Environmental Consultants

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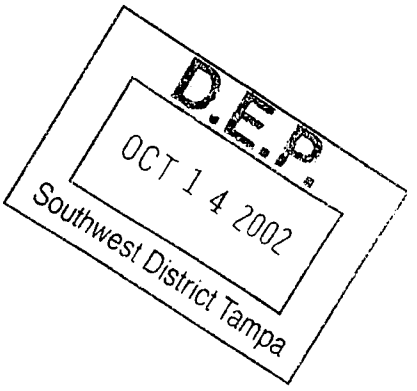
SCS ENGINEERS

October 8, 2002
File No. 09199033.06



Ms. Susan J. Pelz, P.E.
Solid Waste Section
Division of Waste Management
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Subject: Hardee County Class I Landfill – Minor Modification to Increase Final Height & Fill South Slope

Dear Ms. Pelz:

On behalf of Hardee County (County), SCS Engineers (SCS) is pleased to provide you with a request for a minor modification to the existing operation permit for the landfill. In response to your August 8, 2002 letter and the September 4, 2002 meeting with the FDEP, the County proposes to revise the currently permitted fill sequence drawings to accomplish the following:

1. Fill along the south slope no steeper than a 4:1 slope, from existing land surface to the existing top of the landfill at elevation approximately 135.0 ft.

2. Increase the final landfill height of the landfill from the approved interim elevation of approximately 140.0 ft. (i.e., Fill Sequence No. 4 – old sheet 7) to elevation ~~140.0~~ 155 ft.

A brief discussion of these items is provided below. Included with this submittal is a completed permit application and a set of revised drawings.

FILL SLOPE

In accordance with the FDEP's letter dated August 8, 2002, the County has elected to pursue Option Item 1). In accordance with that option, the County is proposing to fill the south slope at a 4:1 slope from the approximate land surface to the existing top of the landfill at elevation approximately 135.0 ft. This is in an area that was partially filled with compacted "loose" waste while the County was replacing their baler (as opposed to the normal practice of filling with baled waste).

The fill slope will be increased to 3:1 on the area on top of existing baled waste only, from approximately elevation 135.0 ft. to the final elevation of 161.0 ft. Revised fill sequence drawings have been included to indicate the development of the 4:1 slope and final build-out of the 3:1 slope on the south side of the landfill. In those drawings is also provided a detail

section of how the County proposes to modify the loose waste area in the south slope to accommodate and provide a suitable foundation for the renewal of filling with bales.

LANDFILL HEIGHT

SCS had previously provided the FDEP geotechnical calculations in our response letter to the FDEP's letter dated May 11, 2001. These calculations estimated the soil settlement and excess soil bearing capacity as a result of increasing the final landfill height from elevation 141.0 to elevation 155.0. A copy of these calculations are attached for your records.

These calculations indicate that the total estimated settlement in the middle of the landfill increased from 0.47 feet to 0.54 feet, a difference of 0.07 feet. Also, the excess bearing capacity was estimated to be approximately 4,200 pounds per square foot. This value represents the additional bearing capacity over that which is estimated to induce excessive settlement in the middle of the landfill. The landfill foundation was considered sufficient to support the increased height of the landfill.

The current County permit modification request involves only a 6-foot increase in the final height of the landfill (i.e., from elevation 155.0 ft. to elevation 161.0 ft) from the standpoint of the previous soil settlement and soil bearing capacity calculations.

Based on the previous calculations provided by SCS, we believe that the additional 6-foot increase would result in an insignificant increase in the estimated soil settlement and an insignificant decrease in the excess soil bearing capacity. The additional 6 ft. of bales at the maximum elevation only represents an additional load of 258 pounds per square foot, well within the excess bearing capacity. SCS believes that the landfill foundation would still be sufficient to support the increased height of the landfill.

Please feel free to contact us if you have questions. However, the County's preference would be to meet with the FDEP as soon as possible if there are any remaining concerns. Thank you for your consideration of these matters.

Very truly yours,

Bruce Clark, P.E., DEE
Project Manager
SCS ENGINEERS

Raymond J. Dever, P.E., DEE
Vice President
SCS ENGINEERS

BJC:bc

cc: Ms. Janice Williamson, Solid Waste Superintendent
Mr. J. R. Prestridge, Public Works Director

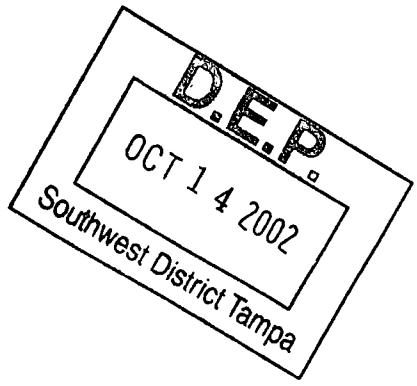
ATTACHMENT A

PERMIT APPLICATION

Florida Department of Environmental Protection
Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, FL 32399-2400

DEP Form # 62-701.900(1)
Form Title Solid Waste Management Facility Permit
Effective Date 05-27-01

DEP Application No. _____
(Filled by DEP)



STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

APPLICATION FOR A PERMIT TO CONSTRUCT, OPERATE, MODIFY OR CLOSE A SOLID WASTE MANAGEMENT FACILITY

APPLICATION INSTRUCTIONS AND FORMS

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

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

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

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

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

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

INSTRUCTIONS TO APPLY FOR A SOLID WASTE MANAGEMENT FACILITY PERMIT

I. General

Solid Waste Management Facilities shall be permitted pursuant to Section 403.707, Florida Statutes,(FS) and in accordance with Florida Administrative Code (FAC) Chapter 62-701. A minimum of four copies of the application shall be submitted to the Department's District Office having jurisdiction over the facility. The appropriate fee in accordance with Rule 62-701.315, FAC, shall be submitted with the application by check made payable to the Department of Environmental Protection (DEP).

Complete appropriate sections for the type of facility for which application is made. Entries shall be typed or printed in ink. All blanks shall be filled in or marked "not applicable" or "no substantial change". Information provided in support of the application shall be marked "submitted" and the location of this information in the application package indicated. The application shall include all information, drawings, and reports necessary to evaluate the facility. Information required to complete the application is listed on the attached pages of this form.

II. Application Parts Required for Construction and Operation Permits

A. Landfills and Ash Monofills - Submit parts A,B, D through T
B. Asbestos Monofills - Submit parts A,B,D,E,F,G,J,L,N, P through S, and T
C. Industrial Solid Waste Facilities - Submit parts A,B, D through T
D. Non-Disposal Facilities - Submit parts A,C,D,E,J,N,S and T

NOTE: Portions of some parts may not be applicable.

NOTE: For facilities that have been satisfactorily constructed in accordance with their construction permit, the information required for A,B,C and D type facilities does not have to be resubmitted for an operation permit if the information has not substantially changed during the construction period. The appropriate portion of the form should be marked "no substantial change".

III. Application Parts Required for Closure Permits

A. Landfills and Ash Monofills - Submit parts A,B,M, O through T
B. Asbestos Monofills - Submit parts A,B,N, P through T
C. Industrial Solid Waste Facilities - Submit parts A,B, M through T
D. Non-Disposal Facilities - Submit parts A,C,N,S and T

NOTE: Portions of some parts may not be applicable.

IV. Permit Renewals

The above information shall be submitted at time of permit renewal in support of the new permit. However, facility information that was submitted to the Department to support the expiring permit, and which is still valid, does not need to be re-submitted for permit renewal. Portions of the application not re-submitted shall be marked "no substantial change" on the application form.

V. Application Codes

S	-	Submitted
LOCATION	-	Physical location of information in application
N/A	-	Not Applicable
N/C	-	No Substantial Change

VI. LISTING OF APPLICATION PARTS

PART A: GENERAL INFORMATION

PART B: DISPOSAL FACILITY GENERAL INFORMATION

PART C: NON-DISPOSAL FACILITY GENERAL INFORMATION

PART D: PROHIBITIONS

PART E: SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL

PART F: LANDFILL PERMIT REQUIREMENTS

PART G: GENERAL CRITERIA FOR LANDFILLS

PART H: LANDFILL CONSTRUCTION REQUIREMENTS

PART I: HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS

PART J: GEOTECHNICAL INVESTIGATION REQUIREMENTS

PART K: VERTICAL EXPANSION OF LANDFILLS

PART L: LANDFILL OPERATION REQUIREMENTS

PART M: WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS

PART N: SPECIAL WASTE HANDLING REQUIREMENTS

PART O: GAS MANAGEMENT SYSTEM REQUIREMENTS

PART P: LANDFILL CLOSURE REQUIREMENTS

PART Q: CLOSURE PROCEDURES

PART R: LONG TERM CARE REQUIREMENTS

PART S: FINANCIAL RESPONSIBILITY REQUIREMENTS

PART T: CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
APPLICATION FOR A PERMIT TO CONSTRUCT, OPERATE, MODIFY OR CLOSE
A SOLID WASTE MANAGEMENT FACILITY

Please Type or Print

A. GENERAL INFORMATION

1. Type of facility (check all that apply):

[ ] Disposal
- [✔] Class I Landfill
- [ ] Class II Landfill
- [ ] Class III Landfill
- [ ] Other Describe: _____
- [ ] Ash Monofill
- [ ] Asbestos Monofill
- [ ] Industrial Solid Waste

[ ] Non-Disposal
- [ ] Incinerator For Non-biomedical Waste
- [ ] Waste to Energy Without Power Plant Certification
- [ ] Other Describe: _____

NOTE: Waste Processing Facilities should apply on Form 62-701.900(4), FAC; Land Clearing Disposal Facilities should notify on Form 62-701.900(3), FAC; Compost Facilities should apply on Form 62-701.900(10), FAC; and C&D Disposal Facilities should apply on Form 62-701.900(6), FAC

2. Type of application:
- [ ] Construction
- [✔] Operation
- [ ] Construction/Operation
- [ ] Closure

3. Classification of application:
- [ ] New
- [ ] Renewal
- [ ] Substantial Modification
- [ ] Intermediate Modification
- [✔] Minor Modification

4. Facility name: Hardee County Solid Waste Department

5. DEP ID number: 38414-002-SO County: Hardee

6. Facility location (main entrance): 685 Airport road
Wauchula, FL 33873

7. Location coordinates:

Section: 35 Township: 33S Range: 25E

Latitude: 27 ° 34 ' 10 " Longitude: 81 ° 47 ' 01 "

8. Applicant name (operating authority): Hardee County

Mailing address: 685 Airport Road (Street or P.O. Box) Wauchula (City) FL (State) 33873 (Zip)

Contact person: Janice Williamson Telephone: (863) 773-5089

Title: Solid Waste Superintendent

janice.williamson@hardeecounty.net
E-Mail address (if available)

9. Authorized agent/Consultant: SCS Engineers

Mailing address: 3012 U.S. Highway 301 North, Suite 700 (Street or P.O. Box) Tampa (City) FL (State) 33619 (Zip)

Contact person: Raymond J. Dever Telephone: (813) 621-0080

Title: Vice President

rdever@scsengineers.com
E-Mail address (if available)

10. Landowner(if different than applicant): (same)

Mailing address: _____ (Street or P.O. Box) _____ (City) _____ (State) _____ (Zip)

Contact person: _____ Telephone: (___) _____

_____
E-Mail address (if available)

11. Cities, towns and areas to be served: Hardee County including it municipalities

12. Population to be served:

Current: 26,759 Five-Year Projection: 29,400

13. Date site will be ready to be inspected for completion: N/A

14. Expected life of the facility: _____ years

15. Estimated costs:

Total Construction: $ N/A Closing Costs: $ NC

16. Anticipated construction starting and completion dates:

From: N/A To: N/A

17. Expected volume or weight of waste to be received:

NC yds^3/day NC tons/day NC gallons/day

B. DISPOSAL FACILITY GENERAL INFORMATION

1. Provide brief description of disposal facility design and operations planned under this application:

Minor modification to fill sequence plans to include final fill height changed from original elevation 155.0 to proposed elevation 161.0 and modify slope geometry along south side of landfill from original 3:1 to proposed 4:1 slope. Copy of the proposed plan revisions are attached with this application.

2. Facility site supervisor: Janice Williamson

Title: Solid Waste Superintendent Telephone: (863) 773-5089

janice.williamson@hardeecounty.net
E-Mail address (if available)

3. Disposal area: Total 12.5 acres; Used _____ acres; Available _____ acres.

4. Weighing scales used: [✔] Yes [ ] No

5. Security to prevent unauthorized use: [✔] Yes [ ] No

6. Charge for waste received: _____ $/yds^3 62.50 $/ton

7. Surrounding land use, zoning:

[ ] Residential	[ ] Industrial
[✔] Agricultural	[ ] None
[ ] Commercial	[ ] Other Describe: _____

8. Types of waste received:

[✔] Residential	[✔] C & D debris
[✔] Commercial	[ ] Shredded/cut tires
[ ] Incinerator/WTE ash	[ ] Yard trash
[ ] Treated biomedical	[ ] Septic tank
[ ] Water treatment sludge	[ ] Industrial
[ ] Air treatment sludge	[ ] Industrial sludge
[✔] Agricultural	[ ] Domestic sludge
[✔] Asbestos	
[ ] Other Describe: _____	

9. Salvaging permitted: [ ] Yes [✔] No

10. Attendant: [✔] Yes [ ] No Trained operator: [✔] Yes [ ] No

11. Spotters: Yes [✔] No [ ] Number of spotters used: varies

12. Site located in: [ ] Floodplain [ ] Wetlands [✔] Other Uplands

13. Property recorded as a Disposal Site in County Land Records: [✔] Yes [ ] No

14. Days of operation: Monday - Saturday

15. Hours of operation: 7:30 am - 5:30 pm

16. Days Working Face covered: 312

17. Elevation of water table: 80.0 Ft. (NGVD 1929)

18. Number of monitoring wells: 6

19. Number of surface monitoring points: 1

20. Gas controls used: [✔] Yes [ ] No Type controls: [ ] Active [✔] Passive

Gas flaring: [ ] Yes [✔] No Gas recovery: [ ] Yes [✔] No

21. Landfill unit liner type:

[✔] Natural soils
[ ] Single clay liner
[✔] Single geomembrane
[ ] Single composite
[ ] Slurry wall
[ ] Other Describe:

[ ] Double geomembrane
[ ] Geomembrane & composite
[ ] Double composite
[ ] None

22. Leachate collection method:

[ ] Collection pipes
[ ] Geonets
[ ] Well points
[ ] Perimeter ditch
[✔] Other Describe: French drain

[ ] Sand layer
[ ] Gravel layer
[ ] Interceptor trench
[ ] None

23. Leachate storage method:

[✔] Tanks
[ ] Surface impoundments
[ ] Other Describe:

24. Leachate treatment method:

[ ] Oxidation
[ ] Secondary
[ ] Advanced
[✔] None
[ ] Other

[ ] Chemical treatment
[ ] Settling

25. Leachate disposal method:

[ ] Recirculated
[✔] Transported to WWTP
[ ] Injection well
[ ] Evaporation
[ ] Other _____
[ ] Pumped to WWTP
[ ] Discharged to surface water
[ ] Percolation ponds

26. For leachate discharged to surface waters:

Name and Class of receiving water: N/A

27. Storm Water:

Collected: [✔] Yes [ ] No

Type of treatment: Detention

Name and Class of receiving water: Peace River, Class III

28. Environmental Resources Permit (ERP) number or status: 407767.01

C. NON-DISPOSAL FACILITY GENERAL INFORMATION

1. Provide brief description of the non-disposal facility design and operations planned under this application:

_____

_____

_____

_____

2. Facility site supervisor: _____

Title: _____ Telephone: (___)_____

_____
E-Mail address (if available)

3. Site area: Facility 12.5 acres; Property _____ acres

4. Security to prevent unauthorized use: [ ] Yes [ ] No

5. Site located in: [ ] Floodplain [ ] Wetlands [ ] Other_____

6. Days of operation: _____

7. Hours of operation: _____

8. Number of operating staff: _____

9. Expected useful life: _____ Years

10. Weighing scales used: [ ] Yes [ ] No

11. Normal processing rate: _____ yd^3/day _____ tons/day _____ gal/day

12. Maximum processing rate: _____ yd^3/day _____ tons/day _____ gal/day

13. Charge for waste received: _____

14. Storm Water Collected: [ ] Yes [ ] No

Type of treatment: _____

Name and Class of receiving water: _____

15. Environmental Resources Permit (ERP) number or status: 407767.01

_____

16. Final residue produced:

_____ % of normal processing rate _____ % of maximum processing rate

_____ Tons/day _____ Tons/day

Disposed of at:

Facility name: _____ County: _____

17. Estimated operating costs: $ _____

Total cost/ton: $ _____ Net cost/ton: $ _____

18. Provide a site plan, at a scale not greater than 200 feet to the inch, which shows the facility location and identifies the proposed waste and final residue storage areas, total acreage of the site, and any other features which are relevant to the prohibitions or location restrictions in Rule 62-701.300, FAC, such as water bodies or wetlands on or within 200 feet of the site, and potable water wells on or within 500 feet of the site.

19. Provide a description of how the waste and final residue will be managed to not be expected to cause violations of the Department's ground water, surface water or air standards or criteria

20. Provide an estimate of the maximum amount of waste and final residue that will be store on-site.

21. Provide a detailed description of the technology use at the facility and the functions of all processing equipment that will be utilized. The descriptions shall explain the flow of waste and residue through all the proposed unit operations and shall include: (1) regular facility operations as they are expected to occur; (2) procedures for start up operations, and scheduled and unscheduled shut down operations; (3) potential safety hazards and control methods, including fire detection and control; (4) a description of any expected air emissions and wastewater discharges from the facility which may be potential pollution sources; (5) a description and usage rate of any chemical or biological additives that will be used in the process; and (6) process flow diagrams for the facility operations.

22. Provide a description of the loading, unloading and processing areas.

23. Provide a description of the leachate control system that will be used to prevent discharge of leachate to the environment and mixing of leachate with stormwater. Note: Ground water monitoring may be required for the facility depending on the method of leachate control used.

24. Provide an operation plan for the facility which includes: (1) a description of general facility operations, the number of personnel responsible for the operations including their respective job descriptions, and the types of equipment that will be used at the facility; (2) procedures to ensure any unauthorized wastes received at the site will be properly managed; (3) a contingency plan to cover operation interruptions and emergencies such as fires, explosions, or natural disasters; (4) procedures to ensure operational records needed for the facility will be adequately prepared and maintained; and (5) procedures to ensure that the wastes and final residue will be managed to not be expected to cause pollution.

25. Provide a closure plan that describes the procedures that will be implemented when the facility closes including: (1) estimated time to complete closure; (2) procedures for removing and properly managing or disposing of all wastes and final residues; (3) notification of the Department upon ceasing operations and completion of final closure.

D. PROHIBITIONS (62-701.300, FAC)

S	LOCATION	N/A	N/C		
__	_____	✔	___	1.	Provide documentation that each of the siting criteria will be satisfied for the facility; (62-701.300(2), FAC)
__	_____	✔	___	2.	If the facility qualifies for any of the exemptions contained in Rules 62-701.300(12) through (16), FAC, then document this qualification(s).
__	_____	✔	___	3.	Provide documentation that the facility will be in compliance with the burning restrictions; (62-701.300(3), FAC)
__	_____	✔	___	4.	Provide documentation that the facility will be in compliance with the hazardous waste restrictions; (62-701.300(4), FAC)
__	_____	✔	___	5.	Provide documentation that the facility will be in compliance with the PCB disposal restrictions; (62-701.300(5), FAC)
__	_____	✔	___	6.	Provide documentation that the facility will be in compliance with the biomedical waste restrictions; (62-701.300(6), FAC)
__	_____	✔	___	7.	Provide documentation that the facility will be in compliance with the Class I surface water restrictions; (62-701.300(7), FAC)
__	_____	✔	___	8.	Provide documentation that the facility will be in compliance with the special waste for landfills restrictions; (62-701.300(8), FAC)
__	_____	✔	___	9.	Provide documentation that the facility will be in compliance with the special waste for waste-to-energy facilities restrictions; (62-701.300(9), FAC)
__	_____	✔	___	10.	Provide documentation that the facility will be in compliance with the liquid restrictions; (62-701.300(10), FAC)
__	_____	✔	___	11.	Provide documentation that the facility will be in compliance with the used oil restrictions; (62-701.300(11), FAC)

E. SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL (62-701.320, FAC)

S	LOCATION	N/A	N/C		
___	_____	___	___	1.	Four copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320(5)(a),FAC)
___	_____	___	___	2.	Engineering and/or professional certification (signature, date and seal) provided on the applications and all engineering plans, reports and supporting information for the application; (62-701.320(6),FAC)
___	_____	___	___	3.	A letter of transmittal to the Department; (62-701.320(7)(a),FAC)
___	_____	___	___	4.	A completed application form dated and signed by the applicant; (62-701.320(7)(b),FAC)
___	_____	___	___	5.	Permit fee specified in Rule 62-701.315, FAC in check or money order, payable to the Department; (62-701.320(7)(c),FAC)
___	See transmittal	___	___	6.	An engineering report addressing the requirements of this rule and with the following format: a cover sheet, text printed on 8 1/2 inch by 11 inch consecutively numbered pages, a table of contents or index, the body of the report and all appendices including an operation plan, contingency plan, illustrative charts and graphs, records or logs of tests and investigations, engineering calculations; (62-701.320(7)(d),FAC)
___	_____	___	✔	7.	Operation Plan and Closure Plan; (62-701.320(7)(e)1,FAC)
___	_____	___	✔	8.	Contingency Plan; (62-701.320(7)(e)2,FAC)
				9.	Plans or drawings for the solid waste management facilities in appropriate format (including sheet size restrictions, cover sheet, legends, north arrow, horizontal and vertical scales, elevations referenced to NGVD 1929) showing; (62-702.320(7)(f),FAC)
___	_____	___	✔		a. A regional map or plan with the project location;
___	_____	___	✔		b. A vicinity map or aerial photograph no more than 1 year old;
___	_____	___	✔		c. A site plan showing all property boundaries certified by a registered Florida land surveyor;

S	LOCATION	N/A	N/C		PART E CONTINUED
___	_____	✔	___		d. Other necessary details to support the engineering report.
___	_____	___	✔	10.	Documentation that the applicant either owns the property or has legal authority from the property owner to use the site; (62-701.320(7)(g),FAC)
___	_____	___	✔	11.	For facilities owned or operated by a county, provide a description of how, if any, the facilities covered in this application will contribute to the county's achievement of the waste reduction and recycling goals contained in Section 403.706,FS; (62-701.320(7)(h),FAC)
___	_____	___	✔	12.	Provide a history and description of any enforcement actions taken by the Department against the applicant for violations of applicable statutes, rules, orders or permit conditions relating to the operation of any solid waste management facility in this state; (62-701.320(7)(i),FAC)
___	_____	___	✔	13.	Proof of publication in a newspaper of general circulation of notice of application for a permit to construct or substantially modify a solid waste management facility; (62-702.320(8),FAC)
___	_____	___	✔	14.	Provide a description of how the requirements for airport safety will be achieved including proof of required notices if applicable. If exempt, explain how the exemption applies; (62-701.320(13),FAC)
___	_____	___	✔	15.	Explain how the operator training requirements will be satisfied for the facility; (62-701.320(15), FAC)

F. LANDFILL PERMIT REQUIREMENTS (62-701.330, FAC)

S	LOCATION	N/A	N/C		
___	_____	✔	___	1.	Vicinity map or aerial photograph no more than 1 year old and of appropriate scale showing land use and local zoning within one mile of the landfill and of sufficient scale to show all homes or other structures, water bodies, and roads other significant features of the vicinity. All significant features shall be labeled; (62-701.330(3)(a),FAC)
___	_____	✔	___	2.	Vicinity map or aerial photograph no more than 1 year old showing all airports that are located within five miles of the proposed landfill; (62-701.330(3)(b),FAC)
___	_____	___	✔	3.	Plot plan with a scale not greater than 200 feet to the inch showing; (62-701.330(3)(c),FAC)
___	_____	___	✔		a. Dimensions;
___	_____	___	✔		b. Locations of proposed and existing water quality monitoring wells;
___	_____	___	✔		c. Locations of soil borings;
___	_____	___	✔		d. Proposed plan of trenching or disposal areas;
___	_____	___	✔		e. Cross sections showing original elevations and proposed final contours which shall be included either on the plot plan or on separate sheets;
___	_____	___	✔		f. Any previously filled waste disposal areas;
___	_____	___	✔		g. Fencing or other measures to restrict access.
				4.	Topographic maps with a scale not greater than 200 feet to the inch with 5-foot contour intervals showing; (62-701.330(3)(d),FAC):
___	_____	✔	___		a. Proposed fill areas;
___	_____	✔	___		b. Borrow areas;
___	_____	✔	___		c. Access roads;
___	_____	✔	___		d. Grades required for proper drainage;
___	_____	✔	___		e. Cross sections of lifts;

S	LOCATION	N/A	N/C		PART F CONTINUED
___	_____	✔	___		f. Special drainage devices if necessary;
___	_____	✔	___		g. Fencing;
___	_____	✔	___		h. Equipment facilities.
				5.	A report on the landfill describing the following; (62-701.330(3)(e),FAC)
___	_____	✔	___		a. The current and projected population and area to be served by the proposed site;
___	_____	✔	___		b. The anticipated type, annual quantity, and source of solid waste, expressed in tons;
___	_____	✔	___		c. The anticipated facility life;
___	_____	✔	___		d. The source and type of cover material used for the landfill.
___	_____	✔	___	6.	Provide evidence that an approved laboratory shall conduct water quality monitoring for the facility in accordance with Chapter 62-160,FAC; (62-701.330(3)(h),FAC)
___	_____	✔	___	7.	Provide a statement of how the applicant will demonstrate financial responsibility for the closing and long-term care of the landfill; (62-701.330(3)(i),FAC)

G. GENERAL CRITERIA FOR LANDFILLS (62-701.340,FAC)

___	_____	___	✔	1.	Describe (and show on a Federal Insurance Administration flood map, if available) how the landfill or solid waste disposal unit shall not be located in the 100-year floodplain where it will restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain unless compensating storage is provided, or result in a washout of solid waste; (62-701.340(4)(b),FAC)
___	_____	___	✔	2.	Describe how the minimum horizontal separation between waste deposits in the landfill and the landfill property boundary shall be 100 feet, measured from the toe of the proposed final cover slope; (62-701.340(4)(c),FAC)
___	_____	___	✔	3.	Describe what methods shall be taken to screen the landfill from public view where such screening can practically be provided; (62-701.340(4)(d),FAC)

H. LANDFILL CONSTRUCTION REQUIREMENTS (62-701.400,FAC)

S	LOCATION	N/A	N/C	
___	_____	___	✔	1. Describe how the landfill shall be designed so that solid waste disposal units will be constructed and closed at planned intervals throughout the design period of the landfill; (62-701.400(2),FAC)
				2. Landfill liner requirements; (62-701.400(3),FAC)
				a. General construction requirements; (62-701.400(3)(a),FAC):
___	_____	___	___	(1) Provide test information and documentation to ensure the liner will be constructed of materials that have appropriate physical, chemical, and mechanical properties to prevent failure;
___	_____	___	___	(2) Document foundation is adequate to prevent liner failure;
___	_____	___	___	(3) Constructed so bottom liner will not be adversely impacted by fluctuations of the ground water;
___	_____	___	___	(4) Designed to resist hydrostatic uplift if bottom liner located below seasonal high ground water table;
___	_____	___	___	(5) Installed to cover all surrounding earth which could come into contact with the waste or leachate.
				b. Composite liners; (62-701.400(3)(b),FAC)
___	_____	✔	___	(1) Upper geomembrane thickness and properties;
___	_____	✔	___	(2) Design leachate head for primary LCRS including leachate recirculation if appropriate;
___	_____	✔	___	(3) Design thickness in accordance with Table A and number of lifts planned for lower soil component.

S	LOCATION	N/A	N/C	PART H CONTINUED
				c. Double liners; (62-701.400(3)(c),FAC)
___	_____	✔	___	(1) Upper and lower geomembrane thicknesses and properties;
___	_____	✔	___	(2) Design leachate head for primary LCRS to limit the head to one foot above the liner;
___	_____	✔	___	(3) Lower geomembrane sub-base design;
___	_____	✔	___	(4) Leak detection and secondary leachate collection system minimum design criteria ($k \geq 10$ cm/sec, head on lower liner ≤ 1 inch, head not to exceed thickness of drainage layer);
				d. Standards for geosynthetic components; (62-701.400(3)(d),FAC)
___	_____	✔	___	(1) Field seam test methods to ensure all field seams are at least 90 percent of the yield strength for the lining material;
___	_____	✔	___	(2) Geomembranes to be used shall pass a continuous spark test by the manufacturer;
___	_____	✔	___	(3) Design of 24-inch-thick protective layer above upper geomembrane liner;
___	_____	✔	___	(4) Describe operational plans to protect the liner and leachate collection system when placing the first layer of waste above 24-inch-thick protective layer.
___	_____	✔	___	(5) HDPE geomembranes, if used, meet the specifications in GRI GM13;
___	_____	✔	___	(6) PVC geomembranes, if used, meet the specifications in PGI 1197;
___	_____	✔	___	(7) Interface shear strength testing results of the actual components which will be used in the liner system;
___	_____	✔	___	(8) Transmissivity testing results of geonets if they are used in the liner system;
___	_____	✔	___	(9) Hydraulic conductivity testing results of geosynthetic clay liners if they are used in the liner system;

S	LOCATION	N/A	N/C	PART H CONTINUED
				e. Geosynthetic specification requirements; (62-701.400(3)(e),FAC)
___	_____	✔	___	(1) Definition and qualifications of the designer, manufacturer, installer, QA consultant and laboratory, and QA program;
___	_____	✔	___	(2) Material specifications for geomembranes, geocomposites, geotextiles, geogrids, and geonets;
___	_____	✔	___	(3) Manufacturing and fabrication specifications including geomembrane raw material and roll QA, fabrication personnel qualifications, seaming equipment and procedures, overlaps, trial seams, destructive and nondestructive seam testing, seam testing location, frequency, procedure, sample size and geomembrane repairs;
___	_____	✔	___	(4) Geomembrane installation specifications including earthwork, conformance testing, geomembrane placement, installation personnel qualifications, field seaming and testing, overlapping and repairs, materials in contact with geomembrane and procedures for lining system acceptance;
___	_____	✔	___	(5) Geotextile and geogrid specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials and any overlying materials;
___	_____	✔	___	(6) Geonet and geocomposite specifications including handling and placement, conformance testing, stacking and joining, repair, and placement of soil materials and any overlying materials;
	_____	✔	___	(7) Geosynthetic clay liner specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil material and any overlying materials;
				f. Standards for soil components (62-710.400(3)(f),FAC):
___	_____	✔	___	(1) Description of construction procedures including overexcavation and backfilling to preclude structural inconsistencies and procedures for placing and compacting soil component in layers;

S	LOCATION	N/A	N/C
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___

PART H CONTINUED

(2) Demonstration of compatibility of the soil component with actual or simulated leachate in accordance with EPA Test Method 9100 or an equivalent test method;

(3) Procedures for testing in-situ soils to demonstrate they meet the specifications for soil liners;

(4) Specifications for soil component of liner including at a minimum:

(a) Allowable particle size distribution, Atterberg limits, shrinkage limit;

(b) Placement moisture and dry density criteria;

(c) Maximum laboratory-determined saturated hydraulic conductivity using simulated leachate;

(d) Minimum thickness of soil liner;

(e) Lift thickness;

(f) Surface preparation (scarification);

(g) Type and percentage of clay mineral within the soil component;

(5) Procedures for constructing and using a field test section to document the desired saturated hydraulic conductivity and thickness can be achieved in the field.

3. Leachate collection and removal system (LCRS); (62-701.400(4),FAC)

a. The primary and secondary LCRS requirements; (62-701.400(4)(a),FAC)

(1) Constructed of materials chemically resistant to the waste and leachate;

(2) Have sufficient mechanical properties to prevent collapse under pressure;

(3) Have granular material or synthetic geotextile to prevent clogging;

(4) Have method for testing and cleaning clogged pipes or contingent designs for rerouting leachate around failed areas;

S	LOCATION	N/A	N/C	
				PART H CONTINUED
				b. Primary LCRS requirements; (62-701.400(4)(b),FAC)
___	_____	✔	___	(1) Bottom 12 inches having hydraulic conductivity $\geq 1 \times 10^{-3}$ cm/sec;
___	_____	✔	___	(2) Total thickness of 24 inches of material chemically resistant to the waste and leachate;
___	_____	✔	___	(3) Bottom slope design to accomodate for predicted settlement;
___	_____	✔	___	(4) Demonstration that synthetic drainage material, if used, is equivalent or better than granular material in chemical compatibility, flow under load and protection of geomembrane liner.
				4. Leachate recirculation; (62-701.400(5),FAC)
___	_____	✔	___	a. Describe general procedures for recirculating leachate;
___	_____	✔	___	b. Describe procedures for controlling leachate runoff and minimizing mixing of leachate runoff with storm water;
___	_____	✔	___	c. Describe procedures for preventing perched water conditions and gas buildup;
___	_____	✔	___	d. Describe alternate methods for leachate management when it cannot be recirculated due to weather or runoff conditions, surface seeps, wind-blown spray, or elevated levels of leachate head on the liner;
___	_____	✔	___	e. Describe methods of gas management in accordance with Rule 62-701.530, FAC;
___	_____	✔	___	f. If leachate irrigation is proposed, describe treatment methods and standards for leachate treatment prior to irrigation over final cover and provide documentation that irrigation does not contribute significantly to leachate generation.

S	LOCATION	N/A	N/C	PART H CONTINUED
				5. Leachate storage tanks and leachate surface impoundments; (62-701.400(6),FAC)
				a. Surface impoundment requirements; (62-701.400(6)(b),FAC)
___	_____	✔	___	(1) Documentation that the design of the bottom liner will not be adversely impacted by fluctuations of the ground water;
___	_____	✔	___	(2) Designed in segments to allow for inspection and repair as needed without interruption of service;
				(3) General design requirements;
___	_____	✔	___	(a) Double liner system consisting of an upper and lower 60-mil minimum thickness geomembrane;
___	_____	✔	___	(b) Leak detection and collection system with hydraulic conductivity $\geq$ 1 cm/sec;
___	_____	✔	___	(c) Lower geomembrane placed on subbase $\geq$ 6 inches thick with k $\leq$ $1x10^{-5}$ cm/sec or on an approved geosynthetic clay liner with k $\leq$ $1x10^{-7}$ cm/sec;
___	_____	✔	___	(d) Design calculation to predict potential leakage through the upper liner;
___	_____	✔	___	(e) Daily inspection requirements and notification and corrective action requirements if leakage rates exceed that predicted by design calculations;
___	_____	✔	___	(4) Description of procedures to prevent uplift, if applicable;
___	_____	✔	___	(5) Design calculations to demonstrate minimum two feet of freeboard will be maintained;
___	_____	✔	___	(6) Procedures for controlling disease vectors and off-site odors.

S	LOCATION	N/A	N/C
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___

PART H CONTINUED

b. Above-ground leachate storage tanks; (62-701.400(6)(c),FAC)

(1) Describe tank materials of construction and ensure foundation is sufficient to support tank;

(2) Describe procedures for cathodic protection if needed for the tank;

(3) Describe exterior painting and interior lining of the tank to protect it from the weather and the leachate stored;

(4) Describe secondary containment design to ensure adequate capacity will be provided and compatibility of materials of construction;

(5) Describe design to remove and dispose of stormwater from the secondary containment system;

(6) Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling;

(7) Inspections, corrective action and reporting requirements;

(a) Overfill prevention system weekly;

(b) Exposed tank exteriors weekly;

(c) Tank interiors when tank is drained or at least every three years;

(d) Procedures for immediate corrective action if failures detected;

(e) Inspection reports available for department review.

c. Underground leachate storage tanks; (62-701.400(6)(d),FAC)

(1) Describe materials of construction;

(2) A double-walled tank design system to be used with the following requirements;

S	LOCATION	N/A	N/C
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___

PART H CONTINUED

(a) Interstitial space monitoring at least weekly;

(b) Corrosion protection provided for primary tank interior and external surface of outer shell;

(c) Interior tank coatings compatible with stored leachate;

(d) Cathodic protection inspected weekly and repaired as needed;

(3) Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling and provide for weekly inspections;

(4) Inspection reports available for department review.

d. Schedule provided for routine maintenance of LCRS; (62-701.400(6)(e),FAC)

6. Liner systems construction quality assurance (CQA); (62-701.400(7),FAC)

a. Provide CQA Plan including:

(1) Specifications and construction requirements for liner system;

(2) Detailed description of quality control testing procedures and frequencies;

(3) Identification of supervising professional engineer;

(4) Identify responsibility and authority of all appropriate organizations and key personnel involved in the construction project;

(5) State qualifications of CQA professional engineer and support personnel;

(6) Description of CQA reporting forms and documents;

S	LOCATION	N/A	N/C	PART H CONTINUED
___	_____	✔	___	b. An independent laboratory experienced in the testing of geosynthetics to perform required testing;
				7. Soil Liner CQA (62-701.400(8)FAC)
___	_____	✔	___	a. Documentation that an adequate borrow source has been located with test results or description of the field exploration and laboratory testing program to define a suitable borrow source;
___	_____	✔	___	b. Description of field test section construction and test methods to be implemented prior to liner installation;
___	_____	✔	___	c. Description of field test methods including rejection criteria and corrective measures to insure proper liner installation.
				8. Surface water management systems; (62-701.400(9),FAC)
___	_____	✔	___	a. Provide a copy of a Department permit for stormwater control or documentation that no such permit is required;
___	_____	✔	___	b. Design of surface water management system to isolate surface water from waste filled areas and to control stormwater run-off;
___	_____	✔	___	c. Details of stormwater control design including retention ponds, detention ponds, and drainage ways;
				9. Gas control systems; (62-701.400(10),FAC)
___	_____	✔	___	a. Provide documentation that if the landfill is receiving degradable wastes, it will have a gas control system complying with the requirements of Rule 62-701.530, FAC;
___	_____	✔	___	10. For landfills designed in ground water, provide documentation that the landfill will provide a degree of protection equivalent to landfills designed with bottom liners not in contact with ground water; (62-701.400(11),FAC)

I. HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS (62-701.410(1), FAC)

S	LOCATION	N/A	N/C		
				1.	Submit a hydrogeological investigation and site report including at least the following information:
___	_____	✔	___		a. Regional and site specific geology and hydrogeology;
___	_____	✔	___		b. Direction and rate of ground water and surface water flow including seasonal variations;
___	_____	✔	___		c. Background quality of ground water and surface water;
___	_____	✔	___		d. Any on-site hydraulic connections between aquifers;
___	_____	✔	___		e. Site stratigraphy and aquifer characteristics for confining layers, semi-confining layers, and all aquifers below the landfill site that may be affected by the landfill;
___	_____	✔	___		f. Description of topography, soil types and surface water drainage systems;
___	_____	✔	___		g. Inventory of all public and private water wells within a one-mile radius of the landfill including, where available, well top of casing and bottom elevations, name of owner, age and usage of each well, stratigraphic unit screened, well construction technique and static water level;
___	_____	✔	___		h. Identify and locate any existing contaminated areas on the site;
___	_____	✔	___		i. Include a map showing the locations of all potable wells within 500 feet, and all community water suupply wells within 1000 feet, of the waste storage and disposal areas;
___	_____	✔	___	2.	Report signed, sealed and dated by PE or PG.

J. GEOTECHNICAL INVESTIGATION REQUIREMENTS (62-701.410(2),FAC)

S	LOCATION	N/A	N/C		
				1.	Submit a geotechnical site investigation report defining the engineering properties of the site including at least the following:
___	_____	✔	___		a. Description of subsurface conditions including soil stratigraphy and ground water table conditions;
___	_____	✔	___		b. Investigate for the presence of muck, previously filled areas, soft ground, lineaments and sink holes;
___	_____	✔	___		c. Estimates of average and maximum high water table across the site;
					d. Foundation analysis including:
___	_____	✔	___		(1) Foundation bearing capacity analysis;
___	_____	✔	___		(2) Total and differential subgrade settlement analysis;
___	_____	✔	___		(3) Slope stability analysis;
___	_____	✔	___		e. Description of methods used in the investigation and includes soil boring logs, laboratory results, analytical calculations, cross sections, interpretations and conclusions;
___	_____	✔	___		f. An evaluation of fault areas, seismic impact zones, and unstable areas as described in 40 CFR 258.13, 40 CFR 258.14 and 40 CFR 258.15.
___	_____	✔	___	2.	Report signed, sealed and dated by PE or PG.

K. VERTICAL EXPANSION OF LANDFILLS (62-701.430,FAC)

S	LOCATION	N/A	N/C		
___	_____	✔	___	1.	Describe how the vertical expansion shall not cause or contribute to leachate leakage from the existing landfill or adversely affect the closure design of the existing landfill;
___	_____	✔	___	2.	Describe how the vertical expansion over unlined landfills will meet the requirements of Rule 62-701.400, FAC with the exceptions of Rule 62-701.430(1)(c),FAC;
___	See 5/11/01 Report	___	✔	3.	Provide foundation and settlement analysis for the vertical expansion;
___	See 5/11/01 Report	___	✔	4.	Provide total settlement calculations demonstrating that the final elevations of the lining system, that gravity drainage, and that no other component of the design will be adversely affected;
___	See 5/11/01 Report	___	✔	5.	Minimum stability safety factor of 1.5 for the lining system component interface stability and deep stability;
___	_____	___	✔	6.	Provide documentation to show the surface water management system will not be adversely affected by the vertical expansion;
___	_____	✔	___	7.	Provide gas control designs to prevent accumulation of gas under the new liner for the vertical expansion.

L. LANDFILL OPERATION REQUIREMENTS (62-701.500,FAC)

___	_____	___	✔	1.	Provide documentation that landfill will have at least one trained operator during operation and at least one trained spotter at each working face; (62-701.500(1),FAC)
				2.	Provide a landfill operation plan including procedures for: (62-701.500(2), FAC)
___	_____	___	✔	a.	Designating responsible operating and maintenance personnel;
___	_____	___	✔	b.	Contingency operations for emergencies;
___	_____	___	✔	c.	Controlling types of waste received at the landfill;
___	_____	___	✔	d.	Weighing incoming waste;
___	_____	___	✔	e.	Vehicle traffic control and unloading;
___	_____	___	✔	f.	Method and sequence of filling waste;
___	_____	___	✔	g.	Waste compaction and application of cover;
___	_____	___	✔	h.	Operations of gas, leachate, and stormwater controls;
___	_____	___	✔	i.	Water quality monitoring.
___	_____	___	✔	j.	Maintaining and cleaning the leachate collection system;
___	_____	___	✔	3.	Provide a description of the landfill operation record to be used at the landfill; details as to location of where various operational records will be kept (i.e. FDEP permit, engineering drawings, water quality records, etc.) (62-701.500(3),FAC)
___	_____	___	✔	4.	Describe the waste records that will be compiled monthly and provided to the Department quarterly; (62-701.500(4),FAC)
___	_____	___	✔	5.	Describe methods of access control; (62-701.500(5),FAC)
___	_____	___	✔	6.	Describe load checking program to be implemented at the landfill to discourage disposal of unauthorized wastes at the landfill; (62-701.500(6),FAC)
				7.	Describe procedures for spreading and compacting waste at the landfill that include: (62-701.500(7),FAC)
___	_____	___	✔	a.	Waste layer thickness and compaction frequencies;

S	LOCATION	N/A	N/C	PART L CONTINUED
___	_____	___	✔	b. Special considerations for first layer of waste placed above liner and leachate collection system;
___	_____	___	✔	c. Slopes of cell working face and side grades above land surface, planned lift depths during operation;
___	_____	___	✔	d. Maximum width of working face;
				e. Description of type of initial cover to be used at the facility that controls:
___	_____	___	✔	(1) Disease vector breeding/animal attraction
___	_____	___	✔	(2) Fires
___	_____	___	✔	(3) Odors
___	_____	___	✔	(4) Blowing litter
___	_____	___	✔	(5) Moisture infiltration
___	_____	___	✔	f. Procedures for applying initial cover including minimum cover frequencies;
___	_____	___	✔	g. Procedures for applying intermediate cover;
___	_____	___	✔	h. Time frames for applying final cover;
___	_____	___	✔	i. Procedures for controlling scavenging and salvaging.
___	_____	___	✔	j. Description of litter policing methods;
___	_____	___	✔	k. Erosion control procedures.
				8. Describe operational procedures for leachate management including; (62-701.500(8),FAC)
___	_____	✔	___	a. Leachate level monitoring, sampling, analysis and data results submitted to the Department;
___	_____	✔	___	b. Operation and maintenance of leachate collection and removal system, and treatment as required;
___	_____	✔	___	c. Procedures for managing leachate if it becomes regulated as a hazardous waste;
___	_____	✔	___	d. Agreements for off-site discharge and treatment of leachate;
___	_____	✔	___	e. Contingency plan for managing leachate during emergencies or equipment problems;

S	LOCATION	N/A	N/C	PART L CONTINUED
___	_____	___	✔	f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;
___	_____	___	✔	g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates and including this information in the operating record;
___	_____	___	✔	h. Procedures for water pressure cleaning or video inspecting leachate collection systems.
___	_____	___	✔	9. Describe how the landfill receiving degradable wastes shall implement a gas management system meeting the requirements of Rule 62-701.530, FAC; (62-701.500(9),FAC)
___	_____	___	✔	10. Describe procedures for operating and maintaining the landfill stormwater management system to comply with the requirements of Rule 62-701.400(9); (62-701.500(10),FAC)
				11. Equipment and operation feature requirements; (62-701.500(11),FAC)
___	_____	___	✔	a. Sufficient equipment for excavating, spreading, compacting and covering waste;
___	_____	___	✔	b. Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;
___	_____	___	✔	c. Communications equipment;
___	_____	___	✔	d. Dust control methods;
___	_____	___	✔	e. Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;
___	_____	___	✔	f. Litter control devices;
___	_____	___	✔	g. Signs indicating operating authority, traffic flow, hours of operation, disposal restrictions.
___	_____	___	✔	12. Provide a description of all-weather access road, inside perimeter road and other roads necessary for access which shall be provided at the landfill; (62-701.500(12),FAC)
___	_____	___	✔	13. Additional record keeping and reporting requirements; (62-701.500(13),FAC)

S	LOCATION	N/A	N/C
___	_____	___	✔
___	_____	___	✔
___	_____	___	✔
___	_____	___	✔

PART L CONTINUED

a. Records used for developing permit applications and supplemental information maintained for the design period of the landfill;

b. Monitoring information, calibration and maintenance records, copies of reports required by permit maintained for at least 10 years;

c. Maintain annual estimates of the remaining life of constructed landfills and of other permitted areas not yet constructed and submit this estimate annually to the Department;

d. Procedures for archiving and retrieving records which are more than five year old.

M. WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS (62-701.510, FAC)

S	LOCATION	N/A	N/C	
___	_____	✔	___	1. Water quality and leachate monitoring plan shall be submitted describing the proposed ground water, surface water and leachate monitoring systems and shall meet at least the following requirements;
___	_____	✔	___	a. Based on the information obtained in the hydrogeological investigation and signed, dated and sealed by the PG or PE who prepared it; (62-701.510(2)(a),FAC)
___	_____	✔	___	b. All sampling and analysis preformed in accordance with Chapter 62-160, FAC; (62-701.510(2)(b),FAC)
				c. Ground water monitoring requirements; (62-701.510(3),FAC)
___	_____	✔	___	(1) Detection wells located downgradient from and within 50 feet of disposal units;
___	_____	✔	___	(2) Downgradient compliance wells as required;
___	_____	✔	___	(3) Background wells screened in all aquifers below the landfill that may be affected by the landfill;
___	_____	✔	___	(4) Location information for each monitoring well;
___	_____	✔	___	(5) Well spacing no greater than 500 feet apart for downgradient wells and no greater than 1500 feet apart for upgradient wells unless site specific conditions justify alternate well spacings;
___	_____	✔	___	(6) Well screen locations properly selected;
___	_____	✔	___	(7) Procedures for properly abandoning monitoring wells;
___	_____	✔	___	(8) Detailed description of detection sensors if proposed.

S	LOCATION	N/A	N/C
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___
___	_____	✔	___

PART M CONTINUED

d. Surface water monitoring requirements; (62-701.510(4),FAC)

(1) Location of and justification for all proposed surface water monitoring points;

(2) Each monitoring location to be marked and its position determined by a registered Florida land surveyor;

e. Leachate sampling locations proposed; (62-701.510(5),FAC)

f. Initial and routine sampling frequency and requirements; (62-701.510(6),FAC)

(1) Initial background ground water and surface water sampling and analysis requirements;

(2) Routine leachate sampling and analysis requirements;

(3) Routine monitoring well sampling and analysis requirements;

(4) Routine surface water sampling and analysis requirements.

g. Describe procedures for implementing evaluation monitoring, prevention measures and corrective action as required; (62-701.510(7),FAC)

h. Water quality monitoring report requirements; (62-701.510(9),FAC)

(1) Semi-annual report requirements;

(2) Bi-annual report requirements signed, dated and sealed by PG or PE.

N. SPECIAL WASTE HANDLING REQUIREMENTS (62-701.520, FAC)

S	LOCATION	N/A	N/C		
___	_____	✔	___	1.	Describe procedures for managing motor vehicles; (62-701.520(1),FAC)
___	_____	✔	___	2.	Describe procedures for landfilling shredded waste; (62-701.520(2),FAC)
___	_____	✔	___	3.	Describe procedures for asbestos waste disposal; (62-701.520(3),FAC)
___	_____	✔	___	4.	Describe procedures for disposal or management of contaminated soil; (62-701.520(4), FAC)
___	_____	✔	___	5.	Describe procedures for disposal of biological wastes; (62-701.520(5), FAC)

O. GAS MANAGEMENT SYSTEM REQUIREMENTS (62-701.530,FAC)

				1.	Provide the design for a gas management systems that will (62-701.530(1), FAC):
___	_____	✔	___	a.	Be designed to prevent concentrations of combustible gases from exceeding 25% the LEL in structures and 100% the LEL at the property boundary;
___	_____	✔	___	b.	Be designed for site-specific conditions;
___	_____	✔	___	c.	Be designed to reduce gas pressure in the interior of the landfill;
___	_____	✔	___	d.	Be designed to not interfere with the liner, leachate control system or final cover.
___	_____	✔	___	2.	Provide documentation that will describe locations, construction details and procedures for monitoring gas at ambient monitoring points and with soil monitoring probes; (62-701.530(2), FAC):
___	_____	✔	___	3.	Provide documentation describing how the gas remediation plan and odor remediation plan will be implemented; (62-701.530(3), FAC):
				4.	Landfill gas recovery facilities; (62-701.530(5), FAC):
___	_____	✔	___	a.	Information required in Rules 62-701.320(7) and 62-701.330(3), FAC supplied;
___	_____	✔	___	b.	Information required in Rule 62-701.600(4), FAC supplied where relevant and practical;
___	_____	✔	___	c.	Estimate of current and expected gas generation rates and description of condensate disposal methods provided;

S	LOCATION	N/A	N/C		
					PART O CONTINUED
___	_____	✔	___	d.	Description of procedures for condensate sampling, analyzing and data reporting provided;

___	_____	✔	___	e. Closure plan provided describing methods to control gas after recovery facility ceases operation and any other requirements contained in Rule 62-701.400(10), FAC;
___	_____	✔	___	f. Performance bond provided to cover closure costs if not already included in other landfill closure costs.

P. LANDFILL FINAL CLOSURE REQUIREMENTS (62-701.600,FAC)

1. Closure schedule requirements; (62-701.600(2),FAC)

___	_____	✔	___	a. Documentation that a written notice including a schedule for closure will be provided to the Department at least one year prior to final receipt of wastes;
___	_____	✔	___	b. Notice to user requirements within 120 days of final receipt of wastes;
___	_____	✔	___	c. Notice to public requirements within 10 days of final receipt of wastes.

2. Closure permit general requirements; (62-701.600(3),FAC)

___	_____	✔	___	a. Application submitted to Department at least 90 days prior to final receipt of wastes;
				b. Closure plan shall include the following:
___	_____	✔	___	(1) Closure report;
___	_____	✔	___	(2) Closure design plan;
___	_____	✔	___	(3) Closure operation plan;
___	_____	✔	___	(4) Closure procedures;
___	_____	✔	___	(5) Plan for long term care;
___	_____	✔	___	(6) A demonstration that proof of financial responsibility for long term care will be provided.

3. Closure report requirements; (62-701.600(4),FAC)

				a. General information requirements;
___	_____	✔	___	(1) Identification of landfill;

S	LOCATION	N/A	N/C	
___	_____	✔	___	(2) Location, description and vicinity map;
___	_____	✔	___	(3) Total acres of disposal areas and landfill property;
___	_____	✔	___	(4) Legal property description;
___	_____	✔	___	(5) History of landfill;
___	_____	✔	___	(6) Identification of types of waste disposed of at the landfill.
___	_____	✔	___	b. Geotechnical investigation report and water quality monitoring plan required by Rule 62-701.330(3),FAC;
___	_____	✔	___	c. Land use information report indicating: identification of adjacent landowners; zoning; present land uses; and roads, highways right-of-way, or easements.
___	_____	✔	___	d. Report on actual or potential gas migration at landfills containing degradable wastes which would allow migration of gas off the landfill property;
___	_____	✔	___	e. Report assessing the effectiveness of the landfill design and operation including results of geotechnical investigations, surface water and storm water management, gas migration and concentrations, condition of existing cover, and nature of waste disposed of at the landfill;
				4. Closure design requirements to be included in the closure design plan: (62-701.600(5),FAC)
___	_____	✔	___	a. Plan sheet showing phases of site closing;
___	_____	✔	___	b. Drawings showing existing topography and proposed final grades;
___	_____	✔	___	c. Provisions to close units when they reach approved design dimensions;
___	_____	✔	___	d. Final elevations before settlement;
___	_____	✔	___	e. Side slope design including benches, terraces, down slope drainage ways, energy dissipators and discussion of expected precipitation effects;
___	_____	✔	___	f. Final cover installation plans including:
				(1) CQA plan for installing and testing final cover;

S	LOCATION	N/A	N/C	
___	_____	✔	___	(2) Schedule for installing final cover after final receipt of waste;
___	_____	✔	___	(3) Description of drought-resistant species to be used in the vegetative cover;
___	_____	✔	___	(4) Top gradient design to maximize runoff and minimize erosion;
___	_____	✔	___	(5) Provisions for cover material to be used for final cover maintenance.
				g. Final cover design requirements:
___	_____	✔	___	(1) Protective soil layer design;
___	_____	✔	___	(2) Barrier soil layer design;
___	_____	✔	___	(3) Erosion control vegetation;
___	_____	✔	___	(4) Geomembrane barrier layer design;
__	_____	✔	___	(5) Geosynthetic clay liner design if used;
__	_____	✔	___	(6) Stability analysis of the cover system and the disposed waste.
___	_____	✔	___	h. Proposed method of stormwater control;
___	_____	✔	___	i. Proposed method of access control;
___	_____	✔	___	j. Description of proposed final use of the closed landfill, if any;
__	_____	✔	___	k. Description of the proposed or existing gas management system which complies with Rule 62-701.530, FAC.
				5. Closure operation plan shall include: (62-701.600(6),FAC)
___	_____	✔	___	a. Detailed description of actions which will be taken to close the landfill;
___	_____	✔	___	b. Time schedule for completion of closing and long term care;
___	_____	✔	___	c. Describe proposed method for demonstrating financial responsibility;
___	_____	✔	___	d. Indicate any additional equipment and personnel needed to complete closure.

S	LOCATION	N/A	N/C		PART P CONTINUED
___	_____	✔	___		e. Development and implementation of the water quality monitoring plan required in Rule 62-701.510, FAC.
___	_____	✔	___		f. Development and implementation of gas management system required in Rule 62-701.530, FAC.
___	_____	✔	___	6.	Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (62-701.600(7),FAC)

Q. CLOSURE PROCEDURES (62-701.610,FAC)

S	LOCATION	N/A	N/C		
___	_____	✔	___	1.	Survey monuments; (62-701.610(2),FAC)
___	_____	✔	___	2.	Final survey report; (62-701.610(3),FAC)
___	_____	✔	___	3.	Certification of closure construction completion; (62-701.610(4),FAC)
___	_____	✔	___	4.	Declaration to the public; (62-701.610(5),FAC)
___	_____	✔	___	5.	Official date of closing; (62-701.610(6),FAC)
___	_____	✔	___	6.	Use of closed landfill areas; (62-701.610(7),FAC)
___	_____	✔	___	7.	Relocation of wastes; (62-701.610(8), FAC)

R. LONG TERM CARE REQUIREMENTS (62-701.620,FAC)

___	_____	✔	___	1.	Maintaining the gas collection and monitoring system; (62-701.620(5), FAC)
___	_____	✔	___	2.	Right of property access requirements; (62-701.620(6),FAC)
___	_____	✔	___	3.	Successors of interest requirements; (62-701.620(7),FAC)
___	_____	✔	___	4.	Requirements for replacement of monitoring devices; (62-701.620(9),FAC)
___	_____	✔	___	5.	Completion of long term care signed and sealed by professional engineer (62-701.620(10), FAC).

S. FINANCIAL RESPONSIBILITY REQUIREMENTS (62-701.630,FAC)

___	_____	✔	___	1.	Provide cost estimates for closing, long term care, and corrective action costs estimated by a PE for a third party performing the work, on a per unit basis, with the source of estimates indicated; (62-701.630(3)&(7), FAC).
___	_____	✔	___	2.	Describe procedures for providing annual cost adjustments to the Department based on inflation and changes in the closing, long-term care, and corrective action plans; (62-701.630(4)&(8), FAC).
___	_____	✔	___	3.	Describe funding mechanisms for providing proof of financial assurance and include appropriate financial assurance forms; (62-701.630(5),(6),&(9), FAC).

T. CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

1. Applicant:

The undersigned applicant or authorized representative of Hardee County _____ is aware that statements made in this form and attached information are an application for a Minor Modification Permit from the Florida Department of Environmental Protection and certifies that the information in this application is true, correct and complete to the best of his/her knowledge and belief. Further, the undersigned agrees to comply with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department. It is understood that the Permit is not transferable, and the Department will be notified prior to the sale or legal transfer of the permitted facility.

Janice Williamson
Signature of Applicant or Agent

Janice Williamson, Solid Waste Superintendent
Name and Title (please type)

janice.williamson@hardeecounty.net
E-Mail address (if available)

685 Airport Rd.
Mailing Address

Wauchula, FL 33873
City, State, Zip Code

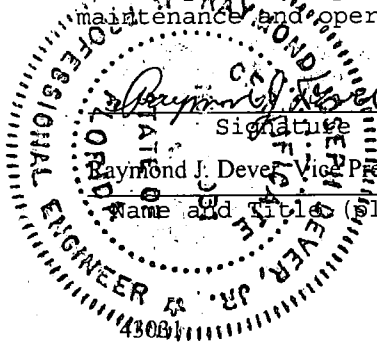
(863) 773-5089
Telephone Number

Date: _____

Attach letter of authorization if agent is not a governmental official, owner, or corporate officer.

2. Professional Engineer registered in Florida (or Public Officer if authorized under Sections 403.707 and 403.7075, Florida Statutes):

This is to certify that the engineering features of this solid waste management facility have been designed/examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgment, this facility, when properly maintained and operated, will comply with all applicable statutes of the State of Florida and rules of the Department. It is agreed that the undersigned will provide the applicant with a set of instructions of proper maintenance and operation of the facility.



Signature

Raymond J. Dever, Vice President
Name and Title (please type)

43081
Florida Registration Number
(please affix seal)

SCS Engineers, 3012 U.S. Hwy 201 N., Suite 700
Mailing Address

Tampa, FL 33619
City, State, Zip Code

rdever@scsengineers.com
E-Mail address (if available)

(813) 621-0080
Telephone Number

Date: October 8, 2002

ATTACHMENT B

CALCULATIONS

SHEET B27

SCS ENGINEERS

SHEET ____ OF ____

CLIENT	PROJECT	JOB NO.
Hardee County	Permit Modification	09199033.03
SUBJECT: Estimate Settlement	BY: [illegible]	DATE: Oct 2000
	CHECKED: [illegible]	DATE: 11/28/00

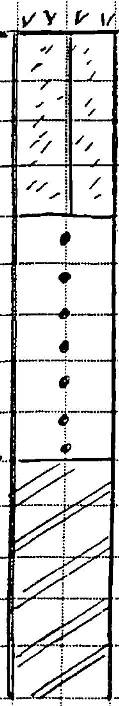
REVISED April 16 2001

Determine conditions prior to excavation of landfill

Based on Hardee County Drawing from Envisons dated Nov 82 the approximate ground elevation was EL 85.0

The approximate groundwater elevation was EL 77

Determine initial stresses in each layer - assume borings by PSI dated 3/97 are representative.



EL 85 — Soil type

9' — SP-SM, SPT N ≈ 9

γ_{dry} 100 lb/ft³, γ_{SAT} 110 lb/ft³ (4.5', 3.5')

$P_{o1} = 4.5(100) = 450\ psf$

EL 76 — 1 foot — GWT EL 77 (1')

6' — SC, SPT N ≈ 10

$\gamma_{dry} = 105$ lb/ft³, $\gamma_{SAT} = 120$ lb/ft³ (3', 3')

$P_{o2} = 4.5(100) + 3.5(100) + 1(110-62.4) + 3(120-62.4) = 1020.4\ psf$

EL 70

10' — CL-CH, SPT N ≈ 20

$\gamma_{dry} = 85$ lb/ft³, $\gamma_{SAT} = 105$ lb/ft³ (5')

$P_{o3} = 1020.4 + 3(120-62.4) + 5(105-62.4) = 1406.2\ psf$

EL 60

SHEET B28

SCS ENGINEERS

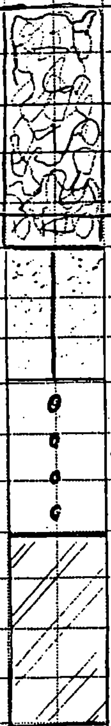
SHEET ______ OF ______

CLIENT Hardee County	PROJECT Permit Modification	JOB NO. 09199033.03
SUBJECT Estimate Settlement	BY JAD	DATE Oct 2000
	CHECKED	DATE

Revised April 16, 2001

Determine Conditions @ Final Buildout (Current & Revised)

Current Buildout Plans / **Revised Buildout Plans**



Current:

EL 141

61.7'

$\gamma_w = 1750\ lb/cy$ ~~(64.8 lb/ft³)~~ (Unit weight ~50 lb/ft³)

EL 79.3 — 1.3'

EL 78

2'

EL 76

6'

EL 70

10'

EL 60

$P_{f1} = 61.7(\cancel{64.8}\ 50) + 1.3(\cancel{64.8}-62.4) + 1.0(110-62.4) = \cancel{4048.9}$ psf — 3132 lb psf

$P_{f2} = 4048.9 + 1(110-62.4) + 3(120-62.4) = \cancel{4269.3}$ psf — 3353 psf

$P_{f3} = 4269.3 + 3(120-62.4) + 5(105-62.4) = \cancel{4655.1}$ psf — 3738.8 psf

Revised:

EL 155

75.7'

EL 79.3 — 1.3'

EL 78

2'

EL 76

6'

EL 70

10'

EL 60

$P_{f1} = 75.7(\cancel{64.8}\ 50) + 1.3(\cancel{64.8}\ 0 - 62.4) + 1(110-62.4) = \cancel{4956.1}$ psf — 3832.6 psf

$P_{f2} = 4956.1 + 1(110-62.4) + 3(120-62.4) = \cancel{5196.5}$ psf — 4053 psf

$P_{f3} = 5176.5 + 3(120-62.4) + 5(105-62.4) = \cancel{5562.3}$ psf — 4438.8 psf

1) Groundwater approximately equal to dewatering ditch elevation on 10/99 survey ditch elevation was approx EL 79.3

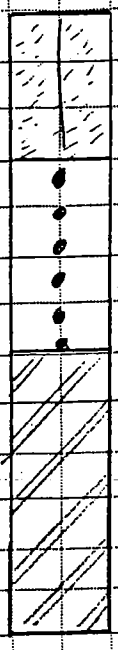
2) Existing ground elevation (EL ~85) was excavated approx 7'-10' down to (EL 77-75), based upon PBSJ drawings dated ______. The average bottom elevations were estimated to be EL 78.0. The excavation depth was based upon the inverts of the perimeter manholes.

SCS ENGINEERS

SHEET ____ OF ____

CLIENT Hardee Co	PROJECT Permit Modification		JOB NO. 09199033.03
SUBJECT Estimated Settlement		BY JHO	DATE Oct 2000
		CHECKED	DATE

Revised April 16 2001

Estimate Compression Index for Soils

EL 79.3

EL 78

2'

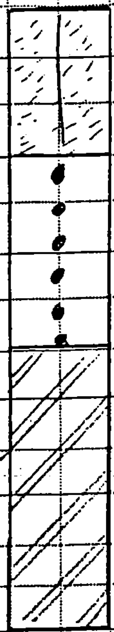
EL 76

6'

EL 70

10'

EL 60



Soil	Unit weights	Notes
SP-SM SPT N~9	$\gamma_{dry} \sim 100$ lb/ft³ $\gamma_{SAT} \sim 110$ lb/ft³	Assumption $D_r \approx 30\%$
SC SPT N~10	$\gamma_{dry} \sim 105$ lb/ft³ $\gamma_{SAT} \sim 120$ lb/ft³	Assumption $D_r \approx 30-40\%$ Say 35%
CL-CH SPT N~20	$\gamma_{dry} \sim 85$ lb/ft³ $\gamma_{SAT} \sim 100$ lb/ft³	PSI LAB RESULTS LL ≈ 128% PL ≈ 39% PI ≈ 89%

Layer (1) SP-SM

Void Ratio (Lambe Whitman) — Source

$D_r \sim 30\%$ 0.9 (e_{max})   0.30 (e_{min})

$$D_R = \frac{e_{max} - e}{e_{max} - e_{min}} \times 100$$

$$\frac{30}{100} = \frac{0.9 - e}{(0.9 - 0.3)}$$

$$0.3(0.6) = 0.9 - e$$

$$0.9 - 0.3(0.6) = e_o$$

$$0.72 = e_o$$

SCS ENGINEERS

SHEET ____ OF ____

CLIENT	PROJECT	JOB NO.
Hardee Co	Permit Modification	09150033.02
SUBJECT	**BY**	**DATE**
Estimated Settlement	TWO	Oct 2000
	CHECKED	**DATE**

// Revised April 16, 2001

Layer (2) SC

$D_R \sim 35\%$ — Void Ratio (Source: Lambe Whitman)

e_{max} 1.1 — e_{min} 0.4

$$D_R = \frac{e_{max} - e}{e_{max} - e_{min}} \times 100$$

$$0.35 = \frac{1.1 - e}{(1.1 - 0.4)}$$

$$0.35(0.7) = 1.1 - e$$

$$0.855 = e_0 \quad (0.86)$$

Layer (3) CL-CH

$$\gamma_{SAT} = \left(\frac{G_s + e}{1+e}\right)\gamma_w \qquad G = \text{specific gravity} = 2.65$$

$$\frac{\gamma_{SAT}}{\gamma_w} = \left(\frac{G_s + e}{1+e}\right)$$

$$\frac{105}{62.4} = \left(\frac{2.65 + e}{1+e}\right)$$

$$1.6827 = \frac{2.65 + e_0}{1 + e_0}$$

$$e_0 \simeq 1.417 \rightarrow (1.4)$$

$\gamma_{SAT} \simeq 105$ lb/ft³

$\gamma_w = 62.4$ lb/ft³

(Source from FSI report dated 2/97)

$e_{max} \uparrow 1.0$

$e_{min} \sim 0.4$

(Based upon Professional Judgment)

SHEET B31

SCS ENGINEERS

SHEET ______ OF ______

CLIENT Hardee County	PROJECT Permit Modification	JOB NO. 09199033.03
SUBJECT Estimated Settlement	BY	DATE Oct 2000
	CHECKED	DATE

Revised April 16, 2001

Estimated Consolidation Index Properties

$C_c \approx a(e_0 - b)$ from B.K. Hough Reference

Layer	Description	e_0	b (e_{min})	a	C_c
1	Silty sand (SM)	0.72	0.30	0.09	0.038
2	Clayey sand (SC)	0.855	0.40	0.23	0.10
3	Low Plastic (CL) Clays	1.417	0.9	0.29	0.15

$$\Delta S \approx \frac{C_c H}{1+e_0} \log\left(\frac{p_0 + \Delta P}{p_0}\right)$$

C_c - compression index

e_0 - initial void ratio

p_0 - initial pressure in center of layer (psf)

ΔP - change in pressure (psf)

H - layer thick (ft)

SHEET

B32

Estimated Settlement

Hardee County Landfill
Permit Modification
Hardee County, Florida
f:/projects/091999033.03/geotech/settle.xls

REVISED : April 16,2001
(Waste Unit Weight)

Layers	Description	Initial Stress (psf)	Final Stress (Current Plan) (psf)	Final Stress (Revised Plan) (psf)	Change in Stress (Current Plan) (psf)	Change in Stress (Revised Plan) (psf)
1	Med. Dense SP-SM	450	3,133	3,833	2,683	3,383
2	Med. Dense SC	1,020	3,353	4,053	2,333	3,033
3	Stiff CL/CH	1,406	3,739	4,439	2,333	3,033

Notes: SP-SM - Poorly graded / Silty sand
SC - Clayey Sand
CL/CH - Low Plasticity Clay/High Plasticity Clay

Layers	Layer Height (ft)	Initial Void Ratio	Cc	Settlement @Mid (ft)	Settlement @ Mid (ft)
1	2	0.72	0.038	0.04	0.04
2	6	0.855	0.1	0.17	0.19
3	10	1.417	0.15	0.26	0.31
	Estimated Settlement (Current Plan)			0.47	
	Estimated Settlement (Revised Plan)				0.54

SHEET B33

Estimated Net Bearing Capacity

Hardee County Landfill
Permit Modification
Hardee County, Florida
f:/projects/091999033.03/geotech/bearing.xls

REVISED APRIL 16,2001
(Waste Unit Weight)

Layers	Description	Initial Stress (psf)	Final Stress @ Toe (psf)	Final Stress @ Mid (psf)	Change in Stress @ Toe (psf)	Change in Stress @ Mid (psf)
1	Med. Dense SP-SM	450	1,399	8,056	949	7,606
2	Med. Dense SC	1,020	1,619	8,276	599	7,256
3	Stiff CL/CH	1,406	2,005	8,662	599	7,256

Notes: SP-SM - Poorly graded / Silty sand
SC - Clayey Sand
CL/CH - Low Plasticity Clay/High Plasticity Clay

Layers	Layer Height (ft)	Initial Void Ratio	Cc	Settlement @Mid (ft)	Settlement @ Mid (ft)
1	2	0.72	0.038	0.02	0.06
2	6	0.855	0.1	0.06	0.29
3	10	1.417	0.15	0.10	0.49
	Estimated Settlement (@ Toe)			0.18	
	Estimated Settlement (@ Mid)				0.84

Change in Pressure @ Toe
Unit Weight Waste (pcf) = 105

Ptoe 1 = 1398.74 psf
Ptoe 2 = 1619.14 psf
Ptoe 3 = 2004.94 psf

Change in Pressure @ Toe
Unit Weight Waste (pcf) = 105

Ptoe 1 = 8055.74 psf
Ptoe 2 = 8276.14 psf
Ptoe 3 = 8661.94 psf

Westside		Midpoint		Eastside	
El =	78.4	El =	77.9	El =	77.41
Settlement	0.18		0.84		0.18
	78.22		77.06		77.23

Net Bearing Capacity (@center)

Waste Unit Weight: 50 pcf — Pressure 3767.64 psf

Excess Unit Weight: 105 pcf — Pressure 8008.14 psf

Net 4240.5 psf

(Amount of pressure above current permit levels)