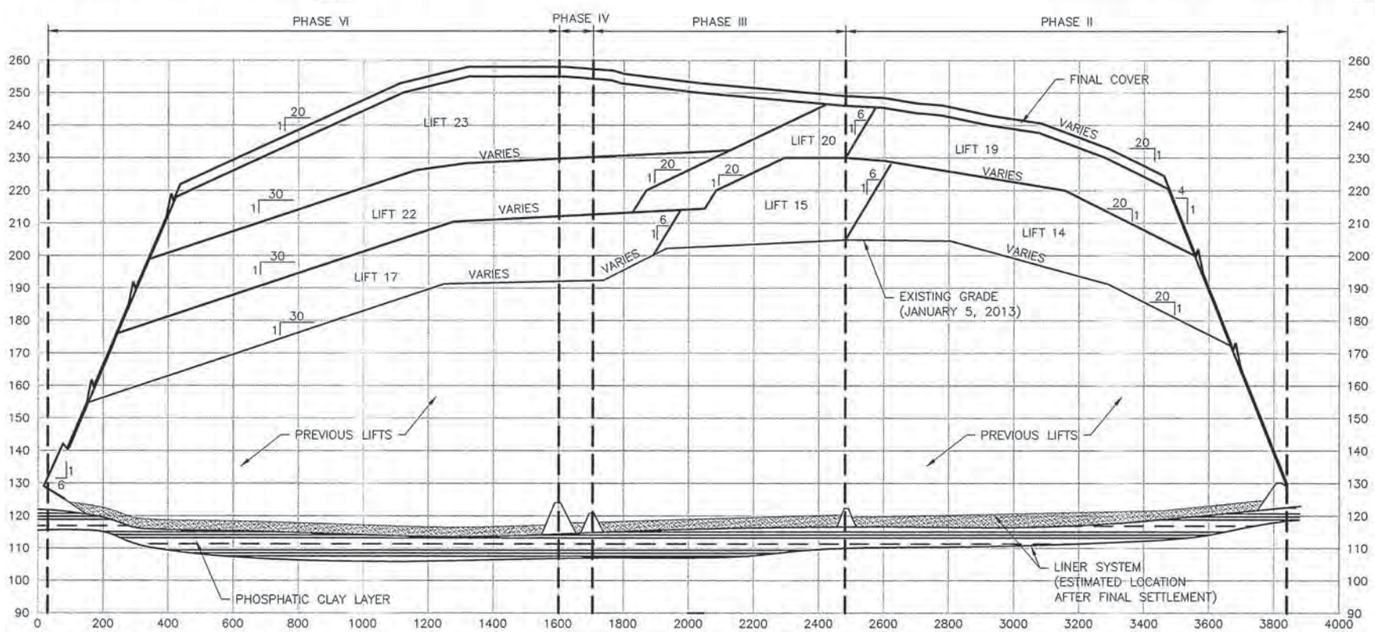


LANDFILL CROSS SECTION B/8



LANDFILL CROSS SECTION A/8



LANDFILL CROSS SECTION C/8

LEGEND:

LINER SYSTEM

PHOSPHATIC CLAY LAYER

NOTE:
SOME SLOPES AND LIFT SIZE VARY DUE TO SECTION CUT ORIENTATION. SEE SHEET C-08 FOR SECTION LOCATIONS.

Hillsborough County Florida

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HDR CA# 4213

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PROJECT MANAGER	R. SIEMERING
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ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE SOUTHEAST COUNTY LANDFILL HILLSBOROUGH COUNTY, FLORIDA

LANDFILL CROSS SECTIONS

0 1" 2"

FILENAME	00C-10.DWG
SCALE	NOT TO SCALE

DWG No. 10

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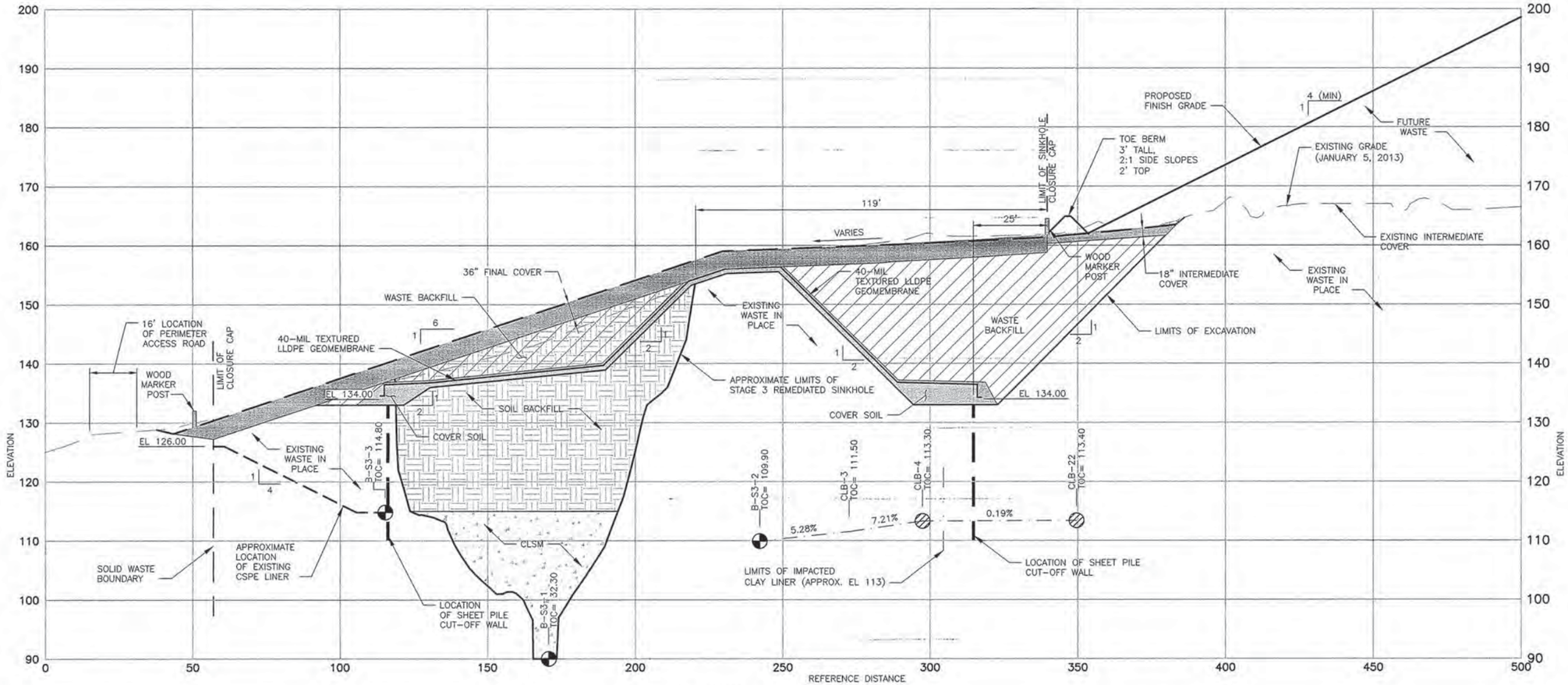

SECTION

SCALE: 1"=20' (HORIZONTAL)
1"=10' (VERTICAL)

LEGEND:

- GEOTECHNICAL BORING LOCATION (SDII)
- GEOTECHNICAL BORING LOCATION (TIERRA)
- TOC = TOP OF CLAY ELEVATION
- CLSM = CONTROLLED LOW STRENGTH MATERIAL

Hillsborough County Florida

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	6/2013	FDEP SUBMITTAL

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PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

SINKHOLE REMEDIATION CROSS SECTION

0 1" 2"

FILENAME	00C-11.DWG
SCALE	AS SHOWN

DWG No. 11

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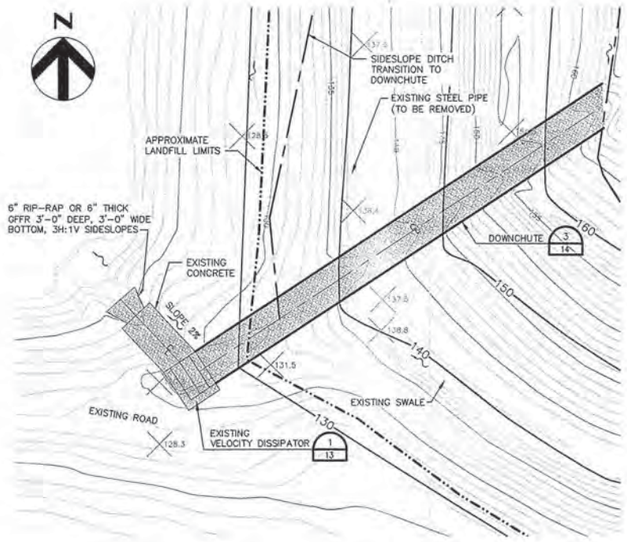
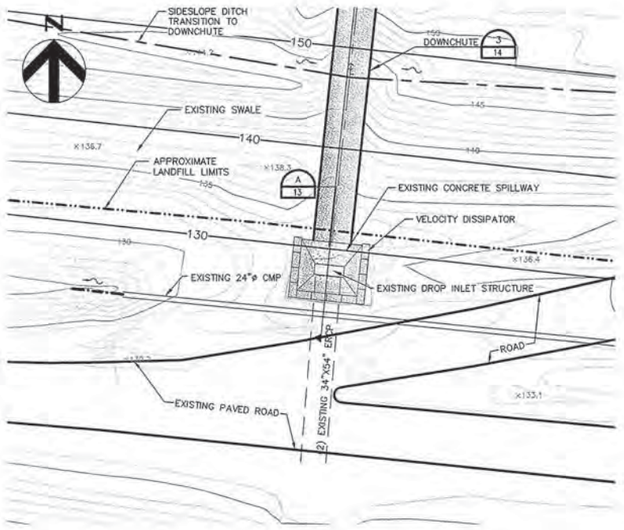
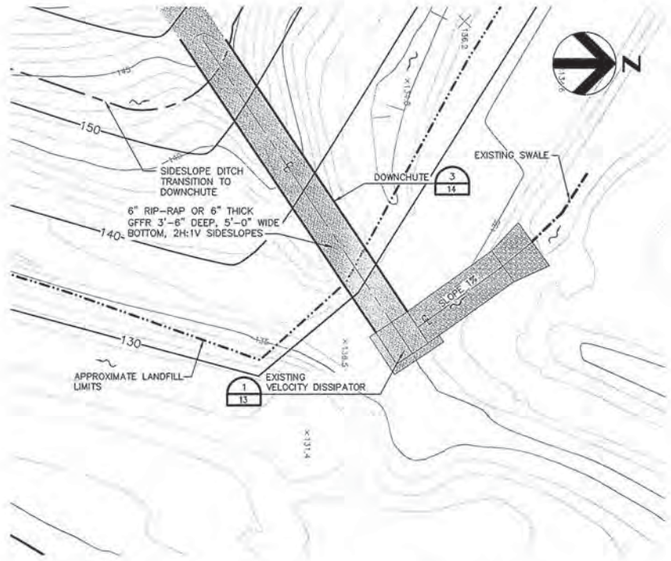


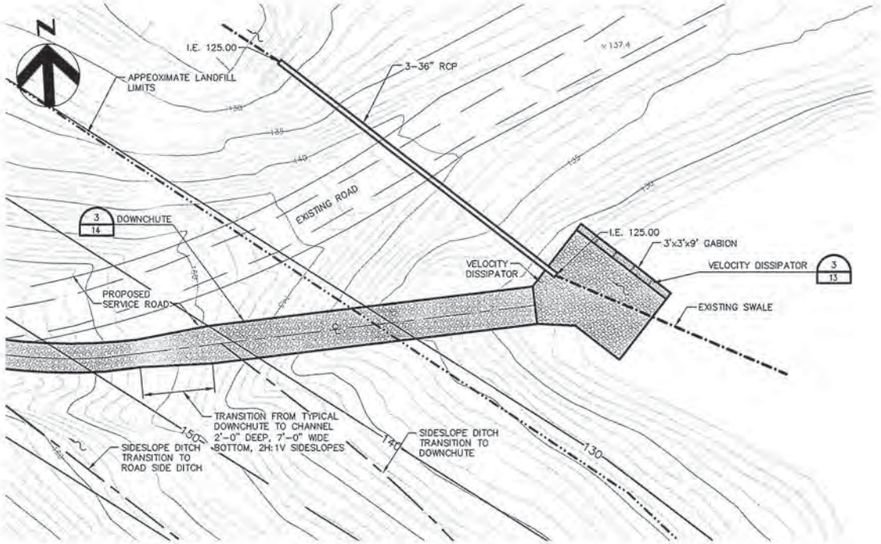
DOWNCHUTE "1" – PLAN DETAIL 1/8



DOWNCHUTE "2" – PLAN DETAIL 2/8



DOWNCHUTE "3" – PLAN DETAIL 3/8



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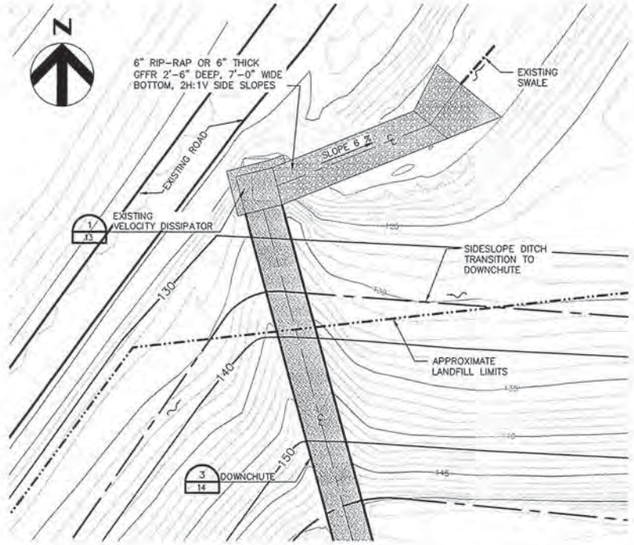

DOWNCHUTE "5" – PLAN DETAIL 5/8

Hillsborough County Florida

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HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/27/13

ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

DETAILS 1

0 1" 2"

FILENAME	00C-12.DWG
SCALE	1"=30'

DWG No. **12**

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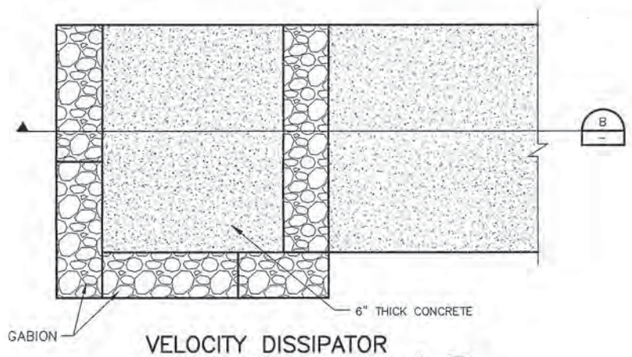
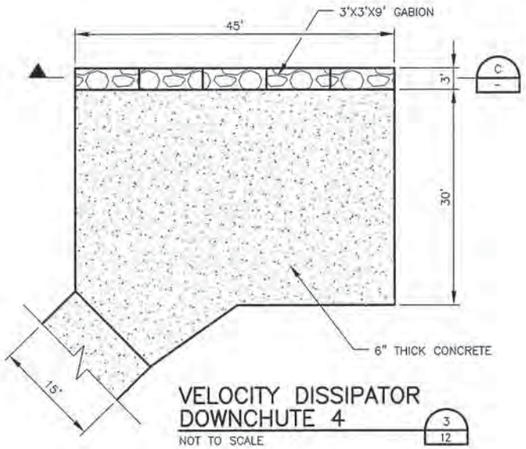
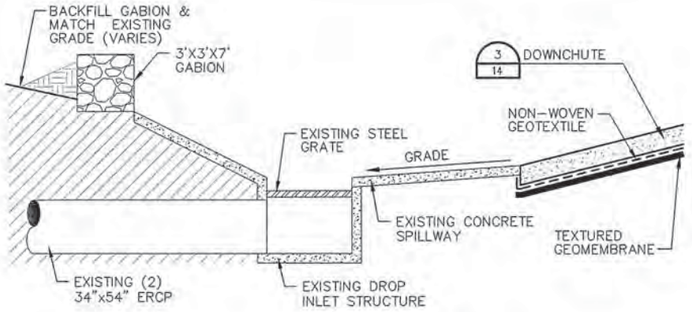


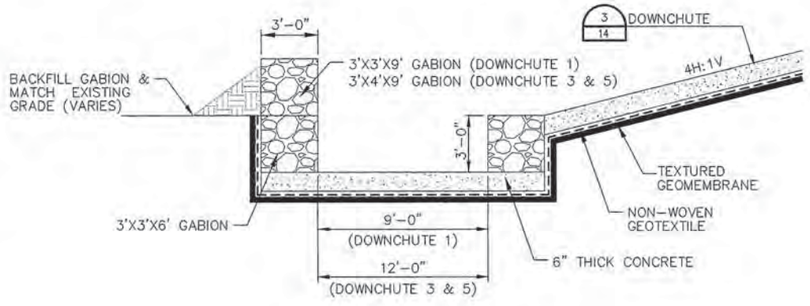
VELOCITY DISSIPATOR
DOWNCHUTES 1, 3 & 5 (1/12)
NOT TO SCALE



VELOCITY DISSIPATOR
DOWNCHUTE 4 (3/12)
NOT TO SCALE



VELOCITY DISSIPATOR SECTION (A/12)
NOT TO SCALE



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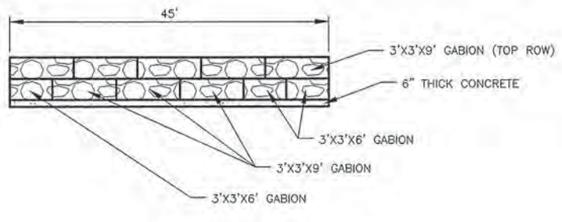
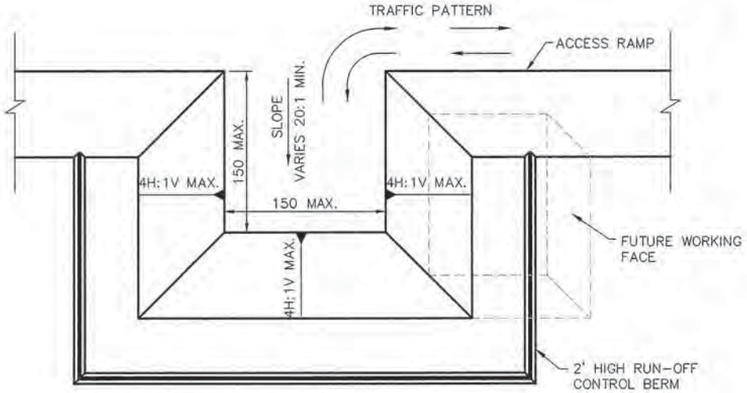
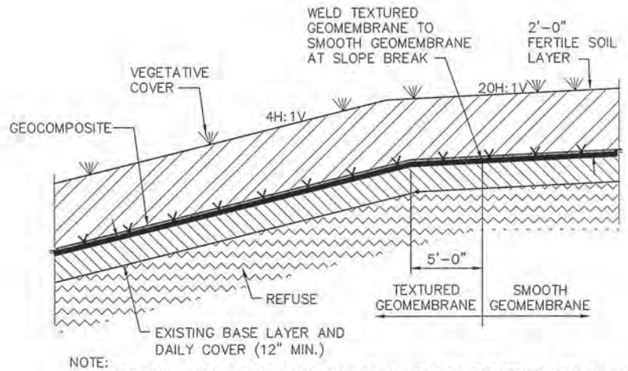
NOT TO SCALE



SECTION (C/-)
NOT TO SCALE

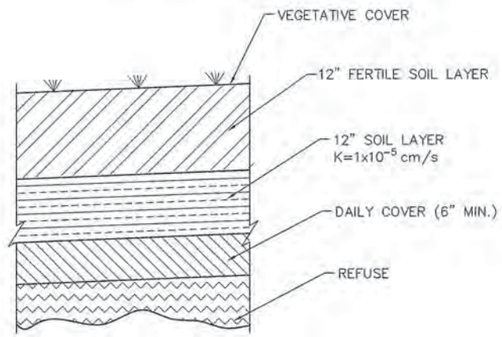


TYPICAL WORKING FACE CELL PLAN
NOT TO SCALE



NOTE:
TEXTURED GEOMEMBRANE TO BE INSTALLED ON SLOPES EXCEEDING 20H:1V AND SMOOTH GEOMEMBRANE TO BE INSTALLED ON SLOPES LESS THAN OR EQUAL TO 20H:1V

TYPICAL GEOMEMBRANE FINAL COVER SYSTEM DETAIL (2/8/14)
NOT TO SCALE



TYPICAL TEMPORARY FINAL COVER DETAIL (4/4/5)
NOT TO SCALE

Hillsborough County Florida

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/7/13
ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

DETAILS 2

0 1" 2"

FILENAME	00C-13.DWG
SCALE	AS SHOWN

DWG No. 13

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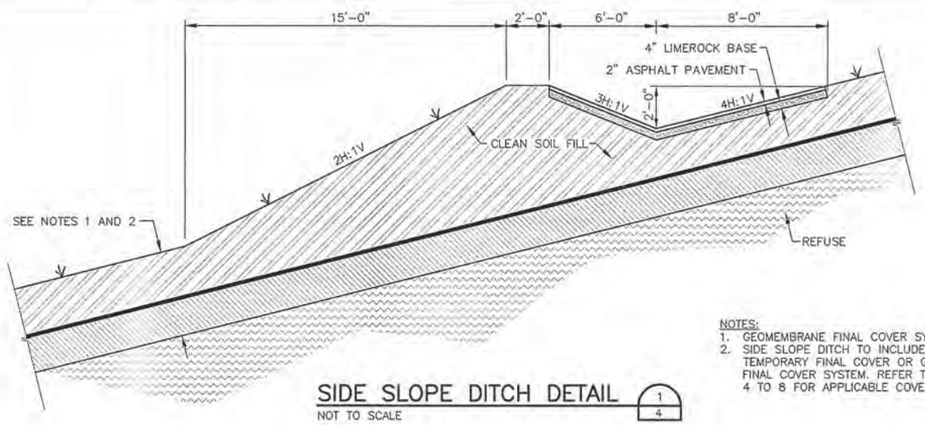
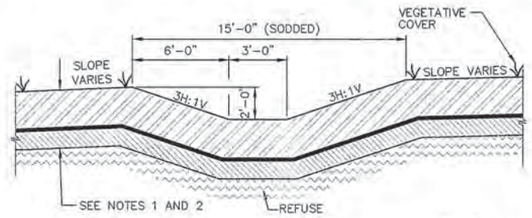


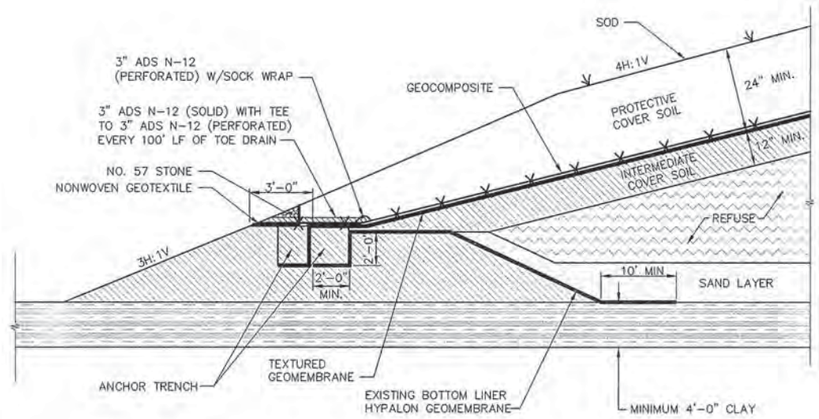
NOTES:
1. GEOMEMBRANE FINAL COVER SYSTEM SHOWN.
2. SIDE SLOPE DITCH TO INCLUDE EITHER A TEMPORARY FINAL COVER OR GEOMEMBRANE FINAL COVER SYSTEM. REFER TO DRAWINGS 4 TO 8 FOR APPLICABLE COVER SYSTEM.

SIDE SLOPE DITCH DETAIL (1/4)
NOT TO SCALE

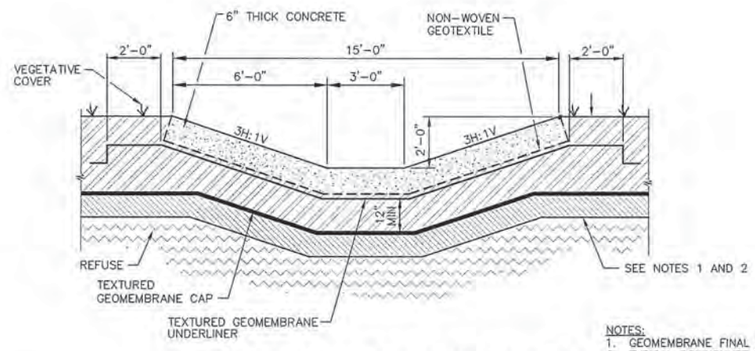


NOTES:
1. GEOMEMBRANE FINAL COVER SYSTEM SHOWN.
2. TOP SLOPE DITCH TO INCLUDE EITHER A TEMPORARY FINAL COVER OR GEOMEMBRANE FINAL COVER SYSTEM. REFER TO DRAWINGS 4 TO 8 FOR APPLICABLE COVER SYSTEM.

TOP SLOPE DITCH DETAIL (4/4)
NOT TO SCALE

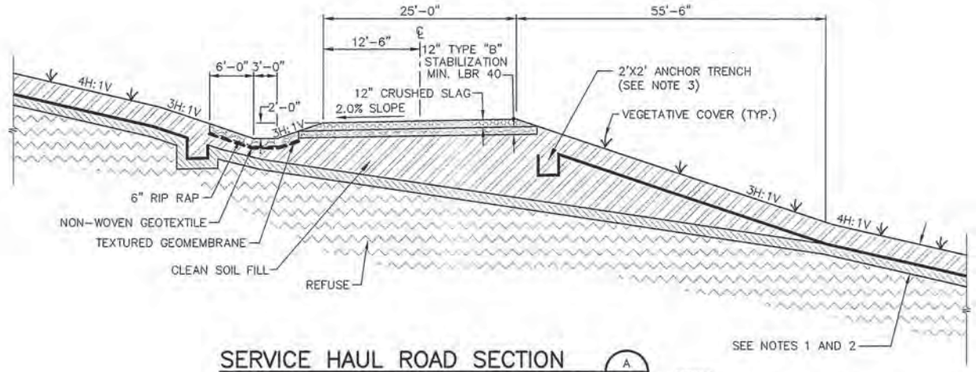


FINAL COVER TOE DRAIN DETAIL (2/8)
NOT TO SCALE



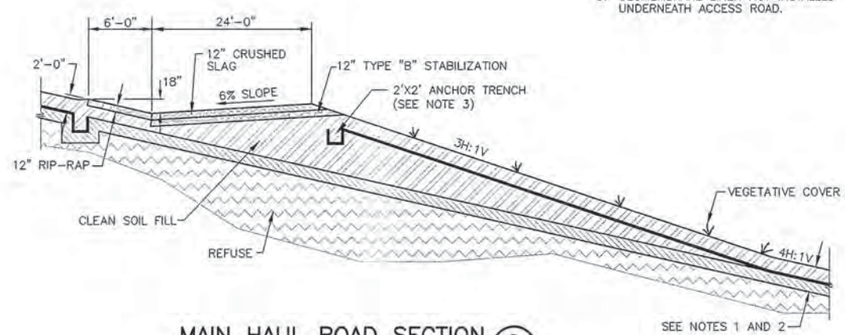
NOTES:
1. GEOMEMBRANE FINAL COVER SYSTEM SHOWN.
2. TYPICAL DOWNCHUTE TO INCLUDE EITHER A TEMPORARY FINAL COVER OR GEOMEMBRANE FINAL COVER SYSTEM. REFER TO DRAWINGS 4 TO 8 FOR APPLICABLE COVER SYSTEM.

TYPICAL DOWNCHUTE DETAIL (3/12)
NOT TO SCALE



SERVICE HAUL ROAD SECTION (A/8)
NOT TO SCALE

NOTES:
1. GEOMEMBRANE FINAL COVER SYSTEM SHOWN.
2. SERVICE HAUL ROAD TO INCLUDE EITHER A TEMPORARY FINAL COVER OR GEOMEMBRANE FINAL COVER SYSTEM. REFER TO DRAWINGS 4 TO 8 FOR APPLICABLE COVER SYSTEM.
3. GEOMEMBRANE LINER NOT INSTALLED UNDERNEATH ACCESS ROAD.



MAIN HAUL ROAD SECTION (B/8)
NOT TO SCALE

NOTES:
1. GEOMEMBRANE FINAL COVER SYSTEM SHOWN.
2. MAIN HAUL ROAD TO INCLUDE EITHER A TEMPORARY FINAL COVER OR GEOMEMBRANE FINAL COVER SYSTEM. REFER TO DRAWINGS 4 TO 8 FOR APPLICABLE COVER SYSTEM.
3. GEOMEMBRANE LINER NOT INSTALLED UNDERNEATH ACCESS ROAD.

Hillsborough County Florida

HDR

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HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS, LICENSE No. 73758, STATE OF FLORIDA, PROFESSIONAL ENGINEER
6/13/13
ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

DETAILS 3

0 1" 2"

FILENAME	00C-14.DWG
SCALE	AS SHOWN

DWG No. 14

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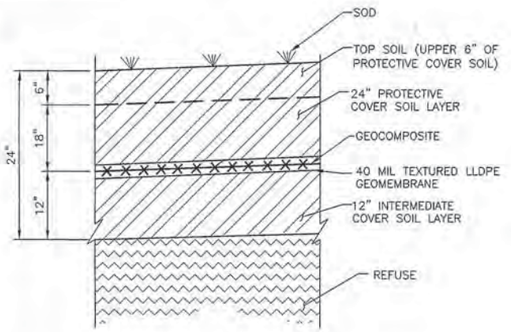
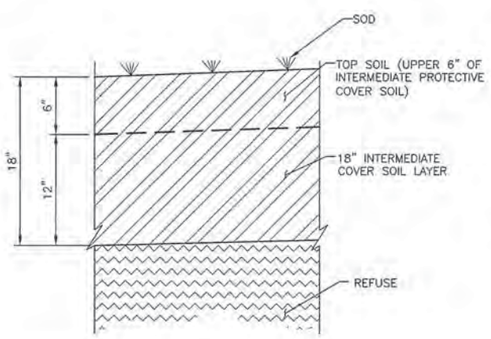


TEMPORARY GEOMEMBRANE FINAL COVER DETAIL

1/9

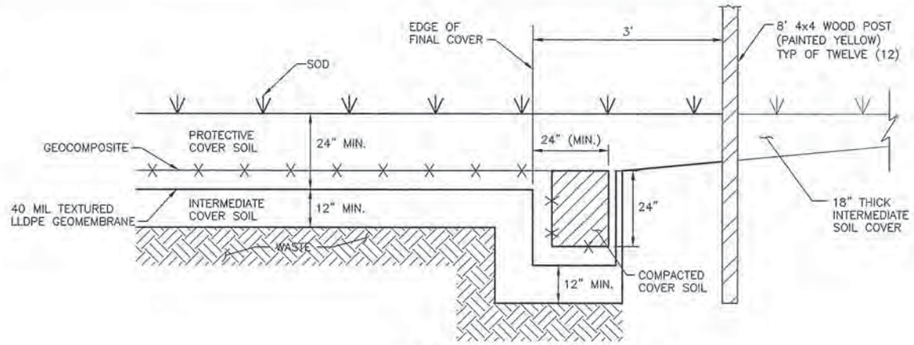
NOT TO SCALE



INTERMEDIATE COVER DETAIL

2/9

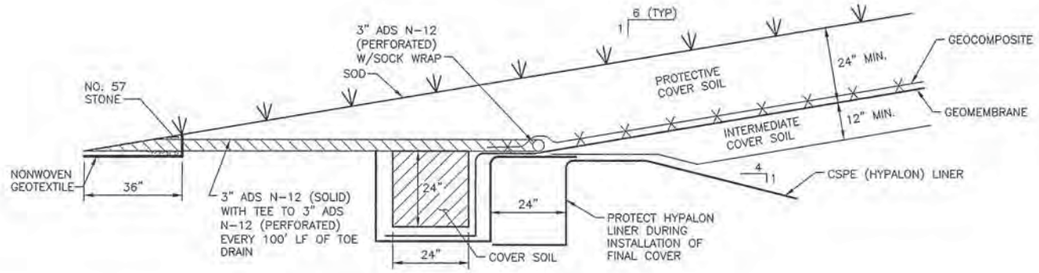
NOT TO SCALE



ANCHOR TRENCH DETAIL

3/9

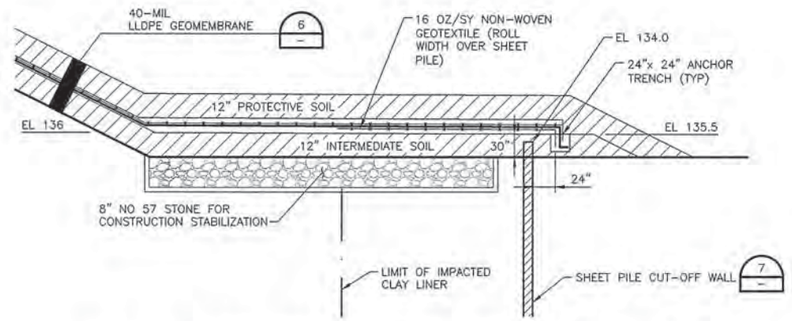
NOT TO SCALE



TEMPORARY TOE DRAIN DETAIL

4/9

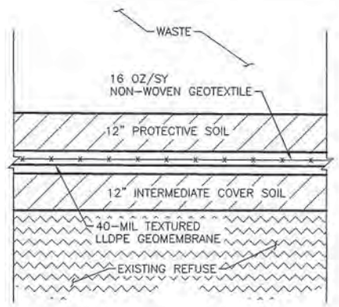
NOT TO SCALE



40-MIL LLDPE GEOMEMBRANE ANCHOR DETAIL

5/9

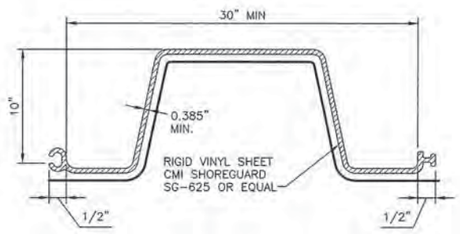
NOT TO SCALE



40-MIL LLDPE GEOMEMBRANE DETAIL

6/9

NOT TO SCALE



* STEEL GUIDE METAL THICKNESS SUFFICIENT TO PENETRATE THROUGH MATERIALS SHOWN ON BORINGS.

TYPICAL SHEET PILE CUT-OFF WALL DETAIL

7/–

NOT TO SCALE

Hillsborough County Florida

HDR

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HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

DETAILS 4

0 1" 2"

FILENAME	00C-15.dwg
SCALE	AS SHOWN

DWG No. 15

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Appendix F

Landfill Gas Monitoring Points

HILLSBOROUGH COUNTY SOLID WASTE MANAGEMENT DEPARTMENT
SOUTHEAST COUNTY LANDFILL – LFG READINGS

ADMINISTRATION BUILDING

	Methane Gas	LEL	Carbon Dioxide	Oxygen	Balance Gas
SP-1					
SP-2					
SP-3					
SP-4					
SP-5					
SP-6					
SP-7					
SP-8					

MAINTENANCE BUILDING

	Methane Gas	LEL	Carbon Dioxide	Oxygen	Balance Gas
SP-9					
SP-10					
SP-11					
SP-12					

LEACHATE TREATMENT PLAN

	Methane Gas	LEL	Carbon Dioxide	Oxygen	Balance Gas
SP-13					
SP-14					
SP-15					

LANDFILL GAS PERIMETER MONITORING POINT

	Methane Gas	LEL	Carbon Dioxide	Oxygen	Balance Gas	Objectional Ambient Odor (Y/N)
LFG-1						Y/N
LFG-2						Y/N
LFG-3						Y/N
LFG-4						Y/N

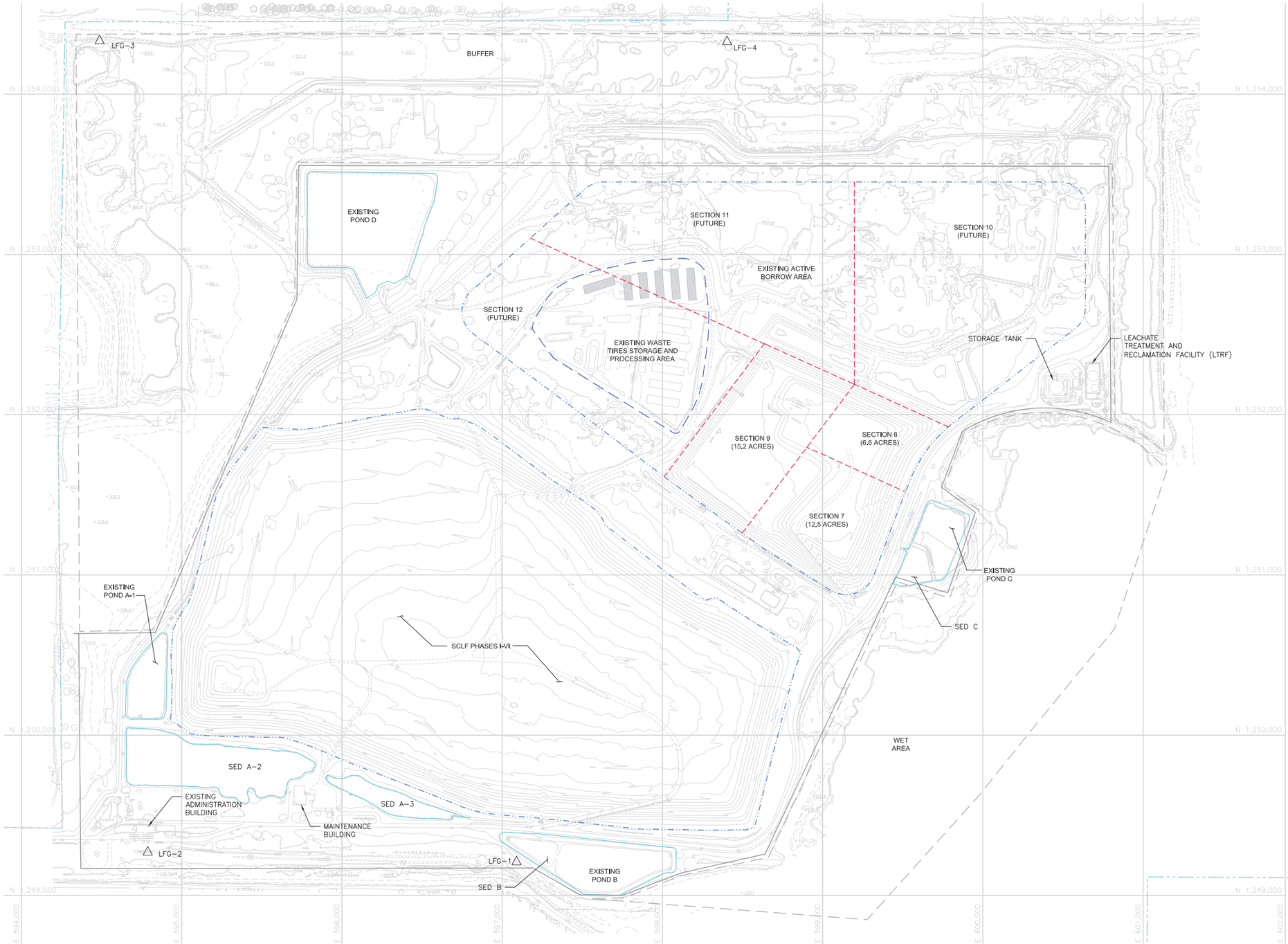
TECHNICIAN SIGNATURE: _____

SUPERVISOR SIGNATURE: _____

DATE: _____

COMMENTS: _____
_____
_____
_____

Legend: SP = Ambient Sample Point



N

NOTE:

1. TOPOGRAPHICAL INFORMATION COMPILED FROM EXISTING CONDITIONS SURVEY PERFORMED BY PICKETT & ASSOCIATES DATE JULY 13, 2012.

LEGEND:

- △ LFG–1 — EXISTING LANDFILL PERIMETER GAS MONITORING WELL LOCATION
- PROPERTY LINE
- SOLID WASTE BOUNDARY
- PHASE/SECTION LIMITS
- EXISTING CLASS I LANDFILL FACILITIES
- LANDFILL FOOTPRINT

300 150 0 300 600

SCALE: 1"=300'

LANDFILL GAS PERIMETER MONITORING WELLS

HILLSBOROUGH COUNTY, FLORIDA

FIGURE F-1

HDR

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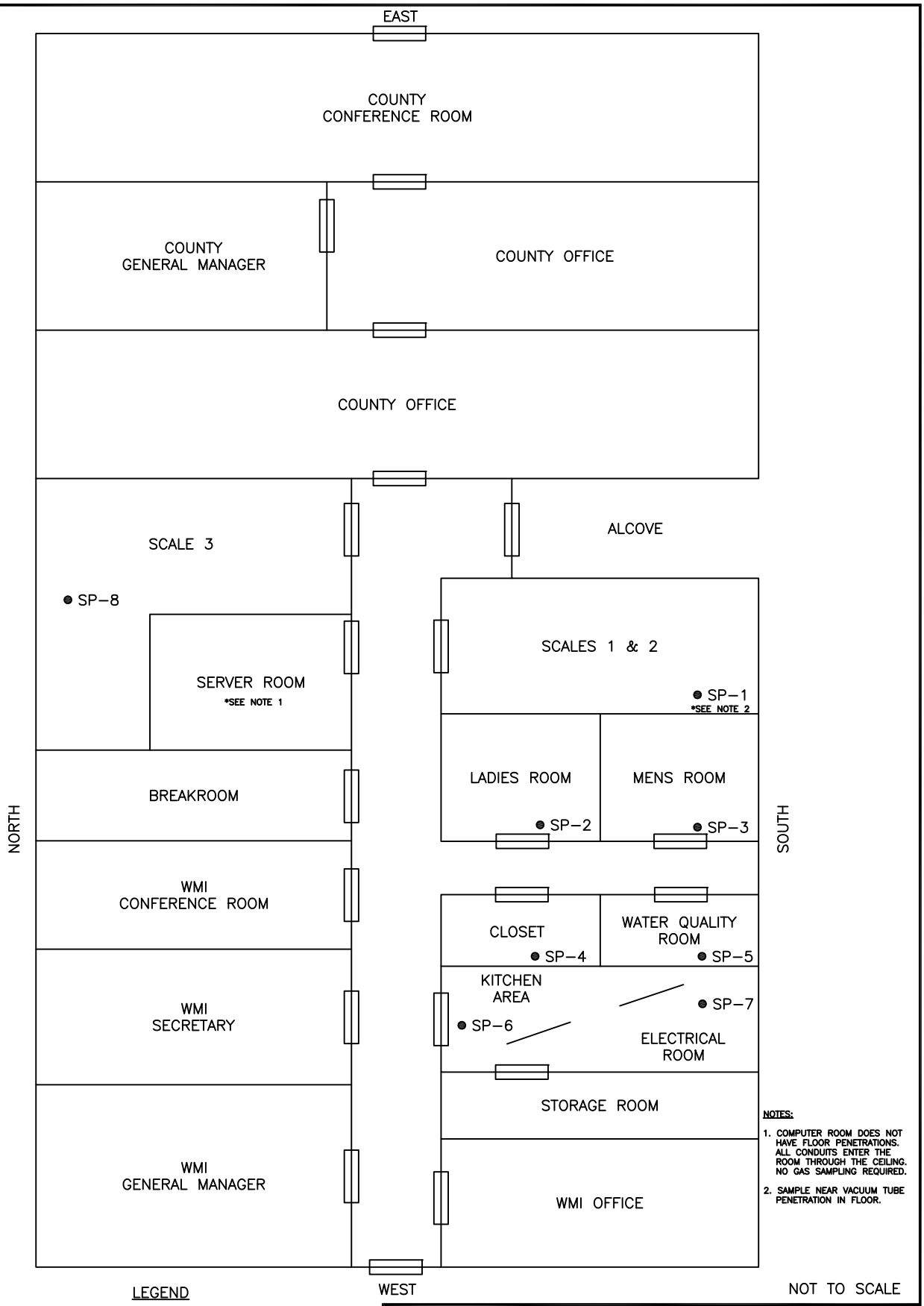

ADMINISTRATION BUILDING
LFG MONITORING POINTS

HILLSBOROUGH COUNTY, FLORIDA

FIGURE F-2

HDR

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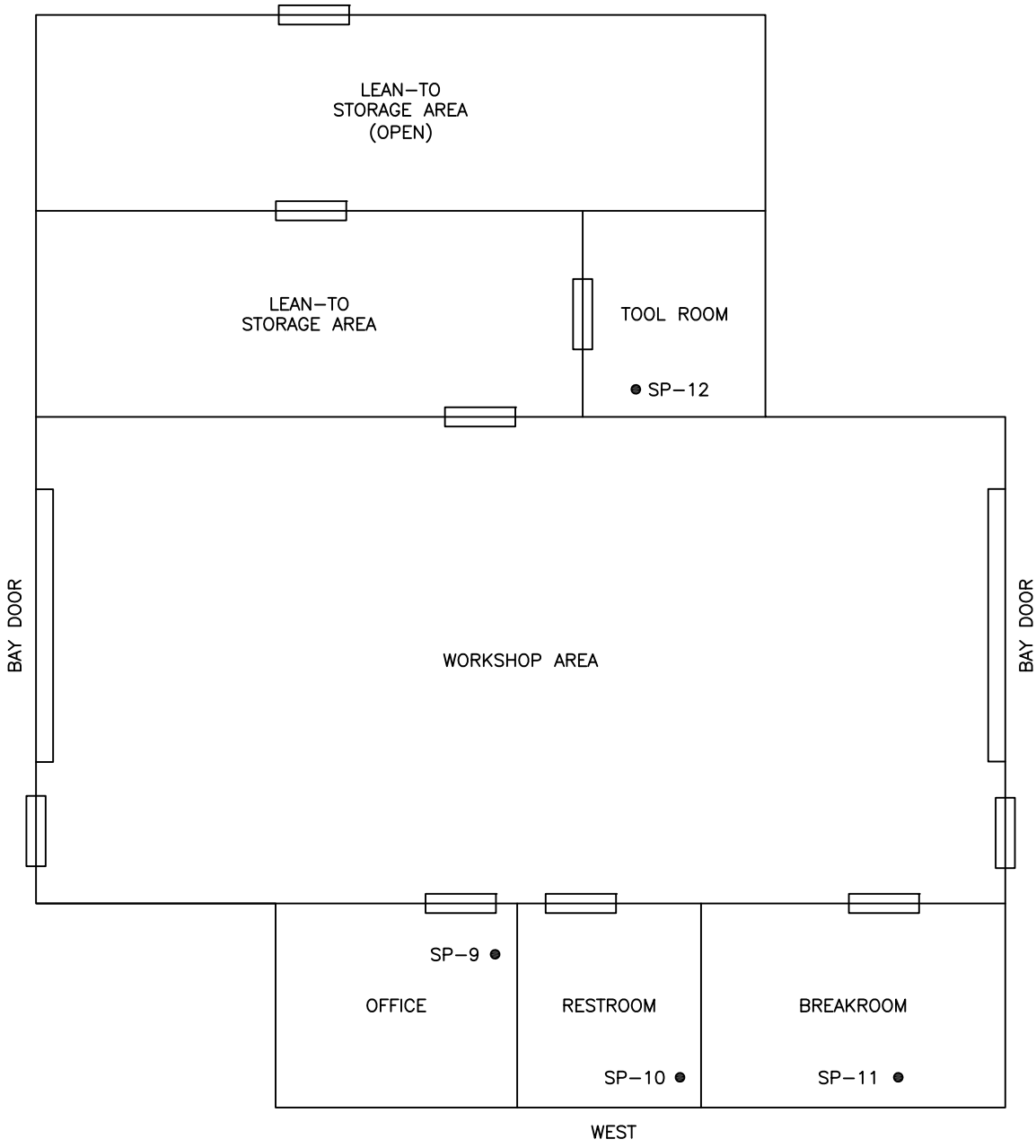

LEGEND

● SP–10 INDICATE GAS SAMPLE POINT

DOORWAY

NOT TO SCALE

MAINTENANCE BUILDING
LFG MONITORING POINTS

HILLSBOROUGH COUNTY, FLORIDA

FIGURE
F-3

HDR

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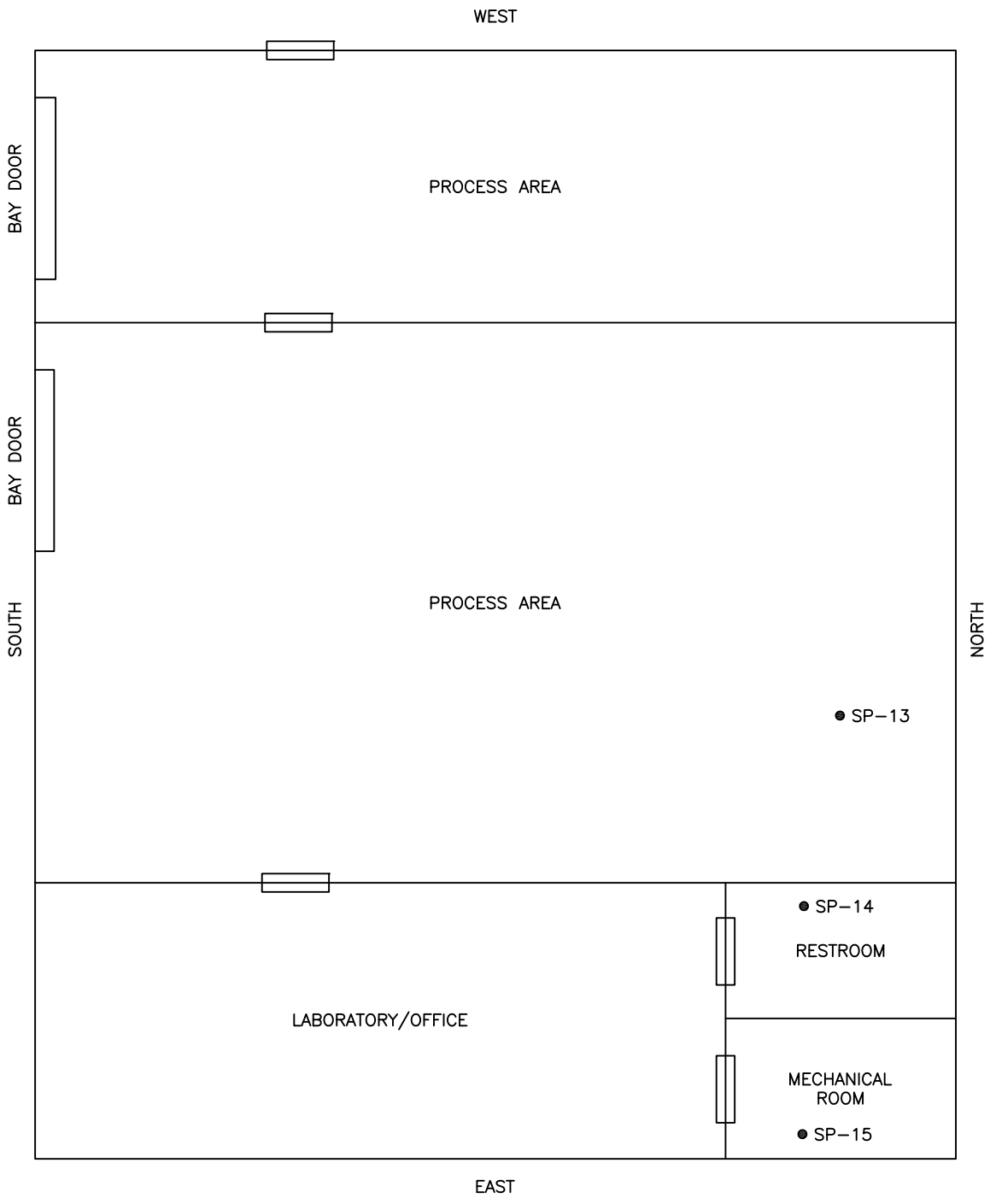

LEGEND

● SP–14 INDICATE GAS SAMPLE POINT

DOORWAY

NOT TO SCALE

LTRF OFFICE
LFG MONITORING POINTS

HILLSBOROUGH COUNTY, FLORIDA

FIGURE F-4

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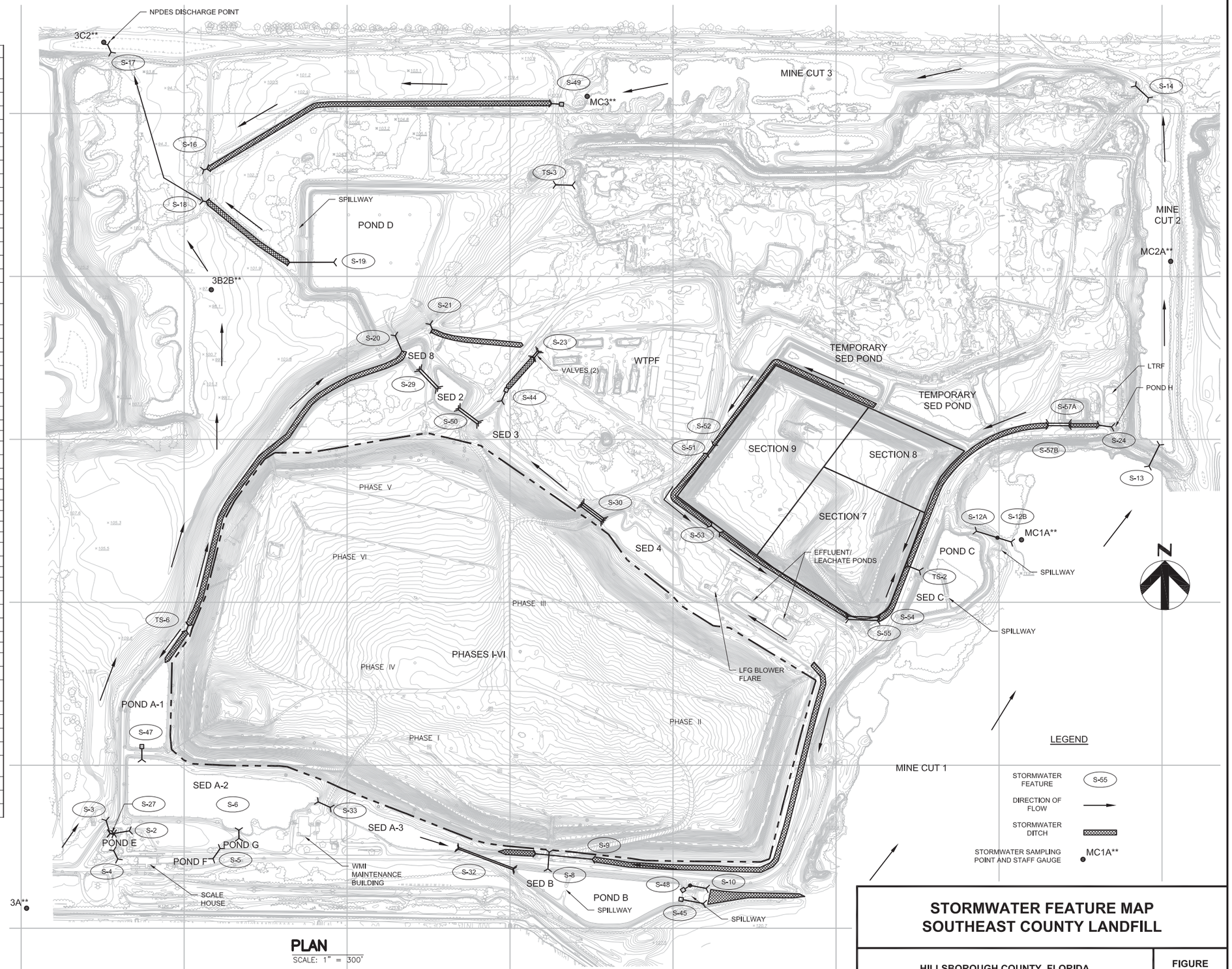
Appendix G

Not Used

Appendix H

Stormwater Management System (SWMS) Plan

EXISTING STORMWATER PIPE DATA TABLE					
STRUCTURE NO	TYPE OF STRUCTURE	INVERT ELEVATION DOWNSTREAM	INVERT ELEVATION DOWNSTREAM	DIAMETER (IN)	LENGTH (FT)
S-2	ERCP	124.83 (E)	124.72 (W)	14x22	92.38
S-3	CMP	122.96 (S)	122.07 (N)	36.00	81.19
S-4	ERCP	124.98 (S)	124.91 (N)	14x22	47.87
S-5	ERCP	124.44 (N)	125.34 (S)	14x22	73.39
S-6	ERCP	124.63 (S)	124.08 (N)	14x22	50
S-8	ERCP	126.70 (S)	126.51 (N)	34x54	100.67
	ERCP	126.66 (S)	126.51 (N)	34x54	100.39
S-9	CMP	123.90 (W)	123.64 (E)	24.00	343.74
S-10	RCP	121.73 (E)	121.62 (W)	48.00	100.06
S-12A	RCP	121.79 (W)	121.35 (E)	30.00	169.40
S-12B	RCP	121.45 (W)	121.39 (E)	48.00	50.37
S-13	RCP	121.69 (S)	120.71 (N)	24.00	104.48
	RCP	121.75 (S)	120.86 (N)	24.00	104.56
S-14	RCP	120.35 (E)	118.806 (W)	24.00	104.90
	RCP	120.43 (E)	118.956 (W)	24.00	104.90
S-16	STEEL	94.87 (E)	94.62 (W)	24 (W)– 21 (E)	22.04
	STEEL (E)– ECMP (W)	94.97 (E)	94.81 (W)	21 (E)– 22x24 (W)	20.98
S-17	RCP	90.98 (N)	90.69 (S)	48.00	50.51
	RCP	90.87 (N)	90.62 (S)	48.00	50.71
S-18	CMP	95.47 (E)	95.09 (W)	18.00	19.89
S-19	RCP	101.16 (E)	100.91 (W)	48.00	161.35
S-20	CMP	115.32 (N)	114.60 (S)	48.00	90.98
	CMP	115.48 (N)	114.73 (S)	48.00	91.11
S-21	RCP	123.16 (N)	122.95 (S)	36.00	34.84
S-23	HDPE	130.20 (N)	130.00 (S)	8.00	41.00
	HDPE	130.20 (N)	130.00 (S)	8.00	41.00
S-24	ERCP	146.44 (E)	145.05 (W)	12x18	91.04
S-27	CMP	123.02 (E)	123.00 (W)	18.00	24.15
S-29	RCP	119.55 (E)	117.01 (W)	30.00	114.00
	RCP	119.55 (E)	117.01 (W)	30.00	114.00
S-30	RCP	124.96 (E)	125.02 (W)	36.00	119.00
	RCP	124.96 (E)	125.02 (W)	36.00	119.00
	RCP	124.96 (E)	125.02 (W)	36.00	119.00
S-32	ERCP	122.99 (W)	122.02 (E)	24x38	355.00
	ERCP	122.99 (W)	122.02 (E)	24x38	355.00
S-33	RCP	119.95 (W)	119.97 (E)	36.00	81.00
S-44	HDPE	127.11 (N)	125.10 (S)	8.00	60.00
	HDPE	127.11 (N)	125.10 (S)	8.00	60.00
S-45	RCP	121.99 (W)	121.94 (E)	36x60	75.00
S-47	RCP	120.94 (S)	120.01 (N)	30.00	66.00
S-48	RCP	121.67 (W)	121.68 (E)	48.00	29.00
S-49	RCP	107.00 (E)	106.83 (W)	42.00	48.00
S-50	RCP	122.10 (E)	120.07 (W)	30.00	108.00
	RCP	122.10 (E)	120.07 (W)	30.00	108.00
S-51	RCP	139.69 (N)	139.54 (S)	36.00	50
S-52	RCP	139.69 (N)	139.54 (S)	36.00	50
S-53	RCP	138.00 (W)	138.00 (E)	3x6 BOX	27
S-54	HDPE	132.17 (W)	131.41 (E)	30.00	175
S-55	HDPE	132.28 (W)	131.29 (E)	30.00	175
S-57A	RCP	143.23	142.23	24.00	136
S-57B	RCP	143.23	142.23	24.00	136
TS-2	BOX CULVERT	130.05 (W)	129.18 (E)	48x96	74.73
TS-3	RCP	129.007 (E)	128.157 (W)	18.00	98.07
TS-6	METAL	125.94 (N)	125.55 (S)	20.00	29.65
	CMP	125.90 (N)	125.68 (S)	36.00	19.59



PLAN
SCALE: 1" = 300'

300 150 0 300 600
SCALE: 1"=300'

HDR

STORMWATER FEATURE MAP
SOUTHEAST COUNTY LANDFILL

HILLSBOROUGH COUNTY, FLORIDA

FIGURE 1

Attachment 4

Operations Plan
Phases I-VI and the Capacity Expansion Area (Sections 7, 8, and 9)
Southeast County Landfill
Hillsborough County, Florida

Hillsborough County - Public Utilities Department
Solid Waste Management Group (SWMG)
332 N. Falkenburg Road
Tampa, FL 33619

Florida Board of Professional Engineers
Certificate No. 00004892

SCS ENGINEERS

09215600.07 | October 2018

3922 Coconut Palm Drive, Suite 102
Tampa, FL 33619
813-621-0080

OPERATIONS PLAN
PHASES I-VI AND THE
CAPACITY EXPANSION AREA
(SECTION 7, 8, AND 9)
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

Presented To:
Hillsborough County
Public Utilities Department
Solid Waste Management Group (SWMG)
332 N. Falkenburg Road
Tampa, FL 33619

Presented From:

SCS ENGINEERS
3922 Coconut Palm Drive, Suite 102
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October 2018
File No. 09215600.07

Kollan L. Spradlin, P.E.
FL Reg. No. 82852

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Appendices

K. INTRODUCTION

The Southeast County Facility (Facility) includes the Southeast County Landfill (SCLF), which is permitted by the Florida Department of Environmental Protection (FDEP) as a Class I landfill for Phases I-VI and the Capacity Expansion Area. This Operation Plan includes Phases I-VI and Sections 7, 8, and 9 of the Capacity Expansion Area.

The Facility is the final depository for municipal solid waste (MSW) ash residues, non-processables, and bypass wastes from the Solid Waste Management System of Unincorporated Hillsborough County. The Facility also receives solid waste from the cities of Temple Terrace and Tampa, as well as MSW ash residues and bypass wastes from the Waste-to-Energy Incinerator Facilities of the City of Tampa and Hillsborough County. Hazardous waste will not be accepted at the Facility.

This operation plan was prepared in conjunction with an operation permit application; as such, the format follows the requirements of Part K of the Permit Application Form.

K.1 TRAINING

In accordance with Rule 62-701.320(15), Florida Administrative Code (FAC), key supervisory personnel at the Facility have received Landfill Operator Certification training. Operator training includes a 24-hour initial course and 16 hours of continuing education every three years. Spotter training includes an 8-hour initial course and four hours of continuing education every three years. Operator and Spotter training courses are offered by the University of Florida Center for Training, Research and Education for Environmental Occupations (TREEO) and through other FDEP-approved sources. Landfill personnel are encouraged to attend these courses after discussions with the Landfill Manager. The currently available TREEO training courses and schedule are listed in Appendix A. The listing is also available at www.treeo.ufl.edu. Documentation demonstrating that the facility operators and spotters have received the required continuing education is presented in Attachment D.15 of the Phases I-VI and Capacity Expansion Area (Sections 7, 8, and 9) Permit Renewal Application dated June 2013.

As required by Rule 62-701.500(1), FAC, a certified Landfill Operator will be on site when waste is received for disposal at the landfill, and a trained spotter will be on site during all times when waste is deposited at the landfill working face to detect any unauthorized wastes. In addition, the equipment operators have sufficient training and knowledge to move waste and soil and to develop the site in accordance with the design and operational standards described in the operation permit application.

K.2 LANDFILL OPERATION PLAN

K.2.a SWMG Organization and Responsibilities

Hillsborough County (County) owns the Facility and is the applicant for the operation permit. A Landfill Contractor (Contractor), currently Waste Management, Inc. of Florida (WMIF), will operate and maintain the Facility in accordance with the permit conditions under the contract that exists between the County and the Contractor.

The following Hillsborough County Public Utilities Department, Solid Waste Management Group (SWMG) and Contractor personnel are currently responsible for the operations at this Facility:

- Larry E. Ruiz, Landfill Operations Manager (SWMG)
- Ernest Ely, District Landfill Manager (Contractor)

In addition, the following positions are maintained at the Facility: scale-house clerks (SWMG), waste monitors (SWMG), equipment operators (Contractor), spotters (Contractor), laborers (Contractor), security personnel (Contractor), and mechanic (Contractor). At least one trained operator familiar with the landfill operations will be on site at all times while the Facility is open in accordance with Rules 62-701.320(15) and 62-701.500(1), FAC.

K.2.b Contingency Plan

The contingency plan for the Facility is based upon addressing two potential emergencies:

- Equipment failure.
- Large influx of material resulting from a natural disaster such as a hurricane, fire, or from a breakdown at local waste-to-energy facilities.

Sufficient backup equipment will be provided on site for equipment breakdowns and downtime for normal routine equipment maintenance. If primary and backup major equipment (i.e., landfill compactor or bulldozer) fail, one or both of the following contingency measures will be implemented:

- Use existing contracts with contractors and rental equipment dealers to furnish rental equipment on short notice (Appendix B).
- Establish arrangements with other County agencies to furnish equipment.

The Contractor will be responsible for providing equipment and a working force of adequate size and skill to maintain the landfill operation in compliance with all applicable federal, state, and local regulations. If sufficient local personnel are not available, the Contractor will relocate from other facilities sufficient personnel with the proper skills to maintain operations.

Given that a large volume of wastes requiring disposal from a natural disaster is non-putrescible, it can be stored on site temporarily (adjacent to the working face) and landfilled after the state of emergency has ended.

In the case of a large fire, bomb threat, or other unforeseen situation requiring specialized emergency response personnel, 911 will be called for the local Fire Department or Sheriff's Department. Waste handling will be suspended and the affected area will be evacuated, if necessary. The landfill will be temporarily closed until the responding Department determines that the landfill is safe for re-entry. If the Facility will remain closed for more than 48 hours, the incoming waste will be diverted to an alternate facility in an adjacent county.

In case of an accidental spill of oil, fuel, leachate, or chemicals, the spill will be minimized by controlling the source immediately (e.g., by closing the valve, turning-off switch, or taking any other necessary action). The affected area will be protected by diverting vehicular traffic. Building a berm, plugging a drain or ditch, or adding absorbent material will control runoff from the affected area. The affected area will be cleaned, and the effectiveness of the cleanup confirmed by sampling, as needed, depending on the nature of the spilled material. For spill countermeasures of secondary containment at the Leachate Treatment and Reclamation Facility (LTRF) and the effluent/leachate storage tank, refer to Section 11.0 of the Leachate Management Plan (LMP).

K.2.c Waste Type Control

The automated accounting system, clerks at the scalehouse, and the site security fence help discourage unauthorized entry and uncontrolled disposal of unauthorized waste. A sign at the entrance states the general regulations including the types of prohibited solid waste.

A minimum of three random load inspections of solid waste per week will be conducted at the active landfill (See Part K.6 and Appendix C). As an additional control, the SWMG has one waste monitor and the Contractor has at least one trained spotter at the working face to visually inspect each load of waste as it is unloaded and deposited. If any unauthorized special waste (i.e., lead-acid batteries, used oil, yard trash, white goods, and whole tires) is found at the working face during the random inspection or as part of routine operations, the waste will be segregated and removed from the site for recycling or other processing in accordance with FDEP regulations. Items that may contain liquids or gases will be stored upright, undamaged, and in a container as appropriate. The maximum on-site storage will be as follows:

- 50 batteries in a secondary containment covered tray.
- 20 gallons of used oil placed upright in an undamaged container.
- 40 cubic yards (cy) yard trash in one 40-cy roll-off container.
- 75 white goods and lawnmowers placed upright (on the ground) until all liquids, chlorofluorocarbons (CFCs), and Freon are removed. After the metal recycling contractor removes all liquids, CFCs, and Freon, the white goods are marked with spray paint to indicate that they are ready to be placed in the scrap metal containers.
- Scrap metal in two 40-cy roll-off containers (including processed white goods).

These special wastes will be stored next to the working face and removed from the site within 30 days.

Whole tires will be stored and managed at the on-site Waste Tire Processing Facility (WTPF). Lead-acid batteries will be collected by the SWMG's contracted battery recycler. Scrap metal, including white goods and lawnmowers, will be collected and processed by the SWMG's metals recycling

contractor. Propane tanks will be collected by the recycling contractor. Until the SWMG develops a beneficial use for landfill gas, yard trash will be rejected, required to be reloaded, and directed to be taken to the yard trash processing facility at the South County Transfer Station.

If unauthorized waste (i.e., hazardous, polychlorinated biphenyl's (PCBs), untreated biomedical, or free liquid) is found at the working face, the waste will be isolated and the Landfill Manager will be immediately notified. The Landfill Manager is trained in the proper procedure to follow, including notifying the FDEP. Similarly, if suspect waste is found, the waste will be isolated and the Landfill Manager notified. The Landfill Manager will prepare a suspect waste report and ensure that the waste is properly managed (Appendix C). If hazardous wastes are found, the FDEP will be notified immediately and the waste will be isolated and restricted from access until it is removed from the landfill by a qualified hazardous waste contractor. Hazardous wastes will be removed from the Facility within 24 hours.

K.2.c.1 Waste Profile Program

The Waste Profile Program, administered by the SWMG, establishes policies, procedures, and guidelines for managing waste to comply with federal, state, and local regulations for minimizing risks to the environment, public health, and employees posed by non-hazardous and unregulated waste. The Waste Profile Program includes an internal structured reporting format, guidelines, and procedures to assist customers to comply with waste disposal requirements. The SWMG does not accept unauthorized waste for disposal at the landfill. The following are the objectives of the waste profile program:

- Preclude the entry and disposal of hazardous waste into the Facility.
- Preclude leachate developing hazardous waste characteristics.
- Protect the landfill liner.
- Prevent objectionable odors from becoming a problem.
- Ensure that delivered materials can be handled safely.

K.2.c.2 Motor Vehicles

Motor vehicles will not be accepted at the facility; however, mobile homes will be accepted for disposal in the landfill at the active working face if they cannot be recycled. Appliances (white goods) and waste tires from mobile homes must be removed before being accepted at the facility and processed as stated in Section K.2.c.

K.2.c.3 Shredded Waste

The Facility will accept shredded tires. As provided by Chapter 62-711 FAC, the SWMG will use shredded tires for initial cover since shredded tires are an effective initial cover for controlling disease, vectors, odors, litter, and scavenging.

K.2.c.4 Asbestos Waste

Asbestos waste will be accepted at the Facility. The entire footprint of Phases I-VI and the Capacity Expansion Area will be designated as an asbestos disposal area. Before landfilling, the material must be wetted and placed in a leak-tight wrapping. The bags will be placed in a prepared trench at the working face. Materials such as transite paneling and pipe insulation must be wrapped sufficiently to maintain their integrity during disposal. After placement, the bags will be immediately covered with 6 inches of asbestos-free material (i.e., soil or select waste without large or sharp objects that may damage the asbestos packaging). The location, quantity and source of asbestos containing material will be documented. Copies of the asbestos waste shipment records complying with 40 CFR 61-Subpart M will be maintained on site.

K.2.c.5 Wastewater Treatment Biosolids

Biosolids (industrial and domestic sludge) from wastewater treatment systems are accepted for disposal in the landfill. Biosolids will be applied to the working face of the landfill and daily cover applied in accordance with Section K.2.g to control odors. Disposal operations of biosolids will not occur within 50 feet of exterior side slopes

Biosolids from the wastewater treatment facility (WWTF) will be required to pass the paint filter test which will be based on the percent solids of the biosolids produced by the WWTF.

A paint filter test will be initially performed on the biosolids to demonstrate the minimum percent solids content that will pass the paint filter test. Thereafter, the WWTF will be required to provide a report of the percent solids content of the biosolids delivered each day to the Facility. Biosolids from the WWTFs with percent solids content at or above the minimum solids content passing the paint filter test will be accepted at the Facility. In the event the percent solids content from a WWTF is below the minimum solids content, the WWTF must, before disposal at the SCLF, perform and provide documentation that the lower percent solids content passes the paint filter test.

In addition to landfilling, the County manages a solid waste composting operation at the SCLF. The operation co-composts together, a mix of dewatered biosolids received from local, Hillsborough County municipal wastewater treatment plants and yard waste received directly at the landfill from commercial and residential customers. The compost operation covers approximately 7 acres of an inactive area on top of the Capacity Expansion Area (CEA).

Yard waste is ground-up and mixed with biosolids at the facility and formed into windrows on an asphalt pad where it cures over a period of weeks. The material is periodically turned with a mechanical turner and after initial curing, is transferred to a final curing pile on the asphalt pad. Following a few more months of curing the material is put through a mechanical screen for size control and moved to another area on the pad for temporary storage until it is taken away by the customer. The finished compost product is distributed to local farmers and the general public. A more complete description of the compost operation is included in the Composting Operation and Maintenance Plan.

K.2.d Weighing Incoming Waste

All incoming waste will be weighed before disposal in the landfill. The existing scales are fully automated and computerized, with the capability for data storage and retrieval for daily record keeping and reporting. All customers are issued receipts upon exiting the Facility.

K.2.e Traffic Control

The working face area is the most equipment-intensive area of operation for the Facility. In this area, solid waste transportation vehicles arrive, turn around, back up to the working face, and unload the solid waste. Landfill operation equipment will continually spread and compact the solid waste as it is received. During normal operating conditions, only one working face will be active at any given time, with the solid waste at all other areas within the landfill secured by a minimum of 6 inches of initial cover. The working face may alternate as needed between Phases I-VI to the CEA. It is intended that only one working face will be active at a time at either Phases I-VI or the CEA.

The approach to the working face will be maintained in an accessible condition so that two or more vehicles may safely unload simultaneously side by side. When unloading is complete, the vehicles will immediately leave the working face area. Entrance and exit haul roads will be provided (both temporary and permanent) and maintained to facilitate future unloading operations. Contractor personnel will direct traffic as necessary to expedite safe movement of vehicles and to ensure that all waste transport vehicles unload within the designated area.

K.2.f Method and Sequence of Filling Waste

Each phase will be landfilled as shown in the Operating Sequence Plans provided in Appendix E. The lifts in each of the several phases are shown on one sheet to minimize the number of sheets, but each lift is independent of the others.

K.2.f.1 Phases I-VI

One working face will be maintained for the anticipated traffic maneuvering during waste fill operations. Typical lifts consist of two lifts 8 to 10 feet high, to reach the maximum elevation shown on the operating sequence drawings including daily and intermediate cover. Because of the phosphatic clay liner stability in Phases I-VI, at no time shall a lift exceed the maximum height shown on the operating sequence drawings. The initial filling in Phases I-VI was completed in 2010. Waste filling will continue over the existing area as shown on the operating sequence plans. Existing intermediate cover placed over the Phase I-VI area will be removed as landfilling progresses. The remaining air space in Phases I-VI is divided into eleven lifts (13-15, 16A, 17A, 18 - 23) as shown on the drawings.

The Contractor will prepare filling plans in accordance with the sequence drawings 45 days before the development of a new lift. Subsequently, grades for the new lift will be set on grade by a registered engineer, land-surveyor, or by an authorized agent.

Landfilling in Lifts 13 (Sheet 4A) began on the west side of Phase I and proceeded east over Phase I.

Landfilling in Lift 16A (Sheet 4B) begins on the east side of Phase IV and proceeds west over Phases IV and VI.

Landfilling in Lifts 17A (Sheet 4C) begins on the south side of Phase IV and proceeds clockwise over Phases IV, VI, and V until elevation 240 feet has been reached.

Landfilling in Lifts 14 and 15, (Sheet 5A) begins on the west side of Phase II and proceeds counterclockwise over Phases II and III.

Landfilling in Lifts 18-21 (Sheet 6) begins on the south side of Phase I and proceeds counter clockwise over Phases I, II, III and IV.

Landfilling in Lift 22 (Sheet 7) begins on the south side of Phase IV and proceeds from east to west over Phases IV, V and VI.

Landfilling in Lift 23 (Sheet 8) begins in the center of Phases I-VI, near Phase II and proceeds from east to west over Phases I through VI, to the permitted final grades (Elev 255) of the landfill. Upon completion of filling operations in Lift 23, final cover will be placed over the entire Phase I-VI area as described in Section K.7.h.

K.2.f.2 Section 7 of the Capacity Expansion Area

The initial filling in Section 7 was complete as of May 2005. The outer sideslopes have not reached their final design 3H:1V slope. The temporary sideslopes of Section 7 will be filled to reach their maximum design slope of 3H:1V during waste filling operations in Section 9.

The east and south sideslopes as well as most of the top of Section 7 have received intermediate cover. Stormwater runoff from the top of Section 7 sheet flows to a downchute on the southeast corner that discharges to a culvert leading to sedimentation basin C (Sed C). Stormwater runoff from the sideslopes of Section 7 drains to the perimeter ditches, eventually flowing to the culvert to Sed C. Any stormwater that does not infiltrate into the ground at Sed C discharges to Pond C for additional attenuation prior to flowing through the on-site stormwater management system described in Section K.10.

K.2.f.3 Section 8 of the Capacity Expansion Area

The initial filling in Section 8 was completed as of May 2007. Similar to Section 7, the outer sideslopes have not reached their final design slope of 3H:1V. The temporary sideslopes of Section 8 will be filled to reach their design slope during waste filling operations in Section 9.

The east and north sideslopes, as well as most of the top of Section 8 have received intermediate cover. Stormwater runoff from the top of Section 8 discharges to Sed C. Stormwater runoff on the east sideslope drains to perimeter ditches, eventually flowing to the culvert to Sed C. Stormwater runoff on the north sideslope of Section 8 flows easterly along perimeter ditches around the CEA eventually discharging through the culvert to Sed C. Any stormwater that does not infiltrate into the ground in Sed C discharges to Pond C for additional attenuation prior to flowing through the on-site stormwater management system described in Section K.10.

K.2.f.4 Section 9 of the Capacity Expansion Area

One working face will be maintained for the anticipated traffic maneuvering during waste fill operations. Typical lifts consist of two lifts 8 to 10 feet high, to reach the maximum elevation shown on the operating sequence drawings including daily and intermediate cover.

The proposed filling sequence for Section 9 is presented in the drawings provided in Appendix E. The initial filling in Section 9 was completed as of July 2009.

Waste placement in Section 9 has proceeded against the west sideslopes of Sections 7 and 8 and landfilling of fill sequence 9-15 has been completed (CEA Sheet 6). Waste filling will continue incorporating areas of both Sections 7 and 8. As the Operations Fill Sequence Drawings show, filling will proceed to bring the sideslopes of Sections 7, 8, and 9 to their design slope of 3H:1V slopes as

shown on fill sequence 16-18 (CEA Sheets 6 and 7). The filling of Section 7, 8, and 9 areas will bring the combined areas to an approximate elevation of 285 feet as shown on Sheet 8.

K.2.g Waste Compaction and Application of Cover

Waste will be placed at the top or bottom of the working face and spread toward the bottom or top, respectively. Waste will be spread in approximately 2-foot-thick layers and compacted with a minimum of three to five passes of the landfill compactor. The spreading and compacting is intended to be a continuous operation. A minimum in-place waste density of 1,000 pounds/cubic yard (lb/cy) will be achieved.

A minimum of 6 inches of compacted initial cover or tarp will be placed over the waste at the end of each operation day in accordance with 62-701.500(7)(f)1. Auto shredder residue, alone or mixed with soil, recovered screen material street sweepings, screened ditch cleaning soil, and solid waste combustor ash residue may be used as initial cover as allowed by 62-701.500 (7)(e). Before the working face between landfills is moved, the area that will remain inactive will be covered with compacted initial cover, soil, or a mixture of 50 percent unscreened wood mulch and 50 percent soil (no ash), with sufficient thickness (minimum 6 inches) to prevent erosion and the mixing of leachate with stormwater. A minimum of 1 foot of intermediate cover, in addition to the 6-inch initial cover, will be applied and maintained within 7 days of cell completion if additional solid waste will not be deposited within 180 days of cell completion.

When landfilling operations begin again in areas with intermediate cover, the intermediate cover (free of waste) will be stripped from the surface (upper 12 inches) and reused over other areas needing intermediate cover. The stripped intermediate cover will be pushed ahead and used as perimeter berms around the active working face area. The intermediate areas are graded to promote drainage (minimum 2 percent slope) and seeded to prevent erosion.

K.2.h Operation of Leachate, Gas and Stormwater Controls

See Sections K.8, K.9, and K.10 for leachate, gas, and stormwater controls, respectively.

K.2.i Water Quality Monitoring

K.2.i.1 Phases I-VI

Water quality monitoring for Phase I-VI is included in Section L of the Operation Permit Intermediate Modification Application, dated April 2015.

K.2.i.2 Capacity Expansion Area

Water quality monitoring for Sections 7, 8, and 9 is included in Section L of the Operation Permit Intermediate Modification Application, dated April 2015.

K.2.j Leachate Collection and Removal System Maintenance

Refer to the current LMP Report incorporated as part of the current Operation Permit.

K.3 OPERATING RECORD

The operating record will be maintained on site in the Administration Building or at the SWMG office. The operating record will be accessible to the Facility operation personnel and will be available for inspection by FDEP. The records include the following:

- Waste reports
- Operation permits
- Construction and closure permits including any modifications
- Monitoring results, such as water quality testing
- Notifications to FDEP
- Engineering drawings
- Training certifications as required by Chapter 62-701.320(15), FAC

K.4 WASTE RECORDS

K.4.a Amount and Origin of Waste

The amount of solid waste received at the landfill will be weighed and recorded in tons per day in accordance with Rule 62-701.500(4), FAC. Waste reports, including the amount received and county of origin, for the waste types listed in Section K4(b) will be compiled monthly and provided annually to the FDEP.

K.4.b Waste Types

All reports will contain a minimum of the following waste types:

- Class I waste
- Class III waste
- Ash residue
- Other waste

K.4.c Construction and Demolition Debris

If dedicated loads of construction and demolition debris (C&D) are received, an annual report will be submitted to the FDEP as required in subsection 62-701.730(12), FAC and form 62-701.900(7). This report will include tonnage of material types received and recovered based on county of origin.

K.5 ACCESS CONTROLS

The perimeter fence and berms around the Facility prevent the entry of livestock, protect the public from exposure to potential health and safety hazards, and discourage unauthorized entry or uncontrolled disposal of unauthorized materials. 'No trespassing' signs are also posted along the perimeter fence. The SWMG and Contractor personnel will inspect the premises daily. The gate at the Facility entrance and all other gates will be kept locked at all times the landfill is closed, and the Contractor will provide security personnel to guard the Facility during non-operating hours.

K.6 LOAD-CHECKING PROGRAM

The SWMG has established a random-load-checking program as referenced in Part K.2.c to detect and prevent disposal of unauthorized wastes into the landfill. In addition, site access control discourages the disposal of unauthorized and hazardous wastes. A sign at the entrance of the Facility explains the types of waste prohibited at the landfill.

In accordance with Rule 62-701.500(6)(a), FAC, a minimum of three random loads will be checked at the active working face(s) each week. The selected drivers will be directed to discharge their loads at a designated location next to the working face. If any unauthorized special waste (i.e., lead-acid batteries, used oil, yard trash, white goods, and whole tires) is found during the random inspection or as part of routine operations, the waste will be segregated and removed from the site for recycling as described in Part K.2.c. These special wastes will be stored next to the working face and removed from the site within 30 days.

If an unauthorized waste (i.e., hazardous, PCBs, untreated biomedical, or free liquid) is found, the generator of the waste, if known by the driver, will be contacted to determine the waste source. Either the hauling company or the generator of the waste will be directed to remove the unauthorized waste. The random load inspections will be documented on a report from which includes the date and time, name of the hauling company and the driver of the vehicle, the vehicle license number, the source of the waste or generator, and any observations or notes made by the inspector (Appendix C).

The inspector will identify and note all unauthorized waste found during the random load inspection, estimated quantity, and the action taken. The inspector will sign the inspection form that will be retained at the Facility.

If the waste owner cannot be identified, the waste will be evaluated by Contractor personnel in charge. The waste will be isolated and contained and will not be moved until the waste is determined to be acceptable. If it is determined that the waste is not suitable for disposal, the SWMG will be notified for additional assessment and testing of the waste. Subsequently, a record of the decision will be placed into the daily operations file for the Facility.

If any regulated hazardous waste is discovered in a random load check or is identified by an operator or spotter, the Landfill Manager and the FDEP will be notified immediately as well as the generator or hauler, if known. The Landfill Manager is trained in the proper procedure to follow including notifications. If the generator or hauler is not known, the SWMG will be responsible for disposing of the hazardous waste at a properly permitted Facility. The hazardous waste will be isolated and restricted from access until it is removed from the landfill by a qualified hazardous waste contractor. Hazardous wastes will be removed from the site within 24 hours.

As required in Rule 62-701.320(15), FAC and discussed in Part K.1, inspectors, scale-house attendants, equipment operators, and landfill spotters will be trained to identify unacceptable wastes and hazardous wastes.

K.7 SPREADING AND COMPACTING WASTE

All loads coming into the Facility, including small-volume containers, will be delivered to the working face daily. To preserve the prepared base area and to protect the leachate collection system, traffic will be prohibited to operate directly on the chipped tires overlying the drainage layer. Traffic will only be allowed to maneuver on top of the compacted and covered waste. Therefore, the initial lift of all new disposal areas will be accessed by vehicles from the top of the working face. The waste will be spread and compacted from the top, keeping all heavy equipment off the prepared base.

For all subsequent lifts, the waste placement will vary depending on field conditions. Some lifts will be built from the bottom of the active working face. At the discretion of the operator, waste will also be placed from the top of the active working face and spread toward the bottom. Waste will be placed against the covered working face of the previous day's waste. The first cell will act as a means of access and as a berm to guide the placement of waste for the remaining cells. See Part K.2.g for additional information on waste compaction.

The following guidelines will provide an efficient and environmentally sound method of operation for the Facility:

- Portable litter fencing will be placed at the working face where needed to reduce windblown litter.

- Cracks or eroded sections in the surface of any filled and covered area will be repaired and a regular maintenance program will be followed to eliminate pockets or depressions that may develop as waste settles.

- If 12 inches of intermediate cover (free of waste) has been placed over a partially filled area, it will be removed, reused, and stockpiled for later use before the placement of a new lift.

- Tire chips, ash residue from incinerated MSW, tarps, soil, or a 50/50 soil/mulch mix may be used for initial cover. Stormwater runoff will not be allowed from waste-filled areas covered with tire chips or ash. Runoff from outside the bermed working face area will be considered stormwater only if the flow passes over areas that have no exposed waste and have been adequately covered with a tarp or at least 6 inches of compacted soil (or a mixture of soil/mulch) which is free of waste and has been stabilized to control erosion.

- Sufficient cover material will be stockpiled near the working face to provide an adequate supply for initial cover operations. In some areas, daily stockpiling may not be necessary because of the proximity of the borrow area.

K.7.a Waste Layer Thickness and Compaction Frequencies

Landfill personnel will direct all incoming waste to be unloaded at the toe or top of the working face. Waste will be spread in approximately 2-foot-thick layers and compacted with a minimum of three to five passes of the landfill compactors. The spreading and compacting is intended to be a continuous operation, and waste will not be placed in a layer until the previous layer is compacted.

K.7.b First Layer Thickness

For Phases I-VI and Sections 7, 8, and 9, the initial waste layer has been placed. To protect the integrity of the leachate collection system of the landfill, traffic and heavy equipment were not allowed directly on the sand drainage layer.

The procedure for filling and compacting the first layer of waste for future permitted sections at the Capacity Expansion Area will protect the integrity of the liner and leachate collection system. Traffic directly on the protective layer will be prohibited, and the first lift will be accessed by vehicles from the top of the working face. An initial 4-feet-thick lift of selected waste will be placed over the protective layer. The selected waste will be MSW and ash not containing large rigid objects and will be spread and compacted from the top of the working face.

K.7.c Slopes and Lift Depth

The working face slope will be maintained at a slope no steeper than 3H:1V. Each cell will be constructed in a horizontal lift to an approximate height of 8 to 12 feet, with the maximum height as shown on the Drawings provided separately with the Phases I-VI and the Capacity Expansion Area (Sections 7, 8, and 9) Operation Permit Renewal Application as shown in Appendix E.

K.7.d Working Face

Cells will be constructed with slopes no steeper than 3H:1V, and a working face will be maintained to provide unhindered vehicle access to the working face while minimizing exposed areas and unnecessary use of cover material. The working face may alternate as needed between Phases I-VI to the CEA. The working face will be bermed with soil or a 50/50 soil/mulch mix (no ash). The berm will be constructed to prevent the mixing of leachate with stormwater.

K.7.e Initial Cover Controls

At the end of each working day, the waste will be covered with a 6-inch lift of compacted cover material such as soil, a mixture of 50 percent wood mulch and 50 percent soil (or ash), ash, chipped tires, tarps or other materials as approved in 62-701.500(7)(e) FAC, in accordance with 62-701.500(7)(f)1. These cover materials will provide vector control, mitigate windblown litter, reduce the potential for fire, and reduce odors and moisture infiltration into the waste. The initial cover material will be spread over the exposed waste and, with the exception of tarps, compacted by the equipment used to spread the cover (i.e., bulldozer or scraper). The initial cover material will not be removed before placement of successive lifts of waste, with the exception of tarps, which will be removed before placement of successive lifts. Any remaining litter and cleanings from equipment will be placed at the bottom of the completed cell and covered.

Before the working face between landfills is moved, the area that will remain inactive will be covered with compacted cover (free of waste), soil, or a mixture of 50 percent unscreened wood mulch and 50 percent soil (no ash), with sufficient thickness (minimum 6 inches) to prevent erosion and the mixing of leachate with stormwater.

K.7.f Initial Cover Frequency

At the end of each day's operation, the active landfill working face will be thoroughly compacted, and cover material will be spread and compacted to a depth of 6 inches over the day's entire working face and sideslopes in accordance with 62-701.500(7)(f)1. Initial cover material is discussed in Part K.7.e. If needed, the portable barriers that define the working face will be moved to the positions required to define the next day's operation.

The Facility is equipped to excavate and haul cover materials from on-site borrow areas to the working face. Additionally, an elevating scraper is used to excavate and haul cover material from the borrow area to the working face where it can be spread by a scraper or bulldozer.

When using a 50/50 mixture of soil and mulch the following process will be used:

1. The area to be excavated will be identified in advance. The area used for mulch mixing will not be larger than 15 acres.
2. A 4-foot layer of mulch will be placed over the designated excavation area.
3. As the area is excavated, the excavator will take bucket loads of the mulch layer plus 4 feet of soil, mixing the load as it is placed in the dump trucks.
4. The trucks will deliver the load to the working face. As the loads are deposited, additional mixing will occur.
5. The soil/mulch mixture will be spread over the working face using a bull dozer, causing additional mixing.

K.7.g Intermediate Cover

Intermediate cover will be placed and maintained over cells which will not receive additional solid waste or final cover within 180 days as required in Rule 62-701.500(7)(g), FAC. Recovered screen material or a mixture of soil and ground or chipped yard trash provided that soil makes up at least 50 percent by volume of the mixture may be utilized as intermediate cover. The working face will be bermed to reduce stormwater impacts. Sideslopes will be well maintained to minimize erosion. Intermediate cover material will be placed over the landfill surface within 7 days of cell completion if additional waste will not be placed within 180 days. Intermediate cover will be placed to a minimum compacted thickness of 12 inches on top of the 6 inches of compacted initial cover. On-site material will be used for intermediate cover. Specifically, phosphatic waste clays available on site will be mixed with sand and used for intermediate cover.

To conserve the soil/clay mix, a portion of the intermediate cover will be removed immediately before placement of additional solid waste on top of the lift or before placement of additional waste. The soil/clay mix (free of waste) will be stripped and reused as initial or intermediate cover material. The stripped intermediate cover will be pushed ahead as needed for the perimeter interceptor berms constructed around the active working face area. The intermediate cover areas will be graded to promote drainage (minimum 2-percent slope) and seeded to prevent erosion.

K.7.h Final Cover

K.7.h.1 Temporary Final Cover

A temporary final cover consisting of a soil layer will be installed over cells in Phases I-VI and/or the CEA which will not receive additional solid waste. The temporary final cover will consist of a 12-inch layer of soil with a hydraulic conductivity of 1.0 x 10-5 cm/sec. Vegetative cover will be placed on areas which have reached interim final grade in Phases I-VI. These areas will not receive additional waste until the end of the consolidation period before waste can be filled on top of the area. In CEA Sections 7, 8, and 9, the temporary final cover will be installed on the south and east side slopes as shown on the drawings. As required, temporary drainage berms and downchutes will be placed at the working face to control and direct stormwater runoff away from disposal areas.

K.7.h.2 Final Cover

When portions of the Facility are brought to design grades, final cover will be placed over the areas that have attained final elevation within 180 days in accordance with Rule 62-701.500(7)(h), FAC. Vegetative cover will be established. The final cover system and sequence for final cover placement will be submitted with the application for closure at least 90 days before the partial closure of the sideslopes.

K.7.i Scavenging and Salvaging

Except for such operations that are conducted as part of a recycling program, scavenging and salvaging are not permitted at the Facility. If the volume of recyclable goods is sufficient, as determined by the Landfill Manager, those items may be separated from the waste which is to be disposed.

During waste placement on the landfill, recyclable items such as wood, concrete, metals, cardboard, and other recyclables may be manually pulled from the active face, segregated, and placed in the staging area/roll-off containers adjacent to the working face area. With the exception of clean concrete, the remaining materials will be transferred off-site for recycling. The clean concrete will be stored on site until sufficient quantity is stockpiled and used for on-site road base or other on-site uses.

After the recyclable materials have been removed, the remaining materials will be disposed in the active Class I waste disposal area of the landfill.

Any recycling method, other than manual extraction, will only be implemented following review and concurrence by the FDEP.

K.7.j Litter Policing

If necessary, portable litter fences will be placed downwind of the immediate working area to confine most of the windblown material. Litter around the site and the entrance roadways will be collected regularly and picked up within 24 hours, in accordance with Rule 62-701.500(7)(j), FAC.

K.7.k Erosion-Control Procedures

The Facility fill sequence and the drainage facilities have been designed to minimize erosion of landfill sideslopes and washout of adjacent areas. The landfill surface will be inspected daily for cracks, eroded areas, and depressions in the landfill surface. Corrective action will be implemented within 7 days of detection. In areas where standing water develops, the area will be filled, compacted, and graded to provide positive drainage. Where the standing water problem cannot be corrected by proper grading, temporary drainage ditches will be constructed to drain off the standing water. Intermediately covered areas or other areas that discharge to the stormwater management system and which exhibit significant erosion will be repaired as follows:

- If greater than 50 percent of the soil cover material has eroded, the area will be repaired within 7 days.
- If waste or liner is exposed, the area will be repaired by the end of the next working day.

K.8 LEACHATE MANAGEMENT

Please see the current LMP.

K.9 GAS MONITORING AND MANAGEMENT PROGRAM

K.9.a Gas Monitoring

SWMG personnel shall monitor and record landfill gas (LFG) readings quarterly at the perimeter LFG monitoring wells and in the Administration, LTRF, and Maintenance buildings. The locations of the existing LFG monitoring points are included in Appendix F and are summarized in Table K.9.a.1. The ambient air and areas with slab penetration (areas with plumbing for water and drains) will be monitored inside these structures. The monitoring will be conducted for the Lower Explosive Limit (LEL) of methane using a GEM-500 Infrared Landfill Gas Analyzer (or equivalent). The probes will not be purged. Once the GEM is connected to the sampling port, the valve will be opened and the GEM pump will be started. The GEM reading will be observed and the value will be recorded.

When personnel must enter confined spaces or areas where dangerous gases may be present, the SWMG will follow the requirements in the “Code of Federal Regulations Title 29, Part 1910.146 OSHA” and the safety guidelines outlined in “A Compilation of Landfill Gas and Field Practices and Procedures” prepared by the SWANA Landfill Gas Division Health and Safety Task Force.

If methane is detected in concentrations greater than the regulatory limit (100 percent of the lower explosive limit at the property boundary or 25 percent of the lower explosive limit within structures), the SWMG will evaluate potential measures to correct the exceedances. If an unacceptable concentration of methane is detected in a monitoring location (i.e., a well or an on-site structure), the SWMG will immediately take appropriate actions to protect human health. The SWMG will notify FDEP and will re-monitor the location during each of the next 3 days. During this time the SWMG will evaluate potential causes of the exceedance and will implement procedures to remedy the situation if exceedances persist after the third day. Within 7 days of the initial exceedance, the SWMG will submit a remediation plan to FDEP in accordance with Rule 62-701.530(3)(a) FAC.

Table K.9.a.1 Landfill Gas Monitoring Points

I.D.	Probe/Building Location
LFG-1	Property boundary probe: South property boundary
LFG-2	Property boundary probe: Southwest property boundary
LFG-3	Property boundary probe: Northwest property boundary
LFG-4	Property boundary probe: North property boundary
SP-1	Scalehouse/Administration Building
SP-2	Scalehouse/Administration Building
SP-3	Scalehouse/Administration Building
SP-4	Scalehouse/Administration Building
SP-5	Scalehouse/Administration Building
SP-6	Scalehouse/Administration Building
SP-7	Scalehouse/Administration Building
SP-8	Scalehouse/Administration Building
SP-9	Maintenance Building
SP-10	Maintenance Building
SP-11	Maintenance Building
SP-12	Maintenance Building
SP-13	Leachate Treatment Facility Building
SP-14	Leachate Treatment Facility Building
SP-15	Leachate Treatment Facility Building

As described in Part K.7, the SWMG has a program for the placement of cover, which is effective for controlling disease, vectors, objectionable odors, and litter. No objectionable odors have been detected or reported by adjacent property owners. At least quarterly, or more frequently if necessary, qualified personnel from the SWMG will assess the presence of ambient objectionable odors at the perimeter monitoring points shown in Appendix F. If objectionable odors are detected at the property line, the SWMG will implement an odor-monitoring program as required by Rule 62-701.530(3)(b) FAC.

K.9.b Landfill Gas Collection System

The design of the Landfill Gas (LFG) collection system and the subsequent operation is in accordance with the federal New Source Performance Standards (NSPS) for municipal solid waste landfills (Subpart WWW) and Subpart AAAA of the National Emission Standards for Hazardous Air Pollutants (NESHAP), which dictates the operational procedures for the gas collection and control (GCCS).

Landfill gas that is generated in the landfill is currently collected by the system GCCS in Phases I-VI and Sections 7, 8, and 9. Permit No. 35435-016-SC/08 details the requirements of the GCCS. The SCLF continues to remain in compliance with the GCCS operation and Title V permit requirements. The repairs and upgrades to the GCCS in the area of the former sinkhole have been completed and were designed to provide landfill gas collection and extraction per the pre-sinkhole conditions and in accordance with the previously permitted GCCS design intent.

The facility maintains all operational and manufacturer procedural documentation for the blower, flare, control devices, and LFG system components on site in the "LFG Specialties User Manual for Utility Flare System Unit 2162", dated September 2009.

For additional information on the GCCS operating and maintenance procedures and safety protocols, refer to the GCCS Design Plan, the Startup, Shutdown and Malfunction Report (SSM), and current Title V Air Operation Permit.

K.10 STORMWATER-MANAGEMNET SYSTEM

K.10.a Leachate Reduction

K.10.a.1 Stormwater Diversion

K.10.a.1.1 Site Stormwater System

The stormwater system was designed to transport the maximum expected flows from a 24-hour, 25-year rainfall event and minimize the collection of standing water within the disposal areas. To efficiently collect and transport the stormwater runoff away from the disposal areas, the stormwater system will be maintained in good condition, with the proper slopes and free from obstructions. Erosion control measures and corrective action are described in Part K.7.k of the Operation Plan. In addition, the design maintains conformance with the site's Southwest Florida Water Management District (SWFWMD) Stormwater Permit (a copy was submitted in Volume 3 of the Construction Permit Application for the Capacity Expansion Area, Section 7, September 2002). The major stormwater component designs and operations are as follows:

- Interior Stormwater Separation berms are generally designed to be 3 feet high and 3 feet wide across the top with sideslopes of 3H:1V. The separation berms divide the contributing runoff areas to facilitate the collection and handling of stormwater as well as providing separation from leachate.

- Sideslope swales were designed to convey stormwater flow from the sideslopes to the downchutes as shown on the drawings. Sideslope swales will be constructed where needed and as shown on the sequence drawings provided separately with the Phases I-VI and Capacity Expansion Area (Sections 7, 8, and 9).

- Downchutes constructed on the side slopes of the landfill will transport stormwater flow to the perimeter stormwater ditches.

- The perimeter stormwater ditches collect surface water runoff around the site, prevent offsite drainage from entering the landfill area, and drain runoff to the appropriate stormwater ponds and sedimentation basins located around the site.

K.10.a.1.2 Phases I-VI

The Phases I-VI stormwater collection system directs stormwater runoff from the landfill and surrounding sub-shed areas and into stormwater sedimentation basins and detention ponds. The sedimentation basins are designated A-2, A-3, B, C, 2, 3, 4, and 8. The ponds are designated as Ponds A-1, B, C, D, and E, and an evaporation area. As the Phase I-VI areas are filled with waste,

daily and intermediate cover (clean fill) is applied over the waste which promotes drainage away from the waste material. This minimizes the amount of water that is allowed to infiltrate into the waste. Stormwater that comes in contact with the waste in the active working area is considered leachate and will not be allowed to run off into the stormwater management system. The size of the working area will be kept to a minimum to minimize leachate and berms around the working area will separate stormwater from leachate. The runoff will be directed toward downchutes that will be conveyed to one of the basins.

K.10.a.1.3 **Capacity Expansion Area**

The CEA stormwater collection system directs stormwater runoff from the landfill and surrounding sub-shed areas and into the existing stormwater sedimentation basins and detention ponds. The receiving basins are designated as Sed C and Seds 2, 3, 4, and 8, which flow into Ponds C and D, respectively. As the CEA, currently Sections 7, 8 and 9, is filled with waste, it will then be covered with daily and intermediate cover (clean fill) to allow drainage away from the waste. This minimizes the amount of water that is allowed to infiltrate into the waste. Stormwater that comes in contact with the waste (now considered leachate) in the active working area will not be allowed to run off into the stormwater management system. The size of the working area will be kept to a minimum to minimize leachate. Berms around the working area will separate stormwater from leachate. The runoff will be directed toward downchutes and transported via stormwater ditches to Sed C and Pond C. The undeveloped areas of the CEA will collect and drain stormwater runoff to sedimentation basin D (Sed D) and Pond D.

K.10.a.1.4 **Stormwater Management System Improvements**

Improvements to the Stormwater management System (SWMS) at the SCLF were completed in March 2012, see figure in Appendix H. Improvements to the existing SWMS as part of the Stormwater Improvements Project consisted of the following:

1. Conversion of dry retention Basins A, B and C from underdrain systems to wet detention systems (Basin C was converted from dry retention with underdrain system to wet detention system as part of Section 9 construction in April 2008).
2. Restructuring of evaporation areas located north of the scale house and WMIF's maintenance building to increase attenuation with a wet pool design. New Ponds A-1, A-2 and A-3, and existing Basins F and G are interconnected and function as one system that ultimately discharges through modified control structures in Pond B. New Ponds A-2 and A-3 increase retention times of runoff from Phases I-VI with treatment provided in Pond B.
3. Sedimentation ponds between Phases I-VI and the CEA, SED-2, SED-3, SED-4 and SED-8, were constructed provide additional settling areas and reduce sediment transport into Basin D. These sedimentation swales and ponds provide some treatment, but most of the treatment will continue to be provided by the existing Basin D.

K.10.a.1.5 **Other Site Stormwater Basins**

Several other basins located around the site collect stormwater runoff; however, they do not collect runoff from disposal areas. The other basins are mentioned in this plan for informational purposes. Basins E, F and G collect runoff from the scalehouse. Stormwater Detention Basin H collects runoff from the LTRF.

K.10.a.2 Rain Tarps

Rain tarps will be used to cover open areas (areas that have not received waste material yet but are connected to the leachate collection system) to keep stormwater out of the leachate collection system. Water that has collected on top of the rain tarp is considered stormwater and can be pumped to the appropriate stormwater basin that was designed for that area. Before placement of waste, all rain tarps will be removed.

K.10.a.3 Stabilized Slopes

As filling progresses, the top and side slopes that will not receive additional solid waste for 2 or more months will be stabilized. First, compacted fill will be placed over the waste material to keep stormwater from infiltrating into the waste and to promote runoff. The slopes can then be stabilized with vegetative cover, seed, and mulch, or rain tarp covers. Exterior side slopes that are constructed to design grade and interior side slopes that will not receive waste for longer than 180 days will be covered with intermediate cover and either vegetative cover or hydroseed.

K.10.a.4 Closure

As disposal areas reach final elevations as discussed in Part K.7.h, areas may have a final or temporary final cover placed over the waste material that will provide a low permeability cover over the waste and thus minimize long-term infiltration of stormwater into the waste materials as described in Section K.7.h.(1). As stormwater infiltration is cut off, water within the waste will drain to the leachate collection system within the lined area of the landfill. Since infiltration of stormwater will be minimal, the amount of leachate resulting from stormwater infiltration will reduce over time.

The methods described above represent the current plan; however, as operations continue, they may be modified if alternate methods prove more efficient or allow a higher percentage of stormwater runoff, thus resulting in greater leachate minimization.

K.11 EQUIPMENT AND OPERATION

Landfill operation was discussed in Part K.2.

K.11.a Operating Equipment

The landfill is typically operated with the following on-site equipment:

- Steel-wheeled compactors.
- Bulldozers.
- Articulated dump truck.
- Water tank truck.
- Motor grader.
- Excavator.

- Several pickup trucks.
- Other miscellaneous construction and maintenance equipment.

Where appropriate, equipment is fitted with safety cabs and fire extinguishers. The Contractor is required to have back-up equipment available within 24 hours.

K.11.a.1 Equipment Care

Routine preventive maintenance minimizes equipment downtime and increases equipment service life. Therefore, the appropriate operation and maintenance (owner's) manual should be consulted. However, applicable maintenance activities implemented at the site include:

- A routine inspection program;
- Routine lubrication; and,
- Maintenance records up-keep.

Minimal equipment washing using low-volume, high-pressure technique may be performed on lined areas of the landfill that do not have intermediate or final cover. The activity is exempt from industrial wastewater permitting since the wash water is collected by the leachate collection system. Washing will occur within, or adjacent to, the active working face. Runoff will be contained within the limits of the lined landfill and not allowed to comingle with stormwater runoff.

K.11.b Reserve Equipment

Sufficient backup equipment will be provided on site for equipment breakdowns and downtime for normal routine equipment maintenance. Pre-arrangements with contractors and rental equipment dealers will be made to furnish equipment on short notice in the case of a major equipment failure. The Reserve Equipment Agreement is presented in Appendix B.

K.11.c Communications Equipment and Personnel Facilities

Telephones are located at the Administrative and Maintenance Buildings for use in emergencies. Cellular telephones and two-way radios are also used. The Administration Building is equipped with water supply, toilet facilities, emergency first-aid supplies, and electricity. The building also provides shelter for employees in case of inclement weather. The Maintenance Building is equipped with spare parts, tools, equipment, and electrical services for operations and repair.

K.11.d Dust Control

K.11.d.1 Phases I-VI

Dust control outside of the landfill will be provided by applying water sprayed from a water tank truck and will be applied to the unpaved access roads as required to control dust generation. Dust control inside of the landfill will be provided by applying small quantities of leachate as described in Section 8.4 of the LMP.

K.11.d.2 Capacity Expansion Area

Dust control outside of the landfill will be provided by applying water sprayed from a water tank truck and will be applied to the unpaved access roads as required to control dust.

Dust control inside the active waste disposal areas will be provided by applying small quantities of leachate from a spray bar mounted on the rear of a tank truck. Leachate will be sprayed onto the active fill areas of the CEA, including the working face, which includes a berm to prevent runoff, and areas with the required 6 inches of initial cover as required to control dust.

Leachate used as dust control reduces the amount of fresh pond water that would otherwise be sprayed from tanker trucks to control dust on the active fill areas and provides for leachate evaporation. Leachate quantities used for dust control will continue to be reported in the leachate balance report submitted to the FDEP.

The SWMG will monitor the rate of application, soil moisture conditions, and the specific landfill areas used so that this leachate disposal method does not generate runoff. Spray bar leachate spraying will be applied under the following conditions:

- Leachate will only be sprayed on active-fill areas, including the working face that includes a berm to prevent runoff and areas with the required 6 inches of compacted initial cover.
- Leachate will not be sprayed on areas with intermediate or final cover, seeded or unseeded, or on areas that do not have a berm to prevent runoff.
- The maximum grade leachate will be sprayed on is 10H:1V slope. Areas within 150 feet of a 4H:1V or steeper sideslope will not be sprayed. Areas receiving leachate will be controlled at all times to prevent leachate runoff from entering the stormwater system.
- Leachate will not be sprayed during a rainfall event.
- The tank truck spray bar method maximizes evaporation. The application rate of leachate will be such that leachate does not accumulate on the landfill surface nor infiltrate quickly into the covered refuse. The main goal of this leachate disposal method is evaporation rather than recirculation of leachate.
- Leachate will not be sprayed at the end of the day on the initial cover of the working face or other areas. Spraying should be done early in the morning after any dew evaporates and continue until early afternoon or until all available areas have been used.

K.11.e Fire Protection and Chemical Fires

A charged fire extinguisher is kept at the scalehouse, Administration Building, Maintenance Building, and with all landfill equipment all times. Excavated soil will be used for fire control at the working face.

If a load of waste delivered to the site is smoking or on fire, landfill personnel direct the load to the "hot spot" area (an area within the landfill footprint with at least 12 inches of soil cover) where appropriate fire fighting procedures are followed.

Water for fire protection will be supplied from the fire hydrant and intake structure located east of Phase II. A second fire hydrant and intake structure is located south of the LTRF. If there is a small

fire at the working face, waste handling will continue on an alternate working face until the fire is suppressed. If a fire cannot be controlled using materials and personnel already on site, the Fire Department will be immediately contacted and the emergency response plan described in Part K.2.b will be followed. See Part K.2.b for spills and containment of contaminated water such as from fire fighting.

No chemicals will be accepted at the landfill. All waste coming through the scale house will be observed to eliminate unwanted chemicals capable of starting a fire. If a chemical accident does occur, the following steps will be taken:

- Call the local Fire Department (911).
- Contain the fire in a small area until Fire Department arrives. To eliminate inhalation of potentially toxic fumes, fight fire from the upwind side.

K.11.f Litter Control Devices

See Part K.7.j of this Operation Plan.

K.11.g Signs

A sign indicating the hours of operation is located at the Facility entrance. Signs indicating the name of the operating authority, charges for disposal, and identifying the asbestos disposal site are located near the scalehouse area. Traffic flow and speed limit signs are located at various points along the landfill access road.

K.12 ALL-WEATHER ACCESS ROAD

The access roadway enters the site from CR 672. An asphalt paved road travels north from CR 672 and turns east into the Facility. The access road location was selected to minimize impacts to residential and agricultural areas along CR 672. There is a gate on the access roadway at CR 672 and fencing to prevent unauthorized access.

The main access road is a 40-foot-wide roadway with a 24-foot-wide asphalt paved section and 8-foot-wide shoulders constructed within the 100-foot-wide right-of-way. The main access road is paved and extends into the Facility through the property entrance, runs along the south side of the site, and turns north along the east side of the Facility area.

Other on-site roadways will be required on a temporary and permanent basis to serve the borrow area and for maintenance and services of on-site facilities. A stockpile of materials to construct and maintain all-weather roads to the active working face is available on site.

K.13 ADDITIONAL RECORDKEEPING

Operation records, such as permits, plans, inspections and others, are maintained at the Facility and at the SWMG office. The active area of Phases I-VI will be surveyed monthly and the active area of the CEA will be surveyed twice each year to calculate the volume used and to estimate the in-place density.

K.13.a Permit Application Development

The SWMG keeps all information including site investigations, construction records, operation records, inspections, and permits.

K.13.b Monitoring Information Records

The SWMG also keeps all monitoring records on groundwater, surface water, weather, and landfill gas. Copies are regularly submitted to the FDEP and the Environmental Protection Commission of Hillsborough County.

K.13.c Remaining Site Life Estimates

An estimate of the remaining site life for the permitted area will be prepared annually for submission to the FDEP.

K.13.d Archiving and Retrieving Records

Records of the landfill that are more than 3 years old will be available at the Facility.

Appendix A

Training Courses

Updated 4/3/2013

CEUS Currently Approved by the Florida SWMTC for 1/2013-12/2015 for Solid Waste Operators/Spotter

http://landfill.treeo.ufl.edu/Courses.aspx

Course #	Course Title	Course Provider	Landfill	Construction & Demolition Debris	Transfer Station	Materials Recovery Facility	Spotter	
203	8-Hour Initial Training Course for Spotters at Class I,II,III Facilities, Waste Processing Facilities, and C&D Sites	Kohl Consulting, Inc.	8	8	8	8	8	Initial
214	Spotter Training Plan for Land Clearing Debris Site	Wetland Solutions	8	8	8	8	8	Initial
219	8 Hour Initial Training for Spotter	Consolidated Resource Recovery, Inc.	8	8	8	8	8	Initial *Restricted*
248	Spotter Training for Solid Waste Facilities	University of Florida TREEO Center	8	8	8	8	8	Initial
442	24-Hour Initial Training Course for Landfill Operators of Class I, Class II, Class III, and C&D Sites	UF TREEO	16	16	8	8	4	Initial
443	16-Hour Initial Training Course for Operators of Transfer Stations and Material Recovery Facilities	UF TREEO	12	12	8	8	4	Initial
444	SWANA-Transfer Station Design & Operations	SWANA	8	8	8	0	8	Initial
462	8-hour Training Course for Spotters at Landfills, C&D Sites and Transfer Stations	UF TREEO	8	8	8	8	8	Initial
488	8-Hour Spotter Training Class I II III Landfill C&D Sites and Transfer Facilities	Safety Consulting and Training	8	8	8	8	8	Initial
582	16-Hour Initial Traiing Course for Transfer Station and MRF Operators	Kohl Consulting Inc	10	10	8	8	4	Initial
608	24-Hour Initial Training Course for Landfill Operators (Class I III and C&D Sites)	Kohl Consulting, Inc.	16	16	8	8	4	Initial
598	SWANA - Manager of Landfill Operations [MOLO] & Exam	SWANA	16	16	8	8	4	Initial
706	The SWM Combo Class: 24-Hour Initial Trainig Coruse for Landfill Opertors (Class I, II, III and C&D Sites) with 16-Hour Initial MRF/TS Opertor Class and 8-Hour Spotter Class [Initial Only]	Kohl Consulting Inc.	24	24	16	16	8	Initial
700	Construction and Demolition Debris Recycling and Management Workshop	FDEP & SWIX	4	4	4	4	4	
701	SWANA-FL 2012 Summer Conference	SWANA-FL	8	8	4	4	4	
702	2012 NAHMMA Florida Chapter HHW/SQG Workshop and General Session	NAHMMA-Florida Chapter	4	4	4	4	2	
703	16-hour Landfill Operator Refresher Course	Kohl Consulting Inc	16	16				
704	SWANA - WasteCon 2013	SWANA	8	8	7	5	2	
705	The Nitty Gritty of Native Bvegetation on Landfills - eCourse	SWANA	1	1				
706	The SWM Combo Class: 24-Hour Initial Trainig Coruse for Landfill Opertors (Class I, II, III and C&D Sites) with 16-Hour Initial MRF/TS Opertor Class and 8-Hour Spotter Class [Initial Only]	Kohl Consulting Inc.	24	24	16	16	8	
707	OSHA 1910.120 HazWoper Refresher	Burt McKee	4	4	4	4	4	
708	Train-the-Trainer: How to Design & Deliver Effective Training	University of Florida TREEO Center	7	7	7	7	2	
709	Fundamentals of Slope Stability and Settlement for Solid Waste Disposal Facilities	University of Florida TREEO Center	16	16				
710	Basic Water and Wastewater Pump Maintenance	University of Florida TREEO Center	4	4				
711	Pumping Systems Operation and Maintenance	University of Florida TREEO Center	4	4				
712	Basic Electricity for the Non Electrician	American Trainco	2	2	2	2		
713	24-hour HAZWOPER OSHA Training course - online	University of South Florida - OSHA Training Institute	6	6	6	6	3	
714	8-hour HAZWOPER Refresher Training course - Online	Safety Unlimited Inc	4	4	4	4	4	

Course #	Course Title	Course Provider	Landfill	Construction & Demolition Debris	Transfer Station	Materials Recovery Facility	Spotter	
715	8-hour HazWoper Refresher - Operations Level	American Compliance Technologies	4	4	4	4	4	
716	8-hr Hazwoper OSHA Refresher	FDEP	4	4	4	4	4	
717	4-hour OSHA Hazardous Materials Awareness Level Course	Local Environmental Planning Council - District 5 and Citrus County Solid Waste Dept	4	4	4	4	4	
718	4-Hour Refresher Course for Spotters at Landfills, C&D Sites and Transfer Stations	University of Florida TREEO Center	4	4	4	4	4	
719	Waste Screening Refresher	University of Florida TREEO Center	4	4	4	4	4	
720	Hazardous Waste Regulations in Solid Waste Operations and Recycling	University of Florida TREEO Center	8	8	8	8	4	
721	Hazardous Waste Regulations in Solid Waste Operations	University of Florida TREEO Center	4	4	4	4	4	
722	Health and Safety for Solid Waste Workers [am]	University of Florida TREEO Center	4	4	4	4	4	
723	Health and Safety for Solid Waste Workers [pm]	University of Florida TREEO Center	4	4	4	4	4	
724	Health and Safety for Solid Waste Workers [am+pm]	University of Florida TREEO Center	4	4	4	4	4	
725	Solid Waste Workplace Health and Safety Trianing - 4 hours	University of Florida TREEO Center	4	4	4	4	4	
726	IS-00340 Hazardous Materials Management	FEMA Emergency Management Institute	4	4	4	4	4	
727	Is-271.a Anticipating Hazardous Weather & Community Risk, 2nd Edition	FEMA Emergency Management Institute	2	2				
728	Managing Composting Operations	Solid Waste Association of North America [SWANA]	16	16				
729	Personal Protection Equipment (PPE) and Safety Procedures	University of Florida TREEO Center	4	4	4	4	4	
730	Heavy Equipment Safety	University of Florida TREEO Center	4	4	4	4	4	
731	Supervisor Safety Training for Solid Waste Operations Staff	University of Florida TREEO Center	4	4	4	4	4	
732	Permit Required Confined Space Awareness	University of Florida TREEO Center	4	4	4	4	4	
733	8-hour OSHA HazWoper Annual Refresher	University of Florida TREEO Center	4	4	4	4	4	
734	40-Hour OSHA HAZWOPER Training Course	University of Florida TREEO Center	8	8	8	8	4	
735	Hazardous Waste Regulations for Generators	University of Florida TREEO Center	4	4	4	4	4	
736	Exposure to Blooborne and Airborne Pathogens	University of Florida TREEO Center	6	6	6	6	4	
737	Bird and Wildlife Management for Ultiliites	University of Florida TREEO Center	4	4	4	4	2	
738	Beyond 40% - Florida's Pathway to Sustainability"	Solid Waste Association of North America [SWANA] + Recycle Florida Today [RFT]	6	6	6	6	2	
739	Getting Back to Basics with Landfill Gas	University of Florida TREEO Center	8	8			4	
740	Is-632.s Introduction to Debris Operation	Emergency Management Institute	2	2	2	2	2	
741	SI:300 Introduction to Air Pollution Toxicology (1994)	US EPA Air Pollution Training Institute (APTI)	4	4	4	4		
742	4-Hour Spotter Refresher Course for Spotters at Solid Waste Management Facilities in Florida	Kohl Consulting Inc	4	4	4	4	4	
743	Health & Safety Issues for Solid Waste Management Facilities	Kohl Consulting Inc.	8	8	8	8	4	

Course #	Course Title	Course Provider	Landfill	Construction & Demolition Debris	Transfer Station	Materials Recovery Facility	Spotter	
744	The Sense of Smell, Odor, Theory and Odor Control	Kohl Consulting Inc.	4	4	4	4	2	
745	Spotters at Landfills and Transfer Stations: Safety Awareness Review	Kohl Consulting Inc.	4	4	4	4	4	
746	Landfill and Transfer Station Operators: Waste Acceptability and Safety Issues Review	Kohl Consulting Inc.	4	4	4	4	4	
747	Improving Landfill Operations	Kohl Consulting Inc.	4	4				
748	Fires at Landfills and Other Solid Waste Management Facilities	Kohl Consulting Inc.	4	4	4	4	4	
749	Improving Transfer Station Efficiency	Kohl Consulting Inc.			4	4		
750	Landfill Gas Collection and Re-Use	Kohl Consulting Inc.	4	4				
751	Landfills: Past, Present and Future	Kohl Consulting Inc.	4	4			4	
752	Landfills and Transfer Stations: Past, Present and Future	Kohl Consulting Inc.	4	4	4		4	
753	Wet Weather Operations	Kohl Consulting Inc.	4	4	2	2	4	
754	Topics in Solid Waste Management for Landfill Operators, MRF Operators and Transfer Station Operators	Kohl Consulting Inc.	4	4	2	2	2	
755	Wildlife and Plants at Florida Solid Waste Management Facilities	Kohl Consulting Inc.	4	4	4	4	2	
756	Measurement and Improvement of Performance at Solid Waste Management Facilities ("If you Can't Measure it, You Can't Manage It")	Kohl Consulting Inc.	4	4	4	4		
757	CPR / AED	American Safety & Health Institute - American Health Association - American Red Cross	2	2	2	2	2	
758	First Aid	American Safety & Health Institute - American Health Association - American Red Cross	2	2	2	2	2	
759	Refresher Training Course for Experienced Solid Waste Operators - 16hrs	University of Florida TREEO Center	16	16				
760	Refresher Training Course for Experienced Solid Waste Operators - 8hrs	University of Florida TREEO Center	8	8	8	8		
761	Refresher Training Course for Experienced Solid Waste Operators - 4hrs	University of Florida TREEO Center	4	4	4	4	4	
762	U.S. DOT Hazardous Materials/Waste Transportation	University of Florida TREEO Center	6	6	6	6	4	
763	OSHA 10-hour General Industry Safety Outreach Training	Training Consultants Inc.	4	4	4	4	4	
764	NAHMMA 2013 Florida Chapter Annual Conference – General Sessions	North American Hazardous Materials Management Association	10	10	8	8	4	
765	Road-e-o: Heavy Equipment Safety Training	SWANA-FL	4	4	4	4	2	
766	North American Waste-To-Energy Conference NAWTEC 21st Annual	SWANA	4	4		4		
767	Food Waste Recycling Workshop	SWIX & FDEP	5		3		2	
768	Florida Stormwater, Erosion, and Sedimentation Control Inspector Training and Certification Program	FDEP	3	3				

Appendix B

Reserve Equipment Agreement

Ring Power Corporation
10421 Fern Hill Drive
Riverview, FL 33578

Waste Management Inc. /Southeast Landfill
P.O. Box 627
Balm, FL 33503
Location: Hillsborough County Landfill

2/21/2013

Rental Rates effective through 12/31/13
Waste Management is responsible for maintenance and all damages to rental equipment.
Equipment rental is subject to availability.
Transportation cost quoted upon request.

Make	Model	Description	Day Rate	Week Rate	Month Rate	Cleaning Fee
CAT	D8T	Dozer(w/o waste handling arrangement)	$1,900.00	$5,800.00	$16,400.00	$ 2,400.00
CAT	D6T	Dozer(w/o waste handling arrangement)	$1,100.00	$3,300.00	$ 9,100.00	
CAT	D6N	Dozer(w/o waste handling arrangement)	$ 900.00	$2,700.00	$ 7,400.00	
CAT	D5K	Dozer(w/o waste handling arrangement)	$ 620.00	$1,760.00	$ 5,040.00	
CAT	725	Articulated dump truck 18.8 cyd capacity	$1,100.00	$3,200.00	$ 8,700.00	
CAT	329EL	Hydraulic Excavator 2.5 cyd bucket capacity	$ 900.00	$2,600.00	$ 6,900.00	
CAT	613	Scraper 11 cyd bowl capacity	$1,100.00	$3,200.00	$ 8,700.00	
CAT	12M	Motor Grader 14' mold board	$ 800.00	$2,300.00	$ 6,000.00	
CAT	938K	Wheel Loader 3.05 cyd bucket capacity	$ 700.00	$2,000.00	$ 5,000.00	
CAT	416E	Loader Backhoe	$ 200.00	$ 500.00	$ 1,500.00	
CAT	CS56	Single Drum Roller 84" wide drum	$ 500.00	$1,400.00	$ 3,400.00	

*Plus tax & Insurance

Ring Power guarantees Waste Management a suitable rental machine delivered to Hillsborough County Landfill within 24 hours of their request.

Appendix C

Random Inspection and Violation Report

SOLID WASTE FACILITY INSPECTION / VIOLATION REPORT

REPORT TYPE: ☐ INSPECTION ☐ VIOLATION ☐ LF RANDOM INSPECTION

LOCATION: _____ DATE: _____ TIME: _____

DELIVERING COMPANY: FRANCHISE COLLECTOR: ☐ WMI ☐ EB ☐ KR
OTHER: _____

DRIVER NAME: _____ VEHICLE #: _____

VEHICLE TYPE ☐ FEL ☐ RO ☐ RL ☐ SL ☐ SEMI ☐ DUMP
OTHER: _____

CUSTOMER / GENERATOR: _____ TRANSACTION #: _____

TYPE OF WASTE:

☐ YARD WASTE	☐ INDUSTRIAL	☐ AUTO PARTS	☐ BY PASS WASTE
☐ C & DD	☐ INSULATION	☐ ASH RESIDUE	☐ ANIMAL WASTE
☐ FURNITURE	☐ AG WASTE	☐ ROOFING	☐ SPECIAL WASTE
☐ CARDBOARD	☐ FIELD PLASTIC	☐ METALS	
☐ COMMERCIAL WASTE	☐ HOUSEHOLD GARBAGE		
☐ OTHER: _____			

TYPE OF VIOLATION: ☐ FACILITY ☐ LOAD ☐ SAFETY ☐ CONTAINER

DETAILS: _____

DRIVER COMMENTS: _____

RESULTS: ☐ ACCEPTED ☐ REJECTED ☐ RELOAD ☐ ALREADY IN PIT

INSPECTOR'S SIGNATURE: _____

ADDITIONAL COMMENTS: _____

inspect White Copy: Customer Yellow Copy: Inspector Pink Copy: Office

Appendix D

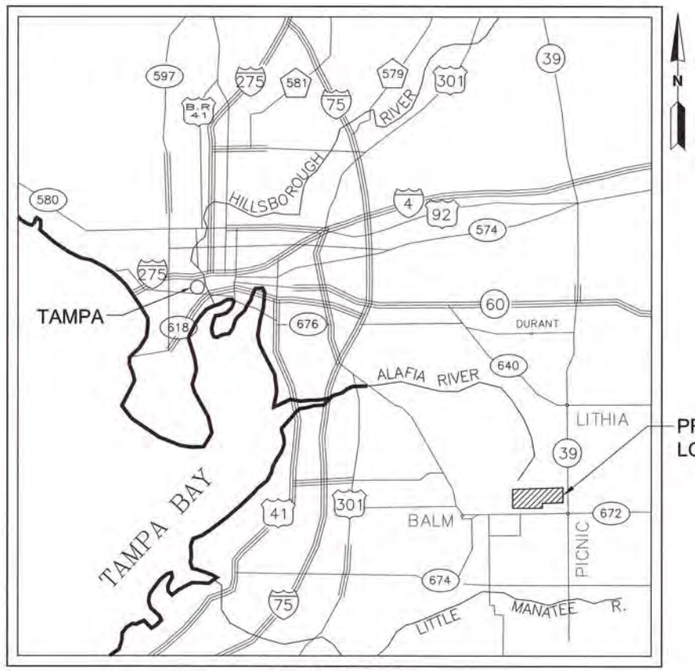
Not Used

Appendix E

Phases I-VI and Capacity Expansion Area Fill Sequencing Plans

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY

TAMPA, FLORIDA
APRIL 2017



PROJECT LOCATION

LOCATION MAP
NOT TO SCALE

INDEX OF DRAWINGS

SHEET	SHEET TITLE
1	COVER SHEET
2	INDEX, LEGENDS AND GENERAL NOTES
3	FACILITY SITE PLAN AND EXISTING TOPOGRAPHY
~~4~~	~~PHASES I TO IV - LIFTS 13 TO 16~~
4A	PHASES I - LIFT 13
4B	PHASES VI, IV, I - LIFT 16A
4C	PHASES IV, VI, V - LIFT 17A
~~5~~	~~PHASES V AND VI - LIFT 17~~
5A	PHASES I, III - LIFTS 14, 15
6	PHASES I TO IV - LIFTS 18 TO 21
7	PHASES V AND VI - LIFT 22
8	PHASES V AND VI - LIFT 23 (FINAL LIFT)
9	SINKHOLE REMEDIATION PLAN
10	LANDFILL CROSS SECTIONS
11	SINKHOLE REMEDIATION CROSS SECTION
12	DETAILS 1
13	DETAILS 2
14	DETAILS 3
15	DETAILS 4

Hillsborough County Florida

BOARD OF COUNTY COMMISSIONERS

SANDRA L. MURMAN	-	DISTRICT 1
VICTOR D. CRIST	-	DISTRICT 2
LESLEY MILLER, JR.	-	DISTRICT 3
STACY R. WHITE	-	DISTRICT 4
KEN HAGAN	-	DISTRICT 5
PAT KEMP	-	DISTRICT 6
AL HIGGINBOTHAM	-	DISTRICT 7

NOTE:

THIS UPDATE TO PHASE I-VI OPERATING SEQUENCE DRAWINGS INCLUDE MODIFICATIONS TO LIFT SEQUENCES 13 THROUGH 17; AS SUCH, SCS ENGINEERS IS ONLY SIGNING AND SEALING SHEETS 4A, 4B, 4C, AND 5A. THE REMAINING LIFT SEQUENCES 18 THROUGH 23 (FINAL LIFT) WILL CONTINUE IN ACCORDANCE WITH THE CURRENTLY FDEP APPROVED OPERATING SEQUENCE DRAWINGS, DATED JUNE 2013, PREPARED, SIGNED AND SEALED BY HDR ENGINEERING, INC.

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS, INC.
4041 PARK OAKS BLVD., SUITE 100
TAMPA, FLORIDA 33610
PH. (813) 621-0080 FAX. (813) 623-6757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892
WWW.SCSENGINEERS.COM

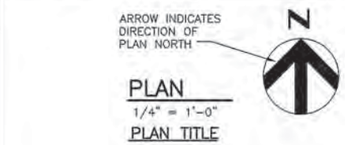
SCS PROJECT NO. 09215600.03

ROBERT B. CURTIS, P.E.
LICENSE NO. 73758

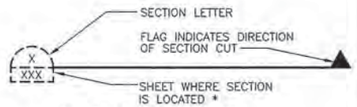
ENGINEERING SYMBOLOGY

9A	LIFT NUMBER
	DAILY PROGRESSION
	FILL PROGRESSION
	DRAINAGE FLOW DIRECTION
	APPROXIMATE PHASE FOOTPRINT
	APPROXIMATE LANDFILL LIMITS
	APPROXIMATE LIFT LIMITS
	APPROXIMATE LIMITS OF BORROW AREA
	APPROXIMATE TEMPORARY FINAL COVER AREA AFTER EACH LIFT
	EXISTING SWALE
	SIDESLOPE DITCH
140	EXISTING CONTOUR
140	PROPOSED CONTOUR
	PROPOSED DOWNCHUTE
BVC	BEGIN VERTICAL CURVE
CTRD	CENTERED
ERCP	ELLIPTICAL REINFORCED CONCRETE PIPE
EVC	END VERTICAL CURVE
150	EXIST. CONTOURS
EXP. JT.	EXPANSION JOINT
I.E.	INVERT ELEVATION
LF	LINEAR FEET
LT	LEFT
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVI	POINT OF VERTICAL INTERSECTION
RT	RIGHT
TYP.	TYPICAL
	VEGETATION
VC	VERTICAL CURVE
ø	DIAMETER
'	FOOT
"	INCH
A	CELL DESIGNATION
S-21	EXISTING DRAINAGE STRUCTURE
TS-4	TEMPORARY DRAINAGE STRUCTURE
	PROPERTY LINE
	STORMWATER STRUCTURE
CDW	DIRECTION OF CONDENSATE/ DEWATERING LIQUID FLOW
LFG	DIRECTION OF LANDFILL GAS FLOW (LFG)

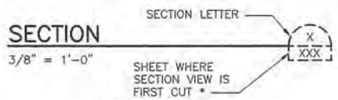
GENERAL SYMBOLOGY



PLAN TITLE



SECTION CUT MARKER



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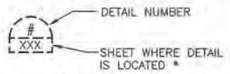
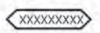


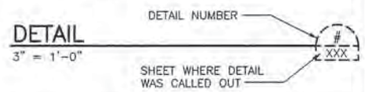
DETAIL MARKER

FOR REFERENCING DETAILS INCLUDED IN DRAWING SET.



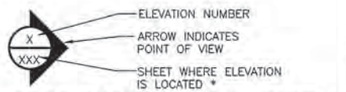
DETAIL MARKER

FOR REFERENCING DETAILS BOUND IN SPECIFICATIONS OR SEPARATE VOLUME.

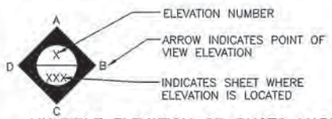


DETAIL TITLE

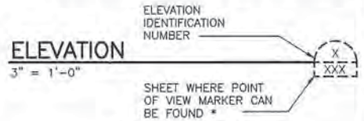
* FOR COMMON DETAILS AND SECTIONS OR DETAILS THAT ARE CUT OR CALLED OUT ON MULTIPLE SHEETS, THE SHEET NUMBER IS REPLACED BY A DASH (–).



SINGLE ELEVATION OR PHOTO MARKER



MULTIPLE ELEVATION OR PHOTO MARKER



ELEVATION TITLE

ABBREVIATIONS

APPROX – APPROXIMATE, APPROXIMATELY
BLDG – BUILDING
BTM – BOTTOM
CB – CATCH BASIN
CM – CONCRETE MONUMENT
CMP – CORRUGATED METAL PIPE
CONC – CONCRETE
CONT – CONTINUOUS
CORR – CORRUGATED
DET – DETAIL
DIA – DIAMETER
DIM – DIMENSION
DWG – DRAWING
EA – EACH
EOL – EDGE OF LINER
ETC – ET CETERA
ENCL – ENCLOSE, ENCLOSURE
EL – ELEVATION
EQUIP – EQUIPMENT
EXIST – EXISTING
FDEP – FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
FDOT – FLORIDA DEPARTMENT OF TRANSPORTATION
FES – FLARED END SECTION
FIN – FINISHED
FM – FORCE MAIN
GALV – GALVANIZED
GCL – GEOSYNTHETIC CLAY LINER
GFFR – GROUT FILLED FIBER REVETMENT
GR – GRADE
GDL – GEOSYNTHETIC DRAINAGE LINER
GM – GAS MONITORING LOCATION
GP – GAS PROBE
HCSWMG – HILLSBOROUGH COUNTY SOLID WASTE MANAGEMENT GROUP
HDPE – HIGH DENSITY POLYETHYLENE
HP – HIGH POINT
ID – INSIDE DIAMETER
IE – INVERT ELEVATION
LF – LINEAL FEET
LFG – LANDFILL GAS
LLDPE – LINEAR LOW DENSITY POLYETHYLENE
LP – LOW POINT
MES – MITRED END SECTION
MAX – MAXIMUM
MH – MANHOLE
MIN – MINIMUM
MISC – MISCELLANEOUS
MSL – (ABOVE) MEAN SEAL LEVEL
MT – MOUNT
MW – GROUNDWATER MONITORING WELL
N/A – NOT APPLICABLE
N/AVAIL – NOT AVAILABLE
NGVD – NATIONAL GEODETIC VERTICAL DATUM
NIC – NOT IN CONTRACT
No – NUMBER
NTS – NOT TO SCALE
OC – ON CENTER
OD – OUTSIDE DIAMETER
OSHA – OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
PLS – PROFESSIONAL LAND SURVEYOR
PS – PUMP STATION
R – RADIUS
RCP – REINFORCED CONCRETE PIPE
REF – REFERENCE
REQD – REQUIRED
SCH – SCHEDULE
SDR – STANDARD DIMENSION RATIO
SHT – SHEET
SIM – SIMILAR
SS – STAINLESS STEEL
STD – STANDARD
STL – STEEL
STW – STORMWATER MONITORING STATION
TPO – THERMOPLASTIC POLYOLEFIN
TYP – TYPICAL
USC&GS – UNITED STATES COASTAL AND GEODETIC SURVEY
USGS – UNITED STATES GEOLOGICAL SURVEY
WGT – WEIGHT
W.E. – WATER ELEVATION
WWTP – WASTE WATER TREATMENT PLANT

GENERAL NOTES

1. THE EXISTING TOPOGRAPHY, DATED 1/5/2013, WAS OBTAINED FROM DRAWINGS PROVIDED BY PICKETT & ASSOCIATES, INC.
2. THE PROPOSED OPERATING SEQUENCES (LIFTS 13 – 23) ARE BASED ON THE EXISTING TOPOGRAPHY SHOWN ON THE 1/5/2013 AERIAL SURVEY. ACTUAL OPERATING SEQUENCES MAY NEED TO BE MODIFIED IN THE FIELD TO ALLOW FOR LANDFILL SETTLEMENT. REVISED GRADES WILL BE DETERMINED BASED ON THE MAXIMUM DESIGNED 20–FOOT LIFT HEIGHT.
3. THE LANDFILL LINER AND EXISTING DRAINAGE STRUCTURES WERE SURVEYED BY WEIDENER SURVEY AND MAPPING PA ON 2/23/94.

Hillsborough County Florida

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096–193806–001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/3/13

ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

INDEX, LEGENDS AND GENERAL NOTES

0 1" 2"

FILENAME	00G–02.DWG
SCALE	AS SHOWN

DWG No. 2

C:\pwworking\tpa\d0457850\G02.dwg, 6/19/2013 1:13:46 PM

NOTE:
EXISTING TOPOGRAPHY FROM AERIAL PHOTOGRAPHY PROVIDED BY PICKETT AND ASSOCIATES, INC. DATED JANUARY 5, 2013.

Hillsborough County Florida

HDR
HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
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DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/7/13
ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE SOUTHEAST COUNTY LANDFILL HILLSBOROUGH COUNTY, FLORIDA

FACILITY SITE PLAN AND EXISTING TOPOGRAPHY

0 1" 2"

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SCALE	1" = 300'

DWG No. 3

C:\pwworking\tpa\d2445728\00C-03.dwg, 6/10/2013 1:14:51 PM

PROGRESSION:

1. BEGIN LIFT 13 FILL IN CELL "A", ON WEST SIDE OF PHASE I AND CONTINUE EASTERLY ACROSS PHASE I TO THE PHASE II BOUNDARY.
2. EXTEND DOWNCHUTES 1 AND 2 DURING PLACEMENT OF INTERMEDIATE COVER.

ROBERT B. CURRIS — No. 73758 — STATE OF FLORIDA — PROFESSIONAL ENGINEER
ROBERT B. CURRIS, P.E. LICENSE NO. 73758

REV	DATE	DESCRIPTION	CHK. BY
1	4/7/17	FDEP SUBMITTAL	RBC

SHEET TITLE: PHASE I - LIFT 13

PROJECT TITLE: SOUTHEAST COUNTY LANDFILL FILL SEQUENCE REVISION

CLIENT: HILLSBOROUGH COUNTY PUBLIC WORKS DEPARTMENT SOLID WASTE MANAGEMENT DIVISION TAMPA, FL 33619

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
4041 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610
PH. (813) 621-0080 FAX. (813) 623-6757
FL CERTIFICATE OF AUTHORIZATION NO. 00004892

PROJ. NO.	DWN. BY:	Q/A R/W BY:
09215600.03	RLC	RBC
SCALE: BY: CAR	CHK. BY: RBC	APP. BY: RBC

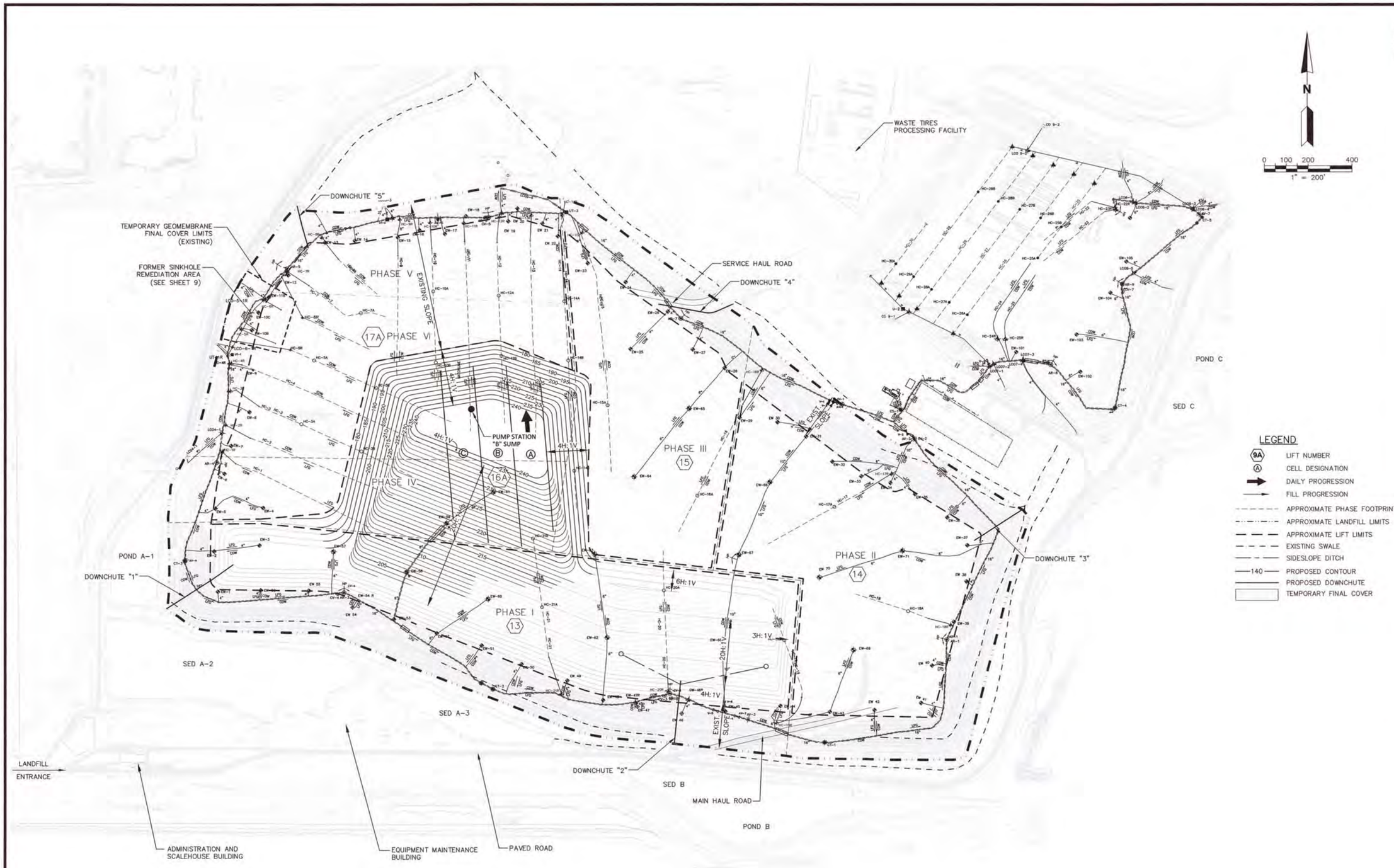
CADD FILE: 09215600.03 – C-4A

DATE: APRIL 2017

SCALE: AS SHOWN

DRAWING NO. 4A

SHEET 4A of 15



PROGRESSION:

BEGIN LIFT 16A FILL IN CELL "A", WEST SIDE OF PHASE III AND CONTINUE WEST-SOUTHWEST ACROSS PHASES VI, IV, AND I TO THE NORTHERN LIMIT OF LIFT 13.

ROBERT B. CURTIS LICENSE NO. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER

REV	DATE	DESCRIPTION	CHK. BY:
1	4/7/17	FDEP SUBMITTAL	RBC

SHEET TITLE: PHASE VI, IV, I - LIFT 16A

PROJECT TITLE: SOUTHEAST COUNTY LANDFILL FILL SEQUENCE REVISION

CLIENT: HILLSBOROUGH COUNTY PUBLIC WORKS DEPARTMENT SOLID WASTE MANAGEMENT DIVISION TAMPA, FL 33619

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
4041 PARK OAKS BLVD., SUITE 510, TAMPA, FL 33610
PH. (813) 621-0080 FAX. (813) 623-6757
FL CERTIFICATE OF AUTHORIZATION NO. 00004892

PROJ. NO.	DWN. BY:	C/A'S RVW. BY:
09215600.03	RLC	RBC
DSN. BY: CAR	CHK. BY: RBC	APP. BY: RBC

CADD FILE: 09215600.03 - C-4B

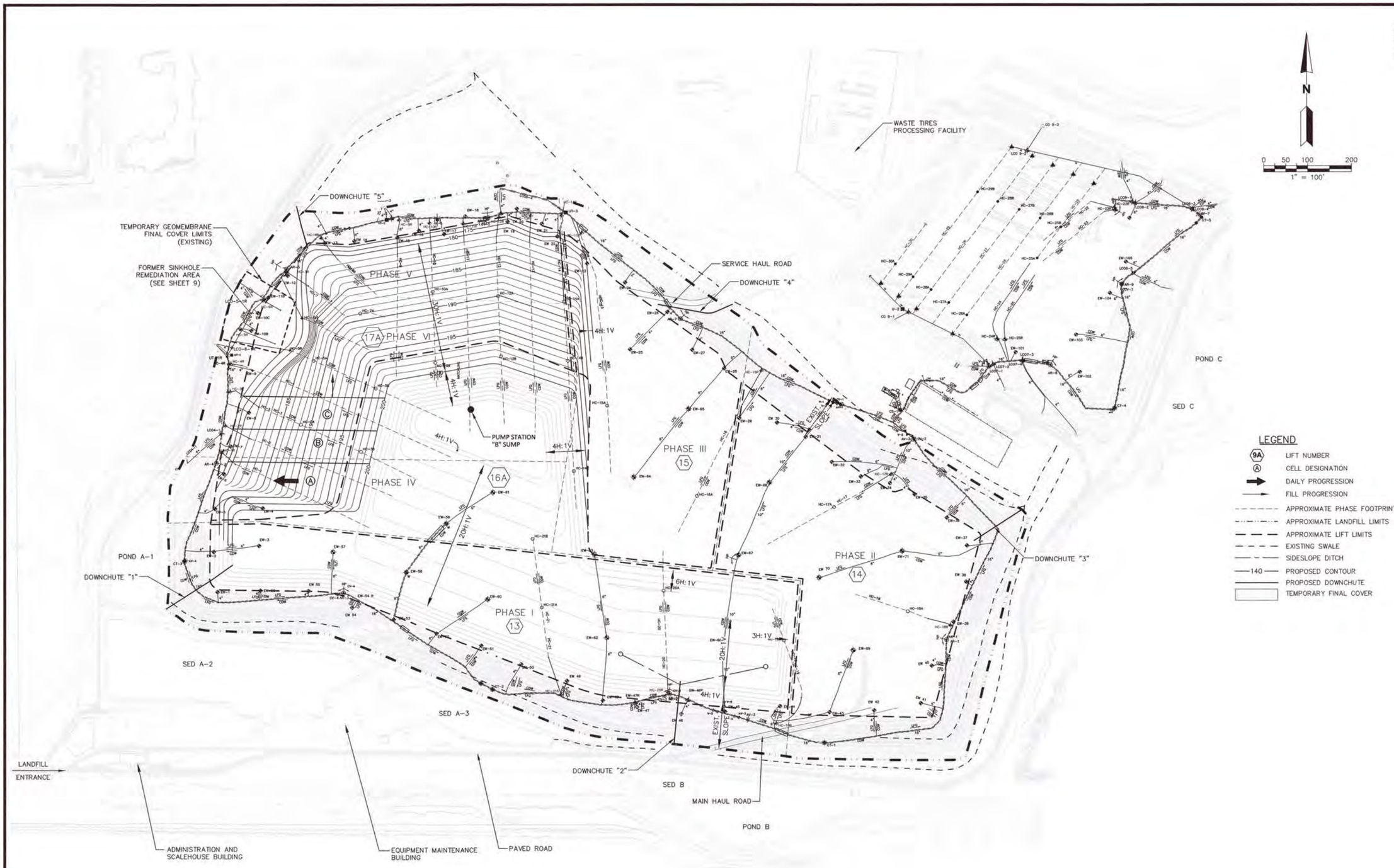
DATE: APRIL 2017

SCALE: AS SHOWN

DRAWING NO. 4B

SHEET 4B of 15

\\Tam-fs02\tampa\dwg\PROJECT\Hillsborough\09215600.03 - Solid Waste\Engineering Drawings\09215600.03 - C-4B.dwg Apr 07, 2017 - 9:51am Layout Name: Plot By: 3630rlc



PROGRESSION:

BEGIN LIFT 17A FILL IN CELL "A", NORTH SIDE OF PHASE I AND CONTINUE CLOCKWISE ACROSS PHASES IV, VI, AND V TO THE WESTERN LIMIT OF PHASE III.

ROBERT C. CURTIS * No. 73758 * STATE OF FLORIDA * PROFESSIONAL ENGINEER

ROBERT C. CURTIS, P.E. LICENSE NO. 73758

REV	DATE	DESCRIPTION	CHK BY
1	4/7/17	FDEP SUBMITTAL	RCC

SHEET TITLE: PHASE IV, VI, V - LIFT 17A

PROJECT TITLE: SOUTHEAST COUNTY LANDFILL FILL SEQUENCE REVISION

CLIENT: HILLSBOROUGH COUNTY PUBLIC WORKS DEPARTMENT SOLID WASTE MANAGEMENT DIVISION TAMPA, FL 33619

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
4041 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610
PH. (813) 621-0080 FAX. (813) 623-6757
FL CERTIFICATE OF AUTHORIZATION NO. 00004892

PROJ. NO.	DWN. BY:	C/A RVW BY:
09215600.03	RLC	RBC
DWG. NO.	CHK. BY:	APP. BY:
09215600.03 - C-4C	RBC	RBC
DATE	CAR	
APRIL 2017		

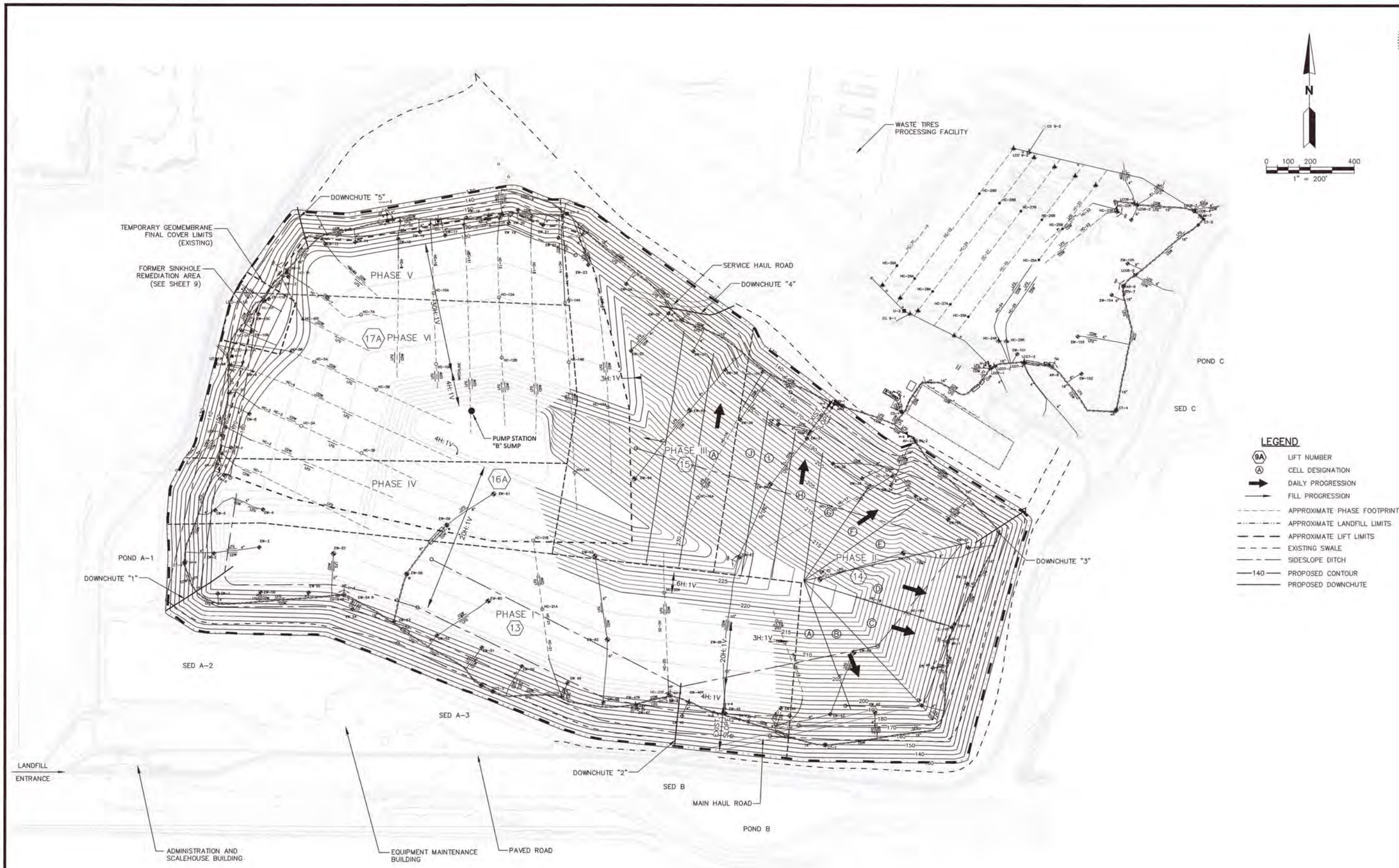
CADD FILE: 09215600.03 - C-4C

DATE: APRIL 2017

SCALE: AS SHOWN

DRAWING NO. 4C

SHEET 4C of 15



PROGRESSION:

BEGIN LIFT 14 FILL IN CELL "A", WEST SIDE OF PHASE II AND CONTINUE COUNTERCLOCKWISE TO THE PHASE III BOUNDARY. BEGIN LIFT 15 ON THE NORTHERN SIDE SLOPES AND PREPARE THE PHASE III SIDE SLOPES AND THE SERVICE LANE ROAD FOR CLOSURE. THEN CONTINUE LIFT 15 FILL IN CELL "A", EAST SIDE PHASE III AND CONTINUE WEST ACROSS PHASE III TO THE WEST SIDE OF PHASE III.

ROBERT L. CURTIS No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER

REV	DATE	DESCRIPTION	CHK BY
1	4/7/17	FDEP SUBMITTAL	RBC

ROBERT L. CURTIS, P.E.
LICENSE NO. 73758

SHEET TITLE
PHASES I, II, III - LIFTS 14, 15

PROJECT TITLE
SOUTHEAST COUNTY LANDFILL
FILL SEQUENCE REVISION

CLIENT
HILLSBOROUGH COUNTY
PUBLIC WORKS DEPARTMENT
SOLID WASTE MANAGEMENT DIVISION
TAMPA, FL 33619

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS, INC.
4041 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610
PH. (813) 621-0080 FAX. (813) 623-6775
FL. CERTIFICATE OF AUTHORIZATION NO. 00004892

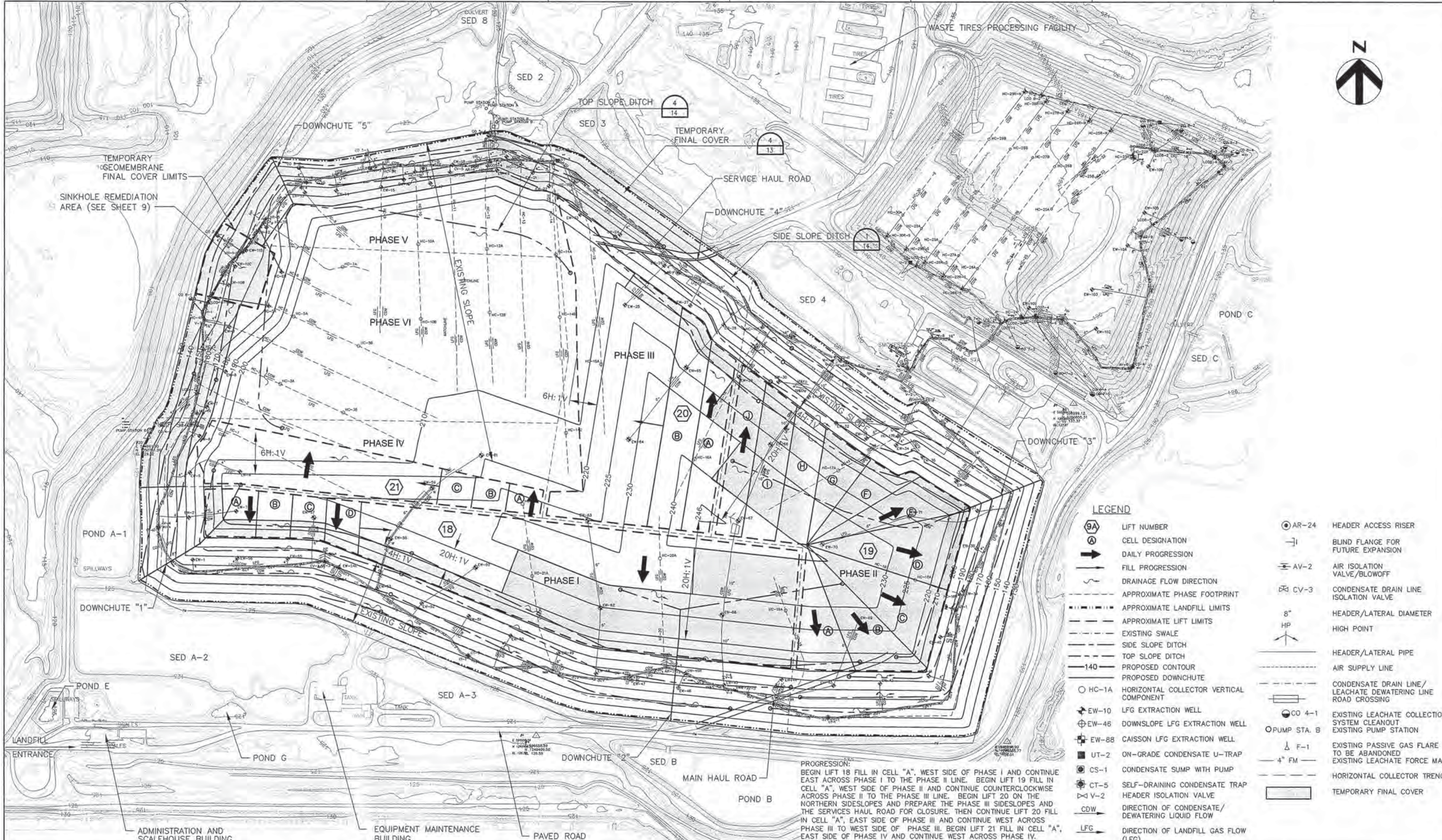
PROJ. NO.	DSN. BY	QA/CK BY
09215600.03	RLC	RBC
DSK. BY	DSK. BY	APP. BY
CAR	RBC	RBC

CADD FILE:
09215600.03 – C–5A

DATE:
APRIL 2017

SCALE:
AS SHOWN

DRAWING NO.
5A
SHEET **5A** of **15**



LEGEND

9A	LIFT NUMBER
A	CELL DESIGNATION
	DAILY PROGRESSION
	FILL PROGRESSION
	DRAINAGE FLOW DIRECTION
	APPROXIMATE PHASE FOOTPRINT
	APPROXIMATE LANDFILL LIMITS
	APPROXIMATE LIFT LIMITS
	EXISTING SWALE
	SIDE SLOPE DITCH
	TOP SLOPE DITCH
140	PROPOSED CONTOUR
	PROPOSED DOWNCHUTE
HC-1A	HORIZONTAL COLLECTOR VERTICAL COMPONENT
EW-10	LFG EXTRACTION WELL
EW-46	DOWNSLOPE LFG EXTRACTION WELL
EW-88	CAISSON LFG EXTRACTION WELL
UT-2	ON-GRADE CONDENSATE U-TRAP
CS-1	CONDENSATE SUMP WITH PUMP
CT-5	SELF-DRAINING CONDENSATE TRAP
V-2	HEADER ISOLATION VALVE
CDW	DIRECTION OF CONDENSATE/ DEWATERING LIQUID FLOW
LFG	DIRECTION OF LANDFILL GAS FLOW (LFG)
AR-24	HEADER ACCESS RISER
	BLIND FLANGE FOR FUTURE EXPANSION
AV-2	AIR ISOLATION VALVE/BLOWOFF
CV-3	CONDENSATE DRAIN LINE ISOLATION VALVE
8"	HEADER/LATERAL DIAMETER
HP	HIGH POINT
	HEADER/LATERAL PIPE
	AIR SUPPLY LINE
	CONDENSATE DRAIN LINE/ LEACHATE DEWATERING LINE
	ROAD CROSSING
CO 4-1	EXISTING LEACHATE COLLECTION SYSTEM CLEANOUT
PUMP STA. B	EXISTING PUMP STATION
F-1	EXISTING PASSIVE GAS FLARE TO BE ABANDONED
4" FM	EXISTING LEACHATE FORCE MAIN
	HORIZONTAL COLLECTOR TRENCH
	TEMPORARY FINAL COVER

PROGRESSION:
BEGIN LIFT 18 FILL IN CELL "A", WEST SIDE OF PHASE I AND CONTINUE EAST ACROSS PHASE I TO THE PHASE II LINE. BEGIN LIFT 19 FILL IN CELL "A", WEST SIDE OF PHASE II AND CONTINUE COUNTERCLOCKWISE ACROSS PHASE II TO THE PHASE III LINE. BEGIN LIFT 20 ON THE NORTHERN SIDESLOPES AND PREPARE THE PHASE III SIDESLOPES AND THE SERVICES HAUL ROAD FOR CLOSURE. THEN CONTINUE LIFT 20 FILL IN CELL "A", EAST SIDE OF PHASE III AND CONTINUE WEST ACROSS PHASE III TO WEST SIDE OF PHASE III. BEGIN LIFT 21 FILL IN CELL "A", EAST SIDE OF PHASE IV AND CONTINUE WEST ACROSS PHASE IV.

Hillsborough County Florida

HDR

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

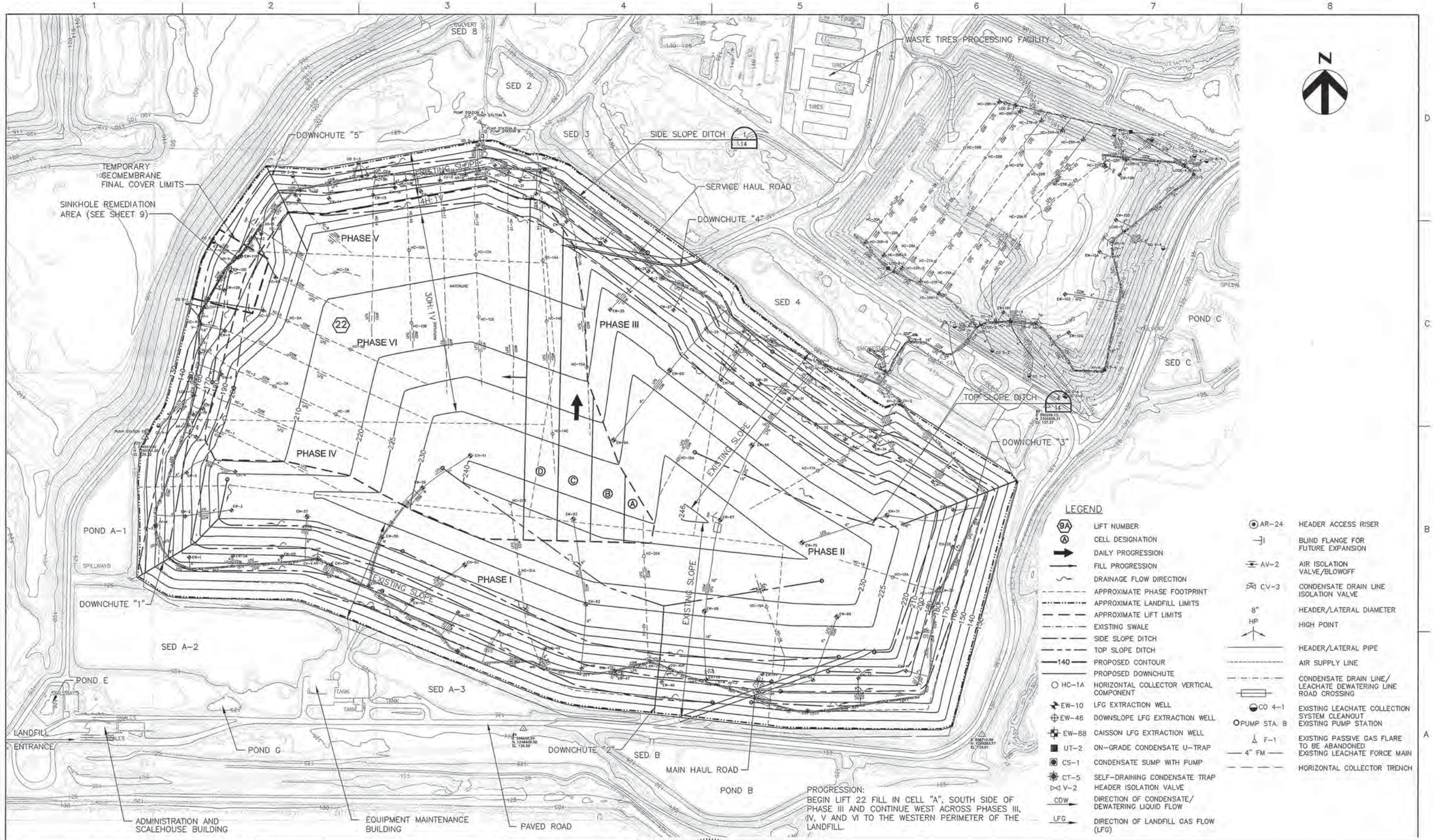
ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER
6/7/13
ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

PHASES I TO IV - LIFTS 18 TO 21

0 1" 2"

FILENAME	00C-06.DWG	DWG No. 6
SCALE	1"=200'	



PROGRESSION:
BEGIN LIFT 22 FILL IN CELL "A", SOUTH SIDE OF PHASE III AND CONTINUE WEST ACROSS PHASES III, IV, V AND VI TO THE WESTERN PERIMETER OF THE LANDFILL.

LEGEND

- 9A — LIFT NUMBER
- A — CELL DESIGNATION
- DAILY PROGRESSION
- FILL PROGRESSION
- DRAINAGE FLOW DIRECTION
- APPROXIMATE PHASE FOOTPRINT
- APPROXIMATE LANDFILL LIMITS
- APPROXIMATE LIFT LIMITS
- EXISTING SWALE
- SIDE SLOPE DITCH
- TOP SLOPE DITCH
- 140 — PROPOSED CONTOUR
- PROPOSED DOWNCHUTE
- HC-1A — HORIZONTAL COLLECTOR VERTICAL COMPONENT
- EW-10 — LFG EXTRACTION WELL
- EW-46 — DOWNSLOPE LFG EXTRACTION WELL
- EW-88 — CAISSON LFG EXTRACTION WELL
- UT-2 — ON-GRADE CONDENSATE U-TRAP
- CS-1 — CONDENSATE SUMP WITH PUMP
- CT-5 — SELF-DRAINING CONDENSATE TRAP
- V-2 — HEADER ISOLATION VALVE
- CDW — DIRECTION OF CONDENSATE/ DEWATERING LIQUID FLOW
- LFG — DIRECTION OF LANDFILL GAS FLOW (LFG)
- AR-24 — HEADER ACCESS RISER
- BLIND FLANGE FOR FUTURE EXPANSION
- AV-2 — AIR ISOLATION VALVE/BLOWOFF
- CV-3 — CONDENSATE DRAIN LINE ISOLATION VALVE
- 8" — HEADER/LATERAL DIAMETER
- HP — HIGH POINT
- HEADER/LATERAL PIPE
- AIR SUPPLY LINE
- CONDENSATE DRAIN LINE/ LEACHATE DEWATERING LINE ROAD CROSSING
- CO 4-1 — EXISTING LEACHATE COLLECTION SYSTEM CLEANOUT
- PUMP STA. B — EXISTING PUMP STATION
- F-1 — EXISTING PASSIVE GAS FLARE TO BE ABANDONED
- 4" FM — EXISTING LEACHATE FORCE MAIN
- HORIZONTAL COLLECTOR TRENCH

Hillsborough County Florida

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER
6/7/13
ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE SOUTHEAST COUNTY LANDFILL HILLSBOROUGH COUNTY, FLORIDA

PHASES V AND VI - LIFT 22

0 1" 2"

FILENAME	00C-07.DWG
SCALE	1"=200'

DWG No. 7

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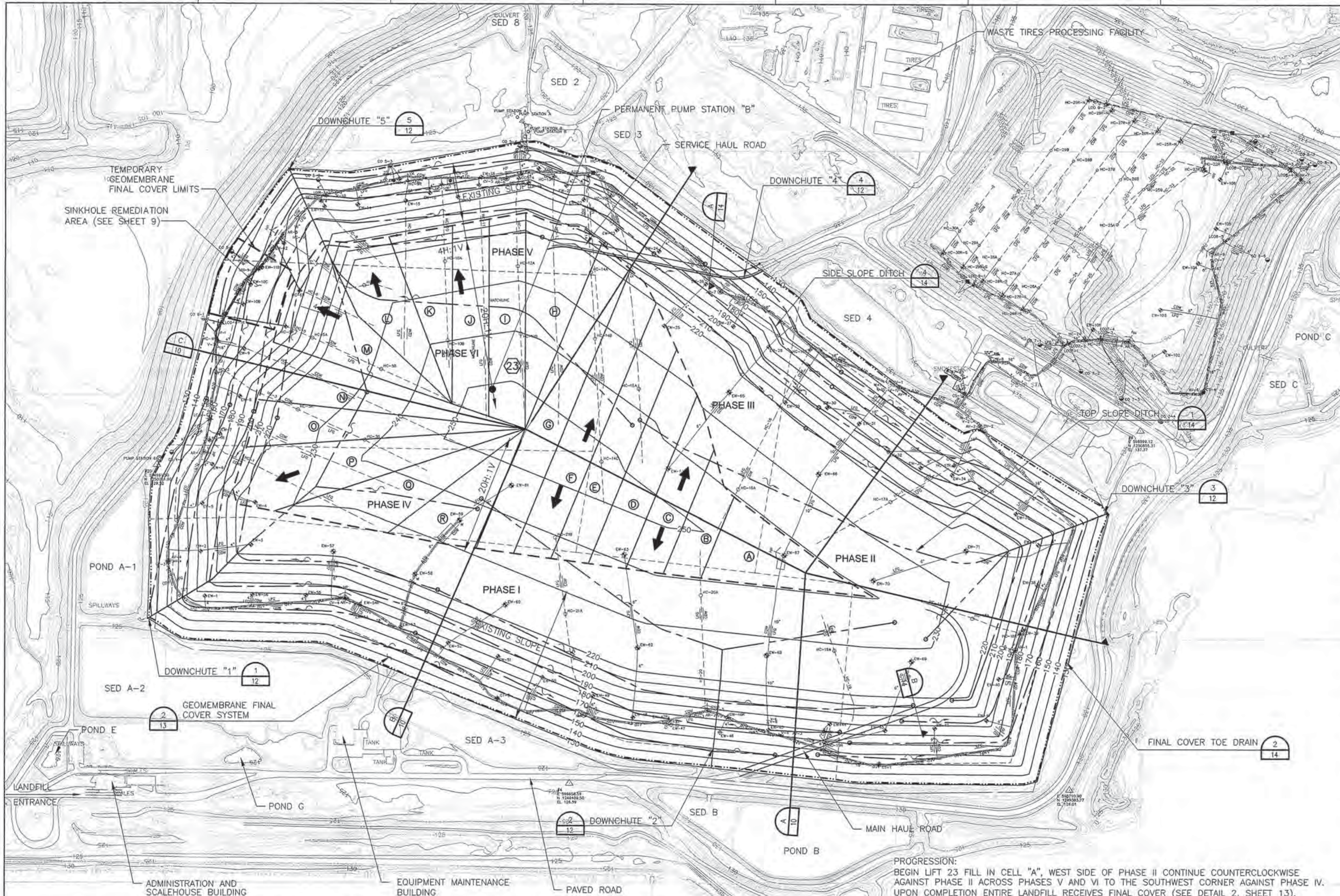

N

LEGEND

- LIFT NUMBER
- CELL DESIGNATION
- DAILY PROGRESSION
- FILL PROGRESSION
- DRAINAGE FLOW DIRECTION
- APPROXIMATE PHASE FOOTPRINT
- APPROXIMATE LANDFILL LIMITS
- APPROXIMATE LIFT LIMITS
- EXISTING SWALE
- SIDE SLOPE DITCH
- TOP SLOPE DITCH
- 140 PROPOSED CONTOUR
- PROPOSED DOWNCHUTE
- EW-10 LFG EXTRACTION WELL
- EW-46 DOWNSLOPE LFG EXTRACTION WELL
- EW-88 CAISSON LFG EXTRACTION WELL
- UT-2 ON-GRADE CONDENSATE U-TRAP
- CS-1 CONDENSATE SUMP WITH PUMP
- CT-5 SELF-DRAINING CONDENSATE TRAP
- AR-24 HEADER ACCESS RISER
- HEADER/LATERAL PIPE
- AIR SUPPLY LINE
- CONDENSATE DRAIN LINE/LEACHATE DEWATERING LINE
- CO 4-1 EXISTING LEACHATE COLLECTION SYSTEM CLEANOUT
- 4" FM EXISTING LEACHATE FORCE MAIN
- CDW DIRECTION OF CONDENSATE /DEWATERING LIQUID FLOW
- LFG DIRECTION OF LANDFILL GAS FLOW (LFG)

PROGRESSION:
BEGIN LIFT 23 FILL IN CELL "A", WEST SIDE OF PHASE II CONTINUE COUNTERCLOCKWISE AGAINST PHASE II ACROSS PHASES V AND VI TO THE SOUTHWEST CORNER AGAINST PHASE IV. UPON COMPLETION ENTIRE LANDFILL RECEIVES FINAL COVER (SEE DETAIL 2, SHEET 13).

Hillsborough County Florida

HDR
HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758
6/7/13

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

PHASES V AND VI - LIFT 23 (FINAL LIFT)

FILENAME	00C-08.DWG	DWG No.	8
SCALE	1"=200'		

N

LIMITS OF FINAL COVER			
DESCRIPTION	NORTHING	EASTING	ELEVATION
W1	1,251,380.1	595,181.34	129.32
W2	1,251,332.6	595,169.56	129.21
W3	1,251,312.3	595,247.07	142.69
W4	1,251,291.4	595,336.55	158.01
W5	1,251,265.5	595,442.88	162.72
W6	1,251,385.8	595,481.43	162.31
W7	1,251,505.8	595,517.36	162.22
W8	1,251,545.4	595,453.35	159.23
W9	1,251,597.7	595,367.51	145.05
W10	1,251,642.4	595,291.38	126.82
W11	1,251,548.6	595,233.61	128.73
W12	1,251,484.4	595,207.36	129.31

LEGEND:

(W1) (W2) WOODEN MARKER POST (LOCATIONS ON TABLE THIS SHEET)

——TD—— TOE DRAIN

— — 155 — — EXISTING CONTOUR

——155—— PROPOSED CONTOUR

NOTES:
1. EXISTING TOPOGRAPHY PROVIDED BY PICKETT AND ASSOCIATES, INC. FROM AERIAL PHOTOGRAPHY DATED JANUARY 5, 2013.
2. LFG SYSTEM NOT SHOWN FOR CLARITY OF DRAWING.
3. EXISTING STORMWATER PIPES TO BE RELOCATED PER STORMWATER PLANS.

Hillsborough County Florida

HDR

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5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/7/13

ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

SINKHOLE REMEDIATION PLAN

0 1" 2"

FILENAME	00C-09.dwg
SCALE	1"=50'

DWG No. 9

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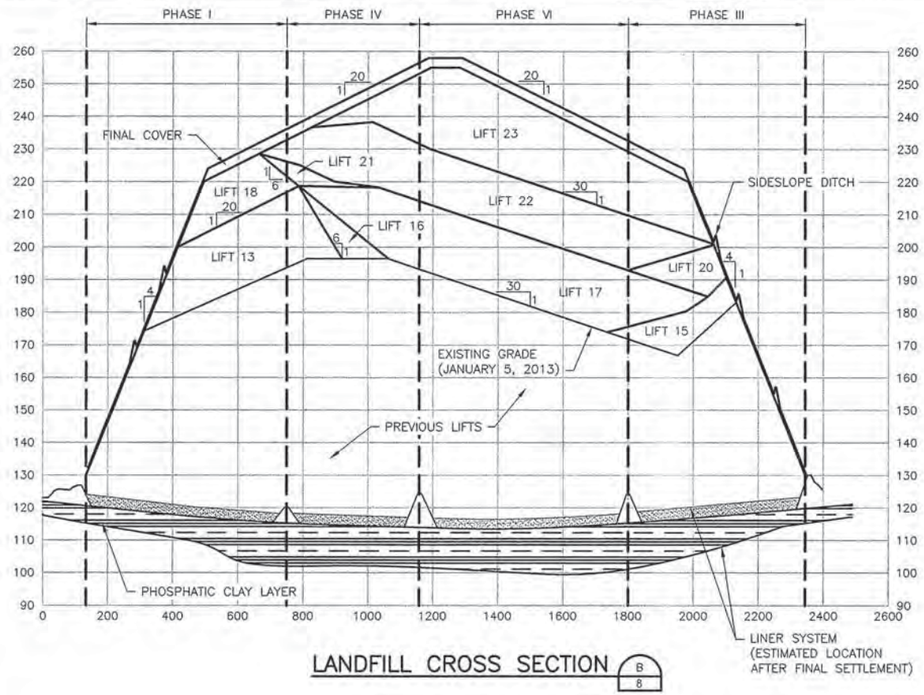
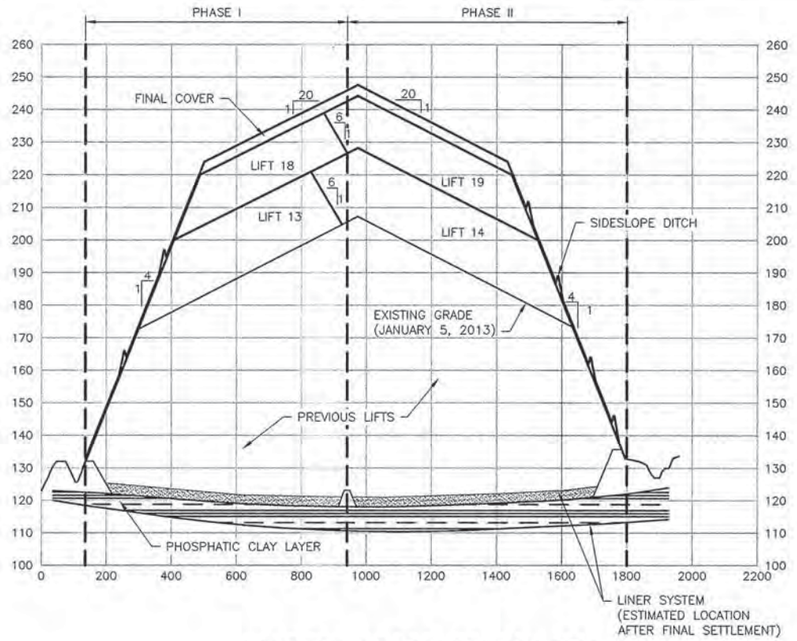
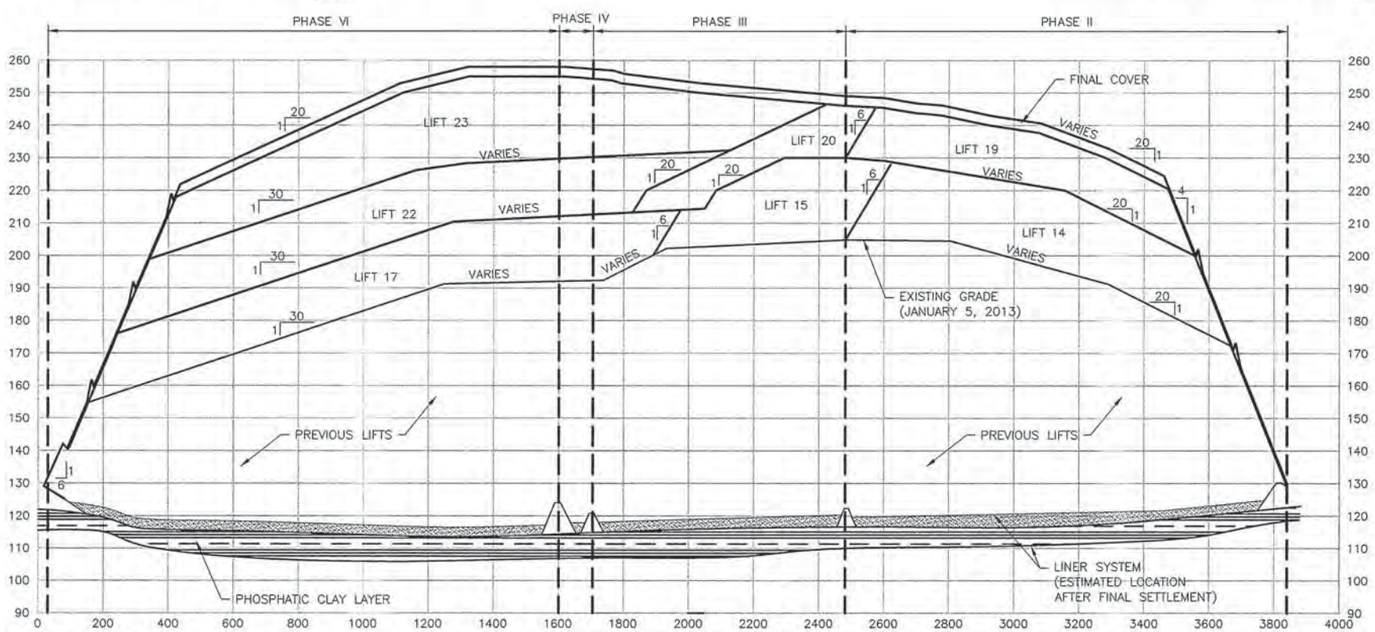


LANDFILL CROSS SECTION B/8



LANDFILL CROSS SECTION A/8



LANDFILL CROSS SECTION C/8

LEGEND:

LINER SYSTEM

PHOSPHATIC CLAY LAYER

NOTE:
SOME SLOPES AND LIFT SIZE VARY DUE TO SECTION CUT ORIENTATION. SEE SHEET C-08 FOR SECTION LOCATIONS.

Hillsborough County Florida

HDR

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/7/13

ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE SOUTHEAST COUNTY LANDFILL HILLSBOROUGH COUNTY, FLORIDA

LANDFILL CROSS SECTIONS

0 1" 2"

FILENAME	00C-10.DWG
SCALE	NOT TO SCALE

DWG No. 10

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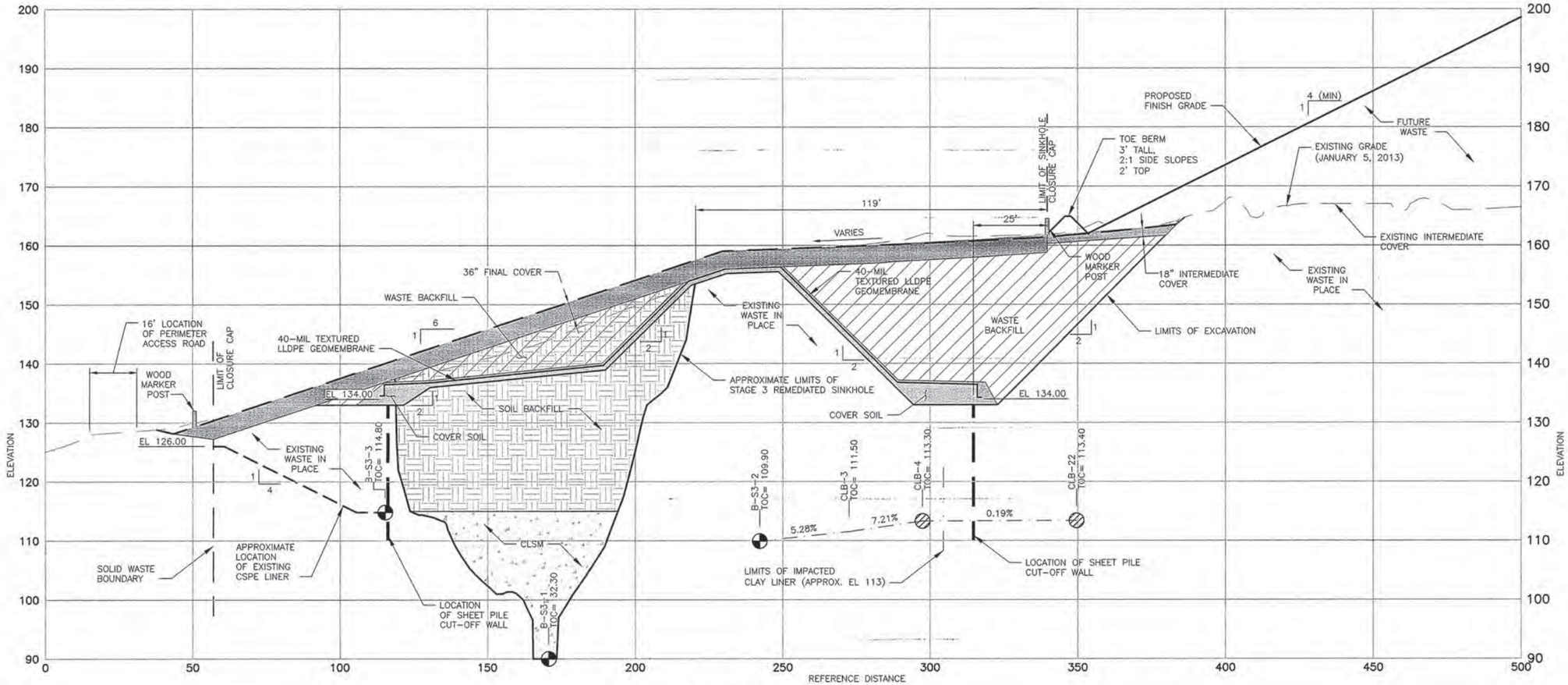

SECTION

SCALE: 1"=20' (HORIZONTAL)
1"=10' (VERTICAL)

LEGEND:

- GEOTECHNICAL BORING LOCATION (SDII)
- GEOTECHNICAL BORING LOCATION (TIERRA)
- TOC = TOP OF CLAY ELEVATION
- CLSM = CONTROLLED LOW STRENGTH MATERIAL

Hillsborough County Florida

HDR

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER
6/7/13
ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

SINKHOLE REMEDIATION CROSS SECTION

0 1" 2"

FILENAME	00C-11.DWG
SCALE	AS SHOWN

DWG No. 11

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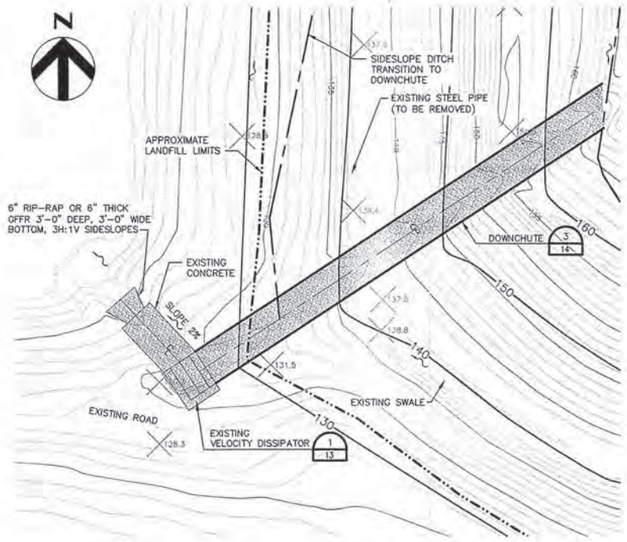
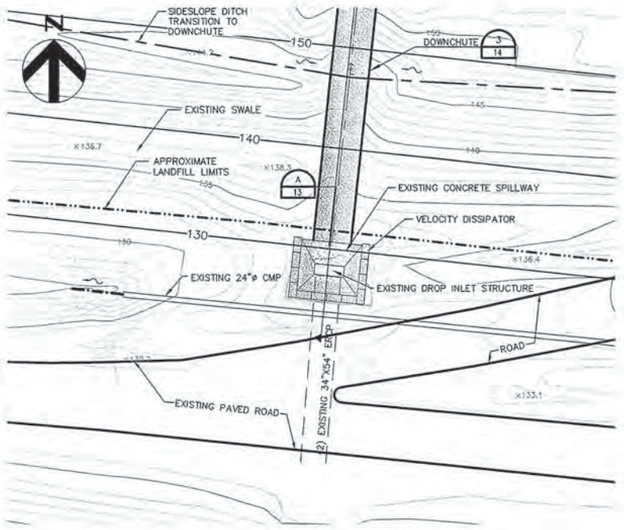
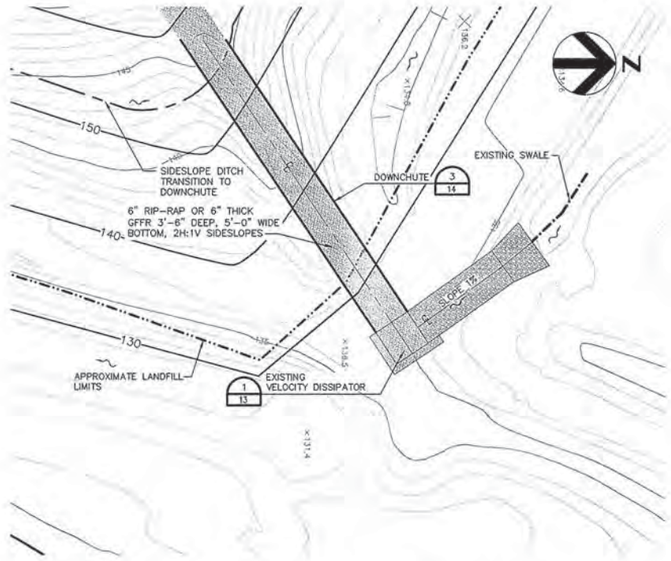


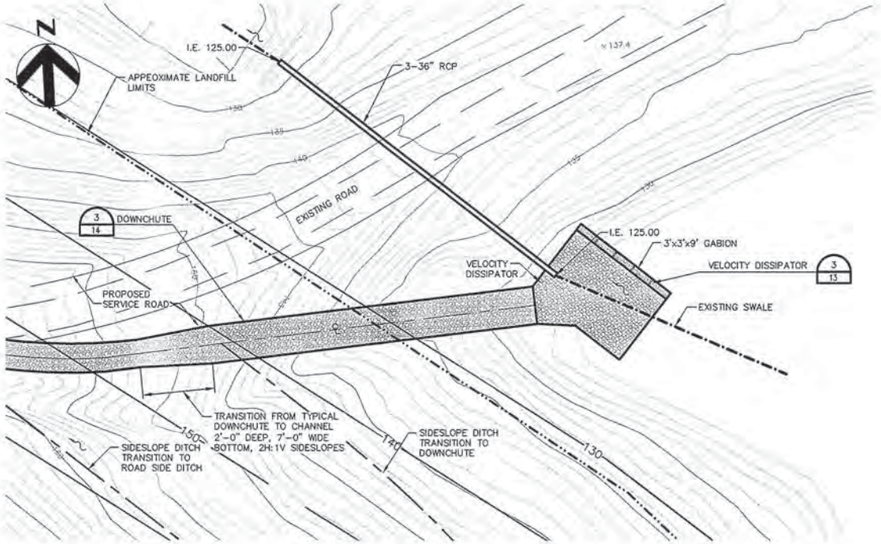
DOWNCHUTE "1" – PLAN DETAIL 1/8



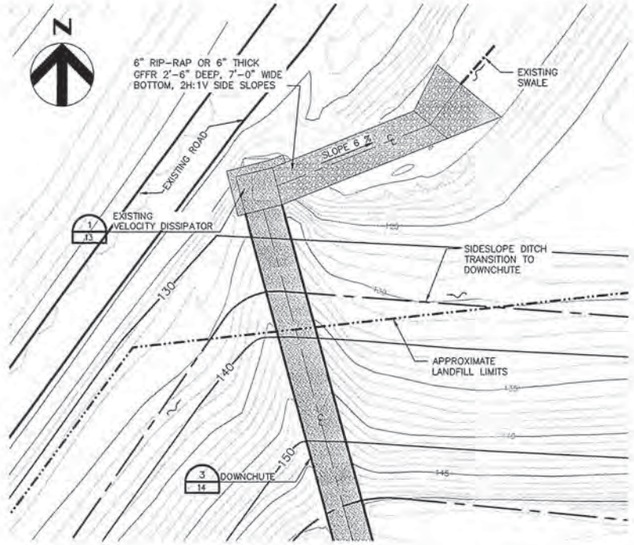
DOWNCHUTE "2" – PLAN DETAIL 2/8



DOWNCHUTE "3" – PLAN DETAIL 3/8



DOWNCHUTE "4" – PLAN DETAIL 4/8



DOWNCHUTE "5" – PLAN DETAIL 5/8

Hillsborough County Florida

HDR

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/27/13

ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

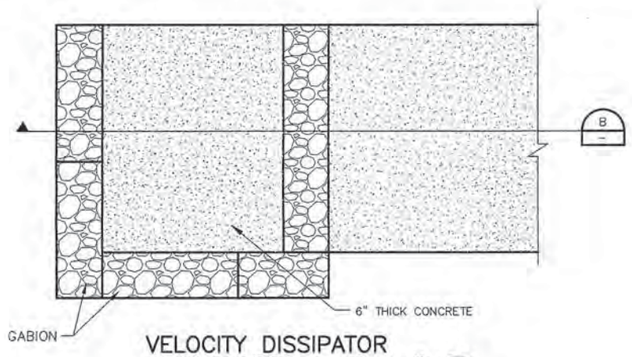
DETAILS 1

0 1" 2"

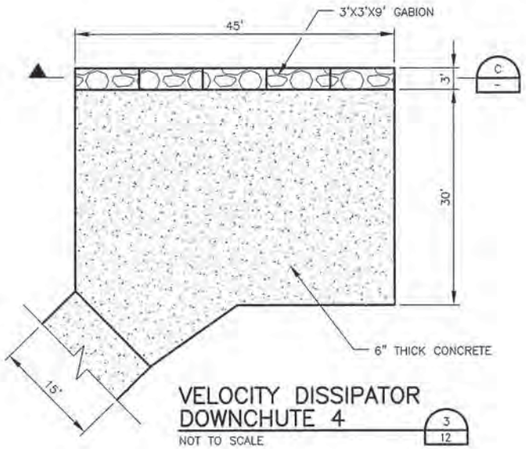
FILENAME	00C-12.DWG
SCALE	1"=30'

DWG No. **12**

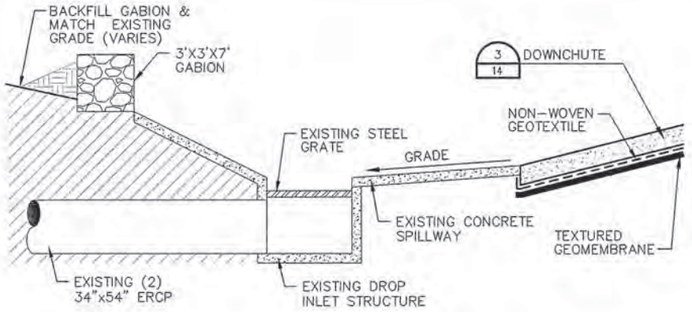
C:\pwworking\tpeb\d0445788\00C-12.dwg, 6/18/2013 1:31:21 PM



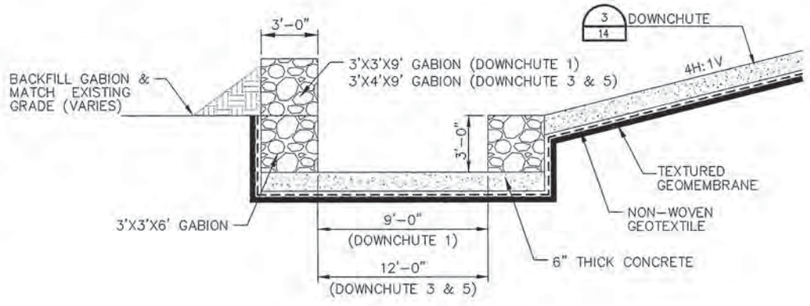
VELOCITY DISSIPATOR
DOWNCHUTES 1, 3 & 5 (1/12)
NOT TO SCALE



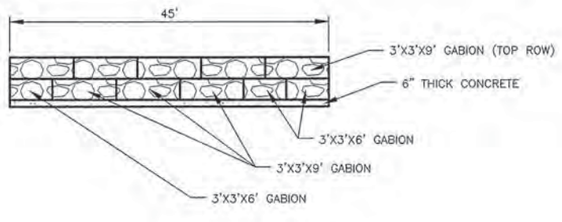
VELOCITY DISSIPATOR
DOWNCHUTE 4 (3/12)
NOT TO SCALE



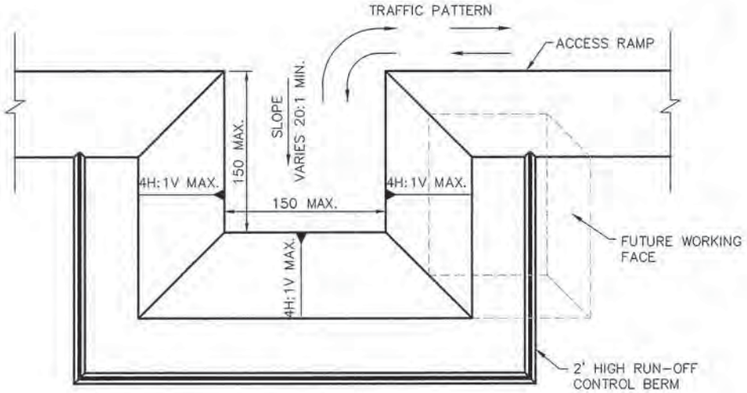
VELOCITY DISSIPATOR SECTION (A/12)
NOT TO SCALE



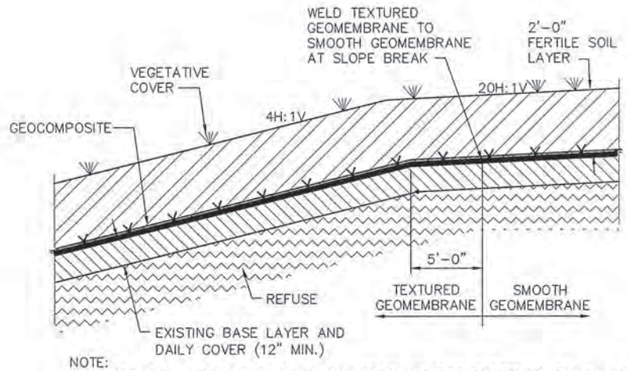
SECTION (B/-)
NOT TO SCALE



SECTION (C/-)
NOT TO SCALE

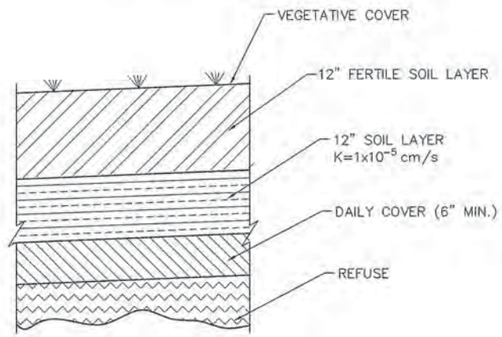


TYPICAL WORKING FACE CELL PLAN
NOT TO SCALE



NOTE:
TEXTURED GEOMEMBRANE TO BE INSTALLED ON SLOPES EXCEEDING 20H:1V AND SMOOTH GEOMEMBRANE TO BE INSTALLED ON SLOPES LESS THAN OR EQUAL TO 20H:1V

TYPICAL GEOMEMBRANE FINAL COVER SYSTEM DETAIL (2/8/14)
NOT TO SCALE



TYPICAL TEMPORARY FINAL COVER DETAIL (4/4/5)
NOT TO SCALE

Hillsborough County Florida

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS LICENSE No. 73758 STATE OF FLORIDA PROFESSIONAL ENGINEER 6/7/13
ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

DETAILS 2

0 1" 2"

FILENAME	00C-13.DWG
SCALE	AS SHOWN

DWG No. 13

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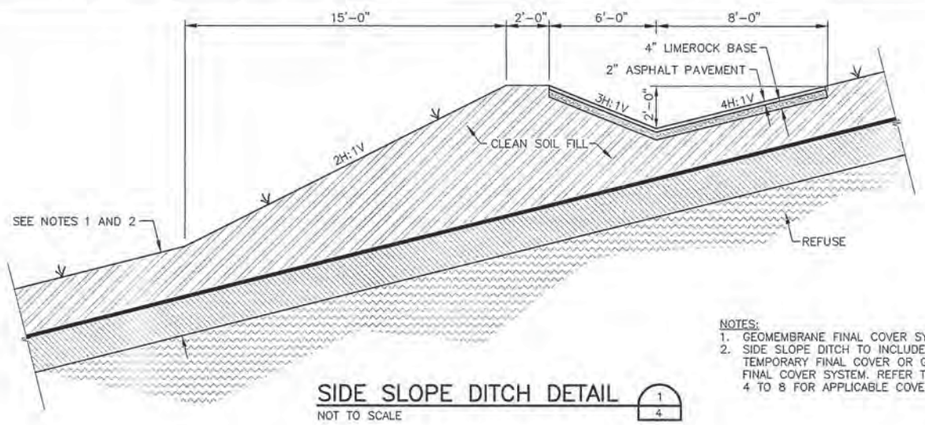
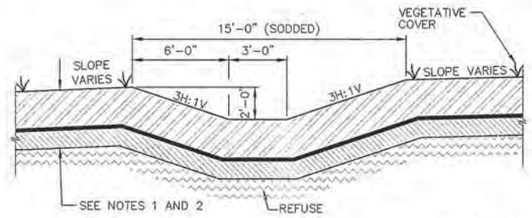


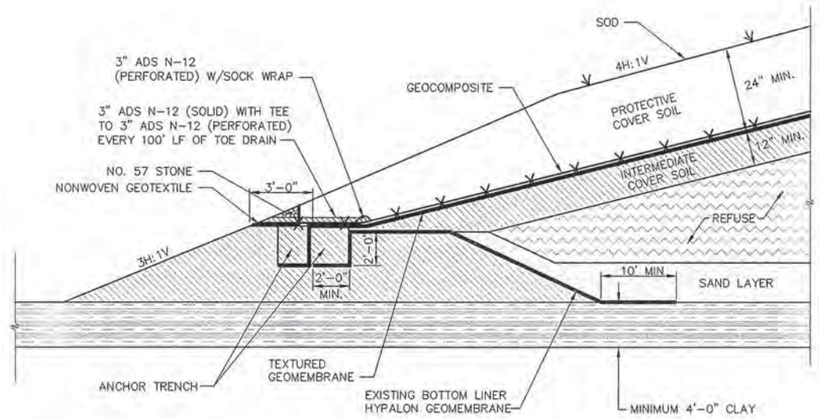
NOTES:
1. GEOMEMBRANE FINAL COVER SYSTEM SHOWN.
2. SIDE SLOPE DITCH TO INCLUDE EITHER A TEMPORARY FINAL COVER OR GEOMEMBRANE FINAL COVER SYSTEM. REFER TO DRAWINGS 4 TO 8 FOR APPLICABLE COVER SYSTEM.

SIDE SLOPE DITCH DETAIL (1/4)
NOT TO SCALE

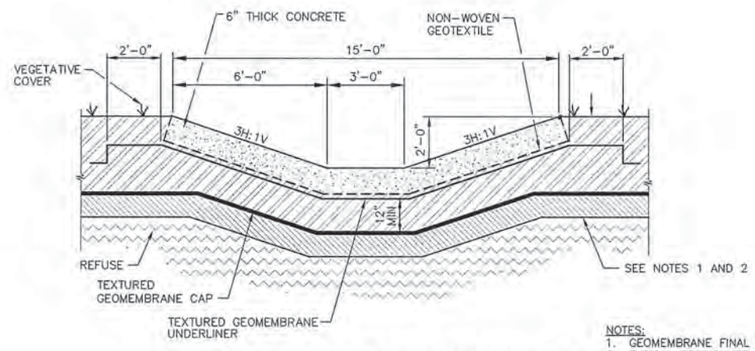


NOTES:
1. GEOMEMBRANE FINAL COVER SYSTEM SHOWN.
2. TOP SLOPE DITCH TO INCLUDE EITHER A TEMPORARY FINAL COVER OR GEOMEMBRANE FINAL COVER SYSTEM. REFER TO DRAWINGS 4 TO 8 FOR APPLICABLE COVER SYSTEM.

TOP SLOPE DITCH DETAIL (4/4)
NOT TO SCALE

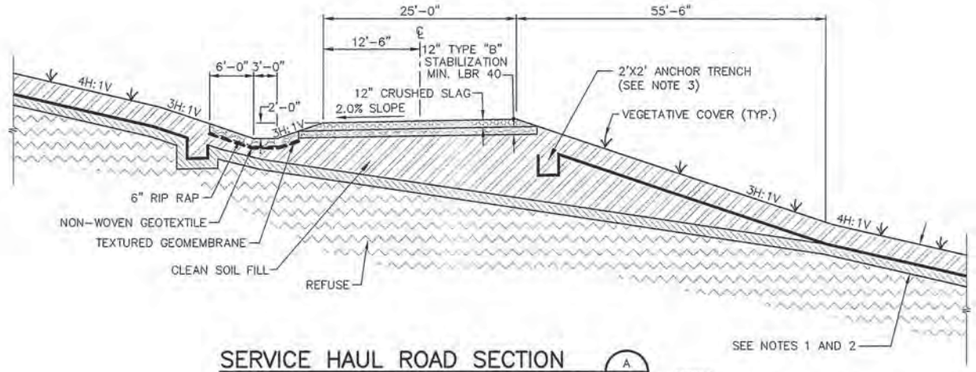


FINAL COVER TOE DRAIN DETAIL (2/8)
NOT TO SCALE



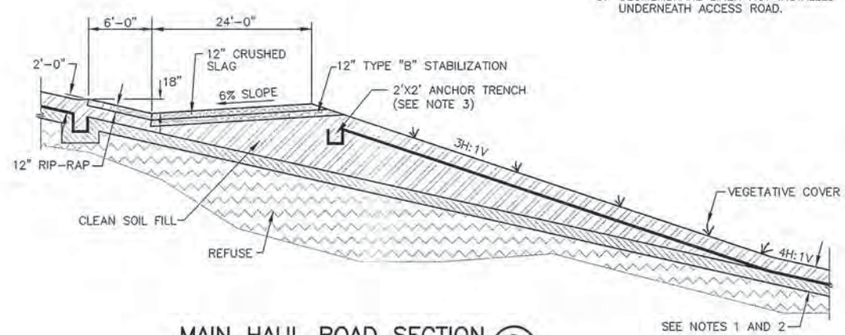
NOTES:
1. GEOMEMBRANE FINAL COVER SYSTEM SHOWN.
2. TYPICAL DOWNCHUTE TO INCLUDE EITHER A TEMPORARY FINAL COVER OR GEOMEMBRANE FINAL COVER SYSTEM. REFER TO DRAWINGS 4 TO 8 FOR APPLICABLE COVER SYSTEM.

TYPICAL DOWNCHUTE DETAIL (3/12)
NOT TO SCALE



SERVICE HAUL ROAD SECTION (A/8)
NOT TO SCALE

NOTES:
1. GEOMEMBRANE FINAL COVER SYSTEM SHOWN.
2. SERVICE HAUL ROAD TO INCLUDE EITHER A TEMPORARY FINAL COVER OR GEOMEMBRANE FINAL COVER SYSTEM. REFER TO DRAWINGS 4 TO 8 FOR APPLICABLE COVER SYSTEM.
3. GEOMEMBRANE LINER NOT INSTALLED UNDERNEATH ACCESS ROAD.



MAIN HAUL ROAD SECTION (B/8)
NOT TO SCALE

NOTES:
1. GEOMEMBRANE FINAL COVER SYSTEM SHOWN.
2. MAIN HAUL ROAD TO INCLUDE EITHER A TEMPORARY FINAL COVER OR GEOMEMBRANE FINAL COVER SYSTEM. REFER TO DRAWINGS 4 TO 8 FOR APPLICABLE COVER SYSTEM.
3. GEOMEMBRANE LINER NOT INSTALLED UNDERNEATH ACCESS ROAD.

Hillsborough County Florida

HDR

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS, LICENSE No. 73758, STATE OF FLORIDA, PROFESSIONAL ENGINEER
6/13/13
ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

DETAILS 3

0 1" 2"

FILENAME	00C-14.DWG
SCALE	AS SHOWN

DWG No. 14

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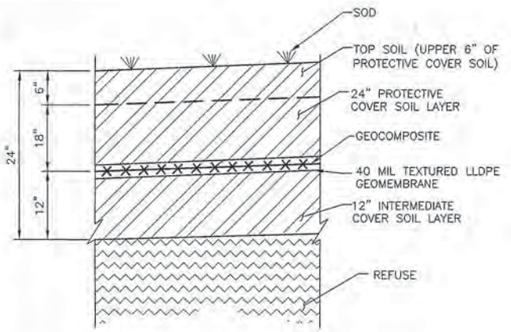
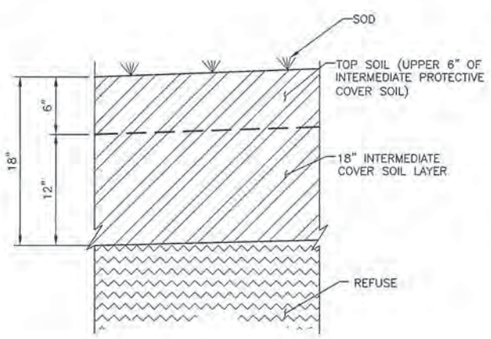


TEMPORARY GEOMEMBRANE FINAL COVER DETAIL

1/9

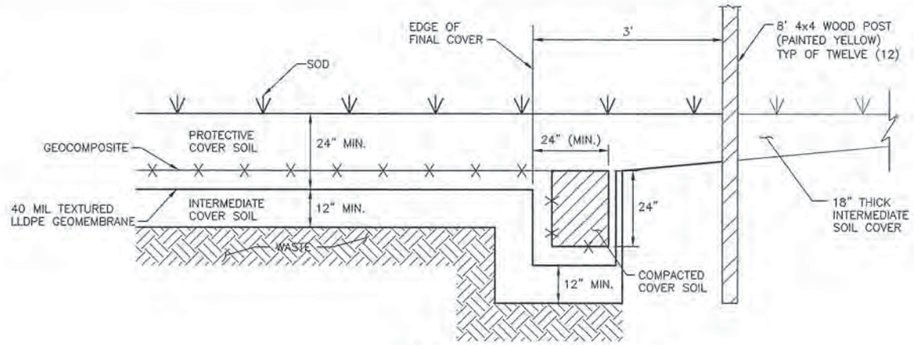
NOT TO SCALE



INTERMEDIATE COVER DETAIL

2/9

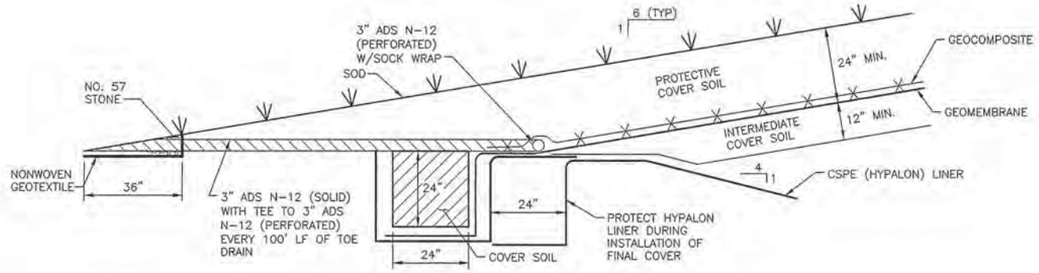
NOT TO SCALE



ANCHOR TRENCH DETAIL

3/9

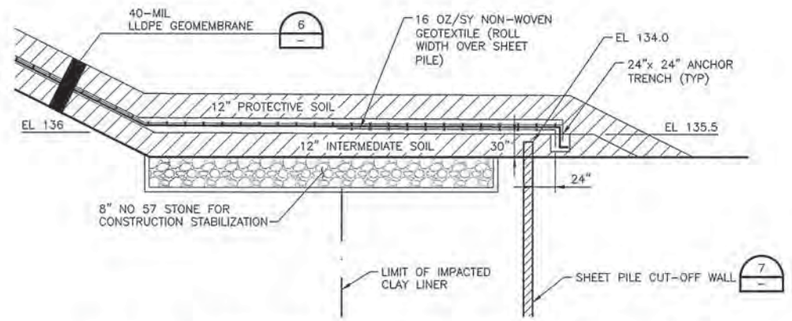
NOT TO SCALE



TEMPORARY TOE DRAIN DETAIL

4/9

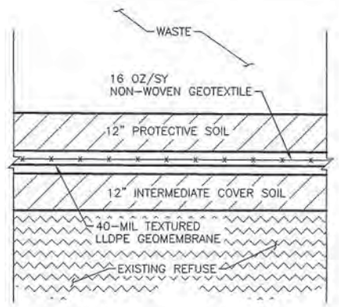
NOT TO SCALE



40-MIL LLDPE GEOMEMBRANE ANCHOR DETAIL

5/9

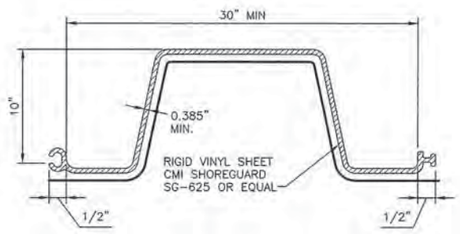
NOT TO SCALE



40-MIL LLDPE GEOMEMBRANE DETAIL

6/9

NOT TO SCALE



* STEEL GUIDE METAL THICKNESS SUFFICIENT TO PENETRATE THROUGH MATERIALS SHOWN ON BORINGS.

TYPICAL SHEET PILE CUT-OFF WALL DETAIL

7/–

NOT TO SCALE

Hillsborough County Florida

HDR

HDR Engineering, Inc.
5426 Bay Center Drive
Suite 400
Tampa, FL 33609-3444
HDR CA# 4213

ISSUE	DATE	DESCRIPTION
	6/2013	FDEP SUBMITTAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	T. YANOSCHAK
CIVIL DESIGN BY	R. CURTIS
DRAWN BY	L. RODRIGUEZ
PROJECT NUMBER	0096-193806-001

ROBERT B. CURTIS, P.E.
CERTIFICATE NO. 73758

PHASES I-VI OPERATING SEQUENCE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

DETAILS 4

0 1" 2"

FILENAME	00C-15.dwg
SCALE	AS SHOWN

DWG No. 15

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Appendix F

Landfill Gas Monitoring Points

HILLSBOROUGH COUNTY SOLID WASTE MANAGEMENT DEPARTMENT
SOUTHEAST COUNTY LANDFILL – LFG READINGS

ADMINISTRATION BUILDING

	Methane Gas	LEL	Carbon Dioxide	Oxygen	Balance Gas
SP-1					
SP-2					
SP-3					
SP-4					
SP-5					
SP-6					
SP-7					
SP-8					

MAINTENANCE BUILDING

	Methane Gas	LEL	Carbon Dioxide	Oxygen	Balance Gas
SP-9					
SP-10					
SP-11					
SP-12					

LEACHATE TREATMENT PLAN

	Methane Gas	LEL	Carbon Dioxide	Oxygen	Balance Gas
SP-13					
SP-14					
SP-15					

LANDFILL GAS PERIMETER MONITORING POINT

	Methane Gas	LEL	Carbon Dioxide	Oxygen	Balance Gas	Objectional Ambient Odor (Y/N)
LFG-1						Y/N
LFG-2						Y/N
LFG-3						Y/N
LFG-4						Y/N

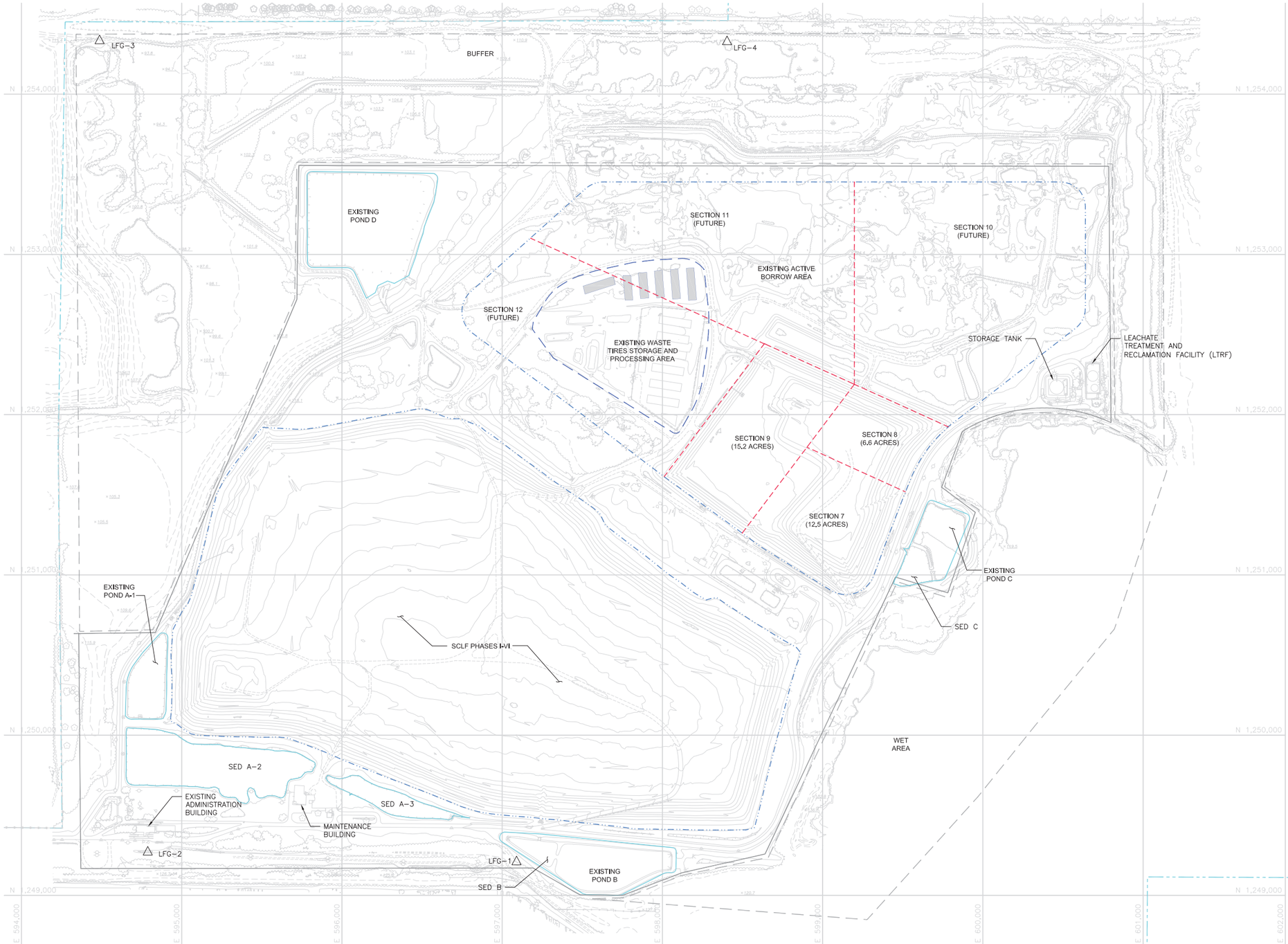
TECHNICIAN SIGNATURE: _____

SUPERVISOR SIGNATURE: _____

DATE: _____

COMMENTS: _____
_____
_____
_____

Legend: SP = Ambient Sample Point



N

NOTE:

1. TOPOGRAPHICAL INFORMATION COMPILED FROM EXISTING CONDITIONS SURVEY PERFORMED BY PICKETT & ASSOCIATES DATE JULY 13, 2012.

LEGEND:

- △ LFG–1 — EXISTING LANDFILL PERIMETER GAS MONITORING WELL LOCATION
- PROPERTY LINE
- SOLID WASTE BOUNDARY
- PHASE/SECTION LIMITS
- EXISTING CLASS I LANDFILL FACILITIES
- LANDFILL FOOTPRINT

300 150 0 300 600

SCALE: 1"=300'

LANDFILL GAS PERIMETER MONITORING WELLS

HILLSBOROUGH COUNTY, FLORIDA

FIGURE F-1

HDR

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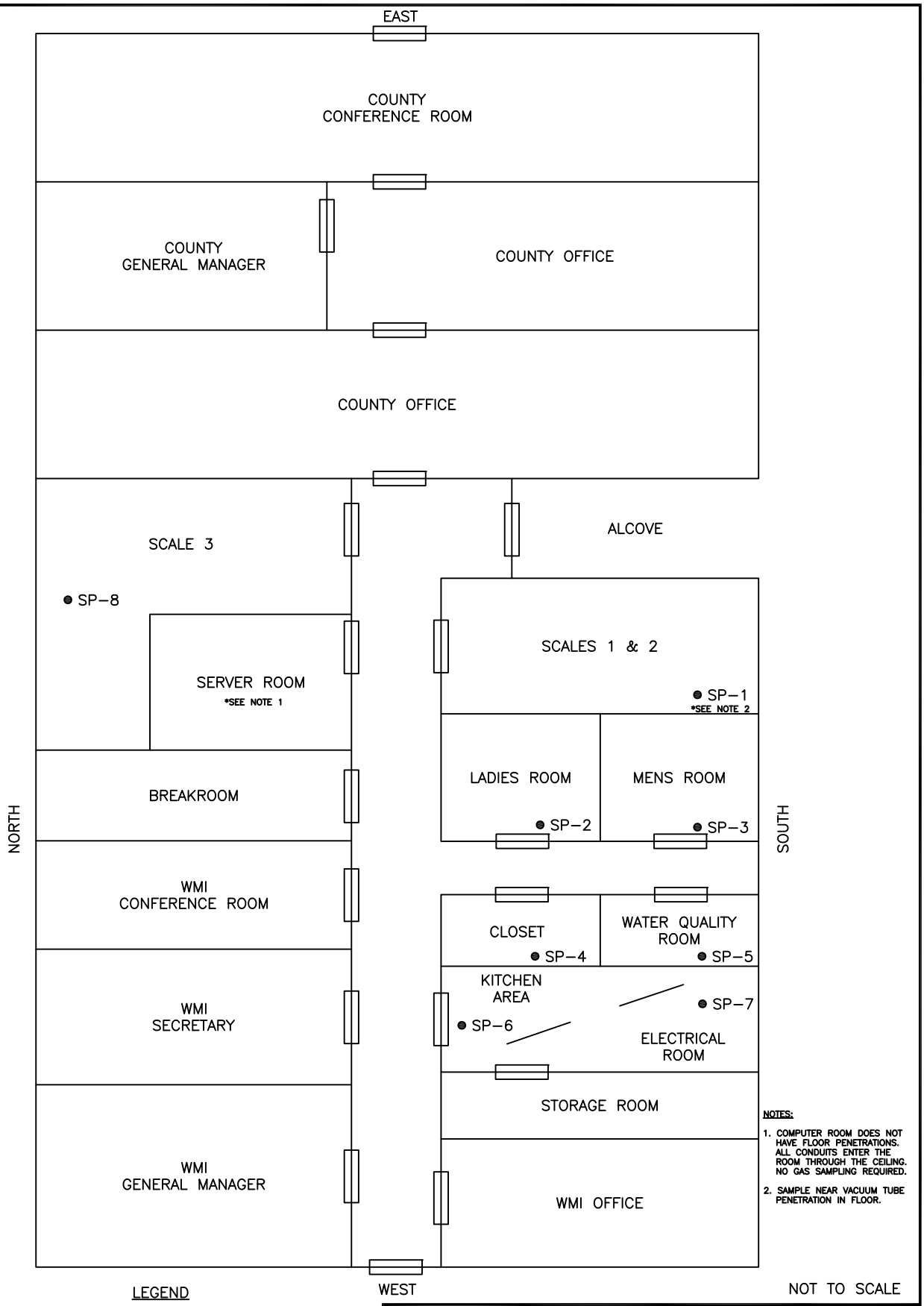

ADMINISTRATION BUILDING
LFG MONITORING POINTS

HILLSBOROUGH COUNTY, FLORIDA

FIGURE F-2

HDR

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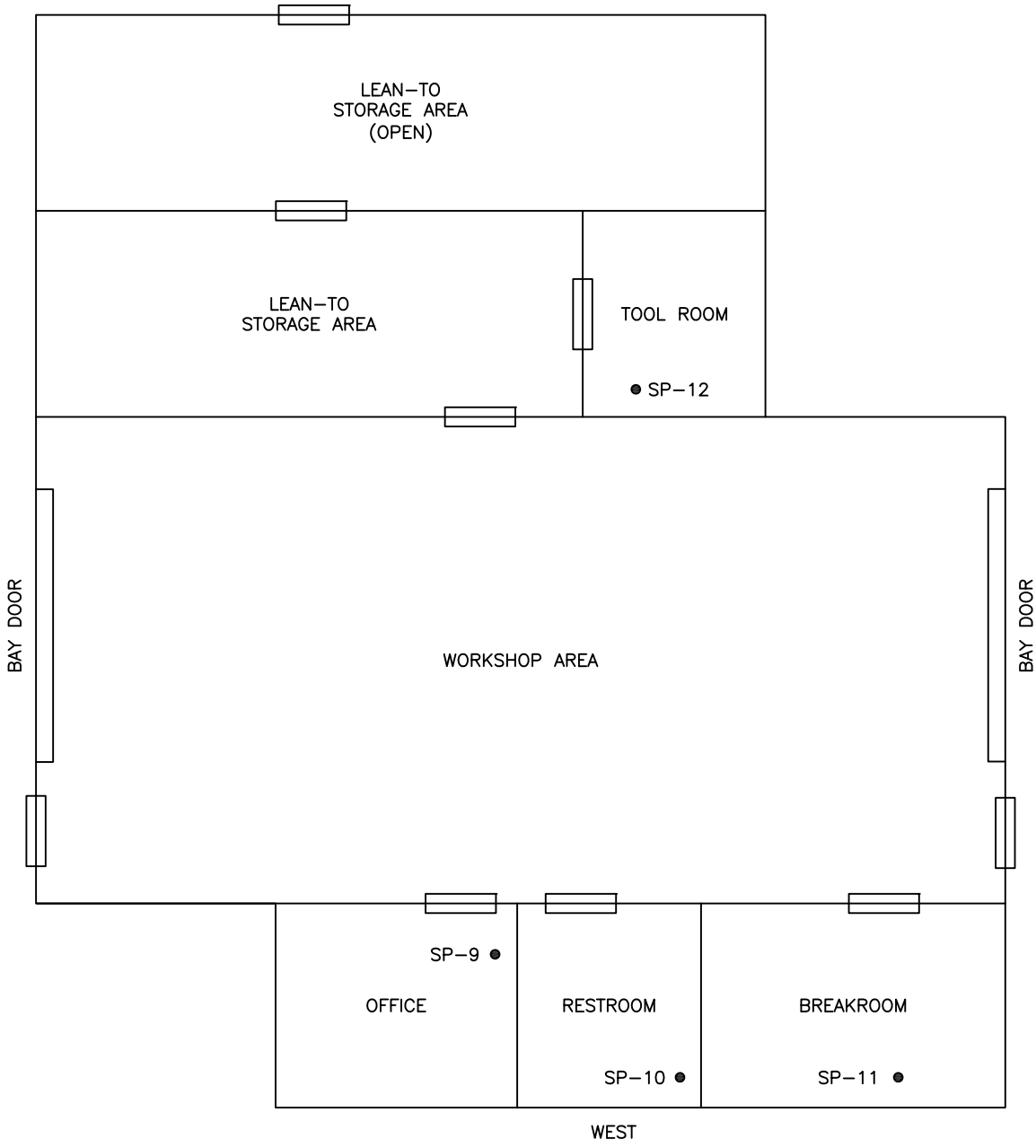

LEGEND

● SP–10 INDICATE GAS SAMPLE POINT

DOORWAY

NOT TO SCALE

MAINTENANCE BUILDING
LFG MONITORING POINTS

HILLSBOROUGH COUNTY, FLORIDA

FIGURE
F-3

HDR

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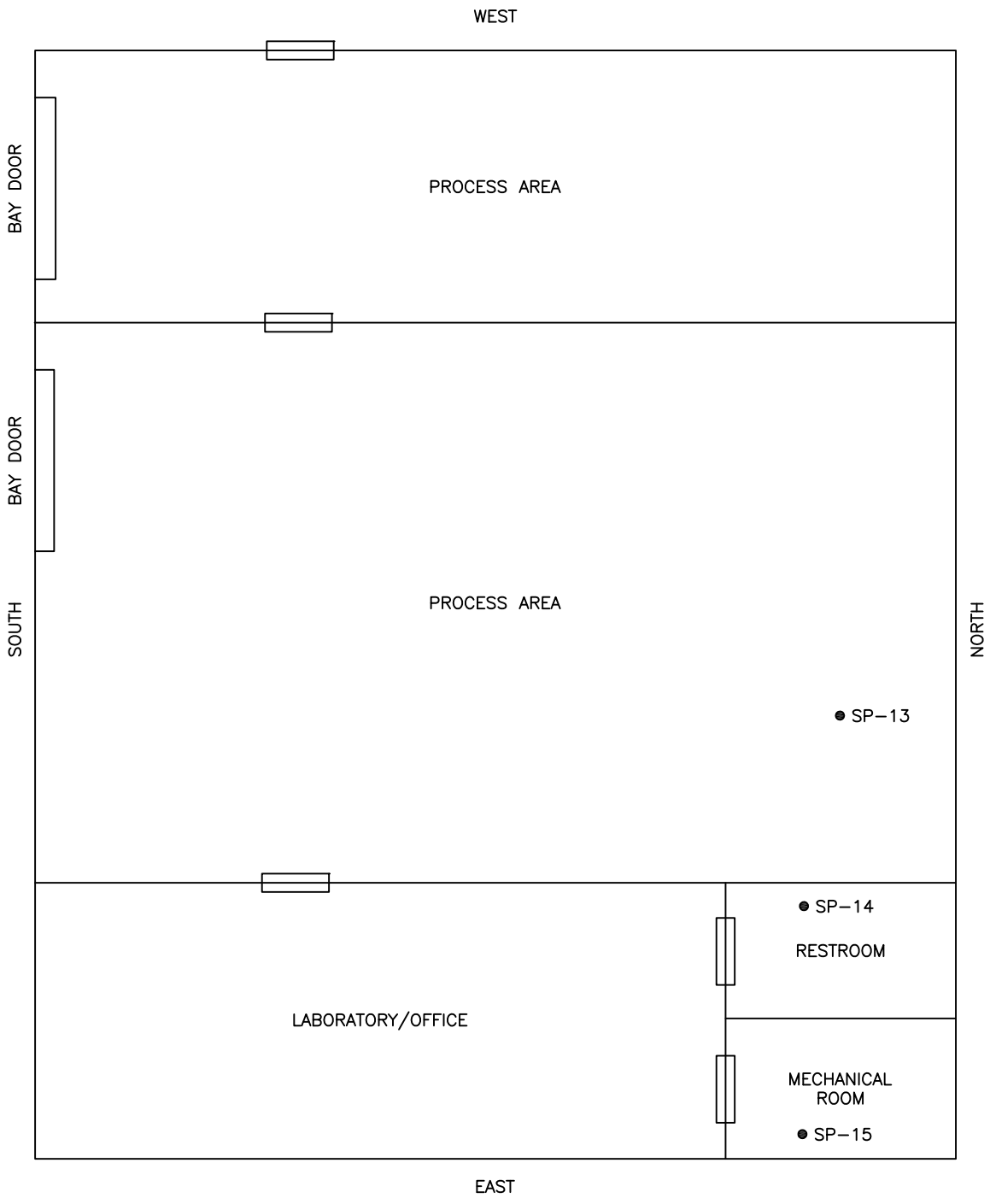

LEGEND

● SP–14 INDICATE GAS SAMPLE POINT

DOORWAY

NOT TO SCALE

LTRF OFFICE
LFG MONITORING POINTS

HILLSBOROUGH COUNTY, FLORIDA

FIGURE F-4

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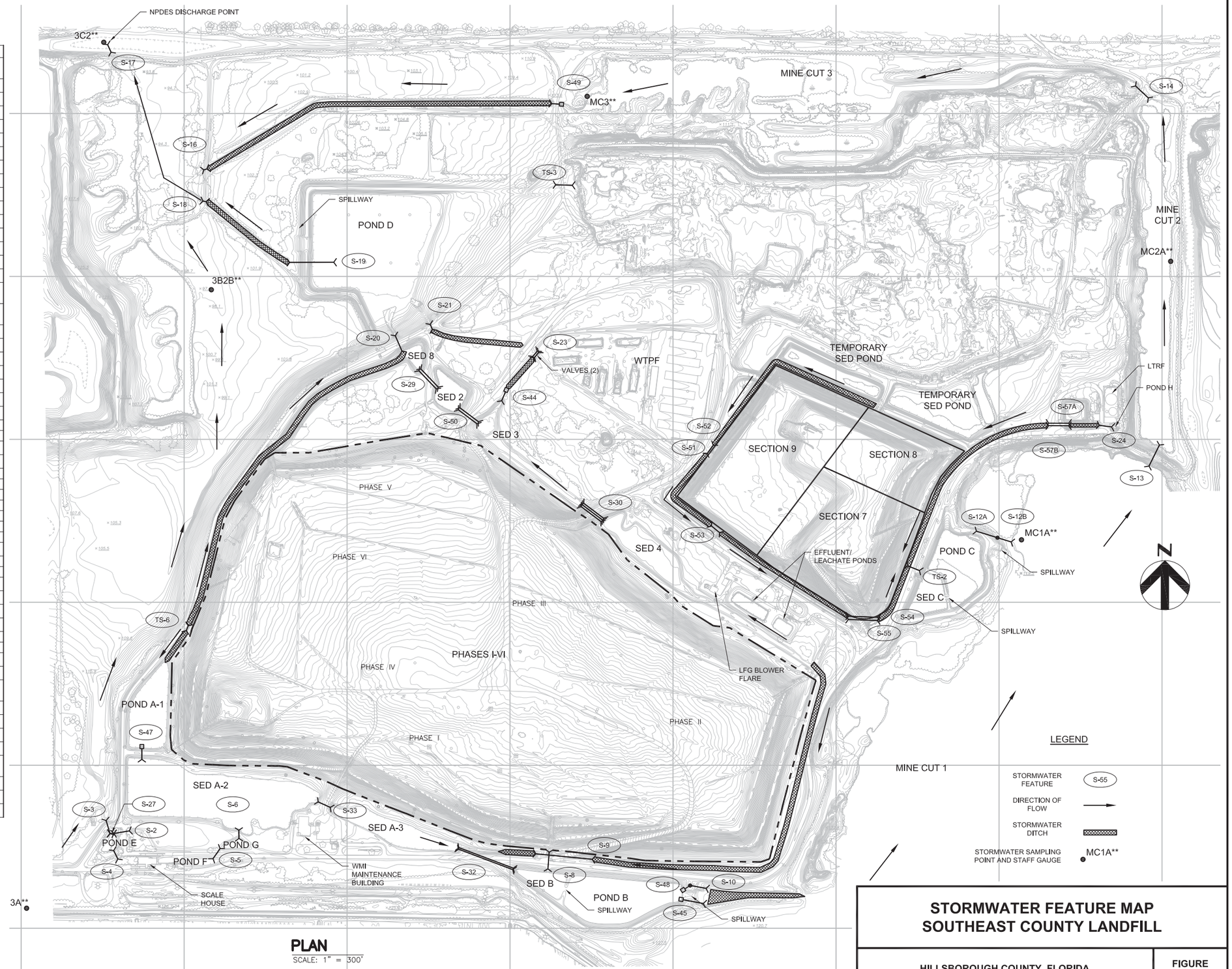
Appendix G

Not Used

Appendix H

Stormwater Management System (SWMS) Plan

EXISTING STORMWATER PIPE DATA TABLE					
STRUCTURE NO	TYPE OF STRUCTURE	INVERT ELEVATION DOWNSTREAM	INVERT ELEVATION DOWNSTREAM	DIAMETER (IN)	LENGTH (FT)
S-2	ERCP	124.83 (E)	124.72 (W)	14x22	92.38
S-3	CMP	122.96 (S)	122.07 (N)	36.00	81.19
S-4	ERCP	124.98 (S)	124.91 (N)	14x22	47.87
S-5	ERCP	124.44 (N)	125.34 (S)	14x22	73.39
S-6	ERCP	124.63 (S)	124.08 (N)	14x22	50
S-8	ERCP	126.70 (S)	126.51 (N)	34x54	100.67
	ERCP	126.66 (S)	126.51 (N)	34x54	100.39
S-9	CMP	123.90 (W)	123.64 (E)	24.00	343.74
S-10	RCP	121.73 (E)	121.62 (W)	48.00	100.06
S-12A	RCP	121.79 (W)	121.35 (E)	30.00	169.40
S-12B	RCP	121.45 (W)	121.39 (E)	48.00	50.37
S-13	RCP	121.69 (S)	120.71 (N)	24.00	104.48
	RCP	121.75 (S)	120.86 (N)	24.00	104.56
S-14	RCP	120.35 (E)	118.806 (W)	24.00	104.90
	RCP	120.43 (E)	118.956 (W)	24.00	104.90
S-16	STEEL	94.87 (E)	94.62 (W)	24 (W)– 21 (E)	22.04
	STEEL (E)– ECMP (W)	94.97 (E)	94.81 (W)	21 (E)– 22x24 (W)	20.98
S-17	RCP	90.98 (N)	90.69 (S)	48.00	50.51
	RCP	90.87 (N)	90.62 (S)	48.00	50.71
S-18	CMP	95.47 (E)	95.09 (W)	18.00	19.89
S-19	RCP	101.16 (E)	100.91 (W)	48.00	161.35
S-20	CMP	115.32 (N)	114.60 (S)	48.00	90.98
	CMP	115.48 (N)	114.73 (S)	48.00	91.11
S-21	RCP	123.16 (N)	122.95 (S)	36.00	34.84
S-23	HDPE	130.20 (N)	130.00 (S)	8.00	41.00
	HDPE	130.20 (N)	130.00 (S)	8.00	41.00
S-24	ERCP	146.44 (E)	145.05 (W)	12x18	91.04
S-27	CMP	123.02 (E)	123.00 (W)	18.00	24.15
S-29	RCP	119.55 (E)	117.01 (W)	30.00	114.00
	RCP	119.55 (E)	117.01 (W)	30.00	114.00
S-30	RCP	124.96 (E)	125.02 (W)	36.00	119.00
	RCP	124.96 (E)	125.02 (W)	36.00	119.00
	RCP	124.96 (E)	125.02 (W)	36.00	119.00
S-32	ERCP	122.99 (W)	122.02 (E)	24x38	355.00
	ERCP	122.99 (W)	122.02 (E)	24x38	355.00
S-33	RCP	119.95 (W)	119.97 (E)	36.00	81.00
S-44	HDPE	127.11 (N)	125.10 (S)	8.00	60.00
	HDPE	127.11 (N)	125.10 (S)	8.00	60.00
S-45	RCP	121.99 (W)	121.94 (E)	36x60	75.00
S-47	RCP	120.94 (S)	120.01 (N)	30.00	66.00
S-48	RCP	121.67 (W)	121.68 (E)	48.00	29.00
S-49	RCP	107.00 (E)	106.83 (W)	42.00	48.00
S-50	RCP	122.10 (E)	120.07 (W)	30.00	108.00
	RCP	122.10 (E)	120.07 (W)	30.00	108.00
S-51	RCP	139.69 (N)	139.54 (S)	36.00	50
S-52	RCP	139.69 (N)	139.54 (S)	36.00	50
S-53	RCP	138.00 (W)	138.00 (E)	3x6 BOX	27
S-54	HDPE	132.17 (W)	131.41 (E)	30.00	175
S-55	HDPE	132.28 (W)	131.29 (E)	30.00	175
S-57A	RCP	143.23	142.23	24.00	136
S-57B	RCP	143.23	142.23	24.00	136
TS-2	BOX CULVERT	130.05 (W)	129.18 (E)	48x96	74.73
TS-3	RCP	129.007 (E)	128.157 (W)	18.00	98.07
TS-6	METAL	125.94 (N)	125.55 (S)	20.00	29.65
	CMP	125.90 (N)	125.68 (S)	36.00	19.59



PLAN
SCALE: 1" = 300'

300 150 0 300 600
SCALE: 1"=300'

HDR

STORMWATER FEATURE MAP
SOUTHEAST COUNTY LANDFILL

HILLSBOROUGH COUNTY, FLORIDA

FIGURE 1