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TRANSMITTAL

To: Ms. Susan Pelz, PE
FDEP – Southwest District
13051 North Telecom Parkway
Temple Terrace, FL 33637-0926

Project Name: Central County Solid Waste Disposal Complex (CCSWDC) Operations Plan

Date: April 11, 2011

From: Jason Timmons
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Dept. Of Environmental Protection
APR 12 2011
Southwest District

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REMARKS:

Dear Susan,

We are providing the enclosed conformed Sarasota County CCSWDC Operations Plan for your records. Please call me with any questions. Thank you.

Jason Timmons

SIGNED: Jane Mazak for

cc: Ms. Lois Rose – Manager, Solid Waste Operations

Sarasota County
Solid Waste Operations

Central County Solid Waste Disposal Complex Operations Plan

December 2010

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

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SECTION K
OPERATIONS PLAN

K.1 TRAINING

In accordance with Rule 62-701.500(1), Florida Administrative Code (F.A.C.), key supervisory staff at the Central County Solid Waste Disposal Complex (CCSWDC) has received Landfill Operator Certification training. The training plan can be found in Attachment K-1. Sarasota County staff or a qualified landfill operations contractor will operate the facility. Sarasota County will require the operating entity to provide at least one trained landfill operator certified in accordance with Chapter 62-701.320(15), F.A.C. and at least one trained spotter at each working face during operation when the landfill receives waste to detect unauthorized wastes from each load.

The spotters will be responsible for guiding vehicles and promoting an efficient operation during normal operation hours. The spotters shall also be responsible for enforcing provisions for controlling the waste received. These provisions are described in Section K.2.c.

The facility will be operated in compliance with all applicable regulations governing the operation of solid waste management facilities and surface water management facilities.

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 plans and operational standards.

Interim spotters, who do not have the formal spotter training, maybe employed at the CCSWDC provided that the interim spotter is under the direct supervision of a trained operator or trained spotter. The interim spotter must receive training as an operator or spotter within 3 months of employment.

An interim operator may be employed at the CCSWDC provided that the interim operator has had at least one year of experience at the facility or a similar facility. An interim operator must receive operator training within one year of employment as interim operator. An interim operator shall serve as the operator for the facility in lieu of a trained operator for no more than three consecutive months.

In the event the spotter is located on heavy equipment spreading waste at the working face, then the equipment operator must be a trained landfill operator or spotter. The equipment operator will remove unauthorized waste from the working face to a temporary area next to the working face for later removal/management or stop operations and notify another operator or ground personnel to assist with removal/management of the unauthorized waste before resuming operations.

K.2 LANDFILL OPERATIONS PLAN

K.2.a Designation of Responsible Persons

The CCSWDC is owned by Sarasota County and operated under the direction of the Sarasota County Solid Waste Operations Unit. Lois Rose, Manager Solid Waste, will be the designated responsible person for the operation of the CCSWDC.

A list of the landfill personnel is given below as well as typical training required for each position:

VEOLIA ENVIRONMENTAL SERVICES:

- General Manager (1) (Operator)
- Lead Equipment Operator (1) (Operator)
- Equipment Operator (7)
- Laborer/Spotter (1) (Spotter)
- Laborer (1) (Spotter)
- Mechanic (1)

SARASOTA COUNTY:

- Solid Waste Manager (1) (Operator)
- Compliance Specialist (3) (Operator)

K.2.b Contingency Operations for Emergencies

K.2.b.(1) Emergency Provisions

Emergency conditions at the landfill site may occur as a result of a natural disaster (hurricane, tornado, flooding, etc.) or fire. In the event emergency conditions will interrupt operations at the facility, the following contingency plan will be implemented (see Attachment K-2). In addition, staff shall review and implement the most current version of the Sarasota County Solid Waste Operations Emergency Plan on file at the CCSWDC. Refuse is not normally delivered to the site during emergency conditions; however, should a major storm occur, the following actions shall be taken:

- Daily cover shall be applied to all exposed refuse before a major storm arrives, if possible.
- All landfill equipment shall be parked near any natural wind screens such as earthen mounds and berms.
- All lightweight signs and equipment shall be secured.
- When operation resumes, work shall commence in dry areas only (up from the active face). Refuse shall not be deposited in standing water.
- Contract agreements with local contractors, equipment suppliers, or cooperative lending agreements with other County departments will be pursued for backup equipment, if necessary.

Small fires on the working face will be controlled by a bulldozer, landfill compactor and a water wagon and ample cover material to extinguish the fire. On-site stockpiles of soil cover material will always be available for suppressing fires. The large stormwater retention basins adjacent to the landfill will serve as the water source for fire fighting purposes.

In the event of a fire or other emergency, the solid waste operations manager or their designee will notify the FDEP within twenty-four (24) hours by telephone and within seven (7) days a written report will be submitted describing the origins of the emergency, actions taken, result of the actions taken, and an analysis of the success or failure of the actions. However, if the fire cannot be extinguished by CCSWDC personnel within 1 hour, the Department and the local government will be notified of the fire and informed of the fire control measures taken at the facility. If the fire cannot be extinguished within 48 hours or Solid Waste Operations determines

additional assistance is needed at anytime, the local fire control protection agency will be called.

In addition the local government and neighbors, which may be impacted by the fire, will be notified.

The Nokomis Fire Department presently maintains a fire station at 111 Pavonia Road in Nokomis, approximately 10.9 miles from the proposed facility. This station has equipment capable of obtaining water from surface sources for fire fighting. In addition, the City of Venice has a fire station located at 5300 Laurel Road in Venice, FL located approximately 7.6 miles from the facility

Waste will continue to be accepted and disposal operations will continue in the event of a fire. Operations will be moved a safe distance from the fire location so as not to pose a hazard to operating personnel or customers.

A hot load area will be provided within the lined disposal area in a location away from the working face to allow vehicles arriving at the landfill with a fire in their load to dump quickly in an area where the material can be spread out and quickly covered with soil. The location of the hot load area will change from time to time with the changing working face locations. Hot loads will not be dumped on the working face until sufficiently cool to avoid combustion.

As described in Sections K.11.a. and K.11.b, the Contractor will provide adequate equipment on-site to ensure proper operation of the landfill and for excavating, spreading, compacting, and covering waste. As part of an agreement with a maintenance contractor, the Contractor will receive loaner equipment within forty-eight (48) hours of equipment breakdown, if required. These basic emergency procedures should protect the landfill and equipment, and allow reactivation of the operation in an orderly and timely manner. Two mobile electrical generators are maintained on-site to provide power during outages for the administration building, scale house, and maintenance building.

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 valve, turning-off switch, or taking any other necessary action). The affected area will be controlled by diverting vehicular traffic. Runoff from the affected area will be controlled by building a berm, plugging drain or ditch, or adding absorbent material. 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 Holding Tank refer to Section K.2.h.2, Leachate Management System. A list of emergency telephone numbers is provided below.

Ambulance Service	911
Police Department	911
Fire Department	911
Lois Rose, Solid Waste Operations Manager	(941) 861-1589 - office (941) 650-0722 - cell
Southwest District, Dept. of Environmental Protection	(813) 632-7600

Remember, if you are calling from a phone, which is connected to the County's switchboard, you must dial 9 then 911 to reach the emergency operator.

K.2.b.(2) Wet Weather Operations

Steps to be taken for accommodating wet weather solid waste disposal include: 1) set-aside elevated tipping areas with limestone or shell approaches or other acceptable base material as needed to allow uninhibited vehicular movement; 2) set-aside elevated sandy cover material, and 3) erect containment berms around wet weather tipping areas in accordance with Section K.2.h.3.

In order to avoid an excessive accumulation of standing water in the area of the working face, a small area of daily cover will be removed by grading to allow direct percolation to the underlying refuse and leachate collection system. Pumping equipment is available on-site, if required to remove ponded leachate by pumping it to either a tanker truck for proper treatment and disposal, or to a leachate collection manhole.

K.2.c Controlling the Type of Waste Received at the Site

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

A trained spotter at the working face will visually inspect the waste as it is deposited. If unauthorized waste (i.e., lead-acid batteries, used oil, yard trash, white goods, and whole tires) is found at the working face, as part of routine operations, the waste would be segregated and removed for recycling, as described in Attachment K-13.

White goods and electronic wastes are accepted at the facility for recycling but are not allowed at the working face for disposal. Special wastes not authorized for disposal are accepted for staging at the CCSWDC until they are removed from the site for offsite recycling. These materials shall be stored in the designated white goods and recyclables storage area located near the southeast corner of Phase I as shown on Sheet G-03, Overall Site Plan and Phasing Plan, provided with the Permit Drawings.

Electronic products that are discovered at the working face will be removed and stored in a safe area within the active working area (bermed area). At the end of the day, at a minimum, these materials will be transported directly to the designated storage area. Undamaged electronic wastes recovered for recycling shall be stored in an undamaged condition and records for all quantities received by each recycler shall be kept along with the receipts with the name and address of each recycler. Recovered electronic wastes that have been damaged and will not be recycled will be removed and stored in a designated 30-foot x 45-foot covered concrete pad area adjacent to the Contractor's maintenance building located as shown on Sheet G-03, Overall Site Plan and Phasing Plan, provided with the Permit Drawings. The damaged waste shall be placed inside a watertight container.

White goods will be removed from the working face and taken to the white goods storage area located south of Phase I as shown on Sheet G-03, Overall Site Plan and Phasing Plan, provided in the Permit Drawings. White goods shall be removed from the site at least monthly. Refrigeration units will be stored in an upright position until all liquids, CFCs and Freon are removed.

Other unauthorized waste and small quantity household hazardous waste such as lead-acid batteries, fluorescent tubes, pesticides, solvents, cadmium batteries, and thermometers, which are discovered at the working face, will be removed and stored in the designated 30 foot by 45 foot covered concrete pad adjacent to the maintenance building. This facility is only for temporary storage of material removed from the working face and is not a designated public household hazardous waste disposal facility or transfer station. These wastes will be placed on a 4-drum spill pallet. These pallets will be made up of 100 percent polyethylene with UV inhibitors and have spill reservoirs which meet the uniform fire code capacity requirements. Two pallets will be placed in the designated area. These materials will be collected each month by hazardous materials disposal companies or removed for alternate disposal or recycling. Unauthorized wastes will be removed from the site monthly. The maximum on-site storage for unauthorized wastes will be as follows:

- 1,000 electronic devices on e-waste slab.
- 30 batteries in a secondary containment covered tray.
- 2 - 250 gallon containers for used oil with double containment (at the Citizen Convenience Center).
- 20 gallons of used oil placed upright in undamaged container (at the Contractor's maintenance building).
- 1,250 white goods, and lawnmowers, will be placed upright until all liquids, CFCs, and Freon are removed.

Sarasota County will accept contaminated soil for the purpose of landfilling (disposal) at CCSWDC in accordance with the criteria included in Attachment K-4. Waste tires encountered during operations will be placed in a container at the working face that will be removed at the end of the working day and stored in the area designated for waste tire processing within the CCSWDC. The waste tire processing facility is located within the future Phase V landfill area as shown on Sheet G-03, Overall Site Plan and Phasing Plan, provided with the Permit Drawings.

At least one trained spotter will be at each working face when wastes are received at the landfill. Normally, one working face will be operating at the landfill. There may be occasions where two or more working faces are required such as when the first lift of waste is placed in a new cell, during high volume periods such as after a storm, or when the size of a working face is limited such as at the corner of a cell. The spotters will be trained in accordance with Rule 62-701.320(15) and in accordance with the training plan described in Attachment K-1 to recognize unauthorized waste. Each load of waste will be visually inspected at ground level by the spotter as well as by the equipment operators spreading the waste. The spotters and equipment operators will look for containers and other indicators of unauthorized waste. Upon detection of unauthorized waste, the spotters will require the hauler to remove the material for disposal at a proper facility. If the hauler has departed, the spotter will remove the material from the working face for temporary storage at the designated 30 foot by 45 foot covered concrete pad adjacent to the maintenance building and ultimate removal from the site for proper disposal or recycling.

If any hazardous waste is detected in the load, the hauler shall be informed immediately of the violation. In the event of discovery of hazardous materials, the procedures outlined in Items 3, 4, 5, and 6 of Section K.6 will be followed if any unauthorized wastes are discovered.

If unauthorized waste (i.e., hazardous, PCBs, untreated biomedical, or free liquid) are found at the landfill working face, the waste will be isolated and the contractor's general manager or designee would be promptly notified. The contractor's general manager or designee is trained in the proper procedure to follow including notification to the FDEP. Similarly, if suspect waste is found the waste will be isolated, identified if possible, and the County's operation manager or designee will be notified. The County's operation manager or designee will prepare a suspect waste report and ensure that the waste is properly disposed. The waste load inspection form contained in Attachment K-5 is used for this purpose. Hazardous waste will be isolated and restricted from access until it is removed and properly disposed of from the CCSWC Landfill by a licensed hazardous waste contractor. Hazardous wastes will be removed from the site within 48 hours.

Special waste such as asbestos will be accepted and managed in accordance with the requirements of 62-701.520(3), F.A.C. The asbestos waste haulers will be required to notify the County who will notify the landfill contract operator in advance and provide information on the estimated volume and delivery date of the asbestos. All incoming asbestos material will be required to comply with all applicable permit conditions and be wet down and properly wrapped or bagged. The uncompacted asbestos material will be covered with a minimum 6-inch layer of soil upon disposal. If additional asbestos deliveries are scheduled on the same day, the asbestos may remain uncovered until the end of the work day. The disposal location will be recorded in accordance with 40 C.F.R., Part 61.154, and a record of the asbestos location will be maintained.

Waste oil that is collected for the purpose of recycling is accepted at the CCSWDC near the main entrance. Waste oil is stored in a secure container until removed from the site for recycling purposes. Lawn mowers are accepted at the CCSWDC as long as they are drained of all fluids and are managed as white goods. After inspection for fluids, lawn mowers are stored in the white goods area until collected by the scrap metal vendor who collects white goods. Waste oil, lawn mowers, and yard trash will be managed as described in the Landfill Recycling Plan, Attachment K-13. The yard waste processing facility location is south of Phase I as shown on Sheet G-03, Overall Site Plan and Phasing Plan, provided with the Permit Drawings. The facility is permitted under a separate yard waste processing facility registration.

The Citizen's Convenience Center is located near the entrance of the landfill and consists of spaces for two 20-cubic yard roll off containers for MSW, scrap metal, recyclables, tires, drop off for electronics, and a household chemical collection center. The roll off containers and electronics storage areas are located on concrete pads covered with permanent canopies that prevent the accumulation of water in the containers during inclement weather. Household chemicals are stored in a pre-manufactured hazardous waste storage unit. The Citizen's Convenience Center has a full time attendant and is in operation from 8:00 A.M. to 5:00 P.M. six days per week. The attendant meets customers at the entrance, directs them to the appropriate area of the facility, and monitors the waste for unacceptable materials. The roll-off containers are emptied daily.

The electronics drop off at the Citizen's Convenience Center is manned by a full time attendant who unloads all vehicles that come into the facility. The electronics are from residential curbside collection routes and may include, but are not limited to, televisions, computers, monitors, copiers, etc. The electronics are physically unloaded and placed on pallets or the concrete pad and wrapped in cellophane. Electronics typically will remain at the facility for less than one week but may remain for up to two weeks. Any debris from the operation is swept up and placed in a closed drum for disposal. A vendor will remove the electronics to a recycler by backing semi-trailers up to the slab and loading the pallets onto the truck with pallet jacks or fork lifts.

K.2.d Weighing or Measuring Incoming Wastes

All waste entering the landfill site will be weighed. A minimum of three (3) electronic 50-ton scales are installed at the entrance facility. An Information Management System (IMS) is linked to the scales to facilitate accurate data collection and measurement of incoming materials.

K.2.e Vehicle Traffic Control and Unloading

Directional signs will be placed to safely direct vehicles to the current waste unloading area. These signs will have large legible letters and will be cleaned when necessary. Signs will be strategically placed so that the route is clear to the drivers. Speed limit, safety, and prohibitive practice signs will be placed as necessary to encourage a safe, clean operating area. Unloading will be permitted only at the designated working face. On the fill area, temporary signs, barricades, and flagged stakes will be used to direct vehicles to the proper tipping area. Haulers will be responsible for unloading their own vehicles. Wastes requiring special handling will be coordinated with and unloaded under the direct supervision of landfill contract operation personnel.

K.2.f Method and Sequence of Filling Waste

The overall phasing plan for the facilities is depicted on Sheet G-03, Overall Site Plan and Phasing Plan, provided with the Permit Drawings. The layout for the five (5) cells (designated disposal units) constructed as part of Phase I is shown in Attachment K-14. Staging plans for the remainder of Phase I as previously approved by FDEP are also provided in Attachment K-14. The layout for the four (4) cells proposed for Phase II of the Class I landfill is shown on Sheet C-01, Basegrade Plan, provided with the Permit Drawings. A detailed staging plan for the fill sequencing within Phase II is provided on Sheets C-07, C-08, and C-09 provided with the Permit Drawings. Phase II will be constructed in stages with Cells 1 and 2 being constructed before Cells 3 and 4. Sheets C-01A, C-02A, and C-03A of the permit drawings show Phase II with only Cells 1 and 2 constructed. Sheet C-13A shows the temporary liner termination between Cells 2 and 3. The typical maximum height for each lift is 10 feet. The temporary roads and swales for access and surface water drainage will be phased in as the Phase II area is filled. The maximum width of the working face will be 200 feet. However, the landfill operations may be conducted with a working face width of less than 200 feet.

Temporary Gas Vent Removal

Four temporary gas vents were installed within the bottom liner system during Phase II construction. These gas vents were required when naturally occurring gas within the soil beneath Phase II began to collect beneath the liner and cause the liner system to lift off of the subgrade in several locations. The vents are located near the center of Cells 2 and 3 close to the ridge line between the two cells. Attachment K-15 contains information on the construction and locations of the gas vents.

Prior to the placement of waste within either Cell 2 or Cell 3, the temporary gas vents located in the cell will need to be removed and the liner system repaired. The County will notify the FDEP Southwest District office at least two (2) weeks prior to vent removal/liner repair. Vent removal and liner repair will be performed in accordance with the following procedures:

1. Remove rain cover in vicinity of vent and excavate protective cover soil near repair area;
2. Remove protective casing from standpipe;
3. Remove clamp from primary liner boot, cut primary liner outside of boot weld, and lift boot over standpipe;
4. Remove clamp from secondary liner boot, cut secondary liner outside of boot weld, and lift boot over standpipe;
5. Remove any hydrated or damaged geosynthetic clay liner (GCL) as necessary to allow removal of vent pipe;
6. Remove vent pipe, being careful not to damage in-place liner components or subgrade;
7. Inspect subgrade, replace any soft soil with material meeting requirements of Phase II project specifications, and provide smooth surface for placement of overlying geosynthetics;
8. Patch GCL, secondary liner, secondary geocomposite, primary liner, and primary geocomposite in accordance with the requirements of Phase II project specifications and CQA Plan with the exception that no laboratory or field testing beyond vacuum testing of liner welds will be required of the repair materials due to the limited extent of the repairs;
9. Replace protective cover material over repair; and,
10. Replace rain cover if needed.

All repairs shall be performed by a company approved by a liner manufacturer to perform liner installation. All repairs shall be observed by a third party inspector who will submit documentation to the FDEP Southwest District office that the repairs were performed in general accordance with the Phase II specifications and CQA Plan.

Filling in New Cell

The initial lift of solid waste shall be deposited in each new Phase II cell (designated disposal unit) beginning at the south end of the landfill cell.

Waste will be placed within the designated edge of waste shown on the Engineering Drawings. The edge of waste will be located by measuring 7 feet inward from the edge of liner markers on the north and west sides of Phase II including the temporary liner termination for Cell 2. The edge of waste will be located by measuring 14 feet inward from the edge of liner markers on the south side of Phase II. Periodic inspections will be made to ensure that the markers are in place and the edge of waste is located the required distance from the edge of the liner.

The initial lift of solid waste will progress to the north across the entire width of the landfill cell. The working face will primarily move in an east/west direction across the width of the landfill cell. Selected solid waste loads consisting of solid waste containing no rigid objects will be used for at least the first 4 feet of the first lift, and it will be filled to an elevation of approximately 40 feet NGVD within the Phase II cells.

The method of waste disposal for each lift is described as follows. All incoming solid waste will be directed to the working face and placed against the side slope of the previous day's refuse. The first row of waste in a new lift will be placed against the toe of a containment berm to provide a guide for the placement of refuse for the remaining rows. A slope of not more than 3 to 1 will be maintained. The working face shall be less than 200 feet wide. A maneuvering area shall be provided for large private and commercial vehicles. Depending on space limitation within the working face area, a section of the working face may also be designated for smaller loads and vehicles.

Solid waste will be placed at the working face and spread in 2-foot layers then compacted. The spreading of refuse will be a continuous operation.

In compliance with 62-701.500(10), F.A.C., the stormwater management systems will be operated and maintained as necessary to meet applicable standards of Chapters 62-701, 62-302, and 62-25, F.A.C. The stormwater management system at the CCSWDC Class I landfill is designed to avoid mixing of stormwater with leachate. Stormwater or other surface water which comes into contact with the landfilled solid waste or mixes with leachate will be considered leachate and subjected to applicable requirements.

The filling of the remaining disposal capacity within Phase I will generally follow the FDEP approved staging plans provided in Attachment K-14. The filling of each lined cell within the Phase II area will follow the sequence outlined below: (Refer to Sheets C-07 through C-09, Landfill Staging Plans, provided with the Permit Drawings).

The cell area initially will be filled with a minimum 4-foot lift to bring the daily cover grade to an elevation of approximately 40 feet NGVD which is higher than the cell's lined external containment berms in order to promote stormwater runoff. The lower lift thickness will be placed in the high end (south) of the cells and the greater lift thickness will be placed on the low end (north).

Filling of each cell will generally progress from the south end of the cell to the north end while providing a slope on the cover to allow storm water drainage as shown on the Staging Plans, Sheets C-07 through C-09, Landfill Staging Plans, provided with the Permit Drawings. Only select waste containing no rigid materials will be used within the first 4 feet of the initial lift in a cell.

Subsequent waste lifts will be added to a cell in accordance with the landfill staging plans before opening new cells to waste disposal.

The surface runoff from unused portions of cells will be directed away from solid waste by grading and using temporary diversion berms.

Areas on the top and sides of each lift will be adequately covered and stabilized to maximize surface runoff away from the bermed, sloped working area and towards the stormwater drainage areas to minimize leachate generation, as shown on Sheets C-07 through C-09, Landfill Staging Plans, provided with the Permit Drawings. Intermediate cover will be applied to internal top and side slopes and completed external slopes within seven (7) days if the area will not receive more waste within 180 days. The top of lifts will be sloped to promote storm water drainage. Intermediate covered areas that will not be landfilled or covered with final cover within 6 months will be sodded (external slopes) or seeded and mulched (internal and top slopes) to avoid slope erosion. Storm water collected within the bermed working area will be considered leachate and will be collected and disposed as such. Efficient use of these techniques will decrease leachate volumes.

K.2.g Waste Compaction and Application of Cover

Cover material for daily operations of the landfill will be obtained from the designated stockpile area, C&D Site, and/or compost generated from yard waste recycling. Compost used with soil for cover material shall be free of waste. Cover material will be deposited in the stockpile area location shown on Sheet G-03, Overall Site Plan and Phasing Plan, provided with the permit drawings. The designated stockpile area will have 3:1 side slopes in order to minimize erosion. Additional soil obtained from offsite borrow areas will be placed within the stockpile area during the operational life of the facility. A silt fence will be installed around the stockpile area and side slopes will be grassed to further reduce and control erosion.

Waste will be spread in layers approximately two feet thick on the working face and compacted to approximately one foot in thickness before application of the next layer. The solid waste will be compacted with a minimum of three to five passes of a compactor. Initial, intermediate and final cover will be applied as detailed in Sections K.2.f, K.7.f, K.7.g, and K.7.h., of this Operations Plan.

K.2.h Stormwater Controls

The stormwater management system for this project consists of a series of swales, culverts, and detention ponds. The system is designed to comply with all of the requirements of both Chapters 62-25 F.A.C. and 40 D-4 F.A.C. The stormwater management system for CCSWDC was constructed under a permit issued by the Southwest Florida Water Management District in 1993. All components of the system were installed during Phase I construction.

All cells within Phase II as well as the Phase I/Phase II overlay liner system were constructed with a rain cover to avoid erosion of the protective cover, limit plant growth, and assist with the management of stormwater until waste is deposited within the cells. The rain cover consists of a 20-mil scrim-reinforced polyethylene liner held in place with sand bags. Specifications for the rain cover installed during Phase II construction are provided in Attachment K-16.

Stormwater collected on the rain cover will flow north to the sump areas within each cell. Any collected stormwater that has not been in contact with solid waste or otherwise contaminated by leachate will be pumped out of the cells and into the perimeter channel which is part of the permitted stormwater management system. Any stormwater collected by the rain cover that has been in contact with solid waste

or which has received discharges of leachate will be considered leachate and will either be allowed to enter the leachate collection system within the cell or will be pumped out of the cell into one of the leachate collection manholes located on the north perimeter berm of Phase II. The impacted stormwater will then flow by gravity to the Phase II leachate pump station where it will be pumped to the leachate storage tank. If it is not clear whether stormwater has been impacted by leachate, the County will collect samples of the stormwater for analysis to determine whether it meets the requirements for discharge into the stormwater management system as contained within the current Environmental Resource Permit (ERP).

Pumping of stormwater off of the rain cover in Cells 1 and 2 will be accomplished with portable pumps that will be positioned on the north perimeter berm as needed. The pump discharge will be directed to a portion of the perimeter drainage channel lined with riprap in order to avoid erosion of the channel. Since Cells 3 and 4 will be idle for a long period prior to receiving waste, a semi-permanent dewatering system will be installed for these cells. The system will consist of a single manually operated electric pump mounted on a concrete pad that will be located on the north perimeter berm of Cell 3. The concrete pad will be 8 inches thick; therefore its installation will not damage the geosynthetic components within the anchor trench which are protected with approximately 2 feet of soil cover. The suction and discharge piping will consist of 8-inch diameter DR-18 PVC pipe. The suction piping will be buried along the top of the berm but will emerge out of the ground after turning south opposite of the Cell 3 and Cell 4 sump areas in order to avoid damage to the liner system and anchor trenches. The suction piping will continue into the sump areas and will be raised above the surface of the rain cover by means of small concrete pads onto which the pipe will be strapped. The rain cover will be protected from the concrete pads by placing a layer of geocomposite drainage layer (GDL) between the bottom of the pad and the rain cover. The discharge piping from the pump will also be 8-inch diameter DR-18 PVC pipe. It will be buried soon after leaving the pump and discharge into the perimeter channel north of the pump on a riprap pad to prevent erosion. Drawings of the Cells 3 and 4 rain cover dewatering system are included in Attachment K-17.

The rain cover will be removed prior to the placement of waste within a cell. The rain cover within a cell may be removed either all at once or in stages depending on how long it is anticipated it will take to place the first lift of waste within the cell. If the rain cover is removed in stages, then stormwater may be collected in the areas with remaining rain cover in accordance with the previously described procedures.

All stormwater runoff will be conveyed via perimeter drainage channels to detention facilities. Ditch blocks located in the perimeter channels at strategic locations act as sediment traps and will require periodic maintenance.

The ultimate discharge of the detention facilities will be to Old Cow Pen Slough or isolated wetlands through fixed control weirs and spreader swales.

As the filling of the waste progresses, temporary stormwater letdown structures will be installed to facilitate drainage without erosion. Temporary stormwater diversion berms will be installed around the top perimeter of each lift and connected to the temporary letdown structures. The temporary letdowns will be located, in the approximate locations as shown on Sheets C-07 through C-09, Landfill Staging Plans, provided with the Permit Drawings. Stormwater will be directed to these temporary letdown structures by sloping the top of each lift to promote drainage as shown on the staging plans.

Sediment collection provided by perimeter ditches and ditch blocks will minimize siltation of the main retention areas. In addition, the active fill area(s) will be surrounded by berms to capture stormwater that comes in contact with waste and to prevent run-on and mixing with the stormwater from outside the active fill area. Stormwater collected within the berms surrounding the active fill area(s) is considered to be leachate and will be allowed to percolate into the landfill for collection by the leachate collection system. This leachate may also be pumped to a leachate cleanout pipe or leachate manhole as a means of discharging it to the leachate collection system. This water will be filtered through a screen on the pump intake prior to discharge to a cleanout pipe or manhole.

During normal operations and rainfall events, rain water which becomes leachate at the working face will percolate into the waste to drain the area. However, in order for the operator to limit leachate ponding at the working face during intense rainfall events, the operator may install piping which drains excessive leachate to the toe of the landfill and into the leachate collection system as shown on the drawing sheet provided in Attachment K-19. At the pipe inlet, tires or sand with silt fence maybe used as a filter medium to limit sediment transport through the pipe, allow leachate to freely drain to the inlet of the pipe, and to prevent objects from blocking the pipe inlet. Leachate may accumulate while the pipe is draining the area; however, the operator will inspect the inlet area periodically to ensure that the pipe inlet is not clogged and is allowing free drainage of water to the pipe to keep the accumulation at the inlet to a minimum. As the working face moves, the piping used to assist in drainage of excessive leachate will be relocated and reinstalled in a location selected by the operator which best drains the area. The general setup and installation of the piping will be as shown on the drawing sheet provided in Attachment K-19.

If tires are used for the inlet and outlet areas, they will be temporary and before final disposal of the tire pieces, they will be reduced in size in accordance with the tire disposal requirements of Rule 62-711, F.A.C.

On areas of the landfill that is covered with intermediate cover, pipes may be used from the top of the landfill to the areas with rain cover on Phase II to shed stormwater off the landfill and reduce erosion. The pipes will be installed as shown on the drawing sheet provided in Attachment K-19.

Operation and Maintenance Procedures

The stormwater management system for the CCSWDC consists of a variety of treatment and conveyance methods. The treatment system for the main solid waste handling and disposal areas includes seven wet detention basins. Conveyance to these ponds is through a series of letdown structures, perimeter channels and swales, and culverts. Stormwater collection along the entrance road is provided by the roadside swales. All portions of the stormwater system will be visually inspected by the County weekly and immediately following a storm event of 0.5 inch or greater. The inspections will identify buildup of debris, surface sheen, erosion and sedimentation, and overgrown or exotic vegetation, and structural problems. Any problems identified by these inspections will be corrected within three (3) days. The wet detention basins will be inspected to estimate quantities of sediment within each pond. If the sediment occupies 30 percent of the volume below the normal pool elevation, the sediment will be removed and disposed of in the landfill. Vegetation in all portions of the conveyance systems will be removed on an as needed basis to prevent blockage.

K.2.i Groundwater Monitoring Plan

Please refer to the Water Quality Monitoring Plan and addendums for the CCSWDC for information regarding the groundwater monitoring network and well locations.

K.2.j Maintaining Leachate Collection System

Leachate collection system maintenance will include daily inspection of all leachate pump stations, metering manholes and leak detection manholes. All pump running data as well as leachate level and flow data will be recorded and checked for irregularities. Pumps are pulled and checked for operational parameters at least once every two years. An example leachate pump data form is provided in Attachment K-8. The leachate collection system will be cleaned and inspected as described in part L.8.h of this Operations Plan.

K.3 LANDFILL OPERATION RECORD

The Administrative office located adjacent to the scale facilities at the entrance of the CCSWDC is shown on Sheet G-03, Overall Site Plan and Phasing Plan of the permit drawings. The office provides facilities for employees including a training/meeting room, sanitary facilities, and first aid equipment. Similar additional facilities are located at the Equipment Maintenance building. Files are located in the Administrative office to contain the operating record for the facilities as required by regulatory agencies/permits. Items that will be stored in the operation record include:

- This Operations Plan.
- All permits for the facility.
- All records and drawings used for developing permit applications.
- All monitoring information, calibration and maintenance records, and copies of reports required by permit (maintained for at least 10 years).
- Background water quality records.
- Annual estimates of the remaining life of the constructed landfill and other permitted landfill areas.
- All monthly waste records which shall include tonnages received for Class I, C&D, yard waste and recyclables.
- Asbestos location records.
- All monitoring reports for groundwater, stormwater, leachate and landfill gas.
- Waste tire processing records.
- Copies of all notifications required by 62-701 F.A.C.
- On-site precipitation record.
- DEP inspection reports.
- Load checking reports.
- Leachate storage tank inspection reports.
- All training verifications.

- All other reports related to the design, operation, monitoring and permitting for the facilities.

K.4 LANDFILL WASTE REPORTS

Each month, a summary report of waste tonnage received for Class I waste, C&D debris, yard waste, and recyclables will be compiled. Copies of the monthly reports will be submitted to FDEP annually or upon request.

K.5 EFFECTIVE BARRIER/ACCESS CONTROL

Access control at CCSWDC includes a perimeter fence with a locking access gate at the scalehouse, which is the only entrance/exit for the facility. The access gate normally will be kept open during hours of operations and an attendant will be at the scalehouse during those times. When CCSWDC is not in operation, this access gate normally will be kept closed and locked.

K.6 LOAD CHECKING PROGRAM

At least three random loads of Class I Municipal Solid Waste (MSW) delivered to the landfill each week will be examined in accordance with the following procedure:

Mechanism for Inspections

(1) Specific locations within the active landfill cell are to be dedicated to load examination. The areas should be relatively free from extraneous debris and capable of maintaining isolation of the material for one calendar week.

(2) The inspection of the load shall be controlled by a Contracting Operator employee. Training of contract personnel shall continue on an ongoing basis. 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 driver will be directed to discharge their load at a designated location adjacent to the working face. If any unauthorized waste (i.e., lead-acid batteries, used oil, yard trash, white goods, and whole tires) is found by the random inspection, or as part of routine operations, the waste will be segregated and removed from the site for recycling as described in Section K.2.c. These unauthorized wastes will be stored as described in Section K.2.c. and removed from the site within 30 days.

(3) The inspection form (see Attachment K-5) shall be filled out and signed off by the inspector. The inspector will identify and note all unauthorized waste found during random load inspection, estimated quantity, and the action taken. The inspector will sign the inspection form that will be retained at the CCSWDC. It shall be the County's responsibility to file/store/distribute the reports.

(4) The Sarasota County Solid Waste Operations Unit or the Solid Waste's Hazardous Waste Section will investigate violations found during the inspection process. The Contract Operator will remove or clean-up the disposed materials.

(5) Violations involving hazardous waste dumping will be handled by the Sarasota County Solid Waste's Hazardous Waste Section. Every attempt will be exhausted to place responsibility on the generator relative to having the hazardous waste in question removed from the landfill at the expense of the generator. In the event that generator responsibility cannot be determined and that the waste appears to be from a commercial source, it will be the Contract Operator's responsibility to segregate and secure the waste and pay all costs relative to safely disposing of said waste.

(6) A list of offenders will be compiled by the Solid Waste's Hazardous Waste Section and the list will be provided to the County with updates on a periodic basis.

K.7 PROCEDURES FOR SPREADING & COMPACTING WASTE AT THE LANDFILL

The following guidelines will provide an efficient and environmentally sound method of operation for the CCSWDC.

- 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 and either reused or stockpiled for later use prior to the placement of a new lift.
- The materials described in Attachment K-10 may be used for initial cover. Stormwater runoff will not be allowed from waste filled areas covered with tire chips or tarp. Runoff from outside of 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 at least 6 inches of compacted soil (or a mixture of soil/mulch), free of waste and 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 near the working face may not be necessary because of the proximity of the on-site soil stockpile area.

K.7.a Waste Layer Thickness and Compaction Frequencies

Waste will be spread in layers of approximately two feet thick on the working face and compacted to approximately one foot in thickness before application of the next layer. The solid waste will be compacted with a minimum of three to five passes of a compactor.

K.7.b First Layer of Waste

Selected solid waste loads consisting of solid waste containing no large rigid objects will be used for at least the first four feet of the first lift of a new cell in order to protect the liner and leachate collection system. The first lift will be a minimum of 4 feet deep to bring the daily cover grade to an elevation of approximately 40 feet NGVD which is higher than the cell's lined external containment berms in order to promote shedding of stormwater. Waste will be deposited at the inside toe of the cell's lined external containment berm on the south end of the cell and spread to the north. No solid waste will be placed beyond the litter fences. For the initial lift, hauling vehicles will reach the working face by traveling on top of the previously deposited waste and depositing the loads at the top of the working face. The fill will be spread and compacted "down slope" to prevent vehicles from traveling on the protective sand layer. Also see Section K.2.f. in this Operations Plan.

K.7.c Slopes, Side Grades, and Lift Height

The typical height for each lift is 10 feet. All incoming solid waste will be directed to the working face and placed against the toe of the side slope of the previous day's refuse. The first row of waste in a new lift will be placed against the toe of the containment berm to provide a guide for the placement of refuse for the remaining rows. A maximum slope of 3 to 1 will be maintained on the working face. All top slope areas will be sloped to drain stormwater off of the landfill.

Waste will be placed within the designated edge of waste shown on the Engineering Drawings. The edge of waste will be located by measuring 7 feet inward from the edge of liner markers on the north and west sides of Phase II including the temporary liner termination for Cell 2. The edge of waste will be located by measuring 14 feet inward from the edge of liner markers on the south side of Phase II. Periodic inspections will be made to ensure that the markers are in place and the edge of waste is located the required distance from the edge of the liner.

K.7.d Maximum Width of Working Face

Maximum width of the working face will be 200 feet. This will provide a sufficient area for maneuvering large private and commercial vehicles as well as minimize the exposed area and the unnecessary use of cover material.

K.7.e Initial Cover

For the Class I landfill, a minimum of six inches of compacted initial cover consisting of native sandy soils, top soil, soil-yard waste compost mixture, shredded tires, or other FDEP approved initial cover will be applied to the top of the lift and to the working face at the end of each day. Attachment K-10 provides a description and specification for initial cover materials previously approved for this facility.

A 2-inch layer of shredded yard waste may be applied when needed to the initial cover to minimize erosion during rainy weather. The application of initial cover over the landfilled waste will assure control of disease vector breeding/animal attraction, odors, waste combustion (fire), blowing litter, and moisture infiltration.

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 (likely a bulldozer or scraper). The initial cover material will not be removed prior to placement of successive lifts of waste, with the exception of tarps,

which would be removed prior to placement of successive lifts. To enhance the infiltration of leachate through the waste, the initial cover material may be broken up in place by a dozer blade or equipment traffic immediately prior to the placement of the subsequent lift of waste. Any remaining litter and cleanings from equipment will be placed at the bottom of the completed cell and covered.

Before moving the working face, the area that will remain inactive will be covered with compacted cover soil (free of waste) or a mixture of 50 percent unscreened wood mulch and 50 percent soil, with sufficient thickness (minimum 6-inches) to prevent erosion and the mixing of leachate with stormwater.

K.7.f Application of Initial Cover

Initial cover will be applied at the end of each working day, except when solid waste will be placed on the working face within 18 hours, a temporary cover such as a tarpaulin may be used to cover the working face and removed before placement of additional waste. Initial cover alternative materials are listed in Attachment K-10.

K.7.g Intermediate Cover

Intermediate cover consisting of at least 1 foot of compacted native sandy soils or composted yard trash screened through ½-inch mesh mixed with 25 percent soil, by volume, will be applied within 7 days if final cover or an additional lift is not to be applied within 180 days. Intermediate covered areas that will not be landfilled or covered with final cover within 6 months will be sodded (external slopes) or seeded and mulched (internal and top slopes) to avoid slope erosion. Also see Section K.2.f. in this Operation Plan.

To conserve the intermediate cover material, 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 intermediate cover material (free of waste) will be stripped and reused as intermediate cover material. The stripped intermediate cover will be pushed ahead as needed for the perimeter containment berms constructed around the active working face area. The intermediate cover areas will be graded to promote drainage and seeded to prevent erosion.

Components of the landfill gas collection system may be installed in areas that receive intermediate cover. The locations of all underground piping associated with these systems will be marked to avoid damage to them during landfill operation and intermediate cover maintenance activities. Above ground structures such as well heads, and valves, will be kept readily visible by such measures as clearing vegetation, painting components bright colors, and installing protective posts and flagging. These measures should protect the above ground structures from damage during routine intermediate cover maintenance activities such as mowing, grass repair, and washout repair.

K.7.h Final Cover

Following the receipt of a closure permit, final cover will be applied to the Class I landfill on the completed portions of Phase I or Phase II of the landfill operation. The perimeter sideslopes of all completed cells will have a slope of 3:1.

The cap and final cover will consist of a minimum of 12 inches of intermediate cover soil, a geomembrane layer that complies with Department rules, a geocomposite drainage layer, and 24 inches of local common soil of which upper 6 inches will be capable of supporting vegetative cover. Specifications for the local common soil will be provided with the closure permit application.

Components of the landfill gas collection system may be installed in areas that receive final cover. The locations of all underground piping associated with these systems will be marked to avoid damage to them during landfill operation and final cover maintenance activities. Above ground structures such as well heads, and valves, will be kept readily visible by such measures as clearing vegetation, painting components bright colors, and installing protective posts and flagging. Protective posts shall be installed such that they do not damage the final cover system. These measures should protect the above ground structures from damage during routine final cover maintenance activities such as mowing, grass repair, and washout repair.

K.7.i Scavenging and Salvaging Control Devices

Scavenging and salvaging is not allowed on the working face at CCSWDC. In the event spotters working in this area observe scavenging or salvaging activities on the working face, the landfill manager will be notified.

K.7.j Litter Control Devices

Litter will be controlled by requiring covered loads, efficient unloading and cover operations, litter fences, perimeter fencing, and by routine clean-up. Litter outside the working area will be picked up within twenty-four (24) hours.

A small litter fence will be placed at the limit of each landfill cell area for the full length of the active working area of the cell.

K.7.k Erosion Control Procedures

Erosion control procedures at CCSWDC mainly consist of stormwater management for active cell areas and in areas surrounding the landfill cells. Stormwater management for used portions of active cells where initial or intermediate cover over the waste has been placed in accordance with FDEP requirements, is achieved by:

- Grading the waste-in-place with an adequate slope and adequately covering the waste to divert stormwater away from the working face.
- Use of terraces and letdown pipes.
- Maintaining internal and external berms.

Of critical importance will be maintaining the stormwater management system during the filling sequence. As each lift is constructed, temporary stormwater diversion berms will be constructed.

A containment berm will isolate the working face from the remaining covered areas. Stormwater which accumulates behind the containment berm in the area of the working face is leachate and will be retained and allowed to percolate into the landfill where it will eventually be collected in the leachate collection system.

Other berms will divert stormwater from top slopes to let down structures and will serve as erosion control to protect recently covered side slopes. These external berms will be sodded to minimize erosion and will be directly connected to the temporary letdown structures to facilitate proper management of stormwater runoff.

Sediments that reach the perimeter channels will collect behind the ditch blocks and will require periodic removal. Within 30 days after applying intermediate cover to side slopes that have reached designed dimensions, sod shall be applied. As filling progresses above the proposed first drainage terrace, the first set of temporary letdown structures will be constructed. This operating procedure will minimize the amount of erosion and sediment accumulation that must periodically be removed from the perimeter ditches.

Areas provided with intermediate cover, or other areas that discharge to the stormwater management system that exhibit significant erosion, will be repaired as follows:

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

K.8 PROCEDURE FOR LEACHATE MANAGEMENT

K.8.a Leachate Monitoring, Sampling, and Analysis

The sump pumps located in Cells 1 through 5 of Phase I will operate in an automatic mode based on the liquid level in the sump. Figure L-2 in Attachment K-3 shows the operation levels for the sump pumps. The pressure transducer located at the end of the pump housing accurately measures the level of liquid in the sump and provides a digital readout of this level at the control panel mounted on the valve box at the top of each cell's lined external containment berm. As shown on Figure L-2, the high water alarm will result if leachate levels rise to cause 12 inches of head on the liner system adjacent to the sump area.

Two additional pump units will be provided for backup of the Phase I sump pumps. This allows for removal of each pump on a regular scheduled basis to perform preventative maintenance. When a sump pump is removed for schedule maintenance, a spare pump will be reinstalled immediately while the maintenance is being performed. Each pump will receive preventive maintenance in accordance with the manufacturer's recommendations at a frequency based on run time.

Cells 1 through 4 of Phase II will drain by gravity to a duplex leachate pump station located north of Cell 2. The pump station will operate in an automatic mode based on the liquid level within the wet well. Sheet C-17, Leachate Collection System Details, of the Permit Drawings shows the operation levels for the pumps. The pressure transducers located at the end of the pump housing accurately measure the level of liquid within the wet well and provide a digital readout of this level at the control panel mounted adjacent to the pump station. As shown on Sheet C-17, Leachate Collection System Details, the duplex pumps will operate on a lead/lag basis.

Additional details on leachate sampling locations, sampling and analysis schedule, and data submission is provided in the Water Quality Monitoring Plan and Addendums.

K.8.b Leachate Collection and Removal System

Phase I Collection System

The existing Phase I Class I landfill leachate collection system consists of a geonet drainage layer and perforated collection pipe above the composite liner system to collect and convey leachate. The leachate that is conveyed to sumps will be pumped to an existing 1,800,000 gallon on-site leachate holding tank. A typical detail for the Phase I sumps is provided in Figure L-2 of Attachment K-3. The leachate collection piping system consists of 8-inch diameter perforated HDPE pipe sloped in such a manner that leachate flowing through the solid waste of the landfill will be collected and transported by gravity to a sump and leachate pump. The discharge line from the sump pump connects to a HDPE header line via a valve vault. Provisions for sampling the leachate as well as monitoring flows and pressure are provided in the valve boxes (locations shown in Attachment K-14).

Phase II Collection System

The proposed Phase II Class I landfill leachate collection system consists of a geonet composite drainage layer and perforated collection pipe above the double synthetic liner system to collect and convey leachate. The leachate that is collected within the Phase II cells will be pumped to the on-site leachate holding tank. The leachate collection piping system consists of 8-inch diameter perforated HDPE pipe sloped in such a manner that leachate flowing through the solid waste of the landfill will be collected and transported by gravity to a metering manhole located on the north perimeter berm of each cell. At the metering manhole, leachate flows from each cell are measured using a Parshall flume and an ultrasonic water level sensor. Each metering manhole drains by gravity to a duplex leachate pump station located adjacent to Cell No. 2. The discharge from the leachate pump station will be directed through a new HDPE leachate forcemain that will be installed along the north and west sides of Phase II, the west and south sides of future Phase III and the south side of future Phase IV. Provisions for sampling the Phase II leachate as well as monitoring flows and pressure are provided in the valve vault located adjacent to the leachate pump station as shown on the details provided on Sheet C-17, Leachate Collection System Details, of the Permit Drawings. Any stormwater accumulated in an unused cell will be pumped out from the cell using portable pumps and discharged to the stormwater system. Prior to waste disposal within a cell, the valve connecting the leachate collection pipe within the cell to the manhole will be in the closed position to prevent stormwater from draining to the leachate pump station. Immediately prior to solid waste being deposited into a new landfill cell, the valve at the manhole will be opened to allow the free flow of leachate to the pump station.

Leachate collected within the geocomposite drainage layer of the leak detection system of Phase II will be drained by gravity to a leak detection manhole located on the north perimeter berm of each cell. The discharge valve at the leak detection manhole will normally be closed to allow the quantity of leakage to be measured. An ultrasonic water level sensor calibrated to the storage volume within the manhole at a given level will be used to measure leakage rate. After the leakage rate has been determined, the leachate within the leak detection manholes will subsequently be drained by gravity to the leachate pump station and the valve closed for another measurement. The leak detection system has been designed such that a leak developing within

the most remote part of a cell will flow to the leak detection manhole within twelve hours. A Leakage Action Rate (LAR) of 100 gallons/acre/day has been established for the Phase II cells, which corresponds to the EPA Guidance and FDEP experience with facilities with similar liner systems. At this rate, the 470 gallon storage volume within the leak detection manhole will be exhausted within 8.75 hours. For leakage rates greater than 100 gallons/acre/day, measures should be initiated to find and repair or minimize leaks within the primary liner system.

The following procedures will be initiated if the LAR of 100 gallons/acre/day is exceeded:

1. Increase monitoring of the leakage quantity from the cell(s) affected. This consists of increasing the frequency of monitoring liquid levels within the leak detection manhole(s) to determine the time required to fill the five-foot storage volume in the manholes. It is anticipated that readings will be made at least daily after the LAR is exceeded and the calculated leakage rates will be recorded.
2. Immediately notify FDEP once it is ascertained that the LAR is being exceeded and provide a plan on how the County intends to address the exceedance.
3. Attempt to locate and fix sources of leaks to the extent practical. Measures to locate leaks could include inspecting the leak detection manhole to determine whether groundwater is leaking into it, observing the surface of the cell to determine if there are indications as to where leaks may be located such as large protrusions of waste that may have penetrated the liner system, and video taping the leak detection pipe to determine where large inflows are occurring. If the location of a leak can be identified and excavation of waste is practical, then the liner will be exposed and repaired.
4. Adjust operational practices as needed to reduce the likelihood of future damage to the liner such as increasing the thickness of the initial layer of select waste on the cell bottom.
5. If leaks can not be specifically located or if it is not practical to find them, adjust operations to try to reduce the leakage to below the LAR. This could include measures to reduce the generation of leachate such as grading the landfill to promote runoff, installing drains and berms to direct runoff away from the landfill, the installation of additional intermediate or temporary cover, installing temporary geomembrane rain covers, or accelerating the placement of final cover in areas that have reached final elevation.

Phase I/Phase II Overlay Liner System

An overlay liner system will be constructed over the west sideslope of Phase I prior to the placement of waste against this slope as a result of the construction of Phase II. The purpose of the overlay liner system is to reduce the quantity of leachate entering the Phase I leachate collection system from the Phase II expansion by directing it to the Phase II leachate collection system. This will be accomplished by hydraulically separating the newer waste above it from the older waste beneath the overlay liner system.

The overlay liner system will consist of (from the top down) 2 feet of protective cover material, a geonet composite drainage layer, a textured 60-mil HDPE liner, and a minimum of 12 inches of

intermediate cover placed over the waste. The protective cover may be installed in stages as required by operations in order to avoid having the material washout during storms. Alternately, the protective cover may be placed all at once if a rain cover is installed over it to prevent washouts. The rain cover would be removed prior to the placement of waste against the overlay liner system.

The rain cover on the overlay liner system includes rain gutters to divert stormwater off the rain cover to temporary downdrains that will direct the stormwater to the perimeter drainage channel located north of Phase I. The locations of the rain gutters and temporary downdrains are shown on Sheets C-3 and C-3A of the Engineering Drawings. Details of these features are included on Sheet C-13B of the Engineering Drawings. Calculations demonstrating that the rain gutters and downdrains are capable of transmitting the flow generated from the 25-year design storm are included in Attachment H.2 of the Phase II Permit Application Engineering Report.

Leachate percolating through the newer waste located above the overlay liner system will be captured by the liner and directed to the base of the overlay liner system by means of the geonet composite drainage layer. A stone-filled trench drain with an 8-inch diameter perforated HDPE pipe located at the Phase I/Phase II divider berm will collect the leachate and direct it to the low point within Cell 1 of Phase II where it will flow out of the cell with the rest of the leachate collected within Cell 1. From there, the leachate will flow as previously described for the Phase II collection system.

Leachate Disposal System: General Description

Leachate that is generated from the landfill cells will be pumped to the existing 1,800,000 gallon leachate storage tank. The leachate accumulated in the storage tank will be removed by a leachate pumping station that will pump through a 4-inch PVC force main to a connection to the Sarasota County wastewater collection system south of the landfill on Knights Trail Road. The Sarasota County wastewater collection system in this area flows to the City of Venice Water Reclamation Facility (WRF) for treatment.

The leachate pumping and force main system is the primary disposal method for the CCSWDC leachate. Transfer pumps that discharge to tanker trucks for hauling to the Bee Ridge WRF will serve as a secondary emergency disposal location.

The following information provides a description of the above ground leachate storage tank in accordance with the requirements of 62-701.400(6)(c).

The existing leachate storage tank has a total capacity of 1.8 million gallons. The exposed plan area of the secondary containment system surrounding the existing leachate storage tank is 5,419 square feet. This will allow 27,000 gallons of water to accumulate after an 8-inch rainfall event. All liquid accumulating in the secondary containment system will be tested for specific conductance. Specific conductance of the stormwater in the secondary containment shall not be more than 50 percent above the specific conductance of water in the nearest downstream stormwater pond (Stormwater Pond No. 6) or shall not exceed 1,275 umhos/cm, whichever is greater. If the specific conductance is greater than these criteria or if a visible sheen is present, then the stormwater will be pumped directly into the leachate storage tank and managed as

leachate.

A log of discharges from the secondary containment system will be maintained. The date, specific conductance measurements, and visual sheen observations shall be recorded.

An electronic water level sensor will automatically determine when the storage tank reaches 90 percent capacity (1.62 million gallons) and a high water alarm will be activated. An electric actuated shutoff valve in the fill line will be activated to prevent overfilling the tank when the capacity reaches 1.8 million gallons in the tank. The electric actuated shutoff valve will be tested by inducing a false signal from the level sensor and confirming proper operation on a weekly schedule. The exposed tank exterior will be inspected weekly by visual observation. The inspection will include looking for leaks, corrosion, or other maintenance deficiencies. This will be accomplished by inspection from platforms at the top of the 20-foot high secondary containment wall, positioned 120 degrees apart around the circumference of the tank. The tank interior will be inspected annually when the tank is empty or at least once every three years. If any failures are detected, the tank construction company shall be contacted immediately and appropriate repairs conducted based on the nature of the problem. Leachate will be managed in accordance with the Contingency Plan (Section K.8.e) when the tank is out of service. Reports of the above inspections will be maintained by the County (the most recent inspection report is included as Attachment K-7).

The leachate pumping station will have automatic controls with the following set points:

	Elevation
High water alarm	40
Lag pump on	28
Lead pump on	27
Pumps off	26
Tank bottom	22

The set points can be modified by adjusting the pump control system. The duplex pumps will automatically alternate operation each time the pump is stopped by the level control system. The pumping station is equipped with a data logger to record flow, pH, and conductivity on a continuous basis.

K.8.c If Leachate Becomes Regulated as Hazardous Waste

Sarasota County will evaluate options for pretreating the leachate and alternate disposal if it becomes regulated as a hazardous waste.

K.8.d Off-Site Treatment of Leachate

The primary disposal location for CCSWDC leachate and alternate disposal is the City of Venice WWTP. Facility commitment letters are provided in Attachment K-6. A secondary disposal location is the Bee Ridge Water Reclamation facility. CCSWDC may use other secondary facilities for the offsite treatment or disposal of leachate; however, the County will notify FDEP of the change prior to use.

The CCSWDC will dispose of leachate at the primary treatment location provided the leachate meets the disposal quality requirements. Should leachate quality change such that it is no longer acceptable at the primary treatment location, the CCSWDC will dispose of leachate at the secondary facility.

K.8.e Contingency Plan for Leachate Management

Should one of the following events occur, the leachate contingency management plan shall be implemented.

- Any mechanical failure of the leachate management system that would prevent operation of the landfill leachate collection system pumps or the leachate transfer pumps for more then three (3) consecutive days.
- Liquid accumulation in the holding tank leak detection system in amounts greater than expected from rainfall.
- Rise of leachate levels inside the holding tank greater than 52.6 (high water alarm elevation represented by 31 foot mark on the external tank gauge).

Implementation of the contingency plan includes the following actions.

(1) The landfill manager shall notify the FDEP (within twenty-four (24) hours) and leachate disposal facilities of the emergency event.

(2) If the problem is excess leachate in the detection system of the holding tank, remedial measures shall be taken immediately to eliminate the leak. The detection system of the concrete holding tank consists of a layer of gravel located between the bottom of the holding tank and the top of the secondary containment slab that enables the detection of leaks at the bottom of the holding tank. Additional tractor trailer tanker units and operators shall be called to the site to expedite transport of leachate to the receiving wastewater treatment plant or additional quantities shall be pumped through the forcemain to the City of Venice lift station. The holding tank shall be emptied completely, if required, to facilitate repairs. Leachate will be pumped to mobile tanks during periods the repairs.

(3) If the problem is excessive levels of leachate in the holding tank (elevation exceeds the high water alarm level), the maximum amount of leachate shall be diverted from the tank by increasing the number of frequency or tanker trucks hauling leachate to the primary or secondary WWTPs, pumping additional quantities of leachate through the forcemain to the City of Venice lift station, or storing leachate in mobile tanks.

(4) Once the problem causing the implementation of the contingency plan has been resolved to an acceptable degree, the landfill manager shall notify FDEP (within three (3) day) that the facility is ready to return to normal operating conditions.

(5) Inspections and repairs to the leachate tank will be scheduled during winter months to the extent possible in order to minimize the quantity of leachate that must be removed. While the tank is out of service, leachate will be pumped directly to either tanker trucks or temporary storage tanks. If the tank will be out of service for an extended period, the temporary tanks will be plumbed to the leachate transfer station to allow direct pumping of the leachate to the WWTP.

K.8.f Recording Quantities of Leachate Generated

A control panel for each sump pump in Cell Nos. 1 through 5 of Phase I is mounted on the valve box at the top of each cell's lined external containment berm. Each control panel will be equipped with a pump hour meter.

A control panel for the Phase II duplex leachate pump station will be mounted adjacent to the pump station. The control panel will be equipped with a flow meter, water level indicator, and a pump hour meter.

The following information will be recorded once per operating day from each pump location.

Cell No. or Phase _____
Flow Meter Reading _____
Hour Meter Reading _____
Sump or Wet Well Liquid Level _____

The above information is recorded on the form provided in Attachment K-8.

A control panel for the Phase II metering manholes will be mounted adjacent to the manhole. The panel will be equipped with a water level indicator, instantaneous flow meter, and a flow totalizer.

The following information will be recorded once per operating day from each metering manhole location.

Cell No. _____
Instantaneous Flow _____
Totalized Flow _____
Liquid Level _____

The above information is recorded on the form provided in Attachment K-8.

K.8.g Precipitation and Leachate Generation Rates

Rainfall for each 24-hour period measured at an official gauge located on-site will be recorded and entered onto a spreadsheet (format included in Attachment K-11) to compare precipitation to leachate generation.

K.8.h Leachate Collection System Inspection and Cleaning

CCSWDC will conduct a video inspection of the leachate collection system at least once every five years in accordance with Rule 62-701.500 F.A.C. requirements, and cleaned as necessary. Leachate pumps, metering manholes, and leak detection manholes at CCSWDC will be inspected for operation failures at least daily. Control panels will be inspected and operational data recorded as described in K.8.f.

K.9 LANDFILL GAS MANAGEMENT AND MONITORING

K.9.a Landfill Gas Management

The CCSWDC is located near the center of a 6,000 acre site. The minimum distance from the Class I landfill to the nearest property line is 1,800 feet. This distance represents a substantial buffer to allow for dispersion of odors normally associated with MSW landfill operations. Therefore, it is not anticipated that collection of landfill gas will be necessary for odor control.

In order to comply with air quality requirements, a Non-Methane Organic Compound (NMOC) emission report will be submitted to the implementing authority on an annual basis following the requirements of New Source Performance Standards (NSPS). Within twelve (12) months after reporting NMOC emissions greater than or equal to 50 Mg/year (megagram per year), a detailed landfill gas collection and controls system design plan submittal shall be made to the NSPS implementing agency. Within eighteen (18) months after this submittal, the installation of the landfill gas collection and control system shall be completed. Based on current Tier 2 sampling and model projections, the CCSWDC Class I landfill has not exceeded the NMOC threshold at the time this report was and is not expected to exceed the threshold until 2015. Operation of the Landfill Gas System is provided in greater detail in Attachment K-15, LFGCCS Operation and Maintenance Plan.

K.9.b Landfill Gas Monitoring Program

A gas monitoring program will be implemented to prevent explosions and fires and to minimize off-site odors and damage to vegetation. The landfill gas monitoring program for CCSWDC will include monitoring of the landfill perimeter and enclosed on-site structures at the monitoring locations shown on Figure 1 in Attachment K-3. Monitoring will be conducted on a quarterly basis and a report submitted to FDEP within 15 days after the end of the quarter in which monitoring occurred. The outside monitoring locations, as shown on Figure 1 provided in Attachment K-3, (gas monitoring probes) will consist of a monitor probe as shown on Figure L-3 in Attachment K-3. All gas probes will be clearly labeled and easily visible at all times.

The CCSWDC gas monitoring locations for include four (4) gas monitoring probes as described above and numbered GP-2, GP-3, GP-7, and GP-9 and six (6) gas monitoring locations GM-1, GM-2, GM-3, GM-4, GM-5, and GM-7 in structures as shown on Figure 1 provided in Attachment K-3.

These locations are summarized in the table below:

CCSWDC Landfill Gas Monitoring Points

MONITORING POINT	TYPE OF MONITORING	LOCATION
GP-2	Probe	North of Phase I
GP-3	Probe	East of Phase I
GP-7	Probe	North of C&D Processing Area
GP-9	Probe	West of Cell 4, Phase II
GM-1	Monitoring Location	Contractor's Maintenance Bldg.
GM-2	Monitoring Location	C&D Processing Area
GM-3	Monitoring Location	County Maintenance Bldg.
GM-4	Monitoring Location	Administrative Bldg.
GM-5	Monitoring Location	Scale House
GM-7	Monitoring Location	Control Panel at Leachate Storage Tank

Low areas, base boards, floor drains, and floor mounted cabinets shall be monitored inside the structures. Other structures on the site are not monitored because their great distance from the landfill (over 3,400 feet) and the shallow groundwater table (5 to 7 feet below surface) at the site would cause any migrating gas, if it existed, to purge to the atmosphere before it would travel to these structures through the ground. Also, there are no connections via conduit pipes, etc. between these structures and the landfill area.

Please note that gas monitoring probes north of Phase II are not necessary due to the presence of Stormwater Pond No. 1 that will effectively cut off the migration route of landfill gas in that direction. Also, gas monitoring probes south of Phase II are not necessary due to the long distance between the edge of waste and the property line and structures that can be adversely affected by migrating landfill gas. The high water table at the site also makes it unlikely that gas will migrate significant distances.

The landfill gas probes and monitoring locations shown on Figure 1 will be sampled at least quarterly for concentrations of combustible gases determined as a percent of the lower explosive limit (LEL) calibrated to methane as described in FAC 62-701.530.(2).

A methane/combustible gas detector (meter) will be used to measure the LEL at the monitoring locations. No purging of the probe will be allowed. Once the meter is connected to the sampling port, the valve will be opened and the meter pump will be engaged and meter reading observed. The highest value observed is recorded as well as the steady state value observed.

If the results of gas monitoring show that combustible gas concentrations exceed 25 percent of the LEL calibrated to methane in structures or 100 percent of the LEL calibrated to methane at the property boundary, Sarasota County will immediately take all necessary steps to ensure protection of human health and notify FDEP. Within 7 days of detection, a gas remediation plan detailing the nature and extent of the problem and the proposed remedy will be submitted to FDEP for approval. The remedy will be completed within 60 days of detection unless otherwise approved by FDEP.

K.9.c Odor Reporting Procedures

The CCSWDC shall be operated to control objectionable odors in accordance with Rule 62-296.320(2), F.A.C. After being notified by the Department that objectionable odors have been confirmed beyond the landfill property boundary, the CCSWDC shall:

(1) Immediately take steps to reduce the objectionable odors. Such steps may include applying or increasing initial cover, reducing the size of the working face, and ceasing operations in the areas where odors have been detected;

(2) Submit to the Department for approval an odor remediation plan for the gas releases. The plan shall describe the nature and extent of the problem and the proposed long-term remedy. The remedy shall be initiated within 30 days of approval.

(3) Implement a routine odor monitoring program to determine the timing and extent of any off-site odors, and to evaluate the effectiveness of the odor remediation plan.

K.10 STORMWATER MANAGEMENT SYSTEM

The landfill stormwater management system for CCSWDC is discussed in Section K.2.h.(3) – Stormwater System.

K.11 EQUIPMENT AND OPERATION FEATURE REQUIREMENTS

K.11.a Adequate In-Service Equipment

Equipment proposed for the CCSWDC will include the equipment listed in Table K-1 (on the next page). The exact equipment complement may vary from time to time and additional equipment will be acquired if needed. One roll-off container will be placed at the Class I landfill area.

Emergency Electrical Generation Equipment is of adequate size to assure complete operation of the Leachate Disposal and Collection Systems.

K.11.b Reserve Equipment

Cooperative lending agreements with the Contract Operator's company and standing agreements with local equipment suppliers will provide a means for procuring additional back-up equipment within 24 hours of a need being identified.

K.11.c Communication Facilities

Radios and cell phones will be the primary communications devices to provide safe conditions for landfill personnel.

K.11.d Dust Control Methods

Dust from unpaved haul roads and construction areas within the Class I landfill area will be controlled through the use of a water spray truck. An alternate dust control measure that may be used in active cells of the Class I landfill area is leachate reuse (see Attachment K-12 for FDEP approval letter). The reuse of leachate involves spraying small quantities of leachate from a spray bar mounted on the rear of a tank

TABLE K-1. EQUIPMENT USED AT THE CCSWDC

NUMBER	EQUIPMENT
2	Bulldozer
2	Compactors
2	Dump Truck
1	Front-end Loader
1	Grader
1	Hydraulic Excavator
1	Water Truck
1	Fuel Truck
2	Pick-up Trucks
2	UD Gators
1	Roll-off Truck
1	Compressor
1	Pressure Washer
1	Welder

truck onto active fill areas of the landfill. The landfill operation crew will monitor the rate of leachate application, soil moisture conditions, and the specific landfill areas used to prevent the generation of leachate runoff. Leachate will only be applied under the following conditions.

- Leachate may only be sprayed on active, bermed fill areas, including the working face, and areas with the required six (6) inches of initial cover.
- Leachate may not be sprayed on areas with intermediate or final cover.
- The maximum grade leachate will be sprayed on is a 10H:1V slope. Areas within 150 feet of a 4H:1V or steeper side slope will not be sprayed on. At all times areas receiving leachate must be controlled to prevent run-off from entering the stormwater system
- Leachate will not be sprayed during a rainfall event, and when the application area is in a saturated condition.
- The application rate of leachate should be such that leachate does not accumulate on the landfill surface, and infiltrates quickly into the covered refuse.
- 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.

The Site Manager will record daily the gallons of leachate sprayed per this method.

If needed, dust masks will be available to personnel working in excessively dusty areas.

In general the facility will employ multiple methods for dust control as described above; in addition many of the facility's roads are paved for all-weather conditions, as described in Section K.12 below.

Reasonable dust control precautions may include, but are not limited to, the following:

- Paving and maintenance of roads, parking areas and yards.
- Application of water to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing.
- Application of asphalt, water, or other Department-approved dust suppressants to unpaved roads, yards, open stock piles and similar activities.
- Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent re-entrainment, and from buildings or work areas to prevent particulate from becoming airborne.
- Landscaping or planting of vegetation.
- Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter.
- Confining abrasive blasting where possible.
- Enclosure or covering of conveyor systems.

K.11.e Litter Control Devices

See Section K.7.j. in this Operations Plan.

K.11.f Signs Indicating Name of Operating Authority, Traffic Flow, Hours of Operations, and Charges for Disposal

There is a permanent sign at the south property line along the access road to the facility identifying the Sarasota County Central County Solid Waste Disposal Facility and indicating hours of operation and charges for different types of loads. The sign indicates materials that are not accepted for disposal in the landfill. Signs indicating approach and exit routes and one-way roads are strategically placed so traffic at the landfill will move smoothly and efficiently to and from the working face area.

K.12 ALL WEATHER ACCESS ROADS

A paved entrance from Knights Trail Road terminates at the landfill perimeter roadway. In addition, paved perimeter roads around the landfill areas are shown on Sheet G-03, Overall Site Plan and Phasing Plan of the permit drawings. All weather access roads will be constructed within the Class I area to route traffic to the active working face. The all weather access roads will be constructed of earth, ground shingles, crushed rock, shell or any other stabilizing material, as appropriate.

K.13 ADDITIONAL RECORD KEEPING AND REPORTING

See Section K.3 of this Operations Plan for records and documents retained. Documents used for development, operations, construction, background water quality, and permitting of the CCSWDC will be kept for the design life of the CCSWDC. Weigh tickets shall be kept for 5 years. All monitoring information, including calibration and maintenance records, chart recordings, and all reports required by permit shall be kept for 10 years.

Records that are more than five years old may be archived at an off-site storage location. The archived records will be stored in a secure place where they will be protected from damage. Provisions will be made to retrieve records from storage as required within 7 days.

ATTACHMENT K-1

TRAINING PLAN

ATTACHMENT K-1

TRAINING PLAN

As stated in 62-701.500(1), F.A.C., all landfills shall have at least one trained operator at the landfill during all times when the landfill receives waste. The operator training includes a 24-hour initial course and 16 hours of continuing education every 3 years. Spotter training includes an 8-hour initial course and 4 hours of continuing education every 3 years.

In accordance with Rule 62-701.320(15), the owner or operator of a landfill, or other solid waste management facility required by this chapter to have trained operators or spotters, shall not employ a person to perform, nor may any person perform, the duties of an operator or spotter at such a facility unless that person is a trained operator or trained spotter. Interim spotters, who do not have the formal spotter training, maybe employed at the CCSWDC provided that the interim spotter is under the direct supervision of a trained operator or trained spotter. The interim spotter must receive training as an operator or spotter within 3 months of employment. An interim operator may be employed at the facility provided that it is for a period of no longer than 3 months from employment or if supervised by a trained operator, the interim operator must receive training within one year of employment.

Operator and spotter training courses are available at the University of Florida Center for Training, Research and Education for Environmental Occupations (UF/TREEO) and through other sources. A listing of the current year training courses available through TREEO can be found at the following website: http://www.treeo.ufl.edu/sw/. A listing of the County's currently trained operators is provided below.

Sarasota County Trained Operators
Gary Bennett
Lois Rose (certification pending)
Dan McAllister
Ed Russ
James Szala

In addition, the following contract personnel are trained as operators or spotters.

Willard Bennett (Operator)
Tim Ferris (Operator)
Ryan Davidson (Operator)
Drew Trainer (Operator)
Luis Herrara Barrero (Spotter)
Joseph Nichols (Spotter)
Brad Jones (Spotter)
Ian Trainer (Spotter)

ATTACHMENT K-2

CONTINGENCY PLAN

ATTACHMENT K-2

CONTINGENCY PLAN

SAFETY **1**

Training 1
Equipment 1
Special Procedures 2
Safety Meetings 2
Safety Officer 2

EMERGENCY AND FIRE SAFETY **3**

Notification: CALL 911 3
Used Tire Storage Area Special Rules 3
List of Emergency Response Equipment 4
List of Emergency Response Persons 4
Procedure to be Followed for Cleanup 5

CONTINGENCY PLAN **6**

SAFETY

The program shall consist of the following parts:

Training

General training of all employees will be required to develop the skills of emergency first aid and CPR. General training includes:

- Red Cross Multimedia certification is required initially upon employment and subsequently re-certification on a three-year schedule is required.
- Red Cross Cardiopulmonary Resuscitation Basic Life Support Course certification initially upon employment and subsequently on an annual basis thereafter is required.
- Annual Fire Extinguisher training.
- All employees shall be trained in the job-specific aspects of their position. This training will be provided by, and is the responsibility of, the employee's immediate supervisor.
- Special training shall be required for each employee on a job-specific basis. Each operator of a piece of equipment shall be trained in the operation of that piece of equipment by the immediate supervisor. This training shall be given in accordance with the manufacturer's recommendations and operating manuals. This training will be provided by, and is the responsibility of, the immediate supervisor in charge of the employee.

Equipment

This section outlines the basic safety equipment to be provided to the employees of this Division.

- Uniforms shall be furnished for, and shall be worn by, all employees except office personnel. Special exemption from this requirement may be granted by the Director of Solid Waste Operations Division on a case-by-case basis.
- Special safety equipment such as rain gear including rubber boots, boots having steel toes and stainless steel puncture resistant soles, work gloves, goggles, dust masks, protective eye glasses, rubber gloves, face guards, hearing protection, and rubber aprons shall be utilized as part of the day-to-day operational procedures of this Division. It shall be the responsibility of each individual employee and the immediate supervisor to assure that proper safety equipment is in use. Standard operating procedures will be developed and included as a part of this program. Development of these procedures will be the responsibility of all supervisory personnel.
- All employees will be required to wear safety shoes or boots when working in an environment dictating the need for such equipment. Generally, safety shoes will be required except when working in the scalehouse or office. Safety shoes will be issued to all employees whose duties require the wearing of safety shoes.

Special Procedures

Special procedures shall consist of operational plans, which shall be prepared by the supervisor in charge of each separate operation within the Solid Waste Operations Division. Operational plans shall be prepared for the following separate functions within the Solid Waste Operations Division – office, landfill, transfer station, hazardous wastes and infectious wastes.

Safety Meetings

Safety issues and topics shall be addressed during the scheduled staff meetings or as deemed necessary by the Solid Waste Operations Division Safety Officer.

Safety meetings shall be the responsibility of the Solid Waste Operations Division Safety Officer.

Safety meeting topics shall include a discussion of all incidents, which have occurred within the Division since the last safety meeting was held, along with topics of current importance and interest.

Safety Officer

The manager of the Solid Waste Operations Division shall appoint the Solid Waste Operations Division Safety Officer. The Solid Waste Operations Division Safety Officer is Brian Usher. The Solid Waste Operations Division Manager is Lois Rose.

The position of Solid Waste Operations Division Safety Officer shall be held in conjunction with the regular duties of the position for which the person was hired. However, the Solid Waste Operations Division Safety Officer shall be given time during the regular working hours to perform the duties of the Solid Waste Operations Division Safety Officer.

EMERGENCY AND FIRE SAFETY

This section provides the standard operating procedures for all personnel in the event of an emergency or fire of any nature that may take place within the boundaries of landfill or transfer station.

Notification: CALL 911

As in any emergency, the first thing to do is to immediately notify the proper emergency response team. In the case of FIRE, immediately notify the Fire Department through the emergency phone number 911. Remember, if you are calling from a phone, which is connected to the County's switchboard, you must dial 9 then 911 to reach the emergency operator.

Be sure to SPEAK SLOWLY, DISTINCTLY, DELIBERATELY, and remain as calm as possible. Briefly tell the person to whom you are reporting the emergency the following:

- The nature of the emergency;
- Any injuries or persons involved; and
- Where the emergency is located.

If there are injuries, you should render whatever assistance you can without endangering yourself. Use the First Aid and/or CPR training you have learned to assist where necessary. If possible, evacuate any person or equipment that may be endangered.

In the event of small fires, the use of a fire extinguisher may be sufficient to contain the fire until the arrival of the Emergency Responders. Fire extinguishers are found in every Solid Waste Operations Division vehicle and on every machine. In the event of larger fires, a 4000-gallon water tanker and the pressure washer trailer is available for fighting fires.

Upon arrival of the Emergency Responders, you should take whatever steps necessary to assist.

In the event of fire in the landfill, it may be necessary to smother the fire using available dirt from the dirt stockpiles located at the landfill. In this case, the Manager of the landfill shall make immediate provisions to provide that earth cover. Also, the procedures described in Section K.11.e of the Operations Plan shall be followed.

Used Tire Storage Area Special Rules

In the event there is a fire or other emergency in the used tire storage area, the following special rules shall apply:

- After following the emergency procedure outline above, the Manager shall insure that the dike around the waste tire pile is intact and that the valve of the drainpipe through the berm is closed. This shall be accomplished by patrolling the exterior of the dike and by adding earth to the dike wherever necessary to assure that no oily material generated by the combustion of the tires escapes the immediate area.
- The State of Florida, Department of Environmental Protection (FDEP), shall be immediately notified by calling the Tampa office at (813) 632-7600 if fire, or another emergency, poses an

unanticipated threat to the public health or environment. Within two weeks of any emergency involving potential off-site impact, a report shall be submitted to the FDEP including information on the emergency, the results of the action taken, and an analysis of the success or failure of the actions.

- In addition, any special conditions, as set forth by the Sarasota County Fire Department shall be met.

List of Emergency Response Equipment

In the event of a fire emergency, the following equipment is available at the landfill and may be used as the situation dictates in the evolution of responding to a fire emergency, such as repair of dikes, smothering with earth and materials, and use of water in extinguishing fires:

- D-6N BULLDOZER (3)
- 623-B Excavator
- 950 Front End Loader (2)
- Pressure washer trailer
- 4,000 GALLON WATER TANKER
- 322 Excavator

It should be noted that from time to time the equipment available for fire emergency use may be changed, and it should be the responsibility of the persons in charge at the facility to be aware of those changes and respond accordingly with the appropriate equipment in the event of a fire emergency.

Dry hydrant connections are available at the site for the purpose of supplying water in the event of a fire or other emergency.

Also available at the site is a pump with hose and discharge pipe to be used for filling the 4000-gallon tanker. Upon arrival of the fire department, this pump and water supply will be used under the direction of the officer in charge from the fire department.

Fire extinguishers are available in every vehicle and piece of equipment on the site. Although fire extinguishers are very ineffective against a large fire, it may be possible through their use to control the fire until larger equipment is brought to fight the fire.

List of Emergency Response Persons

Ambulance Service	911
Police Department	911
Fire Department	911
Solid Waste Operations Manager Lois Rose	(941) 861-1589 cell (941) 650-0722
Ed Russ	cell 941-650-9364

James Szala	cell 941-650-9367
Dept. of Environmental Protection Southwest District	(813) 632-7600

Remember, if you are calling from a phone, which is connected to the County's switchboard, you must dial 9 then 911 to reach the emergency operator.

Procedure to be Followed for Cleanup

Any residual from a fire at the tire storage area shall be removed for proper disposal by County personnel. The County will provide all cleanup services and equipment required. All debris and contaminated soil will be placed in the landfill and all liquids will be pumped into a truck for proper disposal.

CONTINGENCY PLAN

In the event an emergency should occur that would interrupt operations at the landfill, the emergency provisions of Section K.2.b.1 of the Operations Plan shall be followed and the following procedures shall be implemented:

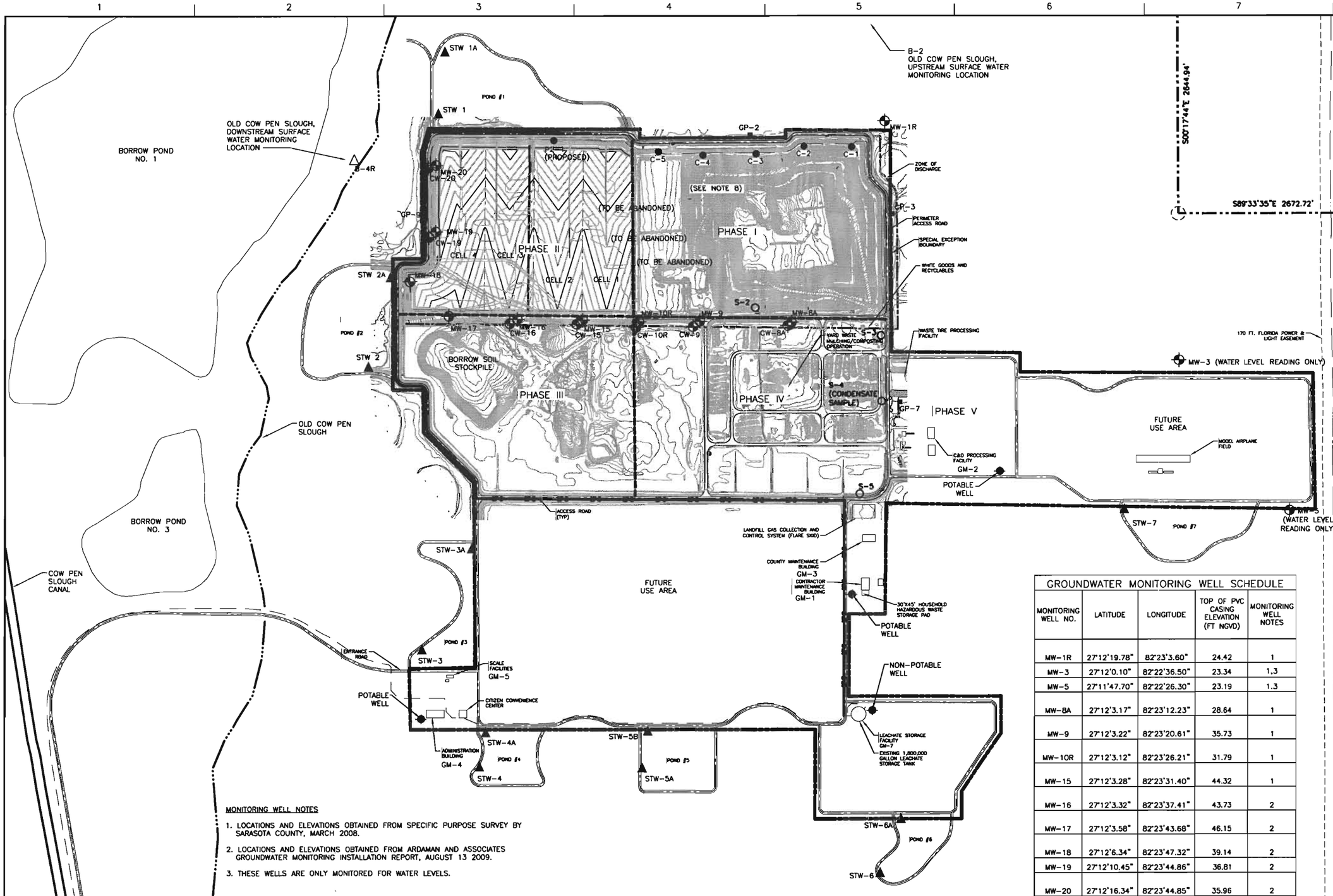
The waste collection entities operating within the County shall be notified of the operational interruption and approximate time when operations will be restored.

If it is anticipated that the interruption of operations will be no longer than 48 hours, an alternate disposal site shall be determined. The following alternate disposal sites are available and listed in order of preference. Should one facility also not be available the next facility on the list shall be contacted.

- Manatee County Lena Road Landfill
- Charlotte County Zemel Road Landfill
- Waste Management Landfill in Okeechobee County

ATTACHMENT K-3

FIGURES



SITE PLAN NOTES

1. TOPOGRAPHY WITHIN PHASES I THROUGH IV AREAS COMPILED BY LANDAIR MAPPING, INC. OF PEACHTREE CITY, GEORGIA USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED JUNE 16, 2006.
2. LOCATIONS OF EXISTING PIEZOMETERS, MONITORING WELLS AND STAFF GAUGES OBTAINED FROM SPECIFIC PURPOSE SURVEY BY SARASOTA COUNTY, MARCH 2008.
3. APPROXIMATE LOCATION OF PHASE I LEACHATE FORCEMAIN OBTAINED FROM RECORD DRAWINGS BY CAMP DRESSER & McKEE, INC. DATED APRIL 1998. VERIFY LOCATION IN FIELD.
4. APPROXIMATE LOCATION OF LEACHATE FORCEMAIN TO OFFSITE WWTP OBTAINED FROM CONFORMED DRAWINGS BY PBS&J DATED JULY 2005. VERIFY LOCATION IN FIELD.
5. LOCATION OF CONDENSATE SUMPS OBTAINED FROM PHASE I LFGCCS AS-BUILT DRAWINGS DATED AUGUST 2010.

LEGEND

S-2	LANDFILL GAS CONDENSATE SUMP
GP-1	GAS PROBE
MW-10R	GROUNDWATER MONITORING WELL
GM-1	GAS MONITORING LOCATION
	WATER SUPPLY WELL
P-S-1	PHASE II BORING/ PIEZOMETER LOCATION
STW-1	STORMWATER MONITORING STATION
C-1	LEACHATE MONITORING LOCATION
B-4R	SURFACE WATER MONITORING LOCATION
	ZONE OF DISCHARGE
	WATERWAY
	LIMITS OF EASEMENT
	EASEMENT CENTERLINE
	EXISTING ROADWAY
	PHASE BOUNDARY
	PROPERTY BOUNDARY

GROUNDWATER MONITORING WELL SCHEDULE

MONITORING WELL NO.	LATITUDE	LONGITUDE	TOP OF PVC CASING ELEVATION (FT NGVD)	MONITORING WELL NOTES
MW-1R	27°12'19.78"	82°23'3.60"	24.42	1
MW-3	27°12'0.10"	82°22'36.50"	23.34	1,3
MW-5	27°11'47.70"	82°22'26.30"	23.19	1,3
MW-8A	27°12'3.17"	82°23'12.23"	28.64	1
MW-9	27°12'3.22"	82°23'20.61"	35.73	1
MW-10R	27°12'3.12"	82°23'26.21"	31.79	1
MW-15	27°12'3.28"	82°23'31.40"	44.32	1
MW-16	27°12'3.32"	82°23'37.41"	43.73	2
MW-17	27°12'3.58"	82°23'43.68"	46.15	2
MW-18	27°12'6.34"	82°23'47.32"	39.14	2
MW-19	27°12'10.45"	82°23'44.86"	36.81	2
MW-20	27°12'16.34"	82°23'44.85"	35.96	2

MONITORING WELL NOTES

1. LOCATIONS AND ELEVATIONS OBTAINED FROM SPECIFIC PURPOSE SURVEY BY SARASOTA COUNTY, MARCH 2008.
2. LOCATIONS AND ELEVATIONS OBTAINED FROM ARDAMAN AND ASSOCIATES GROUNDWATER MONITORING INSTALLATION REPORT, AUGUST 13 2009.
3. THESE WELLS ARE ONLY MONITORED FOR WATER LEVELS.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

FOR PERMITTING

HDR
HDR Engineering, Inc.
2202 N. West Shore Blvd., Suite 250
Tampa, FL 33607-5755
(813) 282-2300
Florida Certificate of Authorization No. 00004213

ISSUE	DATE	DESCRIPTION
G	12/2010	ADD CONDENSATE SUMPS, UPDATE WELLS
F	04/2009	REVISED PER MINOR PERMIT MODIFICATION
E	03/2008	REVISED PER RAI #4
D	01/2008	REVISED PER RAI #3
C	09/2007	REVISED PER RAI #2
B	06/2007	REVISED PER RAI #1
A	02/2007	ISSUED FOR APPROVAL

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	J. TIMMONS
DRAWN BY	B. JOHNSON
PROJECT NUMBER	0096-118883-01

SARASOTA COUNTY

Central County Solid Waste Disposal Complex

PHASE II CLASS I LANDFILL EXPANSION PERMIT DRAWINGS

SARASOTA COUNTY FLORIDA

WATER QUALITY MONITORING PLAN

0 1" 2"

FILENAME figure1.dwg
SCALE 1"=400'

SHEET
FIGURE 1

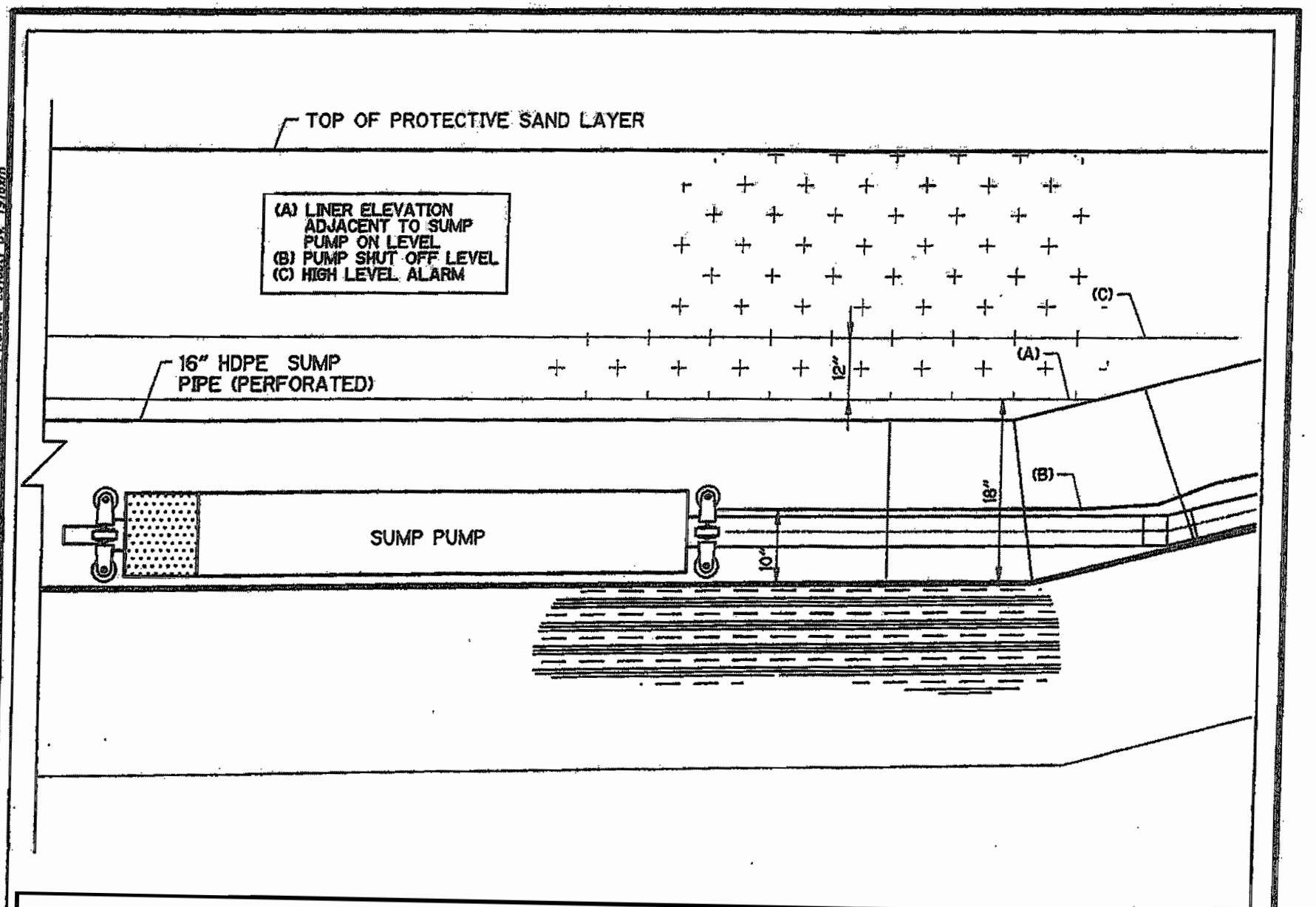


Figure L-2 Operating Levels, Central County Solid Waste Complex, Sarasota County, Florida

G:\PROJECT\Sarasota\09201010.01\G00005-1.dwg Oct 07, 2003 - 8:54am Layout Name: Layout1 By: 1916sch

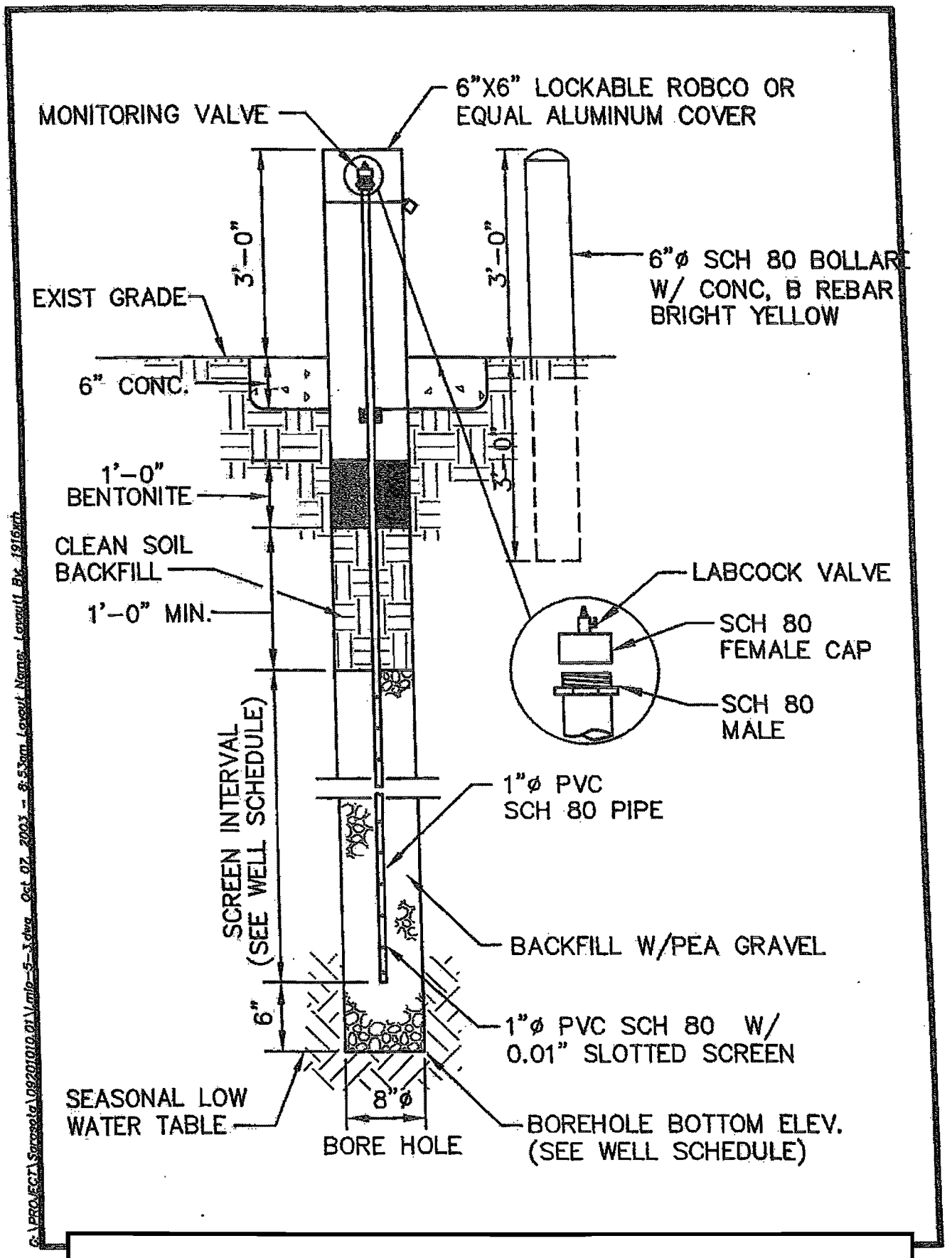


Figure L-3 LFG Monitor Probe, CCSWDC, Sarasota County, Florida

ATTACHMENT K-4

CONTAMINATED SOIL ACCEPTANCE CRITERIA

ATTACHMENT K-4

CONTAMINATED SOIL ACCEPTANCE CRITERIA

According to the Hazardous Waste Division of Sarasota County, there are no standard contaminated soil acceptance criteria for the CCSWDC. Acceptance of contaminated soil at CCSWDC is only conducted on a case-by-case basis whereby soils must be tested for the toxicity characteristic leaching procedure (TCLP) and the paint filter test. The Hazardous Waste Division evaluates results from these tests to determine whether the soil will be accepted at the landfill. In any case, contaminated soil accepted at CCSWDC would be placed directly into the lined active landfill cell and not stockpiled at the site unless authorized in writing by the Department.

ATTACHMENT K-5

WASTE LOAD INSPECTION AND REPORTING FORM

SARASOTA COUNTY SOLID WASTE DEPARTMENT
SOLID WASTE LOAD INSPECTION FORM

Florida Administrative Code 62-701 requires landfills to periodically inspect loads presented for disposal. If unauthorized wastes are found, the responsible party shall be required to cause removal of said waste and the Florida Department of Environmental Protection shall be notified. Inspection records shall be maintained for a period of three years.

Inspection Location _____

Date _____ Time _____ Truck No. _____

Hauler _____ Vehicle License Plate No. _____

Source of Waste _____

Driver (print name) _____

Driver (signature) _____

Inspector/Title _____

Waste Observed _____

Unauthorized Waste _____

FDEP Contacted _____ Name of Contact _____

What action was taken to properly dispose of the unauthorized waste?

(Use attachments if necessary)

ATTACHMENT K-6

LEACHATE DISPOSAL COMMITMENT

COPY

SARASOTA COUNTY
"Dedicated to Quality Service"

December 3, 2001

Kim Ford, P.E.
Florida Department of Environmental Protection
3804 Coconut Drive
Tampa, Florida 33619

Subject: Central County Solid Waste Operations
Leachate Disposal
FDEP - Permit No. S058-299180

Dear Mr. Ford:

I have been requested to provide confirmation regarding the acceptance and disposal of leachate from the closed Bee Ridge Landfill Site, and the Central County Solid Waste Disposal Complex.

The leachate is normally accepted at our Bee Ridge Water Reclamation Facility, with a general maximum leachate input of 500,000 gallons per day.

An alternative disposal site is through our Central County Utilities Facility, with a general maximum leachate input of 250,000 gallons per day.

Please contact my office, should you require additional information.

Sincerely,

Warren Wagner
General Manager

c: Gary Bennett, Solid Waste Operations Manager, Solid Waste Operations
Paul Wingler, P.E. Solid Waste Operations
Robert J. Butera, P.E. III, FDEP – Tampa

I:\USER\shared\projects\Central County Solid Waste Disposal Complex\leachate\Correspondence\Kim Ford - leachate Disposal (Author Warren Wagner) - 11-21-01.doc

ENVIRONMENTAL SERVICES, Solid Waste Operations • 4000 Knights Trail Road, Nokomis, FL 34275
Tel 941-486-2600 • Fax 941-486-2620

Recycled Paper

Florida Department of Environmental Protection

Twin Towers Office Bldg., 2600 Blair Stone Road, Tallahassee, Florida 32399-2400

NOTIFICATION/APPLICATION FOR CONSTRUCTING A DOMESTIC WASTEWATER COLLECTION/TRANSMISSION SYSTEM

PART I - GENERAL

Subpart A: Permit Application Type

Permit Application Type (mark one only)	EDUs Served	Application Fee*	"X"
Are you applying for an individual permit for a domestic wastewater collection/transmission system? Note: an EDU is equal to 3.5 persons. Criteria for an individual permit are contained in Rule 62-604.600(7), F.A.C.	≥ 10	$500	☒
	< 10	$300	☐
Is this a Notice of Intent to use the general permit for wastewater collection/transmission systems? Criteria for qualifying for a general permit are contained in Rule 62-604.600(6), F.A.C. Projects not meeting the criteria in Rule 62-604.600(6), F.A.C., must apply for an individual permit.	N/A	$250	☐

*Note: Each non-contiguous project (i.e., projects that are not interconnected or are not located on adjacent streets or in the same neighborhood) requires a separate application and fee.

Subpart B: Instructions

(1) This form shall be completed for all domestic wastewater collection/transmission system construction projects as follows:
- If this is a Notice of Intent to use the general permit, this notification shall be submitted to the Department **at least 30 days prior to initiating construction.**
- If this is an application for an individual permit, the permit must be obtained prior to initiating construction.

(2) One copy of the completed form shall be submitted to the appropriate DEP district office or delegated local program along with the appropriate fee, and one copy of the following supporting documents. Checks should be made payable to the Florida Department of Environmental Protection, or the name of the appropriate delegated local program.

- If this is a Notice of Intent to use the general permit, attach a site plan or sketch showing the size and approximate location of new or altered gravity sewers, pump stations and force mains; showing the approximate location of manholes and isolation valves; and showing how the proposed project ties into the existing or proposed wastewater facilities. The site plan or sketch shall be signed and sealed by a professional engineer registered in Florida.
- If this is an application for an individual permit, one set of plans and specifications shall be submitted with this application, or alternatively, an engineering report shall be submitted. Plans and specifications and engineering reports shall be prepared in accordance with the applicable provisions of Chapters 10 and 20 of *Recommended Standards for Wastewater Facilities*. The plans and specifications or engineering report shall be signed and sealed by a Professional Engineer registered in Florida.

(3) All information shall be typed or printed in ink. Where attached sheets (or other technical documentation) are utilized in lieu of the blank spaces provided, indicate appropriate cross-references on the form. For Items (1) through (4) of Part II of this application form, if an item is not applicable to your project, indicate "NA" in the appropriate space provided.

Northwest District
160 Governmental Center
Pensacola, Florida 32502-5794
850-595-8300

Northeast District
7825 Baymeadows Way
Suite 200B
Jacksonville, Florida 32256-7590
904-807-3300

Central District
3319 Maguire Blvd
Suite 232
Orlando, Florida 32803-3767
407-894-7555

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8318
813-744-6100

South District
2295 Victoria Ave
Suite 364
Fort Myers, Florida 33902-2549
239-332-6975

Southeast District
400 North Congress Ave
Suite 200
West Palm Beach, Florida 33401
561-681-6600

PART II – PROJECT DOCUMENTATION

(1) Collection/Transmission System Permittee

Name Frank Coggins Title Manager - Solid Waste Operations
Company Name Sarasota County - Solid Waste Department
Address 4000 Knights Trail Road
City Nokomis State Florida Zip 34275
Telephone 941-861-1578 Fax 941-486-2620 Email fcoggins@scgov.net

(2) General Project Information

Project Name Central County Landfill - Leachate Force Main and Pump Station
Location: County Sarasota City Nokomis Section 20/29/33 Township 38 Range 19
Project Description and Purpose (including pipe length, range of pipe diameter, total number of manholes, and total number of pump stations) Proposed to construct a pump station and a 5.2 mile 4" diameter force main to pump leachate from the Central County Landf Landfill to Lift Station 376-0527 on Knights Trail Road Just North of Laurel Road.

Estimated date for: Start of construction January 2006 Completion of construction January 2007
Connections to existing system or treatment plant Connect to Lift Station 376-0527

(3) Project Capacity

A = Type of Unit	B = Number of Units	C = Population Unit	D = Total Populati (Columns B x C)	E = Per Cap Flow	F = Total Average Daily Flow (Columns D x E)	G = Peak hou flow
Single-Family Home	N/A	N/A	N/A	N/A	N/A	N/A
Mobile Home	N/A	N/A	N/A	N/A	N/A	N/A
Apartment	N/A	N/A	N/A	N/A	N/A	N/A
Commercial, Institutional, or Industrial Facility*	117EDU	1	117EDU	175 GPD/ED	20,550GPD	40GPM
Total			117EDU		20,550GPD	40GPM

* Description of commercial, institutional, and industrial facilities and explanation of method used to estimate per capita flow for these facilities:

The landfill creates 7.5 MG of leachate per year. 7.5 MG divided by 365 days per year equals 20,550GPD.
Using 175GPD/EDU, this equates to 117EDU'S. The maximum pumping rate for the proposed pumping station is 40GPM.
The pump station has a 1.0MG storage tank to attenuate flows.

(4) Pump Station Data (attached additional sheets as necessary)

Location	Type	Estimated Flow to the Station (GPD) Maximum	Average	Minimum	Operating Conditions [GP @ FT (TDH)]
Landfill			20,550		40@46

(5) Collection/Transmission System Design Information

A. This information must be completed for all projects by the applicant's professional engineer, and if applicable, those professional engineers in other disciplines who assisted with the design of the project.

If this project has been designed to comply with the standards and criteria listed below, the engineer shall initial in ink before the standards or criteria. If any of the standards or criteria do not apply to this project or if this project has not been designed to comply with the standards or criteria, mark "X" before the appropriate standard or criteria and provide an explanation, including any applicable rule references, in (5)B. below.

allow for another alternative that will result in an equivalent level of reliability and public health protection, the project can be constructed using the general permit.

General Requirements

X 1. The project is designed based on an average daily flow of 100 gallons per capita plus wastewater flow from industrial plants and major institutional and commercial facilities unless water use data or other justification is used to better estimate the flow. The design includes an appropriate peaking factor, which covers I/I contributions and non-wastewater connections to those service lines. [RSWF 11.243]

JME 2. Procedures are specified for operation of the collection/transmission system during construction. [RSWF 20.15]

JME 3. The project is designed to be located on public right-of-ways, land owned by the permittee, or easements and to be located no closer than 100 feet from a public drinking water supply well and no closer than 75 feet from a private drinking water supply well; or documentation is provided in Part II.(5)B., showing that another alternative will result in an equivalent level of reliability and public health protection. [62-604.400(1)(b) and (c), F.A.C.]

JME 4. The project is designed with no physical connections between a public or private potable water supply system and a sewer or force main and with no water pipes passing through or coming into contact with any part of a sewer manhole. [RSFW 38.1 and 48.5]

JME 5. The project is designed to preclude the deliberate introduction of storm water, surface water, groundwater, roof runoff, subsurface drainage, swimming pool drainage, air conditioning system condensate water, noncontact cooling water except as provided by Rule 62-610.668(1), F.A.C., and sources of uncontaminated wastewater, except to augment the supply of reclaimed water in accordance with Rule 62-610.472(3)(c), F.A.C. [62-604.400(1)(d), F.A.C.]

JME 6. The project is designed so that all new or relocated, buried sewers and force mains, are located in accordance with the separation requirements from water mains and reclaimed water lines of Rules 62-604.400(2)(g)(h) and (i) and (3), F.A.C. Note, if the criteria of Rules 62-604.400(2)(g) 4. or (2)(i) 3., F.A.C., are used, describe in Part II.C. alternative construction features that will be provided to afford a similar level of reliability and public health protection. [62-604.400(2)(g), (h), and (i) and (3), F.A.C.]

Gravity Sewers

X 7. The project is designed with no public gravity sewer conveying raw wastewater less than 8 inches in diamete. [RSWF 33.1]

X 8. The design considers buoyancy of sewers, and appropriate construction techniques are specified to prevent flotation of the pipe where high groundwater conditions are anticipated. [RSWF 33.3}

X 9. All sewers are designed with slopes to give mean velocities, when flowing full, of not less than 2.0 feet per second based on Manning's formula using an "n" value of 0.013; or if it is not practicable to maintain these minimum slopes and the depth of flow will be 0.3 of the diameter or greater for design average flow, the owner of the system has been notified that additional sewer maintenance will be required. The pipe diameter and slope are selected to obtain the greatest practical velocities to minimize solids deposition problems. Oversized sewers are not specified to justify flatter slopes. [RSWF 33.41, 33.42, and 33.43]

X 10. Sewers are designed with uniform slope between manholes. [RWSF 33.44]

X 11. Where velocities greater than 15 fps are designed, provisions to protect against displacement by erosion and impact are specified. [RSWF 33.45]

X 12. Sewers on 20% slopes or greater are designed to be anchored securely with concrete, or equal, anchors spaced as follows: not over 36 feet center to center on grades 20% and up to 35%; not over 24 feet center to center on grades 35% and up to 50%; and not over 16 feet center to center on grades 50% and over. [RSWF 33.46]

X 13. Sewers 24 inches or less are designed with straight alignment between manholes. Where curvilinear sewers are proposed for sewers greater than 24 inches, the design specifies compression joints; ASTM or specific pipe manufacturer's maximum allowable pipe joint deflection limits are not exceeded; and curvilinear sewers are limited to simple curves which start and end at manholes. [RSWF 33.5]

X 14. Suitable couplings complying with ASTM specifications are required for joining dissimilar materials. [RSWF 33.7]

X 15. Sewers are designed to prevent damage from superimposed loads. [RSWF 33.7]

X 16. Appropriate specifications for the pipe and methods of bedding and backfilling are provided so as not to damage the pipe or its joints, impede cleaning operations and future tapping, nor create excessive side fill pressures and ovalation of the pipe, nor seriously impair flow capacity. [RSWF 33.81]

X 17. Appropriate deflection tests are specified for all flexible pipe. Testing is required after the final backfill has been in place at least 30 days to permit stabilization of the soil-pipe system. Testing requirements specify: 1) no pipe shall exceed a deflection of 5%; 2) using a rigid ball or mandrel for the deflection test with a diameter not less than 95% of the base inside diameter or average inside diameter of the pipe, depending on which is specified in the ASTM specification, including the appendix, to which the pipe is manufactured; and 3) performing the test without mechanical pulling devices. [RSWF 33.85]

X 18. Leakage tests are specified requiring that: 1) the leakage exfiltration or infiltration does not exceed 200 gallons per inch of pipe diameter per mile per day for any section of the system; 2) exfiltration or infiltration tests be performed with a minimum positive head of 2 feet; and 3) air tests, as a minimum, conform to the test procedure described in ASTM G 828 for clay pipe, ASTM C 924 for concrete pipe, ASTM F-1417 for plastic pipe, and for other materials appropriate test procedures. [RSWF 33.93, 33.94, and 33.95]

X 19. If an inverted siphon is proposed, documentation of its need is provided in Part II.C. Inverted siphons are designed with: 1) at least two barrels; 2) a minimum pipe size of 6 inches; 3) necessary appurtenances for maintenance, convenient flushing, and cleaning equipment; and 4) inlet and discharge structures having adequate clearances for cleaning equipment, inspection, and flushing. Design provides sufficient head and appropriate pipe sizes to secure velocities of at least 3.0 fps for design average flows. The inlet and outlet are designed so that the design average flow may be diverted to one barrel, and that either barrel may be cut out of service for cleaning. [RSWF 35]

Manholes

X 20. The project is designed with manholes at the end of each line; at all changes in grade, size, or alignment; at all intersections; and at distances not greater than 400 feet for sewers 15 inches or less and 500 feet for sewers 18 inches to 30 inches, except in the case where adequate modern cleaning equipment is available at distances not greater than 600 feet. [RSWF 34.1]

X 21. Design requires drop pipes to be provided for sewers entering manholes at elevations of 24 inches or more above the manhole invert. Where the difference in elevation between the incoming sewer and the manhole invert is less than 24 inches, the invert is designed with a fillet to prevent solids deposition. Inside drop connections (whennecessary) are designed to be secured to the interior wall of the manhole and provide access for cleaning. Design requires the entire outside drop connection be encased in concrete. [RSWF 34.2]

X 22. Manholes are designed with a minimum diameter of 48 inches and a minimum access diameter of 22 inches. [RSWF 34.3]

X 23. Design requires that a bench be provided on each side of any manhole channel when the pipe diameter(s) are less than the manhole diameter and that no lateral sewer, service connection, or drop manhole pipe discharges onto the surface of the bench. [RSWF 34.5]

X 24. Design requires: 1) manhole lift holes and grade adjustment rings be sealed with nonshrinking mortar or other appropriate material; 2) inlet and outlet pipes be joined to the manhole with a gasketed flexible watertight connection or another watertight connection arrangement that allows differential settlement of the pipe and manhole wall; and 3) watertight manhole covers be used wherever the manhole tops may be flooded by street runoff or high water. [RSWF 34.6]

X 25. Manhole inspection and testing for watertightness or damage prior to placing into service are specified. Air testing, if specified for concrete sewer manholes, conforms to the test procedures described in ASTM G-1244. [RSWF 34.7]

X 26. Electrical equipment specified for use in manholes is consistent with Item 46 of this checklist. [RSWF 34.9]

Stream Crossings

X 27. Sewers and force mains entering or crossing streams are designed to be constructed of ductile iron pipe with mechanical joints or so they will remain watertight and free from changes in alignment or grade. Appropriate materials which will not readily erode, cause siltation, damage pipe during placement, or corrode the pipe are specified to backfill the trench. [RSWF 36.21 and 48.5]

X 28. Stream crossings are designed to incorporate valves or other flow regulating devices (which may include pump stations) on the shoreline or at such distances form the shoreline to prevent discharge in the event the line is damaged. [62 604.400(2)(k)5., F.A.C.]

X 29. Sewers and force mains entering or crossing streams are designed at a sufficient depth below the natural bottom of the stream bed to protect the line. At a minimum, the project is designed with subaqueous lines to be buried at least three feet below the design or actual bottom, whichever is deeper, of a canal and other dredged waterway or the natural bottom of streams, rivers, estuaries, bays, and other natural water bodies; or if it is not practicable to design the project with less than three-foot minimum cover, alternative construction features (e.g. a concrete cap, sleeve, or some other properly engineered device to insure adequate protection of the line) are described in Part II.C. [62-604.400(2)(k)1., F.A.C., and RSWF 36.11]

X 30. Specifications require permanent warning signs be placed on the banks of canals, streams, and rivers clearly identifying the nature and location (including depths below design or natural bottom) of subaqueous crossings and suitably fixed signs be placed at the shore, for subaqueous crossings of lakes, bays, and other large bodies of water, and in any area where anchoring is normally expected. [62-604.400(2)(k)2., F.A.C.]

X 31. Provisions for testing the integrity of subaqueous lines are specified. [62-604.400(2)(k)4., F.A.C.]

X 32. Supports are designed for all joints in pipes utilized for aerial crossings and to prevent overturning and settlement. Expansion jointing is specified between above ground and below ground sewers and force mains. The design considers the impact of floodwaters and debris. [RSWF 37 and 48.5]

X 33. Aerial crossings are designed to maintain existing or required navigational capabilities within the waterway and to reserve riparian rights of adjacent property owners. [62-604.400(2)(k)3., F.A.C.]

Pump Stations

34. In areas with high water tables, pump stations are designed to withstand flotation forces when empty. When siting the pump station, the design considers the potential for damage or interruption of operation because of flooding. Pump station structures and electrical and mechanical equipment are designed to be protected from physical damage by the 100-year flood. Pump stations are designed to remain fully operational and accessible during the 25-year flood unless lesser flood levels are appropriate based on local considerations, but not less than the 10-year flood. [62-604.400(2)(e), F.A.C.]

35. Pump stations are designed to be readily accessible by maintenance vehicles during all weather conditions. [RSWF 41.2]

36. Wet well and pump station piping is designed to avoid operational problems from the accumulation of grit. [RSWF 41.3]

X 37. Dry wells, including their superstructure, are designed to be completely separated from the wet well. Common walls are designed to be gas tight. [RSWF 42.21]

38. The design includes provisions to facilitate removing pumps, motors, and other mechanical and electrical equipment. [RSWF 42.22]

X 39. The design includes provisions for: 1) suitable and safe means of access for persons wearing selfcontained breathing apparatus are provided to dry wells, and to wet wells; 2) stairway access to wet wells more than 4 feet deep containing either bar screens or mechanical equipment requiring inspection or maintenance; 3) for builtin-place pump stations, a stairway to the dry well with rest landings at vertical intervals not to exceed 12 feet; 4) for factory-built pump stations over 15 feet deep, a rigidly fixed landing at vertical intervals not to exceed 10 feet unless a manlift or elevator is provided; and 5) where a landing is used, a suitable and rigidly fixed barrier to prevent an individual from falling past the intermediate landing to a lower level. If a manlift or elevator is provided, emergency access is included in the design. [RSWF 42.23]

40. Specified construction materials are appropriate under conditions of exposure to hydrogen sulfide and other corrosive gases, greases, oils, and other constituents frequently present in wastewater. [RSWF 42.25]

41. Except for low-pressure grinder or STEP systems, multiple pumps are specified, and each pump has an individual intake. Where only two units are specified, they are of the same size. Specified units have capacity such that, with any unit out of service, the remaining units will have capacity to handle the design peak hourlyflow. [RSWF 42.31 and 42.36]

X 42. Bar racks are specified for pumps handling wastewater from 30 inch or larger diameter sewers. Where a bar rack is specified, a mechanical hoist is also provided. The design includes provisions for appropriate protection fom clogging for small pump stations. [RSWF 42.322]

X 43. Pumps handling raw wastewater are designed to pass spheres of at least 3 inches in diameter. Pump suction and discharge openings are designed to be at least 4 inches in diameter. [RSWF 42.33] (Note, this provision is not applicable to grinder pumps.)

44. The design requires pumps be placed such that under normal operating conditions they will operate under a positive suction head, unless pumps are suction-lift pumps. [RSWF 42.34]

45. The design requires: 1) pump stations be protected from lightning and transient voltage surges; and 2) pump stations be equipped with lighting arrestors, surge capacitors, or other similar protection devices and phase protection. Note, pump stations serving a single building are not required to provide surge protection devices if not necessary to protect the pump station. [62-604.400(2)(b), F.A.C.]

46. The design requires 1) electrical systems and components (e.g., motors, lights, cables, conduits, switch boxes, control circuits, etc.) in raw wastewater wet wells, or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors may be present, comply with the National Electrical Code requirements for Class I Group D, Division 1 locations; 2) electrical equipment located in wet wells be suitable for use under corrosive conditions; 3) each flexible cable be provided with a watertight seal and separate strain relief; 4) a fused disconnect switch located above ground be provided for the main power feed for all pump stations; 5) electrical equipment exposed to weather to meet the requirements of weatherproof equipment NEMA 3R or 4; 6) a 110 volt power receptacle to facilitate maintenance be provided inside the control panel for pump stations that have control panels outdoors; and 7) ground fault interruption protection be provided for all outdoor outlets. [RSWF 42.35]

X 47. The design requires a sump pump equipped with dual check valves be provided in dry wells to remove leakage or drainage with discharge above the maximum high water level of the wet well. [RSWF 42.37]

X 48. Pump station design capacities are based on the peak hourly flow and are adequate to maintain a minimum velocity of 2 feet per second in the force main. [RSWF 42.38]

49. The design includes provisions to automatically alternate the pumps in use. [RSWF 42.4]

50. The design requires: 1) suitable shutoff valves be placed on the suction line of dry pit pumps; 2) suitable shutoff and check valves be placed on the discharge line of each pump (exception screw pumps); 3) a check valve be located between the shutoff valve and the pump; 4) check valves be suitable for the material being handled; 5) check valves be placed on the horizontal portion of discharge piping (except for ball checks, which may beplaced in the vertical run); 6) all valves be capable of withstanding normal pressure and water hammer; and 7) all shutoff and check valves be operable from the floor level and accessible for maintenance. [RSWF 42.5]

51. The effective volume of wet wells is based on design average flows and a filling time not to exceed 30 minutes unless the facility is designed to provide flow equalization. The pump manufacturer's duty cycle recommendations were utilized in selecting the minimum cycle time. [RSWF 42.62]

X 52. The design requires wet well floors have a minimum slope of 1 to 1 to the hopper bottom and the horizontal area of hopper bottoms be no greater than necessary for proper installation and function of the inlet. [RSWF 42.63]

X 53. For covered wet wells, the design provides for air displacement to the atmosphere, such as an inverted "j" tube or other means. [RSWF 42.64]

X 54. The design provides for adequate ventilation all pump stations; mechanical ventilation where the dry well is below the ground surface; permanently installed ventilation if screens or mechanical equipment requiring maintenance or inspection are located in the wet well. Pump stations are designed with no interconnection between the wet well and dry well ventilation systems. [RSWF 42.71]

X 55. The design requires all intermittently operated ventilation equipment to be interconnected with the respective pit lighting system and the manual lighting/ventilation switch to override the automatic controls. [RSWF 42.73]

X 56. The design requires the fan wheels of ventilation systems be fabricated from non-sparking material and automatic heating and dehumidification equipment be provided in all dry wells. [RSWF 42.74]

X 57. If wet well ventilation is continuous, design provides for at least 12 complete 100% fresh air changes per hour; if wet well ventilation is intermittent, design provides for at least 30 complete 100% fresh air changes per hour; and design requires air to be forced into wet wells by mechanical means rather than solely exhausted from the wet well. [RSWF 42.75]

X 58. If dry well ventilation is continuous, design provides at least 6 complete 100% fresh air changes per hour; and dry well ventilation is intermittent, design provides for at least 30 complete 100% fresh air changes per hour, unless a system of two speed ventilation with an initial ventilation rate of 30 changes per hour for 10 minutes and automatic switch over to 6 changes per hour is used to conserve heat. [RSWF 42.76]

N/A 59. Pump stations are designed and located on the site to minimize adverse effects from odors, noise, and lighting. [62-604.400(2)(c), F.A.C.]

N/A 60. The design requires pump stations be enclosed with a fence or otherwise designed with appropriate features to discourage the entry of animals and unauthorized persons. Posting of an unobstructed sign made of durable weather resistant material at a location visible to the public with a telephone number for a point of contact in case of emergency is specified. [62-604.400(2)(d), F.A.C.]

N/A 61. The design requires suitable devices for measuring wastewater flow at all pump stations. Indicating, totalizing, and recording flow measurement are specified for pump stations with a 1200 gpm or greater design peak flow. [RSWF 42.8]

N/A 62. The project is designed with no physical connections between any potable water supplies and pump stations. If a potable water supply is brought to a station, reduced-pressure principle backflow-prevention assemblies are specified. [RSWF 42.9 and 62-555.30(4), F.A.C.]

Additional Items to be Completed for Suction-Lift Pump Stations

X 63. The design requires all suction-lift pumps to be either self-priming or vacuum-priming and the combined total of dynamic suction-lift at the "pump off" elevation and required net positive suction head at design operating conditions not to exceed 22 feet. For self-priming pumps, the design requires: 1) pumps be capable of rapid priming and repriming at the "lead pump on" elevation with self-priming and repriming accomplished automatically under design operating conditions; 2) suction piping not to exceed the size of the pump suction or 25 feet in total length; and 3) priming lift at the "lead pump on" elevation to include a safety factor of at least 4 feet from the maximum allowable priming lift for the specific equipment at design operating conditions. For vacuum-priming pump stations, the design requires dual vacuum pumps capable of automatically and completely removing air from the suction-lift pumps and the vacuum pumps be adequately protected from damage due to wastewater. [RSWF 43.1]

X 64. The design requires: 1) suction-lift pump equipment compartments to be above grade or offset and to be effectively isolated from the wet well to prevent a hazardous and corrosive sewer atmosphere from entering the equipment compartment; 2) wet well access not to be through the equipment compartment and to be at least 24 inches in diameter; 3) gasketed replacement plates be provided to cover the opening to the wet well for pump units to be remove for service; and 4) no valving be located in the wet well. [RSWF 43.2]

Additional Items to be Completed for Submersible Pump Stations

X 65. Submersible pumps and motors are designed specifically for raw wastewater use, including totally submerged operation during a portion of each pump cycle and to meet the requirements of the National Electrical Code for such units. Provisions for detecting shaft seal failure or potential seal failure are included in the design. [RSWF 44.1]

X 66. The design requires submersible pumps be readily removable and replaceable without dewatering the wet wellor disconnecting any piping in the wet well. [RSWF 44.2]

X 67. In submersible pump stations, electrical supply, control, and alarm circuits are designed to provide strain relief; to allow disconnection from outside the wet well; and to protect terminals and connectors from corrosion by location outside the wet well or through use of watertight seals. [RSWF 44.31]

X 68. In submersible pump stations, the design requires the motor control center to be located outside the wet well, readily accessible, and protected by a conduit seal or other appropriate measures meeting the requirements of the National Electrical Code, to prevent the atmosphere of the wet well from gaining access to the control center. If a seal is specified, the motor can be removed and electrically disconnected without disturbing the seal. The design requires control equipment exposed to weather to meet the requirements of weatherproof equipment NEMA 3R or 4. [RSWF 44.32]

X 69. In submersible pump stations, the design requires: 1) pump motor power cordsbe flexible and serviceable under conditions of extra hard usage and to meet the requirements of the National Electrical Code standards for flexible cords in wastewater pump stations; 2) ground fault interruption protection be used to de-energize the circuit in the event of any failure in the electrical integrity of the cable; and 3) power cord terminal fittings be corrosion-resistant and constructed in a manner to prevent the entry of moisture into the cable, provided with strain relief appurtenances, anddesigned to facilitate field connecting. [RSWF 44.33]

X 70. In submersible pump stations, the design requires all shut-off and check valves be located in a separate valve pit. Provisions to remove or drain accumulated water from the valve pit are included inthe design. [RSWF 44.4]

Emergency Operations for Pump Stations

71. Pump stations are designed with an alarm system which activates in cases of power failure, sump pump failure, pump failure, unauthorized entry, or any cause of pump station malfunction. Pump station alarms are designed to be telemetered to a facility that is manned 24 hours a day. If such a facility is not available and a 24hour holding capacity is not provided, the alarm is designed to be telemetered to utility offices during normal working hours and to the home of the responsible person(s) in charge of the lift station during off-duty hours. Note, if an audio-visual alarm system with a self-contained power supply is provided in lieu of a telemetered system, documentation is provided in Part II.C. showing an equivalent level of reliability and public health protection. [RSWF 45]

72. The design requires emergency pumping capability be provided for all pump stations. For pump stations that receive flow from one or more pump stations through a force main or pump stations discharging through pipes 12 inches or larger, the design requires uninterrupted pumping capability be provided, including an in-place emergency generator. Where portable pumping and/or generating equipment or manual transfer is used, the design includes sufficient storage capacity with an alarm system to allow time for detection of pump station failure and transportation and connection of emergency equipment. [62-604.400(2)(a)1. and 2., F.A.C., and RSWF 46.423 and 46.433]

73. The design requires: 1) emergency standby systems to have sufficient capacity to start up and maintain the total rated running capacity of the station, including lighting, ventilation, and other auxiliary equipment necessary for safety and proper operation; 2) special sequencing controls be provided to start pump motors unless the generating equipment has capacity to start all pumps simultaneously with auxiliary equipment operating; 3) a riser from the force main with rapid connection capabilities and appropriate valving be provided for all pump stations to hook up portable pumps; and 4) all pump station reliability design features be compatible with the available temporary service power generating and pumping equipment of the authority responsible for operation and maintenance of the collection/transmission system. ~~[62-604.400(2)(a)3., F.A.C., and RSWF 46.431]~~

74. The design provides for emergency equipment to be protected from operation conditions that would result in damage to the equipment and from damage at the restoration of regular electrical power. [RSWF 46.411, 46.417, and 46.432]

X 75. For permanently-installed internal combustion engines, underground fuel storage and piping facilities are designed in accordance with applicable state and federal regulations; and the design requires engines to be located above grade with adequate ventilation of fuel vapors and exhaust gases. [RSWF 46.414 and46.415]

X 76. For permanently-installed or portable engine-driven pumps are used, the design includes provisions for manual start-up. [RSWF 46.422]

X 77. Where independent substations are used for emergency power, each separate substation and its associated transmission line is designed to be capable of starting and operating the pump station at its rated capacity. [RSWF 46.44]

Force Mains

X 78. Force mains are designed to maintain, at design pumping rates, a cleansing velocity of at least 2 feet per second. The minimum force main diameter specified for raw wastewater is not less than 4 inches. [RSWF 48.1]

JME 79. The design requires: 1) branches of intersecting force mains be provided with appropriate valves such that one branch may shut down for maintenance and repair without interrupting the flow of other branches; and 2) stubouts on force mains, plac in anticipation of future connections, be equipped with a valve to allow such connection without interruption of service. [6 604.400(2)(f), F.A.C.]

JME 80. The design requires air relief valves be placed at high points in the force main to prevent air locking. [RSWF 48.2]

JME 81. Specified force main pipe and joints are equal to water main strength materials suitable for design conditions. The force main, reaction blocking, and station piping are designed to withstand water hammer pressures and stresses associated with cycling of wastewater pump stations. [RSWF 48.4]

JME 82. When the Hazen and Williams formula is used to calculate friction losses through force mains, the value for "C" is 100 for unlined iron or steel pipe for design. For other smooth pipe materials, such as PVC, polyethylene, lined ductile iron, the value for C does not exceed 120 for design. [RSWF 48.61]

JME 83. Where force mains are constructed of material, which might cause the force main to be confused with potable water mains, specifications require the force main to be clearly identified. [RSWF 48.7]

JME 84. Leakage tests for force mains are specified including testing methods and leakage limits. [RSWF 48.8]

*RSWF = *Recommended Standards for Wastewater Facilities* (1997) as adopted by rule 62-604.300(5)(c), F.A.C.

B. Explanation for Requirements or Standards Marked "X" in II(5)A. Above (Attach additional sheets if necessary):

The proposed system consists of an above ground pump ststion pumping at 40GPM through a 4" force main. There are no manholes.
The proposed pipe does not cross any streams.
The proposed system is pumping filtered water with no solids, therefore 2FPS cleaning velocity is not needed.

PART III - CERTIFICATIONS

(1) Collection/Transmission System Permittee

I, the undersigned owner or authorized representative* of PBS&J
am fully aware that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge a belief. I agree to retain the design engineer or another professional engineer registered in Florida, to conduct on-site observation of construction, prepare a certification of completion of construction, and to review record drawings for adequacy. Further, I agree to provide an appropriate operat and maintenance manual for the facilities pursuant to Rule 62-604.500(4), F.A.C., and to retain a professional engineer registered in Florida examine (or to prepare if desired) the manual. I am fully aware that Department approval must be obtained before this project is placed into serv for any purpose other than testing for leaks and testing equipment operation.

Signed _____ Date _____
Name Frank Coggins Title Project Manager
Attach a letter of authorization.

(2) Owner of Collection/Transmission System

I, the undersigned owner or authorized representative* of Sarasota County Utilities certify that we will be the Owner of this project after it is placed into service. I agree that we will operate and maintain this project in a manner that will comply with applicable Department rules. Also I agree that we will promptly notify the Department if we sell or legally transfer ownership of this project.

Signed _____ Date _____
Name MIKE MEHAN, PE Title General Manager- Sarasota County Utilities
Company Name Sarasota County
Address 1301 CATTLEMEN ROAD
City Sarasota State Florida Zip 34232
Telephone 941-650-2050 Fax _____ Email MMEHAN@SCGOV.NET
Attach a letter of authorization.

(3) Wastewater Facility Serving Collection/Transmission System**

If this is a Notice of Intent to use a general permit, check here:

☑ The undersigned owner or authorized representative* of the CITY OF VENICE WWTP wastewater facility hereby certifies that the above referenced facility has the capacity to receive the wastewater generated by the proposed collection system; is in compliance with the capacity analysis report requirements of Rule 62-600.405, F.A.C.; is not under a Department order associated with effluent violations or the ability to treat wastewater adequately; and will provide the necessary treatment and disposal as required by Chapter 403, F.S., and applicable Department rules.

If this is an application for an individual permit, check one:

☐ The undersigned owner or authorized representative* of the _____ wastewater facility hereby certifies that the above referenced facility has and will have adequate reserve capacity to accept the flow from this project and will provide the necessary treatment and disposal as required by Chapter 403, F.S., and applicable Department rules.

☐ The undersigned owner or authorized representative* of the _____ wastewater facility hereby certifies that the above referenced facility currently does not have, but will have prior to placing the proposed project into operation, adequate reserve capacity to accept the flow from this project and will provide the necessary treatment and disposal as required by Chapter 403, F.S., and applicable Department rules.

Name of Treatment Plant Serving Project City of Venice Wastewater Treatment Plant
County Sarasota City Venice
DEP permit number FL 0041441 Expiration Date 4/24/05 Extended
Maximum monthly average daily flow over the last 12 month period 3.590 MGD Month(s) used feb-05
Maximum three-month average daily flow over the last 12 month period 3.259 MGD Month(s) used Dec.04, Jan 05
Current permitted capacity 6MGD MGD ☐ AADF ☐ MADF ☒ TMADF
Current outstanding flow commitments (including this project) against treatment plant capacity: Unknown

Signed [signature] Date 7/5/05
Name R Christopher Sharek PE Title Utilities Manager
Address 200 N. Warfield Avenue
City Venice State Florida Zip 34292
Telephone 941480-3333 ext 224 Fax 941486-2084 Email csharek@ci.venicefl.us
Attach a letter of authorization.
*** If there is an intermediate collection system, a letter shall be attached certifying that the intermediate downstream collection system has adequate reserve capacity to accept the flow from this project.*

(4) Professional Engineer Registered in Florida

I, the undersigned professional engineer registered in Florida, certify that I am in responsible charge of the preparation and production of engineering documents for this project; that plans and specifications for this project have been completed; that I have expertise in the design of wastewater collection/transmission systems; and that, to the best of my knowledge and belief, the engineering design for this project complies with the requirements of Chapter 62-604, F.A.C.

(Affix Seal)

Signed
Date 6/4/05

Name John M. Eash, P.E. Florida Registration No. 46235
Company Name PBS&J
Address 2803 Fruitville Road, Suite 130
City Sarasota State Florida Zip 34237
Telephone 954-4036 Fax 951-1477 Email jmeash@pbsj.com
Portion of Project for Which Responsible Pipe Layout

(Affix Seal)

Signed
Date 6/1/05

Name Dave A. Weber, P.E. Florida Registration No. 29323
Company Name PBS&J
Address 2803 Fruitville Road, Suite 130
City Sarasota State Florida Zip 34237
Telephone 954-4036 Fax 951-1477 Email DAWeber@pbsj.com
Portion of Project for Which Responsible Pump Station

(Affix Seal)

Signed
Date

Name Florida Registration No.
Company Name
Address
City State Zip
Telephone Fax Email
Portion of Project for Which Responsible

ATTACHMENT K-7

LEACHATE TANK INSPECTION REPORT

TANK INSPECTION REPORT

Sarasota County Government
Central County Solid Waste Disposal Complex
1.8-MG Leachate Storage Tank
Sarasota, Florida

CECS Job No. 2010-S-014

March 1, 2010

Crom Engineering & Construction Services, Inc.

Irvin C. Rubin, P.E.
General Manager

TANK INSPECTION REPORT

1.0 Executive Summary

Crom Engineering and Construction Services, Inc (CECS) conducted an inspection of the 1,800,000-gallon prestressed concrete leachate storage tank as well as the 2,100,000-gallon secondary containment tank in Sarasota, Florida on March 1, 2010. The goal of the inspection was to review the status of the tank and its structural integrity, and to determine what measures, if any, are necessary to bring the tank up to present codes and standards so that the longest useful life of the tank can be realized.. Irvin C. Rubin, CECS General Manager, performed the inspection and prepared this report.

The tank is in good structural condition at this time; however several issues were discovered by the inspector. Numerous blisters were noted in the elastomeric urethane boot installed at the floor-wall joint of the leachate storage tank (Figure 27). Minor superifical covercoat shrinkage cracking was noted on the exterior wall of the secondary containment tank (Figure 11).

The complete findings from the tank inspection are detailed in Section 5.0 *Conclusions and Recommendations.*

2.0 Scope of Work

The purpose of the inspection is to investigate the structural integrity of the 1,800,000-gallon presressted concrete leachate storage tank as well as the 2,100,000-gallon secondary containment tank. The investigation included the interior and exterior walls of the tanks, floors and tank accessories. The inspection was a visual survey of the structure with no invasive procedures employed.

The tank was inspected in accordance with AWWA D110 and ACI 350 to evaluate the present condition of the tank structure.

The tank was cleaned prior to the interior inspection. CECS used an ambient air monitor to test the quality of air within the tank prior to entry.

The tank was physically examined for any visible problems such as leaks or cracks, any location that was questionable, was looked at closer to determine the extent of the problem.

The wall was observed for any deterioration, cracking, spalled concrete, and signs of corrosion or any indicators of existing problems such as efflorescence or damp spots. The walls were "sound tested" to determine if there was any

evidence of the covercoat separating from the core wall. Any location of this was noted and mapped as part of the field notes of the inspector.

Tank accessories were looked at to determine the extent of the weathering of the fiberglass and the condition of the bolts, and fasteners. All penetrations were checked for signs of leakage into the tank. All areas of concern were noted and mapped in the inspector's field notes.

The tank was drained and CECS personnel entered the tank interior. The interior wall was observed for cracking, spalled concrete, and signs of corrosion, or other indications of existing problems. Piping and internal accessories were checked for corrosion and condition of their supports, bolts, and anchors.

The tank was fully surveyed and a record was made of all observations. Photographs were taken as an additional record of the inspection.

3.0 Tank History and Description

The tank being inspected is a prestressed concrete leachate storage tank that was originally built by The Crom Corporation in 1997. The leachate storage tank has an inside diameter of 100'-0" and a side wall depth of 30'-8". The secondary containment tank has an inside diameter of 130'-0" and a side wall depth of 21'-2". The tank was built for Sarasota County in conformance with generally accepted design practices for wire-wound prestressed concrete tanks during this time period.

The inner tank has a 5" thick highly reinforced concrete membrane floor. Floor steel on the inner tank consists of one orthogonal mat of #4 rebar spaced at 6" in both directions. The tank floor is joined to the tank wall with a monolithic connection.

The outer tank has a 4" thick highly reinforced concrete membrane floor. Floor steel on the outer tank consists of one orthogonal mat of #4 rebar spaced at 8" in both directions. The tank floor is joined to the tank wall with a monolithic connection.

The leachate tank has a composite wall constructed of shotcrete encasing a 26 gauge steel shell diaphragm continuous for the full height. The vertical seams between the sheets of the diaphragm are sealed watertight with epoxy. The wall is circumferentially prestressed by wrapping with pre-tensioned high tensile steel wire permanently bonded to the tank wall to contain the internal hydraulic load of the tank contents and provide residual compression in the wall after allowing for wall deformation and stress loss in the wire.

Conventional mild steel reinforcement is also present in the wall due to vertical bending moments induced by the prestressing and by seasonal temperature differential between the inside and the outside of the wall. Circumferential mild steel reinforcement to control shrinkage cracking during construction is present in the wall as well. There is a 1" thick minimum shotcrete covercoat over the final layer of prestressed wire to protect the wire from corrosion. There is also a 1" thick covercoat on the inside of the diaphragm. The core wall is 6 inches at the base of the wall and tapers to 3 ½ inches at the top. Three layers of prestressing wires at the bottom of the tank and the 1" thick covercoat provide an overall thickness of approximately 7 1/4" at the bottom of the wall tapering to 4½" at the top.

There are four pipe penetrations through the outer wall as follows:

- 8" DIP outer tank drain line
- 6" DIP leachate influent line
- 2" Copper line
- 6" SS discharge line – installed in 2009

There is one pipe penetration through the wall of the inner tank as follows:

- 8" Inner tank drain line

Tank accessories include a stainless steel wall manhole and frame (one per tank) and a fiberglass liquid level indicator with open top frame for inner tank.

4.0 Field Investigation

See attached *Field Inspection Report.*

5.0 Conclusions and Recommendations

The inspection of the 1,800,000-gallon leachate storage tank in Sarasota, Florida has been carried out in accordance with AWWA D110. The inspection of the prestressed composite tank at this location did not reveal any apparent problems that would cause concern for the structural integrity of the tank itself. However, there are items that should be addressed in order to avoid the possibility of future problems.

(1) **Condition of the elastomeric urethane floor-wall boot:** An elastomeric urethane coating has been installed in the past at the floor-wall joint of the leachate storage tank (Figure 27). Numerous blisters were noted in the coating in various locations. No signs of leakage were noted from the leachate storage tank into the secondary containment reservoir. CECS recommends regular monitoring of the leachate tank for any leaks into the secondary containment reservoir. No further remedial action recommended at this time.

(2) **Condition of the exterior secondary containment tank wall:** CECS noted numerous locations of minor superficial covercoat shrinkage cracking on the exterior wall of the containment reservoir. These cracks are superficial and pose no structural concern at this time. No remedial action is necessary at this time.

(3) **Condition of the interior tank piping:** Minor corrosion was noted on the interior leachate influent riser (Figure 25) and 8" inner tank drain line. The coating on both pipes is in fair condition at this time. CECS recommends inspecting the pipes during the next routine inspection. No remedial action is necessary at this time.

Since CECS' inspection was a visual survey of the structure without any invasive or destructive procedures or tests, CECS cannot offer an opinion on the condition or performance of the covered or hidden elements of the structure not visible from the surface.

The preceding report is submitted for your review and discussion. We would be pleased to discuss the results with you. If you have any questions or concerns, please do not hesitate to contact us.

Respectfully submitted,

Crom Engineering and Construction Services, Inc.

Irvin C. Rubin, P.E.
General Manager

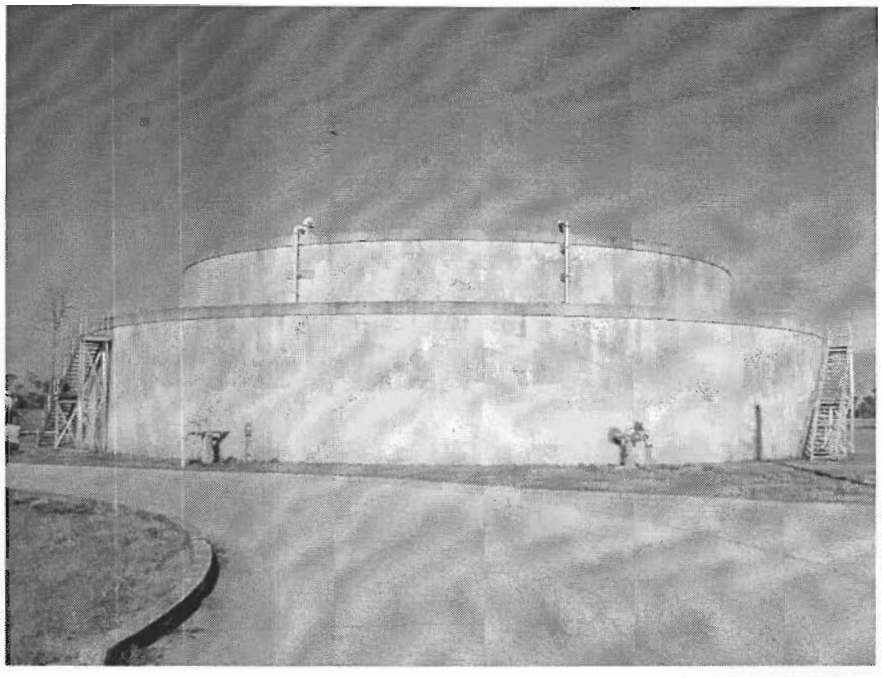


Figure 1 – 1.8 MG leachate storage tank with 2.1 MG secondary containment – inspected in Sarasota County, FL

Figure 2 – Tank was built by The Crom Corporation – Supt Wade Holloway and crew – 1997.

Figure 3 – The inner tank was cleaned by CECS personnel prior to the visual inspection – vacuum trucks were provided by Sarasota County for sludge disposal.

Figure 4 –Approximately 6 to 8 inches of sludge covered the inner tank floor prior to cleaning.

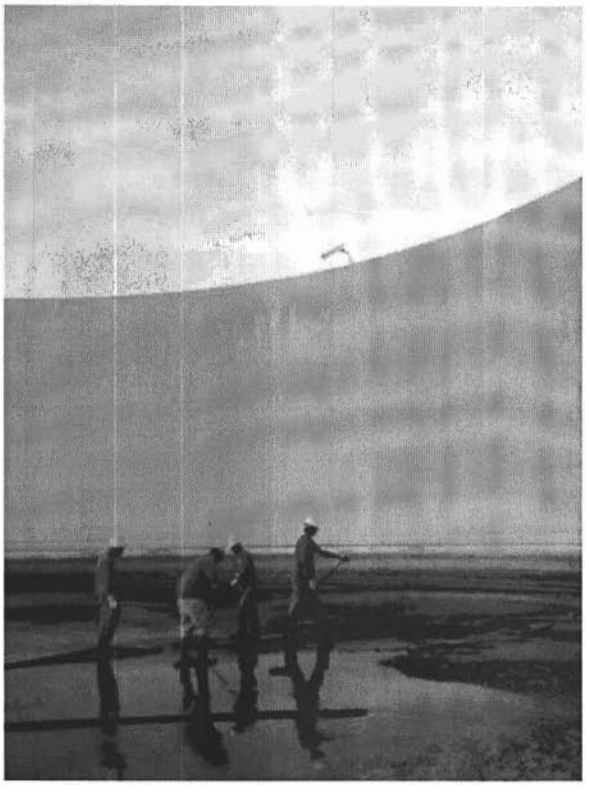


Figure 5 – CECS crew cleaning the tank floor.

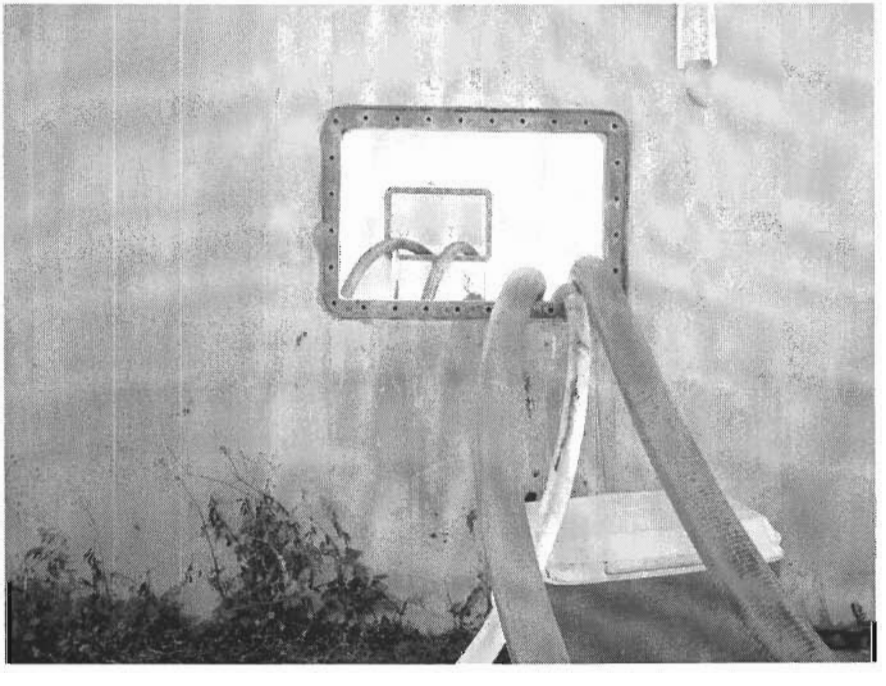


Figure 6 – View of the manhole access to the inner and outer tanks.

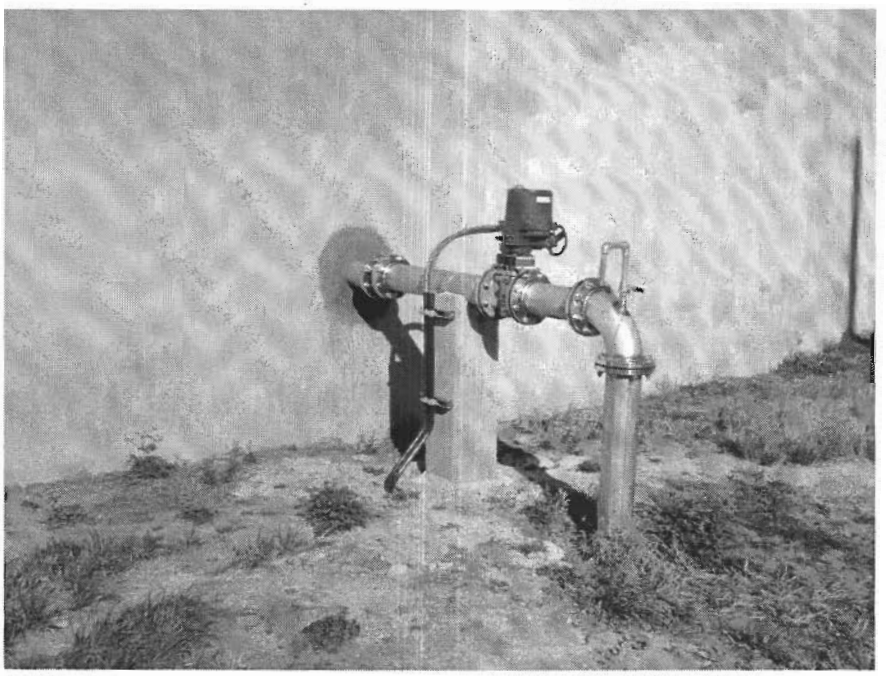


Figure 7 – View of 6" SS discharge line wall penetration installed by CECS in April 2009 – no leaks or defects noted.

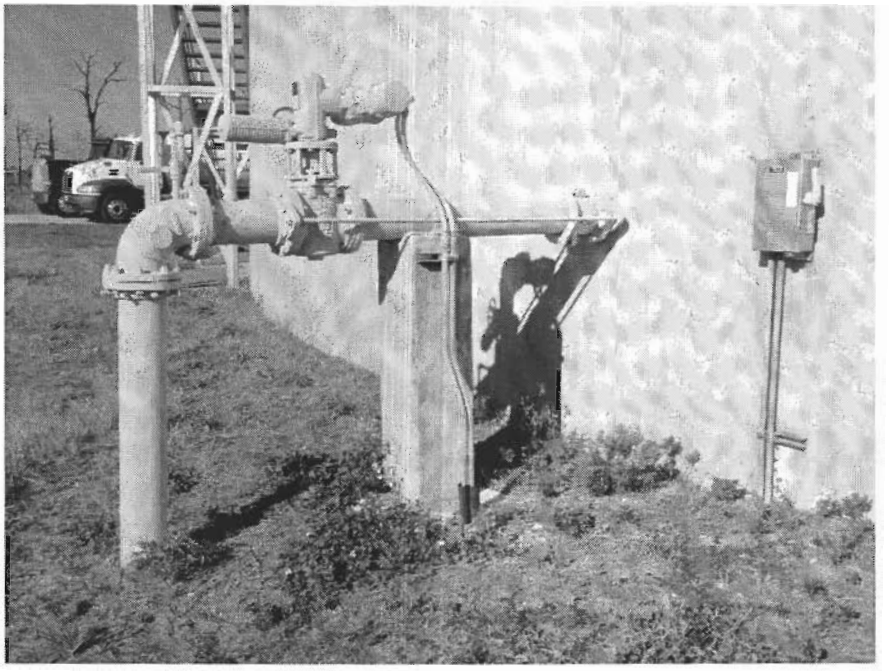


Figure 8 –View of 6" DIP leachate influent line wall penetration – no leaks or defects noted.

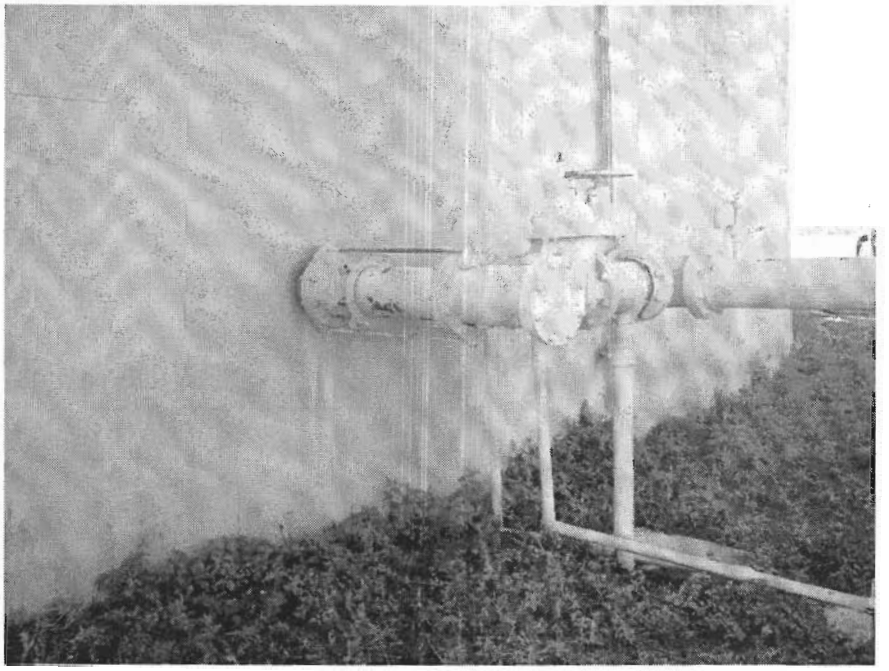


Figure 9 – View of tank drain line wall penetrations in outer tank wall – no leaks or defects noted.

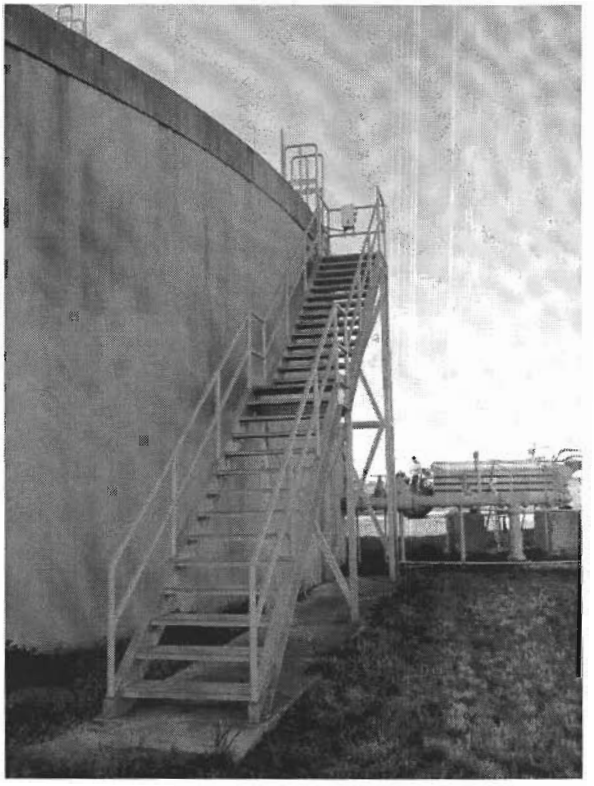


Figure 10 – CECS inspected all three inspection platforms and stairs – no defects noted.

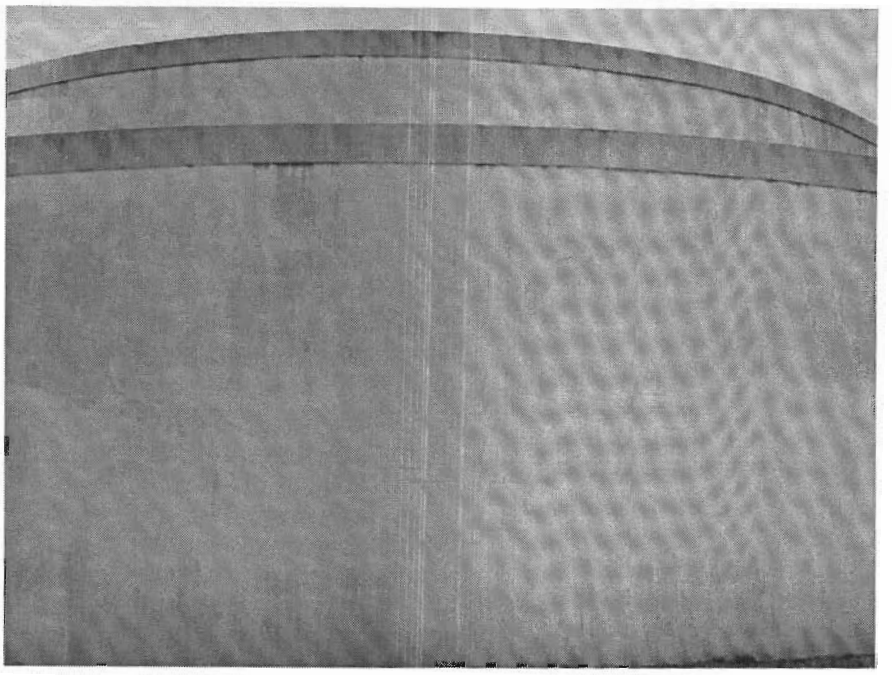


Figure 11 – Minor superficial covercoat cracking was noted on the exterior wall of the secondary containment tank.

Figure 12 – View of the south inspection platform.

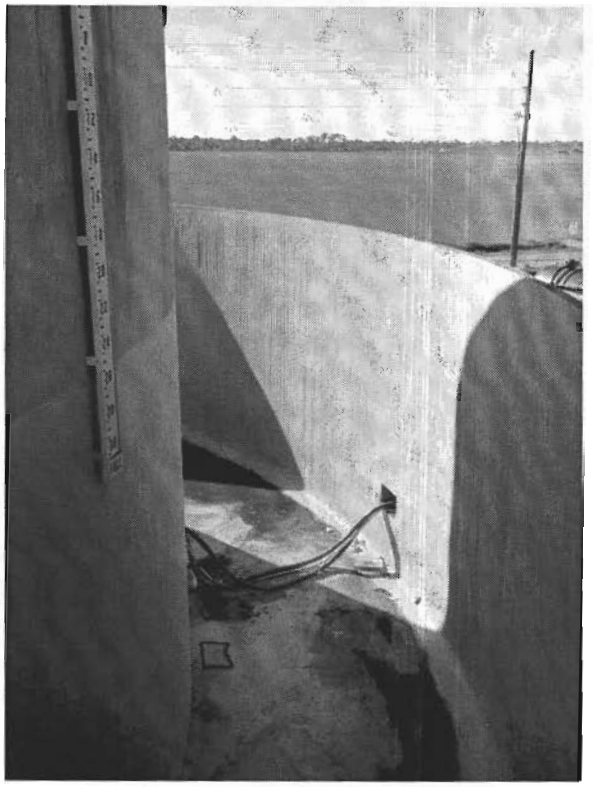


Figure 13 – View of the interior of secondary containment tank.

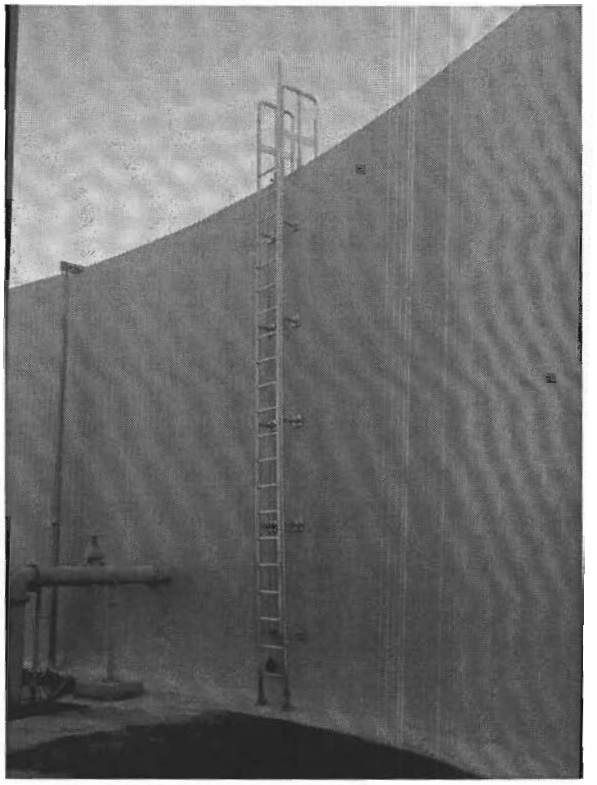


Figure 14 –View of the aluminum ladder access to the secondary containment.

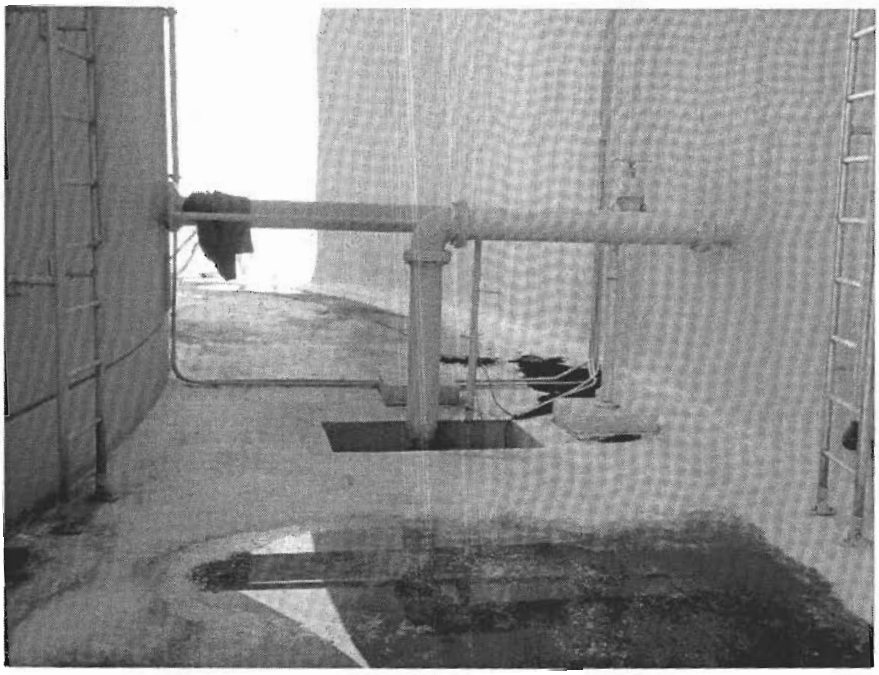


Figure 15 – View of the 8" outer tank drain line and sump.

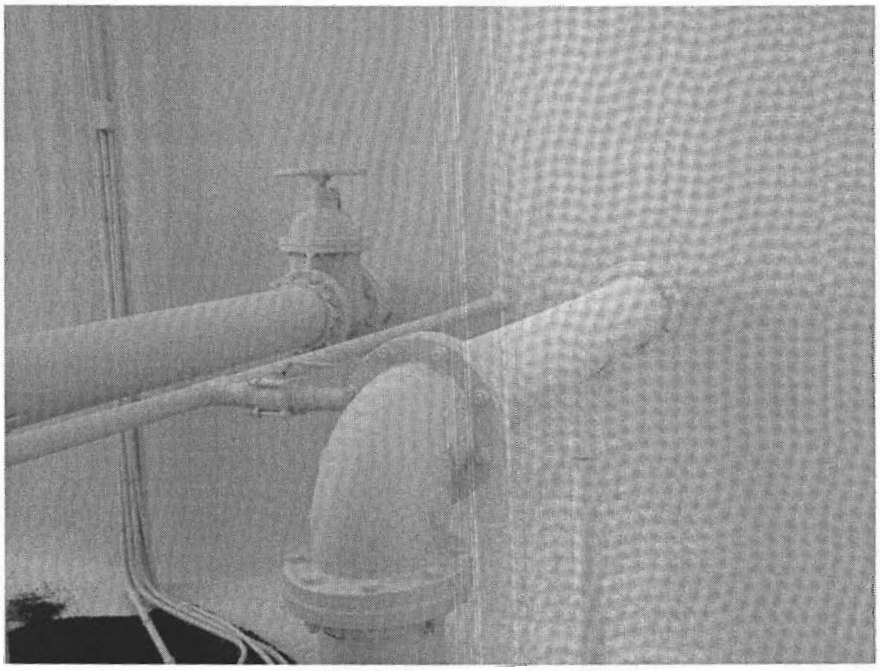


Figure 16 – The drain line piping in the secondary containment area is in good condition.

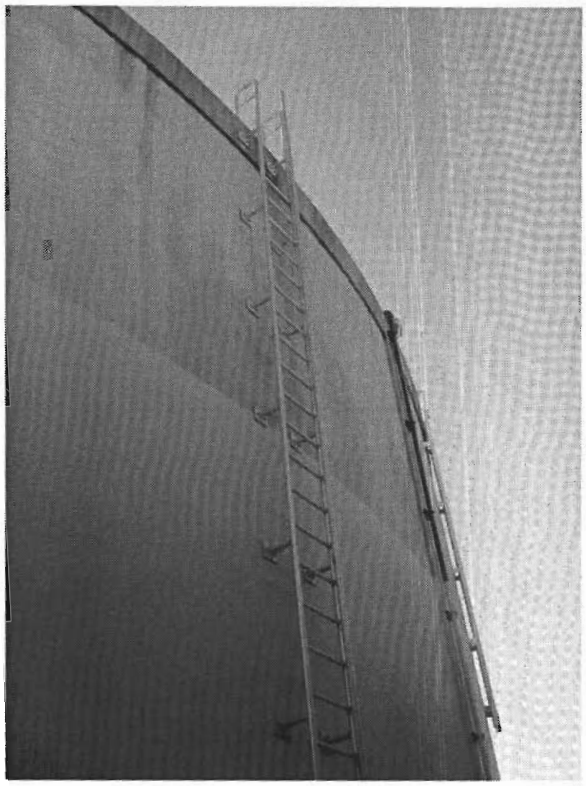


Figure 17 – Ladder access to the leachate storage tank – ladder is in good condition.

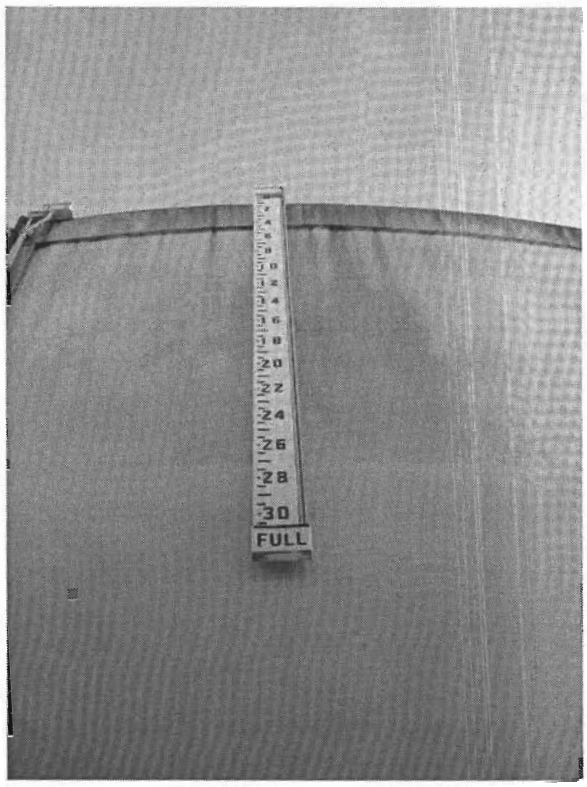


Figure 18 – The leachate tank storage level indicator is operational and in good condition.

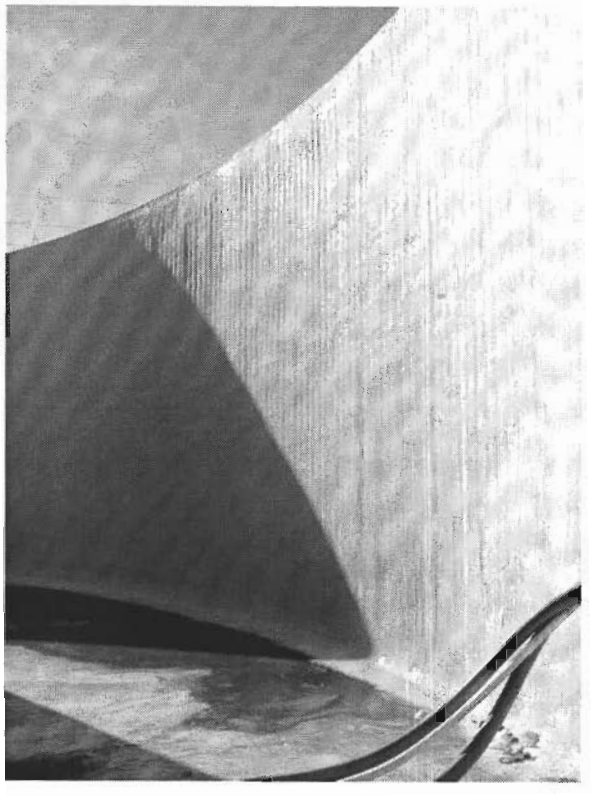


Figure 19 – No significant defects were noted on the interior side of the outer tank wall.

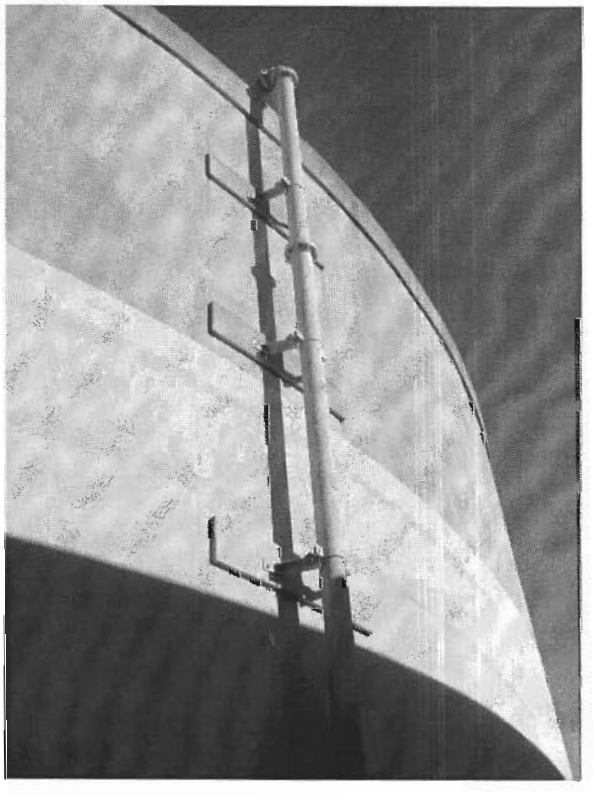


Figure 20 – View of the leachate influent line pipe brackets and boss connections to the wall.

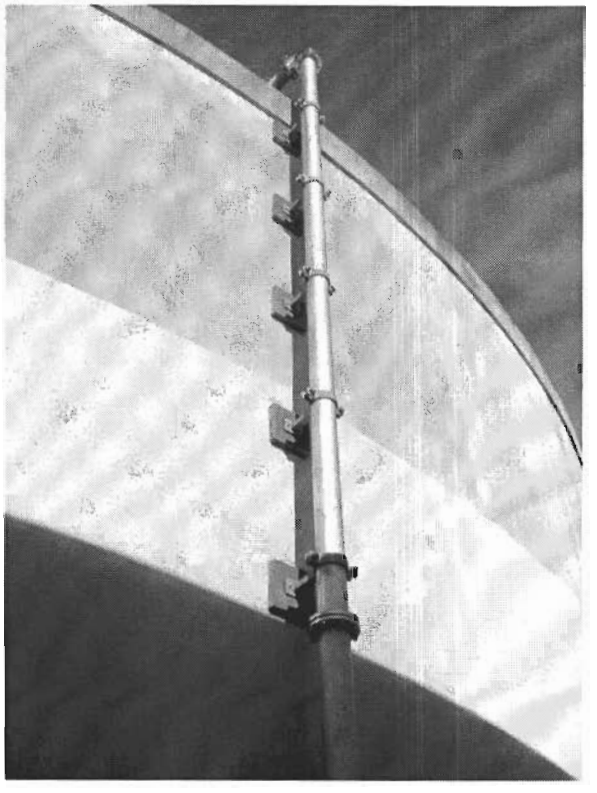


Figure 21 – View of the discharge line wall connections installed in April 2009.

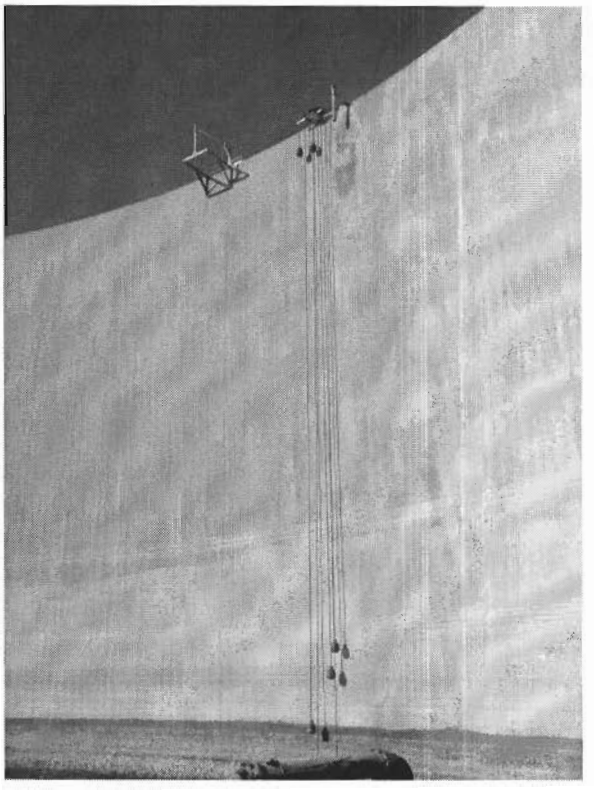


Figure 22 – View of the level indicators on the interior of the leachate tank.

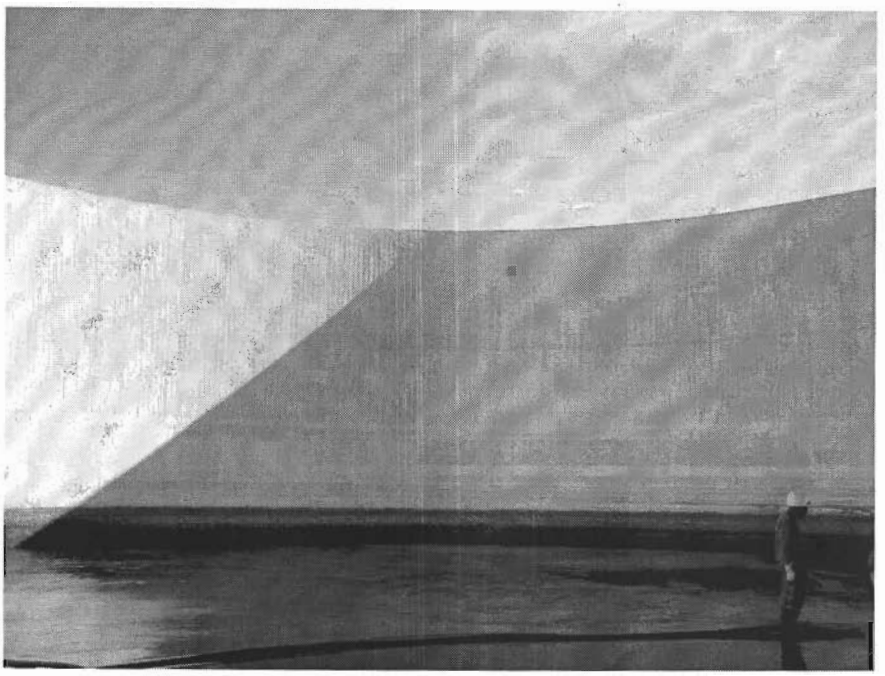


Figure 23 – No defects were noted on the interior leachate storage tank wall.

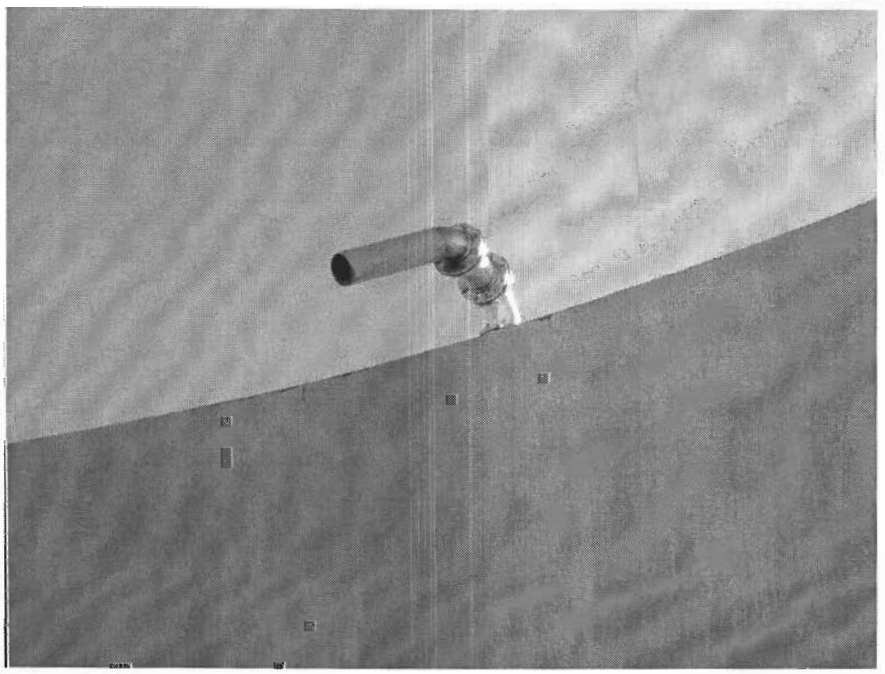


Figure 24 – View of the stainless nozzle on the recently installed discharge line.

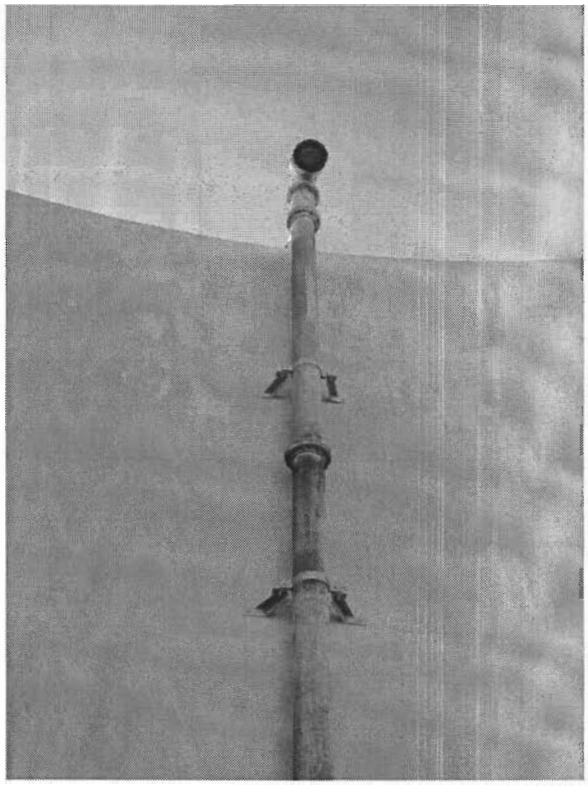


Figure 25 – The leachate influent line is in good condition – very minor corrosion noted.

Figure 26 – View of the 8" inner tank drain and sump.

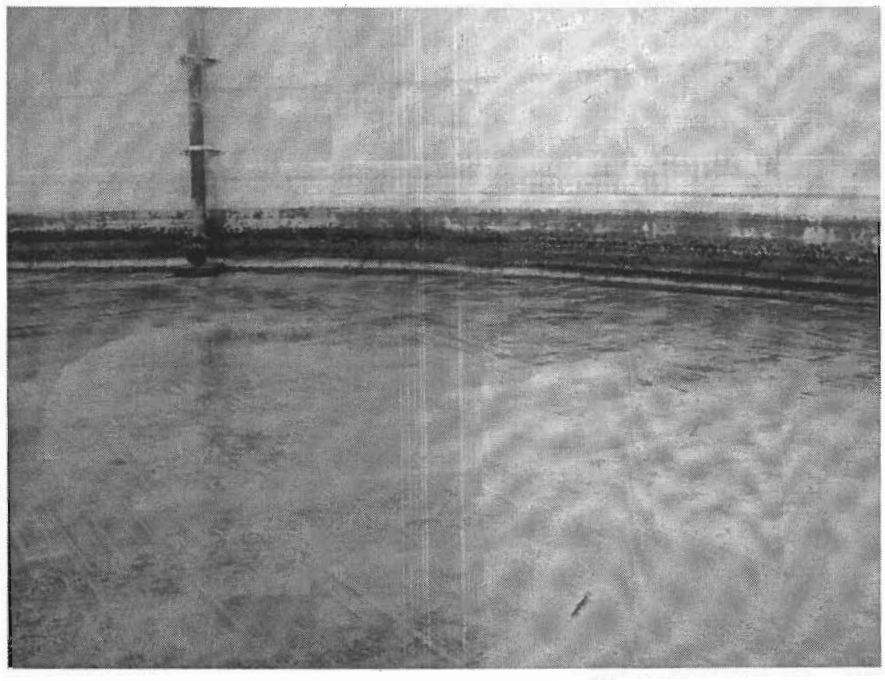


Figure 27 – View of the tank floor after cleaning. CECS noted numerous blisters in the elastomeric urethane coating at the floor-wall joint.

APPENDIX

CROM ENGINEERING AND CONSTRUCTION SERVICES, INC.
6801 SW Archer Road
Gainesville, FL 32608
352.548.3349 - FAX 352.548.3449

Date: March 1st, 2010
Old Crom Job No.: 9738

TANK DETAILS

Location	Sarasota County Central County Solid Waste Disposal Complex		
Owner	Sarasota County, FL		
Engineer	Camp Dresser & McKee Inc. of Sarasota, FL		
Diameter (ft)	100.00	**Side Wall Depth**	21.00
Volume	1.8 MG	**Dome/Open Top**	Open Top
Inspector(s)	Irvin C. Rubin, P.E.	**Material of Const.**	Prestressed Concrete

		Yes	No	Comments/Photos
FOUNDATION				
1	Is the tank backfilled?	x		2 to 3 inches
2	Differential backfill?		x	
3	Does the footer appear to be level?			Not applicable - footer not visible
4	Are there any gaps between the wall and the footer?			Not applicable - footer not visible
5	Is the footer undermined anywhere?		x	
6	Is there a berm or sidewalk, splash pads?		x	

Additional Comments:

No visible defects noted with tank foundation.

		Yes	No	Comments/Photos
PIPING				
1	Is there a separate inlet and outlet pipe?	x		
2	Are the inlet & outlet pipes located to ensure circulation?			Not applicable - tank stores leachate
3	Does the tank have a drain line?	x		
4	Does the tank have an overflow line?		x	
5	Does the overflow discharge above ground to an open basin or pad terminating with a flap valve or screen?			Not applicable
6	Can the tank be isolated from the system and drained?	x		
7	Can the tank be by-passed for maintenance?	x		

Additional Comments:

Minor corrosion was noted on the leachate influent line.

		Yes	No	Comments/Photos
FLOOR				
1	Has the tank floor been cleaned?	x		
2	Waterstop type			Monolithic floor-wall connection
3	Floor/wall connection visible?	x		
4	Are there any visible cracks on the floor?		x	
5	Are there any rough spots or spalls on the floor?		x	
6	Any accessories or equipment mounted on the floor?	x		Level indicator hardware
7	Is the floor coated? Type of paint?	x		Floor-wall joint coated
8	Are there any sumps?	x		Drain sump in each reservoir

Additional Comments:

An elastomeric urethane coating has been installed at the floor-wall joint. Blisters were noted in numerous locations in the coating.

		Yes	No	Comments/Photos
EXTERIOR WALL OF SECONDARY CONTAINMENT RESERVOIR				
1	Are there any cracks?	x		Minor superficial covercoat shrinkage cracking
2	Are there spalled areas?		x	
3	Are there any exposed prestressing wires?		x	
4	Is the wall painted? Type of paint?	x		One coat Thoroseal
5	Are there any hollows?		x	
6	Are there any stains on the wall?		x	

Additional Comments:

Minor covercoat shrinkage cracking noted on the exterior wall of the secondary containment tank (Figure 11).

		Yes	No	Comments/Photos
INTERIOR WALL OF SECONDARY CONTAINMENT RESERVOIR				
1	Are there any hollows?		x	
2	Are there any cracks?		x	No significant cracking noted
3	Are there stains on the wall?		x	
4	Was the wall coated? (Condition)	x		Paint coating in good condition

Additional Comments:

No significant defects noted on the interior wall of the secondary containment tank.

		Yes	No	Comments/Photos
EXTERIOR WALL OF LEACHATE STORAGE RESERVOIR				
1	Are there any cracks?		x	
2	Are there spalled areas?		x	
3	Are there any exposed prestressing wires?		x	
4	Is the wall painted?	x		Paint coating in good condition
5	Are there any hollows?		x	
6	Are there any stains on the wall?		x	

Additional Comments:

No defects noted on the exterior wall of the leachate storage tank.

		Yes	No	Comments/Photos
INTERIOR WALL OF LEACHATE STORAGE RESERVOIR				
1	Are there any hollows?		x	
2	Are there any cracks?	x		Typical
3	Are there stains on the wall?	x		Minor staining from leachate
4	Was the wall coated? (Condition)		x	

Additional Comments:

No defects noted with the interior wall of the leachate storage tank.

		Yes	No	Comments/Photos
ACCESSORIES				
1	Ladder Access	x		(2) ladders and (3) stairs - no defects noted
	Safety climb device?	x		
2	Dome Handrail		x	Not applicable
3	Manhole	x		SS manhole frame and cover in both tank walls
4	Liquid level indicator	x		Operational
5	Hatch cover		x	Not applicable
	Raised curb and cover with overhang?		x	
6	Overflows		x	Not applicable
	Screened, protected from rain?		x	
7	Center vent / ventilators		x	Not applicable
	Screened, protected from rain?		x	
8	Dome probes with curbs?		x	
9	Aerator (size)		x	
10	Specials		x	

Additional Comments:

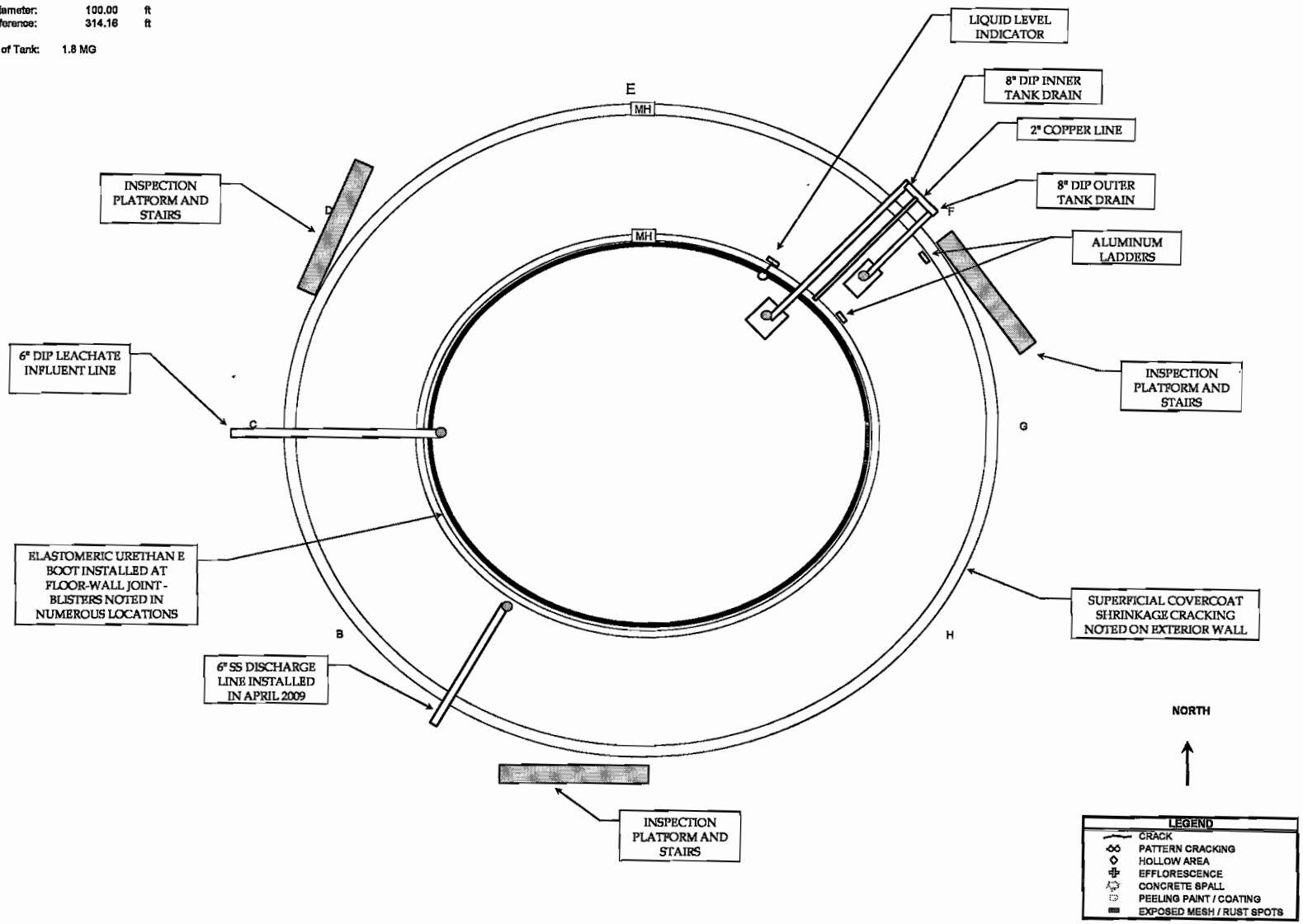
		Yes	No	Comments/Photos
SITE SECURITY				
1	Is there a fence around the facility with lockable gate?	x		
2	Are access hatches locked?			Not applicable
3	Are exterior ladders made inaccessible to intruders			Not applicable
4	Is the site remote (no on-site office)?		x	
5	Is the site well maintained?	x		
6	Are there physical features that could damage the tank?		x	
7	Potential sanitary hazards? Proximity?		x	
	(i.e. bird droppings, sewers, standing water, animal activity)			

Additional Comments:

PLAN VIEW DIAGRAM

Inner Diameter: 100.00 ft
Circumference: 314.16 ft

Volume of Tank: 1.8 MG



ATTACHMENT K-8

LEACHATE PUMP DATA FORM

AND

METERING MANHOLE DATA FORM

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
PHASE I LEACHATE COLLECTION

DAILY PUMP METER LOG

DATE	TIME	CELL NO. 1			CELL NO. 2			CELL NO. 3			CELL NO. 4			CELL NO. 5		
		Level	Flowmeter	Hours	Level	Flowmeter	Hours	Level	Flowmeter	Hours	Level	Flowmeter	Hours	Level	Flowmeter	Hours
1																
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CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX

PHASE II LEACHATE COLLECTION

DAILY PUMP METER LOG

DATE	TIME	PUMP STATION PUMP NO. 1			PUMP STATION PUMP NO. 2			RECIRCULATION PUMP NO. 1		
		LEVEL	FLOWMETER	HOURS	LEVEL	FLOWMETER	HOURS	LEVEL	FLOWMETER	HOURS
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CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
PHASE II LEACHATE COLLECTION

METERING MANHOLE LOG

DATE	TIME	CELL NO. 1			CELL NO. 2			CELL NO. 3			CELL NO. 4		
		Level	Instantaneous Flow	Totalized Flow	Level	Instantaneous Flow	Totalized Flow	Level	Instantaneous Flow	Totalized Flow	Level	Instantaneous Flow	Totalized Flow
1													
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ATTACHMENT K-9

LABORATORY CERTIFICATION

NELAP RECOGNIZED ACCREDITING AUTHORITY nelap

FLORIDA DEPARTMENT OF HEALTH

State of Florida

Department of Health, Bureau of Laboratories

This is to certify that

E83079

PACE ANALYTICAL SERVICES-FLORIDA
8 EAST TOWER CIRCLE
ORMOND BEACH, FL 32174

has complied with Florida Administrative Code 64E-1,
for the examination of Environmental samples in the following categories

DRINKING WATER - GROUP I UNREGULATED CONTAMINANTS, DRINKING WATER - GROUP II UNREGULATED CONTAMINANTS, DRINKING WATER - OTHER REGULATED CONTAMINANTS, DRINKING WATER - GROUP III UNREGULATED CONTAMINANTS, DRINKING WATER - MICROBIOLOGY, DRINKING WATER - PRIMARY INORGANIC CONTAMINANTS, DRINKING WATER - SECONDARY INORGANIC CONTAMINANTS, DRINKING WATER - SYNTHETIC ORGANIC CONTAMINANTS, NON-POTABLE WATER - EXTRACTABLE ORGANICS, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER - METALS, NON-POTABLE WATER - MICROBIOLOGY, NON-POTABLE WATER - PESTICIDES-HERBICIDES-PCB'S, NON-POTABLE WATER - VOLATILE ORGANICS, SOLID AND CHEMICAL MATERIALS - EXTRACTABLE ORGANICS, SOLID AND CHEMICAL MATERIALS - GENERAL CHEMISTRY, SOLID AND CHEMICAL MATERIALS - METALS, SOLID AND CHEMICAL MATERIALS - MICROBIOLOGY, SOLID AND CHEMICAL MATERIALS - PESTICIDES-HERBICIDES-PCB'S, SOLID AND CHEMICAL MATERIALS - VOLATILE ORGANICS

Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

EFFECTIVE July 01, 2010 THROUGH June 30, 2011

GREAT SEAL OF THE STATE OF FLORIDA IN GOD WE TRUST

Max Salfinger, M.D.
Chief, Bureau of Laboratories
Florida Department of Health
DH Form 1697, 7/04
NON-TRANSFERABLE E83079-23-07/01/2010
Supersedes all previously issued certificates

FLORIDA DEPARTMENT OF HEALTH

State of Florida

Department of Health, Bureau of Laboratories

This is to certify that

E84167

BENCHMARK ENVIROANALYTICAL, INC.
1711 12TH STREET EAST
PALMETTO, FL 34221

has complied with Florida Administrative Code 64E-1,
for the examination of Environmental samples in the following categories

DRINKING WATER - GROUP I UNREGULATED CONTAMINANTS, DRINKING WATER - GROUP II UNREGULATED CONTAMINANTS, DRINKING WATER - MICROBIOLOGY, DRINKING WATER - OTHER REGULATED CONTAMINANTS, DRINKING WATER - PRIMARY INORGANIC CONTAMINANTS, DRINKING WATER - SECONDARY INORGANIC CONTAMINANTS, DRINKING WATER - SYNTHETIC ORGANIC CONTAMINANTS, NON-POTABLE WATER - EXTRACTABLE ORGANICS, NON-POTABLE WATER - MICROBIOLOGY, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER - METALS, NON-POTABLE WATER - VOLATILE ORGANICS, SOLID AND CHEMICAL MATERIALS - GENERAL CHEMISTRY, SOLID AND CHEMICAL MATERIALS - METALS, SOLID AND CHEMICAL MATERIALS - MICROBIOLOGY

Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

EFFECTIVE July 01, 2010 THROUGH June 30, 2011

Max Salfinger, M.D.
Chief, Bureau of Laboratories
Florida Department of Health
DH Form 1697, 7/04
NON-TRANSFERABLE E84167-18-07/01/2010
Supersedes all previously issued certificates

ATTACHMENT K-10

INITIAL COVER SPECIFICATIONS

ATTACHMENT K-10

INITIAL COVER SPECIFICATIONS

Materials approved for use as initial cover shall include soils as well as the following:

- Waste tires that have been cut into sufficiently small parts, which means that 70 percent of the waste tire materials cut into pieces of 4 square inches or less and 100 percent of the waste tire material is 32 square inches or less, and applied in a six (6) inch compacted layer, may be used as initial cover within the bermed working area.
- Composted yard trash, unscreened, and then mixed in the ratio of 50 percent unscreened compost to 50 percent soil, and applied in a six (6) inch compacted layer may be used as initial cover within the bermed working area. Ninety percent of the unscreened compost shall pass through a 3/4 inch screen prior to mixing with soil.
- Shredded asphalt roofing shingles, screened through a 1 inch mesh, and then mixed in the ratio of 50 percent shredded shingles to 50 percent soil, and applied in a six (6) inch compacted layer may be used as initial cover within the bermed working area.
- Ground-up construction and demolition debris, unscreened, and applied in a six (6) inch compacted layer, may be used as initial cover within the bermed working area. Ninety percent of the unscreened ground-up debris shall pass a 2 inch screen and 50 percent shall pass a ¼ inch screen.
- Composted yard trash, screened through ½ inch mesh, and then mixed in the ratio of 75 percent screened compost to 25 percent soil, and applied in a six (6) inch compacted layer may be used as initial cover, or applied in a one (1) foot compacted layer in addition to the six (6) inch initial cover may be used as intermediate cover.
- A mixture of yard trash mulch and soil such that the mixture will achieve the following: 100 percent passes 2 inch screen, 85 percent passes a ¾ inch screen, and 70 percent passes a ¼ inch screen. The mixture shall be applied in a 6-inch compacted layer.

ATTACHMENT K-11

LEACHATE REPORT FORM

AND

LCRS INSPECTION REPORT

SARASOTA COUNTY CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
Month Year
DAILY PRECIPITATION DATA AND LEACHATE GENERATION REPORT

DATE	LANDFILL AREA (acres)	LANDFILL RAINFALL[1] (inches)	RAINFALL IN STORAGE TANK[2] (gallons)	LEACHATE LEVEL PIEZOMETER 1 ELEVATION (inches)	LEACHATE PUMPED[3] CELL 1 (gallons)	LEACHATE LEVEL PIEZOMETER 2 ELEVATION (inches)	LEACHATE PUMPED[3] CELL 2 (gallons)	LEACHATE LEVEL PIEZOMETER 3 ELEVATION (inches)	LEACHATE PUMPED[3] CELL 3 (gallons)	LEACHATE LEVEL PIEZOMETER 4 ELEVATION (inches)	LEACHATE PUMPED[3] CELL 4 (gallons)	LEACHATE LEVEL PIEZOMETER 5 ELEVATION (inches)	LEACHATE PUMPED[3] CELL 5 (gallons)	LEACHATE MRF PUMPED (gallons)	TOTAL LEACHATE COLLECTED (gallons)	TOTAL LEACHATE REMOVED[5] (gallons)	TOTAL LEACHATE REUSE[8] (gallons)	TOTAL LEACHATE BALANCE[6] (gallons)	TANK LEVEL (feet)	LEACHATE CUMULATIVE STORAGE[7] (gallons)
1					0		0		0		0		0		0		0	0		0
2					0		0		0		0		0	0	0		0	0		0
3					0		0		0		0		0	0	0		0	0		0
4					0		0		0		0		0	0	0		0	0		0
5					0		0		0		0		0	0	0		0	0		0
6					0		0		0		0		0	0	0		0	0		0
7					0		0		0		0		0	0	0		0	0		0
8					0		0		0		0		0	0	0		0	0		0
9					0		0		0		0		0	0	0		0	0		0
10					0		0		0		0		0	0	0		0	0		0
11					0		0		0		0		0	0	0		0	0		0
12					0		0		0		0		0	0	0		0	0		0
13					0		0		0		0		0	0	0		0	0		0
14					0		0		0		0		0	0	0		0	0		0
15					0		0		0		0		0	0	0		0	0		0
16					0		0		0		0		0	0	0		0	0		0
17					0		0		0		0		0	0	0		0	0		0
18					0		0		0		0		0	0	0		0	0		0
19					0		0		0		0		0	0	0		0	0		0
20					0		0		0		0		0	0	0		0	0		0
21					0		0		0		0		0	0	0		0	0		0
22					0		0		0		0		0	0	0		0	0		0
23					0		0		0		0		0	0	0		0	0		0
24					0		0		0		0		0	0	0		0	0		0
25					0		0		0		0		0	0	0		0	0		0
26					0		0		0		0		0	0	0		0	0		0
27					0		0		0		0		0	0	0		0	0		0
28					0		0		0		0		0	0	0		0	0		0
29					0		0		0		0		0	0	0		0	0		0
30					0		0		0		0		0	0	0		0	0		0
31					0		0		0		0		0	0	0		0	0		0
TOTALS	-	0.00	0.00		0		0		0		0		0	0	0	0	0	0		0

Number of Acres Open =
Number of Acres Intermediate =
Number of Acres Closed =

Notes:
1. Precipitation recorded at the CCSWDC weather station.
2. Rainfall falling into the leachate storage tank (13,275 square feet area) which is classified as leachate.
3. Based on flowmeter data, the amount of leachate pumped from the Class I landfill area to the storage tank.
4. Sum of rainfall into the storage tank and the leachate pumped from the Class I landfill & MRF.
5. Quantity of leachate pumped to WWTP based on the flowmeter at the leachate storage tank plus what is used for reuse
6. Total leachate added to the storage tank minus the quantity pumped during a day (daily increase or decrease).
7. Quantity of leachate stored in the tank.
8. Leachate reused for dust control in landfill.
9. NR = No reading

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

Sarasota County

January 14, 2010

Susan J. Pelz, P.E.
Solid Waste Program Manager
Southwest District
13051 N. Telecom Parkway
Temple Terrace, Fl. 33637

Subject: Sarasota County, Central County Solid Waste Disposal Complex, Phase I
DEP Permit No. 130542-007-SO/01
Leachate Collection System Inspection Report

Dear Susan:

Included is the subject report as required under DEP Permit No. 130542-007-SO/01.

Should you have any questions, please call me at (941) 915-3421.

Sincerely,

Spencer Anderson, P.E.

cc: Project File
Gary Bennett, General Manager, Solid Waste
Lois Rose, Operations Manager, Solid Waste

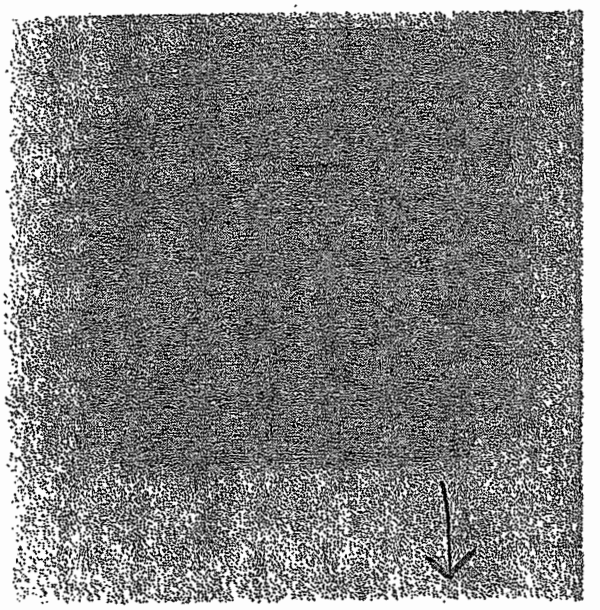
SARASOTA COUNTY CAPTIAL MANAGEMENT SERVICES
1001 Sarasota Center Blvd. Sarasota, FL 34240
Tel 941-861-0562 Fax 941-861-0569

Sarasota County Central County Solid Waste Disposal Complex, Phase I

DEP Permit No. 130542-007-SO/01

Leachate Collection System Inspection Report

Date: January 14, 2010



Sarasota County

Sarasota County Solid Waste
4000 Knights Trail Road
Nokomis, FL 34241

Spencer L. Anderson, P.E.
Certification No. 64012

ATTACHMENT K-12

FDEP APPROVAL LETTER FOR LEACHATE REUSE

FILE COPY

SOLID WASTE OPERATIONS

JAN 20 2000

RECEIVED

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

January 18, 2000

Mr. Gary Bennett
Sarasota County
Solid Waste Operations
4000 Knights Trail Road
Nokomis, FL 34275

Re: Leachate Reuse at SCSWDC
Permit #S058-299180, Sarasota County

Dear Mr. Bennett:

The Department has no objection to the reuse of leachate for dust control (not re-circulation) on active areas as described in your January 12, 2000 letter and operations plan for leachate reuse via truck mounted spraying (attached), subject to the conditions in these referenced letters and attachments. The reuse of leachate for dust control at SCSWDC is considered experimental and over-application should be avoided.

If any inspections disclose problems with this leachate reuse, such as failure to maintain normal operation and prevent ponding and leachate discharge outside the active disposal area, approval may be discontinued. If you have any questions you may call me at (813) 744-6100, extension 382.

Sincerely,

Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab
Attachments

cc: Paul Wingler, P.E., Sarasota County
Robert Butera, P.E., FDEP Tampa
Steve Morgan, FDEP Tampa

SOLID WASTE OPERATIONS
JAN 2 0 2000
RECEIVED

D.E.P.
JAN 14 2000
Southwest District Tampa

SARASOTA COUNTY
"Dedicated to Quality Service"

January 12, 2000

Kim B. Ford, P. E.
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

Re: Central County Solid Waste Disposal Complex
Leachate Reuse

Dear Mr. Ford:

Our Contract Landfill Operator, Waste Management has requested leachate reuse as a dust control agent. They have submitted the attached "Operations Plan for Leachate Reuse via Truck Mounted Spraying" which outlines their proposed activity.

We would require the following additional conditions if the proposed activity is acceptable to the Department.

a) Leachate reuse is subject to the acceptance of the Sarasota County Solid Waste Operations Manager or his designee and will be suspended or terminated at his discretion.
b) The leachate reuse management system will operate to prevent the exposure of leachate to the stormwater control network.
c) The truck used for leachate hauling must be thoroughly cleaned before being used for any other watering purpose.
d) The truck tank must be free of leaks. If a leak is discovered the truck must be decommissioned for the purpose of repair.
e) Use of the leachate for dust control must not result in ponding within the authorized operation area of the landfill cell(s).

Sincerely,

Gerald L. Bennett
Solid Waste Operations Manager

GLB:lh
Attachment
c: Anita Largent, General Manager, Solid Waste
Stephen Barton, WM/Englewood Disposal Company
Robert J. Butera, P.E., Florida Department of Environmental Protection, Tampa
Ed Norris, Sarasota Landfill Management

\\CCSWDFWOL\USER\shared\projects\Central County Solid Waste Disposal Complex\Landfill Operator\Correspondence\FDEP K. Ford - Leachate Reuse.doc

ENVIRONMENTAL SERVICES, Solid Waste Operations • 4000 Knights Trail Road, Nokomis, FL 34275
Tel 941-486-2600 • Fax 941-486-2620

SOLID WASTE OPERATIONS
JAN 2 0 2000
RECEIVED

asota County Central Solid Waste Disposal Complex
Procedures for Leachate Reuse
Operator: Sarasota Landfill Management

December 6, 1999

SOLID WASTE OPERATIONS
JAN - 4 2000
RECEIVED

Operations Plan for Leachate Reuse via Truck Mounted Spraying

Leachate reuse will be employed for dust control and as a supplemental method to manage leachate. The reuse of leachate involves spraying small quantities of leachate 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 numerous Class I landfills in Florida. 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 landfill operation crew will monitor the rate of leachate application, soil moisture conditions and the specific landfill areas used so that leachate application does not generate run-off. This form of leachate reuse should be acceptable as a supplementary means of leachate management. Leachate may be applied under the following conditions:

- Leachate may only be sprayed on active, bermed fill areas, including the working face, and areas with the required six (6) inches of initial cover.
- Leachate may not be sprayed on areas with intermediate or final cover.
- At all times areas receiving leachate must be controlled to prevent run-off from entering the stormwater system.
- Leachate may not be sprayed when the application area is in a saturated condition.
- The application rate of leachate should be such that leachate does not accumulate on the landfill surface, nor infiltrate quickly into the covered refuse.
- Leachate should 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 utilized.

The Site Manager will record daily the gallons of leachate sprayed per this method and provide this information to the County on a weekly basis. Leachate reuse will be conducted in strict compliance with these procedures.

ATTACHMENT K-13

LANDFILL RECYCLING PLAN

ATTACHMENT K-13

LANDFILL RECYCLING PLAN

Sarasota County Solid Waste Operations (SWO) segregates the following materials at the Central County Solid Waste Disposal Complex (CCSWDC) for the purpose of recycling these materials:

- Yard Wastes
- White Goods (i.e., household appliances)
- Waste Tires
- Construction and Demolition Wastes
- Batteries
- Waste Oil
- Lawn Mowers
- Electronic Devices

The procedures for managing each of these materials are presented below:

YARD WASTES

Yard wastes are brought to the CCSWDC as segregated loads, either from residential collection vehicles or commercial landscaping contractors. Yard waste loads are directed to the yard waste composting area located south of the Phase I Class I Landfill Area. New yard waste loads are deposited in a designated area of this site.

Bagged yard waste shall not be mulched at the site unless the bags are removed prior to mulching.

The incoming yard waste is stored in a pile until such time that enough material is accumulated to begin processing. Yard waste processing includes size reduction via a tub grinder and screening of the size reduced materials.

Once processing is completed, the resulting yard waste mulch is either placed into windrows for composting or is used by the landfill operations as erosion control and road stabilizing material. The composted material is used on site as a replacement for soil.

Any unprocessed yard trash will be removed from the facility within six months, or within the period required to accumulate 3,000 tons or 12,000 cubic yards, which ever comes first. Processed yard trash will be removed or marketed within 18 months. Yard waste shall be managed in accordance with the facility's yard waste processing facility registration and Rule 62-709.320, F.A.C.

WHITE GOODS

White goods are separated from the waste stream at the point of collection or at the working face of the landfill. White goods are stored in the northeast corner of the yard waste composting area. White goods containing fluids are stored in an upright position until the fluids are removed or the item is picked up for removal from the site. Refrigerants are removed from the items on-site by a contractor licensed to perform this function. White goods that have had fluids and/or refrigerant removed from them will be clearly marked.

The white goods are periodically collected by a steel recycler who transports the materials to a facility that recycles the materials into new steel products.

A maximum of 1,250 (total) white goods and lawn mowers may be stored at the site at any time. The white goods shall be removed from the site at least monthly (every 30 days).

WASTE TIRES

Waste tires are delivered to the CCSWDC in segregated loads. In addition, waste tires are pulled from the working face of the landfill. The waste tires are stored at the Waste Tire Processing Facility located east of the Yard Waste Composting Area. The Waste Tire Processing Facility is permitted by FDEP for storage and processing of waste tires.

Currently the contracted landfill operator is removing waste tires from the site for processing off-site. The tires are shredded and then processed for use in new products. Waste tires may also be processed on site to produce tire chips for use as an alternate daily cover material or as a drainage media for the proposed Phase II leachate recirculation trenches.

Waste tire shall be managed in accordance with Permit NO. 126775-002-WT/02.

CONSTRUCTION AND DEMOLITION WASTE

Construction and Demolition (C&D) wastes are delivered to the CCSWDC in segregated loads. A specialized contractor operates a permitted C&D waste processing facility located at the CCSWDC, south of the Waste Tire Processing Facility. The contractor screens and sorts C&D waste and resells lumber, cardboard, concrete, and roofing shingles to various users or distributors of these materials.

The maximum quantities of C&D wastes that may be stored at the site, and the schedule for removal from the site, shall be as required under Waste Processing Facility Permit No. 134912-004-SO/31.

BATTERIES

Waste lead-acid batteries are removed from the working face of the landfill and temporarily stored at the Maintenance building on spill containment pallets. The storage area is under a roof and protected from rainfall.

Periodically the waste batteries are collected by a battery recycling company and the various components, mainly lead, are recovered for use in new products.

A maximum of 30 lead acid batteries may be stored on-site at any time. Lead acid batteries shall be removed from the site at least monthly (every 30 days).

WASTE OIL

Waste oil is collected by the solid waste franchise hauler and delivered to the CCSWDC for temporary storage until collected by a waste oil recycler. The waste oil is stored at the Citizens Convenience Center until collected by the recycler.

Two 250 gallon containers are provided for storage of waste oil at the Citizens Convenience Center. Waste oil shall be removed from the site at least monthly (every 30 days).

LAWN MOWERS

Lawn mowers are accepted at the CCSWDC provided that all fluids have been drained. Lawn mowers are managed as white goods. After inspection for fluids, mowers are stored in the white goods area until collected by the white goods recycling contractor.

ELECTRONIC DEVICES

Undamaged television sets, computer and monitors are collected for recycling and stored on a concrete pad until collected and removed from the site by a recycling contractor.

A maximum of 1,000 electronic devices may be stored at the site at any time. Electronics, either damaged or undamaged, shall be removed from the site at least monthly (every 30 days).

ATTACHMENT K-14

PHASE I OPERATION DRAWINGS

Sarasota County

Phase I Class I

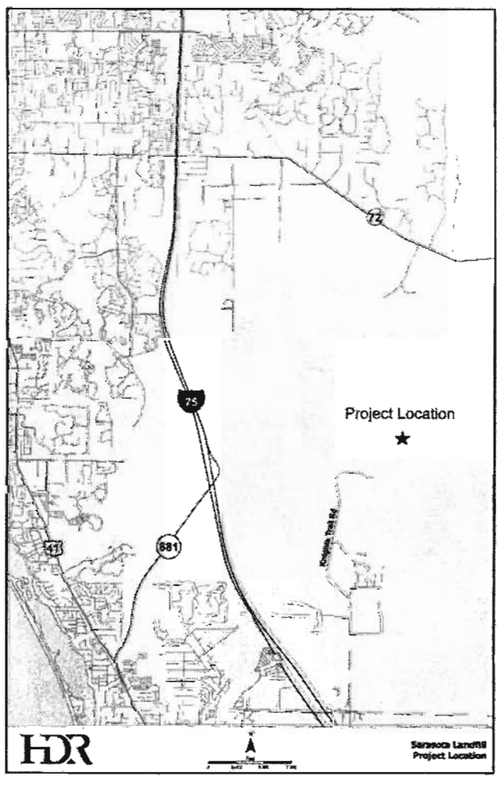
OPERATIONS DRAWINGS

Central County Solid Waste Disposal Complex

Sarasota County, Florida

Project No.
000000000022404-018

Issued for FDEP Minor Permit Modification
JANUARY 2008



PROJECT LOCATION MAP

HDR

HDR Engineering, Inc.

2202 N. WEST SHORE BLVD. SUITE 250
TAMPA, FL 33607-5755
(813) 282-2300
FLORIDA CERTIFICATE OF AUTHORIZATION
NO. 00004213

INDEX OF DRAWINGS

SHEET NO.	DRAWING TITLE
G01	COVER SHEET
1	SCS/PHASE 1 AREA LAYOUT
2	SCS/LANDFILL BUILDOUT PLAN
3	SCS/TYPICAL LIFT DEVELOPMENT
4	SCS/OVERALL SITE PHASING PLAN
5	SCS/FILL SEQUENCING PLAN
6	SCS/FILL SEQUENCING PLAN
7	SCS/FILL SEQUENCING PLAN
8	SCS/FILL SEQUENCING PLAN
9	SCS/FILL SEQUENCING PLAN
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~~11~~	~~SCS/FILL SEQUENCING PLAN~~ DELETED
~~12~~	~~SCS/FILL SEQUENCING PLAN~~ DELETED
13A	SCS/FILL SEQUENCING SECTIONS
13B	SCS/FILL SEQUENCING SECTIONS
~~13C~~	~~SCS/FILL SEQUENCING SECTIONS~~ DELETED
13C	EXISTING CONDITIONS JUNE 2007 TOPOGRAPHIC SURVEY
13D	PHASE 1 SEQUENCE
13E	PHASE 2 SEQUENCE
13F	PHASE 3 SEQUENCE
13G	PHASE 4 SEQUENCE
13H	PHASE 5 SEQUENCE
13I	PHASE 6 SEQUENCE - FINAL BUILDOUT
13J	SOUTH ACCESS ROAD PLAN AND PROFILE
13K	SECTIONS PHASE 1
13L	SECTIONS PHASE 2
13M	SECTIONS PHASE 3
13N	SECTIONS PHASE 4
13O	SECTIONS PHASE 5
13P	SECTIONS PHASE 6 FINAL BUILDOUT
13Q	SECTIONS TYPICAL LIFTS
13R	DETAILS 1
14	SCS/LINER PROFILE AND COLLECTION PIPE DETAILS
15	SCS/SUMP DETAILS AND SECTIONS
16	SCS/CLOSURE AND DRAINAGE DETAILS
17	SCS/ROADWAY SIGNAGE DETAILS

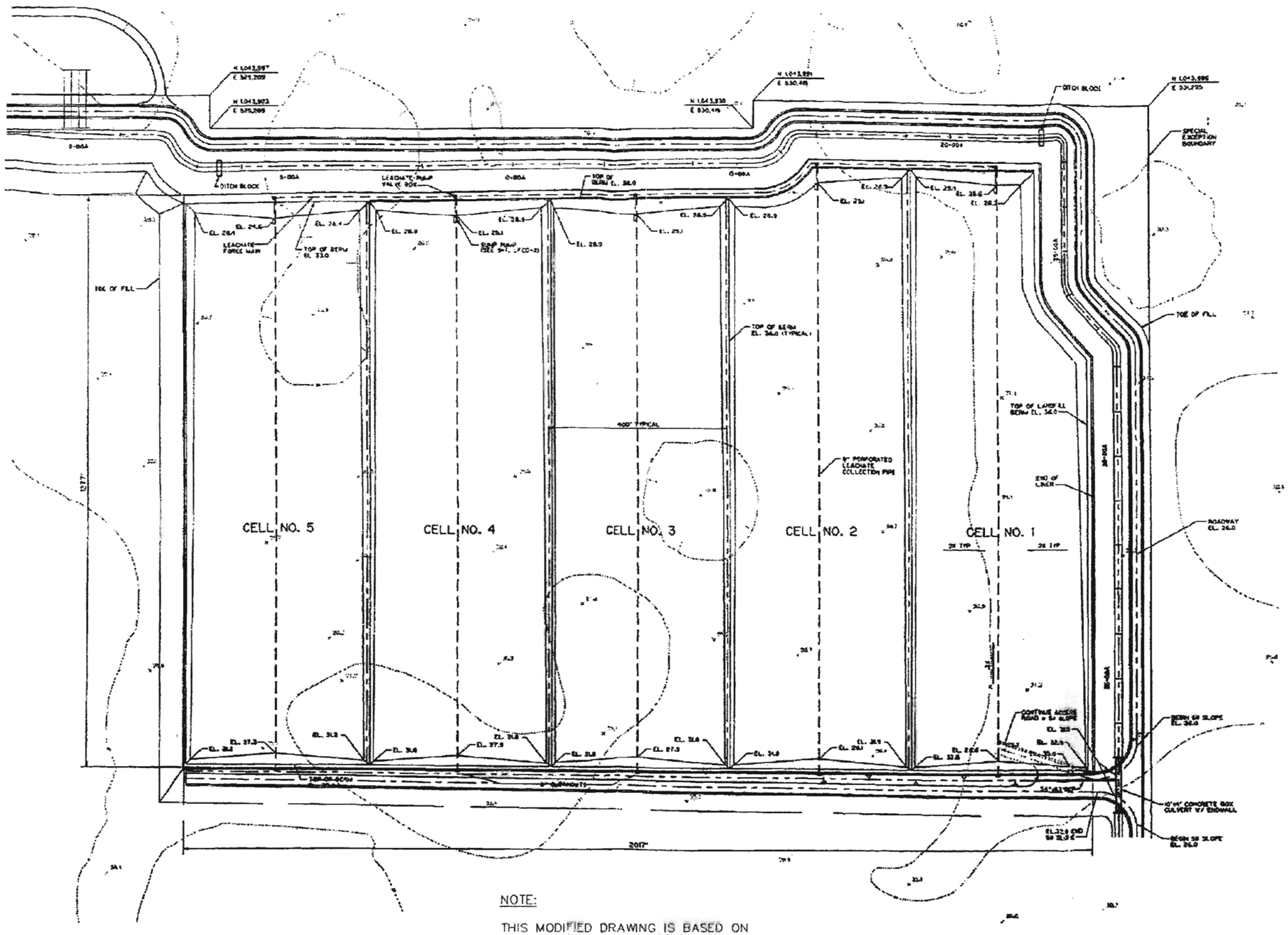
NOTE: FDEP APPROVED ORIGINAL OPERATIONS DRAWINGS SIGNED AND SEALED BY SCS ENGINEERS, INCLUDING SHEET NUMBERS 1, 2, 3, 4, 5, 6, 7, 8, 9, 13A, 13B, 14, 15, 16, AND 17 WERE SUBMITTED IN MARCH 2004. ONLY THE REVISED OPERATIONS DRAWINGS PREPARED BY HDR ENGINEERING, INC. INCLUDED IN THIS DRAWING SET HAVE BEEN SIGNED AND SEALED BY A PROFESSIONAL ENGINEER.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

01/07/08

THOMAS M. YANOSCHAK, P.E.
CERTIFICATE NO. 44200

NOT TO SCALE



NOTE: ELEVATIONS SHOWN ARE FINISHED GRADE

NOTE:

THIS MODIFIED DRAWING IS BASED ON AUGUST 1993 CONSTRUCTION, OPERTAION, AND CLOSURE PLANS, SHEET NO. LFC-1 FROM ORIGINAL CDM DRAWINGS DATE: 2/97.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

JOHN A. BANKS, P.E.
CERTIFICATE NO. 38397

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
3012 U.S. HWY. 301 NORTH, SUITE 700, TAMPA, FL 33619 PH (813) 621-0080 FAX NO. (813) 623-5757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

Revisions							
No.	Description	Date	By	No.	Description	Date	By

Approved By: RBQ
Checked By: JAB
Drawn By: GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

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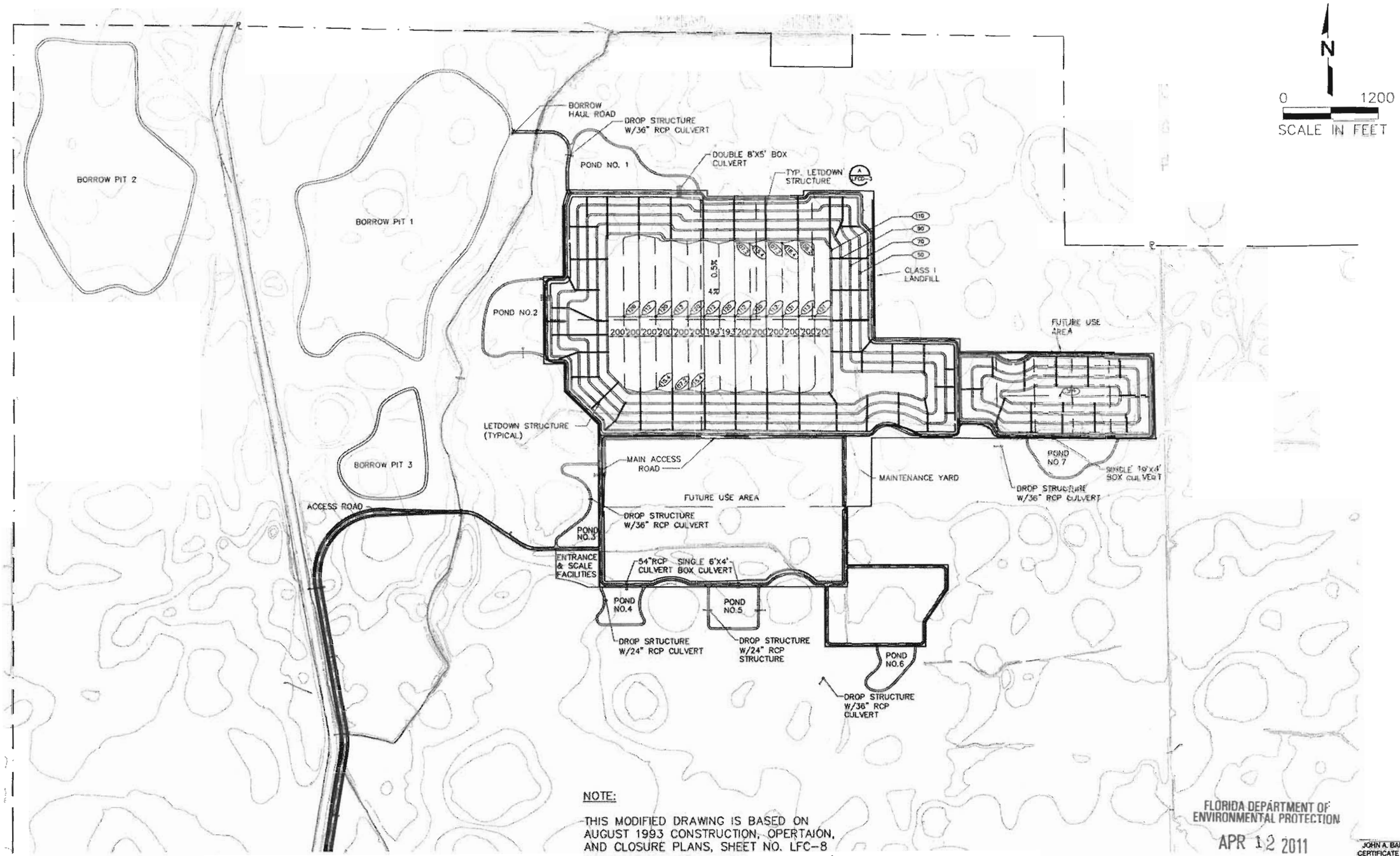

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TAMPA

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Revisions							
No.	Description	Date	By	No.	Description	Date	By

Approved By: RBC
Checked By: JAB
Drawn By: GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

FINAL CLOSURE PLAN

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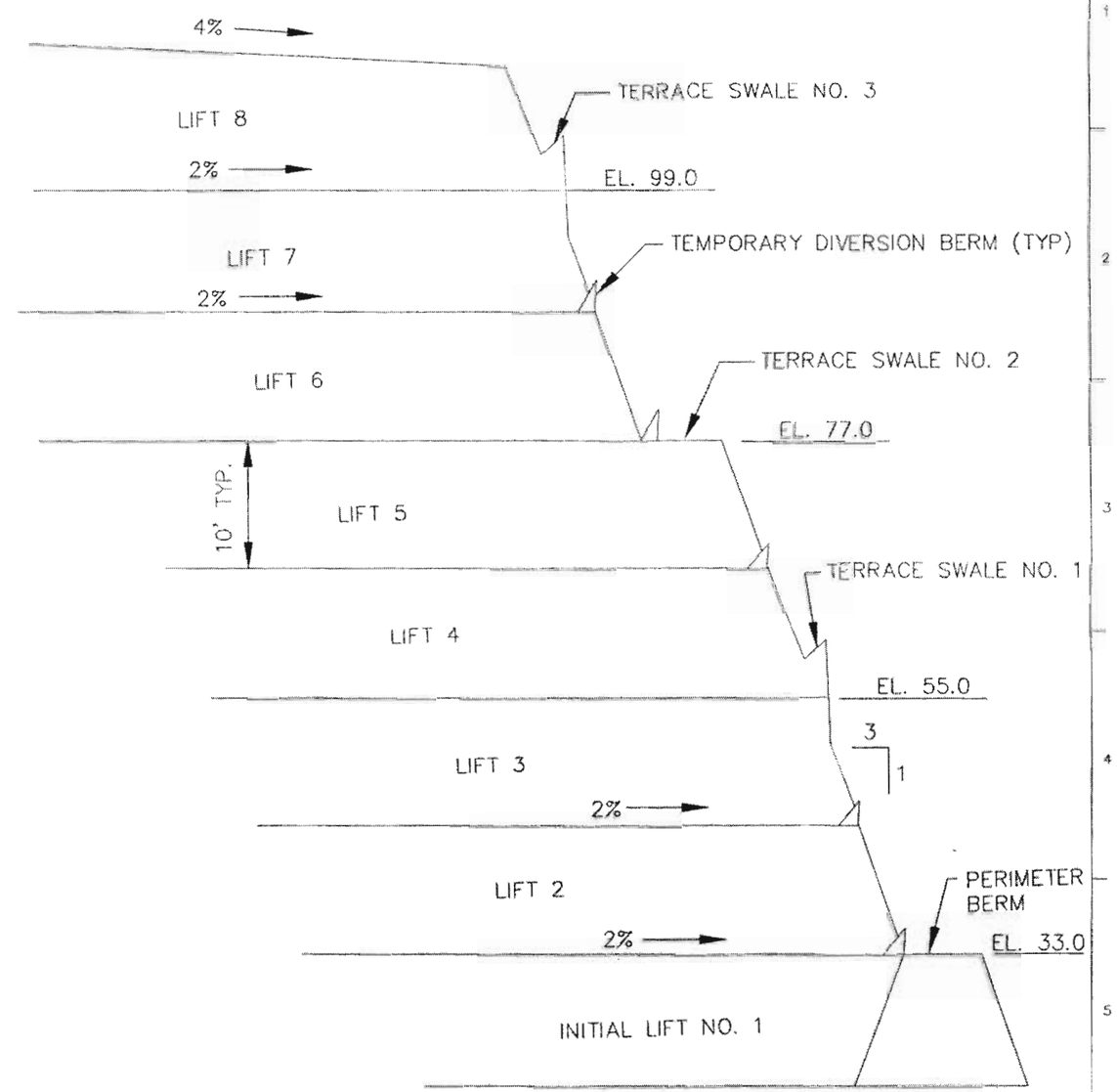

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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

JOHN A. BANKS, P.E.
CERTIFICATE NO. 38097

REVISED ON 10/06/03

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FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

BASED ON CDM ORIGINAL DRAWINGS DATE: 2/97

Revisions							
No.	Description	Date	By	No.	Description	Date	By

Approved By: RBC
Checked By: JAB
Drawn By: GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

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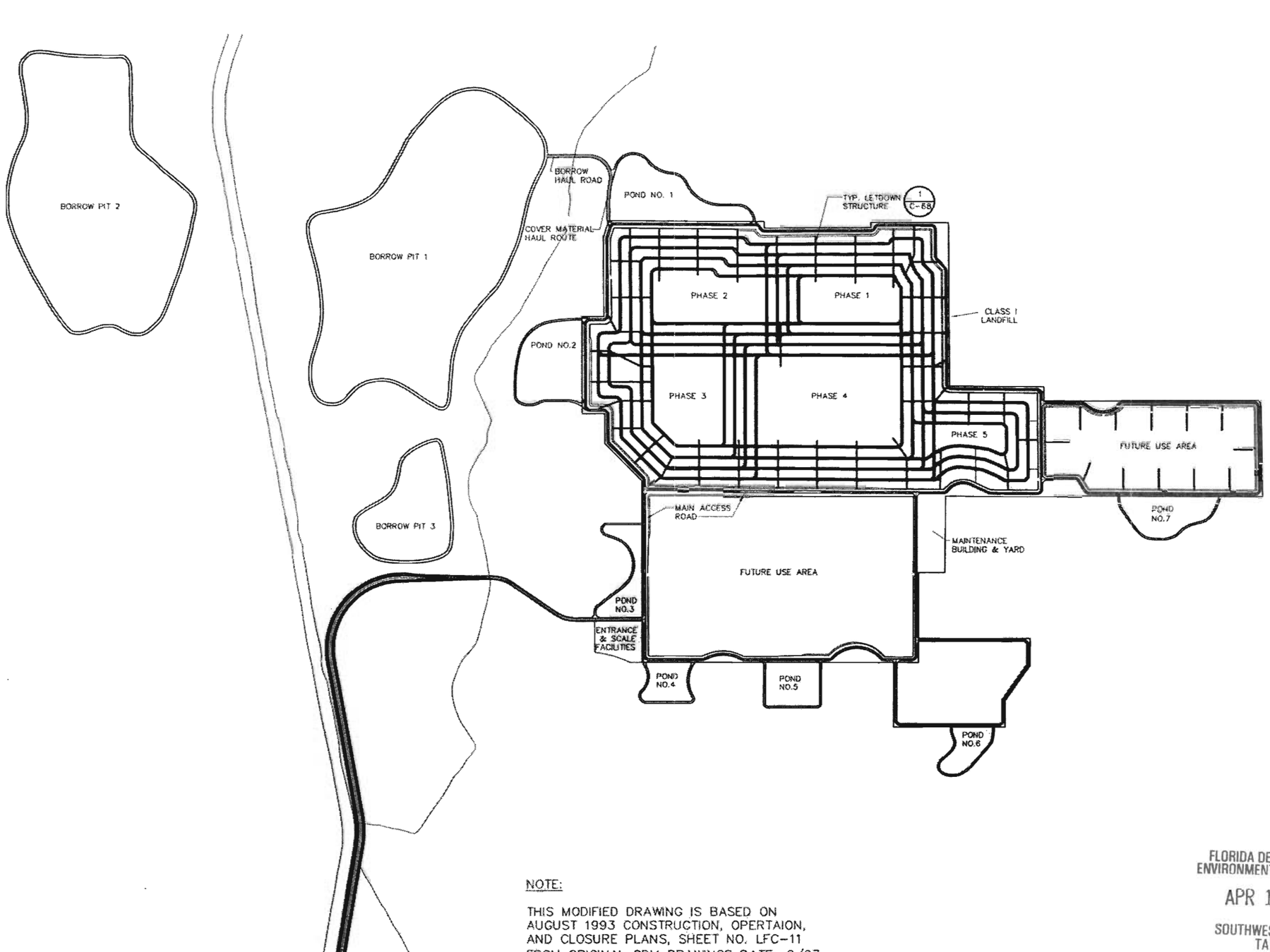

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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

JOHN A. BANKS, P.E.
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Revisions							
No.	Description	Date	By	No.	Description	Date	By

Approved By: RBC
Checked By: JAB
Drawn By: GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

FACILITIES PHASING PLAN

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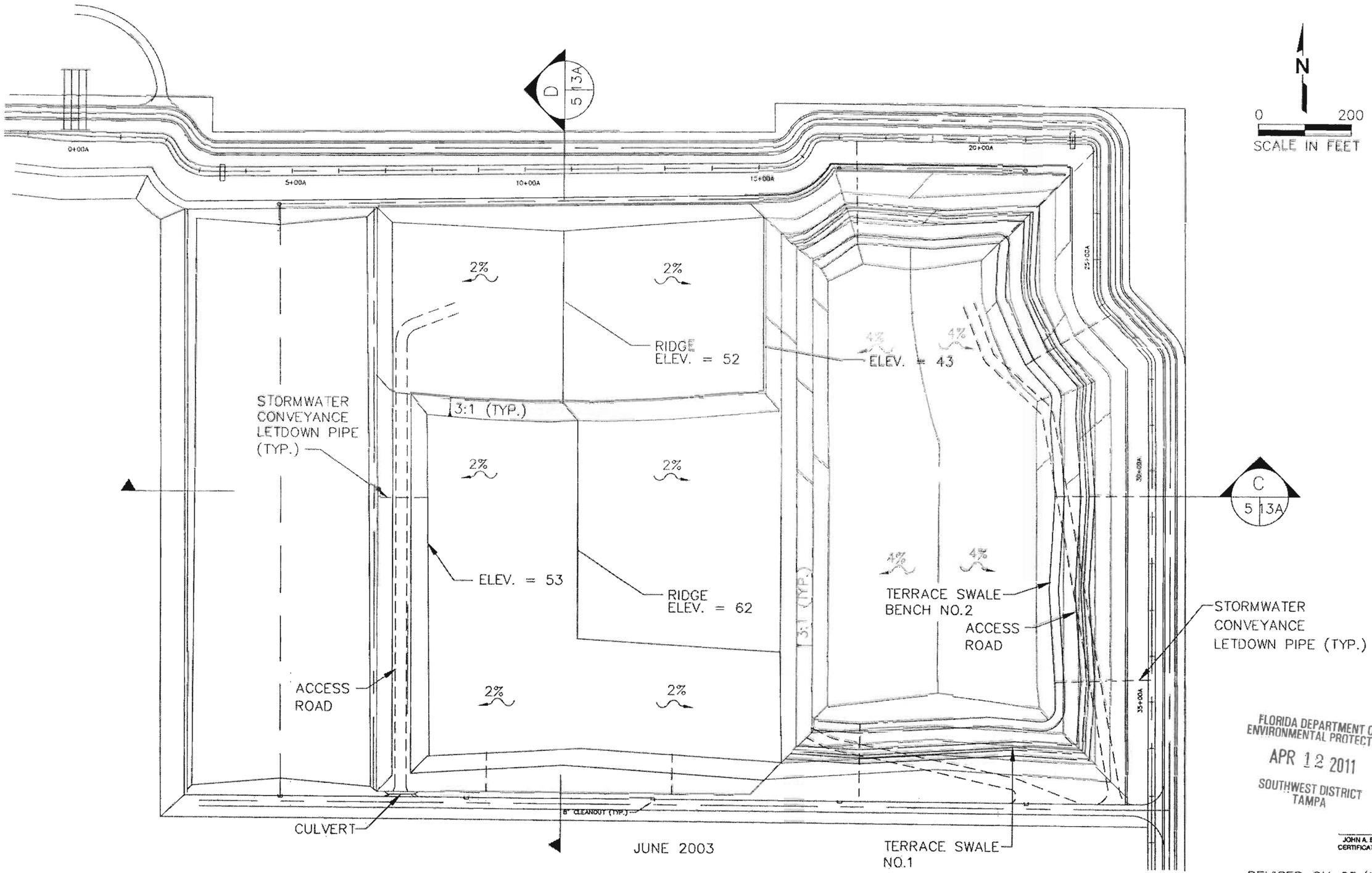

JUNE 2003

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

JOHN A. BANKS, P.E.
CERTIFICATE NO. 39397

REVISED ON 05/11/04

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No.	Description	Date	By	No.	Description	Date	By

Approved By: RBC
Checked By: JAB
Drawn By: GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

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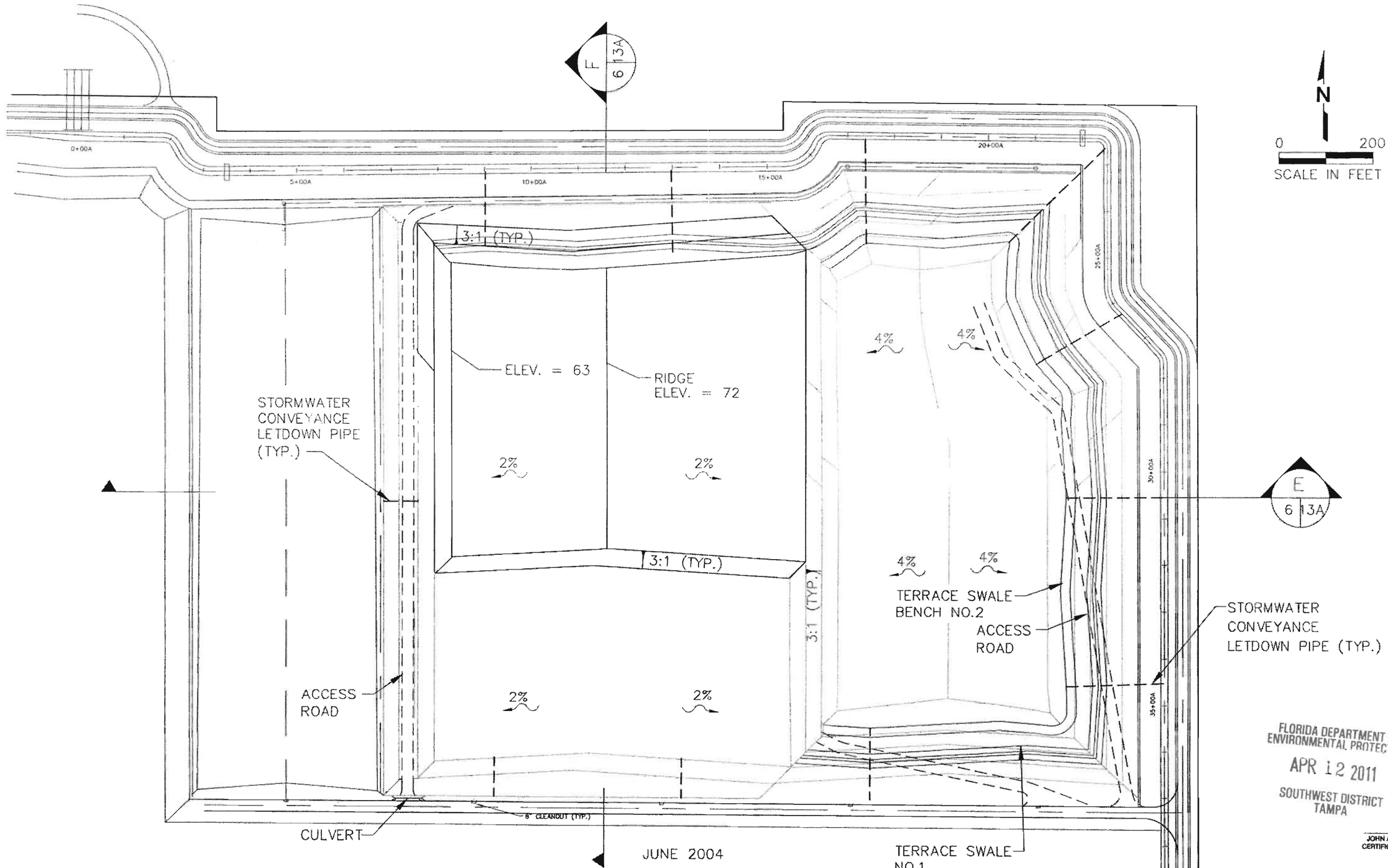

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

JOHN A. BANKS, P.E.
CERTIFICATE NO. 39997

REVISED ON 05/11/04

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Revisions							
No.	Description	Date	By	No.	Description	Date	By

Approved By: RBC
Checked By: JAB
Drawn By: GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

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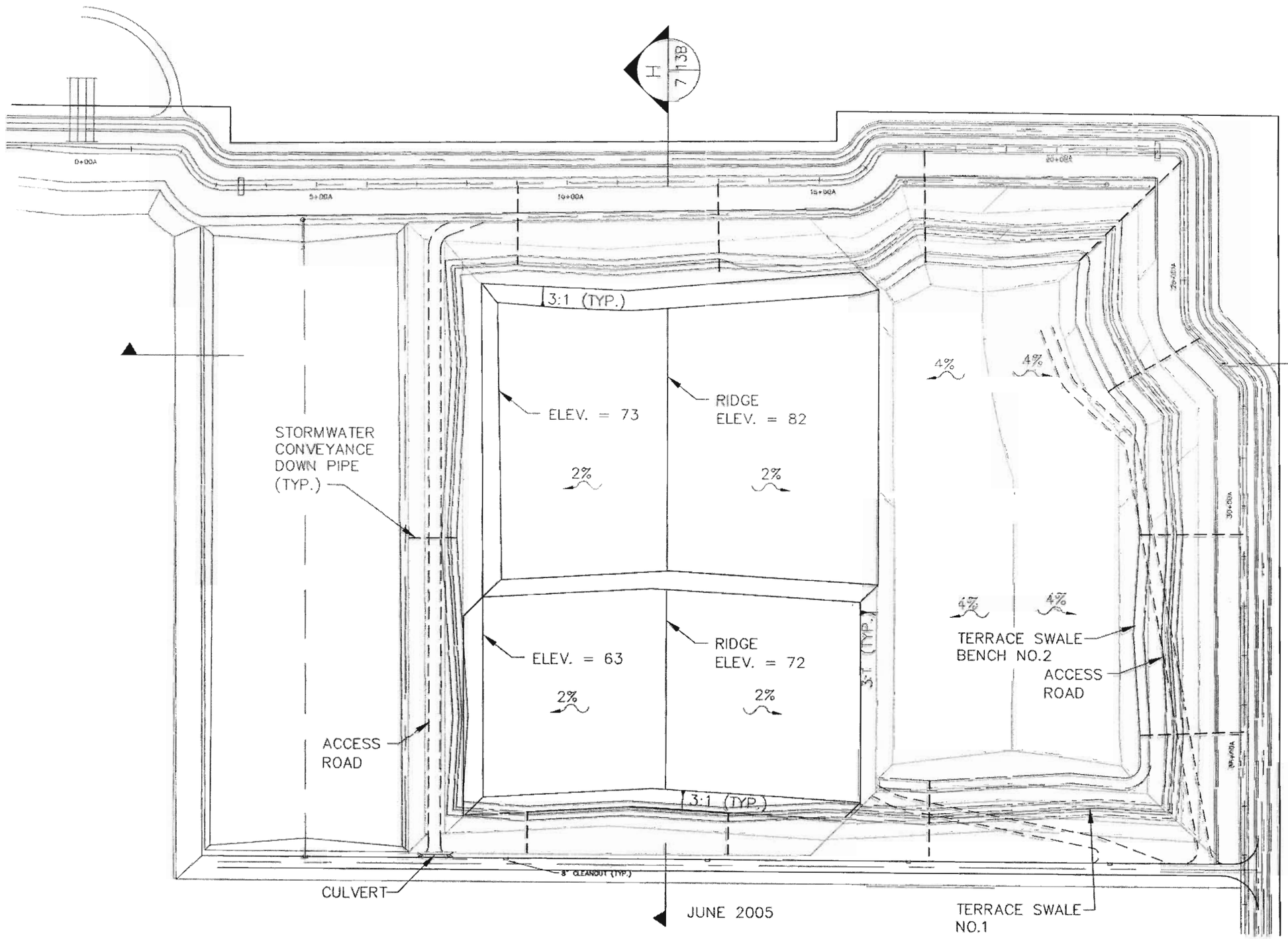

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

JOHN A. BANKS, P.E.
CERTIFICATE NO. 39397

REVISED ON 05/11/04

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FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

ONYX

Revisions								
No.	Description	Date	By	No.	Description	Date	By

Approved By: RBC
Checked By: JAP
Drawn By: GRD III

Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA

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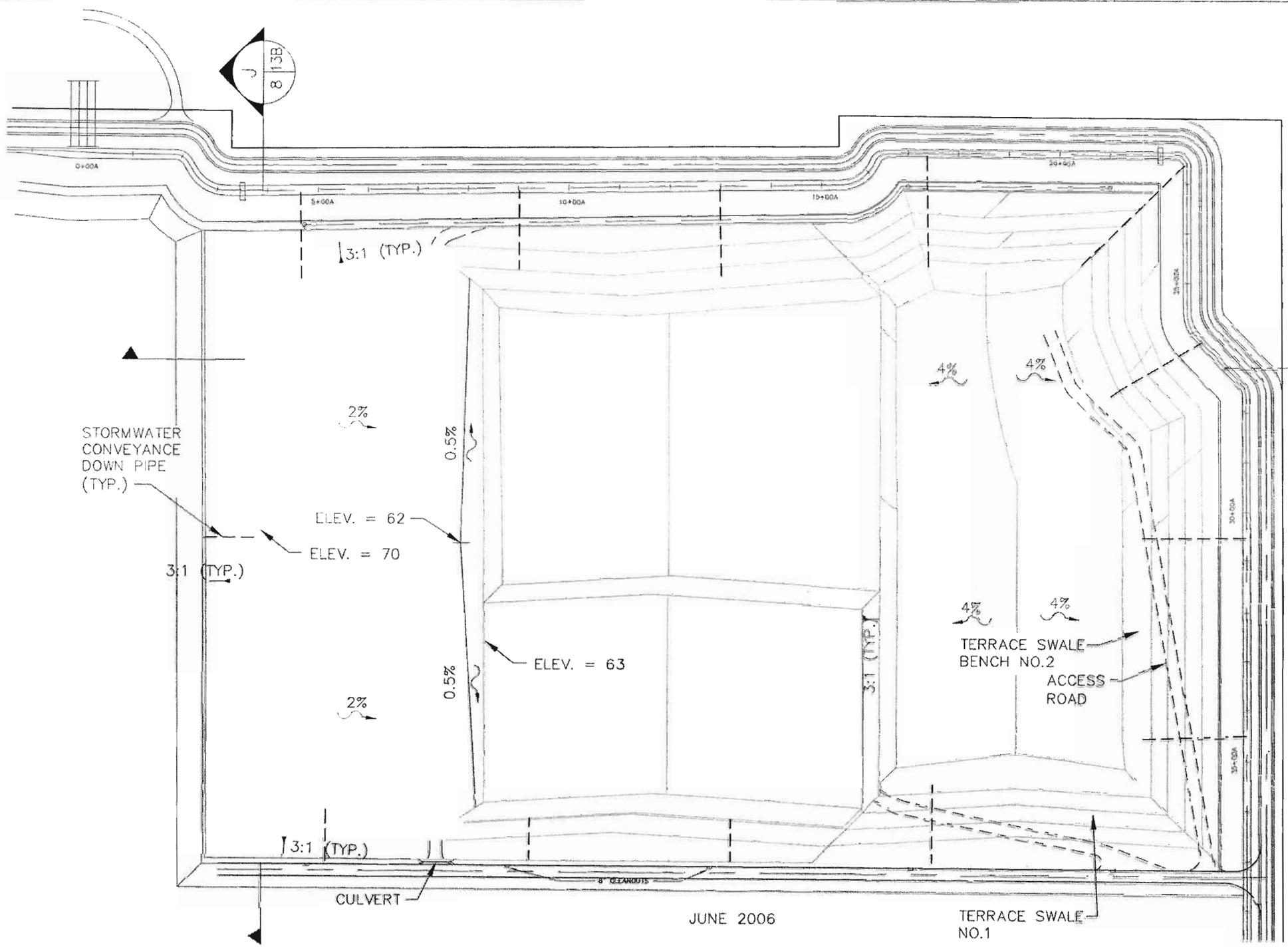

JUNE 2006

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

JOHN A. BANKS, P.E.
CERTIFICATE NO. 39397

REVISED ON 05/11/04

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FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

ONYX

Revisions:							
No.	Description	Date	By	No.	Description	Date	By

Approved By: MJS
Checked By: JAE
Drawn By: GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

Drawing No. 09201041.00\PHASES.dwg
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Sheet Number: 8

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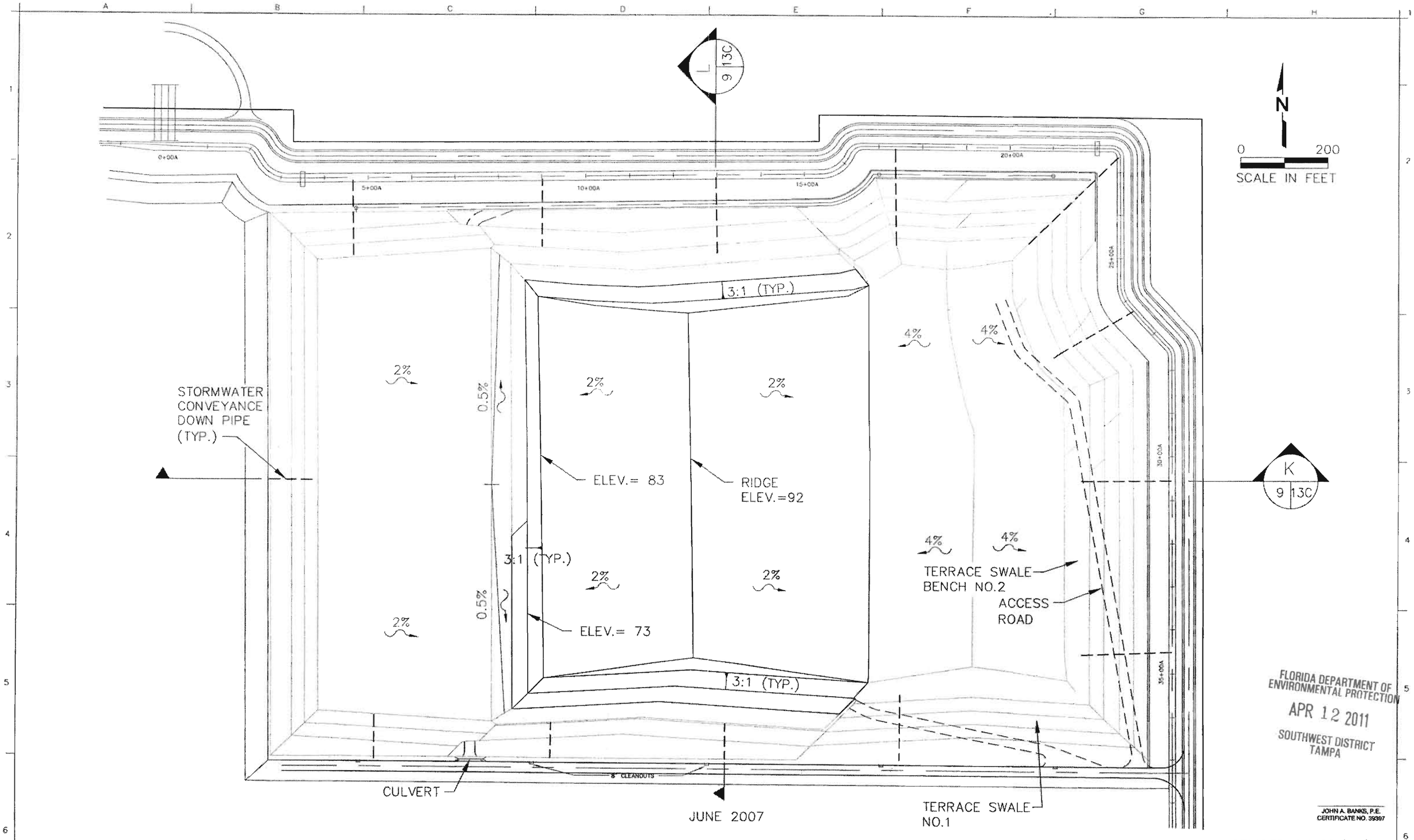

JUNE 2007

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT TAMPA

JOHN A. BANKS, P.E.
CERTIFICATE NO. 39397

REVISED ON 05/11/04

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Revisions							
No.	Description	Date	By	No.	Description	Date	By

Approved By: RBG
Checked By: JAB
Drawn By: GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

Drawing No. 09201041.00\PHASES.dwg
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Sheet Number: 9

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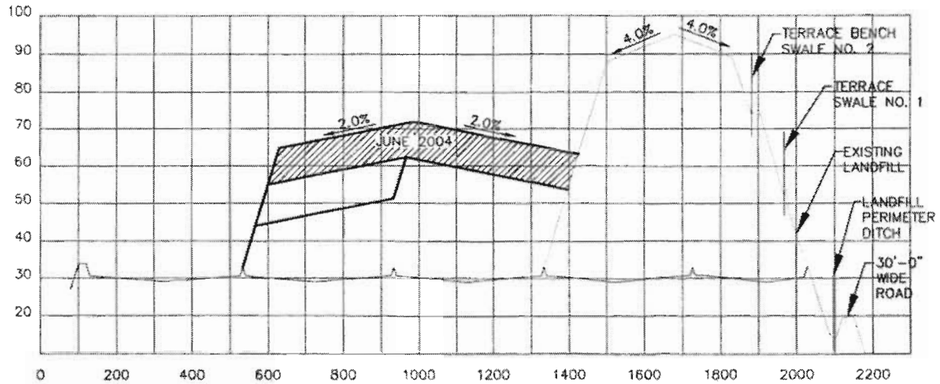
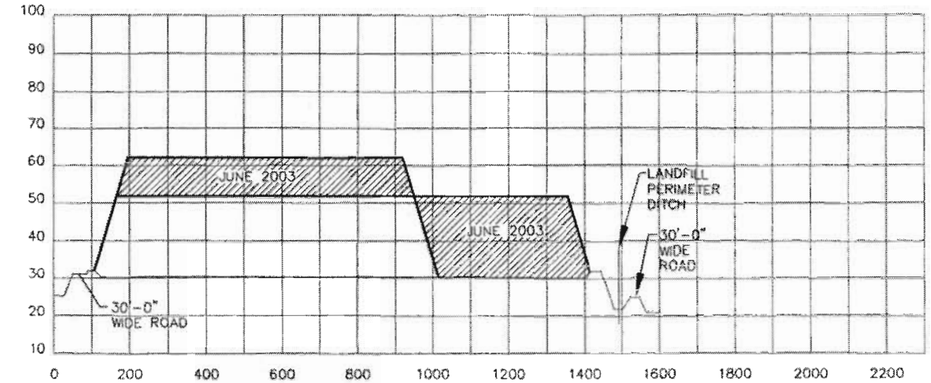


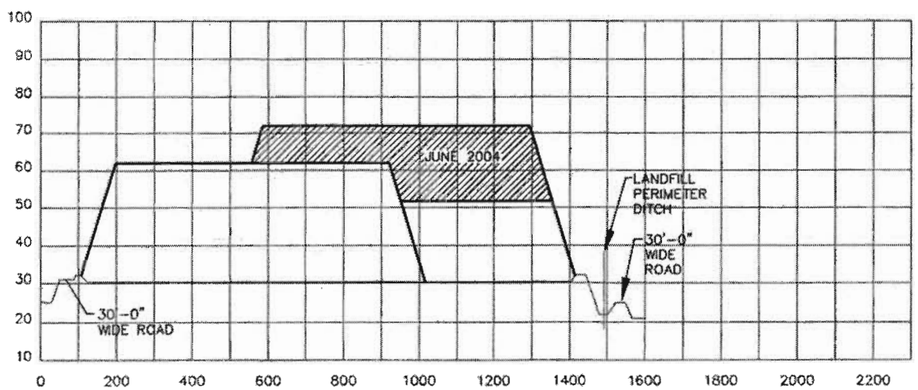
NOTE:
PROVIDE TEMPORARY STORMWATER SWALE AT CELL INTERFACE WITH A NEGATIVE GRADE AT 0.5% TOWARDS THE PERIMETER OF THE LANDFILL.

SECTION E
NOT TO SCALE 6 | 13A



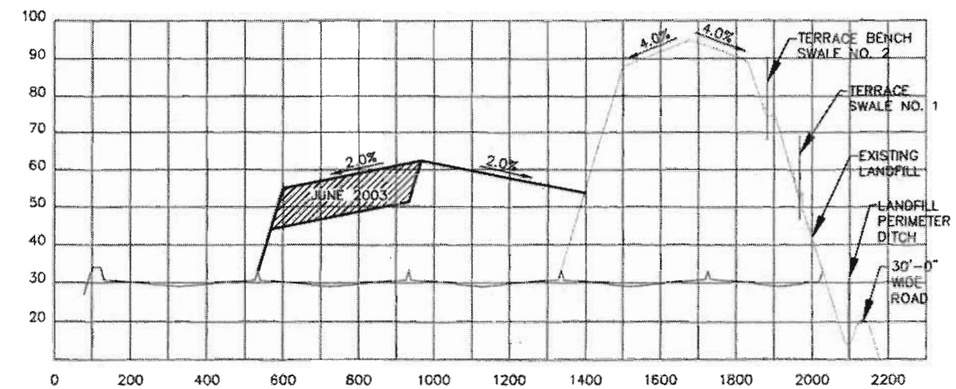
NOTE:
PROVIDE TEMPORARY STORMWATER SWALE AT CELL INTERFACE WITH A NEGATIVE GRADE AT 0.5% TOWARDS THE PERIMETER OF THE LANDFILL.

SECTION D
NOT TO SCALE 5 | 13A



NOTE:
PROVIDE TEMPORARY STORMWATER SWALE AT CELL INTERFACE WITH A NEGATIVE GRADE AT 0.5% TOWARDS THE PERIMETER OF THE LANDFILL.

SECTION F
NOT TO SCALE 6 | 13A



NOTE:
PROVIDE TEMPORARY STORMWATER SWALE AT CELL INTERFACE WITH A NEGATIVE GRADE AT 0.5% TOWARDS THE PERIMETER OF THE LANDFILL.

SECTION C
NOT TO SCALE 5 | 13A

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

JOHN A. BANKS, P.E.
CERTIFICATE NO. 39397

REVISED ON 05/11/04

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
3012 U.S. HWY. 301 NORTH, SUITE 700, TAMPA, FL 33619 PH (813) 621-0080 FAX NO. (813) 623-6757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

ONYX

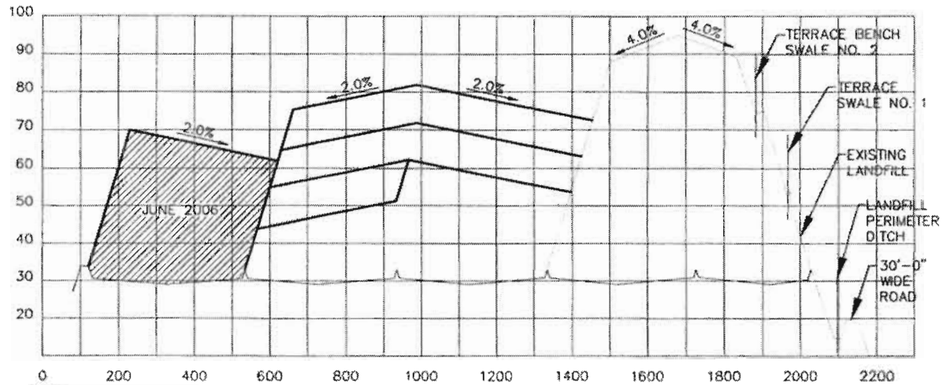
Revisions							
No.	Description	Date	By	No.	Description	Date	By

Approved By: RBC
Checked By: JAB
Drawn By: GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

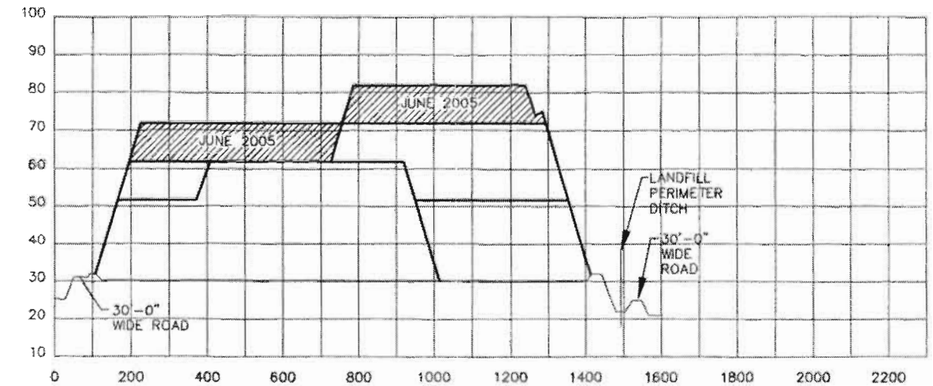
Drawing No. 09201041.00\PHASES.dwg
Scale: As Shown
Date: JULY 2002
Sheet Number: 13A

G:\PROJECT\Sarasota\09201041.00\PHASES.dwg 07/26/2002 12:02:50 PM EDT



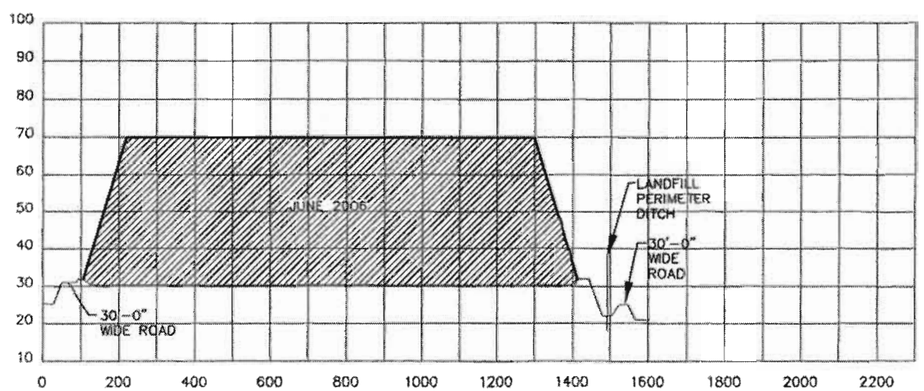
NOTE:
PROVIDE TEMPORARY STORMWATER SWALE AT CELL INTERFACE WITH A NEGATIVE GRADE AT 0.5% TOWARDS THE PERIMETER OF THE LANDFILL.

SECTION I / 8 | 13B
NOT TO SCALE



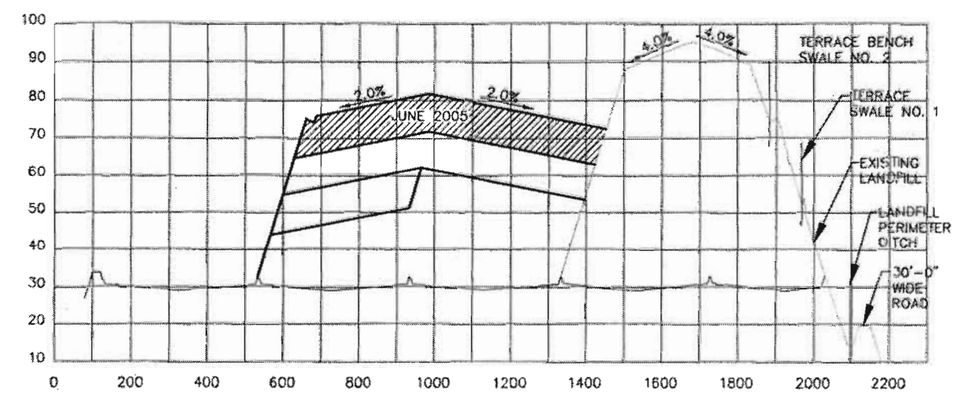
NOTE:
PROVIDE TEMPORARY STORMWATER SWALE AT CELL INTERFACE WITH A NEGATIVE GRADE AT 0.5% TOWARDS THE PERIMETER OF THE LANDFILL.

SECTION H / 7 | 13B
NOT TO SCALE



NOTE:
PROVIDE TEMPORARY STORMWATER SWALE AT CELL INTERFACE WITH A NEGATIVE GRADE AT 0.5% TOWARDS THE PERIMETER OF THE LANDFILL.

SECTION J / 8 | 13B
NOT TO SCALE



NOTE:
PROVIDE TEMPORARY STORMWATER SWALE AT CELL INTERFACE WITH A NEGATIVE GRADE AT 0.5% TOWARDS THE PERIMETER OF THE LANDFILL.

SECTION G / 7 | 13B
NOT TO SCALE

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

JOHN A. BANKS, P.E.
CERTIFICATE NO. 39397

REVISED ON 05/11/04

SCS ENGINEERS
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FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

ONYX

Revisions							
No.	Description	Date	By	No.	Description	Date	By

Approved By: RBG
Checked By: JAB
Drawn By: GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

Drawing No. 09201041.00\PHASES.dwg
Scale: As Shown
Date: JULY 2002
Sheet Number: 13B

G:\PROJECT\Sarasota\09201041.00\PHASES.dwg 07/26/2002 12:02:50 PM EDT

NOTES:

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE, SEE PERMITTED FILLING PLAN PREPARE BY SCS ENGINEERS, DATED MARCH 2004, FOR GRADES AND ELEVATIONS.

2. OPERATIONAL AND FINAL GRADES SHALL NOT BE GREATER THAN 3:1.

3. MAINTAIN OPERATION BERMS AT ALL ACTIVE WORKING FACES TO CONTAIN ALL STORMWATER COMMINGLED WITH WASTE.

4. MAINTAIN POSITIVE DRAINAGE AT ALL TIMES.

5. THE PURPOSE OF THESE DRAWINGS IS TO SUPPLEMENT THE CURRENT FDEP APPROVED FILL SEQUENCE PLANS.

6. EXISTING CONDITIONS BASED ON THE JUNE 20, 2007 AERIAL TOPOGRAPHICAL SURVEY, PERFORMED AND PREPARED BY LANDAIR, INC.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

HDR
2202 N Westshore Blvd. Suite 250
Tampa, Florida 33607
813-282-2300
HDR CERT. AUTH. NO. CA 4213
FL REG. AA C000457

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

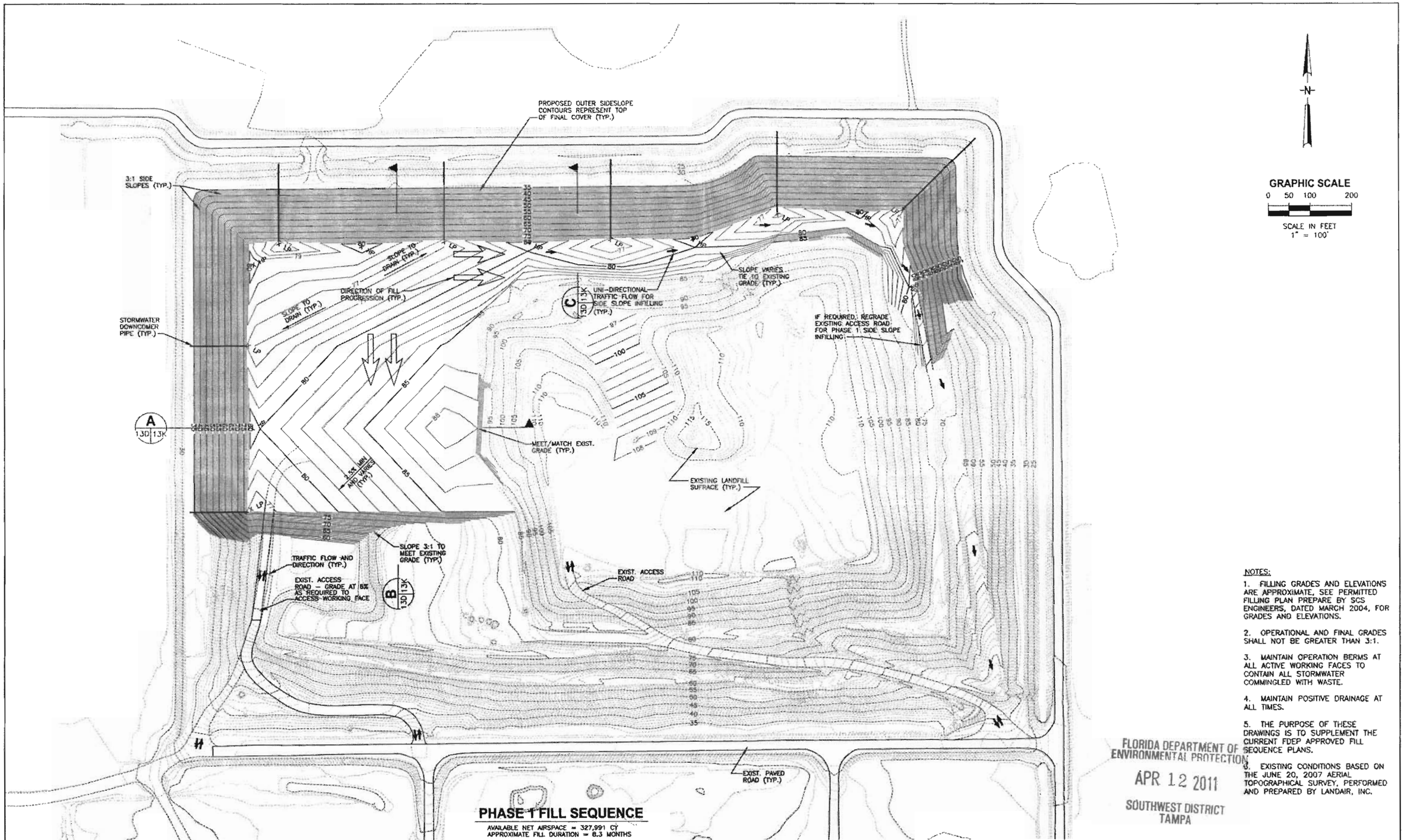
PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

EXISTING CONDITIONS
JUNE 2007 TOPOGRAPHIC SURVEY

0 1" 2"

FILE NAME	HDR FDEP SEQUENCING	SHEET
SCALE	1" = 100'	13C



PHASE 1 FILL SEQUENCE

AVAILABLE NET AIRSPACE = 327,991 CY
APPROXIMATE FILL DURATION = 8.3 MONTHS

NOTES:

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE, SEE PERMITTED FILLING PLAN PREPARE BY SCS ENGINEERS, DATED MARCH 2004, FOR GRADES AND ELEVATIONS.
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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

HDR
2202 N Westshore Blvd, Suite 200
Tampa, Florida 33607
813-282-0300
HDR CERT. AUTH. NO. CA 4218
FL REG. AA C000457

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

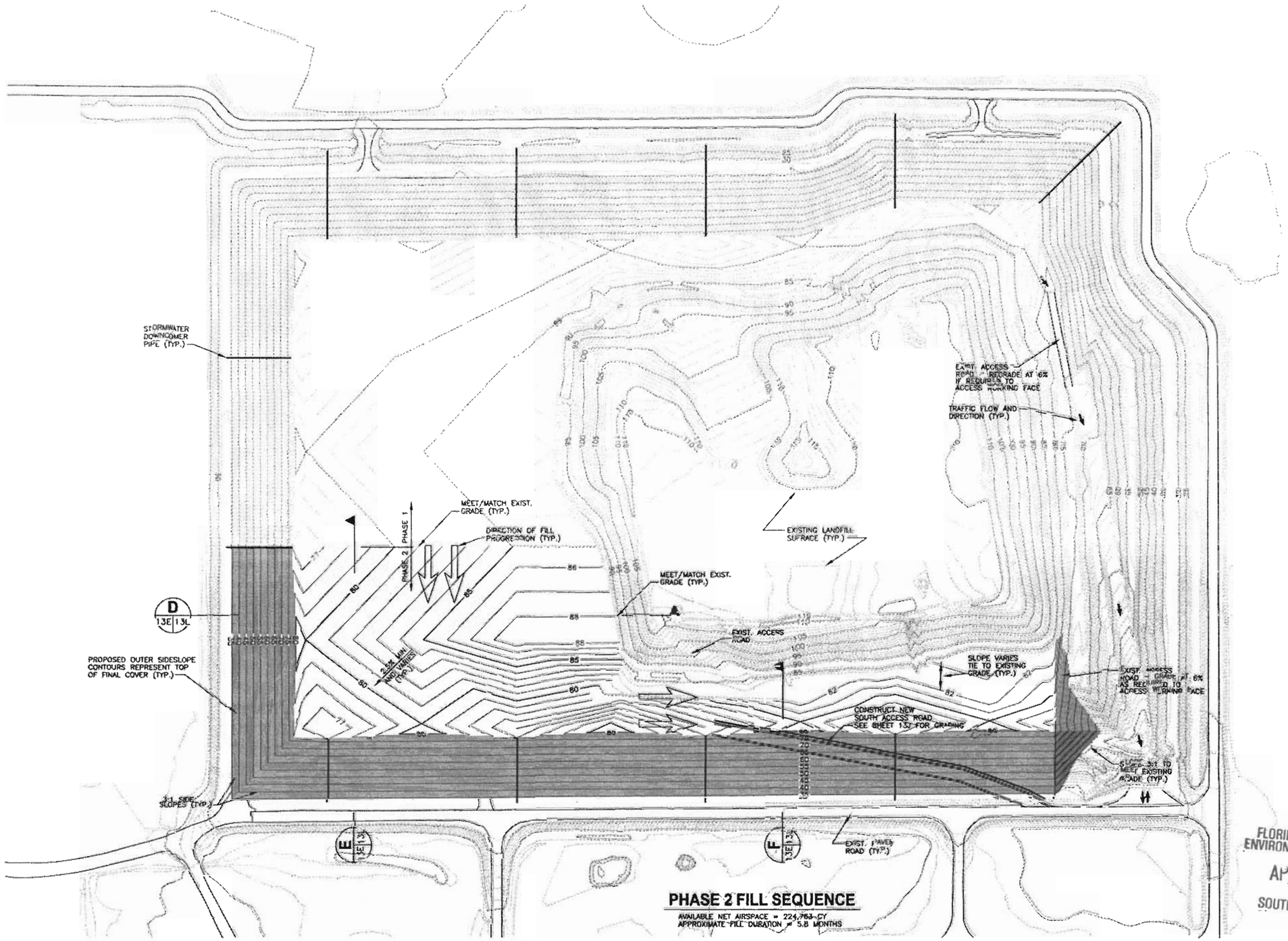
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

PHASE 1 SEQUENCE

0 1" 2"

FILENAME	HDR FDEP SEQUENCING
SCALE	1" = 100'

SHEET 13D



PHASE 2 FILL SEQUENCE

AVAILABLE NET AIRSPACE = 224,763 CY
APPROXIMATE FILL DURATION = 5.8 MONTHS

NOTES:

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE. SEE PERMITTED FILLING PLAN PREPARE BY SCS ENGINEERS, DATED MARCH 2004, FOR GRADES AND ELEVATIONS.
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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

HDR
22402 N Westshore Blvd, Suite 250
Tampa, Florida 33607
813-282-2300
HDR CERT. AUTH. NO. CA 4213
FL REG. AA C000457

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

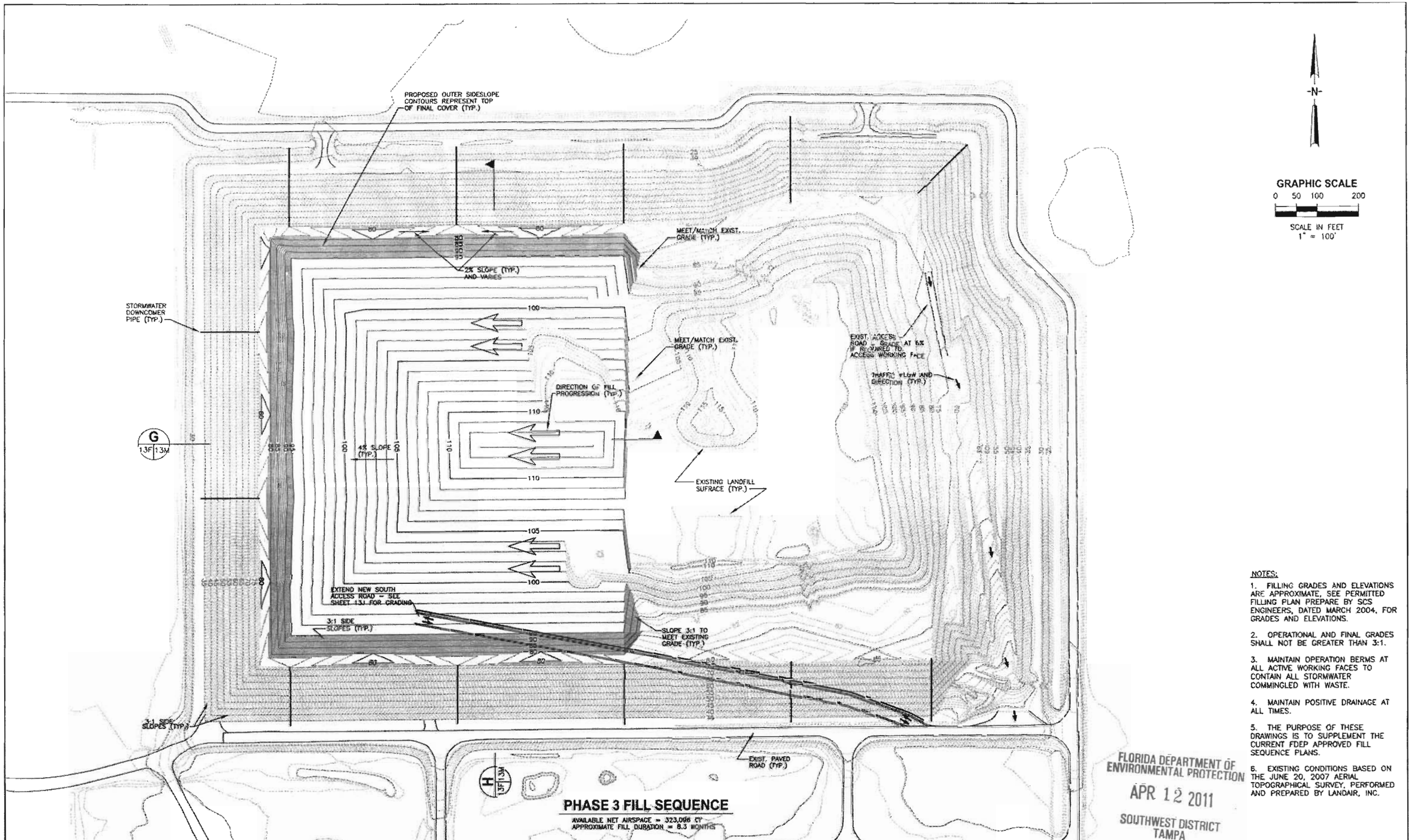
01/07/08

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

PHASE 2 SEQUENCE

0 1" 2"

FILENAME	HDR FDEP SEQUENCING	SHEET
SCALE	1" = 100'	13E



PHASE 3 FILL SEQUENCE

AVAILABLE NET AIRSPACE = 323,096 CY
APPROXIMATE FILL DURATION = 8.3 MONTHS

NOTES:

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE, SEE PERMITTED FILLING PLAN PREPARE BY SCS ENGINEERS, DATED MARCH 2004, FOR GRADES AND ELEVATIONS.
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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT TAMPA

HDR

5200 W Westshore Blvd, Suite 250
Tampa, Florida 33607
813-282-2300
HDR CERT. AUTH. NO. CA 4253
FL REG. AA C000457

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22494-018

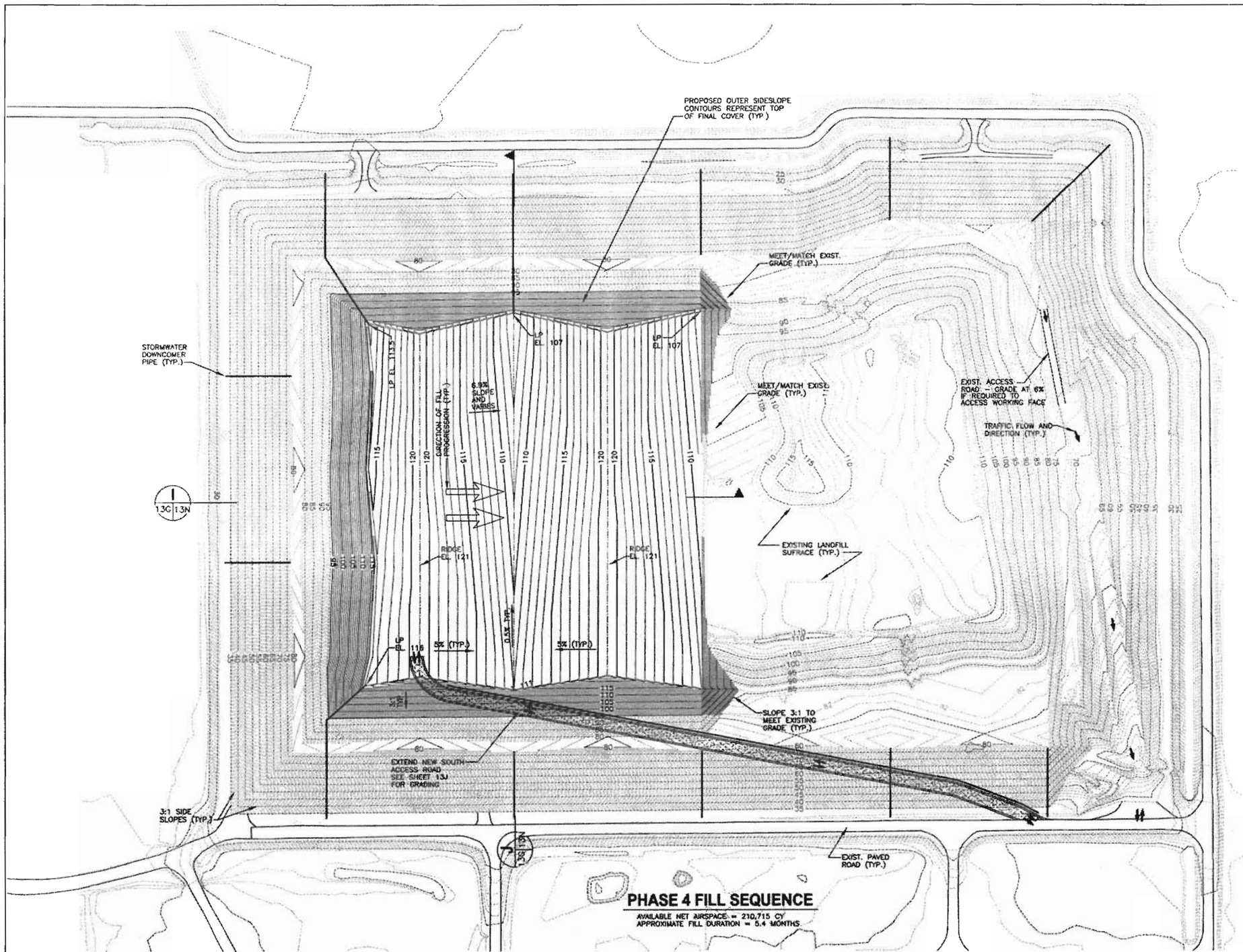
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

PHASE 3 SEQUENCE

0 1" 2"

FILENAME	HDR FDEP SEQUENCING
SCALE	1" = 100'

SHEET 13F



PHASE 4 FILL SEQUENCE

AVAILABLE NET AIRSPACE = 210,715 CY
APPROXIMATE FILL DURATION = 5.4 MONTHS

NOTES:

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE, SEE PERMITTED FILLING PLAN PREPARE BY SCS ENGINEERS, DATED MARCH 2004, FOR GRADES AND ELEVATIONS.
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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT TAMPA

HDR
2202 N Westshore Blvd. Suite 250
Tampa, Florida 33607
813-884-8580
HDR CERT. AUTH. NO. CA 4213
FL REG. AA C000457

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

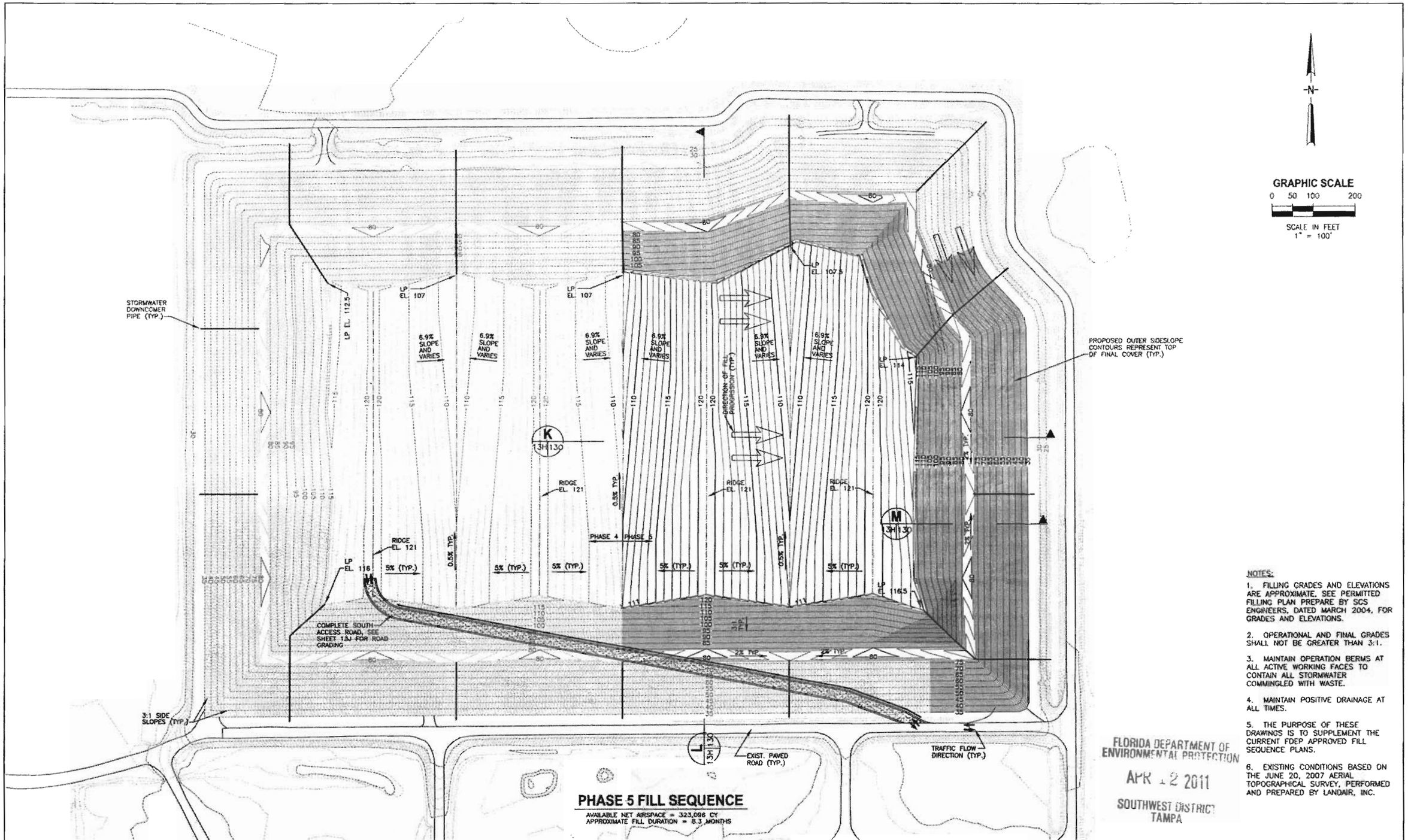
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

PHASE 4 SEQUENCE

0 1" 2"

FILENAME	HDR FDEP SEQUENCING
SCALE	1" = 100'

SHEET 13G



PHASE 5 FILL SEQUENCE

AVAILABLE NET AIRSPACE = 323,096 CY
APPROXIMATE FILL DURATION = 8.3 MONTHS

NOTES:

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE. SEE PERMITTED FILLING PLAN PREPARE BY SCS ENGINEERS, DATED MARCH 2004, FOR GRADES AND ELEVATIONS.
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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

HDR
2202 N Westshore Blvd, Suite 250
Tampa, Florida 33607
813-282-2300
HDR CERT. AUTH. NO. EA-4215
FL REG. AA C000467

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

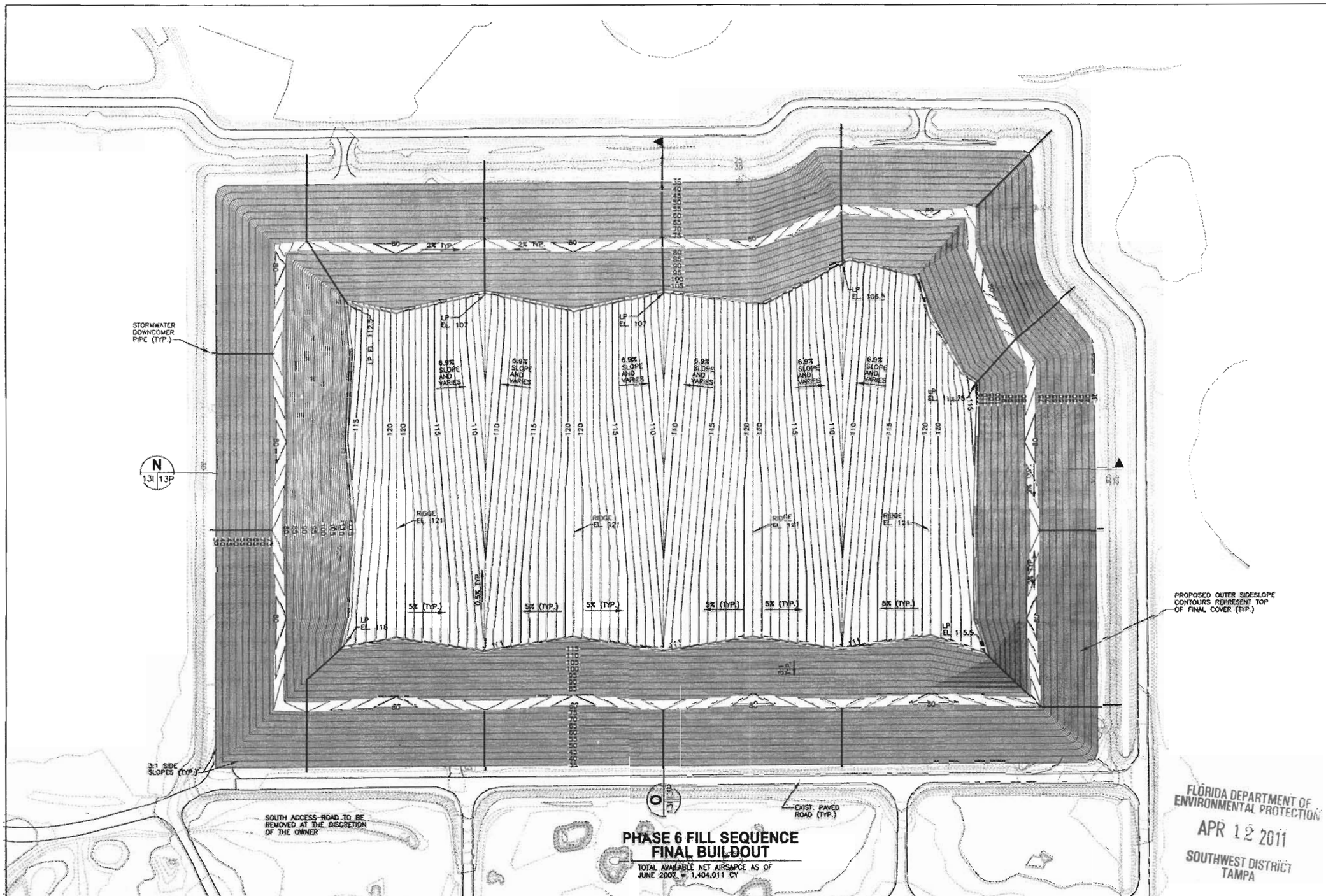
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

PHASE 5 SEQUENCE

0 1" 2"

FILENAME	HDR FDEP SEQUENCING
SCALE	1" = 100'

SHEET 13H



NOTES:

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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

HDR
2202 N Westshore Blvd. Suite 250
Tampa, Florida 33607
813-282-2300
HDR CERT. AUTH. NO. CA 4213
FL REG. AA C000407

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

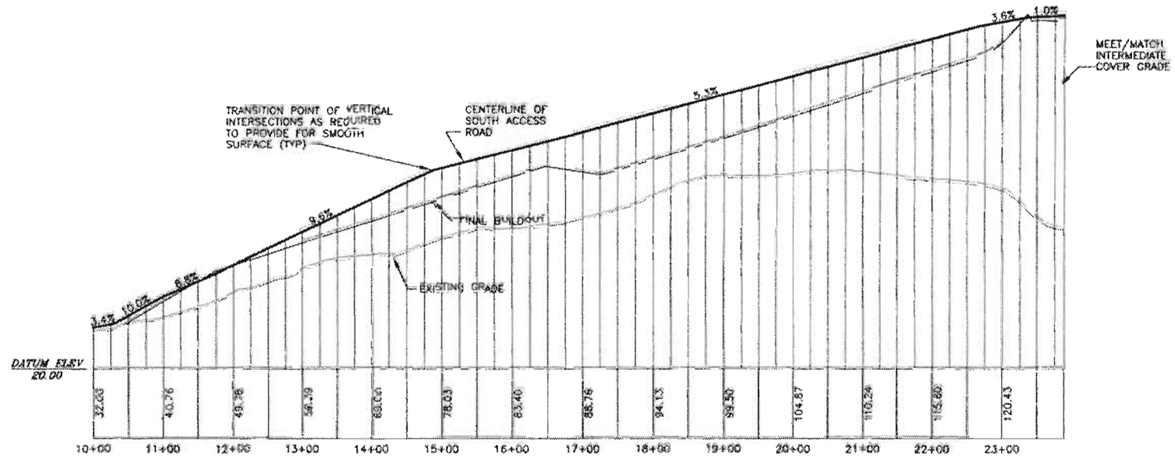
PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

PHASE 6
FINAL BUILDOUT

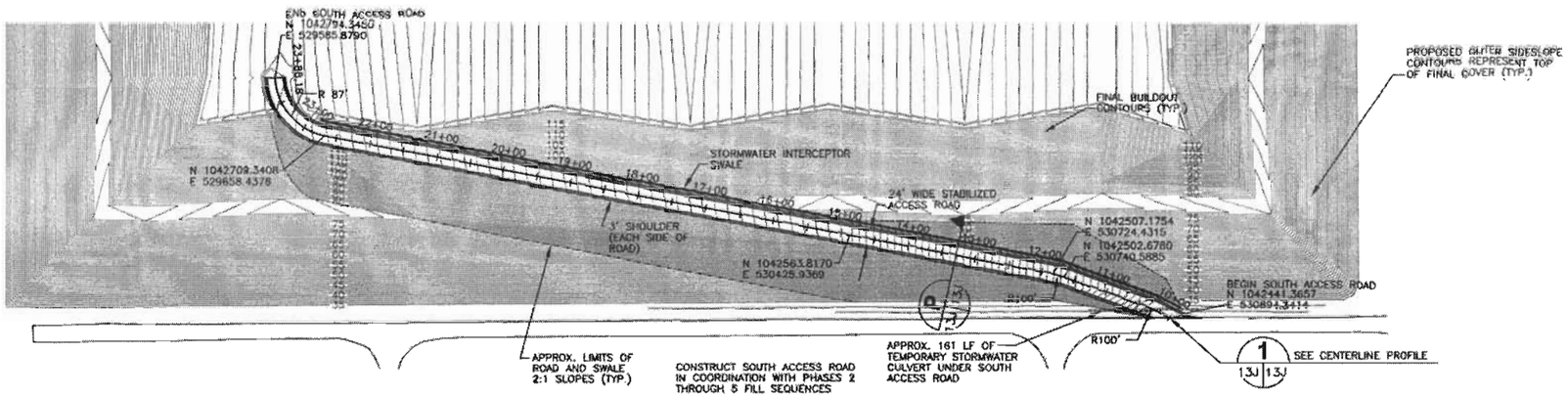
0 1" 2"

FILENAME	HDR FDEP SEQUENCING
SCALE	1" = 100'
SHEET	13I



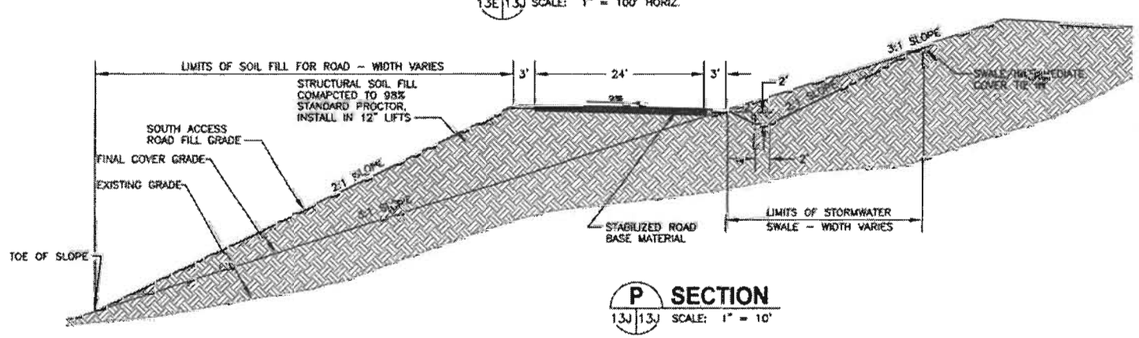
1 ACCESS ROAD PROFILE

13J 13J SCALE: 1" = 100' HORIZ. 1" = 20' VERT.



2 ACCESS ROAD PLAN

13E 13J SCALE: 1" = 100' HORIZ.



P SECTION

13J 13J SCALE: 1" = 10'

GRAPHIC SCALE

0 50 100 200

SCALE IN FEET 1" = 100'

NOTES:

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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT TAMPA

HDR
2202 N Westshore Blvd, Suite 250
Tampa, Florida 33607
813-282-2200
HDR CERT. AUTH. NO. CA 4213
FL REG. AA C000667

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

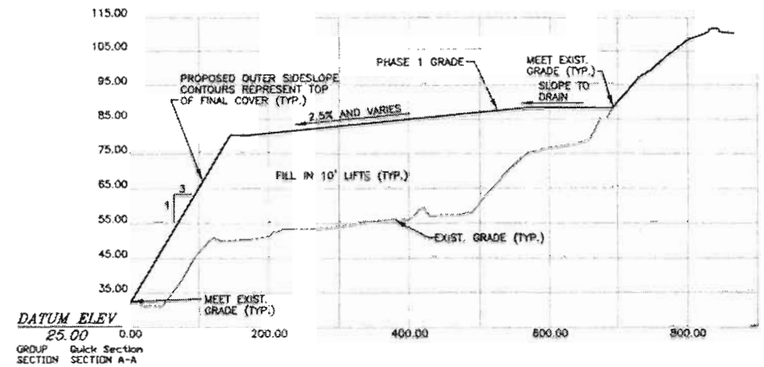
PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANDOCHAK
PROJECT NUMBER	22404-018

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

SOUTH ACCESS ROAD PLAN AND PROFILE

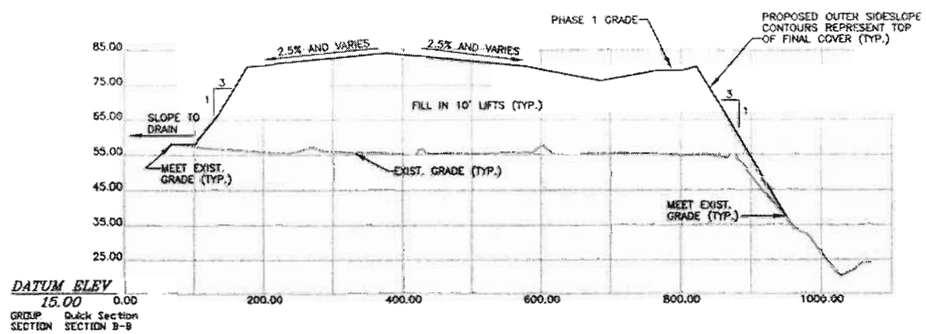
0 1" 2"

FILENAME	HDR FDEP SEQUENCING
SCALE	AS SHOWN
SHEET	13J



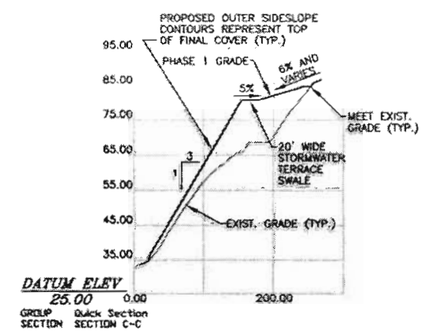
A SECTION A-A

13D 13K SCALE: 1" = 100' HORIZ. 1" = 10' VERT.



B SECTION B-B

13D 13K SCALE: 1" = 100' HORIZ. 1" = 10' VERT.



C SECTION C-C

13D 13K SCALE: 1" = 100' HORIZ. 1" = 10' VERT.

GRAPHIC SCALE

0 50 100 200

SCALE IN FEET
1" = 100'

NOTES:

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE, SEE PERMITTED FILLING PLAN PREPARE BY SCS ENGINEERS, DATED MARCH 2004, FOR GRADES AND ELEVATIONS.
2. OPERATIONAL AND FINAL GRADES SHALL NOT BE GREATER THAN 3:1.
3. MAINTAIN OPERATION BERMS AT ALL ACTIVE WORKING FACES TO CONTAIN ALL STORMWATER COMMINGLED WITH WASTE.
4. MAINTAIN POSITIVE DRAINAGE AT ALL TIMES.
5. THE PURPOSE OF THESE DRAWINGS IS TO SUPPLEMENT THE CURRENT FDEP APPROVED FILL SEQUENCE PLANS.
6. EXISTING CONDITIONS BASED ON THE JUNE 20, 2007 AERIAL TOPOGRAPHICAL SURVEY, PERFORMED AND PREPARED BY LANDAIR, INC.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

HDR
2202 N Westshore Blvd, Suite 250
Tampa, Florida 33607
813-282-2300
HDR CERT. AUTH. NO. CA 4243
FL REG. AA C000467

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

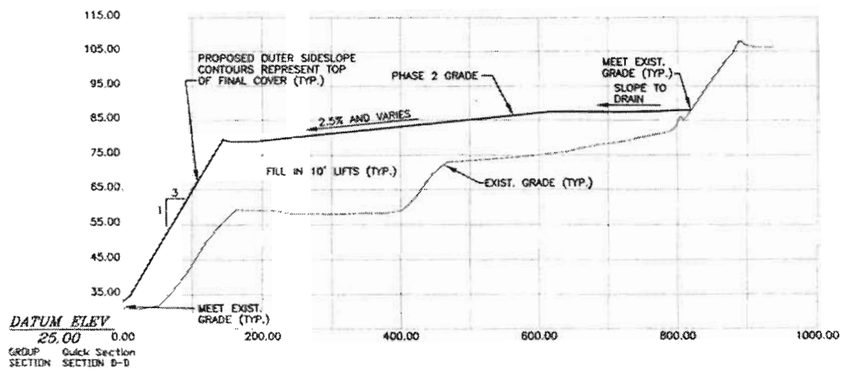
PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

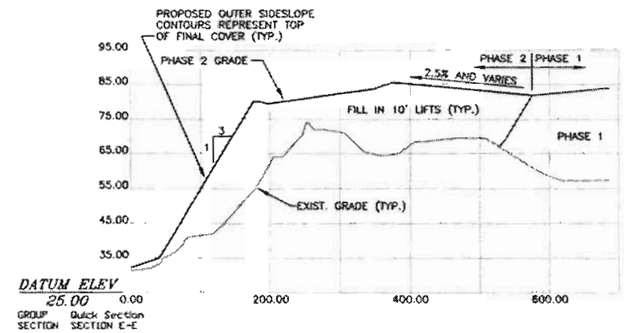
SECTIONS
PHASE 1

0 1" 2"

FILENAME	HDR FDEP SEQUENCING
SCALE	AS SHOWN
SHEET	13K

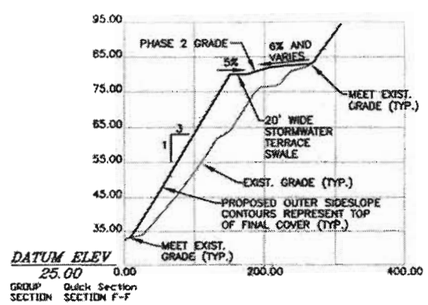


D SECTION D-D
13E 13L SCALE: 1" = 100' HORIZ. 1" = 10' VERT.



E SECTION E-E
13E 13L SCALE: 1" = 100' HORIZ. 1" = 10' VERT.

GRAPHIC SCALE
0 50 100 200
SCALE IN FEET
1" = 100'



F SECTION F-F
13E 13L SCALE: 1" = 100' HORIZ. 1" = 10' VERT.

NOTES:

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE, SEE PERMITTED FILLING PLAN PREPARE BY SCS ENGINEERS, DATED MARCH 2004, FOR GRADES AND ELEVATIONS.

2. OPERATIONAL AND FINAL GRADES SHALL NOT BE GREATER THAN 3:1.

3. MAINTAIN OPERATION BERMS AT ALL ACTIVE WORKING FACES TO CONTAIN ALL STORMWATER COMMINGLED WITH WASTE.

4. MAINTAIN POSITIVE DRAINAGE AT ALL TIMES.

5. THE PURPOSE OF THESE DRAWINGS IS TO SUPPLEMENT THE CURRENT FDEP APPROVED FILL SEQUENCE PLANS.

6. EXISTING CONDITIONS BASED ON THE JUNE 20, 2007 AERIAL TOPOGRAPHICAL SURVEY, PERFORMED AND PREPARED BY LANDAIR, INC.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT TAMPA

HDR
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FL REG. AA C000457

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

01/08/08

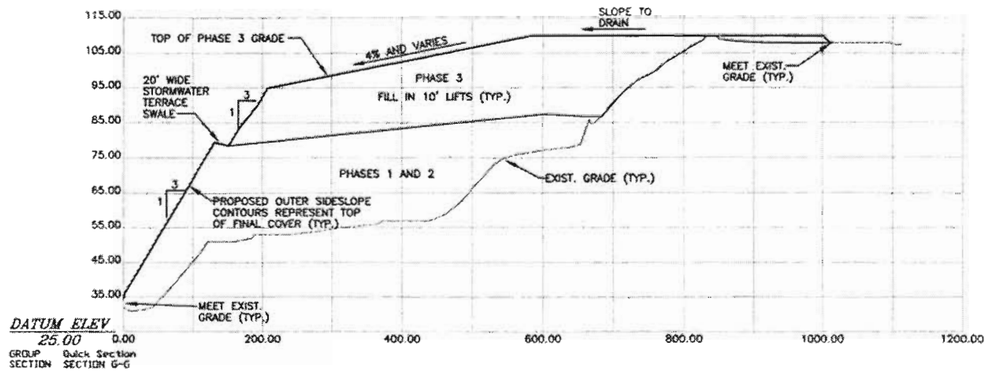
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

SECTIONS
PHASE 2

0 1" 2"

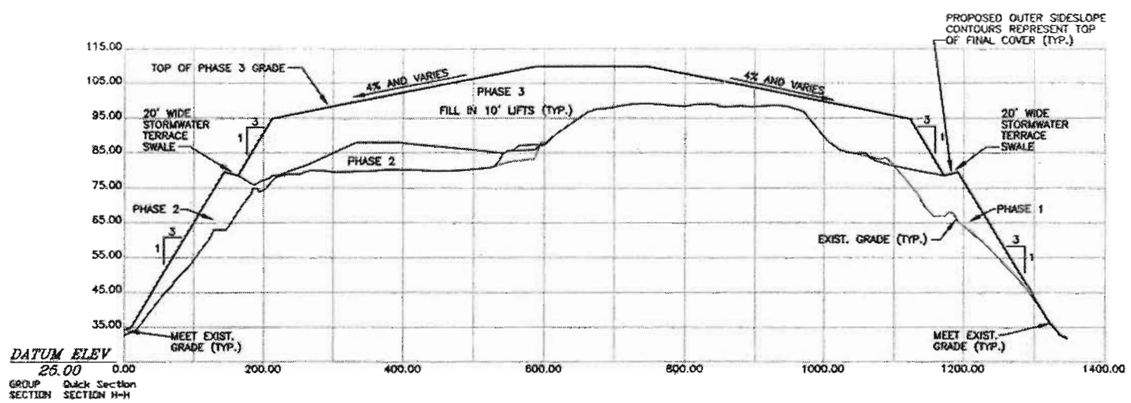
FILENAME	HDR FDEP SEQUENCING
SCALE	AS SHOWN

SHEET 13L



G SECTION G-G

13F 13M SCALE: 1" = 100' HORIZ. 1" = 10' VERT.



H SECTION H-H

13F 13M SCALE: 1" = 100' HORIZ. 1" = 10' VERT.

GRAPHIC SCALE

0 50 100 200

SCALE IN FEET
1" = 100'

NOTES:

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE, SEE PERMITTED FILLING PLAN PREPARE BY SCS ENGINEERS, DATED MARCH 2004, FOR GRADES AND ELEVATIONS.

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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

HDR
2202 N Westshore Blvd. Suite 250
Tampa, Florida 33607
813-282-2300
HDR CERT. AUTH. NO. CA 4213
FL REG. AA C000487

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

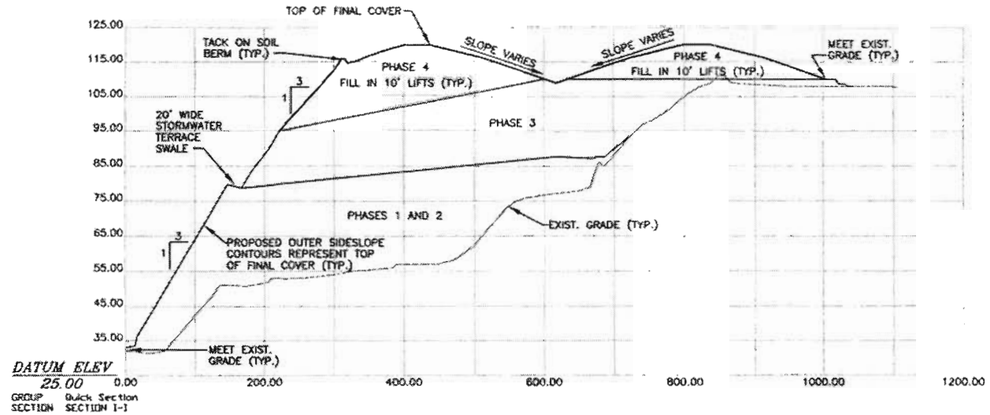
01/08/08

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

SECTIONS
PHASE 3

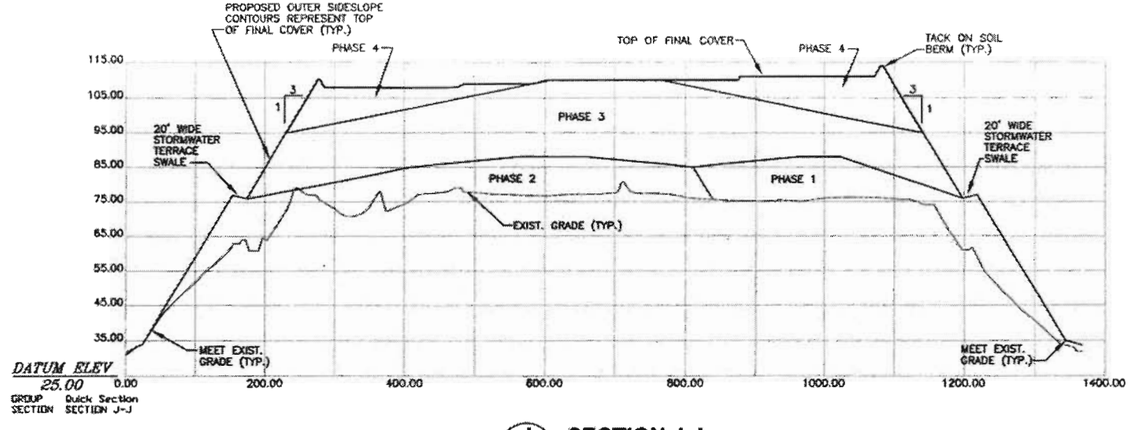
0 1" 2"

FILENAME: HDR FDEP SEQUENCING
SCALE: AS SHOWN
SHEET: 13M



I SECTION I-I

13G | 13N SCALE: 1" = 100' HORIZ. 1" = 10' VERT.



J SECTION J-J

13G | 13N SCALE: 1" = 100' HORIZ. 1" = 10' VERT.

GRAPHIC SCALE

0 50 100 200

SCALE IN FEET
1" = 100'

NOTES:

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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT TAMPA

HDR
2202 N Westshore Blvd, Suite 250
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813-787-8300
NOR EERI. AUTH. NO. CA 4213
FL REG. AA C000497

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

01/10/08

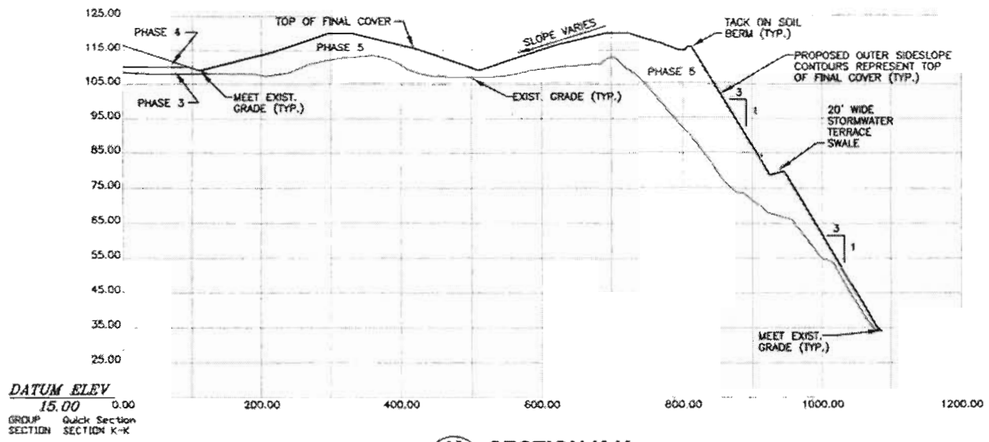
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

SECTIONS
PHASE 4

0 1" 2"

FILENAME	HDR FDEP SEQUENCING
SCALE	AS SHOWN

SHEET 13N

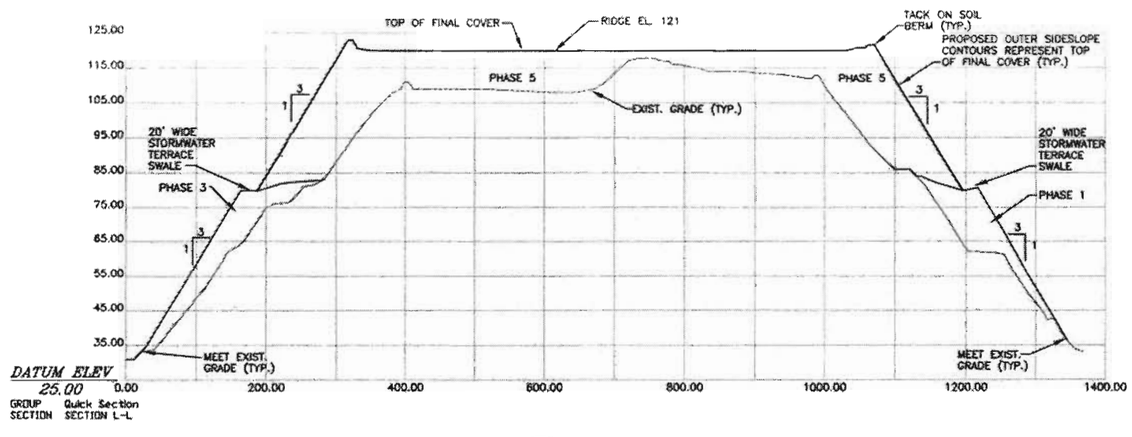


K 13H 130 **SECTION K-K**
SCALE: 1" = 100' HORIZ.
1" = 10' VERT.

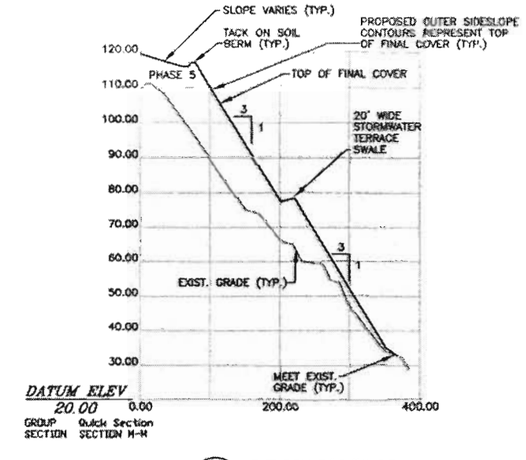
GRAPHIC SCALE

0 50 100 200

SCALE IN FEET
1" = 100'



L 13H 130 **SECTION L-L**
SCALE: 1" = 100' HORIZ.
1" = 10' VERT.



M 13H 130 **SECTION M-M**
SCALE: 1" = 100' HORIZ.
1" = 10' VERT.

NOTES:

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE, SEE PERMITTED FILLING PLAN PREPARE BY SCS ENGINEERS, DATED MARCH 2004, FOR GRADES AND ELEVATIONS.

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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

HDR
3202 N Westshore Blvd, Suite 350
Tampa, Florida 33607
813-282-2300
HDR CERT. AUTH. NO. CA 4213
FL REG. AA C000467

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

01.10.08

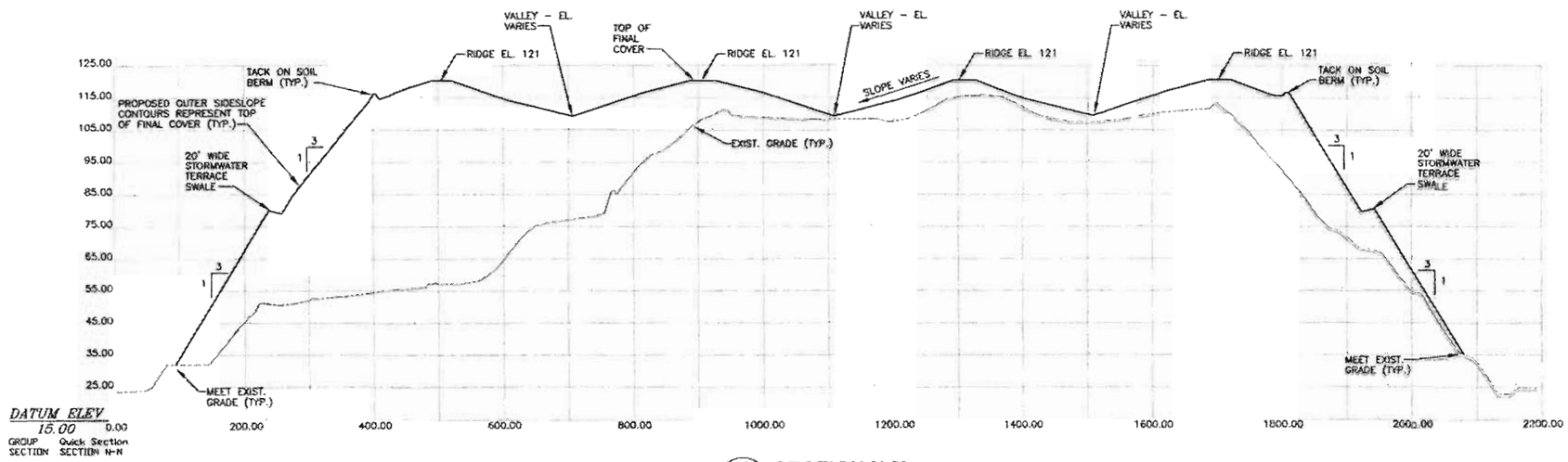
CENTRAL COUNTY SOLID
WASTE DISPOSAL COMPLEX
SARASOTA COUNTY,
FLORIDA

SECTIONS
PHASE 5

0 1" 2"

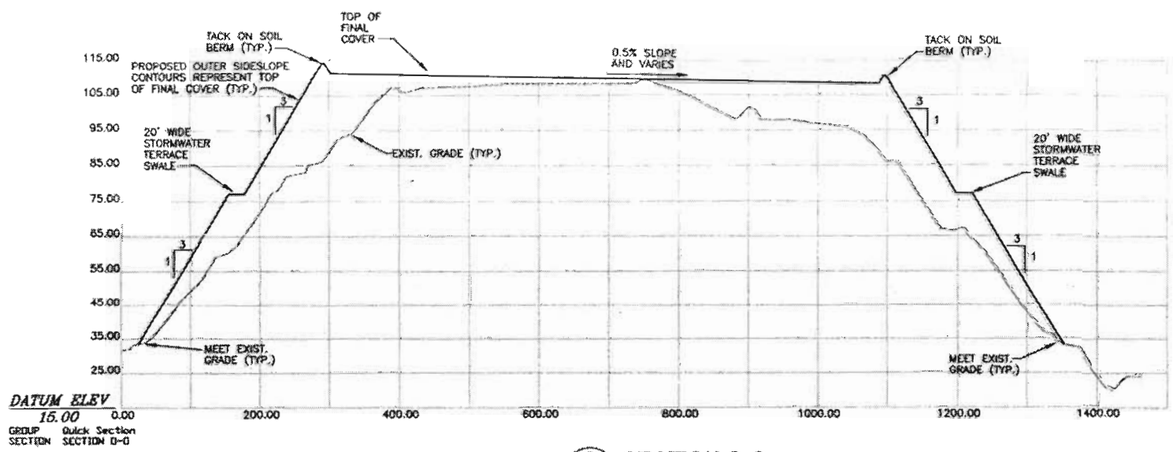
FILENAME: HDR FDEP SEQUENCING
SCALE: AS SHOWN

SHEET 130



N SECTION N-N

131 | 13P SCALE: 1" = 100' HORIZ. 1" = 10' VERT.



O SECTION O-O

131 | 13P SCALE: 1" = 100' HORIZ. 1" = 10' VERT.

NOTE: SEE SECTION Q-Q ON SHEET 13Q FOR TYPICAL LIFT THICKNESSES

GRAPHIC SCALE

0 50 100 200

SCALE IN FEET
1" = 100'

NOTES:

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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

HDR
2202 N Westshore Blvd, Suite 250
Tampa, Florida 33607
813-282-2300
HDR CERT. AUTH. NO. CA 4210
FL REG. AA C000457

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22484-018

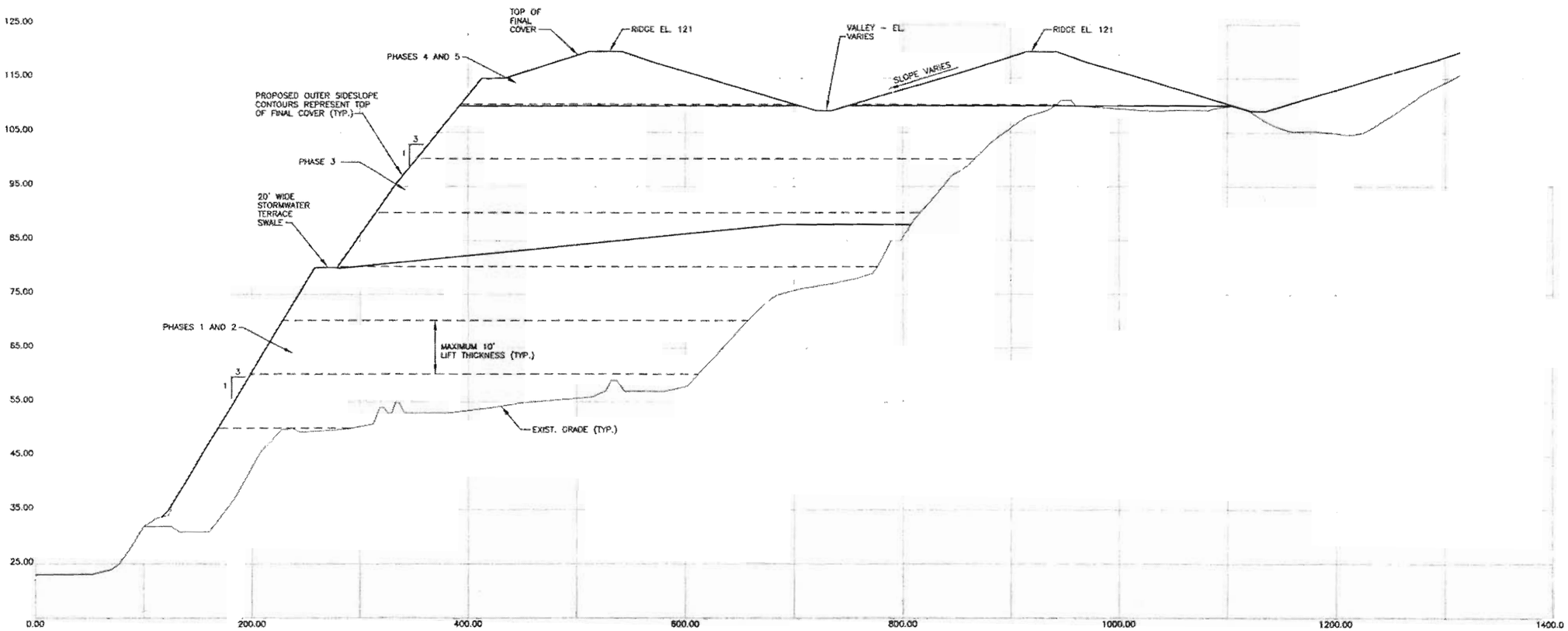
01/10/08

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

SECTIONS
PHASE 6
FINAL BUILDOUT

0 1" 2"

FILENAME: HDR FDEP SEQUENCING
SCALE: AS SHOWN
SHEET: 13P



Q SECTION Q-Q

13P 13Q SCALE: 1" = 50' HORIZ.
1" = 10' VERT.

NOTES:

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE, SEE PERMITTED FILLING PLAN PREPARE BY SCS ENGINEERS, DATED MARCH 2004, FOR GRADES AND ELEVATIONS.

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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

HDR
2202 N Westshore Blvd, Suite 250
Tampa, Florida 33607
813-282-2300
HDR CERT. AUTH. NO. CA 4213
FL.REG. AA C000457

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

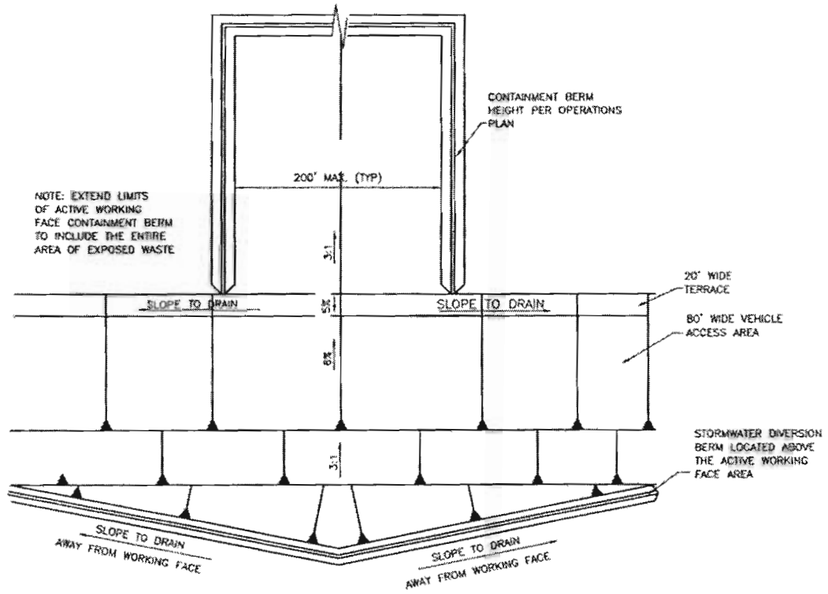
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

SECTIONS
TYPICAL LIFTS

0 1" 2"

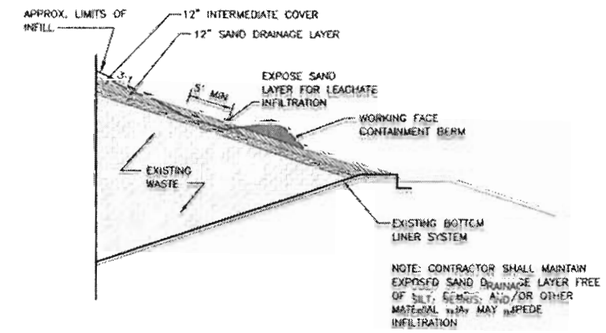
FILENAME	HDR FDEP SEQUENCING
SCALE	AS SHOWN

SHEET 13Q



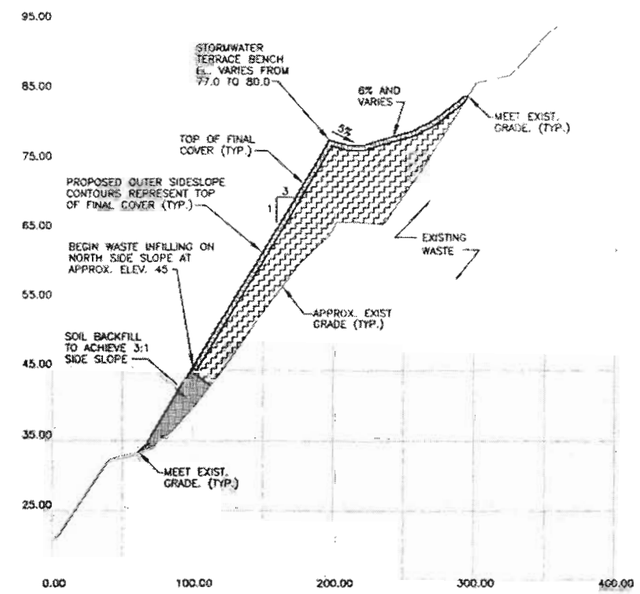
TYPICAL ACTIVE WORKING FACE DETAIL (PHASE 1 AND PHASE 2 SEQUENCE)

NOT TO SCALE



TYPICAL ACTIVE WORKING FACE DETAIL (PHASE 1 AND PHASE 2 SEQUENCE)

SCALE 1" = 10'



TYPICAL NORTH INFILL WASTE PLACEMENT (PHASE 1 SEQUENCE)

SCALE 1" = 50' HORIZ.
1" = 5' VERT.

NOTES:

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE, SEE PERMITTED FILLING PLAN PREPARE BY SCS ENGINEERS, DATED MARCH 2004, FOR GRADES AND ELEVATIONS.
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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT TAMPA

HDR
22222 N Westshore Blvd, Suite 750
Tampa, Florida 33607
813-282-2300
HDR CERT. AUTH. NO. EA 4213
FL REG. AA C000657

ISSUE	DATE	DESCRIPTION
1	01/2008	FDEP MINOR PERMIT MODIFICATION SUBMITTAL

PROJECT MANAGER	R. SIEMERING
DESIGNED BY	R. SIEMERING
DRAWN BY	R. SIEMERING
APPROVED BY	T. YANOSCHAK
PROJECT NUMBER	22404-018

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

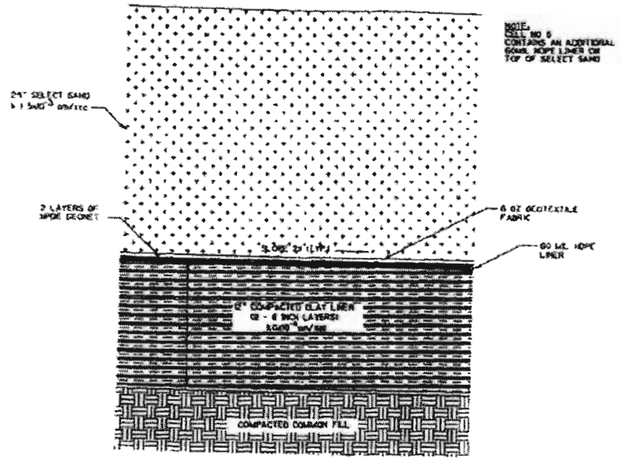
DETAILS 1

0 1" 2"

FILENAME: HDR FDEP REQUIREMENT
SCALE: AS SHOWN

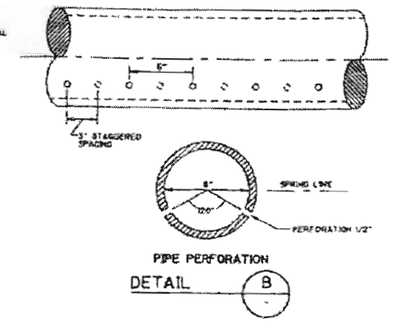
SHEET 13R

NOT TO SCALE



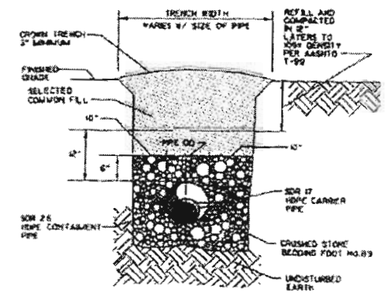
LINER SYSTEM PROFILE

DETAIL A



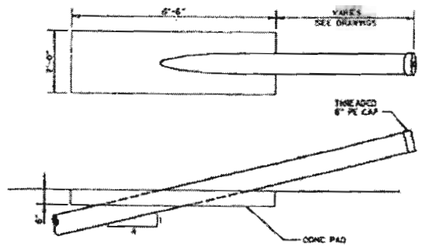
PIPE PERFORATION

DETAIL B



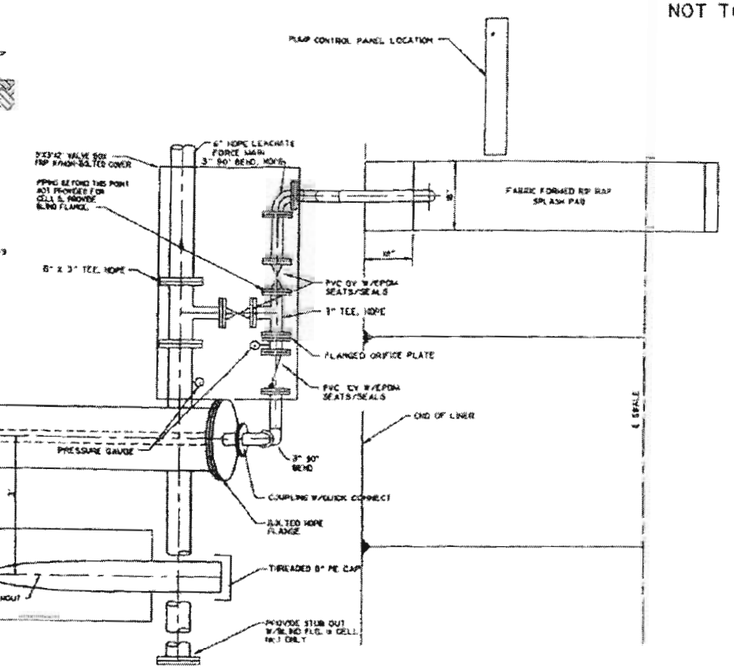
TYPICAL DOUBLE WALLED LEACHATE FORCEMAIN TRENCH

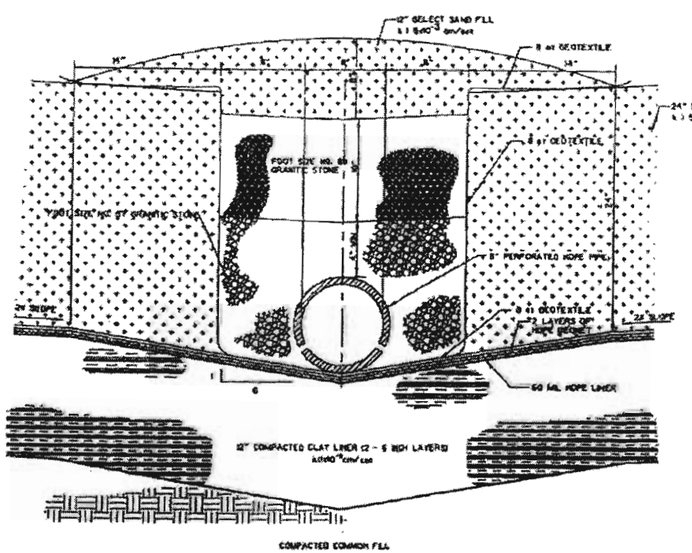
DETAIL F



CLEANOUT

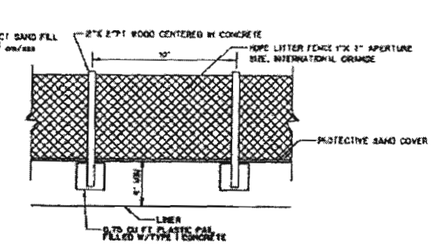
DETAIL D





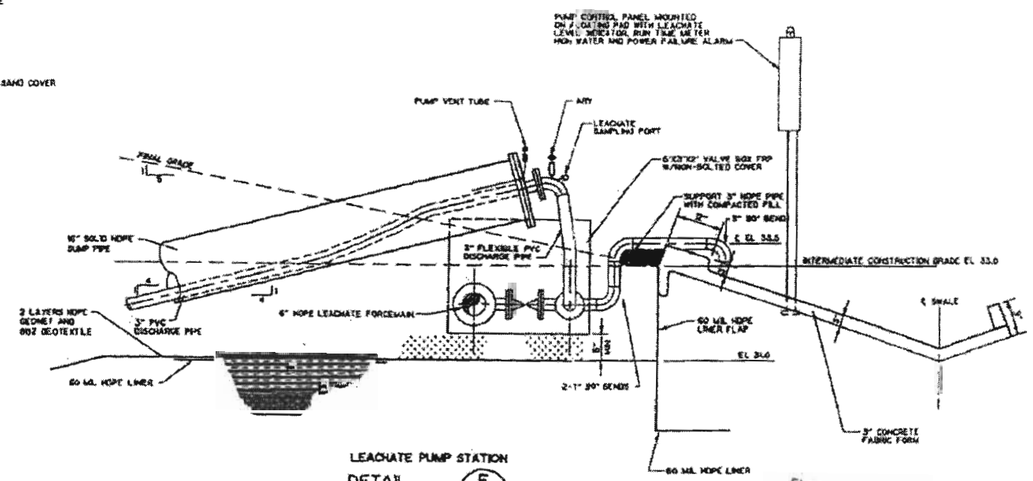
LEACHATE COLLECTION TRENCH

DETAIL C



LITTER FENCE BY OWNER

DETAIL G



LEACHATE PUMP STATION

DETAIL E

NOTE:

THIS MODIFIED DRAWING IS BASED ON AUGUST 1993 CONSTRUCTION, OPERTAION, AND CLOSURE PLANS, SHEET NO. LFCD-1 LANDFILL SITE WORK CONFIRMED PLANS, FROM ORIGINAL CDM DRAWINGS DATE: 2/97.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

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Drawn By: GRD JR

Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA

LINER PROFILE AND COLLECTION PIPE DETAILS

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Date: JULY 2002
Sheet Number: 14

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ATTACHMENT K-15

LFGCCS OPERATION AND MAINTENANCE PLAN

Sarasota County
Solid Waste Operations

Central County Solid Waste Disposal Complex LFGCCS Operations and Maintenance Plan

July 2010

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1 INTRODUCTION

This Operations and Maintenance Plan (O&M Plan) has been prepared to summarize steps necessary to operate and maintain the Gas Collection and Control System (gas system) at the Central County Solid Waste Disposal Complex (CCSWDC) in Sarasota County, Florida. This O&M Plan is an integral part of the development and successful operation of the gas system. Therefore, a copy of this plan must be maintained with the CCSWDC records. This document is to be an attachment to the existing Operations Plan for the site.

2 FACILITY DESCRIPTION

2.1 Location and Description

The CCSWDC is a multi-function solid waste management facility which includes Class I waste disposal, construction and demolition (C&D) waste processing facility, yard waste mulching, household hazardous waste storage and processing, and storage of tires, white goods and other bulky waste materials for processing off-site by private firms. The CCSWDC was opened in 1998 and has been owned by Sarasota County and operated under the direction of the Sarasota County Solid Waste Operations Unit. The majority of waste received at the CCSWDC is mixed garbage and trash, which requires disposal in a permitted Class I waste disposal facility.

2.2 Gas Extraction and Control System Description

The gas system is designed to collect landfill gas generated within the existing Landfill at the CCSWDC as the waste decomposes. The landfill gas is collected at a proposed on-site landfill gas control facility where it will be flared.

In the absence of active control measures, positive gas pressure builds up within the landfill through the anaerobic decomposition of the waste materials, which produces primarily methane (typically 40-50%) and carbon dioxide (typically 50-60%). If not relieved, pressure within the landfill can force these gases to move laterally below the ground and eventually into the atmosphere, potentially causing hazardous conditions to develop in underground and/or above ground structures on and off the CCSWDC site. The gas system helps relieve the positive pressure by applying a vacuum throughout the landfill. The gas is then conveyed to a control unit, located near the southeast corner of the Landfill.

The vertical gas extraction wells are drilled into the landfill to a depth equivalent to two-thirds of the waste depth and leaving a minimum 15 foot buffer between the base liner and the bottom of the well. The wells are designed to be perforated below grade to extract gas from each level of the landfill, and include a slip-coupling to help negate the effects of settlement on the extraction wells. Additional detailed information on the gas wells and the rest of the gas system design is available in the Engineering Report submitted with the FDEP application document.

The active gas system incorporates strategically placed valves and cross lateral pipelines to provide a degree of flexibility and control in the application of vacuum at the extraction wells. Therefore, the vacuum can be selectively applied based upon actual gas generation at specific gas extraction points. The placement of the valves in the network of collection pipelines allows for sections of the gas system to be segregated for maintenance while the remainder of the system is operated.

While the gas system is operating, the change in temperature of the landfill gas results in the precipitation of moisture, which produces condensate within the gas system pipelines. The condensate from the gas system flows by gravity through the gas collection pipelines into condensate sumps and knock-out pots

where the moisture is allowed to drop out from the gas. From the sumps and knock-out pots, the condensate flows by gravity or is pumped to the existing leachate management system for removal from the site.

3 Operation Procedures

3.1 General

In general, a constant vacuum is applied from the gas control unit to collect the landfill gas from the landfill. The vacuum can be adjusted at each extraction location to either collect more or less gas, based on the quality of the gas collected. At each gas collection location (i.e. wells), methane, carbon dioxide, and oxygen concentrations are measured on a regular basis. As the concentrations of these parameters change due to landfill and environmental conditions at the site (i.e. age of waste, moisture content, cover material, etc.), the vacuum is adjusted to ensure concentrations stay within permitted ranges. The initial vacuum values indicated in this report are rules of thumb, and should only be used as a starting point. The only way to accurately determine the vacuum needed for any given well is to take readings at each well and adjust the vacuum accordingly. These procedures are further described in this O&M Report.

Vacuum adjustments throughout the gas system can be made by adjusting the valves at each wellhead and at various locations on the pipeline. By adjusting the valves to increase or decrease the applied vacuum, the gas system can be balanced and the maximum amount of gas can be collected without pulling air into the waste, which would diminish anaerobic decomposition and increase the potential for landfill fires. To assist with system balancing and verify efficient operation of the gas extraction system, the following will be measured and recorded:

- Gas flow rates at each wellhead and to the gas control unit;
- Methane, carbon dioxide, oxygen, and balance gas concentrations at each wellhead and at the gas control unit;
- Vacuum at each wellhead; and
- Gas temperature at each wellhead

Initially, to balance the gas system, daily measurements will be necessary. As the system begins to stabilize and the built up gas stored in the landfill is removed, measurements may be taken less frequently. To maintain a balanced system once the system is stabilized, weekly well measurements of the vacuum, the gas temperature, and the methane, carbon dioxide, oxygen, and balance gas concentrations should be performed. Periodic gas flow rates at the wells must be recorded so that the correlation between the vacuum applied and the gas flow rate can be established for each well.

The amount of vacuum applied at each well will vary through time and is influenced by many factors, including the type of landfill cover. The typical values indicated below are used in the landfill gas industry and are suggested as a starting point in conjunction with validation or adjustment of this vacuum based on readings at each well for oxygen and methane concentrations. Typically, the vacuum applied at exterior gas extraction wells should be approximately 1 to 3 inches of water column to provide adequate gas control and avoid excessive air infiltration along the landfill slope. The vacuum that can typically be

applied to interior gas extraction wells is 3 to 7 inches of water column without producing excessive air infiltration. Some experimentation will be required to find the proper vacuum to apply to these wellheads.

As a starting point, the valves should be nearly closed at the wellheads and opened slightly until the gas readings are within the required ranges. In this way, excessive air infiltration into the gas system can be avoided. The required ranges for each constituent of the landfill gas are discussed in the following sections.

3.2 Gas Readings

Gas readings for oxygen, carbon dioxide, and methane are commonly measured at wells using instruments such as the Landtec GEM500 and GEM2000. These instruments only measure percentages of methane, oxygen ad carbon dioxide. The remaining percentage of gas is the "balance gas". Typically the balance gas in nearly all nitrogen, and the terms balance gas and nitrogen, are sometimes used interchangeably when talking about landfill gas.

The concentration of these various gases at each wellhead is the primary indicator of how much vacuum should be applied at each gas collection location. Landfill gas typically contains approximately 40%-50% methane and 50%-60% carbon dioxide, with trace amounts of other non-methane organic compounds (NMOCs).

- If the concentration of methane is high at a particular wellhead (>50%), then the volume of gas at that location may be greater than what is currently being collected, and the vacuum applied should be increased.
- If the concentration of methane is less than 45%, the concentration of oxygen is above 1%, or the balance gas concentration is above 12%, excessive air may be entering the landfill. The vacuum should be decreased and the location should be monitored again later that same day. If the conditions have not changed, or have gotten worse, the vacuum will be shut off at that gas collection point until an evaluation of the cause of the variance can be performed, and the issue corrected, as necessary.

3.3 Vacuum Readings

The vacuum readings are used to develop an understanding of the relationship between the flow rate and the vacuum applied. By measuring and recording the gas flows and vacuums at each well during various weather conditions, some trends related to the gas collection on the landfill can be observed. Drastic changes in these trends, such as reduced flow or a sudden spike in oxygen or balance gas, could be an indicator that there is a problem with the gas collection system (i.e. leak or blockage in a header pipe, water in the out well, etc.) or an issue with the landfill itself (i.e. air filtration, landfill fire, diminishing gas production, etc.). Closer evaluation of the operation of the gas system is warranted if drastic changes occur in the operational trends of the system.

3.4 Temperature Readings

The temperature of the landfill gas at each wellhead can be an indicator of the amount of air infiltrating into the landfill. The temperature at a wellhead should remain relatively constant. If the temperature at a well increase sharply or exceeds 130° degrees Fahrenheit, excessive air may have infiltrated into the landfill, especially if the concentration of methane has decreased and/or balance gas has increased. An

elevated temperature reading at a well requires immediate attention, since over time this situation increases the possibility of a landfill fire. The well should be shut down and an evaluation of the condition around the well should be performed as soon as practical after the elevated temperature reading is recorded. Corrective actions should be performed based on the results of the evaluation.

3.5 Isolation Valves

Valves are located at several locations throughout the header system to provide the ability to isolate portions of the gas system for maintenance or repair. Through the use of these valves, portions of the gas system can be shut down while other portions remain in operation. When portions of the system are isolated, the balance of vacuum to the wells can be affected, and must be monitored closely to ensure that excessive vacuum is not applied to the individual wells.

Additionally, individual wells can be shut down by closing the valve on the wellhead. This can be useful when conducting preventative maintenance or making repairs to individual wells.

3.6 Condensate Collection

Condensate is a by-product of the extraction of gases from the landfill. At the pressure and temperature inside the body of the landfill, gases are typically saturated with moisture. Once released or extracted, these gases are subject to different environmental conditions (i.e. lower temperature and pressure) that result in condensation within the gas collection system.

If not properly managed, condensate can accumulate to the extent where it disrupts the flow of landfill gas from the landfill by blocking pipes. To avoid this problem, all gas collection header pipelines are designed to allow the condensate to flow to the condensate collection structures prior to entering the gas control unit. Condensate forming in the wells is pumped in to condensate return lines installed with the header and lateral pipes. The condensate return lines then pump or gravity drain condensate to the leachate collection system or to condensate drop-out structures which then gravity drain or pump condensate to the leachate collection system.

Pipelines off of the landfill are designed to have a minimum one percent (1%) slope and pipelines on the landfill are designed with a minimum five percent (5%) slope, to allow for settlement. Pipes will be installed at a slope greater than these minimum requirements wherever possible to allow easier transmission of the condensate. Additionally, the pipes have been sized to allow the condensate to flow without affecting the gas flow capacity of the pipelines.

At the peak gas flow and maximum temperature change, it is estimated that less than a maximum of about 7,962 gallons per day (gpd) of condensate could be generated in the gas system (see the Engineering Report of the FDEP permit application document). The actual amount of condensate generated by the gas system will be dependent on system operations and seasonal temperatures, but should be less than 7,962 gpd. The condensate collected at the gas control unit is designed to drain into condensate collection structures which then drain or pump the condensate to the existing leachate collection system.

3.7 System Start-Up

The gas system start-up must be conducted carefully to maximize gas flow and prevent excessive vacuum at the gas extraction points. The system must be gradually balanced by adjusting the valves at the

wellheads. Initially, the wellhead valves should be adjusted according to their distance from the gas control unit. Greater vacuum will be available at the wells nearer to the facility, and the valves on these wells should be opened less than the valves further away on the opposite side of the hill. In all cases, the wells should only be opened slightly at first, and should be monitored and adjusted daily until the readings stabilize on the landfill.

The monitoring of the wells will include measurements of methane, carbon dioxide, oxygen, balance gas, pressure, temperature, and flow rate. These readings will be utilized to make vacuum adjustments at the wellheads to balance the system.

3.8 System Performance Testing

Once the gas system is operational and has been balanced to a steady state of gas collection, performance testing is necessary to ensure the proper operation of the system and to troubleshoot potential problems. Performance testing is an essential component in the efficient and safe operation of the gas system. Performance testing must be conducted routinely, and the results recorded in a permanent logbook and digitally in a spreadsheet or similar program. Weekly measurements of the following parameters should be made at the wellheads:

- Temperature
- Vacuum
- Methane concentration
- Carbon dioxide concentration
- Oxygen concentration
- Balance gas concentration

Weekly measurements of the following parameters should be made at the inlet of the gas control unit:

- Gas flow rate
- Temperature at the knockout pot
- Methane concentration
- Carbon dioxide concentration
- Oxygen concentration
- Balance gas concentration

The following sections describe performance testing in more detail.

3.9 Gas Component Measurements

The measurements of the following gas components at the wellheads are the principal parameters used to balance the gas system:

- Methane concentration
- Carbon dioxide concentration
- Oxygen concentration
- Balance gas concentration

Measurements of these components at the wellheads should be conducted at least weekly and as often as daily during initial system start-up and balancing. The concentrations of these gases should also be determined at the following locations at the gas control unit:

- The knockout pot inlet
- The blower inlet
- The control equipment

The methane production at each gas extraction point (i.e. wellhead) will change over time, requiring periodic adjustments in the vacuum applied to maintain optimal system efficiency.

Landfill gas typically contains approximately 40%-50% methane and 50%-60% carbon dioxide. If the concentration of methane is high at a particular point, then the volume of gas at that location may be greater than the gas being collected and the vacuum applied should be increased by slightly increasing the valve opening. If the concentration of methane is 45% or less, excessive air may be entering the landfill and the vacuum should be decreased at that wellhead by slightly closing the valve, while monitoring the gas flow rate. The gas quality will not change immediately after opening or closing the valve and must be measured the next day to assure accurate methane concentrations.

The oxygen concentrations should be less than 1% at the wellheads, while the balance gas should remain below 12%. Oxygen greater than 1% and/or balance gas levels above 12% may indicate air leaks in the wellfield components or excessive vacuum on extraction wells. If the data indicates that atmospheric air is entering the system, the cause must be evaluated by performing diagnostic readings and observations at the wellheads and access ports to determine the likely source. A diagnostic approach includes measuring and comparing gas component concentrations at the wellhead, lateral, and the main header line.

Visual, auditory, touch, and olfactory senses may be helpful in isolating wellfield air leaks. Leaks can sometimes be heard (hissing) or smelled ("the rotten egg" smell associated with hydrogen sulfide). However, smelling or hearing gas leaks does not replace regular gas monitoring as a way to determine if there are leaks in the gas system. Air leaks in a gas collection system are typically first noticed when a sudden spike in oxygen or balance gas is observed in the gas monitoring results.

3.10 Temperature Measurements

Weekly measurements of temperature must be used in conjunction with the gas component measurements to determine the positioning of the wellhead valves. The temperature of the landfill gas at each collection point can be used as an indication of air infiltration into the landfill. The temperature at a wellhead should remain relatively constant and in no case reach 130° degrees Fahrenheit. If the temperature at a wellhead increases sharply, excessive air may have infiltrated into the landfill, especially if the concentration of methane has decreased. This situation indicates an increased possibility of a landfill fire and requires immediate attention.

If elevated temperatures are observed at any well, it should be shut down and monitored for carbon monoxide, a common by-product of combustion activities such as landfill fires. Nearby wells should also be monitored for carbon monoxide to ascertain if subsurface activities are occurring in the area. A carbon monoxide concentration of 100 parts per million (ppm) is generally a good indication that a subsurface

oxidation event (i.e. landfill fire) is occurring. Wells with elevated carbon monoxide readings should be shut down and monitored regularly until the readings are reduced.

In the event that carbon monoxide readings do not decrease, or increase and spread to other wells, the proper authorities, as listed in Section 6.0, will be notified of a potential landfill fire. Other signs of landfill fires are visible smoke, open flames, burning odors, wells that have melted, or subsidence of the landfill in localized areas. Excavation around the problem area should NOT be performed, since this would introduce additional fuel (oxygen) to the fire.

3.11 Vacuum Measurements

Vacuum (negative pressure) measurements indicate the amount of vacuum being applied at each gas collection point. Weekly measurements (in inches of water column) should be taken during system balancing at the wellheads, the inlet to the knockout pots, and the blower inlet and outlet. The results of the vacuum measurements could indicate possible problem conditions at these locations. Reduced wellhead vacuum may be indicative of a blocked lateral pipe or of a blocked or broken header pipe if the decreased vacuum occurs at two or more well locations. Isolated low vacuum conditions may be alleviated by repeatedly closing and opening the valve, thus surging the well. In many cases, a minor blockage can be alleviated by surging, followed by re-adjusting the flow to the established optimal performance level.

3.12 Flow Rate Measurements

The flow rates measured in the gas system are used to determine individual well performance, and overall system performance. During initial system balancing, the flow rate must be measured weekly and more often when valve positions are changed. Typical well performance will be evident over time at each location. If the flow rate drops at a particular collection point, a blockage in the well or lateral line may exist.

Due to a build up of gases within the landfill, the flow rates of the system will be greater when the system is first operated or turned on after a system shut down. Once this positive pressure is eliminated and the system is balanced, the gas collection will equalize and remain relatively constant. Once the system is stabilized, flow rate measurements can be performed on a monthly basis, instead of weekly.

3.13 Water Level/Well Depth Measurements

In some cases, perched water within a landfill can cause an extraction well to clog with water. This is not expected to occur at this site since the cover soil materials used in the past have been fairly permeable and each well is installed with a pneumatic pump. However, if blockage of an extraction well is suspected for any reason, a water level measurement should be taken to make sure that the well is not filled with water.

In cases where the performance of an extraction well deteriorates over time, water level measurements can be used to determine if water within a well is covering the perforate section of the well screen and inhibiting the free flow of gas to the well. An electronic water level indicator will be used for this purpose. Well depth measurements will be used to check for well blockages due to sediments from the waste. Even partial blockages of a well can affect its ability to effectively extract gases. Water level and depth measurements should be performed promptly at wells where a blockage due to liquid or sediments is suspected.

The following procedure will be followed to measure the water level and total depth at the gas extraction wells.

1. Close the valve on the wellhead of the well being measured.
2. Remove the well cap or wellhead as necessary.
3. Turn on the water level indicator and lower the probe down the well until the instrument signals.
4. Determine the top of the water by slowly raising and lower the probe and observing the point at which the instrument signals relative to the well measuring point. Read the graduated scale on the instrument cable to the nearest 0.1 feet and record the reading in the logbook.
5. Determine the total well depth by slowly lowering the water level probe (turned to off) to the well bottom. Record the depth at which the probe can no longer be lowered.
6. Determine the length of perforated well pipe collecting gas by performing the following calculations: Subtract the depth to water from the total depth of the well to obtain the height of water within the well. Subtract the height of water within the well from the as-built total length of the perforate pipe to obtain the length of perforated pipe collecting gas.

Remedial actions for blockages in extraction wells due to excessive liquids or sediments will be determined on a case by case basis and can range from no action to installation of a permanent pump in the well. The decision on whether remedial action is necessary will be based on various factors, such as the location and past productivity of the well, and proximity of the well to gas migration pathways from the landfill.

3.14 Blower Maintenance

The blower system provides the vacuum that draws the landfill gas from the extraction wells, through the header piping, and through the condensate collection equipment. The blower system also pushes the gas into the engine. Therefore, it is essential to the overall system performance that the blower system is functioning properly. Some of the more common maintenance items are listed below.

1. Bearing and motor lubrication.
2. Valve operation.
3. Pipe and valve leak detection
4. Tightness of connectors that could vibrate loose.
5. Electrical connections.

3.15 Condensate System Maintenance

The condensate drop-out structures act as moisture separators and allow any condensate that collects in the gas collection pipeline to fall out from the gas and be collected separately. As the gas enters the drop-out structure or knockout pot, it slows down and allows moisture to drop out and/or collect on baffles or mesh screens. The condensate then flows by gravity or is pumped to the existing leachate management system.

The condensate drop-out structures preceding the knockout pot prior the blower at the gas processing unit allows a majority of the condensate to drop out of the gas collection system before it reaches the gas control unit. The condensate then flows through a vacuum trap/sump to avoid applying a vacuum to the existing leachate collection system. As condensate builds up in the trap/sump, it will reach the outlet

elevation and drain to the leachate collection system. The drop-out structures are also designed for the temporary storage of condensate. This storage allows the gas system to continue to operate if the condensate flow to the leachate management system is interrupted for a short period of time.

Knockout pots typically incorporate a sight glass that allows observation of the level of condensate within the structure. Condensate should not build up within the knockout pot during normal operations. If condensate accumulates in the knockout pot, then the outlet of the knockout pot must be cleaned. If the vacuum required to pull the gas through the knockout pot increases over time, then the baffles within the knockout pot should be cleaned. An increase in the vacuum required to draw the landfill gas through the knockout pot is a good indicator that maintenance is required.

3.16 Gas Extraction Wellhead Maintenance

During the routine performance monitoring, the following will be conducted at each wellhead in addition to the monitoring previously described:

1. Check valve operation.
2. Observe piping, valves, and fittings for leakage.
3. Check the well and pipelines for accumulated liquid and repair, as necessary.
4. Check borehole seal and the condition of the landfill surface around the well.

The wellheads shall be operated and maintained in accordance with the manufacturer's specifications and operational instructions. If any problems are found at the wellheads, wells, or nearby pipeline, repairs shall be initiated at that time, if possible. If the repairs require the use of additional materials, equipment, or labor, the Solid Waste Operations Manager shall be notified and the materials, equipment, and/or labor shall be made available to perform the repairs. In any case, all repair activities shall be recorded in a logbook and on the well data spreadsheet prepared by the wellfield operator.

4 CONDENSATE MANAGEMENT PLAN

Condensate will be conveyed through the gas collection system and collected at condensate drop-out structures located through out the gas collection system and also at the knockout pot prior to the blower at the gas control unit. The condensate will be drained from the condensate collection trap/sump and gas control unit into the existing leachate collection system for disposal. Condensate will be collected for sampling from the condensate drop out structure located just prior to the knock out pot at the Landfill Gas Control Unit.

According to calculations performed for this site, about 7,962gallons per day of condensate is expected to be collected from the gas system during peak gas generation (year 2054). This equates to only about 5.5 gallons per minute from the entire gas collection system. This minimal amount of condensate from the gas system will not significantly impact the operations of the leachate collection and storage system, even at peak discharge.

5 STAFFING PLAN

The gas system will require only routine maintenance once it is operating and balanced. Personnel assigned to the gas system will be principally concerned with routine system performance monitoring and maintenance. One technician should be devoted for approximately 8 hours per week to these duties. Additional manpower may be necessary for the initial balancing of the system. The startup, operation, and maintenance work associated with the gas system will be managed and directed by Sarasota County Solid Waste Operations Unit. Operational data and results of monitoring will be complied on a monthly basis, and more often for non-routine issues, as necessary. Any modifications, major repairs, or operational problems prior to performing any activities on the landfill shall be reported to the Solid Waste Operations Manager.

6 CONTINGENCY PLAN

6.1 Fire Control

Please refer to the Attachment K2 of the Operations Plan for the Landfill, as this attachment pertains solely for the Operations and Maintenance of the Landfill Gas Collection and Control System.

As with any emergency, the first thing to do is to immediately notify the proper emergency response team. In case of FIRE, immediately notify the Fire Department through the emergency phone number 991. Remember, if you are calling from a phone, which is connected to the County's switchboard, you must dial 4911 to reach the emergency operator.

If the office or one of the scale houses is open, you can contact them by radio for your emergency, and they will be able to place the necessary phone call.

Be sure to SPEAK SLOWLY, DISTINCTLY, DELIBERATELY, and remain as calm as possible. Briefly tell the person to whom you are reporting the emergency the following:

- The nature of the emergency;
- Any injuries or persons involved; and
- Where the emergency is located.

If there are injuries, you should render whatever assistance you can without endangering yourself. Use the First Aid and/or CPR training you have learned to assist where necessary. If possible, evacuate any person or equipment that may be endangered.

The gas collection and control system will be shut down in the event of a fire at the gas control unit or on the landfill.

In the event of small fires, the use of a fire extinguisher may be sufficient to contain the fire until the arrival of the Emergency Responders. Fire extinguishers are found in every Solid Waste Operations Division vehicle and on every machine. In the event of larger fires, a 4000-gallon water tanker and the pressure washer trailer is available for fighting fires. Landfill fires can be very dangerous due to the presence of methane, a combustible gas. Fire fighting by onsite personnel should only be attempted against relatively small and controllable fires.

Upon arrival of the Emergency Responders, you should take whatever steps necessary to assist.

In the event of fire in the landfill, it may be necessary to smother the fire using available dirt from the dirt stockpiles located at the landfill. In this case, the Manager of the landfill shall make immediate provisions to provide that earth cover. Also, the procedures described in Section K.11.e of the Operations Plan shall be followed.

Procedures for handling fires must be posted at an appropriate location on-site and must include names and telephone numbers of authorities to be called during an emergency. The FDEP's Southwest District, Solid Waste Section, and local police and fire departments must be notified whenever and fire, smoldering, or smoking materials are discovered at the site. Any activities shall be suspended in the vicinity of smoldering, smoking, or burning areas. Any disruption of the finished grade or covered surface as a result of fire-fighting activities must be repaired or replaced immediately upon termination of the fire-fighting activities.

6.2 Wellfield Repairs

Over time, damage to the wellfield components of the gas collection system will occur due to aging equipment, accidental damage during landfill operations, or due to weather conditions. Damage to the wellheads or collection pipelines will usually result in fluctuations of the gas readings at the wellheads and/or at the gas control unit. Based on the gas monitoring results from the wellfield, the problem areas will be identified and repaired as quickly as possible after the problem is observed. Under normal conditions, broken seals or disconnected wellheads will not cause enough disruption to the gas concentrations to require the engines and collection system to shut down. The valve on the wellhead can be shut off to minimize air infiltration into the gas system. Then, repairs can be made at the well while the collection system continues to operate.

However, if the damage to the collection system is substantial enough to make the gas from the landfill unusable in the flare (due to high oxygen or low methane concentrations), the gas control unit will be shut down until repairs can be made. When the gas control unit is shut down, gas will not be allowed to vent to the atmosphere through the gas collection system where the final cover system has been installed. In the event that the gas control unit is shut down for an extended period of time, the kanaflex hose at each well head will be disconnected. The control value for each well head will also be fully turned to the open position. In areas where the final cover system has not been installed, landfill gas will vent to the atmosphere. Prior to bring the gas control unit online the kanaflex hose should be reconnected at each well head. Once gas control unit is brought back online, the gas system will need to be balanced as provided Section 3.2.

The main valve at the gas processing unit, located prior to the blowers, will automatically close if the gas control unit is shut down for any reason (maintenance, power outage, severe weather, engine malfunction, etc.). This is the only valve that will be closed during shutdowns. Shutting the main valve effectively contains the gas in the collection system, since the system is closed off from the atmosphere. Gas can and will build up in the gas collection system on the landfill side of the closed valves, as well as in the landfill. Excess gas will vent to the atmosphere through the landfill and well field as it does today without the gas system in place, until the system is brought back online.

The gas system has been designed with a loop system to allow the collection of gas from a majority of the landfill, even when one section is isolated and closed for repairs. This is accomplished by shutting off valves on the main headers and laterals to isolate sections of pipeline from the vacuum applied to the system. If sections of pipe are to be isolated in this way for an extended period of time, such as a day or more, gas readings should be taken at each well and the wellheads adjusted accordingly, since the vacuum will be distributed differently through the collection system.

6.3 Condensate Collection

A condensate drop-out structure located prior to the gas control unit has been designed into the system to collect as much condensate as possible before the gas enters the gas control unit. The condensate drop-out is designed to hold as much as 200 gallons of condensate as a contingency, in case blockages or other problems occur in the condensate drainage system.

6.4 Natural Disasters

The County's Hurricane Preparedness manual will serve as the emergency procedures for hurricanes and other natural disasters. Additionally, in the event that the site is evacuated, the gas collection and processing systems will be shut down and the area will be secured. Any items that could become windborne and cause damage to structures, equipment, or emergency personnel will be secured.

7 CONSTRUCTION PLAN

7.1 Documentation

During construction, careful documentation must be maintained by the contractor and verified by an experienced construction inspector. The information to be gathered as the system is constructed includes the following:

- Extraction well locations and construction details, including borehole logs and well construction diagrams for all gas extraction wells (existing and proposed);
- Pipe sizes and types;
- As-built pipe and appurtenance locations, elevations, and slope verifications;
- Pressure testing of installed solid pipes at 10 psi for one hour (no drop in pressure allowed);
- Documentation of installation, operation, and maintenance procedures for all items supplied by the contractor; and
- As-built drawings for all materials installed.

At the completion of the construction phase of the project, a professional engineer's certification must be submitted to the FDEP in accordance with F.A.C. 62-701.310(9)(a).

7.2 Construction Contingency Plan

7.3 Health and Safety

Performing construction work on and around a landfill requires adherence to certain precautionary measures to ensure the safety of all workers. The contractor must develop and maintain a Health and Safety Plan that meets or exceeds minimum regulatory requirements and procedures. The contractor must have supervisory personnel on-site to monitor construction activities and to assess the environmental condition of the workspace. The personnel will be responsible for establishing the hazard level of the workspace and establishing hazard level classifications for different areas of the site for the contractor.

Since the project involves excavation of landfill cover materials and previously deposited solid wastes, the progress of the work should be observed to provide an indication of potential problems. The excavations should be limited to a depth necessary to install the structures and provide the desired slope on the piping systems.

Workers must undertake all necessary safety precautions and comply with all provisions of federal, state, and local safety laws, regulations, and codes to prevent accidents and injury to personnel in the vicinity of the work area.

The contractor must inform his personnel that the construction site is a landfill and that inherent dangers exist. Workers must be required to utilize appropriate personnel protective devices and to observe safe working practices. Smoking is strictly prohibited at the work site.

Workers must be advised of the hazards associate with the work to be accomplished. Of particular concern are physical hazards associated with heavy equipment and excavations, and hazards of landfill gasses including methane, carbon dioxide, hydrogen sulfide, volatile organics, and any other known or suspected gas or vapor which may be encountered. Precautions must be taken based upon known or suspected hazards.

The contractor must designate a Site Health and Safety Officer. The Health and Safety Officer should be trained in the use of gas detection instruments, safety equipment, and health and safety procedures associated with the work conducted. The Health and Safety Officer should be present at all times when construction work is being conducted and periodically monitor the atmosphere within the breathing zone of the workers. At a minimum, the Health and Safety Officer should monitor the concentration of oxygen, the percent of the lower explosive limit for methane, and hydrogen sulfide.

Welding will not be permitted in trenches or other enclosed spaces unless properly performed over ground mats and approved by the Health and Safety Officer.

As construction progresses, valves, pipe, and other openings must be closed as soon as possible after installation to prevent gas migration though the pipeline network and to prevent foreign material from entering.

Excavation and boreholes greater than two feet in depth may not be left unattended unless covered. Storm water must be prevented from entering excavation and boreholes. Extreme caution must be exercised if manholes or other types of vaults must be entered. Confined space entry procedures must be strictly adhered to. Fire extinguishers rated at least A, B, and/or C should be readily available at the work area.

Construction equipment should be equipped with vertical exhaust and spark arrestors. Spark arrestors may not be required if motors are powered by diesel fuel. Motors used in excavated areas should be explosion proof. Start up and shut down of equipment should be conducted outside of excavations. Soil stockpiles should be situated in the vicinity of work areas for fire fighting purposes. Refuse excavated during construction will be containerized or disposed of at the active landfill face and covered by the end of the day with at least six inches of soil.

The Contractor shall comply with Safety and Health Regulations for Construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act, as set forth in Title 29, C.F.R. Copies of these regulations may be obtained from Labor Building, 14th and Constitution Avenue N.W., Washington, DC 20013.

The Contractor shall also comply with the provisions of the Federal Occupational Safety and Health Act, as amended.

7.4 Spoils Disposal and Handling

Spoils from excavation areas below the final cover and in areas where final cover has not been installed must be treated and handled as solid waste. This means all special handling procedures associated with

normal landfill operations must be adhered to and all necessary protective clothing (hard hats, coveralls, gloves, etc.) should be worn by working personnel.

The spoils must be inspected as they are removed from the excavation to assess workspace conditions and to assure proper management of the spoils. Spoils that are deemed inappropriate for disposal at the active face of the landfill must be segregated and containerized. The FDEP and local fire department must be notified upon the discovery of suspected hazardous materials prior to arranging for proper off-site disposal.

Spoils from the construction activities on the landfill which are comprised of municipal solid wastes must be taken from the working area to the active face of the landfill, on an as needed basis, but at least daily. During well drilling activities, spoils will be brought to the active face frequently and mixed with new waste materials. This is done to help minimize the affects of odors associated with the older waste.

7.5 Emergency Situations

All personnel working on the landfill must be informed of the location of the closest medical facility and the telephone numbers for the local police and fire departments, and the local ambulance service. A list of emergency telephone numbers is provided below.

Ambulance Service	911
Police Department	911
Fire Department	911
Solid Waste Operations Manager Lois Rose	(941) 861-1589 cell (941) 650-0722
Dept. of Environmental Protection Southwest District	(813) 632-7600

7.6 System Decommissioning

The gas system can be relatively easily decommissioned if the system sustains irreparable damage or the gas system is no longer needed to manage gases from the landfill. To safely and properly decommission the gas system, the following tasks will be performed.

1. Shut down the gas control unit and appurtenant equipment.
2. Open the in-line control valve at each gas well to allow gases still in the gas system to passively vent to the atmosphere and relieve residual pressure in the system.
3. Locate the inlet pipe to the blower. Once located, this pipe will be cut and sealed.
4. Measurements will be taken to be sure the location can be re-established in the future.
5. Disassemble and remove the gas processing equipment.
6. Disassemble yard piping at the gas control unit. Remove the gas processing equipment from the support base as needed for salvage or disposal.
7. Remove the disassembled equipment from site for salvage or disposal.
8. If gas collection is no longer necessary, reconstruct gas wellhead assemblies to allow passive venting.

8 ENVIRONMENTAL MONITORING

8.1 Landfill Gas Sampling and Testing

Additional source testing may be performed after the gas system is operational, to characterize the quality of the gas generated by the landfill. This testing is different than the routine monitoring of the wellheads and the inlet of the gas control unit discussed in Section 3.3, which includes taking readings for temperature, methane, oxygen, carbon dioxide and balance gas. The objective of this testing is to monitor the constituents and combustibility of the landfill gas at the inlet to the gas control unit. Testing could include measuring the concentration of volatile organic compounds, nitrogen, hydrogen sulfide, other sulfides, siloxanes, and other parameters, as necessary.

8.2 Condensate Sampling and Testing

Condensate samples will be taken at the locations and frequencies specified in the CCSWDC Operations Permit. The samples will be analyzed by a Florida certified laboratory for the parameters specified in the permit.

ATTACHMENT K-16

TEMPORARY GAS VENT INFORMATION

HDR | ONE COMPANY | *Many Solutions* SM

September 16, 2009

Mr. Steve Morgan
Florida Department of Environmental Protection
Southwest District
13051 N. Telecom Parkway
Temple Terrace, FL 33637

Re: Central County Solid Waste Disposal Complex (CCSWDC)
Phase II Expansion
Permit No.: 130542-006-SC/01
Bottom Liner Temporary Gas Vent Installation

Dear Steve:

As requested during our phone conversation earlier today, this letter discusses the proposed installation of temporary gas vents within a portion of the Phase II landfill expansion area. Areas near the Cell 2/Cell 3 interface of Phase II have exhibited gas bubbles accumulating beneath the recently installed bottom liner system. The gas pressure has led to visible lifting of portions of the protective cover over the liner system. Several of the locations have been already been vented and repaired, however, the gas generally accumulates again after the repairs are made. Analysis of the gas indicates it is naturally occurring methane and not landfill gas.

The attached sketch illustrates the proposed temporary vent design and installation instructions. The vents consist of short lengths of perforated 4-inch diameter polyethylene pipe inserted beneath the liner system and connected to a riser pipe with a tee. The riser pipe will extend 2 feet above the protective cover soil and will be perforated above the protective cover soil to allow the gas to escape. An 18-inch diameter section of open-ended polyethylene pipe will be centered over the vent to protect it. Currently we estimate a maximum of approximately 6 vents will be installed although we hope this number can be reduced based on field observations after the initial vents are installed.

The vents will be removed prior to the placement of waste in the area. CQA will be provided during vent removal to verify that all pipes are removed, all geosynthetic layers are properly patched, and that a minimum of 2-feet of protective cover soil is placed over the patched area.

We understand that you will require a minor modification for the temporary gas vent installation. Since the geosynthetics installer is going to be demobilizing from the site very soon, we would appreciate your expedited review of this proposal so the County can install the vents without incurring a remobilization charge.

Please do not hesitate to contact us if you have any questions during your review.

HDR Engineering, Inc. of the Carolinas
3733 National Drive
Suite 207
Raleigh, NC 27612-4845
Phone: (919) 785-1118
Fax: (919) 785-1167
www.hdrinc.com

Sincerely,

HDR Engineering, Inc.

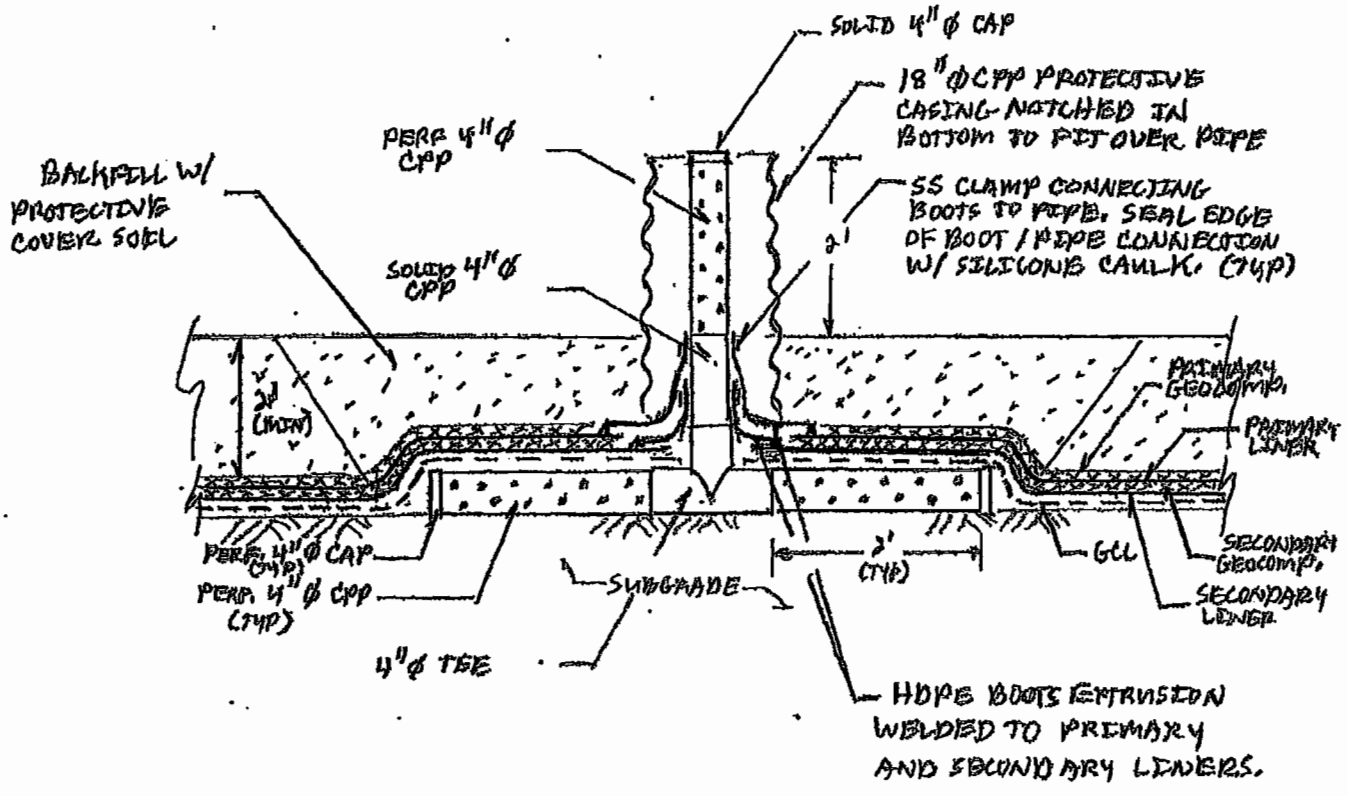
Thomas M. Yanoschak, PE, BCEE
Senior Project Manager

Enclosures as noted.

cc: Gary Bennett, Sarasota County
Frank Coggins, Sarasota County
Spencer Anderson, Sarasota County
Jack Gibson, Sarasota County
Rich Siemering, HDR
Joe Readling, HDR

HDR | ONE COMPANY Many Solutions

Project: CCSWDC		Computed: TMY	Date: 9/10/09
Subject: Phase II		Checked:	Date:
Task: Gas Vent		Page: 1	of: 2
Job #:		No:	



TEMPORARY GAS VENT DETAIL

NTS.

NOTE: ALL PIPE AND BOOTS TO BE REMOVED, GEOSYNTHETICS REPAIRED, AND MIN. 2' PROTECTIVE COVER SOIL REPLACED PRIOR TO THE PLACEMENT OF WASTE WITHIN OR NEAR THE VENT AREA.

HDR | ONE COMPANY Many Solutions™

Project:		Computed:	Date:
Subject:		Checked:	Date:
Task:		Page: 2	of: 2
Job #:		No:	

TEMPORARY GAS VENT CONSTRUCTION SEQUENCE

1. EXCAVATE PROTECTIVE COVER SOIL TO EXPOSE MIN. 2'x5' OF PRIMARY GEOCOMPOSITE OVER GAS BUBBLE.

2. CUT APPROX. 12" Ø HOLE THROUGH EACH LAYER OF GEOSYNTHETICS AT CENTER OF EXPOSED AREA.

3. INSERT 2-2' LENGTHS OF PERFORATED 4" Ø CPP W/ CAPS ON FAR ENDS BETWEEN GCL AND SUBGRADE PER DETAIL.

4. INSERT 4" Ø CPP TEE THROUGH HOLE IN GEOSYNTHETICS AND CONNECT PERFORATED PIPE TO TEE PER DETAIL. ORIENT SIDE-OUT OF TEE VERTICAL.

5. CONNECT APPROX. 1.5' LENGTH OF SOLID 4" Ø CPP TO SIDE-OUT OF TEE.

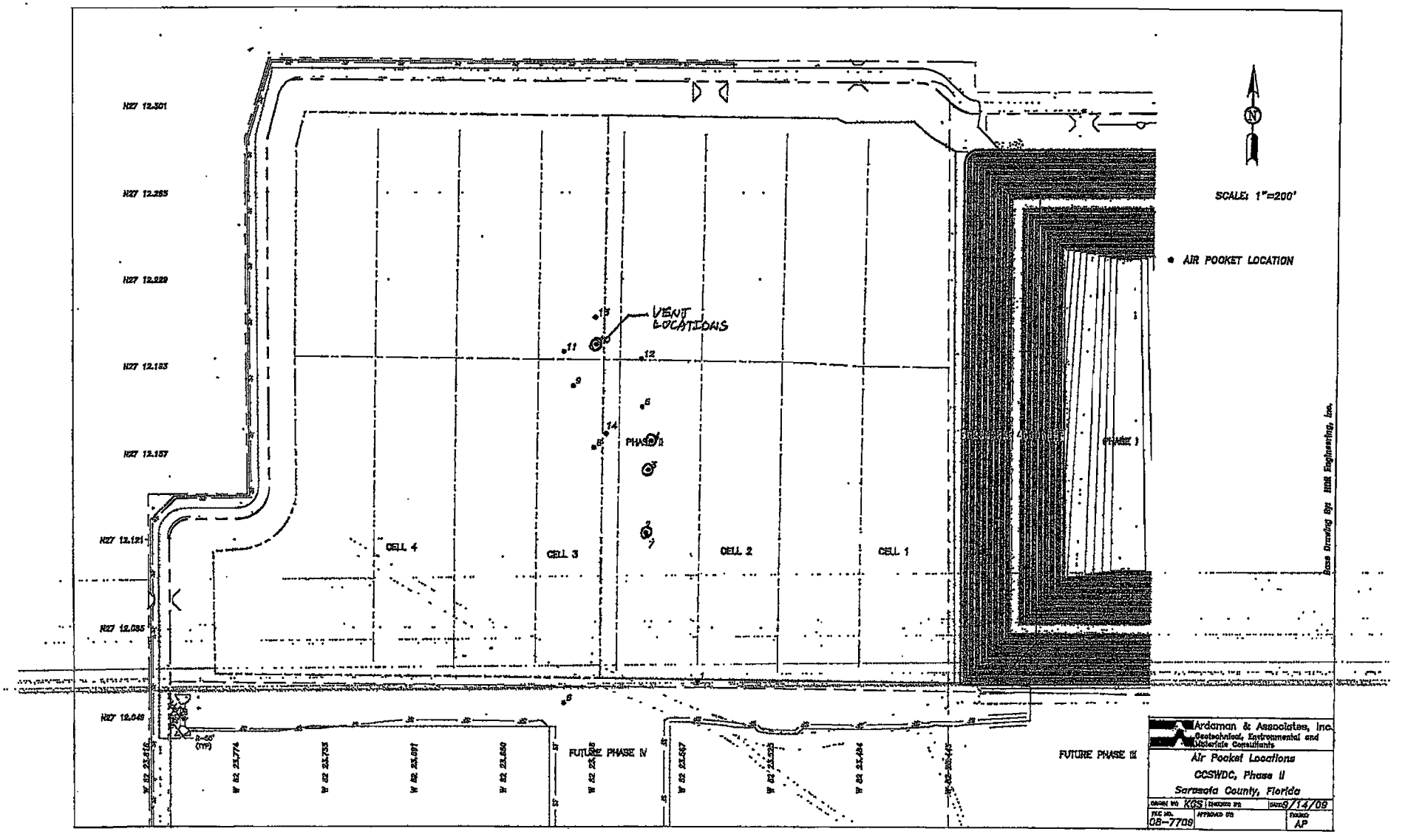
6. FABRICATE BOOT EXTRUSION WELDED TO SECONDARY HDPE LINER AND CONNECTED TO VERTICAL PIPE W/ SS CLAMP AND SEALED W/ SILICONE CAULK.

7. FABRICATE BOOT EXTRUSION WELDED TO PRIMARY HDPE LINER AND CONNECTED TO VERTICAL PIPE SAME AS ABOVE.

8. CONNECT PERF. 4" Ø CPP TO VERTICAL SOLID PIPE TO EXTEND APPROX. 2' ABOVE PROTECTIVE COVER SOIL. ATTACH SOLID CAP TO END OF PIPE.

9. CENTER 18" Ø CPP PROTECTIVE CASING OVER VERTICAL PIPE. NOTCH OUT BOTTOM OF CASING TO FIT OVER BOOTS/PIPE.

10. BACKFILL OVER PIPE AND AROUND PROTECTIVE CASING W/ MIN. 2' OF PROTECTIVE COVER SOIL.


SCALE: 1"=200'
AIR POCKET LOCATION
VENT LOCATIONS
PHASE II
PHASE I
CELL 4
CELL 3
CELL 2
CELL 1
FUTURE PHASE IV
FUTURE PHASE III
N27 12.301
N27 12.265
N27 12.229
N27 12.193
N27 12.157
N27 12.121
N27 12.085
N27 12.049
Base Drawing By: HBM Engineering, Inc.
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
Air Pocket Locations
CCSWDC, Phase II
Sarasota County, Florida
DRAWN BY KGS
DATE 9/14/09
FILE NO. 08-7709
TASKED AP

ATTACHMENT K-17

RAIN COVER SPECIFICATION

SECTION 02780
GEOSYNTHETIC RAIN COVER

PART 1 - GENERAL

1.1 DESCRIPTION

A. Furnish all labor, materials, tools, and equipment, and perform all work and services necessary for or incidental to the furnishing and installation, complete, of an impermeable, geosynthetic rain cover as shown on Drawings and specified in accordance with provisions of the Contract Documents.

B. Related Sections include but are not necessarily limited to:
   1. Section 02220 - Earthwork.
   2. Section 02221 - Trenching, Backfilling, and Compacting for Utilities.

1.2 QUALITY ASSURANCE

A. Refer to the following standard references or specifications as applicable to this section of technical specifications:
   1. American Society for Testing and Materials (ASTM).
      a. ASTM D751 - Standard Test Method for Coated Fabrics.
      b. ASTM D4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles
      c. ASTM D5199 - Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes.
      d. ASTM D7003 - Standard Test Method for Strip Tensile Properties of Reinforced Geomembranes.
      e. ASTM D7004 - Standard Test Method for Grab Tensile Properties of Reinforced Geomembranes.
      f. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.

1.3 SUBMITTALS

A. The Contractor must provide installation instructions.

B. The Contractor must certify that the rain cover resin is first use; top grade quality only.

PART 2 - PRODUCTS

2.1 MATERIALS

A. 20-mil Scrim Reinforced Polyethylene Rain Cover
   1. The 20-mil scrim reinforced polyethylene rain cover shall consist of two sheets of high-strength polyethylene film laminated together with a third layer of molten polyethylene. A heavy scrim reinforcement shall be placed between these plies to enhance tear resistance and increase service life.
   2. Contractor must supply (in the Bid price) a high strength adhesive tape or equal for waterproofing and sealing the field seams and for performing repair work to the rain cover. Contractor shall minimize field seams.
   3. The scrim reinforced rain cover must meet the following specifications or approved equal, as determined by the Engineer.

PROPERTY	TEST METHOD	SCRIM-REINFORCED TEST VALUE
a. Thickness, nominal	ASTM D5199	20 mil
b. Weight		11.2 oz/yd^2
c. 1" Tensile Strength	ASTM D7003	75 lbf
d. Elongation at Break	ASTM D7003	750%
e. Grab Tensile Strength	ASTM D7004	102.9 lbf
f. Trapezoidal Tear Strength	ASTM D4533	102 lbf
g. Hydrostatic Resistance	ASTM D751	136 psi
h. Perm Rating	ASTM E96 Method A	0.053 U.S.Perms
i. Water Vapor Transmission	ASTM E96 Method A	0.052 U.S. Perms

B. General Requirements
1. The rain cover must perform as specified for at least 3 years and a warranty must be supplied for at least 3 years.
2. The material must be able to be moved by site personnel as needed. The material must be resilient to damage when moved and/or relocated by site personnel. If necessary, the material may be cut for removal/relocation; however, in this case, must be able to be easily reseamed by site personnel.
3. Factory seams must utilize methods that will eliminate excess overlap.
4. The rain cover must be impermeable, capable of repelling water with no absorption.
5. The material must be anchored, when installed, through a system so as to preclude wind damage, traffic damage, and weather.

PART 3 - EXECUTION

3.1 METHODS

A. The Contractor shall deploy the GRC in a manner consistent with the manufacturer's specifications.

B. Anchoring methods shall be as per the manufacturer's specifications or as approved otherwise by the Engineer.

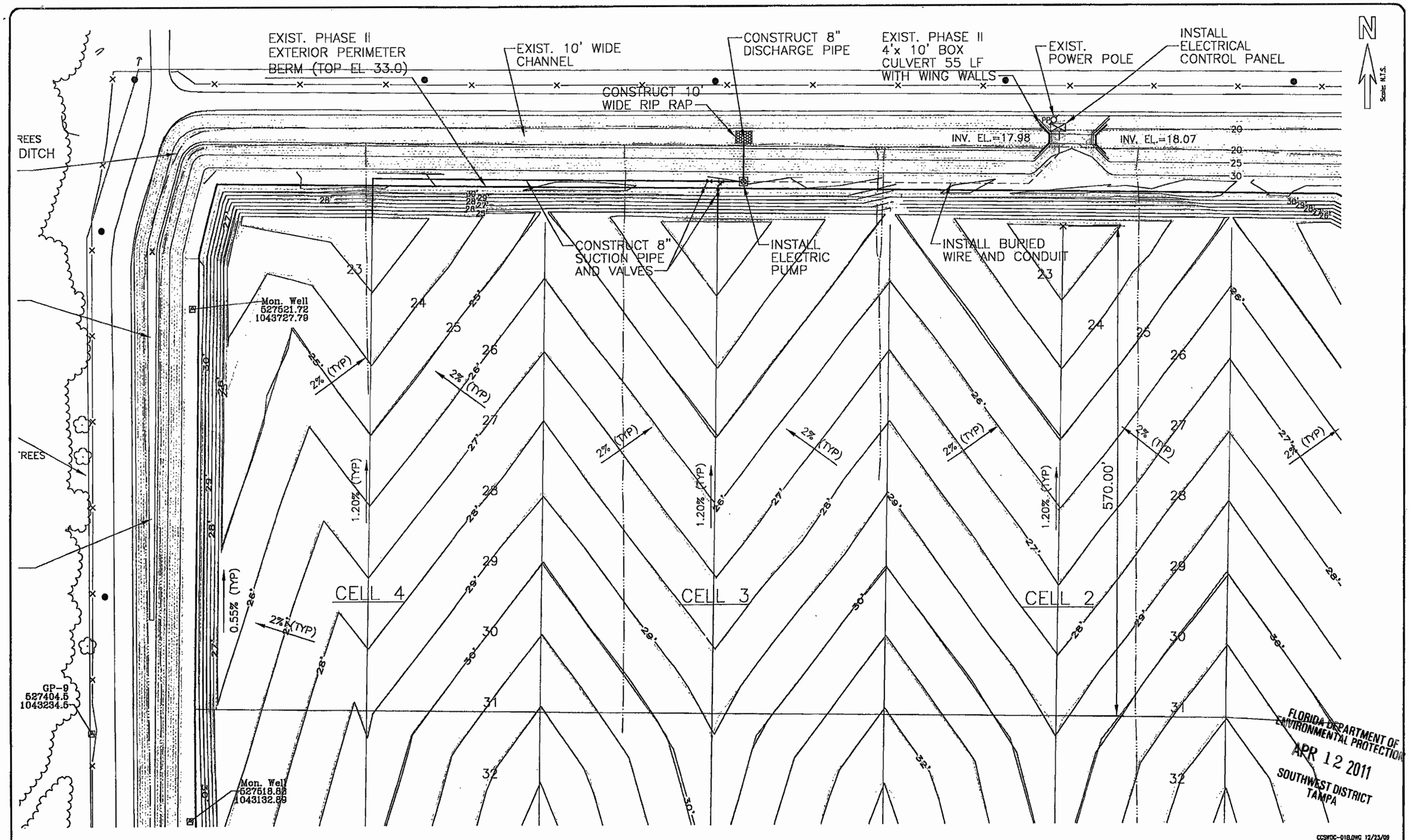
C. Any damage to the GRC during installation will be the Contractor's responsibility to repair/replace at no cost to the Owner.

D. Field seams shall be of the strongest available method for the approved material except as required for patches or similar limited area applications.

END OF SECTION

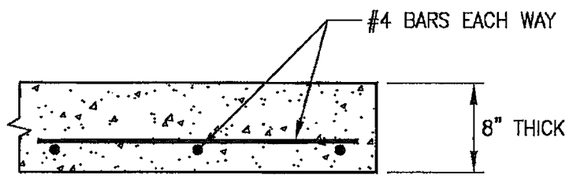
ATTACHMENT K-18

CELLS 3 AND 4 RAIN COVER DEWATERING SYSTEM



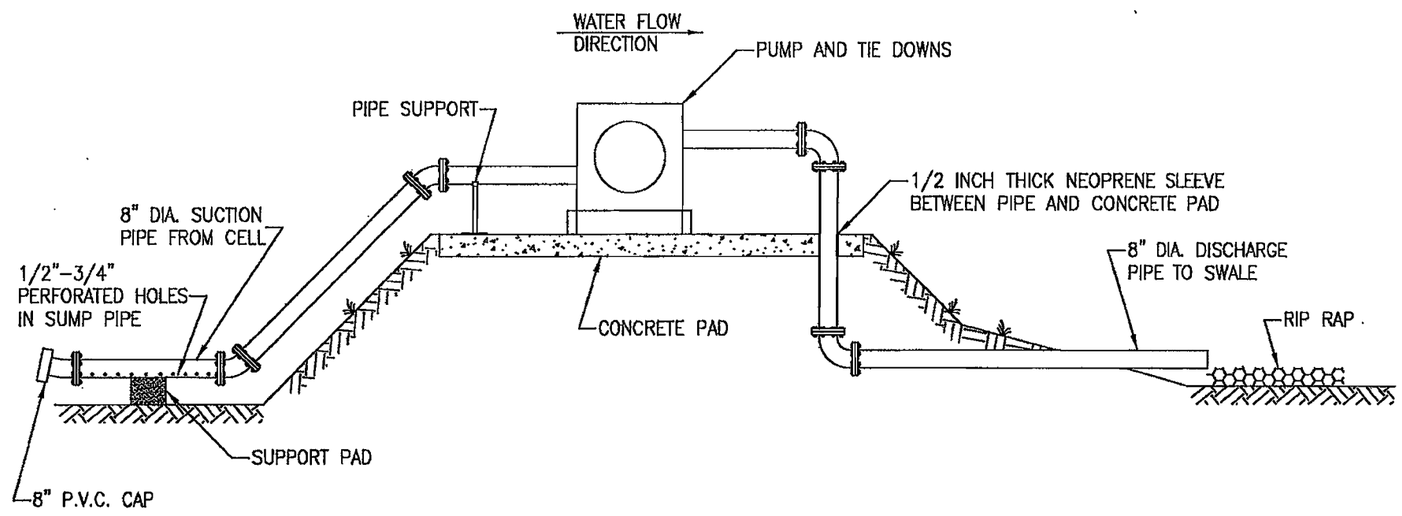
REVISIONS	NOTES:	DRAWN BY: GC DESIGNED BY: JG CHECKED BY: JG DESIGN ENGINEER: JG	SCALE: N.T.S. DATE: DECEMBER 2009 ACCT.# 95222	SARASOTA COUNTY GOVERNMENT ENVIRONMENTAL SERVICES, UTILITIES 1001 SARASOTA CENTER BLVD. SARASOTA, FLORIDA 34240	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX PHASE II	CELLS 3 & 4 RAIN COVER DEWATERING SYSTEM	PROJECT NO. 95222 C-01B SHEET

NOTES:
1. #4 REBARS @ 12" O.C. EACH WAY
2. 3,000 PSI CONCRETE @28 DAYS
3. WIDTH AND LENGTH DIMENSIONS TO BE DETERMINED IN FIELD TO ACCOMODATE PUMP TRAILER ACTUAL SIZE.



CONCRETE PUMP PAD

N.T.S.



SUCTION PUMP DETAIL

N.T.S.

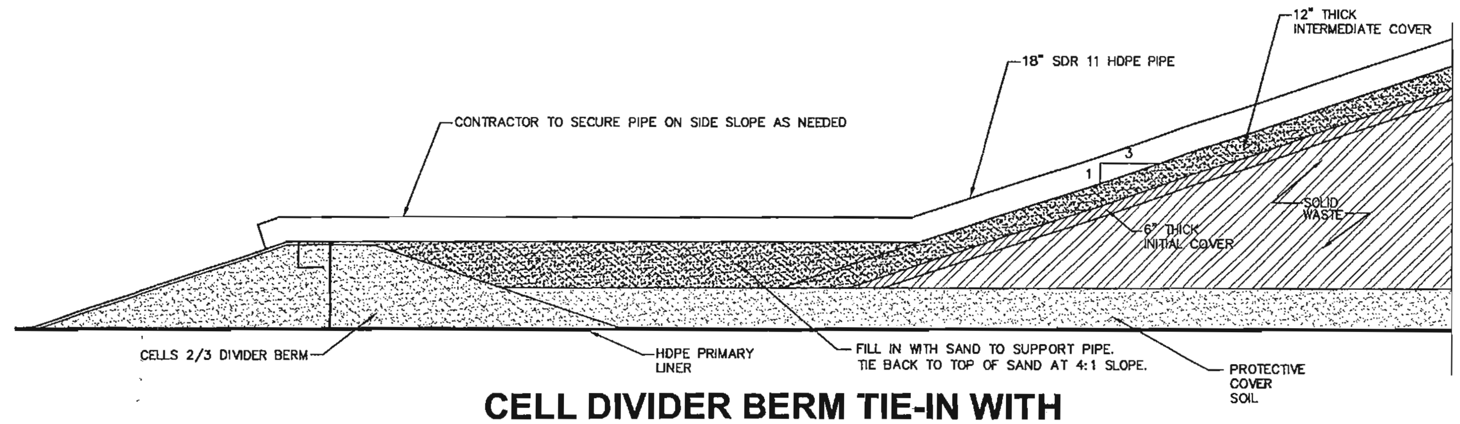
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 12 2011
SOUTHWEST DISTRICT
TAMPA

CCSWDC-01C.DWG 12/28/09DJ

REVISIONS	NOTES:	DRAWN BY: GC DESIGNED BY: JG CHECKED BY: JG DESIGN ENGINEER: JG	SCALE: N.T.S. DATE: MAY 2009 ACCT.# 95222	SARASOTA COUNTY GOVERNMENT ENVIRONMENTAL SERVICES, UTILITIES 1001 SARASOTA CENTER BLVD. SARASOTA, FLORIDA 34240	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX PHASE II	CELLS 3 & 4 RAIN COVER DEWATERING SYSTEM	PROJECT NO. 95222 C-01C SHEET

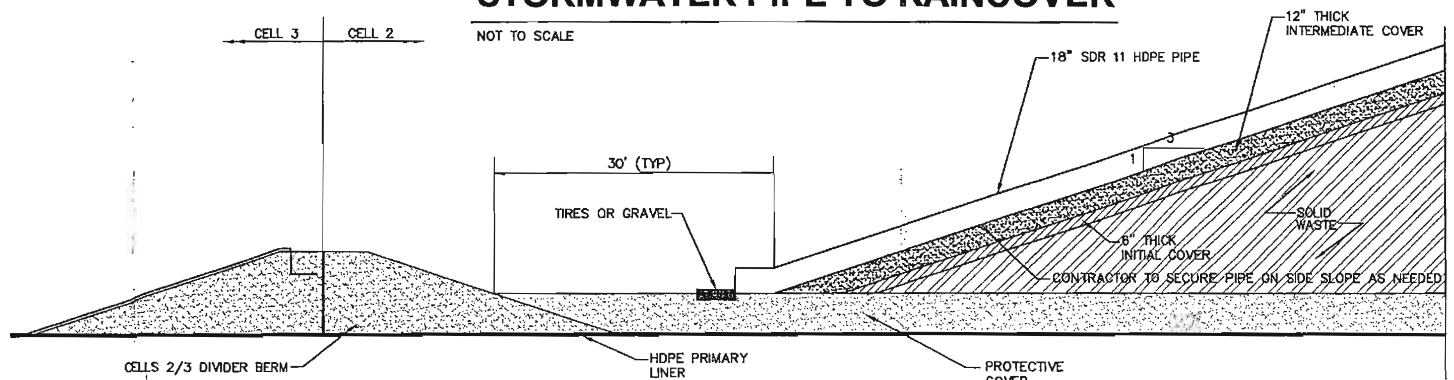
ATTACHMENT K-19

FILL SEQUENCE SHEET 45 DETAILS FOR WORKING FACE AND INTERMEDIATE COVER STORMWATER PIPING



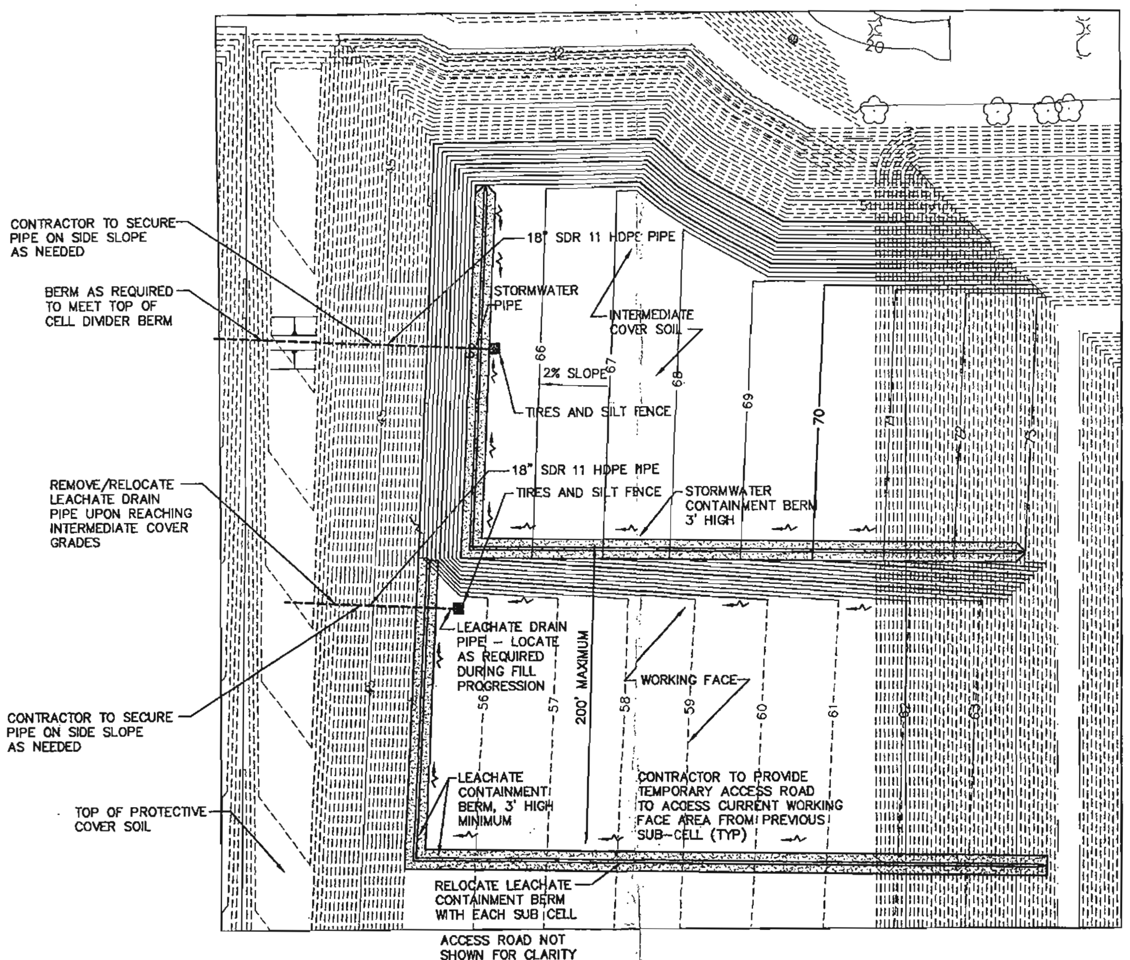
CELL DIVIDER BERM TIE-IN WITH STORMWATER PIPE TO RAINCOVER

NOT TO SCALE



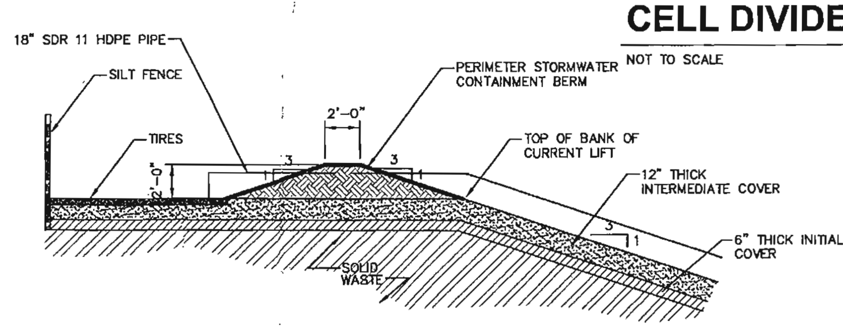
CELL DIVIDER BERM TIE-IN

NOT TO SCALE



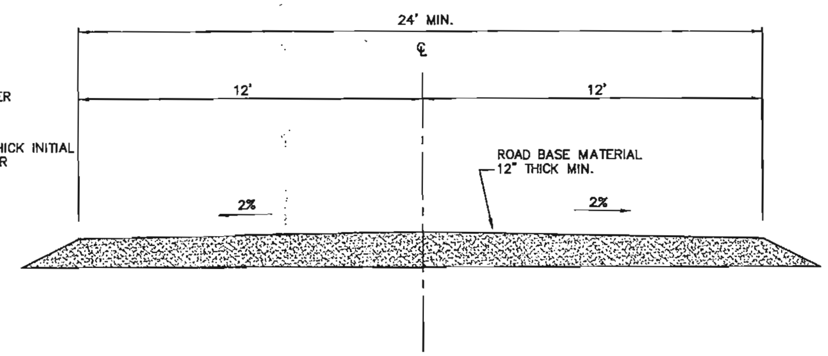
TYPICAL WORKING FACE

NOT TO SCALE



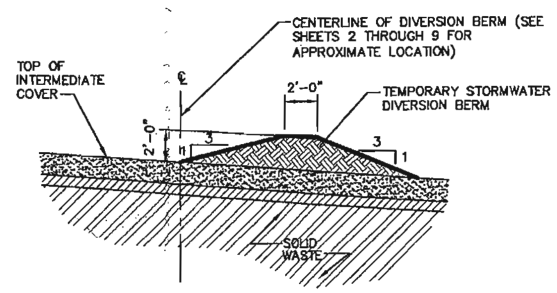
PERIMETER STORMWATER CONTAINMENT BERM

NOT TO SCALE



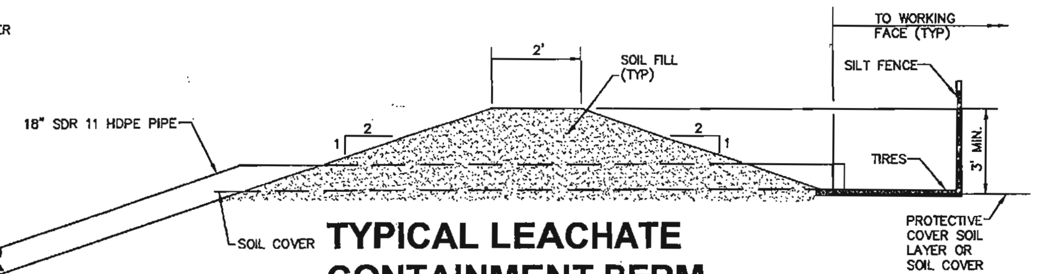
TYPICAL ACCESS ROAD

NOT TO SCALE



TEMPORARY STORMWATER DIVERSION BERM

NOT TO SCALE



TYPICAL LEACHATE CONTAINMENT BERM

NOT TO SCALE

HDR
5426 Bay Center Drive, Suite 400
Tampa, Florida 33609
813-282-2300
HDR CERT. AUTH. NO. CA 4213
FL REG. AA C000457

ISSUE	DATE	DESCRIPTION
2	07/23/10	SUBMITTED TO COUNTY
1	02/15/10	FOR OPERATIONAL USE

PROJECT MANAGER	R. SIEMERING
DRAWN BY	B. JOHNSON
CHECKED BY	R. SIEMERING
PROJECT NUMBER	00096-112585-003

JASON TIMMONS, P.E.
CERTIFICATE NO. 65869

SARASOTA COUNTY
PHASE II – CELL 2
FILL SEQUENCING

DETAILS

0 1" 2"

FILENAME: C3D PHASE II CELL 2 FILL SEQUENCE DETAILS.DWG
SCALE: NOT TO SCALE
SHEET 45