Department of Environmental Protection

Jeb Bush
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Colleen M. Castille
Secretary

August 17, 2005

Mr. Greg Mathes
General Manager
Trail Ridge Landfill Inc.
5110 U.S. Highway 301
Jacksonville, FL 32234

Re: Trail Ridge Landfill, Inc.
FDEP File Number 13493-013
Request for Additional Information
Duval County - Solid Waste

Dear Mr. Mathes:

The Department has reviewed your submittal, received July 22, 2005. The following review is enclosed:

Attachment 1, Review Memorandum, dated August 17, 2005, prepared by Julia Boesch

The information requested in this review is required for the Department to proceed with the processing of your permit application. Please provide the requested information by September 20, 2005. Action on the application will be delayed until the requested information is received in this office. Please reference the associated DEP file number in all written correspondence concerning this project.

If you have any comments concerning this matter, please contact Julia Boesch at the letterhead address or telephone number 904.807.3356.

Sincerely,

Emerson C. Raulerson

Emerson C. Raulerson, P.E.
Solid Waste Section

JB/ml

cc Francis Dayao, P.E., England, Thims, and Miller, Inc.

Florida Department of Environmental Protection

Memorandum

TO: Files

THROUGH: Emerson C. Raulerson, P. E. ECR
Solid Waste Section

FROM: Julia Boesch, Engineering Specialist
Solid Waste Section

DATE: August 17, 2005

SUBJECT: Trail Ridge Landfill
FDEP File Numbers 13493-013
First Request for Additional Information
Duval County- Solid Waste

The Department has reviewed your minor modification application, received on July 22, 2005, to modify the facility to utilize a tipper and to have two working faces, and requests the following information:

1. The Department understands you are proposing changes to only those portions of the provided "TRAIL RIDGE LANDFILL REVISED OPERATION PLAN," that are underlined or struck through. Therefore, the Department only reviewed those underlined or struck through portions. If this is incorrect and other portions were changed, please resubmit the plan with all changes either underlined in the case of additions, or struck through in the case of deletions. If this understanding is correct, please confirm. Finally, please note any changes not appropriately delineated shall not be misconstrued as having been approved.

2. In section VIII, OPERATION PLAN, subsection A, OPERATION PERSONNEL AND HOURS OF OPERATION, please revise the second paragraph to not only indicate that at least one trained spotter will be on-site at all times when the landfill receives waste, but rather indicate that at least one "trained" spotter will be present at the working face at all times waste is being accepted and/or spread out prior to disposal at that respective working face (FAC Rule 62-701.500(1)). For example, if waste is being accepted at both working faces at the same time, there will be at least one "trained" spotter at each working face, for a minimum of 2 trained spotters.

   Also, please revise section F, Paragraph 5, to specify that at the tipper working face there will be at least one "trained" spotter while waste is being accepted and/or spread out prior to disposal.

3. Please specify the equipment and personnel, including heavy equipment operators, tipper operators, spotters, etc., that you will have present at the tipper working face while tipping and/or spreading waste. Please confirm that a spotter will inspect all loads not only as they are being tipped, but also as they are being spread. Please also indicate how you will use the heavy equipment, e.g., to spread and/or compact the waste.

4. Please propose a maximum size for each of the two working faces.

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • GIS • LANDSCAPE ARCHITECTS

Principals
Douglas C. Miller, P.E., CEO
N. Hugh Mathews, P.E., President
Joseph A. Tarver, Exec., V.P.
Juanitta Bader Clem, P.E., V.P.
Scott A. Wild, P.E., PSM, V.P.
Samuel R. Crissinger, CFO, V.P.
Robert A. Mizell, Jr., P.E., V.P.
Thomas N. Fallin, P.E., V.P.

Emeritus
James E. England, P.E.
Robert E. Thims

July 22, 2005

Ms. Mary C. Nogas, P.E.
Solid Waste Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

RECEIVED
JUL 22 2005
STATE OF FLORIDA
DEPARTMENT OF ENV. PROTECTION
NORTHEAST DISTRICT - JACKSONVILLE

Reference: Trail Ridge Landfill
Application for Minor Permit Modification
FDEP Permit No. 0013493-010-SC
ET&M Project No. 98-34

Dear Ms. Nogas:

On behalf of Trail Ridge Landfill, Inc., please find herewith four copies of the Application for a Permit to Construct Operate, Modify or Close a Solid Waste Management Facility. The permit application is for a minor permit modification to authorize Trail Ridge Landfill to operate a second working face and utilize a portable tipper. Please note that information relating to this request is underlined and limited to Sections F and T of the revised Operation Plan.

I would respectfully request that any questions regarding this application be directed to me.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Francis Dayao, P. E.
Project Engineer

Attachments: Permit Application - 4 copies
Operation Plan - 4 copies
Product Information – 4 copies
Application Fee for a Minor Permit Modification - $250.00

cc: Greg Mathes w/attachments

PERMIT APPLICATION

FOR

MINOR PERMIT MODIFICATION

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

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

REGfiles: 5/2001

Northwest District
160 Governmental Center
Pensacola, FL 32501-6794
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.

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):

[X] Disposal
- [X] Class I Landfill
- [ ] Class II Landfill
- [ ] Class III Landfill
- [ ] Ash Monofill
- [ ] Asbestos Monofill
- [ ] Industrial Solid Waste
- [X] Other Describe: Waste Tire Processing

[ ] 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
- [X] Construction/Operation
- [ ] Closure

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

4. Facility name: Trail Ridge Landfill

5. DEP ID number: GMS3116P02787 County: Duval

6. Facility location (main entrance): 5110 U.S. Hwy. 301
Baldwin, Florida 32234

7. Location coordinates:
Section: 18, 19, 20, 21 Township: 3S Range: 23E

Latitude: 30 ° 14 ' 00 " Longitude: 82 ° 02 ' 30 "

8. Applicant name (operating authority): Trail Ridge Landfill, Inc.

Mailing address: 5110 U.S. Hwy. 301 Baldwin Florida 32234
Street or P. O. Box City State Zip

Contact person: Greg Mathes Telephone: (904) 289-9100

Title: Director of Landfill Operations

gmathes@wm.com
E-Mail address (if available)

9. Authorized ~~agent~~/Consultant: England, Thims & Miller, Inc.

Mailing address: 14775 St. Augustine Road, Jacksonville, Florida 32258
Street or P. O. Box City State Zip

Contact person: Juanitta Clem Telephone: (904) 642-8990

Title: Vice President

clemj@etminc.com
E-Mail address (if available)

10. Landowner (if different than applicant): City of Jacksonville

Mailing address: Suite 200
140 W. Monroe Street, Jacksonville, Florida 32202
Street or P. O. Box City State Zip

Contact person: Chris Pearson Telephone: (904) 630-4593

chrisp@coj.net
E-Mail address (if available)

11. Cities, towns and areas to be served: City of Jacksonville (Duval County), St. Johns County and Northeast Florida

12. Population to be served:
Current: 805,469 (2002 Duval) 132,829 (2002 St. Johns) Five-Year Projection: 845,580 (2007 Duval) 149,506 (2007 St. Johns)

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

14. Expected life of the facility: 14 years

15. Estimated costs:

Total Construction: $ N/A Closing Costs: $ 14.4 Million

16. Anticipated construction starting and completion dates:

From: On-Going To: On-Going

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

_____ yds³/day 5,000 * (peak) tons/day _____ gallons/day
3,900 Tons/day (monthly average)

B. DISPOSAL FACILITY GENERAL INFORMATION

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

Minor permit modification to authorize facility to operate a second working face and to authorize the use of a landfill tipper.

2. Facility site supervisor: Greg Mathes

Title: Director of Landfill Operations Telephone: ( ) 904-289-9100

gmathes@wm.com
E-Mail address (if available)

3. Disposal area: Total 148 acres; Used 148 acres; Available 0 acres

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

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

6. Charge for waste received: N/A $/yds^3 40.00 $/ton

7. Surrounding land use, zoning:

[ ] Residential
[X] Agricultural
[ ] Commercial
[ ] Industrial
[ ] None
[X] Other Describe: Silviculture

8. Types of waste received:

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

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

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

11. Spotters: Yes [X] No [ ] Number of spotters used: 1

12. Site located in: [ ] Floodplain [ ] Wetlands [X] Other Upland Pines Flatwoods

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

14. Days of operation: Monday - Saturday

15. Hours of operation: 5:00 A.M. - 10:00 P.M.*

16. Days Working Face covered: Daily with cover dirt or tarpaulin

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

18. Number of monitoring wells: 50 (37 wells monitored)

19. Number of surface monitoring points: 2

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

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

21. Landfill unit liner type:

[ ] Natural soils
[ ] Single clay liner
[ ] Single geomembrane
[ ] Single composite
[ ] Slurry wall
[ ] Other Describe: With Bentonite Mat and 6" clay subgrade
[X] Double geomembrane
[ ] Geomembrane & composite
[ ] Double composite
[ ] None

22. Leachate collection method:

[X] Collection pipes
[X] Geonets
[ ] Well points
[ ] Perimeter ditch
[ ] Other Describe:
[ ] Sand layer
[ ] Gravel layer
[ ] Interceptor trench
[ ] None

23. Leachate storage method:

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

24. Leachate treatment method:

[ ] Oxidation
[ ] Secondary
[ ] Advanced
[ ] None
[X] Other off-site Treatment at a City Wastewater Treatment Facility
[ ] Chemical treatment
[ ] Settling

* May vary dependent upon waste receipt.

25. Leachate disposal method:

[X] Recirculated
[X] 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: [X] Yes [ ] No

Type of treatment: wet detention

Name and Class of receiving water: Headwaters of Deep Creek - Class III

28. Environmental Resources Permit (ERP) number or status: Permitted as Solid Waste Permit (DEP File Nos. 184444, 184445 and 184447). Pond was permitted, constructed and certified.

C. NON-DISPOSAL FACILITY GENERAL INFORMATION N/C

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 _____ 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: _____

_____

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) N/C

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		
X	Attached			1.	Four copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320(5)(a),FAC)
X	Attached			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)
X	Attached			3.	A letter of transmittal to the Department; (62-701.320(7)(a),FAC)
X	Attached			4.	A completed application form dated and signed by the applicant; (62-701.320(7)(b),FAC)
X	Attached			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)
X	Attached			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)
	*Revised Operation Plan				
X	Attached			7.	Operation Plan and Closure Plan; (62-701.320(7)(e)1.,FAC)
			X	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)
			X		a. A regional map or plan with the project location;
			X		b. A vicinity map or aerial photograph no more than 1 year old;
			X		c. A site plan showing all property boundaries certified by a registered Florida land surveyor;

	LOCATION	N/A	N/C		PART E CONTINUED
X	Attached				d. Other necessary details to support the engineering report.
			X	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)
			X	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)
			X	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)
		X		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)
			X	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)
			X	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) N/A

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)

GENERAL CRITERIA FOR LANDFILLS (62-701.340,FAC) N/A

				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)

I. **LANDFILL CONSTRUCTION REQUIREMENTS** (62-701.400,FAC) N/A

	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 $\leq 1 \times 10^{-3}$ cm/sec;

(2) Total thickness of 24 inches of material chemically resistent 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 a upper and lower 60-mil minimum thickness geomembrane;

(b) Leak detection and collection syste 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 exce that predicted by design calculations;

(4) Description of procedures to prevent uplift, if applicable;

(5) Design calculations to demonstrate minim two feet of freeboard will be maintained;

(6) Procedures for controlling disease vecto 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) N/A

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) N/A

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) N/A

	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;
___	_____	___	___	3.	Provide foundation and settlement analysis for the vertical expansion;
___	_____	___	___	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;
___	_____	___	___	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)

___	_____	___	X	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)
___	_____	___	X		a. Designating responsible operating and maintenance personnel;
___	_____	___	X		b. Contingency operations for emergencies;
___	_____	___	X		c. Controlling types of waste received at the landfill;
___	_____	___	X		d. Weighing incoming waste;
___	_____	___	X		e. Vehicle traffic control and unloading;
X	Attached	___	___		f. Method and sequence of filling waste;
___	_____	___	X		g. Waste compaction and application of cover;
___	_____	___	X		h. Operations of gas, leachate, and stormwater controls;
___	_____	___	X		i. Water quality monitoring;
___	_____	___	X		j. Maintaining and cleaning the leachate collection system;
___	_____	___	X	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)
___	_____	___	X	4.	Describe the waste records that will be compiled monthly and provided to the Department quarterly; (62-701.500(4),FAC)
___	_____	___	X	5.	Describe methods of access control; (62-701.500(5),FAC)
___	_____	___	X	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)
___	_____	___	X		a. Waste layer thickness and compaction frequencies;

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

S	LOCATION	N/A	N/C	PART L CONTINUED
___	_____	___	X	f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;
___	_____	___	X	g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates and including this information in the operating record;
___	_____	___	X	h. Procedures for water pressure cleaning or video inspecting leachate collection systems.
___	_____	___	X	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)
___	_____	X	___	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)
X	Attached*	___	___	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.
___	_____	___	X	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)

* A tipper has been added.

S	LOCATION	N/A	N/C
—	_____	—	X
—	_____	—	X
—	_____	—	X
—	_____	—	X

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) N/A

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) N/A

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) N/A

				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) N/A

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	
				PART B CONTINUED
				(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	PART P CONTINUED
				(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;

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) N/C

	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) N/C

___	_____	___	___	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) N/C

___	_____	___	___	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 Trail Ridge Landfill, Inc. _____ is aware that statements made in this form and attached information are an application for a minor permit 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.

Signature of Applicant or Agent

Greg Mathes
Director of Landfill Operations
Name and Title (please type)

gmathes@wm.com
E-Mail address (if available)

5110 U.S. Highway 301
Mailing Address

Baldwin, Florida 32234
City, State, Zip Code

( ) 904-289-9100
Telephone Number

Date: 07/20/05

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

Francis D. Dayao, P.E.
Name and Title (please type)

7-21-2005

56120
Florida Registration Number
(please affix seal)

14775 St. Augustine Road
Mailing Address

Jacksonville, Florida 32258
City, State, Zip Code

dayaof@etminc.com
E-Mail address (if available)

( ) 904-642-8900
Telephone Number

Date: 7-21-2005

TRAIL RIDGE LANDFILL

REVISED OPERATION PLAN

VIII. OPERATION PLAN

A. OPERATION PERSONNEL AND HOURS OF OPERATION

The District Manager is responsible for the overall operation of the Trail Ridge Landfill. The District Manager's responsibility is to assure that operations at the site are performed in accordance with the procedures outlined in this Operation Plan.

The District Manager, the Operations Manager and several operators are trained operators under Rule 62-701.320(15), F.A.C. At least one trained operator will be on-site during all times when the landfill receives waste. Further, at least one trained spotter will be at the working face at all times when the landfill receives waste.

1. Hours of Operation

a.	Normal Monday - Friday:	6:00 A.M. to 7:00 P.M.
b.	Normal Saturday:	6:00 A.M. to 3:00 P.M.
c.	Maximum Hours:	5:00 A.M. to 10:00 P.M.

During emergency situations, i.e., after a hurricane, the landfill may operate beyond the above hours. However, the Florida Department of Environmental Protection must be notified at the first available opportunity. The landfill will have lights with at least 3 candle-feet of illumination for operation during non-daylight hours.

2. Personnel

Personnel expected to be at the landfill includes:

Personnel	Total
District Manager	1
Operations Manager	1
Equipment Operators	8
Mechanic	1
Labors/Spotters	6
Compliance Officer	1
Clerical	3

On a normal basis, the personnel present during operating hours on the landfill will include a trained operator, a trained spotter, a material handler (laborer) and two equipment operators. During peak operating hours, the facility will have additional personnel, in accordance with the Personnel Matrix in Attachment A.

A work schedule is developed on a weekly basis to ensure that adequate staff is present on the landfill to handle the expected volume of waste.

B. CONTINGENCY OPERATIONS

The on-site entrance road is an all-weather road. The entrance road and administration area are paved. The pavement extends beyond the ticket office/scale house to the perimeter road around the landfill. The perimeter road is a stabilized limerock road. Haul roads beyond this point are maintained for adverse weather condition usage.

Emergency conditions at the facility may be created by a natural disaster (i.e., hurricane or tornado), flooding and fire. Waste is not normally delivered to the site during emergency conditions. The following procedures will be implemented with the imminent threat of a major storm.

1. Initial cover will be applied and compacted over all exposed waste.
2. All landfill equipment will be fueled and parked near natural wind screens, earthen mounds or tree areas.
3. All lightweight signs and equipment will be secured.
4. Work will begin in dry areas only when operations are resumed and waste materials will not be disposed in standing water.

The surface water management system will allow disposal operations to continue during periods of inclement weather. This will include the utilization of temporary berms and ditches to drain stormwater away from the active face.

In the event of a natural disaster in the area, operational hours will be extended as appropriate to meet the needs of the community and the Department will be notified.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharge onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place with intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

C. WASTE CONTROL

The waste stream will be monitored by the scale house operator, as each vehicle passes by the ticket office/scale house and then again at the working face by the spotter(s). In addition, the scale house is equipped with cameras/video monitoring systems, which record a time-coded picture of the vehicles entering the site.

There will be at least one trained spotter at the working face to observe the wastes disposed at all times the landfill receives waste. If any unacceptable wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known for subsequent removal off site. If the waste is deemed hazardous, the area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at an appropriate waste management facility.

In the event unacceptable waste is identified after the hauler has left the facility, the unacceptable waste shall be removed from the working face and placed in close proximity to the working face. At the end of the day, at a minimum, unacceptable waste such as batteries, oil filters, used oil, etc. will be removed from the landfill and stored at the existing concrete storage area adjacent to the waste tire storage and processing area. Within the storage area, the materials shall be placed in a single layer on pallets. (The water level in the storage area will be checked on a weekly basis and accumulated water will be pumped out and treated as leachate). Tires will be placed within the tire storage areas. White goods will be stored in a roll-off box. White goods and batteries will be taken off site by various recyclers on a quarterly basis at a minimum.

Only two types of biological waste are accepted for disposal, bodies of domestic animals and treated biomedical waste. Before the bodies of domestic animals are brought to the facility, the landfill will request information about the waste to determine if the animals were diseased. If the animals were not diseased, the bodies will be disposed within the working face and then covered immediately with either additional waste or initial cover. If the bodies of the domestic animal are from diseased animals, the bodies will be handled in accordance with Section 823.041(1), F.S. Treated biomedical waste will be disposed within the working face and then covered with either additional waste or initial cover.

D. WEIGHING WASTE

All incoming waste will be weighed and recorded on a daily basis at the on-site scales prior to disposal. The on-site scales include at least one scale for incoming vehicles and one scale for outgoing vehicles.

E. VEHICLE TRAFFIC CONTROL

Signs are provided to direct traffic to the disposal area. Further, spotters will direct incoming vehicles to their final disposal area.

F. METHOD AND SEQUENCE OF FILLING WASTE

The landfill will have two (2) working faces and ~~The working face~~ will be consistent with orderly traffic control, waste spreading, and compaction activities.

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system. The placement of this initial waste will be supervised by a quality assurance monitor under the supervision of a Florida Registered professional Engineer.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices. In general, the initial fill will be placed from east to west in a 300-foot wide section that corresponds to the leachate collection area.

The first working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material. The second working face will be located near the first working face and shall have a portable tipper used to unload solid waste trailers. The location of the portable tipper within the second working face will be determined by the landfill operator and will vary depending on the amount of solid waste being received and weather conditions. The second working face shall have a spotter whenever solid waste is being unloaded from the tipper.

G. WASTE COMPACTION AND APPLICATION OF COVER

Waste will be spread in layers of approximately two (2) feet in thickness and compacted to approximately one (1) foot in thickness or as thin a layer as practical before the next layer is applied. In general three to five passes with the compactor will be made on each layer of refuse.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day. A 6" thick initial soil cover or an FDEP approved alternate daily cover may also be applied at the end of each operating day.

For those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C.

An intermediate cover, in addition to the six (6) inch initial cover, will be applied and maintained within seven (7) days of cell completion if final cover or an additional lift is not to be applied within 180 days of cell completion. All or part of this intermediate cover may be removed before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less).

Final cover will be applied to a solid waste disposal unit once it has been filled to its design dimensions. The final cover including permanent vegetation will be placed over the entire surface of each completed solid waste disposal unit within 180 days after final waste placement. Solid waste disposal units, which are designated by phase, are shown on **Permit Drawings Nos. 14 and 15**.

H. OPERATION OF GAS, LEACHATE AND STORMWATER CONTROLS

1. Gas Collection System

The permanent gas collection system will be installed as each phase reaches its final contour in accordance with NSPS time frames. Further, the temporary gas collection system will be installed within five years of waste placement within a

phase. All gas extraction wells are designed and installed for connection to the active gas extraction system including collection lines, blowers and flare station.

The gas management system will be monitored on a monthly basis, which will include inspection of each well and calibration of the system, as needed. This monitoring will be documented.

2. Leachate

The primary leachate collection system consists of an 8" perforated HDPE collection pipe surrounded by an aggregate encasement, which is covered by a geotextile fabric. This collection system is located in a trench on top of the primary liner. Leachate is collected within each leachate sector (300' wide, typical) and directed to the collection system by a geonet drainage blanket located on top of the primary liner.

The primary leachate collection pipes passes through the leachate collection sump and terminates at the leachate vault on the east side of the landfill. The leachate collection sump consists of an 18" or 24" diameter HDPE pipe (riser pipe) surrounded by an aggregate sump. The riser pipe extends from the sump up to the leachate vault. The 8" HDPE leachate collection pipe discharges directly into the riser pipe as well as the sump. A small submersible pump is located inside each riser pipe. Level sensors in the riser pipe are used to control the pump, which removes leachate as it accumulates. The pumps are mounted on wheels and can easily be removed for maintenance.

The leachate pumps discharge into a leachate force main which transfer the leachate to the fiberglass storage tanks (20,000 gallons each). Each leachate pump discharges through a flow meter that is monitored daily, Monday through Friday. Therefore, each leachate sector can be monitored for leachate generation. The leachate collection system, including the storage tanks, is located over the liner system. The leachate storage tanks are visually inspected daily, Monday through Friday, by on-site personnel. A daily log (Monday through Friday) is kept outlining leachate generation and storage volumes. Leachate will be transported off-site by tanker at regular intervals based on leachate production. The leachate is transported to the Buckman Street Wastewater Treatment Facility for treatment and disposal.

The secondary (detection) leachate collection system is constructed and operates similarly to the primary system. The exceptions for this system include:

a. Multiple layers of geonet were installed in lieu of the 8" HDPE perforated pipe.

b. The secondary leachate collection system is piped to a separate storage tank (20,000 gallons).

3. Stormwater Treatment and Detention

The Stormwater Management System was designed in accordance with Rules 62-25, 40C-4 and 40C-42, F.A.C. for both treatment and peak flow attenuation. The stormwater treatment is provided by wet detention.

In general, a minimum of the first 1" of runoff will be treated prior to discharge. The treated stormwater will be discharged from the stormwater pump station via the wetland irrigation system.

4. Stormwater Management

a. Stormwater/Leachate Separation

Stormwater which falls on a section of the lined landfill, which is not currently being used for waste disposal, is separated from the leachate collection. This is accomplished by closing the valve upstream of the active phase and isolating this portion of the leachate collection system. A 36" high HDPE flap is welded to the liner at this phase line to prevent stormwater from flowing to the active area. A temporary pump-out is provided upstream of each valve and flap to pump uncontaminated stormwater from the inactive liner into the perimeter ditch. Any stormwater that comes in contact with waste will be considered leachate and handled in accordance with the Leachate Management Plan.

b. Stormwater Collection

All stormwater is collected and directed into the stormwater basin. The collection system includes terraces on the final landfill slopes in conjunction with downcomer piping. This system will control runoff and minimize erosion on the landfill side slopes. Details of this system are shown on the Permit Drawings. The existing wetland discharge of treated stormwater occurs through a 2" perforated spreader pipe. The wetland irrigation occurs adjacent to the stormwater management basin.

I. WATER QUALITY MONITORING

There is an existing Environmental Media Monitoring Plan (Groundwater, Surface Water, and Leachate) for this facility which is part of the current Solid Waste Permit and will continue a part of this renewal permit. This plan includes semi-annual monitoring of each media.

J. MAINTENANCE OF LEACHATE COLLECTION SYSTEM

Each leachate vault box (located at the east end of each leachate collection pipe) has a flow meter for the primary and secondary leachate collection system. These flow meters will be read daily, Monday thru Friday. If the reading in a flow meter is noticeably diminishing or otherwise reduced compared to the other flow meters and daily rainfall records, the flow meter will be checked for proper operation. Prior to the next permit renewal and in the event it is deemed necessary, the leachate collection system will be either videoed to determine if there is a clog or other reason for diminished flow or the leachate collection pipe will be flushed cleaned.

K. OPERATION RECORD

The operating record consists of all records, reports, analytical results, demonstrations, and notifications required by Chapter 62-701, F.A.C., any construction, operation, and closure plans and permits, including all modifications to those permits issued by the Department, Permit Document Plans, as well as training records required by Chapter 62-701.320(15), F.A.C. The record is considered part of the operation plan and will be kept with the plan at the landfill facility. The operating record will be available for inspection at reasonable times by Department personnel.

L. WASTE RECORDS

All solid waste will be weighed as it is received. Landfill operators will record, in tons per day, the amount of solid waste received and will estimate the amount of each waste listed below. Waste reports will be compiled monthly, and copies provided to the Department quarterly.

Types of waste received:

a. Residential/household waste
b. Commercial waste
c. Treated biomedical waste
d. Water treatment sludge
e. Construction and demolition debris
f. Agricultural waste
g. Industrial waste
h. Waste tires
i. Asbestos
j. Industrial sludge
k. Domestic sludge
l. Non-Hazardous special wastes

M. ACCESS CONTROL

Access to the landfill is provided by a paved entrance road from U.S. 301.

The entire site is fenced. Access is restricted by a gate near the entrance off U.S. 301 as well as a second gate closer to the site. All gates will be locked at night and whenever the landfill is closed. Public access and receipt of wastes will occur only when an attendant is on duty.

Traffic control on site is accomplished by signage and site personnel. Spotters will assist with traffic control at the working face by directing in-coming trucks to their final unloading area.

Access to areas restricted from traffic will be controlled by temporary earthen berms and barricades.

N. WASTE MONITORING

1. The operations will include a load checking program to detect and discourage attempts to dispose of unauthorized wastes at the landfill. The load checking program consists of the following minimum requirements:

   a. The landfill operator will examine at least three random loads of solid waste delivered to the landfill each week. The waste collection vehicle drivers selected by the inspector will be directed to discharge their loads at a designated location within the landfill (near the working face). A detailed inspection of the discharged material will be made for any unauthorized wastes.

   b. If unauthorized wastes are found, the facility will contact the generator, hauler, or other party responsible for shipping the waste to the landfill to determine the identity of the waste sources.

2. Handing hazardous wastes.

   a. If any regulated hazardous wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the Department by telephone, the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known. The area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at a permitted hazardous waste management facility.

      The operator will provide a report of the discovery of hazardous waste to the Department within seven days. The report will include the date of the incident, how the materials were discovered, transferred and transported, the disposal location, and if known, the source of the material. The material will be transferred and disposed off site in accordance with applicable local, state and federal regulations. The clean up will include determining the extent of contamination as well as the handling of materials that are contaminated by the hazardous waste.

   b. Subsequent shipments from sources found or suspected to be previously responsible for shipping regulated hazardous waste will be subject to precautionary measure prior to the solid waste management facility accepting wastes.

3. Recording inspection results. Information and observations resulting from each random inspection will be recorded in writing and retained at the landfill for at least three years. The recorded information will include: the date and time of the inspection; the names of the hauling firm and the driver of the vehicle; the vehicle license plate number; the source of the waste, as stated by the driver; and observations made by the inspector during the detailed inspection. The written record will be signed by the inspector.

O. WASTE HANDLING

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices.

The working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day.

However, for those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C.

An intermediate cover, in addition to the initial cover, will be applied and maintained within seven days of cell completion if additional solid waste will not be deposited

within 180 days of cell completion. The landfill operator may remove all or part of the intermediate cover before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less).

Solid waste disposal units, which have been filled to design dimensions, will receive final cover within 180 days after attaining final elevation or in accordance with the closure plan for the landfill. The solid waste disposal units are shown on **Permit Drawing Nos. 14 and 15**.

Uncontrolled and unauthorized scavenging is not permitted at the landfill site. Salvaging is also not permitted.

A litter policing operation will be employed to keep litter from leaving the working area of the landfill. Litter outside the working area will be picked up within 24 hours. Some litter may be exposed through the initial cover, if it is in traffic areas and away from public view.

Erosion control measures will be employed to correct any erosion which exposes waste or causes malfunction of the stormwater management system. Erosion control measures will be implemented within three days of occurrences. If the erosion cannot be corrected within seven days of occurrence, the landfill operator will notify the Department and propose a corrective schedule.

P. LEACHATE MANAGEMENT

The landfill operator will monitor the leachate level in and record the flow from both the leachate collection (primary) and detention (secondary) sumps on a daily basis, Monday through Friday. The operator will maintain at least one backup pump on site or have access to a backup pump that can be installed within hours of discovery that a pump is not operating. The operator/owner will sample and analyze the leachate in accordance with the Environmental Media Monitoring Plan and will submit the results to the Department.

The operator will operate and maintain the leachate collection system to collect and remove leachate from the landfill. The leachate will be stored on site in the six 20,000-gallon leachate storage tanks and will be transported to Buckman Street Wastewater Treatment Facility for treatment and disposal.

The quantity of leachate collected by the leachate collection and removal system will be recorded (in gallons) on a daily basis, Monday through Friday. The amount of leachate transported off site will be recorded on a daily basis, Monday through Friday.

If the flow from any secondary leachate detection sump exceeds 4,492 gallons per day for one day, the Department will be notified within 24 hours and a follow-up report prepared within 7 days. The follow-up report will include a description and assessment of the situation, proposed remedial actions, the proposed remedial action and a schedule for commencing and completing the remediation.

A recording rain gauge is operated and maintained to record precipitation at the landfill. These precipitation records will be maintained and used to compare with leachate generation rates.

Q. LEACHATE SPILLAGE CONTROL PLAN

The leachate storage and pumping facilities are inside a concrete containment area, which will hold 140% of the volume of the storage tanks plus one foot of freeboard. This facility is constructed on top of the liner system. Therefore, the Leachate Spillage Control Plan is directed at those spills that would occur outside the containment area.

The Leachate Spillage Control Plan consists of four major elements; Training, Containment, Remediation and Notification as described below:

1. Training

The tanker driver and/or site personnel (the Attendant for the purposes of this subsection) will be trained to prevent spills. The Attendant will perform the following prior to loading the tanker truck:

a. Inspect the tanker for signs of leakage.
b. Verify all tanker discharge valves are closed.
c. Verify the tanker is completely within the leachate loading area containment curbing.
d. Verify the liquid level in the containment sump is at or below the discharge pipe.
e. Verify the containment sump discharge gate valve is closed.
f. Verify the leachate fill hose is securely fastened to the inlet port of the tanker.
g. Verify the available tanker volume.

Upon completion of this inspection, the Attendant will begin the following fill sequence:

1. Operate the leachate loading pump for approximately five minutes or until 500 gallons of leachate has been pumped and then discontinue pumping.
2. Inspect the tanker, fill hose and pumping system for leakage.
3. Upon verification that no spilling or leaking has occurred, restart pumping.
4. Continuously monitor the tanker fill operations.
5. Monitor the leachate flow meter until approximately 95% of the available tanker volume has been filled.
6. Discontinue filling operations and remove fill hose.
7. Perform a final inspection of tanker and tanker fill area.

2. Containment

If a spill occurs, the Attendant will notify the District Manager of the spill and request assistance. The Attendant will institute the following containment sequence:

a. Cease pumping.
b. Place sandbags around drainage structures down slope from the loading area to prevent any spillage from entering the drainage system. (NOTE: The first 500 gallons of spillage inside the containment curb will drain naturally into the 500-gallon containment sump.)
c. Create an earthen berm around the spill with on-site sands taken from the daily cover stockpile.

3. Remediation

After the spill has been securely contained, the following cleanup will begin:

a. Pump the leachate in the containment sump into the on-site storage tanks.
b. Spread absorbent sands across all areas in contact with the spill.
c. Remove the contaminated sand to the landfill disposal area.

4. Notification

In the event of a leachate spill, the Department will be notified.

The outlined Spillage Control Plan focuses primarily on a spill at the tanker truck loading area. However, if a leachate spill is discovered at any location on site, the pertinent containment, remediation and notification procedures described above will be implemented.

R. COMBUSTIBLE GAS MONITORING PROGRAM

The combustible gas monitoring program is provided in **Appendix F** and will be monitored quarterly with the results submitted to the Department.

If combustible gas levels exceed twenty-five percent of the lower explosive limit in structures (excluding gas control or recovery components) or the lower explosive limits at or beyond the property boundary, Trail Ridge Landfill will:

1. Immediately take all necessary steps to ensure protection of human health and notify the Department.

2. Within seven days of detection, submit to the Department for approval a remediation plan for the gas releases. The plan will describe the nature and extent of the problem and the proposed remedy. The remedy will be completed within 60 days of detection unless otherwise approved by the Department.

S. STORMWATER MANAGEMENT

1. Stormwater Handling

The stormwater management system was installed as part of the initial construction and is operated and maintained in accordance with the requirements of the DEP Solid Waste permit. The stormwater management system includes the wet detention basin as well as the swales, drainage ditches and culverts, discharge structures, downcomer pipes and other appurtenances as required. Pertinent features of the stormwater handling system include:

a. Potentially contaminated stormwater will be segregated from clean stormwater and contaminated stormwater will not be discharged from the site;
b. A 24-hour, 25-year rainfall event is detained on site;
c. Stormwater is treated to meet the requirements of Rule 62-25, F.A.C.;
d. The maximum discharge rate following a 25-year, 24-hour storm event does not exceed the pre-development discharge from this design storm.

Stormwater is routed through the internal ditch and culvert network to the wet detention basin for treatment. The discharge structure releases the stormwater at the control rate to a dispersion pond, which ultimately discharges to the adjacent wetlands.

The discharge structure was designed to effectively prevent floating materials from being released from the site.

2. Stormwater Treatment

a. Clean Stormwater

Stormwater runoff is treated in the existing wet detention basin. This basin is designed to treat 2.5 inches of runoff from the impervious surfaces and detain a 25-year, 24-hour storm event.

b. Other Stormwater

Stormwater which comes into contact with refuse will be segregated from the clean stormwater and will not be discharged from the site. This potentially contaminated water includes stormwater which falls on uncovered refuse or has otherwise made contact with refuse.

Temporary berms will be constructed in advance of the active fill face to collect stormwater which falls in the active area. This potentially contaminated stormwater will be pumped onto the working face or back into previously filled portions of the landfill.

3. Erosion Control

Stormwater terraces will be constructed on the side slopes of the completed landfill. These berms will route surface water flow to downcomer pipes buried in the final cover, and ultimately to the perimeter drainage ditch. This system of terraces and pipes will minimize erosion of the final cover. Vegetative cover will be established and maintained, as soon as practical, after finish contours are completed.

When erosion occurs, repair will begin within three days and the reason for the erosion will be evaluated to eliminate the source. Should the repair require more than 7 days, the Department will be notified as required by Rule 62-701.500(7)(j), F.A.C.

T. EQUIPMENT

Sufficient equipment (including three compactors, two dozers, an excavator, a loader, a grader, a water wagon, three trucks, a service truck and a tractor) is provided to ensure proper operation of the landfill and for spreading, compacting and covering waste. In addition, due to tractor trailers disposing at the landfill, a tipper has been added to the operations. Substitutions and additions to the equipment listed above may occur. However, equipment capable of performing comparably to the listed equipment will be maintained on site. In addition, equipment is available within 24 hours from other

company operations and distributors should any situation dictate the requirement for additional equipment.

The minimum equipment at the working face will include two compactors and one dozer. When the waste receipt exceeds 2600 tons per day, an additional compactor will be provided for spreading and/or compaction.

U. OPERATION FEATURES

The scale house and the administrative building both have telephones for routine emergency communications. Further, both facilities provide shelter, sanitary facilities and first aid equipment.

Dust originating from haul road surfaces will be controlled by periodic sweeping and/or watering of road surfaces, as required. Additionally, final cover will be vegetated as soon as practical after application of final cover, in order to minimize the blowing of dust on site.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharged onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place and intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

When a fire occurs at the landfill, the application of additional compacted cover will be utilized to cut off the flow of oxygen into the burning area. If this does not contain the fire, the affected area will be thoroughly wetted, excavated, and wetted again prior to reconstructing the cells. The chance of fire occurring at a properly run sanitary landfill is minimal.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

Instruction in fire fighting procedures is routinely provided to site personnel, and portable fire extinguishers are located on each machine and vehicle. Local Fire Departments will be employed to assist the site personnel and equipment, if necessary.

Fire hydrants are located on site and are connected to the pump system, which draws water from the stormwater basin.

Trail Ridge Landfill, Inc. has developed an extensive program regarding safety and accident prevention. As part of this program, employees are trained in proper operation and emergency procedures. Telephone communication and First Aid equipment are provided at the facility. Operating vehicles are in compliance with current OSHA safety requirements, including caging and shields to protect operators. All appropriate equipment has back-up alarms and those alarms are maintained in good repair.

The problem of blowing litter will be minimized by limiting the active working face and using initial cover or tarpaulins over the active fill areas. Other methods, such as the utilization of casual labor pickers and portable fencing will be employed as required to contain loose paper and other wind-blown refuse during fill operations. Any loose paper or similar refuse blown outside the working area will be picked up on a regular basis.

Signage indicating the name of facility, operating authority, hours of operation and charges for disposal is located adjacent to the gate, prior to the ticket/scale house. Additional signs are placed on site to direct traffic. Warning signs are located in operating areas dealing with leachate and gas collection.

V. ROADS

The entrance road and ticket office/scale house area are paved. Beyond the paved area, all-weather perimeter roads are maintained to the active fill area, monitoring devices, and stormwater controls. Service and haul road construction and maintenance are coordinated with the landfill phasing and development.

W. RECORD KEEPING

The landfill operator will:

1. Keep records of all information used to develop or support the permit applications and any supplemental information pertaining to construction of the landfill throughout the design period. Records pertaining to the operation of the landfill will be kept for the design period of the landfill.

2. Retain records of all monitoring information, including calibration and maintenance records, all original chart recordings for continuous monitoring

instrumentation, and copies of all reports required by permit, for at least ten years. Background water quality records will be kept for the design period of the landfill.

3. Maintain an annual estimate of the remaining life and capacity in cubic yards of the existing, constructed landfill and remaining capacity and site life of other permitted areas not yet constructed. The annual estimate will be based on a summary of the heights, lengths, and widths of the solid waste disposal units. The estimate will be made and reported annually to the Department.

4. Records which are more than five years old and which are required to be retained may be archived, provided that the landfill operator can retrieve them for inspection within seven days.

X. WASTE TIRE PROCESSING

The landfill includes a waste tire processing facility. The permit application and operations plan for the waste tire processing are contained in **Appendix H**.

Y. INSPECTIONS

The operator will inspect all the active area on a weekly basis, the closed areas, at a minimum, on a monthly basis, and both areas after major storm events. Further, the operator will inspect the leachate collection system and gas collection system on a weekly basis. The checklist contained in Attachment B will be used for the inspections. Eroded areas will be repaired within 3 days of discovery and other insufficiencies will be repaired within 7 days.

IX. WATER QUALITY MONITORING

A. SURFACE WATER MONITORING

A surface water monitoring plan was approved as part of the original permit as well as the permit renewal. A summary of the monitoring data and recommendation for continued monitoring is provided in **Appendix I.**

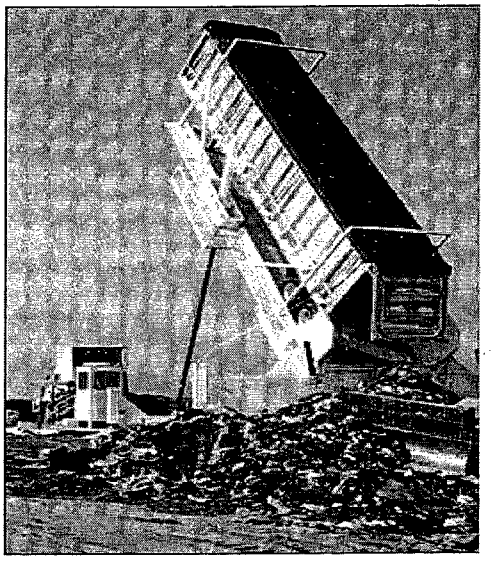
B. GROUNDWATER MONITORING

A groundwater monitoring plan was approved as part of the original permit as well as the permit renewal. A summary of the monitoring data and recommendation for continued monitoring is provided in **Appendix I.**

PORTABLE TIPPER

TIPPERS

LOW PROFILE LANDFILL



LOW PROFILE LAN

The patented Low Profile Portable is the most advanced tipper available today. Its compact design allows the tipper to be moved with a common fifth wheel equipped tractor. With an optional dolly, the tipper can be towed by most landfill-based moving equipment.

The average time required to move and reset a Low Profile tipper within a landfill is less than 30 minutes. As a result, it provides an excellent option when the working face is large enough to require frequent tipper relocation. This in turn makes it easier to unload waste close to the working face.

OPTIONAL SELF-CLEANING DECK
The new patented Self-Cleaning Deck saves time and money by preventing waste from accumulating on or under the Tipper's deck.

Each time the deck is elevated in the tipping cycle, the Self-Cleaning Deck causes material spilled during unloading to pass through the rear chute. This optional feature eliminates the costly and time-consuming task of cleaning material from the deck or from around the running gear of your Tipper.

This feature is available on all new Columbia "Low-Profile" Landfill Tippers and also may be installed in the field as an upgrade to your existing unit.

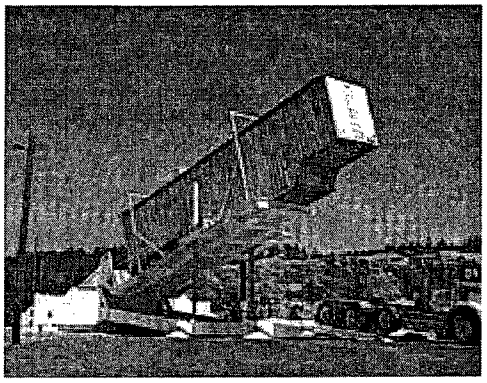
OTHER TIPPERS:
LOW PROFILE PORTABLE

FIXED INSTALLATION

U.S. Patents #5080548, #5344271, #5458451 & #6579054
Canadian Patent #2046194 (1995)

TIPPERS

LOW PROFILE PORTABLE



LOW PROFILE POR

THE MOST ADVANCED
TIPPER AVAILABLE TOD

Columbia's Portable Tippers are quickly becoming the preferred method of unloading most bulk commodities across the country and abroad. Because of our attention to detail and quality, in over 20 years of operation, our tippers have proven to be safe, reliable and efficient: No reported safety issues, an average of less than 1 downtime hour per 1000 of operation, and an approximately 3 minute cycle time which allows a 10 to 12 trailer per hour throughput. Additionally, using tippers to discharge the load means that you no longer need to operate and maintain heavier and more expensive self-unloading trailers. The resulting weight savings allows you to transport larger payloads.

The average time required to move and reset a Low Profile Portable tipper is less than 4 hours.

OTHER TIPPERS:

LOW PROFILE LANDFILL

FIXED INSTALLATION

U.S. Patents #5080548, #5344271, #5458451 & #6579054
Canadian Patent #2046194 (1995)

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS
14775 ST. AUGUSTINE RD. • JACKSONVILLE, FL 32258 • TEL: (904) 642-8990 • FAX: (904) 646-9485
CA – 00002584 • www.etminc.com • LC – 0000316

August 24, 2005

Mr. Emerson C. Raulerson, P.E.
Solid Waste Section
Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256-7590

Reference: Trail Ridge Landfill – Permit Modification
FDEP File No. 13493-013
ETM No. 98-34

Dear Mr. Raulerson:

In response to staff comments dated August 17, 2005, we offer the following. Please note the Department's comments (bold face type) are followed by our response in italics:

1. **The Department understands you are proposing changes to only those portions of the provided "TRAIL RIDGE LANDFILL REVISED OPERATION PLAN," that are underlined or struck through. Therefore, the Department only reviewed those underlined or struck through portions. If this is incorrect and other portions were changed, please resubmit the plan with all changes either underlined in the case of additions, or struck through in the case of deletions. If this understanding is correct, please confirm. Finally, please note any changes not appropriately delineated shall not be misconstrued as having been approved.**

   The Department's understanding is correct.

2. **In section VIII, OPERATION PLAN, subsection A, OPERATION PERSONNEL AND HOURS OF OPERATION, please revise the second paragraph to not only indicate that at least one trained spotter will be on-site at all times when the landfill receives waste, but rather indicate that at least one "trained" spotter will be present at the working face at all times waste is being accepted and/or spread out prior to disposal at that respective working face (FAC Rule 62-701.500(1)). For example, if waste is being accepted at both working faces at the same time, there will be at least one "trained" spotter at each working face, for a minimum of 2 trained spotters.**

   The second paragraph has been revised.
   Also, please revise section F, Paragraph 5, to specify that at the tipper working face there will be at least one "trained" spotter while waste is being accepted and/or spread out prior to disposal.

   The fifth paragraph has been revised.

3. **Please specify the equipment and personnel, including heavy equipment operators, spotters, etc., that you will have present at the tipper working face while tipping and/or spreading waste. Please confirm that a spotter will inspect all loads not only as they are being tipped, but also as they are being spread. Please also indicate how you will use the heavy equipment, e.g., to spread and/or compact the waste.**

   The tipper working face shall have the landfill tipper and tipper operator. A compactor and operator will also be operating within the tipper working face. A trained spotter will also be present at the tipper working face to inspect all loads as the loads are being tipped and spread. A compactor will be utilized to spread and compact the solid waste. In order to maximize usage, the compactor assigned to the tipper working face may move back and forth between the working faces when solid waste is not being disposed of and/or spread within the tipper working face.

4. **Please propose a maximum size for each of the two working faces.**

   The first working face shall be wide enough to accommodate vehicles discharging solid waste and to minimize the exposed area and unnecessary use of cover material. The second working face where the landfill tipper will be located will only be wide enough to accommodate tractor trailers discharging solid waste via the landfill tipper. The second working face will also be wide enough to minimize the exposed area and unnecessary use of cover material.

We hope these comments adequately address your concerns. Please contact our office if you require additional information.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Francis Dayao, P.E.

Attachment: Revised Operation Plan

Cc: Greg Mathes

VIII. OPERATION PLAN

A. OPERATION PERSONNEL AND HOURS OF OPERATION

The District Manager is responsible for the overall operation of the Trail Ridge Landfill. The District Manager's responsibility is to assure that operations at the site are performed in accordance with the procedures outlined in this Operation Plan.

The District Manager, the Operations Manager and several operators are trained operators under Rule 62-701.320(15), F.A.C. At least one trained operator will be on-site during all times when the landfill receives waste. Further, at least one trained spotter will be at the working face at all times waste is being accepted and/or spread out prior to disposal at that respective working face. ~~when the landfill receives waste.~~

1. Hours of Operation

a.	Normal Monday - Friday:	6:00 A.M. to 7:00 P.M.
b.	Normal Saturday:	6:00 A.M. to 3:00 P.M.
c.	Maximum Hours:	5:00 A.M. to 10:00 P.M.

During emergency situations, i.e., after a hurricane, the landfill may operate beyond the above hours. However, the Florida Department of Environmental Protection must be notified at the first available opportunity. The landfill will have lights with at least 3 candle-feet of illumination for operation during non-daylight hours.

2. Personnel

Personnel expected to be at the landfill includes:

Personnel	Total
District Manager	1
Operations Manager	1
Equipment Operators	8
Mechanic	1
Labors/Spotters	6
Compliance Officer	1
Clerical	3

On a normal basis, the personnel present during operating hours on the landfill will include a trained operator, a trained spotter, a material handler (laborer) and

Frank Yager 8/24/05

two equipment operators. During peak operating hours, the facility will have additional personnel, in accordance with the Personnel Matrix in Attachment A.

A work schedule is developed on a weekly basis to ensure that adequate staff is present on the landfill to handle the expected volume of waste.

B. CONTINGENCY OPERATIONS

The on-site entrance road is an all-weather road. The entrance road and administration area are paved. The pavement extends beyond the ticket office/scale house to the perimeter road around the landfill. The perimeter road is a stabilized limerock road. Haul roads beyond this point are maintained for adverse weather condition usage.

Emergency conditions at the facility may be created by a natural disaster (i.e., hurricane or tornado), flooding and fire. Waste is not normally delivered to the site during emergency conditions. The following procedures will be implemented with the imminent threat of a major storm.

1. Initial cover will be applied and compacted over all exposed waste.
2. All landfill equipment will be fueled and parked near natural wind screens, earthen mounds or tree areas.
3. All lightweight signs and equipment will be secured.
4. Work will begin in dry areas only when operations are resumed and waste materials will not be disposed in standing water.

The surface water management system will allow disposal operations to continue during periods of inclement weather. This will include the utilization of temporary berms and ditches to drain stormwater away from the active face.

In the event of a natural disaster in the area, operational hours will be extended as appropriate to meet the needs of the community and the Department will be notified.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharge onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place with intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to

another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

C. WASTE CONTROL

The waste stream will be monitored by the scale house operator, as each vehicle passes by the ticket office/scale house and then again at the working face by the spotter(s). In addition, the scale house is equipped with cameras/video monitoring systems, which record a time-coded picture of the vehicles entering the site.

There will be at least one trained spotter at the working face to observe the wastes disposed at all times the landfill receives waste. If any unacceptable wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known for subsequent removal off site. If the waste is deemed hazardous, the area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at an appropriate waste management facility.

In the event unacceptable waste is identified after the hauler has left the facility, the unacceptable waste shall be removed from the working face and placed in close proximity to the working face. At the end of the day, at a minimum, unacceptable waste such as batteries, oil filters, used oil, etc. will be removed from the landfill and stored at the existing concrete storage area adjacent to the waste tire storage and processing area. Within the storage area, the materials shall be placed in a single layer on pallets. (The water level in the storage area will be checked on a weekly basis and accumulated water will be pumped out and treated as leachate). Tires will be placed within the tire storage areas. White goods will be stored in a roll-off box. White goods and batteries will be taken off site by various recyclers on a quarterly basis at a minimum.

Only two types of biological waste are accepted for disposal, bodies of domestic animals and treated biomedical waste. Before the bodies of domestic animals are brought to the facility, the landfill will request information about the waste to determine if the animals were diseased. If the animals were not diseased, the bodies will be disposed within the working face and then covered immediately with either additional waste or initial cover. If the bodies of the domestic animal are from diseased animals, the bodies will be handled in accordance with Section 823.041(1), F.S. Treated biomedical waste will be

disposed within the working face and then covered with either additional waste or initial cover.

D. WEIGHING WASTE

All incoming waste will be weighed and recorded on a daily basis at the on-site scales prior to disposal. The on-site scales include at least one scale for incoming vehicles and one scale for outgoing vehicles.

E. VEHICLE TRAFFIC CONTROL

Signs are provided to direct traffic to the disposal area. Further, spotters will direct incoming vehicles to their final disposal area.

F. METHOD AND SEQUENCE OF FILLING WASTE

The landfill will have two (2) working faces and ~~The working face~~ will be consistent with orderly traffic control, waste spreading, and compaction activities.

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system. The placement of this initial waste will be supervised by a quality assurance monitor under the supervision of a Florida Registered professional Engineer.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices. In general, the initial fill will be placed from east to west in a 300-foot wide section that corresponds to the leachate collection area.

The first working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material. The second working face will be located near the first working face and shall have a portable tipper used to unload solid waste trailers. The location of the portable tipper within the second working face will be determined by the landfill operator and will vary depending on the amount of solid waste being received and weather conditions. The second

working face shall have a "trained" spotter whenever solid waste is being accepted and/or spread out prior to disposal.

G. WASTE COMPACTION AND APPLICATION OF COVER

Waste will be spread in layers of approximately two (2) feet in thickness and compacted to approximately one (1) foot in thickness or as thin a layer as practical before the next layer is applied. In general three to five passes with the compactor will be made on each layer of refuse.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day. A 6" thick initial soil cover or an FDEP approved alternate daily cover may also be applied at the end of each operating day.

For those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C.

An intermediate cover, in addition to the six (6) inch initial cover, will be applied and maintained within seven (7) days of cell completion if final cover or an additional lift is not to be applied within 180 days of cell completion. All or part of this intermediate cover may be removed before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less).

Final cover will be applied to a solid waste disposal unit once it has been filled to its design dimensions. The final cover including permanent vegetation will be placed over the entire surface of each completed solid waste disposal unit within 180 days after final waste placement. Solid waste disposal units, which are designated by phase, are shown on **Permit Drawings Nos. 14 and 15**.

H. OPERATION OF GAS, LEACHATE AND STORMWATER CONTROLS

1. Gas Collection System

The permanent gas collection system will be installed as each phase reaches its final contour in accordance with NSPS time frames. Further, the temporary gas collection system will be installed within five years of waste placement within a phase. All gas extraction wells are designed and installed for connection to the active gas extraction system including collection lines, blowers and flare station.

The gas management system will be monitored on a monthly basis, which will include inspection of each well and calibration of the system, as needed. This monitoring will be documented.

2. Leachate

The primary leachate collection system consists of an 8" perforated HDPE collection pipe surrounded by an aggregate encasement, which is covered by a geotextile fabric. This collection system is located in a trench on top of the primary liner. Leachate is collected within each leachate sector (300' wide, typical) and directed to the collection system by a geonet drainage blanket located on top of the primary liner.

The primary leachate collection pipes passes through the leachate collection sump and terminates at the leachate vault on the east side of the landfill. The leachate collection sump consists of an 18" or 24" diameter HDPE pipe (riser pipe) surrounded by an aggregate sump. The riser pipe extends from the sump up to the leachate vault. The 8" HDPE leachate collection pipe discharges directly into the riser pipe as well as the sump. A small submersible pump is located inside each riser pipe. Level sensors in the riser pipe are used to control the pump, which removes leachate as it accumulates. The pumps are mounted on wheels and can easily be removed for maintenance.

The leachate pumps discharge into a leachate force main which transfer the leachate to the fiberglass storage tanks (20,000 gallons each). Each leachate pump discharges through a flow meter that is monitored daily, Monday through Friday. Therefore, each leachate sector can be monitored for leachate generation. The leachate collection system, including the storage tanks, is located over the liner system. The leachate storage tanks are visually inspected daily, Monday through Friday, by on-site personnel. A daily log (Monday through Friday) is kept outlining leachate generation and storage volumes. Leachate will be transported off-site by tanker at regular intervals based on leachate production. The leachate

is transported to the Buckman Street Wastewater Treatment Facility for treatment and disposal.

The secondary (detection) leachate collection system is constructed and operates similarly to the primary system. The exceptions for this system include:

a. Multiple layers of geonet were installed in lieu of the 8" HDPE perforated pipe.

b. The secondary leachate collection system is piped to a separate storage tank (20,000 gallons).

3. Stormwater Treatment and Detention

The Stormwater Management System was designed in accordance with Rules 62-25, 40C-4 and 40C-42, F.A.C. for both treatment and peak flow attenuation. The stormwater treatment is provided by wet detention.

In general, a minimum of the first 1" of runoff will be treated prior to discharge. The treated stormwater will be discharged from the stormwater pump station via the wetland irrigation system.

4. Stormwater Management

a. Stormwater/Leachate Separation

Stormwater which falls on a section of the lined landfill, which is not currently being used for waste disposal, is separated from the leachate collection. This is accomplished by closing the valve upstream of the active phase and isolating this portion of the leachate collection system. A 36" high HDPE flap is welded to the liner at this phase line to prevent stormwater from flowing to the active area. A temporary pump-out is provided upstream of each valve and flap to pump uncontaminated stormwater from the inactive liner into the perimeter ditch. Any stormwater that comes in contact with waste will be considered leachate and handled in accordance with the Leachate Management Plan.

b. Stormwater Collection

All stormwater is collected and directed into the stormwater basin. The collection system includes terraces on the final landfill slopes in conjunction with downcomer piping. This system will control runoff and minimize erosion on the landfill side slopes. Details of this system are shown on the

Permit Drawings. The existing wetland discharge of treated stormwater occurs through a 2" perforated spreader pipe. The wetland irrigation occurs adjacent to the stormwater management basin.

I. WATER QUALITY MONITORING

There is an existing Environmental Media Monitoring Plan (Groundwater, Surface Water, and Leachate) for this facility which is part of the current Solid Waste Permit and will continue a part of this renewal permit. This plan includes semi-annual monitoring of each media.

J. MAINTENANCE OF LEACHATE COLLECTION SYSTEM

Each leachate vault box (located at the east end of each leachate collection pipe) has a flow meter for the primary and secondary leachate collection system. These flow meters will be read daily, Monday thru Friday. If the reading in a flow meter is noticeably diminishing or otherwise reduced compared to the other flow meters and daily rainfall records, the flow meter will be checked for proper operation. Prior to the next permit renewal and in the event it is deemed necessary, the leachate collection system will be either videoed to determine if there is a clog or other reason for diminished flow or the leachate collection pipe will be flushed cleaned.

K. OPERATION RECORD

The operating record consists of all records, reports, analytical results, demonstrations, and notifications required by Chapter 62-701, F.A.C., any construction, operation, and closure plans and permits, including all modifications to those permits issued by the Department, Permit Document Plans, as well as training records required by Chapter 62-701.320(15), F.A.C. The record is considered part of the operation plan and will be kept with the plan at the landfill facility. The operating record will be available for inspection at reasonable times by Department personnel.

L. WASTE RECORDS

All solid waste will be weighed as it is received. Landfill operators will record, in tons per day, the amount of solid waste received and will estimate the amount of each waste listed below. Waste reports will be compiled monthly, and copies provided to the Department quarterly.

Types of waste received:

a. Residential/household waste
b. Commercial waste
c. Treated biomedical waste
d. Water treatment sludge
e. Construction and demolition debris
f. Agricultural waste
g. Industrial waste
h. Waste tires
i. Asbestos
j. Industrial sludge
k. Domestic sludge
l. Non-Hazardous special wastes

M. ACCESS CONTROL

Access to the landfill is provided by a paved entrance road from U.S. 301.

The entire site is fenced. Access is restricted by a gate near the entrance off U.S. 301 as well as a second gate closer to the site. All gates will be locked at night and whenever the landfill is closed. Public access and receipt of wastes will occur only when an attendant is on duty.

Traffic control on site is accomplished by signage and site personnel. Spotters will assist with traffic control at the working face by directing in-coming trucks to their final unloading area.

Access to areas restricted from traffic will be controlled by temporary earthen berms and barricades.

N. WASTE MONITORING

1. The operations will include a load checking program to detect and discourage attempts to dispose of unauthorized wastes at the landfill. The load checking program consists of the following minimum requirements:

   a. The landfill operator will examine at least three random loads of solid waste delivered to the landfill each week. The waste collection vehicle drivers selected by the inspector will be directed to discharge their loads at a designated location within the landfill (near the working face). A detailed inspection of the discharged material will be made for any unauthorized wastes.

   b. If unauthorized wastes are found, the facility will contact the generator, hauler, or other party responsible for shipping the waste to the landfill to determine the identity of the waste sources.

2. Handing hazardous wastes.

   a. If any regulated hazardous wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the Department by telephone, the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known. The area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at a permitted hazardous waste management facility.

      The operator will provide a report of the discovery of hazardous waste to the Department within seven days. The report will include the date of the incident, how the materials were discovered, transferred and transported, the disposal location, and if known, the source of the material. The material will be transferred and disposed off site in accordance with applicable local, state and federal regulations. The clean up will include determining the extent of contamination as well as the handling of materials that are contaminated by the hazardous waste.

   b. Subsequent shipments from sources found or suspected to be previously responsible for shipping regulated hazardous waste will be subject to precautionary measure prior to the solid waste management facility accepting wastes.

3. Recording inspection results. Information and observations resulting from each random inspection will be recorded in writing and retained at the landfill for at least three years. The recorded information will include: the date and time of the inspection; the names of the hauling firm and the driver of the vehicle; the vehicle license plate number; the source of the waste, as stated by the driver; and observations made by the inspector during the detailed inspection. The written record will be signed by the inspector.

O. WASTE HANDLING

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices.

The working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day.

However, for those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C.

An intermediate cover, in addition to the initial cover, will be applied and maintained within seven days of cell completion if additional solid waste will not be deposited within 180 days of cell completion. The landfill operator may remove all or part of the

intermediate cover before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less).

Solid waste disposal units, which have been filled to design dimensions, will receive final cover within 180 days after attaining final elevation or in accordance with the closure plan for the landfill. The solid waste disposal units are shown on **Permit Drawing Nos. 14 and 15.**

Uncontrolled and unauthorized scavenging is not permitted at the landfill site. Salvaging is also not permitted.

A litter policing operation will be employed to keep litter from leaving the working area of the landfill. Litter outside the working area will be picked up within 24 hours. Some litter may be exposed through the initial cover, if it is in traffic areas and away from public view.

Erosion control measures will be employed to correct any erosion which exposes waste or causes malfunction of the stormwater management system. Erosion control measures will be implemented within three days of occurrences. If the erosion cannot be corrected within seven days of occurrence, the landfill operator will notify the Department and propose a corrective schedule.

P. LEACHATE MANAGEMENT

The landfill operator will monitor the leachate level in and record the flow from both the leachate collection (primary) and detention (secondary) sumps on a daily basis, Monday through Friday. The operator will maintain at least one backup pump on site or have access to a backup pump that can be installed within hours of discovery that a pump is not operating. The operator/owner will sample and analyze the leachate in accordance with the Environmental Media Monitoring Plan and will submit the results to the Department.

The operator will operate and maintain the leachate collection system to collect and remove leachate from the landfill. The leachate will be stored on site in the six 20,000-gallon leachate storage tanks and will be transported to Buckman Street Wastewater Treatment Facility for treatment and disposal.

The quantity of leachate collected by the leachate collection and removal system will be recorded (in gallons) on a daily basis, Monday through Friday. The amount of leachate transported off site will be recorded on a daily basis, Monday through Friday.

If the flow from any secondary leachate detection sump exceeds 4,492 gallons per day for one day, the Department will be notified within 24 hours and a follow-up report prepared within 7 days. The follow-up report will include a description and assessment of the situation, proposed remedial actions, the proposed remedial action and a schedule for commencing and completing the remediation.

A recording rain gauge is operated and maintained to record precipitation at the landfill. These precipitation records will be maintained and used to compare with leachate generation rates.

Q. LEACHATE SPILLAGE CONTROL PLAN

The leachate storage and pumping facilities are inside a concrete containment area, which will hold 140% of the volume of the storage tanks plus one foot of freeboard. This facility is constructed on top of the liner system. Therefore, the Leachate Spillage Control Plan is directed at those spills that would occur outside the containment area.

The Leachate Spillage Control Plan consists of four major elements; Training, Containment, Remediation and Notification as described below:

1. Training

The tanker driver and/or site personnel (the Attendant for the purposes of this subsection) will be trained to prevent spills. The Attendant will perform the following prior to loading the tanker truck:

a. Inspect the tanker for signs of leakage.
b. Verify all tanker discharge valves are closed.
c. Verify the tanker is completely within the leachate loading area containment curbing.
d. Verify the liquid level in the containment sump is at or below the discharge pipe.
e. Verify the containment sump discharge gate valve is closed.
f. Verify the leachate fill hose is securely fastened to the inlet port of the tanker.
g. Verify the available tanker volume.

Upon completion of this inspection, the Attendant will begin the following fill sequence:

1. Operate the leachate loading pump for approximately five minutes or until 500 gallons of leachate has been pumped and then discontinue pumping.

2. Inspect the tanker, fill hose and pumping system for leakage.
3. Upon verification that no spilling or leaking has occurred, restart pumping.
4. Continuously monitor the tanker fill operations.
5. Monitor the leachate flow meter until approximately 95% of the available tanker volume has been filled.
6. Discontinue filling operations and remove fill hose.
7. Perform a final inspection of tanker and tanker fill area.

2. Containment

If a spill occurs, the Attendant will notify the District Manager of the spill and request assistance. The Attendant will institute the following containment sequence:

a. Cease pumping.
b. Place sandbags around drainage structures down slope from the loading area to prevent any spillage from entering the drainage system. (NOTE: The first 500 gallons of spillage inside the containment curb will drain naturally into the 500-gallon containment sump.)
c. Create an earthen berm around the spill with on-site sands taken from the daily cover stockpile.

3. Remediation

After the spill has been securely contained, the following cleanup will begin:

a. Pump the leachate in the containment sump into the on-site storage tanks.
b. Spread absorbent sands across all areas in contact with the spill.
c. Remove the contaminated sand to the landfill disposal area.

4. Notification

In the event of a leachate spill, the Department will be notified.

The outlined Spillage Control Plan focuses primarily on a spill at the tanker truck loading area. However, if a leachate spill is discovered at any location on site, the pertinent containment, remediation and notification procedures described above will be implemented.

R. COMBUSTIBLE GAS MONITORING PROGRAM

The combustible gas monitoring program is provided in **Appendix F** and will be monitored quarterly with the results submitted to the Department.

If combustible gas levels exceed twenty-five percent of the lower explosive limit in structures (excluding gas control or recovery components) or the lower explosive limits at or beyond the property boundary, Trail Ridge Landfill will:

1. Immediately take all necessary steps to ensure protection of human health and notify the Department.

2. Within seven days of detection, submit to the Department for approval a remediation plan for the gas releases. The plan will describe the nature and extent of the problem and the proposed remedy. The remedy will be completed within 60 days of detection unless otherwise approved by the Department.

S. STORMWATER MANAGEMENT

1. Stormwater Handling

The stormwater management system was installed as part of the initial construction and is operated and maintained in accordance with the requirements of the DEP Solid Waste permit. The stormwater management system includes the wet detention basin as well as the swales, drainage ditches and culverts, discharge structures, downcomer pipes and other appurtenances as required. Pertinent features of the stormwater handling system include:

a. Potentially contaminated stormwater will be segregated from clean stormwater and contaminated stormwater will not be discharged from the site;
b. A 24-hour, 25-year rainfall event is detained on site;
c. Stormwater is treated to meet the requirements of Rule 62-25, F.A.C.;
d. The maximum discharge rate following a 25-year, 24-hour storm event does not exceed the pre-development discharge from this design storm.

Stormwater is routed through the internal ditch and culvert network to the wet detention basin for treatment. The discharge structure releases the stormwater at the control rate to a dispersion pond, which ultimately discharges to the adjacent wetlands.

The discharge structure was designed to effectively prevent floating materials from being released from the site.

2. Stormwater Treatment

a. Clean Stormwater

Stormwater runoff is treated in the existing wet detention basin. This basin is designed to treat 2.5 inches of runoff from the impervious surfaces and detain a 25-year, 24-hour storm event.

b. Other Stormwater

Stormwater which comes into contact with refuse will be segregated from the clean stormwater and will not be discharged from the site. This potentially contaminated water includes stormwater which falls on uncovered refuse or has otherwise made contact with refuse.

Temporary berms will be constructed in advance of the active fill face to collect stormwater which falls in the active area. This potentially contaminated stormwater will be pumped onto the working face or back into previously filled portions of the landfill.

3. Erosion Control

Stormwater terraces will be constructed on the side slopes of the completed landfill. These berms will route surface water flow to downcomer pipes buried in the final cover, and ultimately to the perimeter drainage ditch. This system of terraces and pipes will minimize erosion of the final cover. Vegetative cover will be established and maintained, as soon as practical, after finish contours are completed.

When erosion occurs, repair will begin within three days and the reason for the erosion will be evaluated to eliminate the source. Should the repair require more than 7 days, the Department will be notified as required by Rule 62-701.500(7)(j), F.A.C.

T. EQUIPMENT

Sufficient equipment (including three compactors, two dozers, an excavator, a loader, a grader, a water wagon, three trucks, a service truck and a tractor) is provided to ensure proper operation of the landfill and for spreading, compacting and covering waste. In addition, due to tractor trailers disposing at the landfill, a tipper has been added to the operations. Substitutions and additions to the equipment listed above may occur. However, equipment capable of performing comparably to the listed equipment will be maintained on site. In addition, equipment is available within 24 hours from other

company operations and distributors should any situation dictate the requirement for additional equipment.

The minimum equipment at the working face will include two compactors and one dozer. When the waste receipt exceeds 2600 tons per day, an additional compactor will be provided for spreading and/or compaction.

U. OPERATION FEATURES

The scale house and the administrative building both have telephones for routine emergency communications. Further, both facilities provide shelter, sanitary facilities and first aid equipment.

Dust originating from haul road surfaces will be controlled by periodic sweeping and/or watering of road surfaces, as required. Additionally, final cover will be vegetated as soon as practical after application of final cover, in order to minimize the blowing of dust on site.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharged onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place and intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

When a fire occurs at the landfill, the application of additional compacted cover will be utilized to cut off the flow of oxygen into the burning area. If this does not contain the fire, the affected area will be thoroughly wetted, excavated, and wetted again prior to reconstructing the cells. The chance of fire occurring at a properly run sanitary landfill is minimal.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

Instruction in fire fighting procedures is routinely provided to site personnel, and portable fire extinguishers are located on each machine and vehicle. Local Fire Departments will be employed to assist the site personnel and equipment, if necessary.

Fire hydrants are located on site and are connected to the pump system, which draws water from the stormwater basin.

Trail Ridge Landfill, Inc. has developed an extensive program regarding safety and accident prevention. As part of this program, employees are trained in proper operation and emergency procedures. Telephone communication and First Aid equipment are provided at the facility. Operating vehicles are in compliance with current OSHA safety requirements, including caging and shields to protect operators. All appropriate equipment has back-up alarms and those alarms are maintained in good repair.

The problem of blowing litter will be minimized by limiting the active working face and using initial cover or tarpaulins over the active fill areas. Other methods, such as the utilization of casual labor pickers and portable fencing will be employed as required to contain loose paper and other wind-blown refuse during fill operations. Any loose paper or similar refuse blown outside the working area will be picked up on a regular basis.

Signage indicating the name of facility, operating authority, hours of operation and charges for disposal is located adjacent to the gate, prior to the ticket/scale house. Additional signs are placed on site to direct traffic. Warning signs are located in operating areas dealing with leachate and gas collection.

V. ROADS

The entrance road and ticket office/scale house area are paved. Beyond the paved area, all-weather perimeter roads are maintained to the active fill area, monitoring devices, and stormwater controls. Service and haul road construction and maintenance are coordinated with the landfill phasing and development.

W. RECORD KEEPING

The landfill operator will:

1. Keep records of all information used to develop or support the permit applications and any supplemental information pertaining to construction of the landfill throughout the design period. Records pertaining to the operation of the landfill will be kept for the design period of the landfill.

2. Retain records of all monitoring information, including calibration and maintenance records, all original chart recordings for continuous monitoring

instrumentation, and copies of all reports required by permit, for at least ten years. Background water quality records will be kept for the design period of the landfill.

3. Maintain an annual estimate of the remaining life and capacity in cubic yards of the existing, constructed landfill and remaining capacity and site life of other permitted areas not yet constructed. The annual estimate will be based on a summary of the heights, lengths, and widths of the solid waste disposal units. The estimate will be made and reported annually to the Department.

4. Records which are more than five years old and which are required to be retained may be archived, provided that the landfill operator can retrieve them for inspection within seven days.

X. WASTE TIRE PROCESSING

The landfill includes a waste tire processing facility. The permit application and operations plan for the waste tire processing are contained in **Appendix H.**

Y. INSPECTIONS

The operator will inspect all the active area on a weekly basis, the closed areas, at a minimum, on a monthly basis, and both areas after major storm events. Further, the operator will inspect the leachate collection system and gas collection system on a weekly basis. The checklist contained in Attachment B will be used for the inspections. Eroded areas will be repaired within 3 days of discovery and other insufficiencies will be repaired within 7 days.

IX. WATER QUALITY MONITORING

A. SURFACE WATER MONITORING

A surface water monitoring plan was approved as part of the original permit as well as the permit renewal. A summary of the monitoring data and recommendation for continued monitoring is provided in **Appendix I.**

B. GROUNDWATER MONITORING

A groundwater monitoring plan was approved as part of the original permit as well as the permit renewal. A summary of the monitoring data and recommendation for continued monitoring is provided in **Appendix I.**

ENGLAND, THIMS & MILLER, INC.
14775 St. Augustine Road
Jacksonville, Florida 32258

Tel (904) 642-8990 Fax (904) 646-9485

LETTER OF TRANSMITTAL

TO: Emerson Raulerson, P. E.
Solid Waste Section
Dept. of Environmental Protection
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256

DATE: August 24, 2005 | JOB NO: 98-34

RE: Trail Ridge Landfill – Permit Modification

- courier -

RECEIVED
AUG 24 2005
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST DISTRICT - JACKSONVILLE

WE ARE SENDING YOU: [X] Attached [ ] Under separate cover via:

[ ] Shop Drawings [ ] Prints [ ] Plans [ ] Specifications [X] Copy of letter

COPIES	DESCRIPTION
5	Response to Request for Additional Information (FDEP File No. 13493-013)

THESE ARE TRANSMITTED: -

[ ] For your use [X] For review and comment

[ ] As requested [ ] Other For Signatures

REMARKS:

CC: Greg Mathes

SIGNED: Francis Dayao, P. E.

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS
14775 ST. AUGUSTINE RD. • JACKSONVILLE, FL 32258 • TEL: (904) 642-8990 • FAX: (904) 646-9485
CA – 00002584 • www.etminc.com • LC – 0000316

August 24, 2005

Mr. Emerson C. Raulerson, P.E.
Solid Waste Section
Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256-7590

Reference: Trail Ridge Landfill – Permit Modification
FDEP File No. 13493-013
ETM No. 98-34

Dear Mr. Raulerson:

In response to staff comments dated August 17, 2005, we offer the following. Please note the Department's comments (bold face type) are followed by our response in italics:

1. **The Department understands you are proposing changes to only those portions of the provided "TRAIL RIDGE LANDFILL REVISED OPERATION PLAN," that are underlined or struck through. Therefore, the Department only reviewed those underlined or struck through portions. If this is incorrect and other portions were changed, please resubmit the plan with all changes either underlined in the case of additions, or struck through in the case of deletions. If this understanding is correct, please confirm. Finally, please note any changes not appropriately delineated shall not be misconstrued as having been approved.**

   The Department's understanding is correct.

2. **In section VIII, OPERATION PLAN, subsection A, OPERATION PERSONNEL AND HOURS OF OPERATION, please revise the second paragraph to not only indicate that at least one trained spotter will be on-site at all times when the landfill receives waste, but rather indicate that at least one "trained" spotter will be present at the working face at all times waste is being accepted and/or spread out prior to disposal at that respective working face (FAC Rule 62-701.500(1)). For example, if waste is being accepted at both working faces at the same time, there will be at least one "trained" spotter at each working face, for a minimum of 2 trained spotters.**

   The second paragraph has been revised.
   Also, please revise section F, Paragraph 5, to specify that at the tipper working face there will be at least one "trained" spotter while waste is being accepted and/or spread out prior to disposal.

   The fifth paragraph has been revised.

3. **Please specify the equipment and personnel, including heavy equipment operators, spotters, etc., that you will have present at the tipper working face while tipping and/or spreading waste. Please confirm that a spotter will inspect all loads not only as they are being tipped, but also as they are being spread. Please also indicate how you will use the heavy equipment, e.g., to spread and/or compact the waste.**

   The tipper working face shall have the landfill tipper and tipper operator. A compactor and operator will also be operating within the tipper working face. A trained spotter will also be present at the tipper working face to inspect all loads as the loads are being tipped and spread. A compactor will be utilized to spread and compact the solid waste. In order to maximize usage, the compactor assigned to the tipper working face may move back and forth between the working faces when solid waste is not being disposed of and/or spread within the tipper working face.

4. **Please propose a maximum size for each of the two working faces.**

   The first working face shall be wide enough to accommodate vehicles discharging solid waste and to minimize the exposed area and unnecessary use of cover material. The second working face where the landfill tipper will be located will only be wide enough to accommodate tractor trailers discharging solid waste via the landfill tipper. The second working face will also be wide enough to minimize the exposed area and unnecessary use of cover material.

We hope these comments adequately address your concerns. Please contact our office if you require additional information.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Francis Dayao, P.E.

Attachment: Revised Operation Plan

Cc: Greg Mathes

VIII. OPERATION PLAN

A. OPERATION PERSONNEL AND HOURS OF OPERATION

The District Manager is responsible for the overall operation of the Trail Ridge Landfill. The District Manager's responsibility is to assure that operations at the site are performed in accordance with the procedures outlined in this Operation Plan.

The District Manager, the Operations Manager and several operators are trained operators under Rule 62-701.320(15), F.A.C. At least one trained operator will be on-site during all times when the landfill receives waste. Further, at least one trained spotter will be at the working face at all times waste is being accepted and/or spread out prior to disposal at that respective working face. ~~when the landfill receives waste.~~

1. Hours of Operation

a.	Normal Monday - Friday:	6:00 A.M. to 7:00 P.M.
b.	Normal Saturday:	6:00 A.M. to 3:00 P.M.
c.	Maximum Hours:	5:00 A.M. to 10:00 P.M.

During emergency situations, i.e., after a hurricane, the landfill may operate beyond the above hours. However, the Florida Department of Environmental Protection must be notified at the first available opportunity. The landfill will have lights with at least 3 candle-feet of illumination for operation during non-daylight hours.

2. Personnel

Personnel expected to be at the landfill includes:

Personnel	Total
District Manager	1
Operations Manager	1
Equipment Operators	8
Mechanic	1
Labors/Spotters	6
Compliance Officer	1
Clerical	3

On a normal basis, the personnel present during operating hours on the landfill will include a trained operator, a trained spotter, a material handler (laborer) and

Frank Sapp 8/24/05

two equipment operators. During peak operating hours, the facility will have additional personnel, in accordance with the Personnel Matrix in Attachment A.

A work schedule is developed on a weekly basis to ensure that adequate staff is present on the landfill to handle the expected volume of waste.

B. CONTINGENCY OPERATIONS

The on-site entrance road is an all-weather road. The entrance road and administration area are paved. The pavement extends beyond the ticket office/scale house to the perimeter road around the landfill. The perimeter road is a stabilized limerock road. Haul roads beyond this point are maintained for adverse weather condition usage.

Emergency conditions at the facility may be created by a natural disaster (i.e., hurricane or tornado), flooding and fire. Waste is not normally delivered to the site during emergency conditions. The following procedures will be implemented with the imminent threat of a major storm.

1. Initial cover will be applied and compacted over all exposed waste.
2. All landfill equipment will be fueled and parked near natural wind screens, earthen mounds or tree areas.
3. All lightweight signs and equipment will be secured.
4. Work will begin in dry areas only when operations are resumed and waste materials will not be disposed in standing water.

The surface water management system will allow disposal operations to continue during periods of inclement weather. This will include the utilization of temporary berms and ditches to drain stormwater away from the active face.

In the event of a natural disaster in the area, operational hours will be extended as appropriate to meet the needs of the community and the Department will be notified.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharge onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place with intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to

another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

C. WASTE CONTROL

The waste stream will be monitored by the scale house operator, as each vehicle passes by the ticket office/scale house and then again at the working face by the spotter(s). In addition, the scale house is equipped with cameras/video monitoring systems, which record a time-coded picture of the vehicles entering the site.

There will be at least one trained spotter at the working face to observe the wastes disposed at all times the landfill receives waste. If any unacceptable wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known for subsequent removal off site. If the waste is deemed hazardous, the area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at an appropriate waste management facility.

In the event unacceptable waste is identified after the hauler has left the facility, the unacceptable waste shall be removed from the working face and placed in close proximity to the working face. At the end of the day, at a minimum, unacceptable waste such as batteries, oil filters, used oil, etc. will be removed from the landfill and stored at the existing concrete storage area adjacent to the waste tire storage and processing area. Within the storage area, the materials shall be placed in a single layer on pallets. (The water level in the storage area will be checked on a weekly basis and accumulated water will be pumped out and treated as leachate). Tires will be placed within the tire storage areas. White goods will be stored in a roll-off box. White goods and batteries will be taken off site by various recyclers on a quarterly basis at a minimum.

Only two types of biological waste are accepted for disposal, bodies of domestic animals and treated biomedical waste. Before the bodies of domestic animals are brought to the facility, the landfill will request information about the waste to determine if the animals were diseased. If the animals were not diseased, the bodies will be disposed within the working face and then covered immediately with either additional waste or initial cover. If the bodies of the domestic animal are from diseased animals, the bodies will be handled in accordance with Section 823.041(1), F.S. Treated biomedical waste will be

disposed within the working face and then covered with either additional waste or initial cover.

D. WEIGHING WASTE

All incoming waste will be weighed and recorded on a daily basis at the on-site scales prior to disposal. The on-site scales include at least one scale for incoming vehicles and one scale for outgoing vehicles.

E. VEHICLE TRAFFIC CONTROL

Signs are provided to direct traffic to the disposal area. Further, spotters will direct incoming vehicles to their final disposal area.

F. METHOD AND SEQUENCE OF FILLING WASTE

The landfill will have two (2) working faces and ~~The working face~~ will be consistent with orderly traffic control, waste spreading, and compaction activities.

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system. The placement of this initial waste will be supervised by a quality assurance monitor under the supervision of a Florida Registered professional Engineer.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices. In general, the initial fill will be placed from east to west in a 300-foot wide section that corresponds to the leachate collection area.

The first working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material. The second working face will be located near the first working face and shall have a portable tipper used to unload solid waste trailers. The location of the portable tipper within the second working face will be determined by the landfill operator and will vary depending on the amount of solid waste being received and weather conditions. The second

working face shall have a "trained" spotter whenever solid waste is being accepted and/or spread out prior to disposal.

G. WASTE COMPACTION AND APPLICATION OF COVER

Waste will be spread in layers of approximately two (2) feet in thickness and compacted to approximately one (1) foot in thickness or as thin a layer as practical before the next layer is applied. In general three to five passes with the compactor will be made on each layer of refuse.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day. A 6" thick initial soil cover or an FDEP approved alternate daily cover may also be applied at the end of each operating day.

For those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C.

An intermediate cover, in addition to the six (6) inch initial cover, will be applied and maintained within seven (7) days of cell completion if final cover or an additional lift is not to be applied within 180 days of cell completion. All or part of this intermediate cover may be removed before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less).

Final cover will be applied to a solid waste disposal unit once it has been filled to its design dimensions. The final cover including permanent vegetation will be placed over the entire surface of each completed solid waste disposal unit within 180 days after final waste placement. Solid waste disposal units, which are designated by phase, are shown on **Permit Drawings Nos. 14 and 15**.

H. OPERATION OF GAS, LEACHATE AND STORMWATER CONTROLS

1. Gas Collection System

The permanent gas collection system will be installed as each phase reaches its final contour in accordance with NSPS time frames. Further, the temporary gas collection system will be installed within five years of waste placement within a phase. All gas extraction wells are designed and installed for connection to the active gas extraction system including collection lines, blowers and flare station.

The gas management system will be monitored on a monthly basis, which will include inspection of each well and calibration of the system, as needed. This monitoring will be documented.

2. Leachate

The primary leachate collection system consists of an 8" perforated HDPE collection pipe surrounded by an aggregate encasement, which is covered by a geotextile fabric. This collection system is located in a trench on top of the primary liner. Leachate is collected within each leachate sector (300' wide, typical) and directed to the collection system by a geonet drainage blanket located on top of the primary liner.

The primary leachate collection pipes passes through the leachate collection sump and terminates at the leachate vault on the east side of the landfill. The leachate collection sump consists of an 18" or 24" diameter HDPE pipe (riser pipe) surrounded by an aggregate sump. The riser pipe extends from the sump up to the leachate vault. The 8" HDPE leachate collection pipe discharges directly into the riser pipe as well as the sump. A small submersible pump is located inside each riser pipe. Level sensors in the riser pipe are used to control the pump, which removes leachate as it accumulates. The pumps are mounted on wheels and can easily be removed for maintenance.

The leachate pumps discharge into a leachate force main which transfer the leachate to the fiberglass storage tanks (20,000 gallons each). Each leachate pump discharges through a flow meter that is monitored daily, Monday through Friday. Therefore, each leachate sector can be monitored for leachate generation. The leachate collection system, including the storage tanks, is located over the liner system. The leachate storage tanks are visually inspected daily, Monday through Friday, by on-site personnel. A daily log (Monday through Friday) is kept outlining leachate generation and storage volumes. Leachate will be transported off-site by tanker at regular intervals based on leachate production. The leachate

is transported to the Buckman Street Wastewater Treatment Facility for treatment and disposal.

The secondary (detection) leachate collection system is constructed and operates similarly to the primary system. The exceptions for this system include:

a. Multiple layers of geonet were installed in lieu of the 8" HDPE perforated pipe.

b. The secondary leachate collection system is piped to a separate storage tank (20,000 gallons).

3. Stormwater Treatment and Detention

The Stormwater Management System was designed in accordance with Rules 62-25, 40C-4 and 40C-42, F.A.C. for both treatment and peak flow attenuation. The stormwater treatment is provided by wet detention.

In general, a minimum of the first 1" of runoff will be treated prior to discharge. The treated stormwater will be discharged from the stormwater pump station via the wetland irrigation system.

4. Stormwater Management

a. Stormwater/Leachate Separation

Stormwater which falls on a section of the lined landfill, which is not currently being used for waste disposal, is separated from the leachate collection. This is accomplished by closing the valve upstream of the active phase and isolating this portion of the leachate collection system. A 36" high HDPE flap is welded to the liner at this phase line to prevent stormwater from flowing to the active area. A temporary pump-out is provided upstream of each valve and flap to pump uncontaminated stormwater from the inactive liner into the perimeter ditch. Any stormwater that comes in contact with waste will be considered leachate and handled in accordance with the Leachate Management Plan.

b. Stormwater Collection

All stormwater is collected and directed into the stormwater basin. The collection system includes terraces on the final landfill slopes in conjunction with downcomer piping. This system will control runoff and minimize erosion on the landfill side slopes. Details of this system are shown on the

Permit Drawings. The existing wetland discharge of treated stormwater occurs through a 2" perforated spreader pipe. The wetland irrigation occurs adjacent to the stormwater management basin.

I. WATER QUALITY MONITORING

There is an existing Environmental Media Monitoring Plan (Groundwater, Surface Water, and Leachate) for this facility which is part of the current Solid Waste Permit and will continue a part of this renewal permit. This plan includes semi-annual monitoring of each media.

J. MAINTENANCE OF LEACHATE COLLECTION SYSTEM

Each leachate vault box (located at the east end of each leachate collection pipe) has a flow meter for the primary and secondary leachate collection system. These flow meters will be read daily, Monday thru Friday. If the reading in a flow meter is noticeably diminishing or otherwise reduced compared to the other flow meters and daily rainfall records, the flow meter will be checked for proper operation. Prior to the next permit renewal and in the event it is deemed necessary, the leachate collection system will be either videoed to determine if there is a clog or other reason for diminished flow or the leachate collection pipe will be flushed cleaned.

K. OPERATION RECORD

The operating record consists of all records, reports, analytical results, demonstrations, and notifications required by Chapter 62-701, F.A.C., any construction, operation, and closure plans and permits, including all modifications to those permits issued by the Department, Permit Document Plans, as well as training records required by Chapter 62-701.320(15), F.A.C. The record is considered part of the operation plan and will be kept with the plan at the landfill facility. The operating record will be available for inspection at reasonable times by Department personnel.

L. WASTE RECORDS

All solid waste will be weighed as it is received. Landfill operators will record, in tons per day, the amount of solid waste received and will estimate the amount of each waste listed below. Waste reports will be compiled monthly, and copies provided to the Department quarterly.

Types of waste received:

a. Residential/household waste
b. Commercial waste
c. Treated biomedical waste
d. Water treatment sludge
e. Construction and demolition debris
f. Agricultural waste
g. Industrial waste
h. Waste tires
i. Asbestos
j. Industrial sludge
k. Domestic sludge
l. Non-Hazardous special wastes

M. ACCESS CONTROL

Access to the landfill is provided by a paved entrance road from U.S. 301.

The entire site is fenced. Access is restricted by a gate near the entrance off U.S. 301 as well as a second gate closer to the site. All gates will be locked at night and whenever the landfill is closed. Public access and receipt of wastes will occur only when an attendant is on duty.

Traffic control on site is accomplished by signage and site personnel. Spotters will assist with traffic control at the working face by directing in-coming trucks to their final unloading area.

Access to areas restricted from traffic will be controlled by temporary earthen berms and barricades.

N. WASTE MONITORING

1. The operations will include a load checking program to detect and discourage attempts to dispose of unauthorized wastes at the landfill. The load checking program consists of the following minimum requirements:

   a. The landfill operator will examine at least three random loads of solid waste delivered to the landfill each week. The waste collection vehicle drivers selected by the inspector will be directed to discharge their loads at a designated location within the landfill (near the working face). A detailed inspection of the discharged material will be made for any unauthorized wastes.

   b. If unauthorized wastes are found, the facility will contact the generator, hauler, or other party responsible for shipping the waste to the landfill to determine the identity of the waste sources.

2. Handing hazardous wastes.

   a. If any regulated hazardous wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the Department by telephone, the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known. The area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at a permitted hazardous waste management facility.

      The operator will provide a report of the discovery of hazardous waste to the Department within seven days. The report will include the date of the incident, how the materials were discovered, transferred and transported, the disposal location, and if known, the source of the material. The material will be transferred and disposed off site in accordance with applicable local, state and federal regulations. The clean up will include determining the extent of contamination as well as the handling of materials that are contaminated by the hazardous waste.

   b. Subsequent shipments from sources found or suspected to be previously responsible for shipping regulated hazardous waste will be subject to precautionary measure prior to the solid waste management facility accepting wastes.

3. Recording inspection results. Information and observations resulting from each random inspection will be recorded in writing and retained at the landfill for at least three years. The recorded information will include: the date and time of the inspection; the names of the hauling firm and the driver of the vehicle; the vehicle license plate number; the source of the waste, as stated by the driver; and observations made by the inspector during the detailed inspection. The written record will be signed by the inspector.

O. WASTE HANDLING

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices.

The working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day.

However, for those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C.

An intermediate cover, in addition to the initial cover, will be applied and maintained within seven days of cell completion if additional solid waste will not be deposited within 180 days of cell completion. The landfill operator may remove all or part of the

intermediate cover before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less).

Solid waste disposal units, which have been filled to design dimensions, will receive final cover within 180 days after attaining final elevation or in accordance with the closure plan for the landfill. The solid waste disposal units are shown on **Permit Drawing Nos. 14 and 15.**

Uncontrolled and unauthorized scavenging is not permitted at the landfill site. Salvaging is also not permitted.

A litter policing operation will be employed to keep litter from leaving the working area of the landfill. Litter outside the working area will be picked up within 24 hours. Some litter may be exposed through the initial cover, if it is in traffic areas and away from public view.

Erosion control measures will be employed to correct any erosion which exposes waste or causes malfunction of the stormwater management system. Erosion control measures will be implemented within three days of occurrences. If the erosion cannot be corrected within seven days of occurrence, the landfill operator will notify the Department and propose a corrective schedule.

P. LEACHATE MANAGEMENT

The landfill operator will monitor the leachate level in and record the flow from both the leachate collection (primary) and detention (secondary) sumps on a daily basis, Monday through Friday. The operator will maintain at least one backup pump on site or have access to a backup pump that can be installed within hours of discovery that a pump is not operating. The operator/owner will sample and analyze the leachate in accordance with the Environmental Media Monitoring Plan and will submit the results to the Department.

The operator will operate and maintain the leachate collection system to collect and remove leachate from the landfill. The leachate will be stored on site in the six 20,000-gallon leachate storage tanks and will be transported to Buckman Street Wastewater Treatment Facility for treatment and disposal.

The quantity of leachate collected by the leachate collection and removal system will be recorded (in gallons) on a daily basis, Monday through Friday. The amount of leachate transported off site will be recorded on a daily basis, Monday through Friday.

If the flow from any secondary leachate detection sump exceeds 4,492 gallons per day for one day, the Department will be notified within 24 hours and a follow-up report prepared within 7 days. The follow-up report will include a description and assessment of the situation, proposed remedial actions, the proposed remedial action and a schedule for commencing and completing the remediation.

A recording rain gauge is operated and maintained to record precipitation at the landfill. These precipitation records will be maintained and used to compare with leachate generation rates.

Q. LEACHATE SPILLAGE CONTROL PLAN

The leachate storage and pumping facilities are inside a concrete containment area, which will hold 140% of the volume of the storage tanks plus one foot of freeboard. This facility is constructed on top of the liner system. Therefore, the Leachate Spillage Control Plan is directed at those spills that would occur outside the containment area.

The Leachate Spillage Control Plan consists of four major elements; Training, Containment, Remediation and Notification as described below:

1. Training

The tanker driver and/or site personnel (the Attendant for the purposes of this subsection) will be trained to prevent spills. The Attendant will perform the following prior to loading the tanker truck:

a. Inspect the tanker for signs of leakage.
b. Verify all tanker discharge valves are closed.
c. Verify the tanker is completely within the leachate loading area containment curbing.
d. Verify the liquid level in the containment sump is at or below the discharge pipe.
e. Verify the containment sump discharge gate valve is closed.
f. Verify the leachate fill hose is securely fastened to the inlet port of the tanker.
g. Verify the available tanker volume.

Upon completion of this inspection, the Attendant will begin the following fill sequence:

1. Operate the leachate loading pump for approximately five minutes or until 500 gallons of leachate has been pumped and then discontinue pumping.

2. Inspect the tanker, fill hose and pumping system for leakage.
3. Upon verification that no spilling or leaking has occurred, restart pumping.
4. Continuously monitor the tanker fill operations.
5. Monitor the leachate flow meter until approximately 95% of the available tanker volume has been filled.
6. Discontinue filling operations and remove fill hose.
7. Perform a final inspection of tanker and tanker fill area.

2. Containment

If a spill occurs, the Attendant will notify the District Manager of the spill and request assistance. The Attendant will institute the following containment sequence:

a. Cease pumping.
b. Place sandbags around drainage structures down slope from the loading area to prevent any spillage from entering the drainage system. (NOTE: The first 500 gallons of spillage inside the containment curb will drain naturally into the 500-gallon containment sump.)
c. Create an earthen berm around the spill with on-site sands taken from the daily cover stockpile.

3. Remediation

After the spill has been securely contained, the following cleanup will begin:

a. Pump the leachate in the containment sump into the on-site storage tanks.
b. Spread absorbent sands across all areas in contact with the spill.
c. Remove the contaminated sand to the landfill disposal area.

4. Notification

In the event of a leachate spill, the Department will be notified.

The outlined Spillage Control Plan focuses primarily on a spill at the tanker truck loading area. However, if a leachate spill is discovered at any location on site, the pertinent containment, remediation and notification procedures described above will be implemented.

R. COMBUSTIBLE GAS MONITORING PROGRAM

The combustible gas monitoring program is provided in **Appendix F** and will be monitored quarterly with the results submitted to the Department.

If combustible gas levels exceed twenty-five percent of the lower explosive limit in structures (excluding gas control or recovery components) or the lower explosive limits at or beyond the property boundary, Trail Ridge Landfill will:

1. Immediately take all necessary steps to ensure protection of human health and notify the Department.

2. Within seven days of detection, submit to the Department for approval a remediation plan for the gas releases. The plan will describe the nature and extent of the problem and the proposed remedy. The remedy will be completed within 60 days of detection unless otherwise approved by the Department.

S. STORMWATER MANAGEMENT

1. Stormwater Handling

The stormwater management system was installed as part of the initial construction and is operated and maintained in accordance with the requirements of the DEP Solid Waste permit. The stormwater management system includes the wet detention basin as well as the swales, drainage ditches and culverts, discharge structures, downcomer pipes and other appurtenances as required. Pertinent features of the stormwater handling system include:

a. Potentially contaminated stormwater will be segregated from clean stormwater and contaminated stormwater will not be discharged from the site;
b. A 24-hour, 25-year rainfall event is detained on site;
c. Stormwater is treated to meet the requirements of Rule 62-25, F.A.C.;
d. The maximum discharge rate following a 25-year, 24-hour storm event does not exceed the pre-development discharge from this design storm.

Stormwater is routed through the internal ditch and culvert network to the wet detention basin for treatment. The discharge structure releases the stormwater at the control rate to a dispersion pond, which ultimately discharges to the adjacent wetlands.

The discharge structure was designed to effectively prevent floating materials from being released from the site.

2. Stormwater Treatment

a. Clean Stormwater

Stormwater runoff is treated in the existing wet detention basin. This basin is designed to treat 2.5 inches of runoff from the impervious surfaces and detain a 25-year, 24-hour storm event.

b. Other Stormwater

Stormwater which comes into contact with refuse will be segregated from the clean stormwater and will not be discharged from the site. This potentially contaminated water includes stormwater which falls on uncovered refuse or has otherwise made contact with refuse.

Temporary berms will be constructed in advance of the active fill face to collect stormwater which falls in the active area. This potentially contaminated stormwater will be pumped onto the working face or back into previously filled portions of the landfill.

3. Erosion Control

Stormwater terraces will be constructed on the side slopes of the completed landfill. These berms will route surface water flow to downcomer pipes buried in the final cover, and ultimately to the perimeter drainage ditch. This system of terraces and pipes will minimize erosion of the final cover. Vegetative cover will be established and maintained, as soon as practical, after finish contours are completed.

When erosion occurs, repair will begin within three days and the reason for the erosion will be evaluated to eliminate the source. Should the repair require more than 7 days, the Department will be notified as required by Rule 62-701.500(7)(j), F.A.C.

T. EQUIPMENT

Sufficient equipment (including three compactors, two dozers, an excavator, a loader, a grader, a water wagon, three trucks, a service truck and a tractor) is provided to ensure proper operation of the landfill and for spreading, compacting and covering waste. In addition, due to tractor trailers disposing at the landfill, a tipper has been added to the operations. Substitutions and additions to the equipment listed above may occur. However, equipment capable of performing comparably to the listed equipment will be maintained on site. In addition, equipment is available within 24 hours from other

company operations and distributors should any situation dictate the requirement for additional equipment.

The minimum equipment at the working face will include two compactors and one dozer. When the waste receipt exceeds 2600 tons per day, an additional compactor will be provided for spreading and/or compaction.

U. OPERATION FEATURES

The scale house and the administrative building both have telephones for routine emergency communications. Further, both facilities provide shelter, sanitary facilities and first aid equipment.

Dust originating from haul road surfaces will be controlled by periodic sweeping and/or watering of road surfaces, as required. Additionally, final cover will be vegetated as soon as practical after application of final cover, in order to minimize the blowing of dust on site.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharged onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place and intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

When a fire occurs at the landfill, the application of additional compacted cover will be utilized to cut off the flow of oxygen into the burning area. If this does not contain the fire, the affected area will be thoroughly wetted, excavated, and wetted again prior to reconstructing the cells. The chance of fire occurring at a properly run sanitary landfill is minimal.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

Instruction in fire fighting procedures is routinely provided to site personnel, and portable fire extinguishers are located on each machine and vehicle. Local Fire Departments will be employed to assist the site personnel and equipment, if necessary.

Fire hydrants are located on site and are connected to the pump system, which draws water from the stormwater basin.

Trail Ridge Landfill, Inc. has developed an extensive program regarding safety and accident prevention. As part of this program, employees are trained in proper operation and emergency procedures. Telephone communication and First Aid equipment are provided at the facility. Operating vehicles are in compliance with current OSHA safety requirements, including caging and shields to protect operators. All appropriate equipment has back-up alarms and those alarms are maintained in good repair.

The problem of blowing litter will be minimized by limiting the active working face and using initial cover or tarpaulins over the active fill areas. Other methods, such as the utilization of casual labor pickers and portable fencing will be employed as required to contain loose paper and other wind-blown refuse during fill operations. Any loose paper or similar refuse blown outside the working area will be picked up on a regular basis.

Signage indicating the name of facility, operating authority, hours of operation and charges for disposal is located adjacent to the gate, prior to the ticket/scale house. Additional signs are placed on site to direct traffic. Warning signs are located in operating areas dealing with leachate and gas collection.

V. ROADS

The entrance road and ticket office/scale house area are paved. Beyond the paved area, all-weather perimeter roads are maintained to the active fill area, monitoring devices, and stormwater controls. Service and haul road construction and maintenance are coordinated with the landfill phasing and development.

W. RECORD KEEPING

The landfill operator will:

1. Keep records of all information used to develop or support the permit applications and any supplemental information pertaining to construction of the landfill throughout the design period. Records pertaining to the operation of the landfill will be kept for the design period of the landfill.

2. Retain records of all monitoring information, including calibration and maintenance records, all original chart recordings for continuous monitoring

instrumentation, and copies of all reports required by permit, for at least ten years. Background water quality records will be kept for the design period of the landfill.

3. Maintain an annual estimate of the remaining life and capacity in cubic yards of the existing, constructed landfill and remaining capacity and site life of other permitted areas not yet constructed. The annual estimate will be based on a summary of the heights, lengths, and widths of the solid waste disposal units. The estimate will be made and reported annually to the Department.

4. Records which are more than five years old and which are required to be retained may be archived, provided that the landfill operator can retrieve them for inspection within seven days.

X. WASTE TIRE PROCESSING

The landfill includes a waste tire processing facility. The permit application and operations plan for the waste tire processing are contained in **Appendix H**.

Y. INSPECTIONS

The operator will inspect all the active area on a weekly basis, the closed areas, at a minimum, on a monthly basis, and both areas after major storm events. Further, the operator will inspect the leachate collection system and gas collection system on a weekly basis. The checklist contained in Attachment B will be used for the inspections. Eroded areas will be repaired within 3 days of discovery and other insufficiencies will be repaired within 7 days.

IX. WATER QUALITY MONITORING

A. SURFACE WATER MONITORING

A surface water monitoring plan was approved as part of the original permit as well as the permit renewal. A summary of the monitoring data and recommendation for continued monitoring is provided in **Appendix I.**

B. GROUNDWATER MONITORING

A groundwater monitoring plan was approved as part of the original permit as well as the permit renewal. A summary of the monitoring data and recommendation for continued monitoring is provided in **Appendix I.**

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • GIS • LANDSCAPE ARCHITECTS

Principals
Douglas C. Miller, P.E., CEO
N. Hugh Mathews, P.E., President
Joseph A. Tarver, Exec., V.P.
Juanitta Bader Clem, P.E., V.P.
Scott A. Wild, P.E., PSM, V.P.
Samuel R. Crissinger, CFO, V.P.
Robert A. Mizell, Jr., P.E., V.P.
Thomas N. Fallin, P.E., V.P.

Emeritus
James E. England, P.E.
Robert E. Thims

July 22, 2005

Ms. Mary C. Nogas, P.E.
Solid Waste Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

RECEIVED
JUL 22 2005
STATE OF FLORIDA
DEPARTMENT OF ENV. PROTECTION
NORTHEAST DISTRICT - JACKSONVILLE

Reference: Trail Ridge Landfill
Application for Minor Permit Modification
FDEP Permit No. 0013493-010-SC
ET&M Project No. 98-34

Dear Ms. Nogas:

On behalf of Trail Ridge Landfill, Inc., please find herewith four copies of the Application for a Permit to Construct Operate, Modify or Close a Solid Waste Management Facility. The permit application is for a minor permit modification to authorize Trail Ridge Landfill to operate a second working face and utilize a portable tipper. Please note that information relating to this request is underlined and limited to Sections F and T of the revised Operation Plan.

I would respectfully request that any questions regarding this application be directed to me.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Francis Dayao, P. E.
Project Engineer

Attachments: Permit Application - 4 copies
Operation Plan - 4 copies
Product Information – 4 copies
Application Fee for a Minor Permit Modification - $250.00

cc: Greg Mathes w/attachments

PERMIT APPLICATION

FOR

MINOR PERMIT MODIFICATION

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

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

REGfiles: 5/2001

Northwest District
160 Governmental Center
Pensacola, FL 32501-6794
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, Flor Statutes, (FS) and in accordance with Florida Administrative Code (FAC) Chapter 62-701. minimum of four copies of the application shall be submitted to the Department's Distric 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.

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):

[X] Disposal
- [X] Class I Landfill
- [ ] Class II Landfill
- [ ] Class III Landfill
- [ ] Ash Monofill
- [ ] Asbestos Monofill
- [ ] Industrial Solid Waste
- [X] Other Describe: Waste Tire Processing

[ ] 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
- [X] Construction/Operation
- [ ] Closure

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

4. Facility name: Trail Ridge Landfill

5. DEP ID number: GMS3116P02787 County: Duval

6. Facility location (main entrance): 5110 U.S. Hwy. 301
Baldwin, Florida 32234

7. Location coordinates:
Section: 18, 19, 20, 21 Township: 3S Range: 23E

Latitude: 30 ° 14 ' 00 " Longitude: 82 ° 02 ' 30 "

8. Applicant name (operating authority): Trail Ridge Landfill, Inc.

Mailing address: 5110 U.S. Hwy. 301 Baldwin Florida 32234
Street or P. O. Box City State Zip

Contact person: Greg Mathes Telephone: (904) 289-9100

Title: Director of Landfill Operations

gmathes@wm.com
E-Mail address (if available)

9. Authorized ~~agent~~/Consultant: England, Thims & Miller, Inc.

Mailing address: 14775 St. Augustine Road, Jacksonville, Florida 32258
Street or P. O. Box City State Zip

Contact person: Juanitta Clem Telephone: (904) 642-8990

Title: Vice President

clemj@etminc.com
E-Mail address (if available)

10. Landowner (if different than applicant): City of Jacksonville

Mailing address: 140 W. Monroe Street, Suite 200, Jacksonville, Florida 32202
Street or P. O. Box City State Zip

Contact person: Chris Pearson Telephone: (904) 630-4593

chrisp@coj.net
E-Mail address (if available)

11. Cities, towns and areas to be served: City of Jacksonville (Duval County), St. Johns County and Northeast Florida

12. Population to be served:
Current: 805,469 (2002 Duval) 132,829 (2002 St. Johns) Five-Year Projection: 845,580 (2007 Duval) 149,506 (2007 St. Johns)

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

14. Expected life of the facility: 14 years

15. Estimated costs:

Total Construction: $ N/A Closing Costs: $ 14.4 Million

16. Anticipated construction starting and completion dates:

From: On-Going To: On-Going

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

_____ yds³/day 5,000 * (peak) tons/day _____ gallons/day
3,900 Tons/day (monthly average)

B. DISPOSAL FACILITY GENERAL INFORMATION

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

Minor permit modification to authorize facility to operate a second working face and to authorize the use of a landfill tipper.

2. Facility site supervisor: Greg Mathes

Title: Director of Landfill Operations Telephone: ( ) 904-289-9100

gmathes@wm.com
E-Mail address (if available)

3. Disposal area: Total 148 acres; Used 148 acres; Available 0 acres

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

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

6. Charge for waste received: N/A $/yds^3 40.00 $/ton

7. Surrounding land use, zoning:

[ ] Residential
[X] Agricultural
[ ] Commercial
[ ] Industrial
[ ] None
[X] Other Describe: Silviculture

8. Types of waste received:

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

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

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

11. Spotters: Yes [X] No [ ] Number of spotters used: 1

12. Site located in: [ ] Floodplain [ ] Wetlands [X] Other Upland Pines Flatwoods

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

14. Days of operation: Monday - Saturday

15. Hours of operation: 5:00 A.M. - 10:00 P.M.*

16. Days Working Face covered: Daily with cover dirt or tarpaulin

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

18. Number of monitoring wells: 50 (37 wells monitored)

19. Number of surface monitoring points: 2

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

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

21. Landfill unit liner type:

[ ] Natural soils
[ ] Single clay liner
[ ] Single geomembrane
[ ] Single composite
[ ] Slurry wall
[X] Double geomembrane
[ ] Geomembrane & composite
[ ] Double composite
[ ] None
[ ] Other Describe: With Bentonite Mat and 6" clay subgrade

22. Leachate collection method:

[X] Collection pipes
[X] Geonets
[ ] Well points
[ ] Perimeter ditch
[ ] Other Describe:
[ ] Sand layer
[ ] Gravel layer
[ ] Interceptor trench
[ ] None

23. Leachate storage method:

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

24. Leachate treatment method:

[ ] Oxidation
[ ] Secondary
[ ] Advanced
[ ] None
[ ] Chemical treatment
[ ] Settling
[X] Other off-site Treatment at a City Wastewater Treatment Facility

* May vary dependent upon waste receipt.

25. Leachate disposal method:

[X] Recirculated
[X] 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: [X] Yes [ ] No

Type of treatment: wet detention

Name and Class of receiving water: Headwaters of Deep Creek - Class III

28. Environmental Resources Permit (ERP) number or status: Permitted as Solid Waste Permit (DEP File Nos. 184444, 184445 and 184447). Pond was permitted, constructed and certified.

C. **NON-DISPOSAL FACILITY GENERAL INFORMATION** N/C

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 _____ 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: _____

_____

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) N/C

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		
X	Attached			1.	Four copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320(5)(a),FAC)
X	Attached			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)
X	Attached			3.	A letter of transmittal to the Department; (62-701.320(7)(a),FAC)
X	Attached			4.	A completed application form dated and signed by the applicant; (62-701.320(7)(b),FAC)
X	Attached			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)
X	Attached			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)
	*Revised Operation Plan				
X	Attached			7.	Operation Plan and Closure Plan; (62-701.320(7)(e)1.,FAC)
			X	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)
			X		a. A regional map or plan with the project location;
			X		b. A vicinity map or aerial photograph no more than 1 year old;
			X		c. A site plan showing all property boundaries certified by a registered Florida land surveyor;

	LOCATION	N/A	N/C		PART E CONTINUED
X	Attached				d. Other necessary details to support the engineering report.
			X	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)
			X	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)
			X	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)
		X		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)
			X	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)
			X	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) N/A

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)

GENERAL CRITERIA FOR LANDFILLS (62-701.340,FAC) N/A

				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)

I. **LANDFILL CONSTRUCTION REQUIREMENTS** (62-701.400,FAC) N/A

	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
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___

(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 a upper and lower 60-mil minimum thickness geomembrane;
					(b) Leak detection and collection syste 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 exce that predicted by design calculations;
					(4) Description of procedures to prevent uplift, if applicable;
					(5) Design calculations to demonstrate minim two feet of freeboard will be maintained;
					(6) Procedures for controlling disease vecto 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) N/A

	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) N/A

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) N/A

	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;
___	_____	___	___	3.	Provide foundation and settlement analysis for the vertical expansion;
___	_____	___	___	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;
___	_____	___	___	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)

___	_____	___	X	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)
___	_____	___	X		a. Designating responsible operating and maintenance personnel;
___	_____	___	X		b. Contingency operations for emergencies;
___	_____	___	X		c. Controlling types of waste received at the landfill;
___	_____	___	X		d. Weighing incoming waste;
___	_____	___	X		e. Vehicle traffic control and unloading;
X	Attached	___	___		f. Method and sequence of filling waste;
___	_____	___	X		g. Waste compaction and application of cover;
___	_____	___	X		h. Operations of gas, leachate, and stormwater controls;
___	_____	___	X		i. Water quality monitoring;
___	_____	___	X		j. Maintaining and cleaning the leachate collection system;
___	_____	___	X	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)
___	_____	___	X	4.	Describe the waste records that will be compiled monthly and provided to the Department quarterly; (62-701.500(4),FAC)
___	_____	___	X	5.	Describe methods of access control; (62-701.500(5),FAC)
___	_____	___	X	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)
___	_____	___	X		a. Waste layer thickness and compaction frequencies;

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

S	LOCATION	N/A	N/C	PART L CONTINUED
___	_____	___	X	f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;
___	_____	___	X	g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates and including this information in the operating record;
___	_____	___	X	h. Procedures for water pressure cleaning or video inspecting leachate collection systems.
___	_____	___	X	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)
___	_____	X	___	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)
X	Attached*	___	___	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.
___	_____	___	X	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)

* A tipper has been added.

S	LOCATION	N/A	N/C	
—	_____	—	X	a. Records used for developing permit applications and supplemental information maintained for the design period of the landfill;
—	_____	—	X	b. Monitoring information, calibration and maintenance records, copies of reports required by permit maintained for at least 10 years;
—	_____	—	X	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;
—	_____	—	X	d. Procedures for archiving and retrieving records which are more than five year old.

PART L CONTINUED

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

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) N/A

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) N/A

				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) N/A

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	
				PART E CONTINUED
				(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

PART P CONTINUED

(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;

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)

LOCATION	N/A	N/C	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) N/C

___	_____	___	___	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) N/C

___	_____	___	___	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 Trail Ridge Landfill, Inc. _____ is aware that statements made in this form and attached information are an application for a minor permit 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.

Signature of Applicant or Agent

Greg Mathes
Director of Landfill Operations
Name and Title (please type)

gmathes@wm.com
E-Mail address (if available)

5110 U.S. Highway 301
Mailing Address

Baldwin, Florida 32234
City, State, Zip Code

( ) 904-289-9100
Telephone Number

Date: 07/20/05

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

Francis D. Dayao, P.E.
Name and Title (please type)

7-21-2005

56120
Florida Registration Number
(please affix seal)

14775 St. Augustine Road
Mailing Address

Jacksonville, Florida 32258
City, State, Zip Code

dayaof@etminc.com
E-Mail address (if available)

( ) 904-642-8900
Telephone Number

Date: 7-21-2005

TRAIL RIDGE LANDFILL

REVISED OPERATION PLAN

VIII. OPERATION PLAN

A. OPERATION PERSONNEL AND HOURS OF OPERATION

The District Manager is responsible for the overall operation of the Trail Ridge Landfill. The District Manager's responsibility is to assure that operations at the site are performed in accordance with the procedures outlined in this Operation Plan.

The District Manager, the Operations Manager and several operators are trained operators under Rule 62-701.320(15), F.A.C. At least one trained operator will be on-site during all times when the landfill receives waste. Further, at least one trained spotter will be at the working face at all times when the landfill receives waste.

1. Hours of Operation

a.	Normal Monday - Friday:	6:00 A.M. to 7:00 P.M.
b.	Normal Saturday:	6:00 A.M. to 3:00 P.M.
c.	Maximum Hours:	5:00 A.M. to 10:00 P.M.

During emergency situations, i.e., after a hurricane, the landfill may operate beyond the above hours. However, the Florida Department of Environmental Protection must be notified at the first available opportunity. The landfill will have lights with at least 3 candle-feet of illumination for operation during non-daylight hours.

2. Personnel

Personnel expected to be at the landfill includes:

Personnel	Total
District Manager	1
Operations Manager	1
Equipment Operators	8
Mechanic	1
Labors/Spotters	6
Compliance Officer	1
Clerical	3

On a normal basis, the personnel present during operating hours on the landfill will include a trained operator, a trained spotter, a material handler (laborer) and two equipment operators. During peak operating hours, the facility will have additional personnel, in accordance with the Personnel Matrix in Attachment A.

A work schedule is developed on a weekly basis to ensure that adequate staff is present on the landfill to handle the expected volume of waste.

B. CONTINGENCY OPERATIONS

The on-site entrance road is an all-weather road. The entrance road and administration area are paved. The pavement extends beyond the ticket office/scale house to the perimeter road around the landfill. The perimeter road is a stabilized limerock road. Haul roads beyond this point are maintained for adverse weather condition usage.

Emergency conditions at the facility may be created by a natural disaster (i.e., hurricane or tornado), flooding and fire. Waste is not normally delivered to the site during emergency conditions. The following procedures will be implemented with the imminent threat of a major storm.

1. Initial cover will be applied and compacted over all exposed waste.
2. All landfill equipment will be fueled and parked near natural wind screens, earthen mounds or tree areas.
3. All lightweight signs and equipment will be secured.
4. Work will begin in dry areas only when operations are resumed and waste materials will not be disposed in standing water.

The surface water management system will allow disposal operations to continue during periods of inclement weather. This will include the utilization of temporary berms and ditches to drain stormwater away from the active face.

In the event of a natural disaster in the area, operational hours will be extended as appropriate to meet the needs of the community and the Department will be notified.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharge onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place with intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

C. WASTE CONTROL

The waste stream will be monitored by the scale house operator, as each vehicle passes by the ticket office/scale house and then again at the working face by the spotter(s). In addition, the scale house is equipped with cameras/video monitoring systems, which record a time-coded picture of the vehicles entering the site.

There will be at least one trained spotter at the working face to observe the wastes disposed at all times the landfill receives waste. If any unacceptable wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known for subsequent removal off site. If the waste is deemed hazardous, the area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at an appropriate waste management facility.

In the event unacceptable waste is identified after the hauler has left the facility, the unacceptable waste shall be removed from the working face and placed in close proximity to the working face. At the end of the day, at a minimum, unacceptable waste such as batteries, oil filters, used oil, etc. will be removed from the landfill and stored at the existing concrete storage area adjacent to the waste tire storage and processing area. Within the storage area, the materials shall be placed in a single layer on pallets. (The water level in the storage area will be checked on a weekly basis and accumulated water will be pumped out and treated as leachate). Tires will be placed within the tire storage areas. White goods will be stored in a roll-off box. White goods and batteries will be taken off site by various recyclers on a quarterly basis at a minimum.

Only two types of biological waste are accepted for disposal, bodies of domestic animals and treated biomedical waste. Before the bodies of domestic animals are brought to the facility, the landfill will request information about the waste to determine if the animals were diseased. If the animals were not diseased, the bodies will be disposed within the working face and then covered immediately with either additional waste or initial cover. If the bodies of the domestic animal are from diseased animals, the bodies will be handled in accordance with Section 823.041(1), F.S. Treated biomedical waste will be disposed within the working face and then covered with either additional waste or initial cover.

D. WEIGHING WASTE

All incoming waste will be weighed and recorded on a daily basis at the on-site scales prior to disposal. The on-site scales include at least one scale for incoming vehicles and one scale for outgoing vehicles.

E. VEHICLE TRAFFIC CONTROL

Signs are provided to direct traffic to the disposal area. Further, spotters will direct incoming vehicles to their final disposal area.

F. METHOD AND SEQUENCE OF FILLING WASTE

The landfill will have two (2) working faces and ~~The working face~~ will be consistent with orderly traffic control, waste spreading, and compaction activities.

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system. The placement of this initial waste will be supervised by a quality assurance monitor under the supervision of a Florida Registered professional Engineer.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices. In general, the initial fill will be placed from east to west in a 300-foot wide section that corresponds to the leachate collection area.

The first working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material. The second working face will be located near the first working face and shall have a portable tipper used to unload solid waste trailers. The location of the portable tipper within the second working face will be determined by the landfill operator and will vary depending on the amount of solid waste being received and weather conditions. The second working face shall have a spotter whenever solid waste is being unloaded from the tipper.

G. WASTE COMPACTION AND APPLICATION OF COVER

Waste will be spread in layers of approximately two (2) feet in thickness and compacted to approximately one (1) foot in thickness or as thin a layer as practical before the next layer is applied. In general three to five passes with the compactor will be made on each layer of refuse.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day. A 6" thick initial soil cover or an FDEP approved alternate daily cover may also be applied at the end of each operating day.

For those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C.

An intermediate cover, in addition to the six (6) inch initial cover, will be applied and maintained within seven (7) days of cell completion if final cover or an additional lift is not to be applied within 180 days of cell completion. All or part of this intermediate cover may be removed before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less).

Final cover will be applied to a solid waste disposal unit once it has been filled to its design dimensions. The final cover including permanent vegetation will be placed over the entire surface of each completed solid waste disposal unit within 180 days after final waste placement. Solid waste disposal units, which are designated by phase, are shown on **Permit Drawings Nos. 14 and 15**.

H. OPERATION OF GAS, LEACHATE AND STORMWATER CONTROLS

1. Gas Collection System

The permanent gas collection system will be installed as each phase reaches its final contour in accordance with NSPS time frames. Further, the temporary gas collection system will be installed within five years of waste placement within a

phase. All gas extraction wells are designed and installed for connection to the active gas extraction system including collection lines, blowers and flare station.

The gas management system will be monitored on a monthly basis, which will include inspection of each well and calibration of the system, as needed. This monitoring will be documented.

2. Leachate

The primary leachate collection system consists of an 8" perforated HDPE collection pipe surrounded by an aggregate encasement, which is covered by a geotextile fabric. This collection system is located in a trench on top of the primary liner. Leachate is collected within each leachate sector (300' wide, typical) and directed to the collection system by a geonet drainage blanket located on top of the primary liner.

The primary leachate collection pipes passes through the leachate collection sump and terminates at the leachate vault on the east side of the landfill. The leachate collection sump consists of an 18" or 24" diameter HDPE pipe (riser pipe) surrounded by an aggregate sump. The riser pipe extends from the sump up to the leachate vault. The 8" HDPE leachate collection pipe discharges directly into the riser pipe as well as the sump. A small submersible pump is located inside each riser pipe. Level sensors in the riser pipe are used to control the pump, which removes leachate as it accumulates. The pumps are mounted on wheels and can easily be removed for maintenance.

The leachate pumps discharge into a leachate force main which transfer the leachate to the fiberglass storage tanks (20,000 gallons each). Each leachate pump discharges through a flow meter that is monitored daily, Monday through Friday. Therefore, each leachate sector can be monitored for leachate generation. The leachate collection system, including the storage tanks, is located over the liner system. The leachate storage tanks are visually inspected daily, Monday through Friday, by on-site personnel. A daily log (Monday through Friday) is kept outlining leachate generation and storage volumes. Leachate will be transported off-site by tanker at regular intervals based on leachate production. The leachate is transported to the Buckman Street Wastewater Treatment Facility for treatment and disposal.

The secondary (detection) leachate collection system is constructed and operates similarly to the primary system. The exceptions for this system include:

a. Multiple layers of geonet were installed in lieu of the 8" HDPE perforated pipe.

b. The secondary leachate collection system is piped to a separate storage tank (20,000 gallons).

3. Stormwater Treatment and Detention

The Stormwater Management System was designed in accordance with Rules 62-25, 40C-4 and 40C-42, F.A.C. for both treatment and peak flow attenuation. The stormwater treatment is provided by wet detention.

In general, a minimum of the first 1" of runoff will be treated prior to discharge. The treated stormwater will be discharged from the stormwater pump station via the wetland irrigation system.

4. Stormwater Management

a. Stormwater/Leachate Separation

Stormwater which falls on a section of the lined landfill, which is not currently being used for waste disposal, is separated from the leachate collection. This is accomplished by closing the valve upstream of the active phase and isolating this portion of the leachate collection system. A 36" high HDPE flap is welded to the liner at this phase line to prevent stormwater from flowing to the active area. A temporary pump-out is provided upstream of each valve and flap to pump uncontaminated stormwater from the inactive liner into the perimeter ditch. Any stormwater that comes in contact with waste will be considered leachate and handled in accordance with the Leachate Management Plan.

b. Stormwater Collection

All stormwater is collected and directed into the stormwater basin. The collection system includes terraces on the final landfill slopes in conjunction with downcomer piping. This system will control runoff and minimize erosion on the landfill side slopes. Details of this system are shown on the Permit Drawings. The existing wetland discharge of treated stormwater occurs through a 2" perforated spreader pipe. The wetland irrigation occurs adjacent to the stormwater management basin.

I. WATER QUALITY MONITORING

There is an existing Environmental Media Monitoring Plan (Groundwater, Surface Water, and Leachate) for this facility which is part of the current Solid Waste Permit and will continue a part of this renewal permit. This plan includes semi-annual monitoring of each media.

J. MAINTENANCE OF LEACHATE COLLECTION SYSTEM

Each leachate vault box (located at the east end of each leachate collection pipe) has a flow meter for the primary and secondary leachate collection system. These flow meters will be read daily, Monday thru Friday. If the reading in a flow meter is noticeably diminishing or otherwise reduced compared to the other flow meters and daily rainfall records, the flow meter will be checked for proper operation. Prior to the next permit renewal and in the event it is deemed necessary, the leachate collection system will be either videoed to determine if there is a clog or other reason for diminished flow or the leachate collection pipe will be flushed cleaned.

K. OPERATION RECORD

The operating record consists of all records, reports, analytical results, demonstrations, and notifications required by Chapter 62-701, F.A.C., any construction, operation, and closure plans and permits, including all modifications to those permits issued by the Department, Permit Document Plans, as well as training records required by Chapter 62-701.320(15), F.A.C. The record is considered part of the operation plan and will be kept with the plan at the landfill facility. The operating record will be available for inspection at reasonable times by Department personnel.

L. WASTE RECORDS

All solid waste will be weighed as it is received. Landfill operators will record, in tons per day, the amount of solid waste received and will estimate the amount of each waste listed below. Waste reports will be compiled monthly, and copies provided to the Department quarterly.

Types of waste received:

a. Residential/household waste
b. Commercial waste
c. Treated biomedical waste
d. Water treatment sludge
e. Construction and demolition debris
f. Agricultural waste
g. Industrial waste
h. Waste tires
i. Asbestos
j. Industrial sludge
k. Domestic sludge
l. Non-Hazardous special wastes

M. ACCESS CONTROL

Access to the landfill is provided by a paved entrance road from U.S. 301.

The entire site is fenced. Access is restricted by a gate near the entrance off U.S. 301 as well as a second gate closer to the site. All gates will be locked at night and whenever the landfill is closed. Public access and receipt of wastes will occur only when an attendant is on duty.

Traffic control on site is accomplished by signage and site personnel. Spotters will assist with traffic control at the working face by directing in-coming trucks to their final unloading area.

Access to areas restricted from traffic will be controlled by temporary earthen berms and barricades.

N. WASTE MONITORING

1. The operations will include a load checking program to detect and discourage attempts to dispose of unauthorized wastes at the landfill. The load checking program consists of the following minimum requirements:

   a. The landfill operator will examine at least three random loads of solid waste delivered to the landfill each week. The waste collection vehicle drivers selected by the inspector will be directed to discharge their loads at a designated location within the landfill (near the working face). A detailed inspection of the discharged material will be made for any unauthorized wastes.

   b. If unauthorized wastes are found, the facility will contact the generator, hauler, or other party responsible for shipping the waste to the landfill to determine the identity of the waste sources.

2. Handing hazardous wastes.

   a. If any regulated hazardous wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the Department by telephone, the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known. The area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at a permitted hazardous waste management facility.

      The operator will provide a report of the discovery of hazardous waste to the Department within seven days. The report will include the date of the incident, how the materials were discovered, transferred and transported, the disposal location, and if known, the source of the material. The material will be transferred and disposed off site in accordance with applicable local, state and federal regulations. The clean up will include determining the extent of contamination as well as the handling of materials that are contaminated by the hazardous waste.

   b. Subsequent shipments from sources found or suspected to be previously responsible for shipping regulated hazardous waste will be subject to precautionary measure prior to the solid waste management facility accepting wastes.

3. Recording inspection results. Information and observations resulting from each random inspection will be recorded in writing and retained at the landfill for at least three years. The recorded information will include: the date and time of the inspection; the names of the hauling firm and the driver of the vehicle; the vehicle license plate number; the source of the waste, as stated by the driver; and observations made by the inspector during the detailed inspection. The written record will be signed by the inspector.

O. WASTE HANDLING

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices.

The working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day.

However, for those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C.

An intermediate cover, in addition to the initial cover, will be applied and maintained within seven days of cell completion if additional solid waste will not be deposited

within 180 days of cell completion. The landfill operator may remove all or part of the intermediate cover before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less).

Solid waste disposal units, which have been filled to design dimensions, will receive final cover within 180 days after attaining final elevation or in accordance with the closure plan for the landfill. The solid waste disposal units are shown on **Permit Drawing Nos. 14 and 15**.

Uncontrolled and unauthorized scavenging is not permitted at the landfill site. Salvaging is also not permitted.

A litter policing operation will be employed to keep litter from leaving the working area of the landfill. Litter outside the working area will be picked up within 24 hours. Some litter may be exposed through the initial cover, if it is in traffic areas and away from public view.

Erosion control measures will be employed to correct any erosion which exposes waste or causes malfunction of the stormwater management system. Erosion control measures will be implemented within three days of occurrences. If the erosion cannot be corrected within seven days of occurrence, the landfill operator will notify the Department and propose a corrective schedule.

P. LEACHATE MANAGEMENT

The landfill operator will monitor the leachate level in and record the flow from both the leachate collection (primary) and detention (secondary) sumps on a daily basis, Monday through Friday. The operator will maintain at least one backup pump on site or have access to a backup pump that can be installed within hours of discovery that a pump is not operating. The operator/owner will sample and analyze the leachate in accordance with the Environmental Media Monitoring Plan and will submit the results to the Department.

The operator will operate and maintain the leachate collection system to collect and remove leachate from the landfill. The leachate will be stored on site in the six 20,000-gallon leachate storage tanks and will be transported to Buckman Street Wastewater Treatment Facility for treatment and disposal.

The quantity of leachate collected by the leachate collection and removal system will be recorded (in gallons) on a daily basis, Monday through Friday. The amount of leachate transported off site will be recorded on a daily basis, Monday through Friday.

If the flow from any secondary leachate detection sump exceeds 4,492 gallons per day for one day, the Department will be notified within 24 hours and a follow-up report prepared within 7 days. The follow-up report will include a description and assessment of the situation, proposed remedial actions, the proposed remedial action and a schedule for commencing and completing the remediation.

A recording rain gauge is operated and maintained to record precipitation at the landfill. These precipitation records will be maintained and used to compare with leachate generation rates.

Q. LEACHATE SPILLAGE CONTROL PLAN

The leachate storage and pumping facilities are inside a concrete containment area, which will hold 140% of the volume of the storage tanks plus one foot of freeboard. This facility is constructed on top of the liner system. Therefore, the Leachate Spillage Control Plan is directed at those spills that would occur outside the containment area.

The Leachate Spillage Control Plan consists of four major elements; Training, Containment, Remediation and Notification as described below:

1. Training

The tanker driver and/or site personnel (the Attendant for the purposes of this subsection) will be trained to prevent spills. The Attendant will perform the following prior to loading the tanker truck:

a. Inspect the tanker for signs of leakage.
b. Verify all tanker discharge valves are closed.
c. Verify the tanker is completely within the leachate loading area containment curbing.
d. Verify the liquid level in the containment sump is at or below the discharge pipe.
e. Verify the containment sump discharge gate valve is closed.
f. Verify the leachate fill hose is securely fastened to the inlet port of the tanker.
g. Verify the available tanker volume.

Upon completion of this inspection, the Attendant will begin the following fill sequence:

1. Operate the leachate loading pump for approximately five minutes or until 500 gallons of leachate has been pumped and then discontinue pumping.
2. Inspect the tanker, fill hose and pumping system for leakage.
3. Upon verification that no spilling or leaking has occurred, restart pumping.
4. Continuously monitor the tanker fill operations.
5. Monitor the leachate flow meter until approximately 95% of the available tanker volume has been filled.
6. Discontinue filling operations and remove fill hose.
7. Perform a final inspection of tanker and tanker fill area.

2. Containment

If a spill occurs, the Attendant will notify the District Manager of the spill and request assistance. The Attendant will institute the following containment sequence:

a. Cease pumping.
b. Place sandbags around drainage structures down slope from the loading area to prevent any spillage from entering the drainage system. (NOTE: The first 500 gallons of spillage inside the containment curb will drain naturally into the 500-gallon containment sump.)
c. Create an earthen berm around the spill with on-site sands taken from the daily cover stockpile.

3. Remediation

After the spill has been securely contained, the following cleanup will begin:

a. Pump the leachate in the containment sump into the on-site storage tanks.
b. Spread absorbent sands across all areas in contact with the spill.
c. Remove the contaminated sand to the landfill disposal area.

4. Notification

In the event of a leachate spill, the Department will be notified.

The outlined Spillage Control Plan focuses primarily on a spill at the tanker truck loading area. However, if a leachate spill is discovered at any location on site, the pertinent containment, remediation and notification procedures described above will be implemented.

R. COMBUSTIBLE GAS MONITORING PROGRAM

The combustible gas monitoring program is provided in **Appendix F** and will be monitored quarterly with the results submitted to the Department.

If combustible gas levels exceed twenty-five percent of the lower explosive limit in structures (excluding gas control or recovery components) or the lower explosive limits at or beyond the property boundary, Trail Ridge Landfill will:

1. Immediately take all necessary steps to ensure protection of human health and notify the Department.

2. Within seven days of detection, submit to the Department for approval a remediation plan for the gas releases. The plan will describe the nature and extent of the problem and the proposed remedy. The remedy will be completed within 60 days of detection unless otherwise approved by the Department.

S. STORMWATER MANAGEMENT

1. Stormwater Handling

The stormwater management system was installed as part of the initial construction and is operated and maintained in accordance with the requirements of the DEP Solid Waste permit. The stormwater management system includes the wet detention basin as well as the swales, drainage ditches and culverts, discharge structures, downcomer pipes and other appurtenances as required. Pertinent features of the stormwater handling system include:

a. Potentially contaminated stormwater will be segregated from clean stormwater and contaminated stormwater will not be discharged from the site;
b. A 24-hour, 25-year rainfall event is detained on site;
c. Stormwater is treated to meet the requirements of Rule 62-25, F.A.C.;
d. The maximum discharge rate following a 25-year, 24-hour storm event does not exceed the pre-development discharge from this design storm.

Stormwater is routed through the internal ditch and culvert network to the wet detention basin for treatment. The discharge structure releases the stormwater at the control rate to a dispersion pond, which ultimately discharges to the adjacent wetlands.

The discharge structure was designed to effectively prevent floating materials from being released from the site.

2. Stormwater Treatment

a. Clean Stormwater

Stormwater runoff is treated in the existing wet detention basin. This basin is designed to treat 2.5 inches of runoff from the impervious surfaces and detain a 25-year, 24-hour storm event.

b. Other Stormwater

Stormwater which comes into contact with refuse will be segregated from the clean stormwater and will not be discharged from the site. This potentially contaminated water includes stormwater which falls on uncovered refuse or has otherwise made contact with refuse.

Temporary berms will be constructed in advance of the active fill face to collect stormwater which falls in the active area. This potentially contaminated stormwater will be pumped onto the working face or back into previously filled portions of the landfill.

3. Erosion Control

Stormwater terraces will be constructed on the side slopes of the completed landfill. These berms will route surface water flow to downcomer pipes buried in the final cover, and ultimately to the perimeter drainage ditch. This system of terraces and pipes will minimize erosion of the final cover. Vegetative cover will be established and maintained, as soon as practical, after finish contours are completed.

When erosion occurs, repair will begin within three days and the reason for the erosion will be evaluated to eliminate the source. Should the repair require more than 7 days, the Department will be notified as required by Rule 62-701.500(7)(j), F.A.C.

T. EQUIPMENT

Sufficient equipment (including three compactors, two dozers, an excavator, a loader, a grader, a water wagon, three trucks, a service truck and a tractor) is provided to ensure proper operation of the landfill and for spreading, compacting and covering waste. In addition, due to tractor trailers disposing at the landfill, a tipper has been added to the operations. Substitutions and additions to the equipment listed above may occur. However, equipment capable of performing comparably to the listed equipment will be maintained on site. In addition, equipment is available within 24 hours from other

company operations and distributors should any situation dictate the requirement for additional equipment.

The minimum equipment at the working face will include two compactors and one dozer. When the waste receipt exceeds 2600 tons per day, an additional compactor will be provided for spreading and/or compaction.

U. OPERATION FEATURES

The scale house and the administrative building both have telephones for routine emergency communications. Further, both facilities provide shelter, sanitary facilities and first aid equipment.

Dust originating from haul road surfaces will be controlled by periodic sweeping and/or watering of road surfaces, as required. Additionally, final cover will be vegetated as soon as practical after application of final cover, in order to minimize the blowing of dust on site.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharged onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place and intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

When a fire occurs at the landfill, the application of additional compacted cover will be utilized to cut off the flow of oxygen into the burning area. If this does not contain the fire, the affected area will be thoroughly wetted, excavated, and wetted again prior to reconstructing the cells. The chance of fire occurring at a properly run sanitary landfill is minimal.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

Instruction in fire fighting procedures is routinely provided to site personnel, and portable fire extinguishers are located on each machine and vehicle. Local Fire Departments will be employed to assist the site personnel and equipment, if necessary.

Fire hydrants are located on site and are connected to the pump system, which draws water from the stormwater basin.

Trail Ridge Landfill, Inc. has developed an extensive program regarding safety and accident prevention. As part of this program, employees are trained in proper operation and emergency procedures. Telephone communication and First Aid equipment are provided at the facility. Operating vehicles are in compliance with current OSHA safety requirements, including caging and shields to protect operators. All appropriate equipment has back-up alarms and those alarms are maintained in good repair.

The problem of blowing litter will be minimized by limiting the active working face and using initial cover or tarpaulins over the active fill areas. Other methods, such as the utilization of casual labor pickers and portable fencing will be employed as required to contain loose paper and other wind-blown refuse during fill operations. Any loose paper or similar refuse blown outside the working area will be picked up on a regular basis.

Signage indicating the name of facility, operating authority, hours of operation and charges for disposal is located adjacent to the gate, prior to the ticket/scale house. Additional signs are placed on site to direct traffic. Warning signs are located in operating areas dealing with leachate and gas collection.

V. ROADS

The entrance road and ticket office/scale house area are paved. Beyond the paved area, all-weather perimeter roads are maintained to the active fill area, monitoring devices, and stormwater controls. Service and haul road construction and maintenance are coordinated with the landfill phasing and development.

W. RECORD KEEPING

The landfill operator will:

1. Keep records of all information used to develop or support the permit applications and any supplemental information pertaining to construction of the landfill throughout the design period. Records pertaining to the operation of the landfill will be kept for the design period of the landfill.

2. Retain records of all monitoring information, including calibration and maintenance records, all original chart recordings for continuous monitoring

instrumentation, and copies of all reports required by permit, for at least ten years. Background water quality records will be kept for the design period of the landfill.

3. Maintain an annual estimate of the remaining life and capacity in cubic yards of the existing, constructed landfill and remaining capacity and site life of other permitted areas not yet constructed. The annual estimate will be based on a summary of the heights, lengths, and widths of the solid waste disposal units. The estimate will be made and reported annually to the Department.

4. Records which are more than five years old and which are required to be retained may be archived, provided that the landfill operator can retrieve them for inspection within seven days.

X. WASTE TIRE PROCESSING

The landfill includes a waste tire processing facility. The permit application and operations plan for the waste tire processing are contained in **Appendix H**.

Y. INSPECTIONS

The operator will inspect all the active area on a weekly basis, the closed areas, at a minimum, on a monthly basis, and both areas after major storm events. Further, the operator will inspect the leachate collection system and gas collection system on a weekly basis. The checklist contained in Attachment B will be used for the inspections. Eroded areas will be repaired within 3 days of discovery and other insufficiencies will be repaired within 7 days.

IX. WATER QUALITY MONITORING

A. SURFACE WATER MONITORING

A surface water monitoring plan was approved as part of the original permit as well as the permit renewal. A summary of the monitoring data and recommendation for continued monitoring is provided in **Appendix I.**

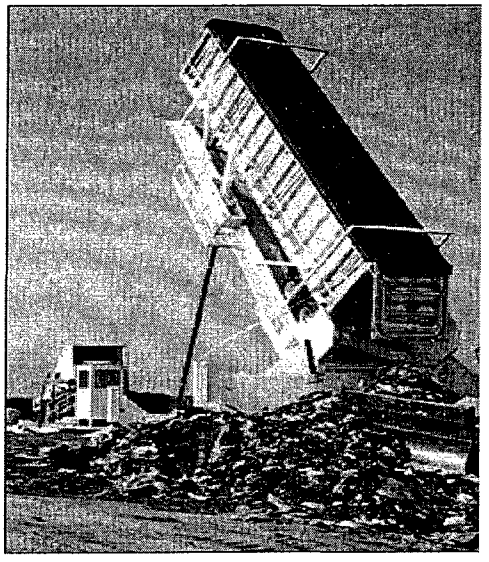
B. GROUNDWATER MONITORING

A groundwater monitoring plan was approved as part of the original permit as well as the permit renewal. A summary of the monitoring data and recommendation for continued monitoring is provided in **Appendix I.**

PORTABLE TIPPER

TIPPERS

LOW PROFILE LANDFILL



LOW PROFILE LAN

The patented Low Profile Portable is the most advanced tipper available today. Its compact design allows the tipper to be moved with a common fifth wheel equipped tractor. With an optional dolly, the tipper can be towed by most landfill-based moving equipment.

The average time required to move and reset a Low Profile tipper within a landfill is less than 30 minutes. As a result, it provides an excellent option when the working face is large enough to require frequent tipper relocation. This in turn makes it easier to unload waste close to the working face.

OPTIONAL SELF-CLEANING DECK
The new patented Self-Cleaning Deck saves time and money by preventing waste from accumulating on or under the Tipper's deck.

Each time the deck is elevated in the tipping cycle, the Self-Cleaning Deck causes material spilled during unloading to pass through the rear chute. This optional feature eliminates the costly and time-consuming task of cleaning material from the deck or from around the running gear of your Tipper.

This feature is available on all new Columbia "Low-Profile" Landfill Tippers and also may be installed in the field as an upgrade to your existing unit.

OTHER TIPPERS:
LOW PROFILE PORTABLE

FIXED INSTALLATION

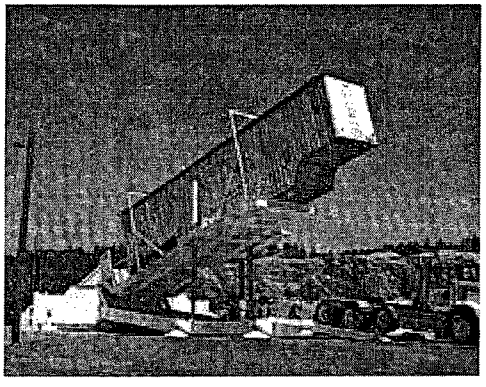
U.S. Patents #5080548, #5344271, #5458451 & #6579054
Canadian Patent #2046194 (1995)

TIPPERS

LOW PROFILE PORTABLE

Columbia's Portable Tippers are quickly becoming the preferred method of unloading most bulk commodities across the country and abroad. Because of our attention to detail and quality, in over 20 years of operation, our tippers have proven to be safe, reliable and efficient: No reported safety issues, an average of less than 1 downtime hour per 1000 of operation, and an approximately 3 minute cycle time which allows a 10 to 12 trailer per hour throughput. Additionally, using tippers to discharge the load means that you no longer need to operate and maintain heavier and more expensive self-unloading trailers. The resulting weight savings allows you to transport larger payloads.

The average time required to move and reset a Low Profile Portable tipper is less than 4 hours.



LOW PROFILE POR

THE MOST ADVANCED
TIPPER AVAILABLE TOD

OTHER TIPPERS:

LOW PROFILE LANDFILL

FIXED INSTALLATION

U.S. Patents #5080548, #5344271, #5458451 & #6579054
Canadian Patent #2046194 (1995)

Department of
Environmental Protection

Jeb Bush
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Colleen M. Castille
Secretary

August 17, 2005

Mr. Greg Mathes
General Manager
Trail Ridge Landfill Inc.
5110 U.S. Highway 301
Jacksonville, FL 32234

Re: Trail Ridge Landfill, Inc.
FDEP File Number 13493-013
Request for Additional Information
Duval County - Solid Waste

Dear Mr. Mathes:

The Department has reviewed your submittal, received July 22, 2005. The following review is enclosed:

Attachment 1, Review Memorandum, dated August 17, 2005, prepared by Julia Boesch

The information requested in this review is required for the Department to proceed with the processing of your permit application. Please provide the requested information by September 20, 2005. Action on the application will be delayed until the requested information is received in this office. Please reference the associated DEP file number in all written correspondence concerning this project.

If you have any comments concerning this matter, please contact Julia Boesch at the letterhead address or telephone number 904.807.3356.

Sincerely,

Emerson C. Raulerson

Emerson C. Raulerson, P.E.
Solid Waste Section

JB/ml

cc Francis Dayao, P.E., England, Thims, and Miller, Inc.

Florida Department of Environmental Protection

Memorandum

TO: Files

THROUGH: Emerson C. Raulerson, P. E. ECR
Solid Waste Section

FROM: Julia Boesch, Engineering Specialist
Solid Waste Section

DATE: August 17, 2005

SUBJECT: Trail Ridge Landfill
FDEP File Numbers 13493-013
First Request for Additional Information
Duval County- Solid Waste

The Department has reviewed your minor modification application, received on July 22, 2005, to modify the facility to utilize a tipper and to have two working faces, and requests the following information:

1. The Department understands you are proposing changes to only those portions of the provided "TRAIL RIDGE LANDFILL REVISED OPERATION PLAN," that are underlined or struck through. Therefore, the Department only reviewed those underlined or struck through portions. If this is incorrect and other portions were changed, please resubmit the plan with all changes either underlined in the case of additions, or struck through in the case of deletions. If this understanding is correct, please confirm. Finally, please note any changes not appropriately delineated shall not be misconstrued as having been approved.

2. In section VIII, OPERATION PLAN, subsection A, OPERATION PERSONNEL AND HOURS OF OPERATION, please revise the second paragraph to not only indicate that at least one trained spotter will be on-site at all times when the landfill receives waste, but rather indicate that at least one "trained" spotter will be present at the working face at all times waste is being accepted and/or spread out prior to disposal at that respective working face (FAC Rule 62-701.500(1)). For example, if waste is being accepted at both working faces at the same time, there will be at least one "trained" spotter at each working face, for a minimum of 2 trained spotters.

   Also, please revise section F, Paragraph 5, to specify that at the tipper working face there will be at least one "trained" spotter while waste is being accepted and/or spread out prior to disposal.

3. Please specify the equipment and personnel, including heavy equipment operators, tipper operators, spotters, etc., that you will have present at the tipper working face while tipping and/or spreading waste. Please confirm that a spotter will inspect all loads not only as they are being tipped, but also as they are being spread. Please also indicate how you will use the heavy equipment, e.g., to spread and/or compact the waste.

4. Please propose a maximum size for each of the two working faces.

ENGLAND, THIMS & MILLER, INC.
14775 St. Augustine Road
Jacksonville, Florida 32258

Tel (904) 642-8990 Fax (904) 646-9485

LETTER OF TRANSMITTAL

TO: Emerson Raulerson, P. E.
Solid Waste Section
Dept. of Environmental Protection
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256

DATE: August 24, 2005 | JOB NO: 98-34

RE: Trail Ridge Landfill – Permit Modification

- COURIER -

RECEIVED
AUG 24 2005
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST DISTRICT - JACKSONVILLE

WE ARE SENDING YOU: [X] Attached [ ] Under separate cover via:

[ ] Shop Drawings [ ] Prints [ ] Plans [ ] Specifications [ ] Copy of letter

COPIES	DESCRIPTION
5	Response to Request for Additional Information (FDEP File No. 13493-013)

THESE ARE TRANSMITTED: -

[ ] For your use [x] For review and comment

[ ] As requested [ ] Other For Signatures

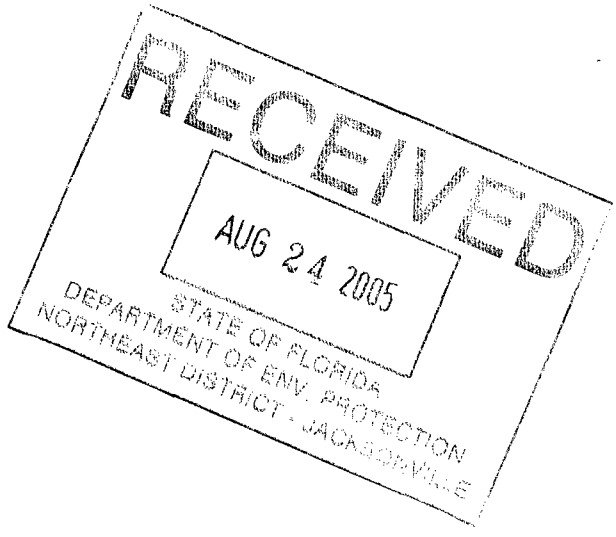
REMARKS:

CC: Greg Mathes

SIGNED: Francis Dayao, P. E.

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS
14775 ST. AUGUSTINE RD. • JACKSONVILLE, FL 32258 • TEL: (904) 642-8990 • FAX: (904) 646-9485
CA – 00002584 • www.etminc.com • LC – 0000316

August 24, 2005



Mr. Emerson C. Raulerson, P.E.
Solid Waste Section
Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256-7590

Reference: Trail Ridge Landfill – Permit Modification
FDEP File No. 13493-013
ETM No. 98-34

Dear Mr. Raulerson:

In response to staff comments dated August 17, 2005, we offer the following. Please note the Department's comments (bold face type) are followed by our response in italics:

1. **The Department understands you are proposing changes to only those portions of the provided "TRAIL RIDGE LANDFILL REVISED OPERATION PLAN," that are underlined or struck through. Therefore, the Department only reviewed those underlined or struck through portions. If this is incorrect and other portions were changed, please resubmit the plan with all changes either underlined in the case of additions, or struck through in the case of deletions. If this understanding is correct, please confirm. Finally, please note any changes not appropriately delineated shall not be misconstrued as having been approved.**

   The Department's understanding is correct.

2. **In section VIII, OPERATION PLAN, subsection A, OPERATION PERSONNEL AND HOURS OF OPERATION, please revise the second paragraph to not only indicate that at least one trained spotter will be on-site at all times when the landfill receives waste, but rather indicate that at least one "trained" spotter will be present at the working face at all times waste is being accepted and/or spread out prior to disposal at that respective working face (FAC Rule 62-701.500(1)). For example, if waste is being accepted at both working faces at the same time, there will be at least one "trained" spotter at each working face, for a minimum of 2 trained spotters.**

   The second paragraph has been revised.
   Also, please revise section F, Paragraph 5, to specify that at the tipper working face there will be at least one "trained" spotter while waste is being accepted and/or spread out prior to disposal.

   The fifth paragraph has been revised.

3. **Please specify the equipment and personnel, including heavy equipment operators, spotters, etc., that you will have present at the tipper working face while tipping and/or spreading waste. Please confirm that a spotter will inspect all loads not only as they are being tipped, but also as they are being spread. Please also indicate how you will use the heavy equipment, e.g., to spread and/or compact the waste.**

   The tipper working face shall have the landfill tipper and tipper operator. A compactor and operator will also be operating within the tipper working face. A trained spotter will also be present at the tipper working face to inspect all loads as the loads are being tipped and spread. A compactor will be utilized to spread and compact the solid waste. In order to maximize usage, the compactor assigned to the tipper working face may move back and forth between the working faces when solid waste is not being disposed of and/or spread within the tipper working face.

4. **Please propose a maximum size for each of the two working faces.**

   The first working face shall be wide enough to accommodate vehicles discharging solid waste and to minimize the exposed area and unnecessary use of cover material. The second working face where the landfill tipper will be located will only be wide enough to accommodate tractor trailers discharging solid waste via the landfill tipper. The second working face will also be wide enough to minimize the exposed area and unnecessary use of cover material.

We hope these comments adequately address your concerns. Please contact our office if you require additional information.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Francis Dayao, P.E.

Attachment: Revised Operation Plan

Cc: Greg Mathes

VIII. OPERATION PLAN

A. OPERATION PERSONNEL AND HOURS OF OPERATION

The District Manager is responsible for the overall operation of the Trail Ridge Landfill. The District Manager's responsibility is to assure that operations at the site are performed in accordance with the procedures outlined in this Operation Plan.

The District Manager, the Operations Manager and several operators are trained operators under Rule 62-701.320(15), F.A.C. At least one trained operator will be on-site during all times when the landfill receives waste. Further, at least one trained spotter will be at the working face at all times waste is being accepted and/or spread out prior to disposal at that respective working face. ~~when the landfill receives waste.~~

1. Hours of Operation

a.	Normal Monday - Friday:	6:00 A.M. to 7:00 P.M.
b.	Normal Saturday:	6:00 A.M. to 3:00 P.M.
c.	Maximum Hours:	5:00 A.M. to 10:00 P.M.

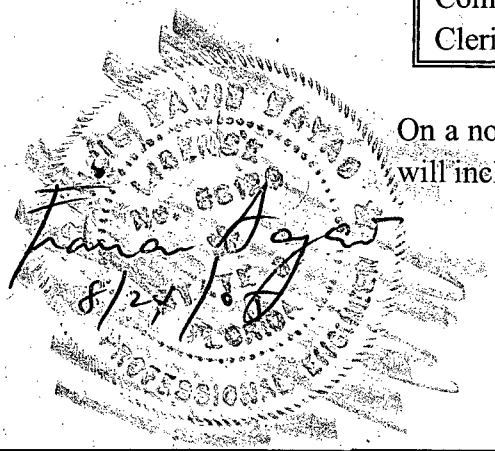
During emergency situations, i.e., after a hurricane, the landfill may operate beyond the above hours. However, the Florida Department of Environmental Protection must be notified at the first available opportunity. The landfill will have lights with at least 3 candle-feet of illumination for operation during non-daylight hours.

2. Personnel

Personnel expected to be at the landfill includes:

Personnel	Total
District Manager	1
Operations Manager	1
Equipment Operators	8
Mechanic	1
Labors/Spotters	6
Compliance Officer	1
Clerical	3

On a normal basis, the personnel present during operating hours on the landfill will include a trained operator, a trained spotter, a material handler (laborer) and



two equipment operators. During peak operating hours, the facility will have additional personnel, in accordance with the Personnel Matrix in Attachment A.

A work schedule is developed on a weekly basis to ensure that adequate staff is present on the landfill to handle the expected volume of waste.

B. CONTINGENCY OPERATIONS

The on-site entrance road is an all-weather road. The entrance road and administration area are paved. The pavement extends beyond the ticket office/scale house to the perimeter road around the landfill. The perimeter road is a stabilized limerock road. Haul roads beyond this point are maintained for adverse weather condition usage.

Emergency conditions at the facility may be created by a natural disaster (i.e., hurricane or tornado), flooding and fire. Waste is not normally delivered to the site during emergency conditions. The following procedures will be implemented with the imminent threat of a major storm.

1. Initial cover will be applied and compacted over all exposed waste.
2. All landfill equipment will be fueled and parked near natural wind screens, earthen mounds or tree areas.
3. All lightweight signs and equipment will be secured.
4. Work will begin in dry areas only when operations are resumed and waste materials will not be disposed in standing water.

The surface water management system will allow disposal operations to continue during periods of inclement weather. This will include the utilization of temporary berms and ditches to drain stormwater away from the active face.

In the event of a natural disaster in the area, operational hours will be extended as appropriate to meet the needs of the community and the Department will be notified.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharge onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place with intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to

another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

C. WASTE CONTROL

The waste stream will be monitored by the scale house operator, as each vehicle passes by the ticket office/scale house and then again at the working face by the spotter(s). In addition, the scale house is equipped with cameras/video monitoring systems, which record a time-coded picture of the vehicles entering the site.

There will be at least one trained spotter at the working face to observe the wastes disposed at all times the landfill receives waste. If any unacceptable wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known for subsequent removal off site. If the waste is deemed hazardous, the area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at an appropriate waste management facility.

In the event unacceptable waste is identified after the hauler has left the facility, the unacceptable waste shall be removed from the working face and placed in close proximity to the working face. At the end of the day, at a minimum, unacceptable waste such as batteries, oil filters, used oil, etc. will be removed from the landfill and stored at the existing concrete storage area adjacent to the waste tire storage and processing area. Within the storage area, the materials shall be placed in a single layer on pallets. (The water level in the storage area will be checked on a weekly basis and accumulated water will be pumped out and treated as leachate). Tires will be placed within the tire storage areas. White goods will be stored in a roll-off box. White goods and batteries will be taken off site by various recyclers on a quarterly basis at a minimum.

Only two types of biological waste are accepted for disposal, bodies of domestic animals and treated biomedical waste. Before the bodies of domestic animals are brought to the facility, the landfill will request information about the waste to determine if the animals were diseased. If the animals were not diseased, the bodies will be disposed within the working face and then covered immediately with either additional waste or initial cover. If the bodies of the domestic animal are from diseased animals, the bodies will be handled in accordance with Section 823.041(1), F.S. Treated biomedical waste will be

disposed within the working face and then covered with either additional waste or initial cover.

D. WEIGHING WASTE

All incoming waste will be weighed and recorded on a daily basis at the on-site scales prior to disposal. The on-site scales include at least one scale for incoming vehicles and one scale for outgoing vehicles.

E. VEHICLE TRAFFIC CONTROL

Signs are provided to direct traffic to the disposal area. Further, spotters will direct incoming vehicles to their final disposal area.

F. METHOD AND SEQUENCE OF FILLING WASTE

The landfill will have two (2) working faces and ~~The working face~~ will be consistent with orderly traffic control, waste spreading, and compaction activities.

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system. The placement of this initial waste will be supervised by a quality assurance monitor under the supervision of a Florida Registered professional Engineer.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices. In general, the initial fill will be placed from east to west in a 300-foot wide section that corresponds to the leachate collection area.

The first working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material. The second working face will be located near the first working face and shall have a portable tipper used to unload solid waste trailers. The location of the portable tipper within the second working face will be determined by the landfill operator and will vary depending on the amount of solid waste being received and weather conditions. The second

working face shall have a "trained" spotter whenever solid waste is being accepted and/or spread out prior to disposal.

G. WASTE COMPACTION AND APPLICATION OF COVER

Waste will be spread in layers of approximately two (2) feet in thickness and compacted to approximately one (1) foot in thickness or as thin a layer as practical before the next layer is applied. In general three to five passes with the compactor will be made on each layer of refuse.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day. A 6" thick initial soil cover or an FDEP approved alternate daily cover may also be applied at the end of each operating day.

For those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C.

An intermediate cover, in addition to the six (6) inch initial cover, will be applied and maintained within seven (7) days of cell completion if final cover or an additional lift is not to be applied within 180 days of cell completion. All or part of this intermediate cover may be removed before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less).

Final cover will be applied to a solid waste disposal unit once it has been filled to its design dimensions. The final cover including permanent vegetation will be placed over the entire surface of each completed solid waste disposal unit within 180 days after final waste placement. Solid waste disposal units, which are designated by phase, are shown on **Permit Drawings Nos. 14 and 15**.

H. OPERATION OF GAS, LEACHATE AND STORMWATER CONTROLS

1. Gas Collection System

The permanent gas collection system will be installed as each phase reaches its final contour in accordance with NSPS time frames. Further, the temporary gas collection system will be installed within five years of waste placement within a phase. All gas extraction wells are designed and installed for connection to the active gas extraction system including collection lines, blowers and flare station.

The gas management system will be monitored on a monthly basis, which will include inspection of each well and calibration of the system, as needed. This monitoring will be documented.

2. Leachate

The primary leachate collection system consists of an 8" perforated HDPE collection pipe surrounded by an aggregate encasement, which is covered by a geotextile fabric. This collection system is located in a trench on top of the primary liner. Leachate is collected within each leachate sector (300' wide, typical) and directed to the collection system by a geonet drainage blanket located on top of the primary liner.

The primary leachate collection pipes passes through the leachate collection sump and terminates at the leachate vault on the east side of the landfill. The leachate collection sump consists of an 18" or 24" diameter HDPE pipe (riser pipe) surrounded by an aggregate sump. The riser pipe extends from the sump up to the leachate vault. The 8" HDPE leachate collection pipe discharges directly into the riser pipe as well as the sump. A small submersible pump is located inside each riser pipe. Level sensors in the riser pipe are used to control the pump, which removes leachate as it accumulates. The pumps are mounted on wheels and can easily be removed for maintenance.

The leachate pumps discharge into a leachate force main which transfer the leachate to the fiberglass storage tanks (20,000 gallons each). Each leachate pump discharges through a flow meter that is monitored daily, Monday through Friday. Therefore, each leachate sector can be monitored for leachate generation. The leachate collection system, including the storage tanks, is located over the liner system. The leachate storage tanks are visually inspected daily, Monday through Friday, by on-site personnel. A daily log (Monday through Friday) is kept outlining leachate generation and storage volumes. Leachate will be transported off-site by tanker at regular intervals based on leachate production. The leachate

is transported to the Buckman Street Wastewater Treatment Facility for treatment and disposal.

The secondary (detection) leachate collection system is constructed and operates similarly to the primary system. The exceptions for this system include:

a. Multiple layers of geonet were installed in lieu of the 8" HDPE perforated pipe.

b. The secondary leachate collection system is piped to a separate storage tank (20,000 gallons).

3. Stormwater Treatment and Detention

The Stormwater Management System was designed in accordance with Rules 62-25, 40C-4 and 40C-42, F.A.C. for both treatment and peak flow attenuation. The stormwater treatment is provided by wet detention.

In general, a minimum of the first 1" of runoff will be treated prior to discharge. The treated stormwater will be discharged from the stormwater pump station via the wetland irrigation system.

4. Stormwater Management

a. Stormwater/Leachate Separation

Stormwater which falls on a section of the lined landfill, which is not currently being used for waste disposal, is separated from the leachate collection. This is accomplished by closing the valve upstream of the active phase and isolating this portion of the leachate collection system. A 36" high HDPE flap is welded to the liner at this phase line to prevent stormwater from flowing to the active area. A temporary pump-out is provided upstream of each valve and flap to pump uncontaminated stormwater from the inactive liner into the perimeter ditch. Any stormwater that comes in contact with waste will be considered leachate and handled in accordance with the Leachate Management Plan.

b. Stormwater Collection

All stormwater is collected and directed into the stormwater basin. The collection system includes terraces on the final landfill slopes in conjunction with downcomer piping. This system will control runoff and minimize erosion on the landfill side slopes. Details of this system are shown on the

Permit Drawings. The existing wetland discharge of treated stormwater occurs through a 2" perforated spreader pipe. The wetland irrigation occurs adjacent to the stormwater management basin.

I. WATER QUALITY MONITORING

There is an existing Environmental Media Monitoring Plan (Groundwater, Surface Water, and Leachate) for this facility which is part of the current Solid Waste Permit and will continue a part of this renewal permit. This plan includes semi-annual monitoring of each media.

J. MAINTENANCE OF LEACHATE COLLECTION SYSTEM

Each leachate vault box (located at the east end of each leachate collection pipe) has a flow meter for the primary and secondary leachate collection system. These flow meters will be read daily, Monday thru Friday. If the reading in a flow meter is noticeably diminishing or otherwise reduced compared to the other flow meters and daily rainfall records, the flow meter will be checked for proper operation. Prior to the next permit renewal and in the event it is deemed necessary, the leachate collection system will be either videoed to determine if there is a clog or other reason for diminished flow or the leachate collection pipe will be flushed cleaned.

K. OPERATION RECORD

The operating record consists of all records, reports, analytical results, demonstrations, and notifications required by Chapter 62-701, F.A.C., any construction, operation, and closure plans and permits, including all modifications to those permits issued by the Department, Permit Document Plans, as well as training records required by Chapter 62-701.320(15), F.A.C. The record is considered part of the operation plan and will be kept with the plan at the landfill facility. The operating record will be available for inspection at reasonable times by Department personnel.

L. WASTE RECORDS

All solid waste will be weighed as it is received. Landfill operators will record, in tons per day, the amount of solid waste received and will estimate the amount of each waste listed below. Waste reports will be compiled monthly, and copies provided to the Department quarterly.

Types of waste received:

a. Residential/household waste
b. Commercial waste
c. Treated biomedical waste
d. Water treatment sludge
e. Construction and demolition debris
f. Agricultural waste
g. Industrial waste
h. Waste tires
i. Asbestos
j. Industrial sludge
k. Domestic sludge
l. Non-Hazardous special wastes

M. ACCESS CONTROL

Access to the landfill is provided by a paved entrance road from U.S. 301.

The entire site is fenced. Access is restricted by a gate near the entrance off U.S. 301 as well as a second gate closer to the site. All gates will be locked at night and whenever the landfill is closed. Public access and receipt of wastes will occur only when an attendant is on duty.

Traffic control on site is accomplished by signage and site personnel. Spotters will assist with traffic control at the working face by directing in-coming trucks to their final unloading area.

Access to areas restricted from traffic will be controlled by temporary earthen berms and barricades.

N. WASTE MONITORING

1. The operations will include a load checking program to detect and discourage attempts to dispose of unauthorized wastes at the landfill. The load checking program consists of the following minimum requirements:

   a. The landfill operator will examine at least three random loads of solid waste delivered to the landfill each week. The waste collection vehicle drivers selected by the inspector will be directed to discharge their loads at a designated location within the landfill (near the working face). A detailed inspection of the discharged material will be made for any unauthorized wastes.

   b. If unauthorized wastes are found, the facility will contact the generator, hauler, or other party responsible for shipping the waste to the landfill to determine the identity of the waste sources.

2. Handing hazardous wastes.

   a. If any regulated hazardous wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the Department by telephone, the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known. The area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at a permitted hazardous waste management facility.

      The operator will provide a report of the discovery of hazardous waste to the Department within seven days. The report will include the date of the incident, how the materials were discovered, transferred and transported, the disposal location, and if known, the source of the material. The material will be transferred and disposed off site in accordance with applicable local, state and federal regulations. The clean up will include determining the extent of contamination as well as the handling of materials that are contaminated by the hazardous waste.

   b. Subsequent shipments from sources found or suspected to be previously responsible for shipping regulated hazardous waste will be subject to precautionary measure prior to the solid waste management facility accepting wastes.

3. Recording inspection results. Information and observations resulting from each random inspection will be recorded in writing and retained at the landfill for at least three years. The recorded information will include: the date and time of the inspection; the names of the hauling firm and the driver of the vehicle; the vehicle license plate number; the source of the waste, as stated by the driver; and observations made by the inspector during the detailed inspection. The written record will be signed by the inspector.

O. WASTE HANDLING

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices.

The working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day.

However, for those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C.

An intermediate cover, in addition to the initial cover, will be applied and maintained within seven days of cell completion if additional solid waste will not be deposited within 180 days of cell completion. The landfill operator may remove all or part of the

intermediate cover before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less).

Solid waste disposal units, which have been filled to design dimensions, will receive final cover within 180 days after attaining final elevation or in accordance with the closure plan for the landfill. The solid waste disposal units are shown on **Permit Drawing Nos. 14 and 15**.

Uncontrolled and unauthorized scavenging is not permitted at the landfill site. Salvaging is also not permitted.

A litter policing operation will be employed to keep litter from leaving the working area of the landfill. Litter outside the working area will be picked up within 24 hours. Some litter may be exposed through the initial cover, if it is in traffic areas and away from public view.

Erosion control measures will be employed to correct any erosion which exposes waste or causes malfunction of the stormwater management system. Erosion control measures will be implemented within three days of occurrences. If the erosion cannot be corrected within seven days of occurrence, the landfill operator will notify the Department and propose a corrective schedule.

P. LEACHATE MANAGEMENT

The landfill operator will monitor the leachate level in and record the flow from both the leachate collection (primary) and detention (secondary) sumps on a daily basis, Monday through Friday. The operator will maintain at least one backup pump on site or have access to a backup pump that can be installed within hours of discovery that a pump is not operating. The operator/owner will sample and analyze the leachate in accordance with the Environmental Media Monitoring Plan and will submit the results to the Department.

The operator will operate and maintain the leachate collection system to collect and remove leachate from the landfill. The leachate will be stored on site in the six 20,000-gallon leachate storage tanks and will be transported to Buckman Street Wastewater Treatment Facility for treatment and disposal.

The quantity of leachate collected by the leachate collection and removal system will be recorded (in gallons) on a daily basis, Monday through Friday. The amount of leachate transported off site will be recorded on a daily basis, Monday through Friday.

If the flow from any secondary leachate detection sump exceeds 4,492 gallons per day for one day, the Department will be notified within 24 hours and a follow-up report prepared within 7 days. The follow-up report will include a description and assessment of the situation, proposed remedial actions, the proposed remedial action and a schedule for commencing and completing the remediation.

A recording rain gauge is operated and maintained to record precipitation at the landfill. These precipitation records will be maintained and used to compare with leachate generation rates.

Q. LEACHATE SPILLAGE CONTROL PLAN

The leachate storage and pumping facilities are inside a concrete containment area, which will hold 140% of the volume of the storage tanks plus one foot of freeboard. This facility is constructed on top of the liner system. Therefore, the Leachate Spillage Control Plan is directed at those spills that would occur outside the containment area.

The Leachate Spillage Control Plan consists of four major elements; Training, Containment, Remediation and Notification as described below:

1. Training

The tanker driver and/or site personnel (the Attendant for the purposes of this subsection) will be trained to prevent spills. The Attendant will perform the following prior to loading the tanker truck:

a. Inspect the tanker for signs of leakage.
b. Verify all tanker discharge valves are closed.
c. Verify the tanker is completely within the leachate loading area containment curbing.
d. Verify the liquid level in the containment sump is at or below the discharge pipe.
e. Verify the containment sump discharge gate valve is closed.
f. Verify the leachate fill hose is securely fastened to the inlet port of the tanker.
g. Verify the available tanker volume.

Upon completion of this inspection, the Attendant will begin the following fill sequence:

1. Operate the leachate loading pump for approximately five minutes or until 500 gallons of leachate has been pumped and then discontinue pumping.

2. Inspect the tanker, fill hose and pumping system for leakage.
3. Upon verification that no spilling or leaking has occurred, restart pumping.
4. Continuously monitor the tanker fill operations.
5. Monitor the leachate flow meter until approximately 95% of the available tanker volume has been filled.
6. Discontinue filling operations and remove fill hose.
7. Perform a final inspection of tanker and tanker fill area.

2. Containment

If a spill occurs, the Attendant will notify the District Manager of the spill and request assistance. The Attendant will institute the following containment sequence:

a. Cease pumping.
b. Place sandbags around drainage structures down slope from the loading area to prevent any spillage from entering the drainage system. (NOTE: The first 500 gallons of spillage inside the containment curb will drain naturally into the 500-gallon containment sump.)
c. Create an earthen berm around the spill with on-site sands taken from the daily cover stockpile.

3. Remediation

After the spill has been securely contained, the following cleanup will begin:

a. Pump the leachate in the containment sump into the on-site storage tanks.
b. Spread absorbent sands across all areas in contact with the spill.
c. Remove the contaminated sand to the landfill disposal area.

4. Notification

In the event of a leachate spill, the Department will be notified.

The outlined Spillage Control Plan focuses primarily on a spill at the tanker truck loading area. However, if a leachate spill is discovered at any location on site, the pertinent containment, remediation and notification procedures described above will be implemented.

R. COMBUSTIBLE GAS MONITORING PROGRAM

The combustible gas monitoring program is provided in **Appendix F** and will be monitored quarterly with the results submitted to the Department.

If combustible gas levels exceed twenty-five percent of the lower explosive limit in structures (excluding gas control or recovery components) or the lower explosive limits at or beyond the property boundary, Trail Ridge Landfill will:

1. Immediately take all necessary steps to ensure protection of human health and notify the Department.

2. Within seven days of detection, submit to the Department for approval a remediation plan for the gas releases. The plan will describe the nature and extent of the problem and the proposed remedy. The remedy will be completed within 60 days of detection unless otherwise approved by the Department.

S. STORMWATER MANAGEMENT

1. Stormwater Handling

The stormwater management system was installed as part of the initial construction and is operated and maintained in accordance with the requirements of the DEP Solid Waste permit. The stormwater management system includes the wet detention basin as well as the swales, drainage ditches and culverts, discharge structures, downcomer pipes and other appurtenances as required. Pertinent features of the stormwater handling system include:

a. Potentially contaminated stormwater will be segregated from clean stormwater and contaminated stormwater will not be discharged from the site;
b. A 24-hour, 25-year rainfall event is detained on site;
c. Stormwater is treated to meet the requirements of Rule 62-25, F.A.C.;
d. The maximum discharge rate following a 25-year, 24-hour storm event does not exceed the pre-development discharge from this design storm.

Stormwater is routed through the internal ditch and culvert network to the wet detention basin for treatment. The discharge structure releases the stormwater at the control rate to a dispersion pond, which ultimately discharges to the adjacent wetlands.

The discharge structure was designed to effectively prevent floating materials from being released from the site.

2. Stormwater Treatment

a. Clean Stormwater

Stormwater runoff is treated in the existing wet detention basin. This basin is designed to treat 2.5 inches of runoff from the impervious surfaces and detain a 25-year, 24-hour storm event.

b. Other Stormwater

Stormwater which comes into contact with refuse will be segregated from the clean stormwater and will not be discharged from the site. This potentially contaminated water includes stormwater which falls on uncovered refuse or has otherwise made contact with refuse.

Temporary berms will be constructed in advance of the active fill face to collect stormwater which falls in the active area. This potentially contaminated stormwater will be pumped onto the working face or back into previously filled portions of the landfill.

3. Erosion Control

Stormwater terraces will be constructed on the side slopes of the completed landfill. These berms will route surface water flow to downcomer pipes buried in the final cover, and ultimately to the perimeter drainage ditch. This system of terraces and pipes will minimize erosion of the final cover. Vegetative cover will be established and maintained, as soon as practical, after finish contours are completed.

When erosion occurs, repair will begin within three days and the reason for the erosion will be evaluated to eliminate the source. Should the repair require more than 7 days, the Department will be notified as required by Rule 62-701.500(7)(j), F.A.C.

T. EQUIPMENT

Sufficient equipment (including three compactors, two dozers, an excavator, a loader, a grader, a water wagon, three trucks, a service truck and a tractor) is provided to ensure proper operation of the landfill and for spreading, compacting and covering waste. In addition, due to tractor trailers disposing at the landfill, a tipper has been added to the operations. Substitutions and additions to the equipment listed above may occur. However, equipment capable of performing comparably to the listed equipment will be maintained on site. In addition, equipment is available within 24 hours from other

company operations and distributors should any situation dictate the requirement for additional equipment.

The minimum equipment at the working face will include two compactors and one dozer. When the waste receipt exceeds 2600 tons per day, an additional compactor will be provided for spreading and/or compaction.

U. OPERATION FEATURES

The scale house and the administrative building both have telephones for routine emergency communications. Further, both facilities provide shelter, sanitary facilities and first aid equipment.

Dust originating from haul road surfaces will be controlled by periodic sweeping and/or watering of road surfaces, as required. Additionally, final cover will be vegetated as soon as practical after application of final cover, in order to minimize the blowing of dust on site.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharged onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place and intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

When a fire occurs at the landfill, the application of additional compacted cover will be utilized to cut off the flow of oxygen into the burning area. If this does not contain the fire, the affected area will be thoroughly wetted, excavated, and wetted again prior to reconstructing the cells. The chance of fire occurring at a properly run sanitary landfill is minimal.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

Instruction in fire fighting procedures is routinely provided to site personnel, and portable fire extinguishers are located on each machine and vehicle. Local Fire Departments will be employed to assist the site personnel and equipment, if necessary.

Fire hydrants are located on site and are connected to the pump system, which draws water from the stormwater basin.

Trail Ridge Landfill, Inc. has developed an extensive program regarding safety and accident prevention. As part of this program, employees are trained in proper operation and emergency procedures. Telephone communication and First Aid equipment are provided at the facility. Operating vehicles are in compliance with current OSHA safety requirements, including caging and shields to protect operators. All appropriate equipment has back-up alarms and those alarms are maintained in good repair.

The problem of blowing litter will be minimized by limiting the active working face and using initial cover or tarpaulins over the active fill areas. Other methods, such as the utilization of casual labor pickers and portable fencing will be employed as required to contain loose paper and other wind-blown refuse during fill operations. Any loose paper or similar refuse blown outside the working area will be picked up on a regular basis.

Signage indicating the name of facility, operating authority, hours of operation and charges for disposal is located adjacent to the gate, prior to the ticket/scale house. Additional signs are placed on site to direct traffic. Warning signs are located in operating areas dealing with leachate and gas collection.

V. ROADS

The entrance road and ticket office/scale house area are paved. Beyond the paved area, all-weather perimeter roads are maintained to the active fill area, monitoring devices, and stormwater controls. Service and haul road construction and maintenance are coordinated with the landfill phasing and development.

W. RECORD KEEPING

The landfill operator will:

1. Keep records of all information used to develop or support the permit applications and any supplemental information pertaining to construction of the landfill throughout the design period. Records pertaining to the operation of the landfill will be kept for the design period of the landfill.

2. Retain records of all monitoring information, including calibration and maintenance records, all original chart recordings for continuous monitoring

instrumentation, and copies of all reports required by permit, for at least ten years. Background water quality records will be kept for the design period of the landfill.

3. Maintain an annual estimate of the remaining life and capacity in cubic yards of the existing, constructed landfill and remaining capacity and site life of other permitted areas not yet constructed. The annual estimate will be based on a summary of the heights, lengths, and widths of the solid waste disposal units. The estimate will be made and reported annually to the Department.

4. Records which are more than five years old and which are required to be retained may be archived, provided that the landfill operator can retrieve them for inspection within seven days.

X. WASTE TIRE PROCESSING

The landfill includes a waste tire processing facility. The permit application and operations plan for the waste tire processing are contained in **Appendix H**.

Y. INSPECTIONS

The operator will inspect all the active area on a weekly basis, the closed areas, at a minimum, on a monthly basis, and both areas after major storm events. Further, the operator will inspect the leachate collection system and gas collection system on a weekly basis. The checklist contained in Attachment B will be used for the inspections. Eroded areas will be repaired within 3 days of discovery and other insufficiencies will be repaired within 7 days.

IX. WATER QUALITY MONITORING

A. SURFACE WATER MONITORING

A surface water monitoring plan was approved as part of the original permit as well as the permit renewal. A summary of the monitoring data and recommendation for continued monitoring is provided in **Appendix I.**

B. GROUNDWATER MONITORING

A groundwater monitoring plan was approved as part of the original permit as well as the permit renewal. A summary of the monitoring data and recommendation for continued monitoring is provided in **Appendix I.**

Department of Environmental Protection

Jeb Bush
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Colleen M. Castille
Secretary

August 17, 2005

Mr. Greg Mathes
General Manager
Trail Ridge Landfill Inc.
5110 U.S. Highway 301
Jacksonville, FL 32234

Re: Trail Ridge Landfill, Inc.
FDEP File Number 13493-013
Request for Additional Information
Duval County - Solid Waste

Dear Mr. Mathes:

The Department has reviewed your submittal, received July 22, 2005. The following review is enclosed:

Attachment 1, Review Memorandum, dated August 17, 2005, prepared by Julia Boesch

The information requested in this review is required for the Department to proceed with the processing of your permit application. Please provide the requested information by September 20, 2005. Action on the application will be delayed until the requested information is received in this office. Please reference the associated DEP file number in all written correspondence concerning this project.

If you have any comments concerning this matter, please contact Julia Boesch at the letterhead address or telephone number 904.807.3356.

Sincerely,

Emerson C. Raulerson, P.E.
Solid Waste Section

JB/ml

cc Francis Dayao, P.E., England, Thims, and Miller, Inc.

Florida Department of Environmental Protection

Memorandum

TO: Files

THROUGH: Emerson C. Raulerson, P. E. ECR
Solid Waste Section

FROM: Julia Boesch, Engineering Specialist
Solid Waste Section

DATE: August 17, 2005

SUBJECT: Trail Ridge Landfill
FDEP File Numbers 13493-013
First Request for Additional Information
Duval County- Solid Waste

The Department has reviewed your minor modification application, received on July 22, 2005, to modify the facility to utilize a tipper and to have two working faces, and requests the following information:

1. The Department understands you are proposing changes to only those portions of the provided "TRAIL RIDGE LANDFILL REVISED OPERATION PLAN," that are underlined or struck through. Therefore, the Department only reviewed those underlined or struck through portions. If this is incorrect and other portions were changed, please resubmit the plan with all changes either underlined in the case of additions, or struck through in the case of deletions. If this understanding is correct, please confirm. Finally, please note any changes not appropriately delineated shall not be misconstrued as having been approved.

2. In section VIII, OPERATION PLAN, subsection A, OPERATION PERSONNEL AND HOURS OF OPERATION, please revise the second paragraph to not only indicate that at least one trained spotter will be on-site at all times when the landfill receives waste, but rather indicate that at least one "trained" spotter will be present at the working face at all times waste is being accepted and/or spread out prior to disposal at that respective working face (FAC Rule 62-701.500(1)). For example, if waste is being accepted at both working faces at the same time, there will be at least one "trained" spotter at each working face, for a minimum of 2 trained spotters.

   Also, please revise section F, Paragraph 5, to specify that at the tipper working face there will be at least one "trained" spotter while waste is being accepted and/or spread out prior to disposal.

3. Please specify the equipment and personnel, including heavy equipment operators, tipper operators, spotters, etc., that you will have present at the tipper working face while tipping and/or spreading waste. Please confirm that a spotter will inspect all loads not only as they are being tipped, but also as they are being spread. Please also indicate how you will use the heavy equipment, e.g., to spread and/or compact the waste.

4. Please propose a maximum size for each of the two working faces.

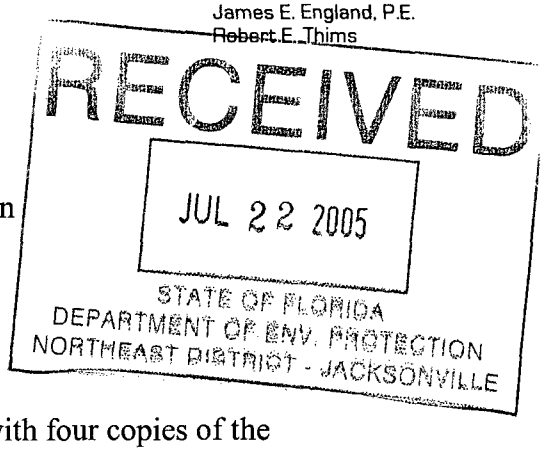
England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • GIS • LANDSCAPE ARCHITECTS

Principals
Douglas C. Miller, P.E., CEO
N. Hugh Mathews, P.E., President
Joseph A. Tarver, Exec., V.P.
Juanitta Bader Clem, P.E., V.P.
Scott A. Wild, P.E., PSM, V.P.
Samuel R. Crissinger, CFO, V.P.
Robert A. Mizell, Jr., P.E., V.P.
Thomas N. Fallin, P.E., V.P.

Emeritus
James E. England, P.E.
Robert E. Thims

July 22, 2005

Ms. Mary C. Nogas, P.E.
Solid Waste Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256



Reference: Trail Ridge Landfill
Application for Minor Permit Modification
FDEP Permit No. 0013493-010-SC
ET&M Project No. 98-34

Dear Ms. Nogas:

On behalf of Trail Ridge Landfill, Inc., please find herewith four copies of the Application for a Permit to Construct Operate, Modify or Close a Solid Waste Management Facility. The permit application is for a minor permit modification to authorize Trail Ridge Landfill to operate a second working face and utilize a portable tipper. Please note that information relating to this request is underlined and limited to Sections F and T of the revised Operation Plan.

I would respectfully request that any questions regarding this application be directed to me.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Francis Dayao, P. E.
Project Engineer

Attachments: Permit Application - 4 copies
Operation Plan - 4 copies
Product Information – 4 copies
Application Fee for a Minor Permit Modification - $250.00

cc: Greg Mathes w/attachments

PERMIT APPLICATION

FOR

MINOR PERMIT MODIFICATION

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

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

REGfiles: 5/2001

Northwest District
160 Governmental Center
Pensacola, FL 32501-6794
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.

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):

[X] Disposal
- [X] Class I Landfill
- [ ] Class II Landfill
- [ ] Class III Landfill
- [ ] Ash Monofill
- [ ] Asbestos Monofill
- [ ] Industrial Solid Waste
- [X] Other Describe: Waste Tire Processing

[ ] 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
- [X] Construction/Operation
- [ ] Closure

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

4. Facility name: Trail Ridge Landfill

5. DEP ID number: GMS3116P02787 County: Duval

6. Facility location (main entrance): 5110 U.S. Hwy. 301
Baldwin, Florida 32234

7. Location coordinates:
Section: 18, 19 20, 21 Township: 3S Range: 23E

Latitude: 30 ° 14 ' 00 " Longitude: 82 ° 02 ' 30 "

8. Applicant name (operating authority): Trail Ridge Landfill, Inc.

Mailing address: 5110 U.S. Hwy. 301 (Street or P. O. Box) Baldwin (City) Florida (State) 32234 (Zip)

Contact person: Greg Mathes Telephone: (904) 289-9100

Title: Director of Landfill Operations

gmathes@wm.com
E-Mail address (if available)

9. Authorized ~~agents~~/Consultant: England, Thims & Miller, Inc.

Mailing address: 14775 St. Augustine Road, Jacksonville, Florida 32258
Street or P. O. Box City State Zip

Contact person: Juanitta Clem Telephone: (904) 642-8990

Title: Vice President

clemj@etminc.com
E-Mail address (if available)

10. Landowner(if different than applicant): City of Jacksonville

Mailing address: Suite 200
140 W. Monroe Street, Jacksonville, Florida 32202
Street or P. O. Box City State Zip

Contact person: Chris Pearson Telephone: (904) 630-4593

chrisp@coj.net
E-Mail address (if available)

11. Cities, towns and areas to be served: City of Jacksonville (Duval County), St. Johns County and Northeast Florida

12. Population to be served:
Current: 805,469 (2002 Duval) 132,829 (2002 St. Johns) Five-Year Projection: 845,580 (2007 Duval) 149,506 (2007 St. Johns)

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

14. Expected life of the facility: 14 years

15. Estimated costs:

Total Construction: $ N/A Closing Costs: $ 14.4 Million

16. Anticipated construction starting and completion dates:

From: On-Going To: On-Going

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

_____ yds³/day 5,000 * (peak) tons/day _____ gallons/day

3,900 Tons/day (monthly average)

B. DISPOSAL FACILITY GENERAL INFORMATION

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

Minor permit modification to authorize facility to operate a second working face and to authorize the use of a landfill tipper.

2. Facility site supervisor: Greg Mathes

Title: Director of Landfill Operations Telephone: ( ) 904-289-9100

gmathes@wm.com
E-Mail address (if available)

3. Disposal area: Total 148 acres; Used 148 acres; Available 0 acres

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

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

6. Charge for waste received: N/A $/yds^3 40.00 $/ton

7. Surrounding land use, zoning:

[ ] Residential
[X] Agricultural
[ ] Commercial
[ ] Industrial
[ ] None
[X] Other Describe: Silviculture

8. Types of waste received:

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

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

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

11. Spotters: Yes [X] No [ ] Number of spotters used: 1

12. Site located in: [ ] Floodplain [ ] Wetlands [X] Other Upland Pines Flatwoods

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

14. Days of operation: Monday - Saturday

15. Hours of operation: 5:00 A.M. - 10:00 P.M.*

16. Days Working Face covered: Daily with cover dirt or tarpaulin

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

18. Number of monitoring wells: 50 (37 wells monitored)

19. Number of surface monitoring points: 2

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

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

21. Landfill unit liner type:

[ ] Natural soils
[ ] Single clay liner
[ ] Single geomembrane
[ ] Single composite
[ ] Slurry wall
[ ] Other Describe: With Bentonite Mat and 6" clay subgrade
[X] Double geomembrane
[ ] Geomembrane & composite
[ ] Double composite
[ ] None

22. Leachate collection method:

[X] Collection pipes
[X] Geonets
[ ] Well points
[ ] Perimeter ditch
[ ] Other Describe:
[ ] Sand layer
[ ] Gravel layer
[ ] Interceptor trench
[ ] None

23. Leachate storage method:

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

24. Leachate treatment method:

[ ] Oxidation
[ ] Secondary
[ ] Advanced
[ ] None
[X] Other off-site Treatment at a City Wastewater Treatment Facility
[ ] Chemical treatment
[ ] Settling

* May vary dependent upon waste receipt.

25. Leachate disposal method:

[X] Recirculated
[X] 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: [X] Yes [ ] No

Type of treatment: wet detention

Name and Class of receiving water: Headwaters of Deep Creek - Class III

28. Environmental Resources Permit (ERP) number or status: Permitted as Solid Waste Permit (DEP File Nos. 184444, 184445 and 184447). Pond was permitted, constructed and certified.

C. **NON-DISPOSAL FACILITY GENERAL INFORMATION** N/C

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 _____ 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: _____

_____

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) N/C

S	LOCATION	N/A	N/C		
X	Attached	___	___	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		
X	Attached			1.	Four copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320(5)(a),FAC)
X	Attached			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)
X	Attached			3.	A letter of transmittal to the Department; (62-701.320(7)(a),FAC)
X	Attached			4.	A completed application form dated and signed by the applicant; (62-701.320(7)(b),FAC)
X	Attached			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)
X	Attached			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)
	*Revised Operation Plan				
X	Attached			7.	Operation Plan and Closure Plan; (62-701.320(7)(e)1.,FAC)
			X	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)
			X		a. A regional map or plan with the project location;
			X		b. A vicinity map or aerial photograph no more than 1 year old;
			X		c. A site plan showing all property boundaries certified by a registered Florida land surveyor;

	LOCATION	N/A	N/C		PART E CONTINUED
X	Attached				d. Other necessary details to support the engineering report.
			X	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)
			X	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)
			X	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)
		X		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)
			X	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)
			X	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) N/A

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)

GENERAL CRITERIA FOR LANDFILLS (62-701.340,FAC) N/A

				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) N/A

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 a upper and lower 60-mil minimum thickness geomembrane;
				(b) Leak detection and collection syste 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 exce that predicted by design calculations;
				(4) Description of procedures to prevent uplift, if applicable;
				(5) Design calculations to demonstrate minim two feet of freeboard will be maintained;
				(6) Procedures for controlling disease vecto 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
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___
___	_____	___	___

(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) N/A

	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) N/A

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) N/A

	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;
___	_____	___	___	3.	Provide foundation and settlement analysis for the vertical expansion;
___	_____	___	___	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;
___	_____	___	___	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)

___	_____	___	X	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)
___	_____	___	X		a. Designating responsible operating and maintenance personnel;
___	_____	___	X		b. Contingency operations for emergencies;
___	_____	___	X		c. Controlling types of waste received at the landfill;
___	_____	___	X		d. Weighing incoming waste;
___	_____	___	X		e. Vehicle traffic control and unloading;
X	Attached	___	___		f. Method and sequence of filling waste;
___	_____	___	X		g. Waste compaction and application of cover;
___	_____	___	X		h. Operations of gas, leachate, and stormwater controls;
___	_____	___	X		i. Water quality monitoring;
___	_____	___	X		j. Maintaining and cleaning the leachate collection system;
___	_____	___	X	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)
___	_____	___	X	4.	Describe the waste records that will be compiled monthly and provided to the Department quarterly; (62-701.500(4),FAC)
___	_____	___	X	5.	Describe methods of access control; (62-701.500(5),FAC)
___	_____	___	X	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)
___	_____	___	X		a. Waste layer thickness and compaction frequencies;

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

S	LOCATION	N/A	N/C	PART L CONTINUED
			X	f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;
			X	g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates and including this information in the operating record;
			X	h. Procedures for water pressure cleaning or video inspecting leachate collection systems.
			X	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)
		X		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)
X	Attached*			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.
			X	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)

* A tipper has been added.

S	LOCATION	N/A	N/C	PART L CONTINUED
___	_____	___	X	a. Records used for developing permit applications and supplemental information maintained for the design period of the landfill;
___	_____	___	X	b. Monitoring information, calibration and maintenance records, copies of reports required by permit maintained for at least 10 years;
___	_____	___	X	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;
___	_____	___	X	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) N/A

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) N/A

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) N/A

				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) N/A

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	PART B CONTINUED
___	_____	___	___	(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	PART P CONTINUED
				(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;

!	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) N/C

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) N/C

_____	___	___	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) N/C

_____	___	___	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 Trail Ridge Landfill, Inc. _____ is aware that statements made in this form and attached information are an application for a minor permit 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.

Signature of Applicant or Agent

Greg Mathes
Director of Landfill Operations
Name and Title (please type)

gmathes@wm.com
E-Mail address (if available)

5110 U.S. Highway 301
Mailing Address

Baldwin, Florida 32234
City, State, Zip Code

(___) 904-289-9100
Telephone Number

Date: 07/20/05

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

Francis D. Dayao, P.E.
Name and Title (please type)

7-21-2005

56120
Florida Registration Number
(please affix seal)

14775 St. Augustine Road
Mailing Address

Jacksonville, Florida 32258
City, State, Zip Code

dayaof@etminc.com
E-Mail address (if available)

(___) 904-642-8900
Telephone Number

Date: 7-21-2005

TRAIL RIDGE LANDFILL

REVISED OPERATION PLAN

VIII. OPERATION PLAN

A. OPERATION PERSONNEL AND HOURS OF OPERATION

The District Manager is responsible for the overall operation of the Trail Ridge Landfill. The District Manager's responsibility is to assure that operations at the site are performed in accordance with the procedures outlined in this Operation Plan.

The District Manager, the Operations Manager and several operators are trained operators under Rule 62-701.320(15), F.A.C. At least one trained operator will be on-site during all times when the landfill receives waste. Further, at least one trained spotter will be at the working face at all times when the landfill receives waste.

1. Hours of Operation

a.	Normal Monday - Friday:	6:00 A.M. to 7:00 P.M.
b.	Normal Saturday:	6:00 A.M. to 3:00 P.M.
c.	Maximum Hours:	5:00 A.M. to 10:00 P.M.

During emergency situations, i.e., after a hurricane, the landfill may operate beyond the above hours. However, the Florida Department of Environmental Protection must be notified at the first available opportunity. The landfill will have lights with at least 3 candle-feet of illumination for operation during non-daylight hours.

2. Personnel

Personnel expected to be at the landfill includes:

Personnel	Total
District Manager	1
Operations Manager	1
Equipment Operators	8
Mechanic	1
Labors/Spotters	6
Compliance Officer	1
Clerical	3

On a normal basis, the personnel present during operating hours on the landfill will include a trained operator, a trained spotter, a material handler (laborer) and two equipment operators. During peak operating hours, the facility will have additional personnel, in accordance with the Personnel Matrix in Attachment A.

A work schedule is developed on a weekly basis to ensure that adequate staff is present on the landfill to handle the expected volume of waste.

B. CONTINGENCY OPERATIONS

The on-site entrance road is an all-weather road. The entrance road and administration area are paved. The pavement extends beyond the ticket office/scale house to the perimeter road around the landfill. The perimeter road is a stabilized limerock road. Haul roads beyond this point are maintained for adverse weather condition usage.

Emergency conditions at the facility may be created by a natural disaster (i.e., hurricane or tornado), flooding and fire. Waste is not normally delivered to the site during emergency conditions. The following procedures will be implemented with the imminent threat of a major storm.

1. Initial cover will be applied and compacted over all exposed waste.
2. All landfill equipment will be fueled and parked near natural wind screens, earthen mounds or tree areas.
3. All lightweight signs and equipment will be secured.
4. Work will begin in dry areas only when operations are resumed and waste materials will not be disposed in standing water.

The surface water management system will allow disposal operations to continue during periods of inclement weather. This will include the utilization of temporary berms and ditches to drain stormwater away from the active face.

In the event of a natural disaster in the area, operational hours will be extended as appropriate to meet the needs of the community and the Department will be notified.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharge onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place with intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

C. WASTE CONTROL

The waste stream will be monitored by the scale house operator, as each vehicle passes by the ticket office/scale house and then again at the working face by the spotter(s). In addition, the scale house is equipped with cameras/video monitoring systems, which record a time-coded picture of the vehicles entering the site.

There will be at least one trained spotter at the working face to observe the wastes disposed at all times the landfill receives waste. If any unacceptable wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known for subsequent removal off site. If the waste is deemed hazardous, the area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at an appropriate waste management facility.

In the event unacceptable waste is identified after the hauler has left the facility, the unacceptable waste shall be removed from the working face and placed in close proximity to the working face. At the end of the day, at a minimum, unacceptable waste such as batteries, oil filters, used oil, etc. will be removed from the landfill and stored at the existing concrete storage area adjacent to the waste tire storage and processing area. Within the storage area, the materials shall be placed in a single layer on pallets. (The water level in the storage area will be checked on a weekly basis and accumulated water will be pumped out and treated as leachate). Tires will be placed within the tire storage areas. White goods will be stored in a roll-off box. White goods and batteries will be taken off site by various recyclers on a quarterly basis at a minimum.

Only two types of biological waste are accepted for disposal, bodies of domestic animals and treated biomedical waste. Before the bodies of domestic animals are brought to the facility, the landfill will request information about the waste to determine if the animals were diseased. If the animals were not diseased, the bodies will be disposed within the working face and then covered immediately with either additional waste or initial cover. If the bodies of the domestic animal are from diseased animals, the bodies will be handled in accordance with Section 823.041(1), F.S. Treated biomedical waste will be disposed within the working face and then covered with either additional waste or initial cover.

D. WEIGHING WASTE

All incoming waste will be weighed and recorded on a daily basis at the on-site scales prior to disposal. The on-site scales include at least one scale for incoming vehicles and one scale for outgoing vehicles.

E. VEHICLE TRAFFIC CONTROL

Signs are provided to direct traffic to the disposal area. Further, spotters will direct incoming vehicles to their final disposal area.

F. METHOD AND SEQUENCE OF FILLING WASTE

The landfill will have two (2) working faces and ~~The working face~~ will be consistent with orderly traffic control, waste spreading, and compaction activities.

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system. The placement of this initial waste will be supervised by a quality assurance monitor under the supervision of a Florida Registered professional Engineer.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices. In general, the initial fill will be placed from east to west in a 300-foot wide section that corresponds to the leachate collection area.

The first working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material. The second working face will be located near the first working face and shall have a portable tipper used to unload solid waste trailers. The location of the portable tipper within the second working face will be determined by the landfill operator and will vary depending on the amount of solid waste being received and weather conditions. The second working face shall have a spotter whenever solid waste is being unloaded from the tipper.

G. WASTE COMPACTION AND APPLICATION OF COVER

Waste will be spread in layers of approximately two (2) feet in thickness and compacted to approximately one (1) foot in thickness or as thin a layer as practical before the next layer is applied. In general three to five passes with the compactor will be made on each layer of refuse.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day. A 6" thick initial soil cover or an FDEP approved alternate daily cover may also be applied at the end of each operating day.

For those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C.

An intermediate cover, in addition to the six (6) inch initial cover, will be applied and maintained within seven (7) days of cell completion if final cover or an additional lift is not to be applied within 180 days of cell completion. All or part of this intermediate cover may be removed before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less).

Final cover will be applied to a solid waste disposal unit once it has been filled to its design dimensions. The final cover including permanent vegetation will be placed over the entire surface of each completed solid waste disposal unit within 180 days after final waste placement. Solid waste disposal units, which are designated by phase, are shown on **Permit Drawings Nos. 14 and 15**.

H. OPERATION OF GAS, LEACHATE AND STORMWATER CONTROLS

1. Gas Collection System

The permanent gas collection system will be installed as each phase reaches its final contour in accordance with NSPS time frames. Further, the temporary gas collection system will be installed within five years of waste placement within a

phase. All gas extraction wells are designed and installed for connection to the active gas extraction system including collection lines, blowers and flare station.

The gas management system will be monitored on a monthly basis, which will include inspection of each well and calibration of the system, as needed. This monitoring will be documented.

2. Leachate

The primary leachate collection system consists of an 8" perforated HDPE collection pipe surrounded by an aggregate encasement, which is covered by a geotextile fabric. This collection system is located in a trench on top of the primary liner. Leachate is collected within each leachate sector (300' wide, typical) and directed to the collection system by a geonet drainage blanket located on top of the primary liner.

The primary leachate collection pipes passes through the leachate collection sump and terminates at the leachate vault on the east side of the landfill. The leachate collection sump consists of an 18" or 24" diameter HDPE pipe (riser pipe) surrounded by an aggregate sump. The riser pipe extends from the sump up to the leachate vault. The 8" HDPE leachate collection pipe discharges directly into the riser pipe as well as the sump. A small submersible pump is located inside each riser pipe. Level sensors in the riser pipe are used to control the pump, which removes leachate as it accumulates. The pumps are mounted on wheels and can easily be removed for maintenance.

The leachate pumps discharge into a leachate force main which transfer the leachate to the fiberglass storage tanks (20,000 gallons each). Each leachate pump discharges through a flow meter that is monitored daily, Monday through Friday. Therefore, each leachate sector can be monitored for leachate generation. The leachate collection system, including the storage tanks, is located over the liner system. The leachate storage tanks are visually inspected daily, Monday through Friday, by on-site personnel. A daily log (Monday through Friday) is kept outlining leachate generation and storage volumes. Leachate will be transported off-site by tanker at regular intervals based on leachate production. The leachate is transported to the Buckman Street Wastewater Treatment Facility for treatment and disposal.

The secondary (detection) leachate collection system is constructed and operates similarly to the primary system. The exceptions for this system include:

a. Multiple layers of geonet were installed in lieu of the 8" HDPE perforated pipe.

b. The secondary leachate collection system is piped to a separate storage tank (20,000 gallons).

3. Stormwater Treatment and Detention

The Stormwater Management System was designed in accordance with Rules 62-25, 40C-4 and 40C-42, F.A.C. for both treatment and peak flow attenuation. The stormwater treatment is provided by wet detention.

In general, a minimum of the first 1" of runoff will be treated prior to discharge. The treated stormwater will be discharged from the stormwater pump station via the wetland irrigation system.

4. Stormwater Management

a. Stormwater/Leachate Separation

Stormwater which falls on a section of the lined landfill, which is not currently being used for waste disposal, is separated from the leachate collection. This is accomplished by closing the valve upstream of the active phase and isolating this portion of the leachate collection system. A 36" high HDPE flap is welded to the liner at this phase line to prevent stormwater from flowing to the active area. A temporary pump-out is provided upstream of each valve and flap to pump uncontaminated stormwater from the inactive liner into the perimeter ditch. Any stormwater that comes in contact with waste will be considered leachate and handled in accordance with the Leachate Management Plan.

b. Stormwater Collection

All stormwater is collected and directed into the stormwater basin. The collection system includes terraces on the final landfill slopes in conjunction with downcomer piping. This system will control runoff and minimize erosion on the landfill side slopes. Details of this system are shown on the Permit Drawings. The existing wetland discharge of treated stormwater occurs through a 2" perforated spreader pipe. The wetland irrigation occurs adjacent to the stormwater management basin.

I. WATER QUALITY MONITORING

There is an existing Environmental Media Monitoring Plan (Groundwater, Surface Water, and Leachate) for this facility which is part of the current Solid Waste Permit and will continue a part of this renewal permit. This plan includes semi-annual monitoring of each media.

J. MAINTENANCE OF LEACHATE COLLECTION SYSTEM

Each leachate vault box (located at the east end of each leachate collection pipe) has a flow meter for the primary and secondary leachate collection system. These flow meters will be read daily, Monday thru Friday. If the reading in a flow meter is noticeably diminishing or otherwise reduced compared to the other flow meters and daily rainfall records, the flow meter will be checked for proper operation. Prior to the next permit renewal and in the event it is deemed necessary, the leachate collection system will be either videoed to determine if there is a clog or other reason for diminished flow or the leachate collection pipe will be flushed cleaned.

K. OPERATION RECORD

The operating record consists of all records, reports, analytical results, demonstrations, and notifications required by Chapter 62-701, F.A.C., any construction, operation, and closure plans and permits, including all modifications to those permits issued by the Department, Permit Document Plans, as well as training records required by Chapter 62-701.320(15), F.A.C. The record is considered part of the operation plan and will be kept with the plan at the landfill facility. The operating record will be available for inspection at reasonable times by Department personnel.

L. WASTE RECORDS

All solid waste will be weighed as it is received. Landfill operators will record, in tons per day, the amount of solid waste received and will estimate the amount of each waste listed below. Waste reports will be compiled monthly, and copies provided to the Department quarterly.

Types of waste received:

a. Residential/household waste
b. Commercial waste
c. Treated biomedical waste
d. Water treatment sludge
e. Construction and demolition debris
f. Agricultural waste
g. Industrial waste
h. Waste tires
i. Asbestos
j. Industrial sludge
k. Domestic sludge
l. Non-Hazardous special wastes

M. ACCESS CONTROL

Access to the landfill is provided by a paved entrance road from U.S. 301.

The entire site is fenced. Access is restricted by a gate near the entrance off U.S. 301 as well as a second gate closer to the site. All gates will be locked at night and whenever the landfill is closed. Public access and receipt of wastes will occur only when an attendant is on duty.

Traffic control on site is accomplished by signage and site personnel. Spotters will assist with traffic control at the working face by directing in-coming trucks to their final unloading area.

Access to areas restricted from traffic will be controlled by temporary earthen berms and barricades.

N. WASTE MONITORING

1. The operations will include a load checking program to detect and discourage attempts to dispose of unauthorized wastes at the landfill. The load checking program consists of the following minimum requirements:

   a. The landfill operator will examine at least three random loads of solid waste delivered to the landfill each week. The waste collection vehicle drivers selected by the inspector will be directed to discharge their loads at a designated location within the landfill (near the working face). A detailed inspection of the discharged material will be made for any unauthorized wastes.

   b. If unauthorized wastes are found, the facility will contact the generator, hauler, or other party responsible for shipping the waste to the landfill to determine the identity of the waste sources.

2. Handing hazardous wastes.

   a. If any regulated hazardous wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator will promptly notify the Department by telephone, the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known. The area where the wastes are deposited will be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill owner/operator will assure the cleanup, transportation, and disposal of the waste at a permitted hazardous waste management facility.

      The operator will provide a report of the discovery of hazardous waste to the Department within seven days. The report will include the date of the incident, how the materials were discovered, transferred and transported, the disposal location, and if known, the source of the material. The material will be transferred and disposed off site in accordance with applicable local, state and federal regulations. The clean up will include determining the extent of contamination as well as the handling of materials that are contaminated by the hazardous waste.

   b. Subsequent shipments from sources found or suspected to be previously responsible for shipping regulated hazardous waste will be subject to precautionary measure prior to the solid waste management facility accepting wastes.

3. Recording inspection results. Information and observations resulting from each random inspection will be recorded in writing and retained at the landfill for at least three years. The recorded information will include: the date and time of the inspection; the names of the hauling firm and the driver of the vehicle; the vehicle license plate number; the source of the waste, as stated by the driver; and observations made by the inspector during the detailed inspection. The written record will be signed by the inspector.

O. WASTE HANDLING

All solid waste will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next layer is applied. Bulky materials, which are not easily compacted, will be worked into other materials as much as practical.

The first layer of waste placed above the liner and leachate collection system will be a minimum of four feet in compacted layer thickness and will consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system.

Solid waste will be formed into cells to construct horizontal lifts. The working face of the cell and side grades will be at a slope no greater than three feet horizontal to one foot vertical rise. Lift depth will normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices.

The working face will be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material.

Initial cover will be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires. The minimum frequency for applying initial cover is at the end of each work day.

However, for those areas where additional solid waste will be deposited within 18 hours, a temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3)(a), F.A.C.

An intermediate cover, in addition to the initial cover, will be applied and maintained within seven days of cell completion if additional solid waste will not be deposited

within 180 days of cell completion. The landfill operator may remove all or part of the intermediate cover before placing additional waste or installing final cover. The intermediate cover will consist of either a 12" compacted layer of soil or a 16" compacted layer of 50/50 mixture of soil/mulch. The mulch/soil mixture will be a fairly homogeneous mixture and the mulch will be ground into sufficiently small pieces (approx. 1" or less).

Solid waste disposal units, which have been filled to design dimensions, will receive final cover within 180 days after attaining final elevation or in accordance with the closure plan for the landfill. The solid waste disposal units are shown on **Permit Drawing Nos. 14 and 15**.

Uncontrolled and unauthorized scavenging is not permitted at the landfill site. Salvaging is also not permitted.

A litter policing operation will be employed to keep litter from leaving the working area of the landfill. Litter outside the working area will be picked up within 24 hours. Some litter may be exposed through the initial cover, if it is in traffic areas and away from public view.

Erosion control measures will be employed to correct any erosion which exposes waste or causes malfunction of the stormwater management system. Erosion control measures will be implemented within three days of occurrences. If the erosion cannot be corrected within seven days of occurrence, the landfill operator will notify the Department and propose a corrective schedule.

P. LEACHATE MANAGEMENT

The landfill operator will monitor the leachate level in and record the flow from both the leachate collection (primary) and detention (secondary) sumps on a daily basis, Monday through Friday. The operator will maintain at least one backup pump on site or have access to a backup pump that can be installed within hours of discovery that a pump is not operating. The operator/owner will sample and analyze the leachate in accordance with the Environmental Media Monitoring Plan and will submit the results to the Department.

The operator will operate and maintain the leachate collection system to collect and remove leachate from the landfill. The leachate will be stored on site in the six 20,000-gallon leachate storage tanks and will be transported to Buckman Street Wastewater Treatment Facility for treatment and disposal.

The quantity of leachate collected by the leachate collection and removal system will be recorded (in gallons) on a daily basis, Monday through Friday. The amount of leachate transported off site will be recorded on a daily basis, Monday through Friday.

If the flow from any secondary leachate detection sump exceeds 4,492 gallons per day for one day, the Department will be notified within 24 hours and a follow-up report prepared within 7 days. The follow-up report will include a description and assessment of the situation, proposed remedial actions, the proposed remedial action and a schedule for commencing and completing the remediation.

A recording rain gauge is operated and maintained to record precipitation at the landfill. These precipitation records will be maintained and used to compare with leachate generation rates.

Q. LEACHATE SPILLAGE CONTROL PLAN

The leachate storage and pumping facilities are inside a concrete containment area, which will hold 140% of the volume of the storage tanks plus one foot of freeboard. This facility is constructed on top of the liner system. Therefore, the Leachate Spillage Control Plan is directed at those spills that would occur outside the containment area.

The Leachate Spillage Control Plan consists of four major elements; Training, Containment, Remediation and Notification as described below:

1. Training

The tanker driver and/or site personnel (the Attendant for the purposes of this subsection) will be trained to prevent spills. The Attendant will perform the following prior to loading the tanker truck:

a. Inspect the tanker for signs of leakage.
b. Verify all tanker discharge valves are closed.
c. Verify the tanker is completely within the leachate loading area containment curbing.
d. Verify the liquid level in the containment sump is at or below the discharge pipe.
e. Verify the containment sump discharge gate valve is closed.
f. Verify the leachate fill hose is securely fastened to the inlet port of the tanker.
g. Verify the available tanker volume.

Upon completion of this inspection, the Attendant will begin the following fill sequence:

1. Operate the leachate loading pump for approximately five minutes or until 500 gallons of leachate has been pumped and then discontinue pumping.
2. Inspect the tanker, fill hose and pumping system for leakage.
3. Upon verification that no spilling or leaking has occurred, restart pumping.
4. Continuously monitor the tanker fill operations.
5. Monitor the leachate flow meter until approximately 95% of the available tanker volume has been filled.
6. Discontinue filling operations and remove fill hose.
7. Perform a final inspection of tanker and tanker fill area.

2. Containment

If a spill occurs, the Attendant will notify the District Manager of the spill and request assistance. The Attendant will institute the following containment sequence:

a. Cease pumping.
b. Place sandbags around drainage structures down slope from the loading area to prevent any spillage from entering the drainage system. (NOTE: The first 500 gallons of spillage inside the containment curb will drain naturally into the 500-gallon containment sump.)
c. Create an earthen berm around the spill with on-site sands taken from the daily cover stockpile.

3. Remediation

After the spill has been securely contained, the following cleanup will begin:

a. Pump the leachate in the containment sump into the on-site storage tanks.
b. Spread absorbent sands across all areas in contact with the spill.
c. Remove the contaminated sand to the landfill disposal area.

4. Notification

In the event of a leachate spill, the Department will be notified.

The outlined Spillage Control Plan focuses primarily on a spill at the tanker truck loading area. However, if a leachate spill is discovered at any location on site, the pertinent containment, remediation and notification procedures described above will be implemented.

R. COMBUSTIBLE GAS MONITORING PROGRAM

The combustible gas monitoring program is provided in **Appendix F** and will be monitored quarterly with the results submitted to the Department.

If combustible gas levels exceed twenty-five percent of the lower explosive limit in structures (excluding gas control or recovery components) or the lower explosive limits at or beyond the property boundary, Trail Ridge Landfill will:

1. Immediately take all necessary steps to ensure protection of human health and notify the Department.

2. Within seven days of detection, submit to the Department for approval a remediation plan for the gas releases. The plan will describe the nature and extent of the problem and the proposed remedy. The remedy will be completed within 60 days of detection unless otherwise approved by the Department.

S. STORMWATER MANAGEMENT

1. Stormwater Handling

The stormwater management system was installed as part of the initial construction and is operated and maintained in accordance with the requirements of the DEP Solid Waste permit. The stormwater management system includes the wet detention basin as well as the swales, drainage ditches and culverts, discharge structures, downcomer pipes and other appurtenances as required. Pertinent features of the stormwater handling system include:

a. Potentially contaminated stormwater will be segregated from clean stormwater and contaminated stormwater will not be discharged from the site;
b. A 24-hour, 25-year rainfall event is detained on site;
c. Stormwater is treated to meet the requirements of Rule 62-25, F.A.C.;
d. The maximum discharge rate following a 25-year, 24-hour storm event does not exceed the pre-development discharge from this design storm.

Stormwater is routed through the internal ditch and culvert network to the wet detention basin for treatment. The discharge structure releases the stormwater at the control rate to a dispersion pond, which ultimately discharges to the adjacent wetlands.

The discharge structure was designed to effectively prevent floating materials from being released from the site.

2. Stormwater Treatment

a. Clean Stormwater

Stormwater runoff is treated in the existing wet detention basin. This basin is designed to treat 2.5 inches of runoff from the impervious surfaces and detain a 25-year, 24-hour storm event.

b. Other Stormwater

Stormwater which comes into contact with refuse will be segregated from the clean stormwater and will not be discharged from the site. This potentially contaminated water includes stormwater which falls on uncovered refuse or has otherwise made contact with refuse.

Temporary berms will be constructed in advance of the active fill face to collect stormwater which falls in the active area. This potentially contaminated stormwater will be pumped onto the working face or back into previously filled portions of the landfill.

3. Erosion Control

Stormwater terraces will be constructed on the side slopes of the completed landfill. These berms will route surface water flow to downcomer pipes buried in the final cover, and ultimately to the perimeter drainage ditch. This system of terraces and pipes will minimize erosion of the final cover. Vegetative cover will be established and maintained, as soon as practical, after finish contours are completed.

When erosion occurs, repair will begin within three days and the reason for the erosion will be evaluated to eliminate the source. Should the repair require more than 7 days, the Department will be notified as required by Rule 62-701.500(7)(j), F.A.C.

T. EQUIPMENT

Sufficient equipment (including three compactors, two dozers, an excavator, a loader, a grader, a water wagon, three trucks, a service truck and a tractor) is provided to ensure proper operation of the landfill and for spreading, compacting and covering waste. In addition, due to tractor trailers disposing at the landfill, a tipper has been added to the operations. Substitutions and additions to the equipment listed above may occur. However, equipment capable of performing comparably to the listed equipment will be maintained on site. In addition, equipment is available within 24 hours from other

company operations and distributors should any situation dictate the requirement for additional equipment.

The minimum equipment at the working face will include two compactors and one dozer. When the waste receipt exceeds 2600 tons per day, an additional compactor will be provided for spreading and/or compaction.

U. OPERATION FEATURES

The scale house and the administrative building both have telephones for routine emergency communications. Further, both facilities provide shelter, sanitary facilities and first aid equipment.

Dust originating from haul road surfaces will be controlled by periodic sweeping and/or watering of road surfaces, as required. Additionally, final cover will be vegetated as soon as practical after application of final cover, in order to minimize the blowing of dust on site.

In the event a hot load is received or a fire occurs at the landfill, the operator will extinguish the fire, as soon as possible. Hot loads will be discharged in an area on the landfill isolated from the current active face, spread out and covered with soil to extinguish the fire. The load will only be discharged onto an area that has a minimum of 12 inches of cover for separation from existing waste. After the load is extinguished, the waste will be moved to the active face for disposal or left in place and intermediate cover placed over it.

If a fire occurs within the working face, the operator will cease operations in the working face until the fire is extinguished. The operator will direct all waste disposal to another operational area that is a safe distance from the fire. The temporary disposal area shall not interfere with fire fighting equipment.

When a fire occurs at the landfill, the application of additional compacted cover will be utilized to cut off the flow of oxygen into the burning area. If this does not contain the fire, the affected area will be thoroughly wetted, excavated, and wetted again prior to reconstructing the cells. The chance of fire occurring at a properly run sanitary landfill is minimal.

For a subsurface fire that occurs outside the working face, the operator will cordon off the area and determine if the working face should be moved until the fire is extinguished. At no time shall the landfill place waste in a burning area.

Instruction in fire fighting procedures is routinely provided to site personnel, and portable fire extinguishers are located on each machine and vehicle. Local Fire Departments will be employed to assist the site personnel and equipment, if necessary.

Fire hydrants are located on site and are connected to the pump system, which draws water from the stormwater basin.

Trail Ridge Landfill, Inc. has developed an extensive program regarding safety and accident prevention. As part of this program, employees are trained in proper operation and emergency procedures. Telephone communication and First Aid equipment are provided at the facility. Operating vehicles are in compliance with current OSHA safety requirements, including caging and shields to protect operators. All appropriate equipment has back-up alarms and those alarms are maintained in good repair.

The problem of blowing litter will be minimized by limiting the active working face and using initial cover or tarpaulins over the active fill areas. Other methods, such as the utilization of casual labor pickers and portable fencing will be employed as required to contain loose paper and other wind-blown refuse during fill operations. Any loose paper or similar refuse blown outside the working area will be picked up on a regular basis.

Signage indicating the name of facility, operating authority, hours of operation and charges for disposal is located adjacent to the gate, prior to the ticket/scale house. Additional signs are placed on site to direct traffic. Warning signs are located in operating areas dealing with leachate and gas collection.

V. ROADS

The entrance road and ticket office/scale house area are paved. Beyond the paved area, all-weather perimeter roads are maintained to the active fill area, monitoring devices, and stormwater controls. Service and haul road construction and maintenance are coordinated with the landfill phasing and development.

W. RECORD KEEPING

The landfill operator will:

1. Keep records of all information used to develop or support the permit applications and any supplemental information pertaining to construction of the landfill throughout the design period. Records pertaining to the operation of the landfill will be kept for the design period of the landfill.

2. Retain records of all monitoring information, including calibration and maintenance records, all original chart recordings for continuous monitoring

instrumentation, and copies of all reports required by permit, for at least ten years. Background water quality records will be kept for the design period of the landfill.

3. Maintain an annual estimate of the remaining life and capacity in cubic yards of the existing, constructed landfill and remaining capacity and site life of other permitted areas not yet constructed. The annual estimate will be based on a summary of the heights, lengths, and widths of the solid waste disposal units. The estimate will be made and reported annually to the Department.

4. Records which are more than five years old and which are required to be retained may be archived, provided that the landfill operator can retrieve them for inspection within seven days.

X. WASTE TIRE PROCESSING

The landfill includes a waste tire processing facility. The permit application and operations plan for the waste tire processing are contained in **Appendix H**.

Y. INSPECTIONS

The operator will inspect all the active area on a weekly basis, the closed areas, at a minimum, on a monthly basis, and both areas after major storm events. Further, the operator will inspect the leachate collection system and gas collection system on a weekly basis. The checklist contained in Attachment B will be used for the inspections. Eroded areas will be repaired within 3 days of discovery and other insufficiencies will be repaired within 7 days.

IX. WATER QUALITY MONITORING

A. SURFACE WATER MONITORING

A surface water monitoring plan was approved as part of the original permit as well as the permit renewal. A summary of the monitoring data and recommendation for continued monitoring is provided in **Appendix I.**

B. GROUNDWATER MONITORING

A groundwater monitoring plan was approved as part of the original permit as well as the permit renewal. A summary of the monitoring data and recommendation for continued monitoring is provided in **Appendix I.**

PORTABLE TIPPER

TIPPERS
LOW PROFILE LANDFILL

LOW PROFILE LAN

The patented Low Profile Portable is the most advanced tipper available today. Its compact design allows the tipper to be moved with a common fifth wheel equipped tractor. With an optional dolly, the tipper can be towed by most landfill-based moving equipment.

The average time required to move and reset a Low Profile tipper within a landfill is less than 30 minutes. As a result, it provides an excellent option when the working face is large enough to require frequent tipper relocation. This in turn makes it easier to unload waste close to the working face.

OPTIONAL SELF-CLEANING DECK
The new patented Self-Cleaning Deck saves time and money by preventing waste from accumulating on or under the Tipper's deck.

Each time the deck is elevated in the tipping cycle, the Self-Cleaning Deck causes material spilled during unloading to pass through the rear chute. This optional feature eliminates the costly and time-consuming task of cleaning material from the deck or from around the running gear of your Tipper.

This feature is available on all new Columbia "Low-Profile" Landfill Tippers and also may be installed in the field as an upgrade to your existing unit.

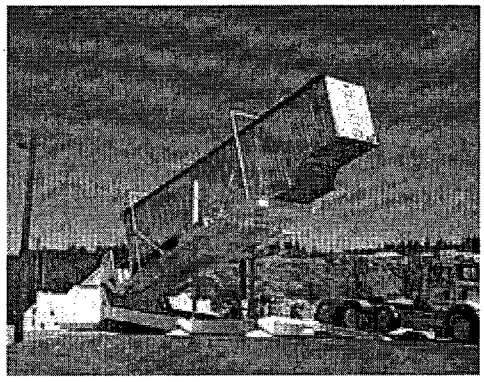
OTHER TIPPERS:
LOW PROFILE PORTABLE

FIXED INSTALLATION

U.S. Patents #5080548, #5344271, #5458451 & #6579054
Canadian Patent #2046194 (1995)

TIPPERS

LOW PROFILE PORTABLE



LOW PROFILE POR

THE MOST ADVANCED
TIPPER AVAILABLE TOD

Columbia's Portable Tippers are quickly becoming the preferred method of unloading most bulk commodities across the country and abroad. Because of our attention to detail and quality, in over 20 years of operation, our tippers have proven to be safe, reliable and efficient: No reported safety issues, an average of less than 1 downtime hour per 1000 of operation, and an approximately 3 minute cycle time which allows a 10 to 12 trailer per hour throughput. Additionally, using tippers to discharge the load means that you no longer need to operate and maintain heavier and more expensive self-unloading trailers. The resulting weight savings allows you to transport larger payloads.

The average time required to move and reset a Low Profile Portable tipper is less than 4 hours.

OTHER TIPPERS:
LOW PROFILE LANDFILL

FIXED INSTALLATION

U.S. Patents #5080548, #5344271, #5458451 & #6579054
Canadian Patent #2046194 (1995)

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • GIS • LANDSCAPE ARCHITECTS
14775 St. Augustine Road, Jacksonville, FL. 32258
(904) 642-8990 Fax: (904) 646-9485 http://www.etminc.com

LETTER OF TRANSMITTAL

To:	Florida Dept. of Environmental Protection	**Date:**	July 22, 2005
ATTN:	Mary Nogas, P. E.	**Job No:**	98-34
Address:	Solid Waste Section	**Reference:**	Trail Ridge Landfill
	7825 Baymeadows Way, Suite B-200		Permit Modification
	Jacksonville, FL 32256		
		VIA:	**COURIER**

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of Letter ☐ Change Order ☐ _____

RECEIVED
JUL 22 2005
STATE OF FLORIDA
DEPARTMENT OF ENV. PROTECTION
NORTHEAST DISTRICT - JACKSONVILLE

COPIES	DATE	NO.	DESCRIPTION
4	7-22-05		Application for Permit Modification
4	7-22-05		Operation Plan (Revised)
4	7-22-05		Product Information
1	7-22-05		Check in the amount of $250.00 for processing fee.

THESE ARE TRANSMITTED AS CHECKED BELOW:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ for corrected prints

☐ Review and comment ☐ _____

☐ FOR BIDS DUE _____ , 2003 ☐ PRINTS RETURNED AFTER LOAN TO US

Remarks Please feel free to give me a call at (904) 265-3132 if you have any questions relating to this application.

COPY TO: File
Greg Mathes

SIGNED: Francis Dayao, P.E.

G:\LANDFILL\TRAIL\GENERAL\98-34\Tipper

ENGLAND, THIMS & MILLER, INC.
14775 ST. AUGUSTINE ROAD
JACKSONVILLE, FL 32258
904-642-8990

DATE	INVOICE	AMOUNT	
Permit Modification			
	98-34		

63-9232/630

DATE 7-21-05

5349

PAY TWO HUNDRED FIFTY AND 00/100---------- DOLLARS

CHECK AMOUNT

$ **250.00**

TO THE ORDER OF

Florida Department of
Environmental Protection

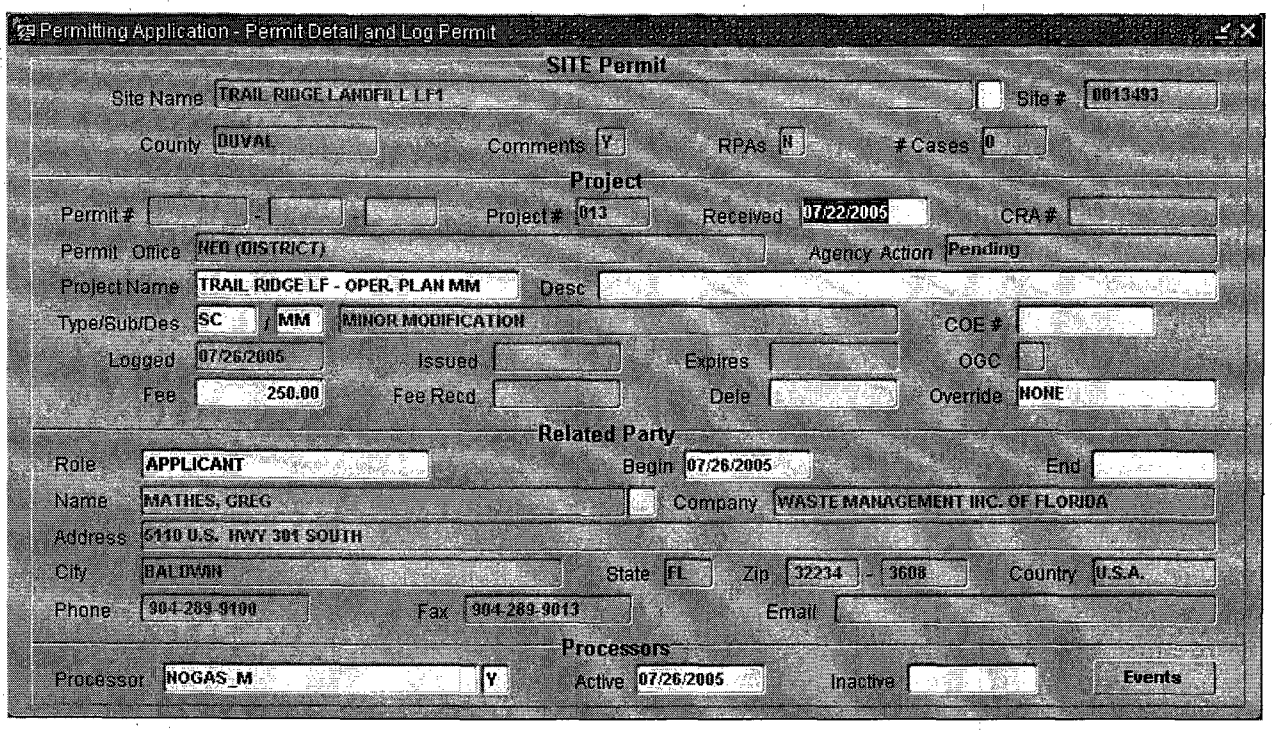
IRONSTONE BANK
JACKSONVILLE, FL

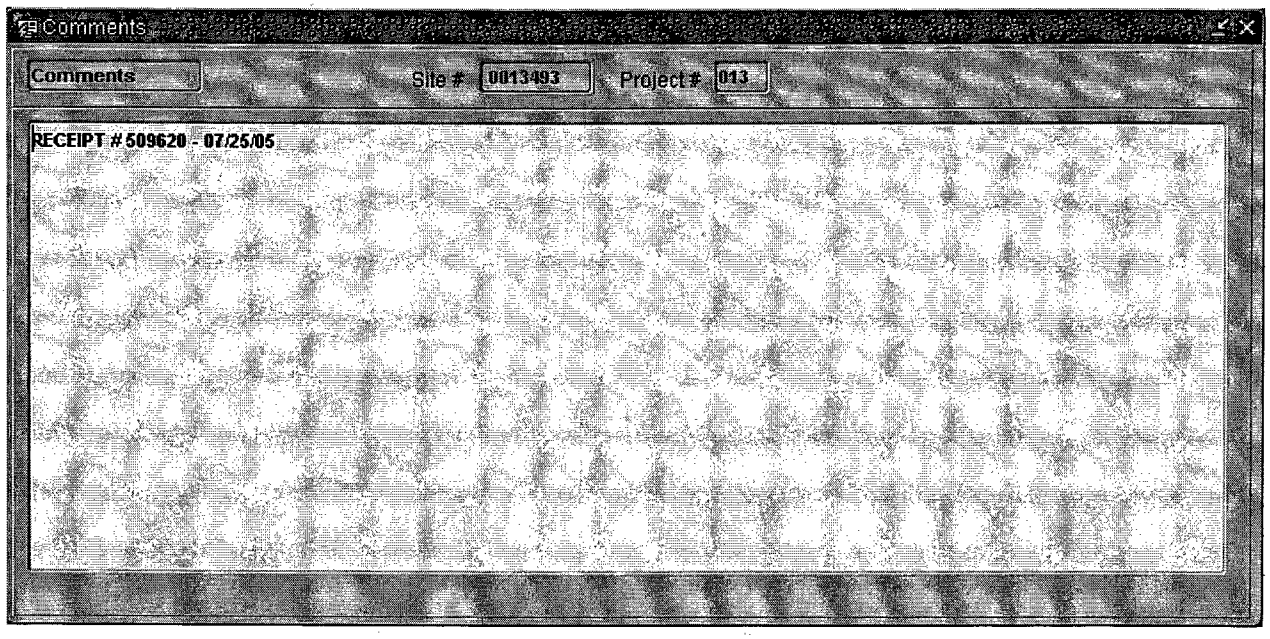
ENGLAND - THIMS & MILLER, INC.

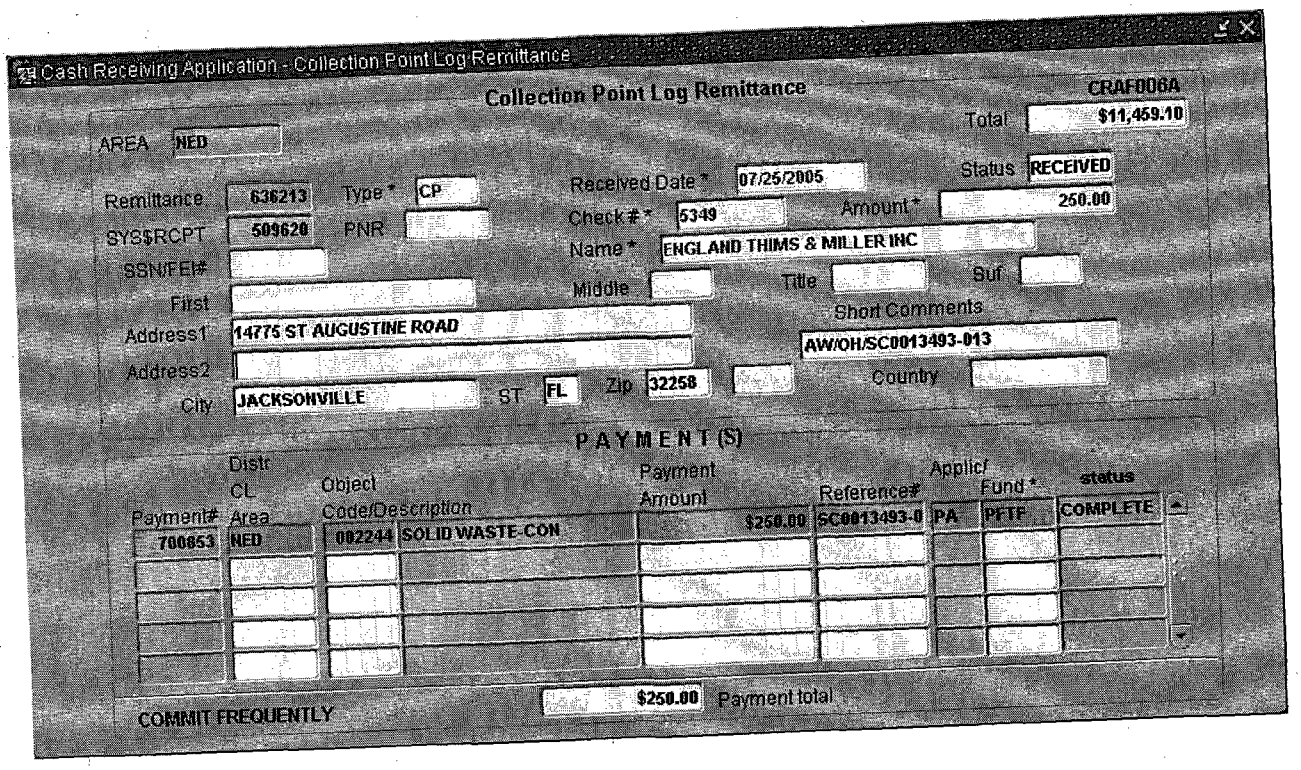
TWO SIGNATURES REQUIRED FOR AMOUNTS ABOVE $5000.00

[redacted]

SECURITY FEATURES. MICRO PRINT BORDERS - COLORED BRICK PATTERN - WATERMARK ON BACK - MISSING FEATURE INDICATES A COPY


Permitting Application - Permit Detail and Log Permit
SITE Permit
Site Name TRAIL RIDGE LANDFILL LF1
Site # 0013493
County DUVAL
Comments Y
RPAs N
Cases 0
Project
Permit #
Project # 013
Received 07/22/2005
CRA #
Permit Office RED (DISTRICT)
Agency Action Pending
Project Name TRAIL RIDGE LF - OPER. PLAN MM
Desc
Type/Sub/Des SC / MM MINOR MODIFICATION
COE #
Logged 07/26/2005
Issued
Expires
OGC
Fee 250.00
Fee Recd
Dele
Override NONE
Related Party
Role APPLICANT
Begin 07/26/2005
End
Name MATHES, GREG
Company WASTE MANAGEMENT INC. OF FLORIDA
Address 6110 U.S. HWY 301 SOUTH
City BALDWIN
State FL
Zip 32234 - 3608
Country U.S.A.
Phone 904-289-9100
Fax 904-289-9013
Email
Processors
Processor NOGAS_M
Y
Active 07/26/2005
Inactive
Events


Comments
Comments
Site # 0013493
Project # 013
RECEIPT # 509620 - 07/25/05


Cash Receiving Application - Collection Point Log Remittance
Collection Point Log Remittance
CRAFD06A
AREA NED
Total $11,459.10
Remittance 636213
Type * CP
Received Date * 07/25/2005
Status RECEIVED
SYS$RCPT 509620
PNR
Check # * 5349
Amount * 250.00
Name * ENGLAND THIMS & MILLER INC
SSN/FEI#
First
Middle
Title
Suf
Address1 14775 ST AUGUSTINE ROAD
Short Comments
AW/OH/SC0013493-013
Address2
City JACKSONVILLE
ST FL
Zip 32258
Country
PAYMENT(S)
Payment# 700853
Distr CL Area NED
Object Code/Description 002244 SOLID WASTE CON
Payment Amount $250.00
Reference# SC0013493-0
Applic/ Fund * PA PFTF
status COMPLETE
COMMIT FREQUENTLY
$250.00 Payment total

ENGLAND, THIMS & MILLER, INC.
14775 ST. AUGUSTINE ROAD
JACKSONVILLE, FL 32258
904-642-8990

DATE	INVOICE	AMOUNT
Permit Modification		
	98-34	

509620

63-9232/630

DATE 7-21-05

5349

PAY TWO HUNDRED FIFTY AND 00/100---------- DOLLARS

CHECK AMOUNT

$ **250.00**

TO THE ORDER OF Florida Department of Environmental Protection

IRONSTONE BANK
JACKSONVILLE, FL

ENGLAND, THIMS & MILLER, INC.

TWO SIGNATURES REQUIRED FOR AMOUNTS ABOVE $5000.00

SECURITY FEATURES: MICRO PRINT BORDERS - COLORED BRICK PATTERN - WATERMARK ON BACK - MISSING FEATURE INDICATES A COPY

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS

RECEIVED
JUL 10 2003
STATE OF FLORIDA
DEPT. OF ENV. PROTECTION
NORTHEAST DISTRICT-JAX

Principals
James E. England, P.E., CEO
Douglas C. Miller, P.E., President
N. Hugh Mathews, P.E., Exec., V.P.
Joseph A. Tarver, Exec., V.P.
Juanitta Bader Clem, P.E., V.P.
Scott A. Wild, P.E., PSM, V.P.
Samuel R. Crissinger, CPA, V.P
Robert A. Mizell, Jr., P.E., V.P.
Bryan R. Stewart, V.P.

July 11, 2003

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

RE: Trail Ridge Landfill – Second Permit Renewal
FDEP Permit Numbers 0013493-001 and 0013493-002
FDEP File Numbers 13493-010 and 13493-011
Fourth Request for Additional Information
ETM No. 02-025-3

Dear Ms. Nogas:

We have received your letter dated June 9, 2003 regarding the referenced project. On behalf of Trail Ridge Landfill, Inc., please find the following response to your request for additional information. Please note that only the items for which the Department requested a response are included.

Attachment No. 1 – Memorandum Prepared by Julia Boesch Dated June 9, 2003

19. ***The 1992 approach for ensuring that the geonet is not flooded was updated in 1997. Please readdress this issue with the updated approach and provide all supporting calculations. Please note that an action trigger rate five times the determined rate appears excessive.***

Please see the attached calculations, which have been revised to include the 1997 approach, as requested. Further, the action trigger rate has been revised to four times the determine rate. It is our understanding that the action trigger rate will only be used as a threshold for the facility to evaluate the cause of the elevated level. As you are well aware, levels above the action threshold rate may in most cases be attributable to equipment malfunction and other site-specific conditions.

I sincerely hope this response will provide the Department all the necessary information. Please feel free to give me a call if you have any questions or require any additional information.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem, P.E.
Vice President

Attachment

cc: Greg Mathes
Achaya Kelpenda
Chris Pearson

14775 ST. AUGUSTINE RD. • JACKSONVILLE, FL 32258 • TEL: (904) 642-8990 • FAX: (904) 646-9485

Trail Ridge Landfill
Primary Liner Leakage

Although geomembranes have very low permeability, they still allow some leakage. Leakage through geomembranes can occur due to pinholes and larger holes (holes larger than the geomembrane thickness). The leakage due to pinholes is negligible compared to the larger holes and is therefore ignored. The leakage due to large holes can be calculated by Bernoulli's equation for flow through an aperture, as follows:

$$Q = 0.6\ a\ \sqrt{2gh}$$

Where:
- Q = Leakage rate through one geomembrane hole
- a = Area of geomembrane hole
- g = Acceleration of gravity = 9.81 m/s^2
- h = Head of liquid on top of geomembrane

Say:

a = 1 cm^2 (per acre) = 1×10^{-4} m^2

h = 5.6 mil* = 0.0056 in = 1.42×10^{-4} m

* The maximum head on the liner as determined in the First Permit Renewal, Appendix E, October 28, 1996.

Therefore:

$$Q = (0.6)\ (1 \times 10^{-4}\ m^2)\sqrt{2\ (9.81\ m/s^2)\ (1.42 \times 10^{-4}\ m)}$$

$$Q = 3.17 \times 10^{-6}\ m^3/sec\ (per\ acre)$$

$$Q = 72.51\ \frac{gallons}{day}\ (per\ acre)$$

Check to make sure the geonet can handle the leakage.

$$t_{LCL} = (Q / k)^{1/2} \qquad \text{(J.P. Giroud, 1997)}$$

Where:
- k = θ/t
- t_{LCL} = Minimum Thickness of Secondary Geonet
- Q = Maximum Flow Rate for Secondary Geonet
- k = Hydraulic Conductivity of Secondary Geonet
- θ = Hydraulic Transmissivity of the Secondary Geonet (m^2/sec)
- t = Thickness of Secondary Geonet

Say:

θ	=	2.26×10^{-3} m^2/sec
t	=	200 mil = 0.2 inches = 7.9×10^{-4} m
Q	=	3.17×10^{-6} m^3/sec

Therefore:

k	=	$(2.26 \times 10^{-3}$ m^2/sec) / $(7.9 \times 10^{-4}$ m) = 2.86 m/sec
t_{LCL}	=	$(3.17 \times 10^{-6}$ m^3/sec / 2.86 m/sec)$^{1/2}$ = 1.05×10^{-3} m
	=	41.4 mil

Since the geonet has a thickness of 200 mil, the geonet can handle the flow.

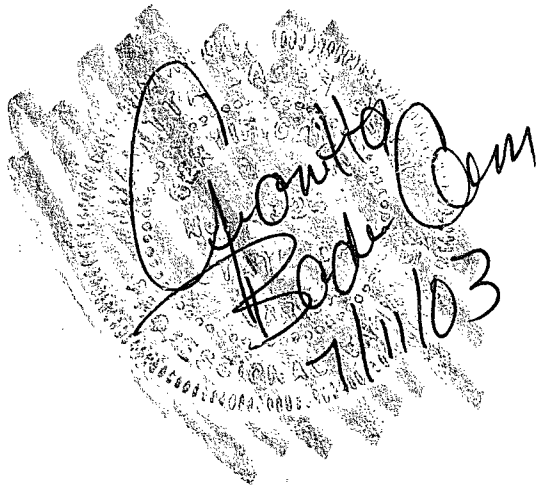
The smallest cell is 17.7 acres, so the flow per cell is:

$$Q_{Total} = 72.51 \frac{\text{gallons}}{\text{day} * \text{ac}} * 17.7 \text{ ac}$$

$$\Rightarrow 1{,}283.4 \frac{\text{gallons}}{\text{day}} \text{ per cell}$$

Assume the flow is at a failure rate at 4 times this rate.

$$Q_{Max} = 5{,}134 \frac{\text{gallons}}{\text{day}} \text{ per cell}$$



England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS

Principals
James E. England, P.E., CEO
Douglas C. Miller, P.E., President
N. Hugh Mathews, P.E., Exec., V.P.
Joseph A. Tarver, Exec., V.P.
Juanitta Bader Clem, P.E., V.P.
Scott A. Wild, P.E., PSM, V.P.
Samuel R. Crissinger, CPA, V.P
Robert A. Mizell, Jr., P.E., V.P.
Bryan R. Stewart, V.P.

August 7, 2003

Ms. Julia Boesch
Waste Management Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

RECEIVED
AUG 08 2003
STATE OF FLORIDA
DEPT. OF ENV. PROTECTION
NORTHEAST DISTRICT-JAX

RE: Trail Ridge Landfill – Second Permit Renewal
FDEP Permit Numbers 0013493-001 and 0013493-002
FDEP File Numbers 13493-010 and 13493-011
ETM No. 02-025-3

Dear Ms. Boesch:

Please find herewith the revised Primary Liner Leakage calculations for the referenced project. I apologize for the conversion error in the previous calculations.

Please feel free to give me a call if you have any questions or require any additional information.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem, P.E.
Vice President

Attachment

cc: Greg Mathes
Achaya Kelpenda
Chris Pearson

Trail Ridge Landfill
Primary Liner Leakage

Although geomembranes have very low permeability, they still allow some leakage. Leakage through geomembranes can occur due to pinholes and larger holes (holes larger than the geomembrane thickness). The leakage due to pinholes is negligible compared to the larger holes and is therefore ignored. The leakage due to large holes can be calculated by Bernoulli's equation for flow through an aperture, as follows:

$$Q = 0.6\ a\ \sqrt{2gh}$$

Where:
- Q = Leakage rate through one geomembrane hole
- a = Area of geomembrane hole
- g = Acceleration of gravity = 9.81 m/s^2
- h = Head of liquid on top of geomembrane

Say:

a = 1 cm^2 (per acre) = 1 x 10^{-4} m^2

h = 5.6 mil* = 0.0056 in = 1.42 x 10^{-4} m

* The maximum head on the liner as determined in the First Permit Renewal, Appendix E, October 28, 1996.

Therefore:

$$Q = (0.6)\ (1 \times 10^{-4}\ m^2) \sqrt{\ 2\ (9.81\ m/s^2)\ (1.42 \times 10^{-4}\ m)}$$

$$Q = 3.17 \times 10^{-6}\ m^3/sec\ \text{(per acre)}$$

$$Q = 72.51\ \frac{\text{gallons}}{\text{day}}\ \text{(per acre)}$$

Assume a trigger rate at 3.5 times this rate.

$$Q_{Max} = 253.8\ \frac{\text{gallons}}{\text{day}}\ \text{(per acre)} = 1.11 \times 10^{-5}\ m^3/sec\ \text{(per acre)}$$

Check to make sure the geonet can handle the trigger rate leakage.

$t_{LCL} = (Q / k)^{1/2}$ (J.P. Giroud, 1997)

Where:

k	=	θ/t
t_{LCL}	=	Minimum Thickness of Secondary Geonet
Q	=	Maximum Flow Rate for Secondary Geonet
k	=	Hydraulic Conductivity of Secondary Geonet
θ	=	Hydraulic Transmissivity of the Secondary Geonet (m^2/sec)
t	=	Thickness of Secondary Geonet

Say:

θ	=	2.26×10^{-3} m^2/sec
t	=	200 mil = 0.2 inches = 5.1×10^{-3} m
Q	=	1.11×10^{-5} m^3/sec

Therefore:

$k = (2.26 \times 10^{-3} \text{ m}^2/\text{sec}) / (5.1 \times 10^{-3} \text{ m}) = 0.44$ m/sec

$t_{LCL} = (1.11 \times 10^{-5} \text{ m}^3/\text{sec} / 0.44 \text{ m/sec})^{1/2} = 5.02 \times 10^{-3}$ m

$= 197.7$ mil

Since the geonet has a minimum thickness of 200 mil, the geonet can handle the flow.

The smallest cell is 17.7 acres, so the flow per cell is:

$$Q_{Total} = 253.8 \frac{\text{gallons}}{\text{day} * \text{ac}} * 17.7 \text{ ac}$$

$$\Rightarrow 4{,}492.3 \frac{\text{gallons}}{\text{day}} \text{ per cell}$$

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST DISTRICT

TO: Julia Boesch
Mary Nogas, P.E.
Solid Waste Section

THROUGH: Brian Cheary, Ph.D.
Manager - Waste Cleanup Section

FROM: Richard S. Rachal, P. G.
Professional Geologist - Waste Cleanup Section

Date: October 11, 2002

Subject: Trail Ridge Landfill
Jacksonville, Duval County
Review of groundwater monitoring portion of the permit application

I have completed the review of the groundwater-monitoring portion of the solid waste permit renewal application for the Trail Ridge Landfill in west Jacksonville, Duval County (received September 26, 2002). The information provided, in conjunction with historical information, is sufficient to develop specific conditions for the groundwater-monitoring portion of the permit.

I concur with the replacement of monitor well MW-11 by MW-11(R) and beginning well redevelopment with monitor wells MW-13I, MW-32I and MW-34. Other wells with elevated turbidities may be required in the future.

c.c. file

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST DISTRICT

TO: Julia Boesch
Mary Nogas, P.E.
Solid Waste Section

THROUGH: Brian Cheary, Ph.D.
Manager - Waste Cleanup Section

FROM: Richard S. Rachal, P. G.
Professional Geologist - Waste Cleanup Section

Date: October 11, 2002

Subject: Trail Ridge Landfill
Jacksonville, Duval County
Review of groundwater monitoring portion of the permit application

I have completed the review of the groundwater-monitoring portion of the solid waste permit renewal application for the Trail Ridge Landfill in west Jacksonville, Duval County (received September 26, 2002). The information provided, in conjunction with historical information, is sufficient to develop specific conditions for the groundwater-monitoring portion of the permit.

I concur with the replacement of monitor well MW-11 by MW-11(R) and beginning well redevelopment with monitor wells MW-13I, MW-32I and MW-34. Other wells with elevated turbidities may be required in the future.

c.c. file

Memorandum

Florida Department of Environmental Protection

From:
Michael Eaton, Environmental Manager
Submerged Lands and
Environmental Resources Program
Northeast District

September 23, 2003

To: Mary Nogas
Solid Waste

RE: Trail Ridge Wetlands Monitoring Requirements

Based on a review of the submitted information and past monitoring reports SLERP has no objections to the removal of Specific Conditions 50, 51and 52. The adjacent wetlands appear to be stable and no further monitoring is necessary. However, the requirements for the irrigation system should remain in affect. This determination has not been field verified.

TRAIL RIDGE LANDFILL

SUMMARY REPORT OF WETLANDS MONITORING ADJACENT TO A CLASS I STORMWATER POND

I. INTRODUCTION

The Florida Department of Environmental Protection (DEP) has required that the wetlands adjacent to the Class I stormwater pond at Trail Ridge Landfill be monitored in order to determine if there are any detrimental changes to the wetland vegetation or hydrology due to construction and operation of the pond. The Trail Ridge Landfill is primarily located west of Highway 301 in Township 3 S, Range 23 E, Sections 18 and 19 of Duval County, FL (Figure 1). The monitoring work is required pursuant to conditions 50-52 in permit number 0013493-002-SC; I.D. number GMS3116P02787 (renewal of permit number SC 16-184444; I.D. number GMS3116P03090). A copy of these permit conditions is included as Attachment A.

On 3 January 1992 a baseline study was completed to establish the site conditions prior to pond construction (data collected during December, 1991). Construction of the stormwater pond occurred between January and October 1992. The following report provides a comparison of the wetland vegetation monitoring from the most recent monitoring event, conducted on December 20, 1999, to the baseline study. This report also addressed hydrology monitoring from the baseline study through 1999. Vegetation monitoring was also conducted in 1992 and 1994; however, data from these years are not included in this report because, based on preliminary evaluation, annual variation caused by variable climatic conditions tended to obscure long-term trends. This report includes a description of the stormwater pond, wetland irrigation system, the adjacent wetlands, and the monitoring transects with vegetative sampling plots and piezometers.

II. STORMWATER POND AND WETLAND IRRIGATION SYSTEM

The Class I stormwater pond was constructed east of the Class I landfill within the Trail Ridge Landfill Property(Figure 2). Construction of the pond commenced in January 1992 and was completed in September/October 1992. An irrigation system for wetlands adjacent to the pond berm was installed to mitigate any potential effects to the natural hydroperiod of the adjacent wetland as a result of hydrologic draw down caused by the stormwater pond. The irrigation system extends along the southern and eastern most edges of the pond berm and along a portion of the northern edge of the pond berm (Figure 3).

Figure 4 represents a typical cross-sectional view through the edge of the pond. The pond bottom was excavated to elevation +80.0 feet. There is a 62 foot-wide berm surrounding portions of the pond. The top of the berm was constructed at

elevation +112.0 feet. The normal water level is designed to be at elevation +104.0 feet. Following certain storm events the main pond discharges to the south into a smaller dispersion pond. For a detailed description of the design and operation of the Class I stormwater pond, please refer to the engineering plans for the landfill.

There is an 8-inch diameter PVC force main pipe extending along the outer edge of the basin of the main pond (Figure 4). Sections of 2-inch diameter PVC pipe extend at right angles from the force main at intervals, as indicated on the plan. A valve was installed near the connection of the 8-inch and 2-inch PVC pipes to control the flow of water. At the opposite end, the 2-inch PVC pipes connect with 20-foot lengths of perforated 2-inch diameter PVC pipe (spreader pipes). Water discharges from the spreader pipes through 3/8-inch diameter holes. There are two holes per ring with each ring spaced three inches on center. The spreader pipes were installed approximately five (5) feet landward of the wetland jurisdiction line. No portion of the wetland irrigation system extends directly into the wetlands. The flow of water from the spreader pipes has been adjusted to prevent erosion downstream. Based on the results of the interim monitoring reports, the rate of discharge was modified further in order to provide irrigation where it is most needed.

III. ADJACENT WETLANDS

A. Drainage Pattern

Wetlands border the stormwater pond to the south (wetland A), east (wetland B), and north (wetland C), and the wetlands drain off-site to the east (Figure 2). Some of the water eventually flows to the north into Deep Creek, a tributary of St. Mary's River. Some of the water eventually flows to the south into Long Branch, a tributary of the North Fork of Black Creek.

The primary source of water for the wetlands on-site is ground water seepage. A portion of the rain that falls on the uplands along Trail Ridge enters the surficial water table and begins to flow down slope. The wetlands occur where the ground surface intercepts the seasonal high water table. Over time some of the wetlands have eroded uphill into Trail Ridge and formed relatively broad, linear drainageways, oriented east/west and perpendicular to the centerline of the ridge. Part way downslope the wetland drainages broaden and connect with each other, forming a large wetland complex (Hell's Bay).

The wetlands located to the south and east of the Class I stormwater pond (wetlands A and B) are an example of this type of drainage pattern. The upstream drainage basin for this wetland is relatively large (700± acres).

Considering the size of the Class I stormwater pond, any potential draw down effect should be relatively minor to those wetlands.

Other wetlands occur as essentially isolated pockets on the side of the slope. These wetlands may have formed where less permeable layers are located close to the surface. Such layers may consist of silt, loam, clay or a cemented spodic horizon (hardpan). These layers can create a perched water table during the rainy season, but otherwise the water table may occur far below the surface during drier seasons. Other isolated wetlands may occur in shallow depressional areas that naturally formed on the side of the slope. The wetland located north of the stormwater pond (wetland C) may have formed as a result of a combination of slightly lower topography and an underlying, impermeable layer.

B. Elevations and Hydrology

The topography in the project area slopes down from west to east from elevation +120 feet to +100 feet (Figure 5). The deepest portions of the wetlands are approximately 2 to 3 feet lower than the adjacent uplands. The wetlands are roughly concave in cross section except where wetland A connects with wetland B. At this point the wetland floor slopes gradually down from south to north from elevation +112 feet to +108 feet. Wetland B slopes down from south to north from elevation +108 feet to +100 feet.

Through the deeper, central portions of wetlands A and B, there are a number of small drainage channels. These flow ways are generally 5 to 10 feet across and 1 to 2 feet deep and contains some water at almost all times. The surrounding hardwood swamp appears to be saturated at or near the surface for prolonged periods of time and is periodically inundated when the flow ways overflow during the rainy season. Upslope from the hardwood swamp are broad, fringing areas of seepage slope wetlands. These areas appear to be periodically saturated at or near the surface during the rainy season. During much of the year the water table is within 1 to 2 feet of the surface. However, during prolonged droughts the water table recedes to a greater depth. The seepage slopes do not appear to be inundated from the flow ways during most storm events.

The western two thirds of wetland C has a seasonal high water table but is rarely, if ever, inundated. There are small pockets (<0.1 acre) scattered throughout this portion of the wetland that periodically contain shallow puddled water. During much of the year, the water table is more than 12 to 18 inches below the surface. Following prolonged droughts, the water table is 3 or more feet below the surface.

The eastern one third of wetland C (3.0± acres) consists of a deeper pocket of swamp and shrubby/grassy wetlands. Based on stain lines on the trees and past visual observations, this swamp periodically contains 12 to 18 inches of standing water. The water drains east through a narrow, incised channel into wetland B. During much of the year, this portion of wetland C is saturated at or near the surface. However, during drought conditions, the water table may recede at least 2 feet below the surface.

C. Soils

The Soil Survey of City of Jacksonville, Duval County, Florida (U.S. Department of Agriculture, Soil Conservation Service 1978) indicates three soil types in the study area (Figure 6).

(1) Wesconnett fine sand

The main wetland drainage system to the south and east of the pond is mapped as containing Wesconnett fine sand. This soil is nearly level, very poorly drained and was formed in thick deposits of marine sands. It occurs in shallow depressions and large drainageways. Slopes are smooth to concave and range from 0 to 2 percent. Under natural conditions, the water table is at a depth of 0 to 10 inches, or the soil is covered by water for 6 to 12 months during most years.

There is a weakly cemented spodic or hardpan layer typically between 2 and 32 inches below the surface and a second layer usually from 44 inches to at least 80 inches below the surface. Permeability is moderate to moderately rapid (0.6 to 6.0 inches/hour) in the spodic horizons and rapid (6.0 to 20.0 inches/hour) in all other layers. Included with this soil in mapping may be small areas of other soil types such as Maurepas muck and Pamlico muck.

(2) Ridgeland fine sand

Most of the wetland north of the stormwater pond is mapped as containing Ridgeland fine sand. This is a nearly level, poorly drained, acid soil that formed in marine sands. It occurs in broad flatwood areas. Slopes are smooth to convex and range from 0 to 2 percent. Under natural conditions, the water table is at a depth of less than 10 inches for brief periods of 2 to 4 weeks, at a depth of 10 to 20 inches for 2 to 4 months, and at a depth of 20 to 40 inches for most of the remainder of the year. A few small areas of this soil are covered with water for periods of 1 to 2 weeks.

There are two weakly cemented spodic horizons, one between 6 and 16 inches of the surface and the second from 31 to at least 80 inches from the surface. The permeability is moderate to moderately rapid (0.6 to 6.0 inches/hour) in the spodic horizons and rapid (6.0 to 20 inches/hour) in all other layers.

(3) Lynn Haven fine sand

A small portion of wetland C and the upland area where the pond was constructed are mapped as containing Lynn Haven fine sand. This is a nearly level, poorly drained soil that was formed in thick beds of marine sand. It occurs in broad flatwood areas. Slopes are smooth to convex and range from 0 to 2 percent. Under natural conditions, the water table is at a depth of less than 10 inches for 2 to 4 months and at a depth of 10 to 30 inches for 2 to 8 months during most years.

There is a weakly cemented spodic horizon from 21 to at least 80 inches below the surface. Permeability is moderate to moderately rapid (0.6 to 6.0 inches/hour) in the spodic horizon and permeability is rapid (6.0 to 20.0 inches/hour) in the surface horizon.

D. Vegetation

There are five distinct types of wetlands in the study area (Figure 7). Most of the wetlands have been significantly impacted in the past due to the silvicultural practices of the former landowner (Gilman Paper Company).

(1) Mature hardwood swamp

The central portion of wetland A consists of relatively mature hardwood swamp. The canopy is dominated primarily by tupelo (*Nyssa sylvatica var. biflora*) with lesser amounts of sweet bay (*Magnolia virginiana*), swamp bay (*Persea palustris*), red maple (*Acer rubrum*), pond pine (*Pinus serotina*), and slash pine (*Pinus elliottii*). The shrub layer consists of dense patches of sweet gallberry (*Ilex coriacea*) mixed with lesser amounts of fetterbush (*Lyonia lucida*), bitter gallberry (*Ilex glabra*), dog hobble (*Leucothoe axillaris*), opossum haw (*Viburnum nudum*), Virginia willow (*Itea virginica*) and wax myrtle (*Myrica cerifera* and *M. heterophylla*). Ground cover species included dog hobble, fetterbush, cinnamon fern (*Osmunda cinnamomea*), sphagnum moss (*Sphagnum* sp.) and netted chain fern (*Woodwardia areolata*).

(2) Cut-over hardwood swamp

Most of wetland B and portions of wetlands A and C consist of hardwood swamp that was cut in the past by Gilman Paper Company. The trees appear to be approximately 30 years old. The canopy is dominated by a mixture of tupelo and sweet bay with lesser amounts of swamp bay and loblolly bay (*Gordonia lasianthus*). The shrub layer consists of tupelo and bays mixed with wax myrtle, dahoon holly (*Ilex cassine*), fetterbush, and sweet gallberry. Ground cover species include those listed above as well as large mats of sphagnum moss and patches of sedges (*Carex* sp. and *Cyperus* sp.) and grasses (*Andropogon* sp., *Erianthus* sp., *Panicum* sp. and *Aristida* sp.). The swamp within wetland C has a canopy consisting of tupelo and cypress (*Taxodium distichum* and *Taxodium ascendens*).

In general the cut-over swamps have no pines but have more sweet bay and less tupelo in the canopy and shrub layer, more wax myrtle and dahoon holly in the shrub layer, and more sphagnum moss and grasses and sedges in the ground cover as compared with the mature swamp. Over time as the trees mature, the tupelo may gradually increase in dominance. As the canopy closes, the shrub layer and ground cover will thin out and look more like that in the mature swamp.

(3) Pond pine seepage slope

Bordering wetland A on the north and south are broad fringing areas of pond pine seepage slope. The canopy is dominated by pond pine with lesser amounts of slash pine, loblolly pine (*Pinus taeda*), long leaf pine (*Pinus palustris*), swamp bay, sweet bay, and tupelo. The subcanopy consists primarily of swamp bay, sweet bay and tupelo. The shrub layer is relatively dense and consists of a mixture of sweet gallberry and bitter gallberry mixed with scattered wax myrtle, high bush blueberry (*Vaccinium corymbosum*), and Virginia willow. The ground cover consists of the same species listed above as well as scattered cinnamon fern.

(4) Pine/gallberry wetlands

This wetland type occurs as a narrow band around almost all of the wetlands. The band widens into a relatively broad fringe south of wetlands A and B and also comprises most of wetland C. The vegetation in wetland C consists of rows of planted slash pine with a dense shrub layer of bitter gallberry. Sweet bay, swamp bay, loblolly bay and tupelo saplings are widely scattered among the

pines. Other shrubs include scattered high bush blueberry, sweet gallberry and choke berry (*Aronia arbutifolia*). Bamboo briar (*Smilax lauifolia*) and cat briar (*Smilax glauca*) are common vines. Widely scattered under the gallberry are bog button (*Eriocaulon* sp.), club moss (*Lycopodium* sp.), hooded pitcher plant (*Sarracenia minor*), meadow beauty (*Rhexia* sp.), sphagnum moss, red root (*Lachnanthes caroliniana*), blue maidencane (*Amphicarpum muhlenbergianum*), wire grass (*Aristida* sp.), yellow-eyed grass (*Xyris* sp.), cinnamon fern, netted chain fern, and St. Johns wort (*Hypericum fasciculatum*). This area has a seasonal high water table at or near the surface during parts of the rainy season as evidenced by the presence of crayfish borrows.

The area south of wetlands A and B consists of pine plantation with widely scattered clusters of bitter gallberry and an open ground cover of wire grass mixed with bog buttons and other herbaceous species listed above. This area has been bedded and planted with rows of slash pine.

Within the pine/gallberry portion of wetland C, there are a number of small (<0.1 acre) open patches vegetated with a mixture of listed and nonlisted species such as red root, St. Johns wort, and blue maidencane. Some of these pockets have enough listed species to be considered jurisdictional wetlands pursuant to Section 40C-4 F.A.C., Management and Storage of Surface Waters (MSSW) permit. All of wetland C is mapped as being jurisdictional in the landfill's MSSW permit. However, most of the pine/gallberry portion of the wetland is dominated by nonlisted vegetation and, therefore, does not truly function as a "water of the State."

Historically the areas of pine/gallberry wetlands may have consisted of open savannahs of wiregrass pine flatwoods. The vegetation was kept open by regular summer wildfires. After the property was converted into pine plantation, the fire regime was altered and summer wildfires were controlled or completely suppressed. As a result of the fire suppression, bitter gallberry may have gradually become the dominant shrub and ground cover plant in most areas. The ground cover vegetation has also been degraded somewhat due to intensive silvicultural practices such as bedding.

During the life span of the landfill, there should continue to be some changes in the vegetation in the pine/gallberry wetlands. The pines will continue to grow to maturity. Hardwoods, such as bays and tupelo, may gradually increase in numbers. Bitter gallberry and vines will continue to dominate and become taller and denser

in the shrub and ground cover layers.

(5) Pine/St. John's wort wetlands

Portions of wetlands A, B and C consist of pine/St. John's wort wetlands. This wetland type appears to be a transitional zone between the pine/gallberry wetland and the hardwood swamp. The canopy and subcanopy consist of planted rows of slash pine with scattered swamp bay, sweet bay and tupelo. Due to the wetter condition of this area, the pines are more widely scattered and are smaller and stunted as compared with the pines in the pine/gallberry wetlands. The shrub layer consists primarily of St. John's wort (*Hypericum fasciculatum*) mixed with lesser amounts of bitter gallberry, sweet gallberry, wax myrtle, and titi (*Cyrilla racemiflora*). Ground cover vegetation consists of such species as sphagnum moss, grasses (*Dicanthelium* spp., *Aristida* sp., and *Erianthus* sp.), bog buttons, sedges (*Carex* sp. and *Cyperus* sp.), red root, and Asiatic coinwort (*Centella asiatica*).

Over time some succession may occur in this wetland type. Trees and shrubs may become more dominant and eventually shade out much of the ground cover species. The area may succeed into a transitional edge of bays, fetterbush and sweet gallberry.

IV. METHODS

A. Establishment of Monitoring Transects

Monitoring transects were established in the wetlands adjacent to the proposed stormwater pond (Figure 8). The number and specific locations of the transects were determined in the field by Environmental Services, Inc., (ESI) and the Florida Department of Environmental Regulation on 11 December 1991. The transects extend through all five of the vegetative community types and cover representative areas of each of the main wetlands. Sunshine State Surveyors, Inc., surveyed the location of each transect and cut a line approximate 5 to 10 feet wide for access. Surface elevations were surveyed at intervals approximately 100 feet apart and marked with iron pins and PVC pipe.

(1) Vegetation Monitoring

Sampling stations were established every 100 feet at the survey points, starting on the wetland jurisdiction line, and extending for a minimum length of 200 feet into or through deeper portions of the wetlands. A one square meter sampling plot was established at each sampling station. Square meter sampling plots were

permanently marked with short sections of PVC pipe. Each station was established away from the centerline of the transect, in a representative area where the vegetation had not been disturbed. Species and percent cover for all ground cover vegetation within each plot was recorded. When necessary, the herbaceous coverage was estimated separately from the shruby/woody coverage. Combining herbaceous and woody coverages may result in total coverage exceeding 100 percent at times. General notes were made regarding the composition of the canopy, subcanopy and shrub layer in the immediate area and the presence or absence of surface water such as flow channels.

(2) Hydrology Monitoring

A piezometer was installed at each sampling station on each transect. The piezometers consisted of perforated PVC pipe installed from 4 to 6 feet below the surface, depending on the location in the wetland. The initial water table readings from the baseline study were taken several days after the piezometers were installed. Each piezometer was capped after installation to prevent rainwater and debris from entering.

(3) Reference Transects

In order to analyze trends in vegetative cover and hydrology, reference transects were established in non-irrigated portions of the wetlands beyond the calculated potential drawdown influence. Project engineers had calculated the maximum extent of potential drawdown influence to be 200 feet from the edge of the stormwater pond. Transects 2, 6, and 7 are the reference transects. Additionally, sampling stations 4 and 5 along Transect 1 were established beyond the 200-foot extent of potential drawdown influence.

B. Transect Descriptions

(1) Transect 1

Transect 1 is approximately 435 feet long. It extends through a section of pine/gallberry wetland and a St. Johns wort/grass pocket in the western half of Wetland C.

(2) Transect .

Transect 2 is approximately 850 feet long. It extends through sections of pine/St. John's wort, tupelo/cypress, and bay wetlands

in the eastern half of Wetland C. Transect 2 is a non-irrigated reference transect, though, because it is in close proximity to and generally down slope of Transect 1, probably receives some influence from the irrigation system at Transect 1.

(3) Transect 3

Transect 3 is 536 feet long. It extends through sections of pine/St. John's wort wetland and cut-over hardwood swamp.

(4) Transect 4

Transect 4 is 400 feet long, beginning in a planted pine/St John's wort community then extending through portions of both cut over and uncut hardwood swamp.

(5) Transect 5

Transect 5 is 400 feet long. This transect is located entirely along a pond pine seepage slope.

(6) Transect 6

Transect 6 is a 400 foot, non-irrigated reference transect. This transect begins along a pond pine seepage slope and extends into uncut hardwood swamp.

(7) Transect 7

Transect 7 is a 400 foot, non-irrigated reference transect. Transect 7 begins in a planted pine/gallberry community, runs down a pond pine seepage slope and terminates in uncut hardwood swamp.

C. Rainfall Data

Daily rainfall measurements were collected on-site at Trail Ridge Landfill for the duration of the study. Values were summarized on a monthly bases and used to calculate annual rainfall values and average monthly and annual values.

D. Quantitative Methods

In-situ data was collected in terms of areal percent cover by species. Because vegetative strata often overlap, estimated areal percent cover for an individual plot often exceeds 100%. Similarly, because natural vegetation is not uniformly distributed within a plot, areas of bare ground

(or open water in inundated plots) can exist and result in total areal vegetative cover values less than 100%. Because of these situations, only intra-plot evaluations can be made using areal percent cover estimates. In order to make inter-year, inter-plot, and inter-transect comparisons, data must be normalized to a standard unit. For the purposes of this report, relative percent cover is used for these comparisons. Relative percent cover is defined as the areal percent cover of a given species divided by the sum of the areal percent cover of all species in that plot. The relative percent cover calculation yields an estimate of each species contribution to the total vegetative cover in each plot that is comparable across years, plots, and transects.

Each species was coded as upland (U), transitional (T), or submerged (S) following the indicator status listed in Chapter 62-301.400 F.A.C. To calculate the relative percent wetland vegetation within a plot, the relative percent covers of all transitional and submerged species within that plot were summed. The mean of the relative percent wetland vegetation of all plots on a given transect is reported as the transect's relative percent cover.

V. RESULTS

A. Overall (All Plots Combined)

Relative percent wetland vegetation for all plots combined remained essentially unchanged on Transects 1 and 4, while Transect 6 decreased from 75.0% to 64.7% and Transect 7 decreased from 68.3% to 51.3% between 1991 and 1999 (Figure 9). Transects 2, 3, and 5 demonstrated considerable increases in relative percent wetland vegetation from the baseline to 1999.

B. Transect 1

Relative percent wetland vegetation increased at the 200 ft distance on Transect 1, however at 100 ft relative percent wetland vegetation decreased from 47.4% to 37.5% and at 300 ft decreased from 60.0% to 15.8% (Figure 10). Vegetative data was not collected at the 0 ft plot in 1999 nor at the 400 ft plot in the baseline study so comparisons for these plots could not be generated. At all plots except the 0 ft plot, the water table was above the baseline for all years except 1995 (Figure 11). During 1995, the water table was roughly 2 feet lower than the baseline at the 0 ft and 100 ft plot, though it was nearly the same or higher at other plot distances in that year.

C. Transect 2

Transect 2 demonstrated increases in relative percent wetland vegetation at all plots except the 400 ft plot between the baseline study and 1999 (Figure 12). For all years at all plot distances, the water table was nearly equal to or higher than values recorded in the baseline study (Figure 13).

D. Transect 3

The 0 ft, 300 ft, and 500 ft plots on Transect 3 all showed considerable increases in relative percent wetland vegetation between the baseline study and 1999 (Figure 14). The 100 ft and 400 ft plots both declined in relative percent wetland vegetation. The 200 ft plot on Transect 3 showed little change between monitoring events. During all years except 1999, the water table at Transect 3 was generally higher than or equal to elevations recorded during the baseline study (Figure 15). In 1999, the water table was approximately 2 feet lower than the baseline study at plots from 200 ft and beyond. The water table was similar to the baseline at the 100 ft plot and slightly higher than the baseline at the beginning of the transect in 1999.

E. Transect 4

On Transect 4, the 100 ft and 200 ft plots both increased slightly in relative percent wetland vegetation while the 0 ft plot decreased from 65.0% to 46.2% (Figure 16). Similar to Transect 3, the water table elevations for Transect 4 were generally higher than the baseline for all years except 1999 (Figure 17). In 1999, the water table was approximately 1 foot lower at the 100 ft plot and 2 feet lower than the baseline at the 200 ft plot.

F. Transect 5

Relative percent wetland vegetation increased to 50% from 0% between 1991 and 1999 at the 0 ft plot of Transect 5 (Figure 18). Relative percent wetland vegetation also increased, though to a lesser extent, at the 100 ft plot and decreased from 74.1% to 58.3% at the 200 ft plot. Ground water elevations were approximately 4 feet lower in 1995 and 1999 than in the baseline study for Transect 5 (Figure 19). Water table elevation was approximately 1 foot lower than the baseline at the 0 ft and 100 ft plots in 1996 but was slightly higher than the baseline at the 200 ft plot.

G. Transect 6

Relative percent wetland vegetation decreased from 25.0% to 0% at the 0 ft plot and from 100% to 94.1% at the 100 ft plot on Transect 6 from 1991

to 1999 (Figure 20). The 200 ft plot was 100% wetland vegetation in both the baseline and 1999 study. With the exception of the 0 ft plot in 1999, ground water elevations were equal to or higher than the baseline study at all plots in all years on Transect 6 (Figure 21).

H. Transect 7

Relative percent wetland vegetation decreased from 100% to 58.8% at the 100 ft plot and from 100% to 90.0% at the 200 ft plot between the baseline study and 1999, though it did not change at the 0 ft plot (Figure 22). Similar to Transect 6, ground water elevations were equal to or higher than the baseline study at all plots in all years on Transect 7 except at the 0 ft plot in 1999 (Figure 23).

G. Rainfall

Rainfall data for the entire study period are presented in Table I. Annual rainfall was lowest in 1999 (41.45 inches) and highest in 1991 (79.63 inches) (Figure 24). A downward trend from 70.2 inches in 1995 to the 41.14 inches in 1999 was observed.

VI. DISCUSSION AND CONCLUSIONS

Analysis of the individual transect relative percent wetland vegetation data shows that of the four study transects (1, 3, 4, and 5), two showed overall increases in wetland vegetation (3 and 5) while the other two showed only slight decreases in overall relative percent wetland vegetation. Vegetative cover estimation is an inherently non-precise method of quantification, and slight variances between years are often the result more of inconsistency between observers rather than real differences in vegetative cover. Of the three non-irrigated reference transects (2, 6, and 7), two transects (6 and 7) showed considerable declines in relative percent wetland vegetation. Reference Transect 2 showed an increase in relative percent wetland vegetation.

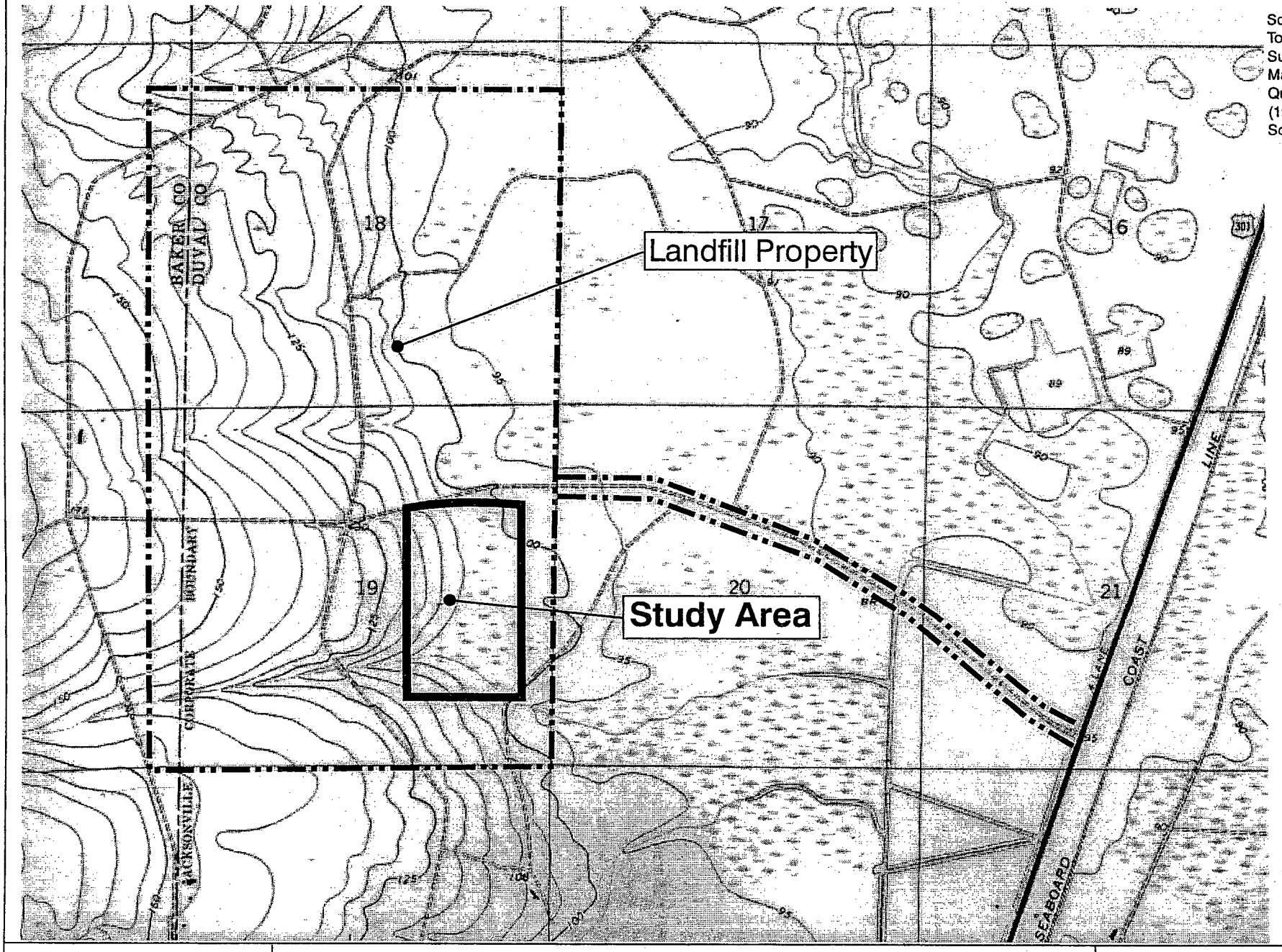
Rainfall data for the study period indicates a strong trend towards drought conditions from 1994 to 1999, and generally lower ground water elevations in 1999 further reflect this trend. Decreases in wetland vegetation observed at the non-irrigated reference Transects 6 and 7 are likely a response to the drought conditions. Irrigation of the study transects during this period appears to have been sufficient in not only offsetting any potential drawdown effects of the stormwater pond, but also prevented the encroachment of upland vegetation during the drier than normal conditions. Transect 2 was also a non-irrigated transect, though it showed an increase in relative percent wetland vegetation despite the drought conditions. Transect 2 was located adjacent to and down-slope of Transect 1, and, though it was not directly irrigated, probably received

inputs of water as seepage from the irrigation of Transect 1, thus offsetting the drought effects.

Ground water elevation data for Transect 5 provides the only evidence of a potential drawdown effect as most values for the 0 ft and 100 ft plots on this transect are below the baseline study elevations. Relative percent cover by wetland vegetation actually increased at the 0 ft and 100 ft plots on transect 5, suggesting that though there may be some drawdown of the ground water on this transect, the irrigation system has sufficiently maintained soil moisture to prevent the encroachment of upland vegetation into this portion of the wetland.

Transects 3, 4, 5, 6, and 7 all reflect drought conditions in 1999 with ground water levels typically at or near the lowest values recorded during the study period. Groundwater elevation data for Transects 1 and 2 do not, however, reflect this same trend with both transects demonstrating higher than average ground water elevations in 1999. Transects 1 and 2 are located in close proximity on the north side of the stormwater pond, while the other transect are either to the east or the south of the pond. The lack of an observed drought effect in the hydrological data for Transects 1 and 2 may be a result of differing geo-physical soil characteristics between the areas to the north of the stormwater pond and those to the east and south.

In conclusion, it appears that vegetative and hydrologic variations observed in the wetlands around the stormwater pond at Trail Ridge Landfill are the result of natural climatic variation and are not attributable to hydrologic drawdown caused by construction of the stormwater pond. While some drawdown may have occurred, the wetland irrigation system has been efficient in mitigating those effects, leaving no discernable trends in the vegetation or hydrology monitoring data collected from the baseline study to 1999. The evidence for the stormwater pond having no long term negative effects on the adjacent wetlands is strengthened by the fact that the baseline vegetative data were gathered during one of the wettest years of the past decade, while the 1999 data were collected during the driest year, at the height of the drought. In addition, vegetative monitoring has been conducted during months (typically December) in which ground cover vegetation is at a minimum. The relative percentages of wetland vegetation would likely be higher if monitored in the summer months, when herbaceous wetland species are more prevalent. With continued operation of the wetland irrigation system, further monitoring of these transects would appear unnecessary, so we recommend that all permit conditions related to monitoring be removed from future permit renewals.



ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

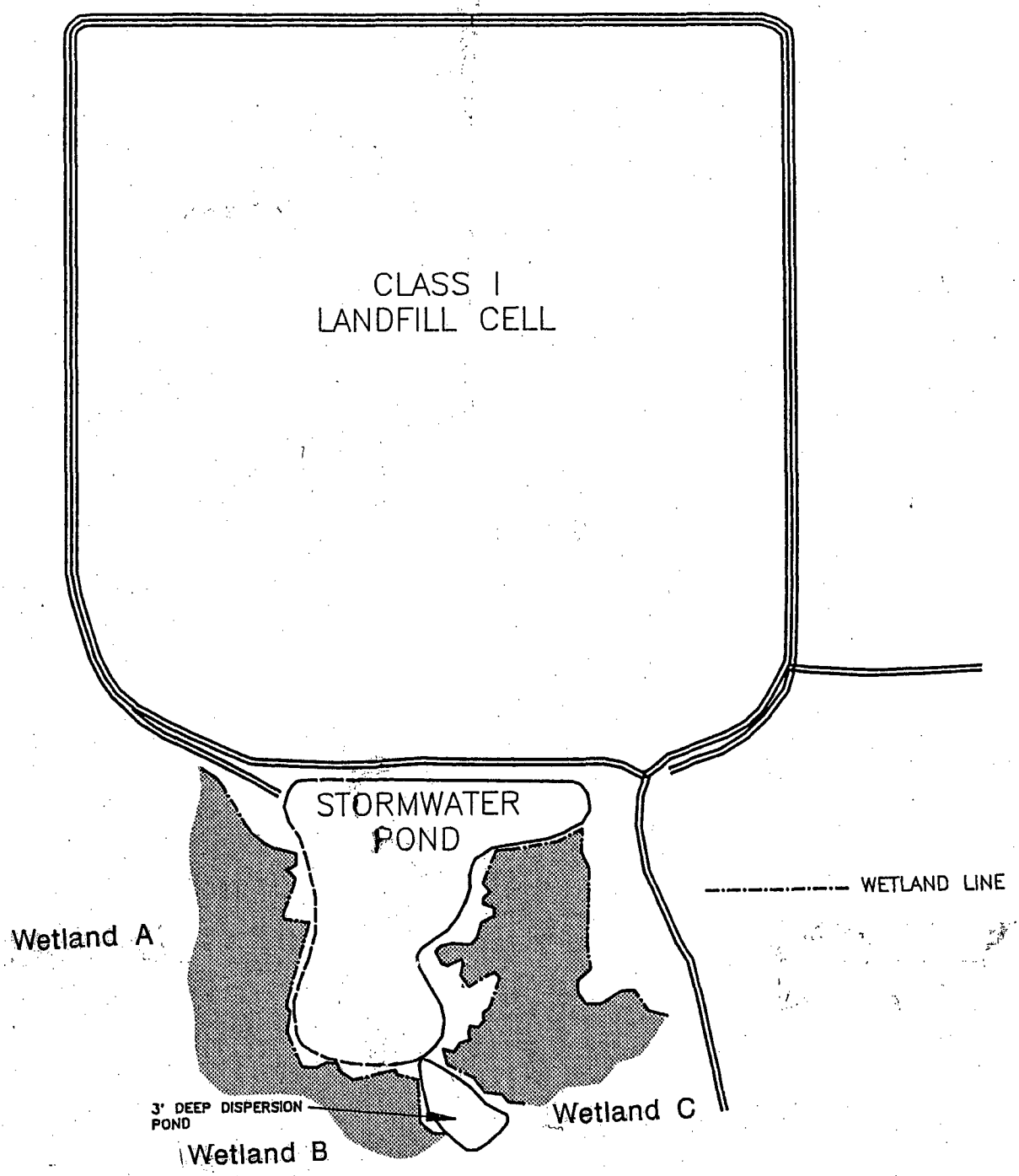
Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No.	1

ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

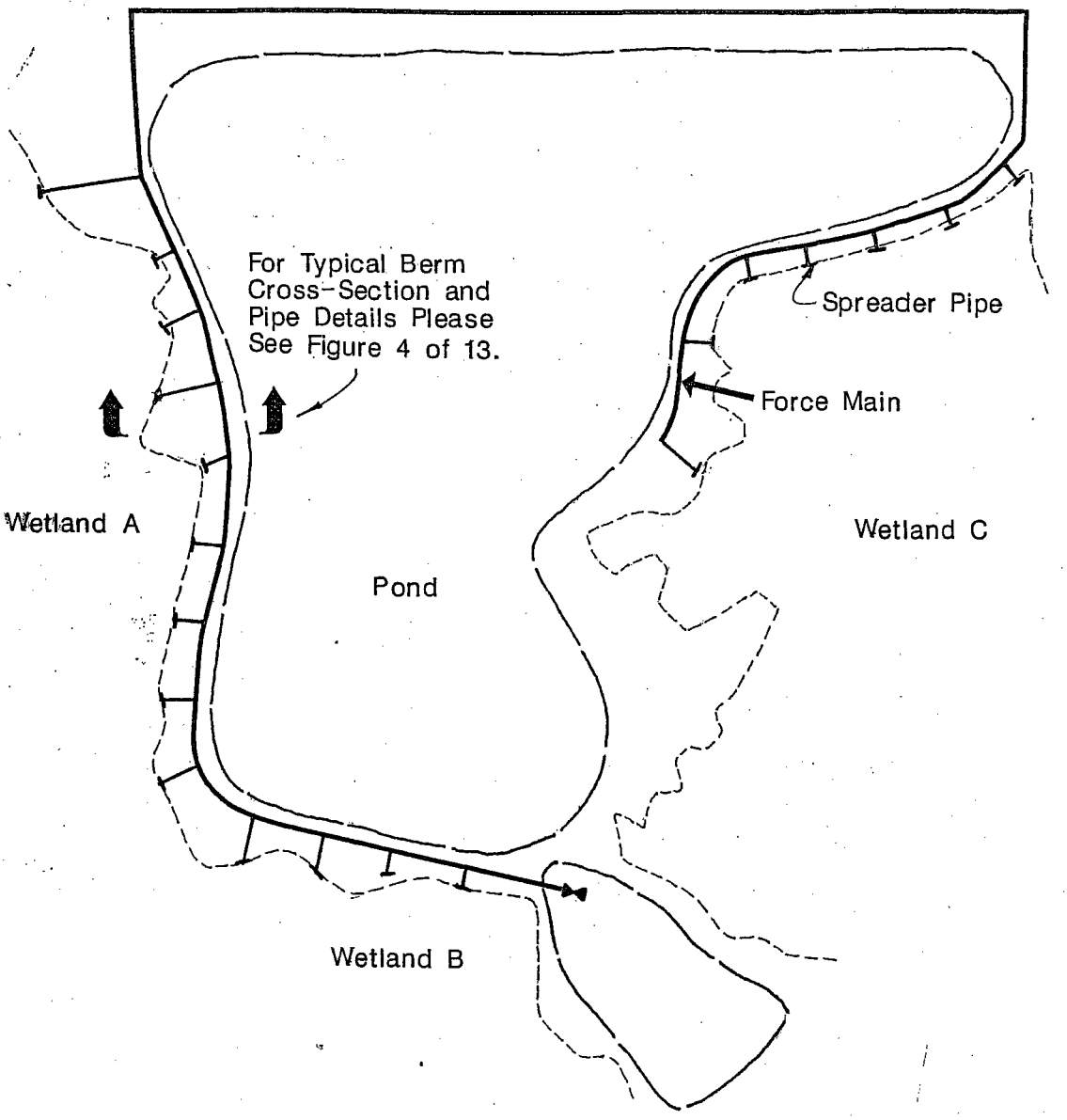


Project No.	EJ02131.00
Date	September 2002
Figure No. 2	

ENVIRONMENTAL SERVICES, INC.

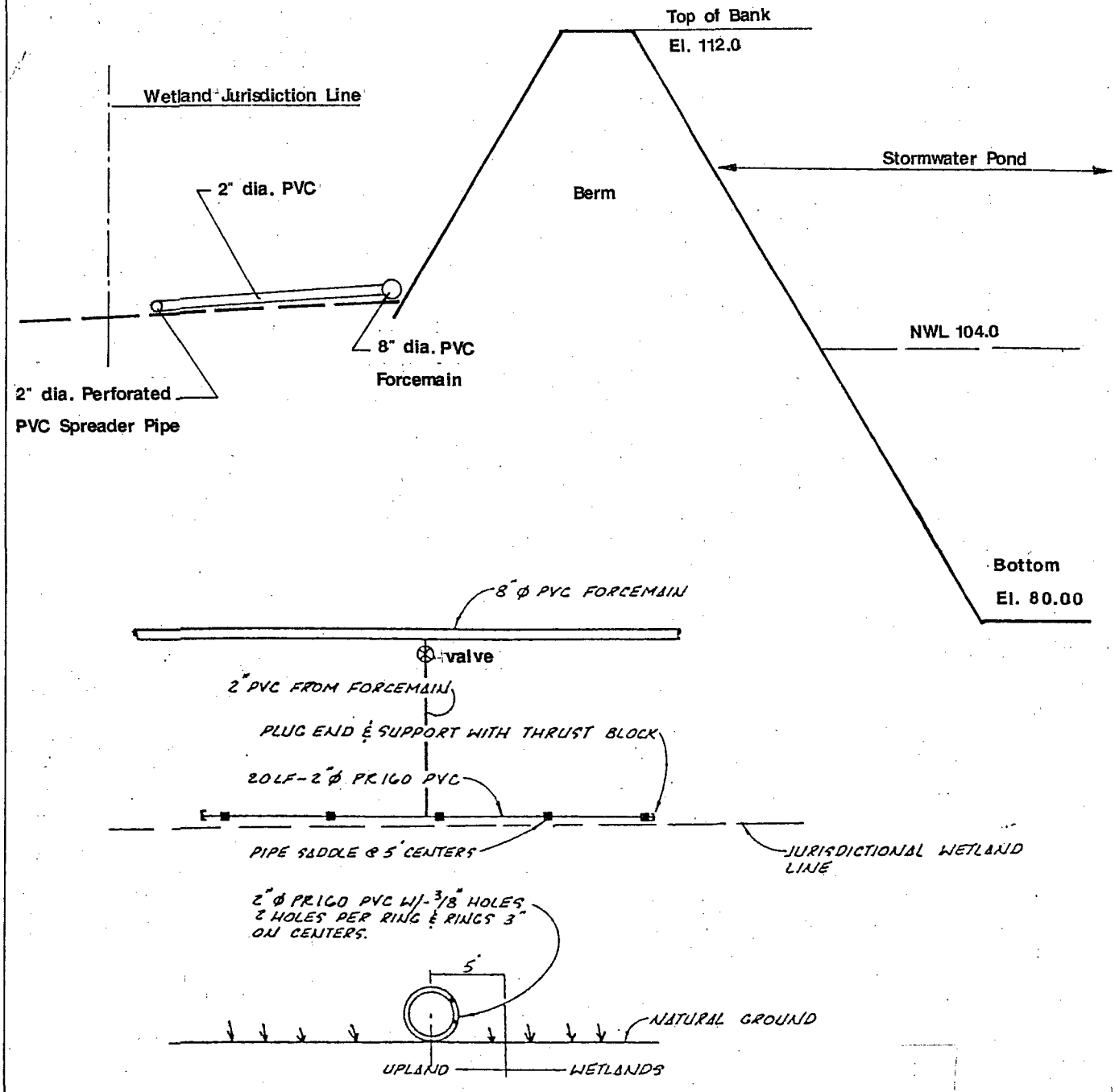
Trail Ridge Landfill

Jacksonville, Florida



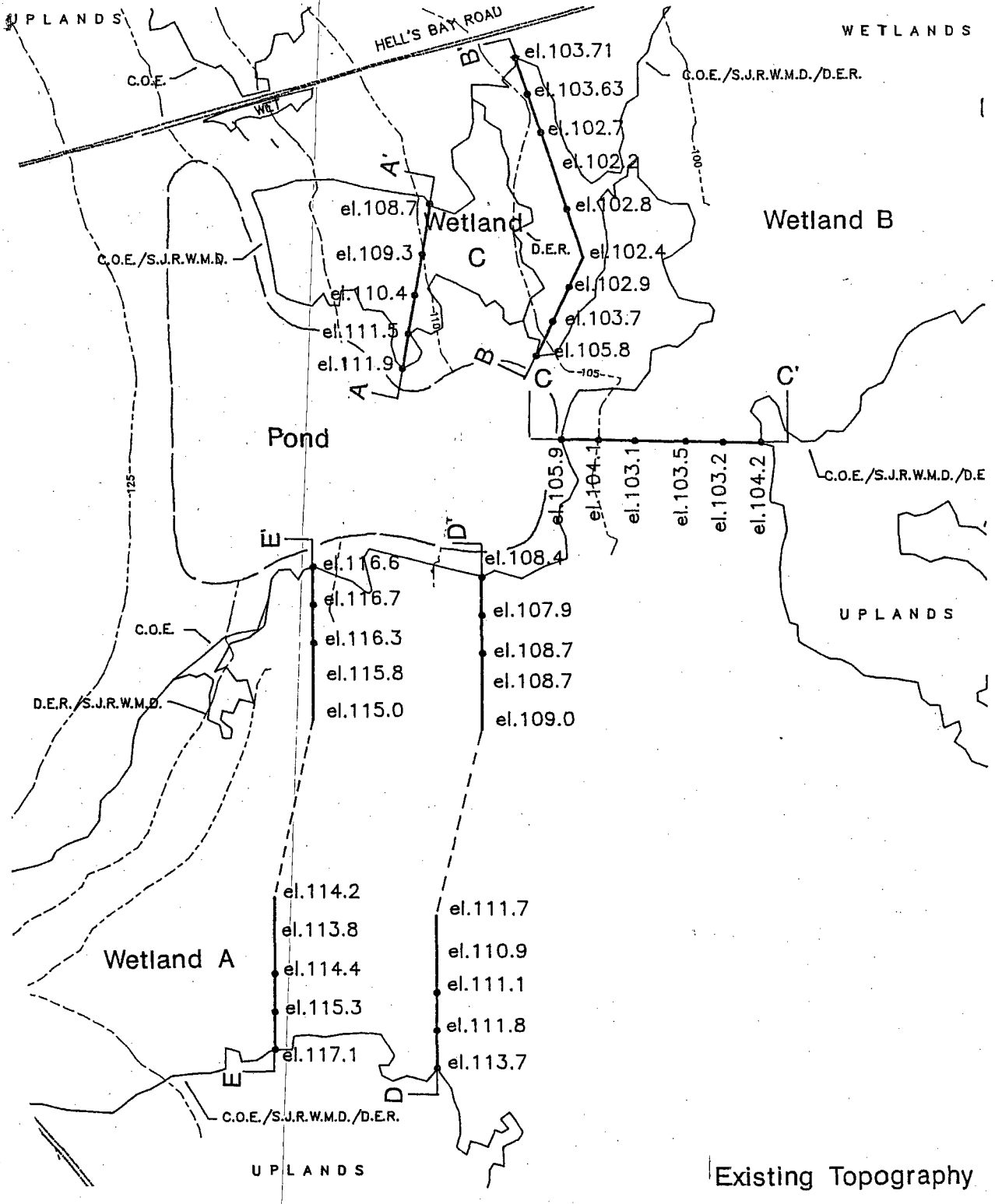
Detailed Plan View of Wetland Irrigation System

Project No.	EJ02131.00
Date	September 2002
Figure No. 3	



Plans for Wetland Irrigation System

ENVIRONMENTAL SERVICES, INC.	Trail Ridge Landfill Jacksonville, Florida	Project No. EJ02131.00 Date September 2002 Figure No. 4



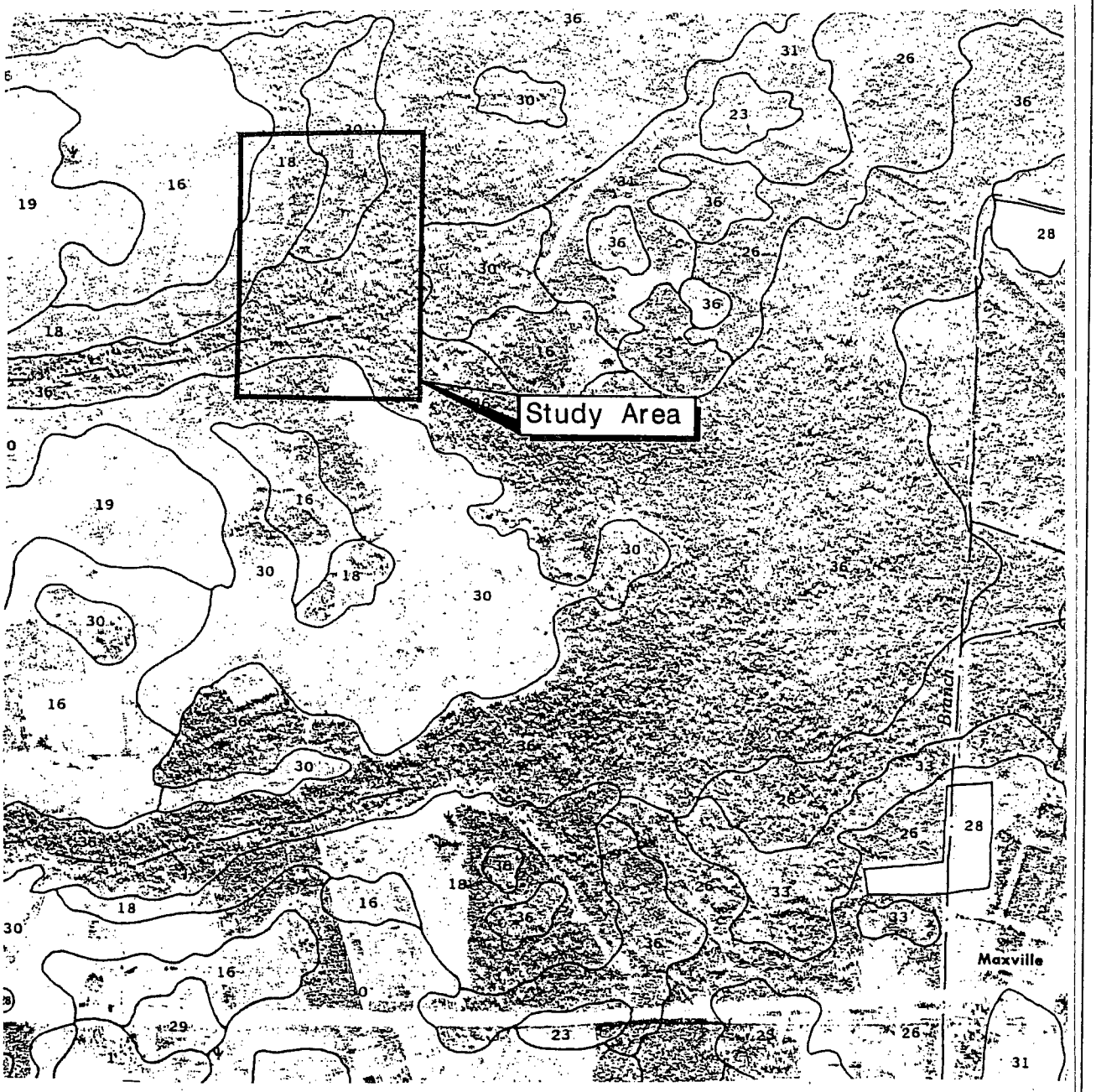
Existing Topography

ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No.	5



Soil Legend:

18 – Lynn Haven fine sand

30 – Ridgeland fine sand

36 – Wesconnett fine sand

Source:U.S.D.A. Soils Survey for Duval County, Fla. (1978)

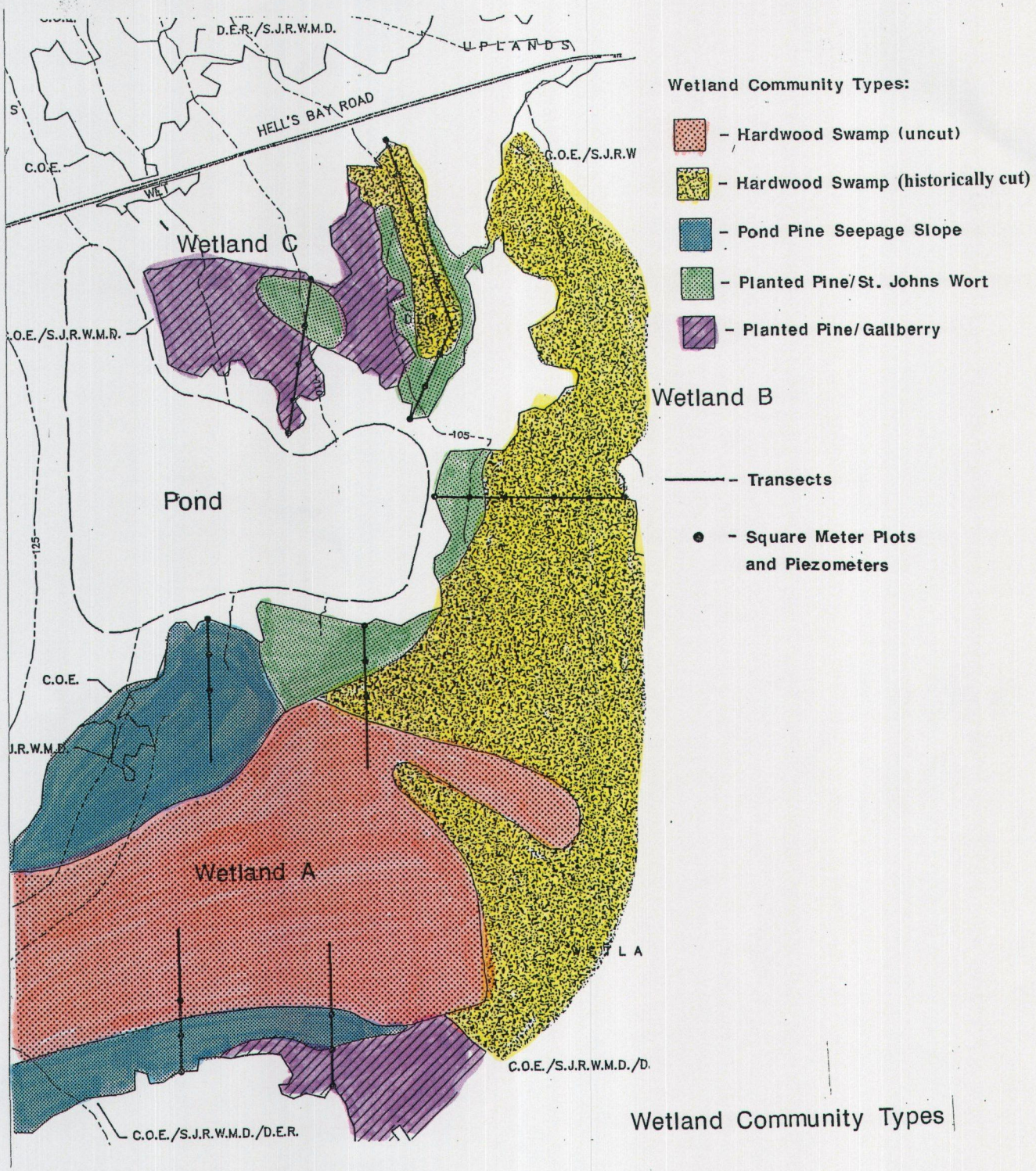
Soils Map

ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No.	6



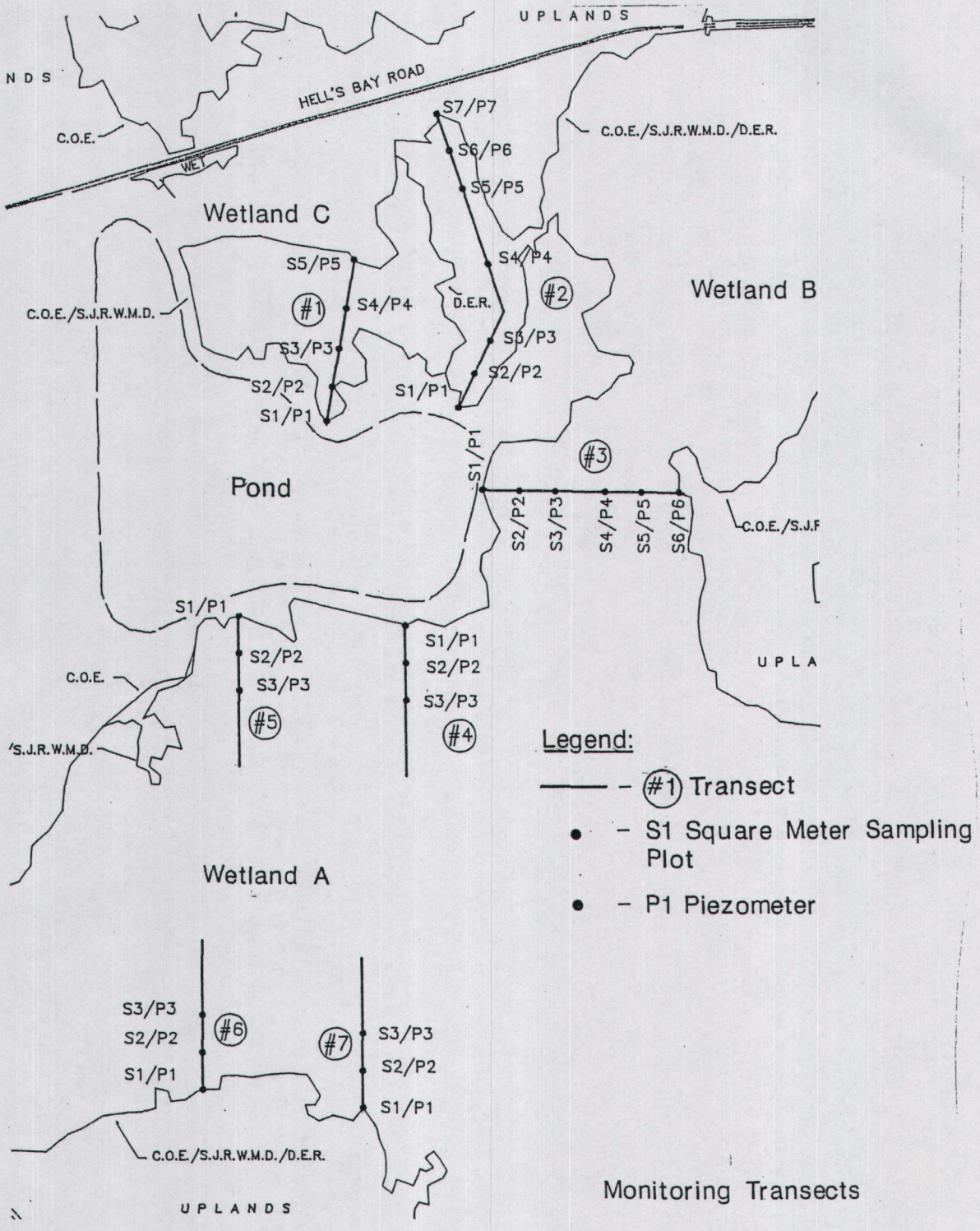
Wetland Community Types

ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

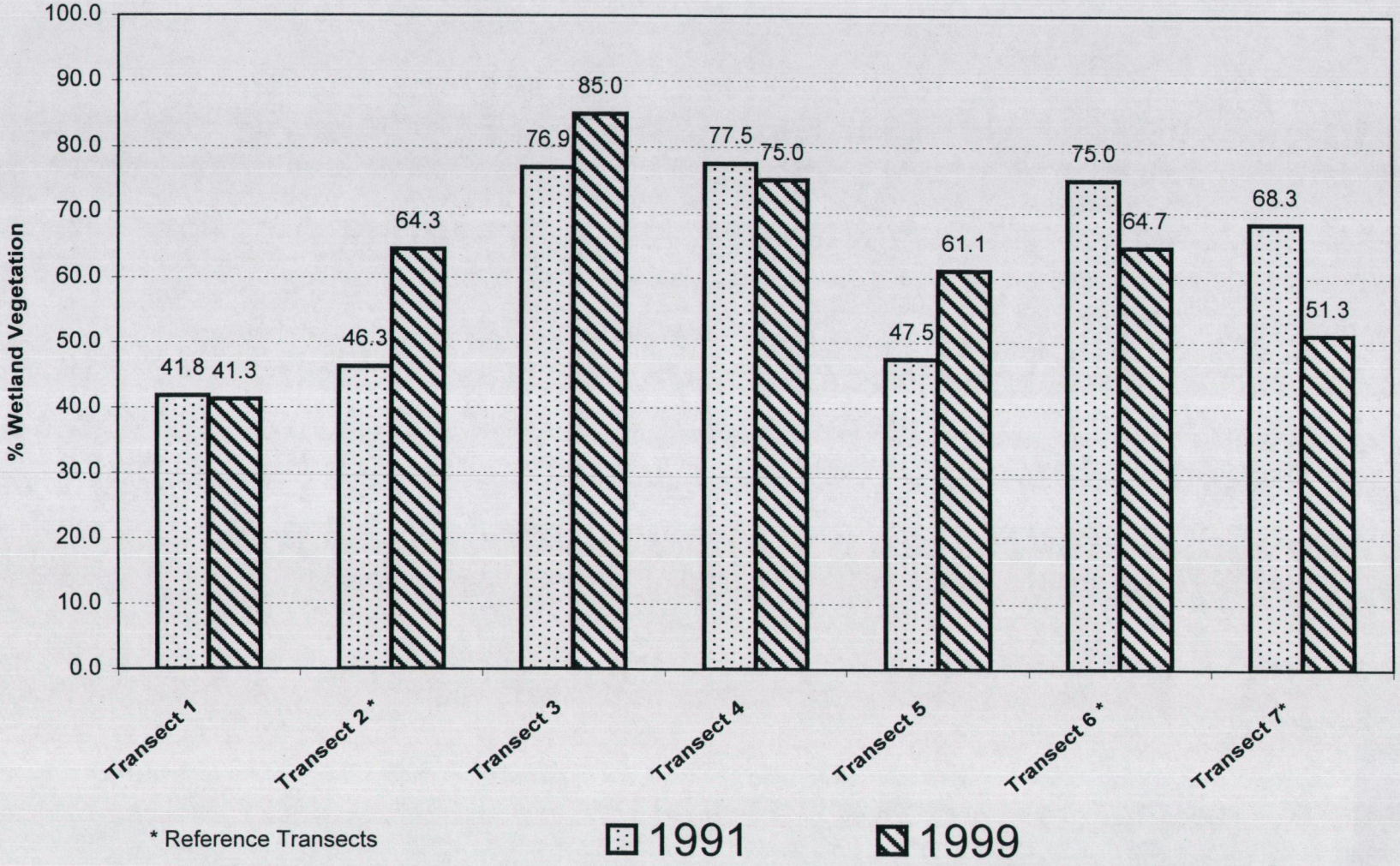
Project No.	EJ02131.00
Date	September 2002
Figure No.	7



Monitoring Transects

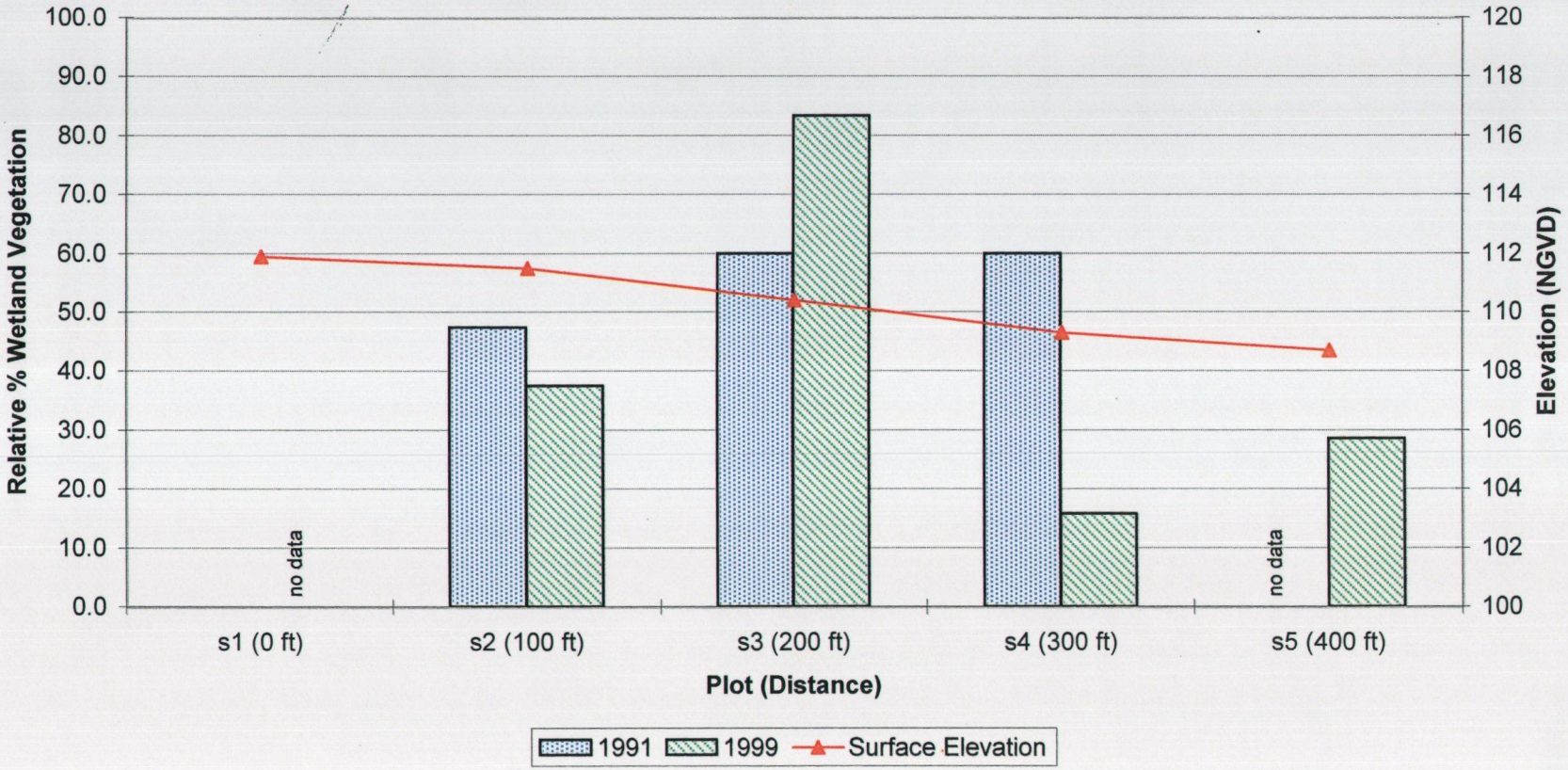
ENVIRONMENTAL SERVICES, INC.	Trail Ridge Landfill Jacksonville, Florida	Project No. EJ02131.00 Date September 2002 Figure No. 8

Relative % Wetland Vegetation



ENVIRONMENTAL SERVICES, INC.	Trail Ridge Landfill Jacksonville, Florida	Project No. EJ02131.00 Date September 2002 Figure No. 9

Transect 1

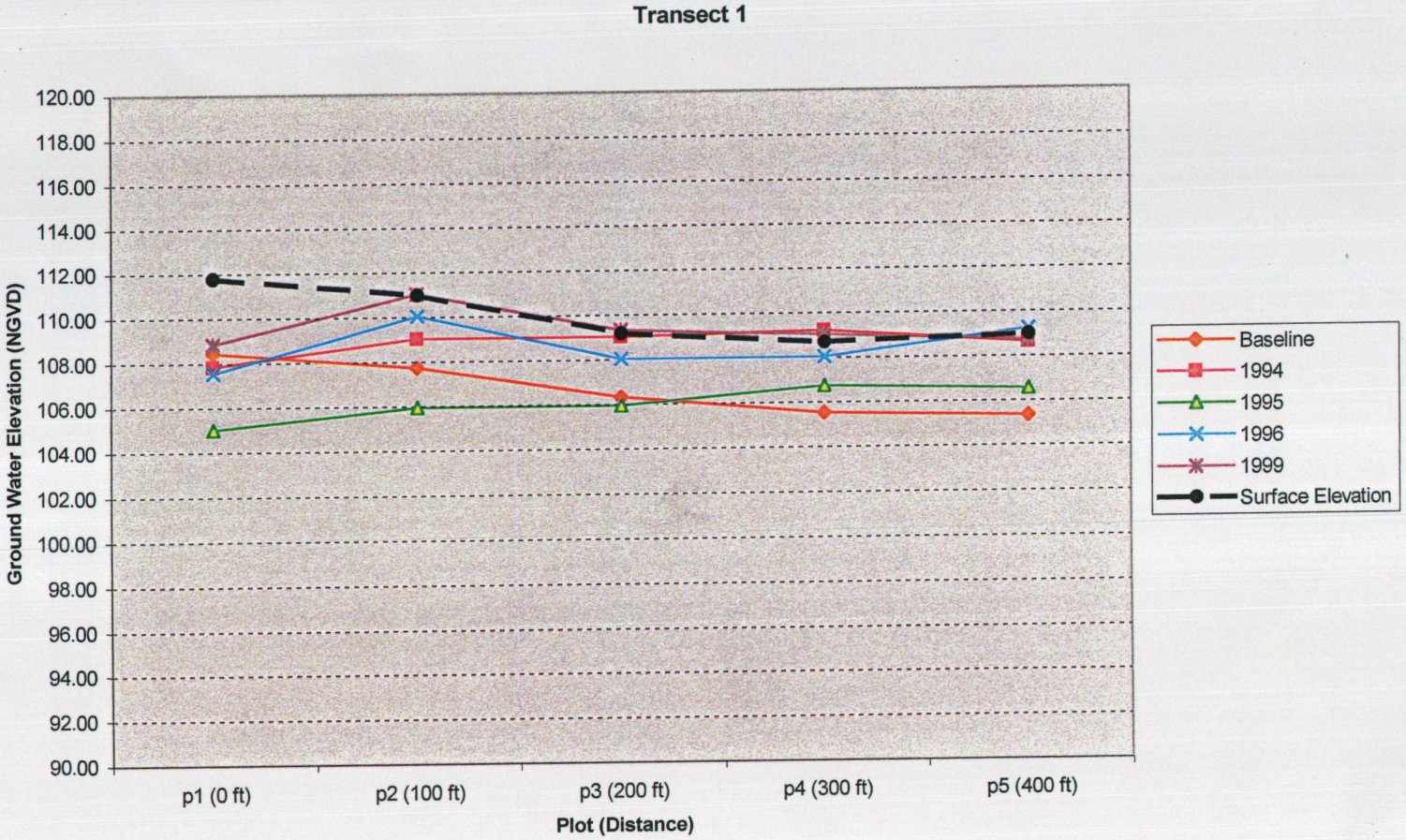


ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No. 10	

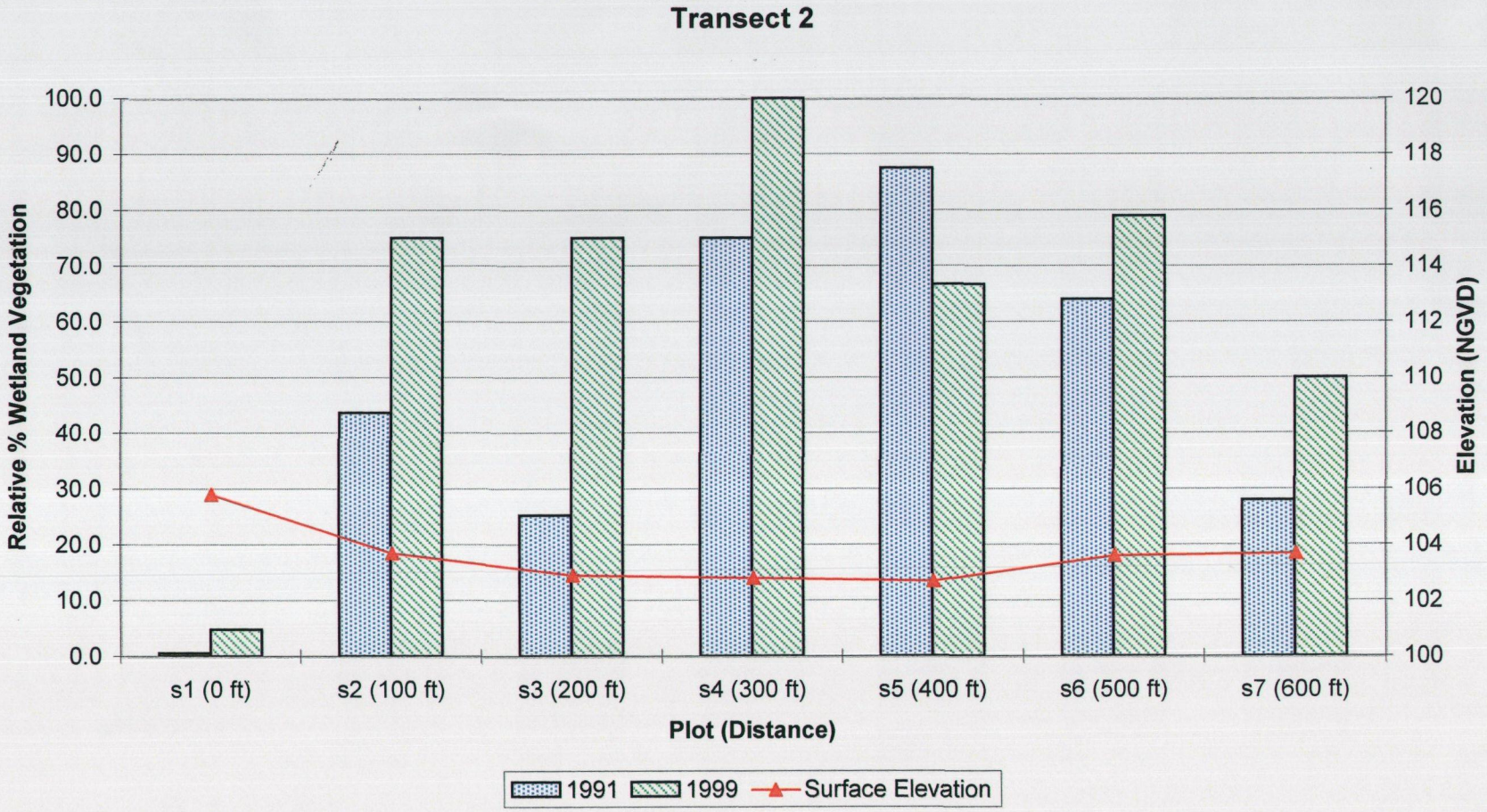


ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No.	11



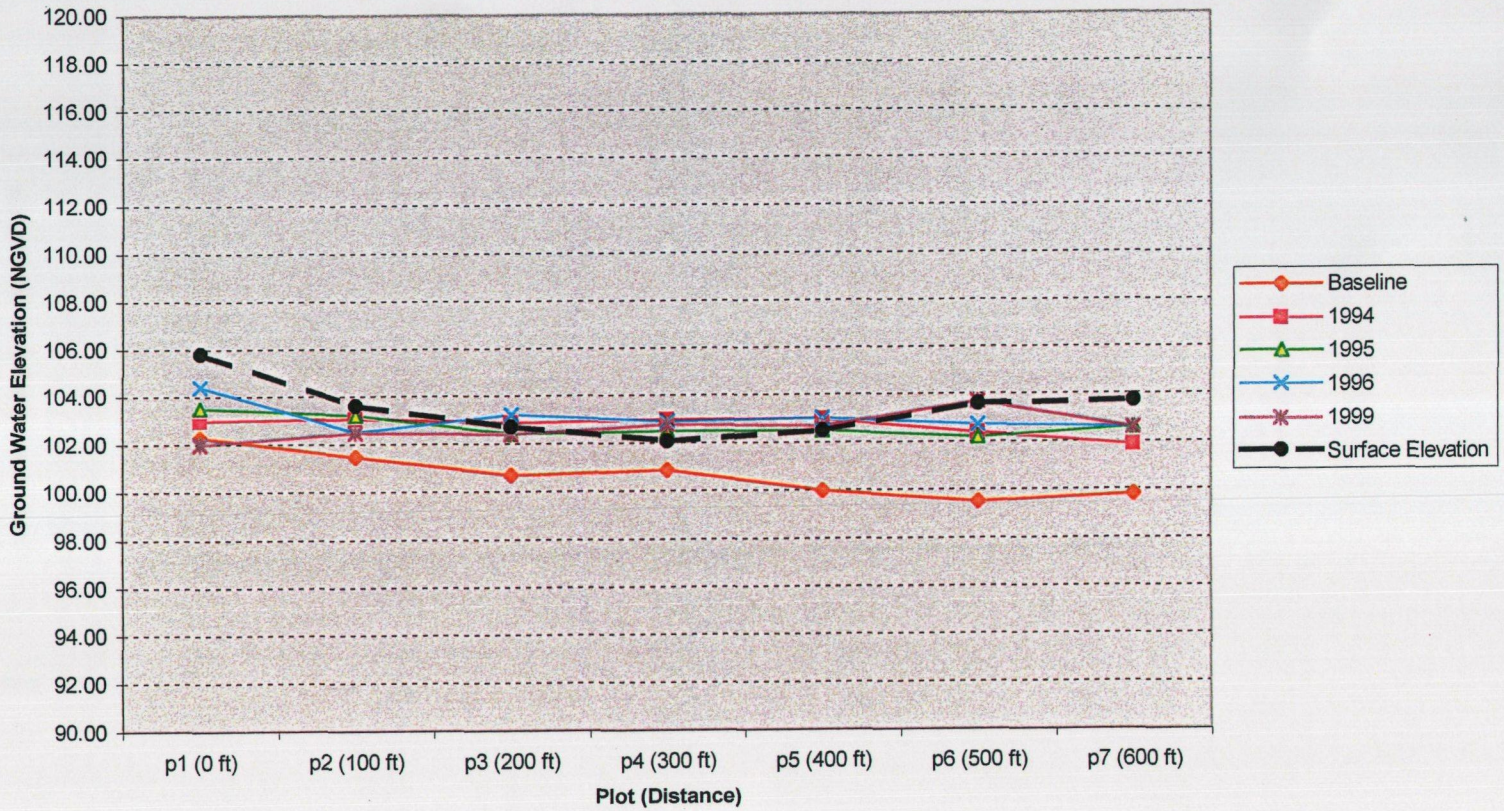
ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No.	12

Transect 2

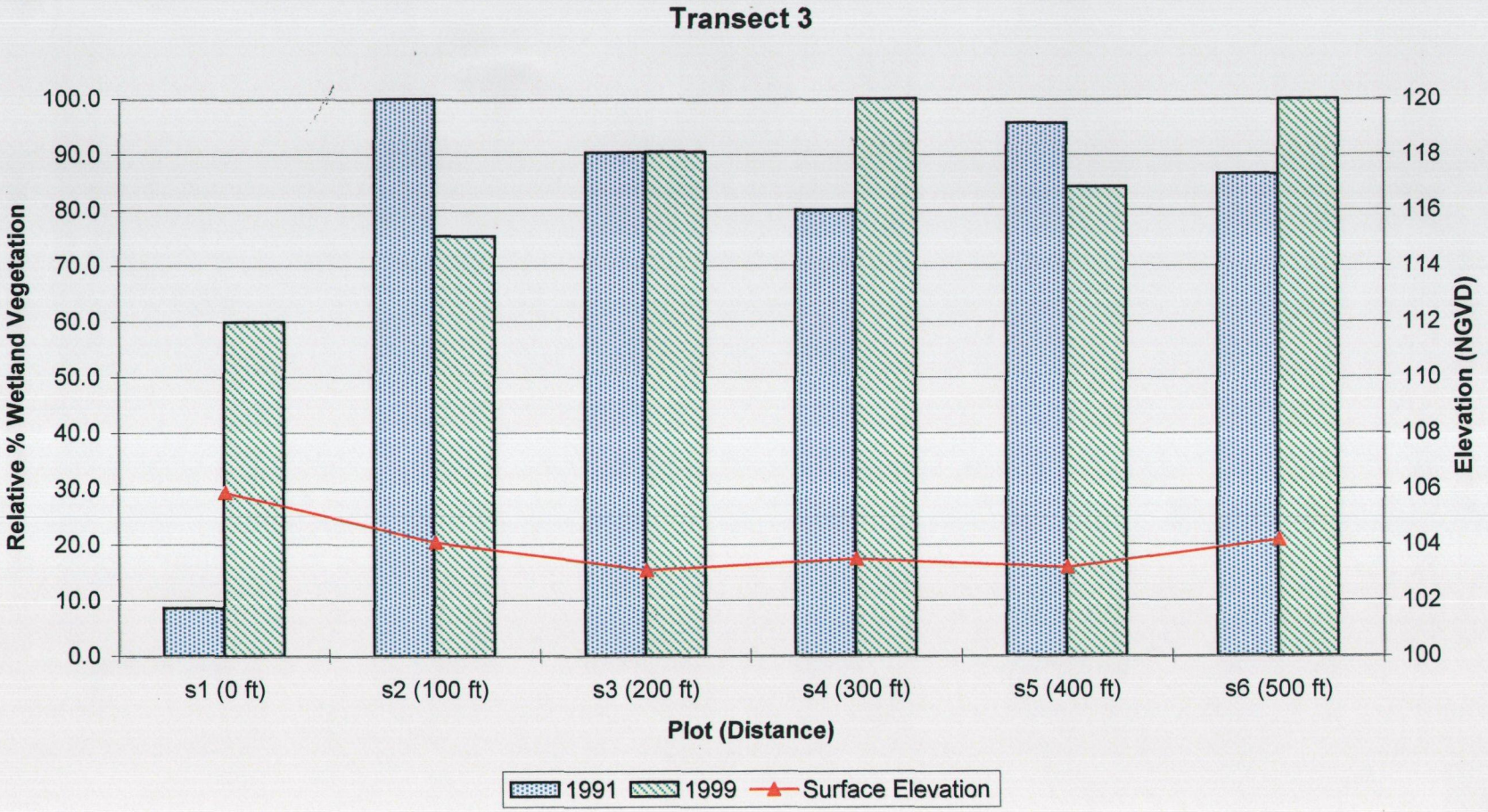


ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No.	13

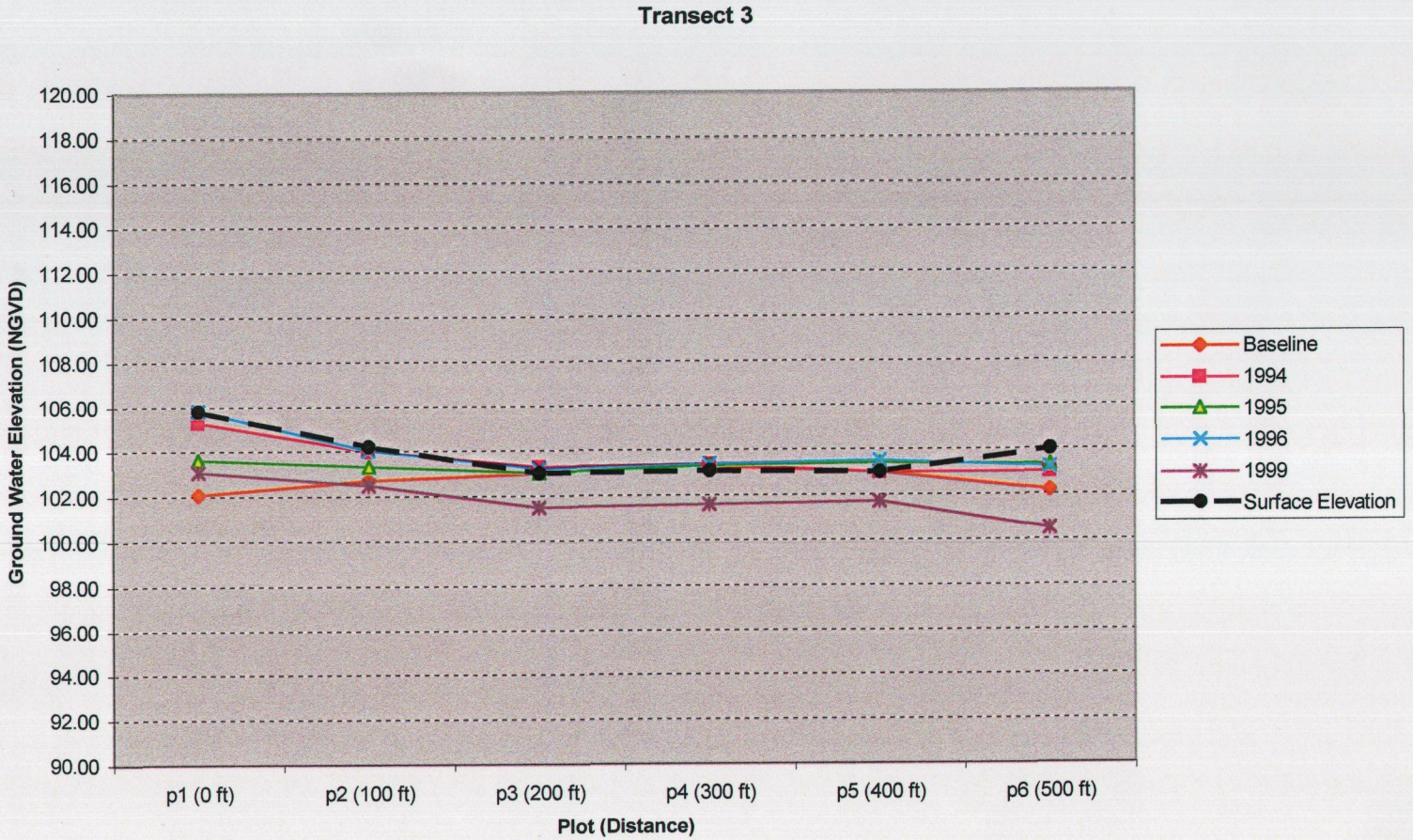


ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

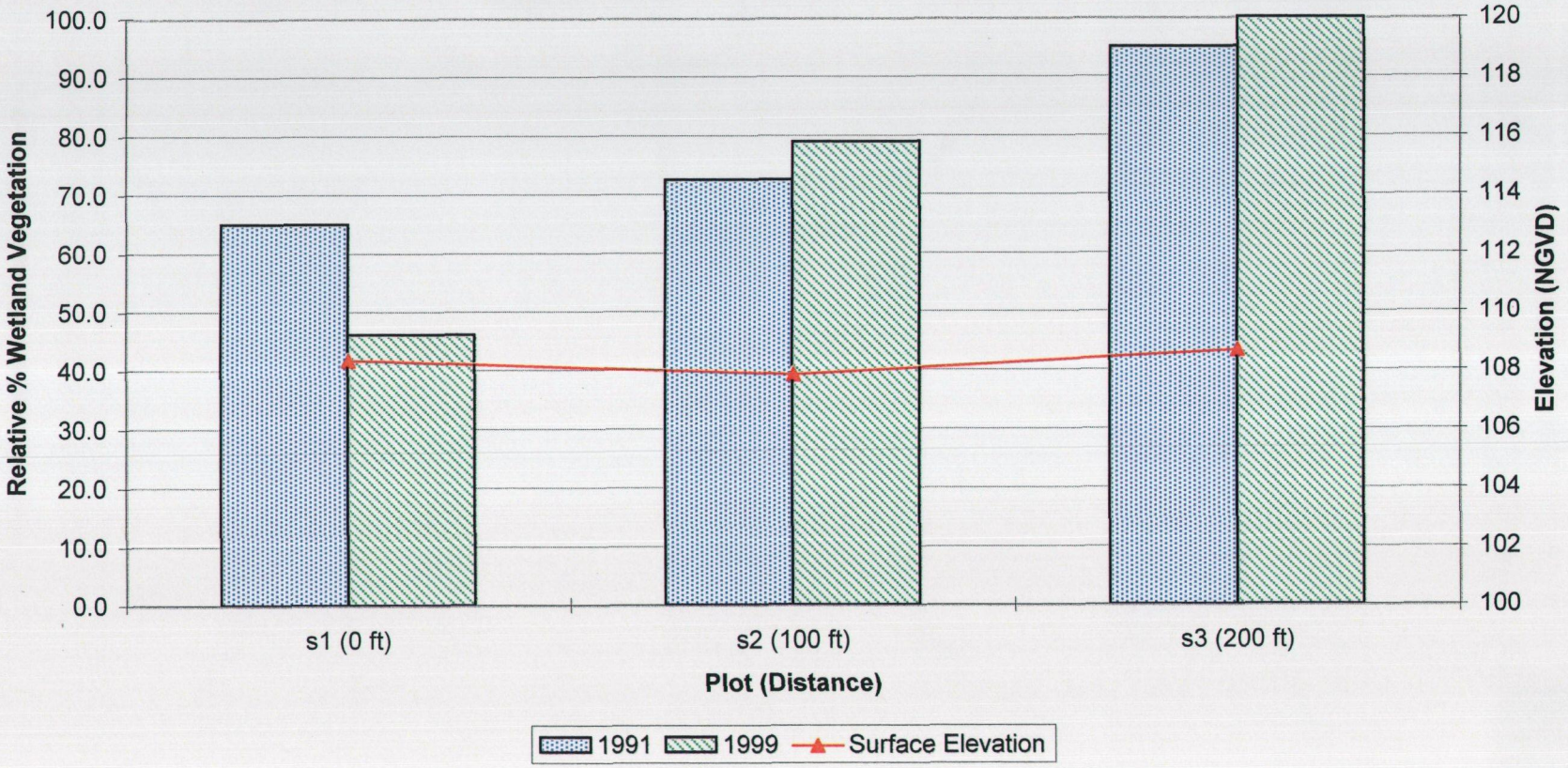
Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No.	14



ENVIRONMENTAL SERVICES, INC.	Trail Ridge Landfill Jacksonville, Florida	Project No. EJ02131.00 Date September 2002 Figure No. 15

Transect 4

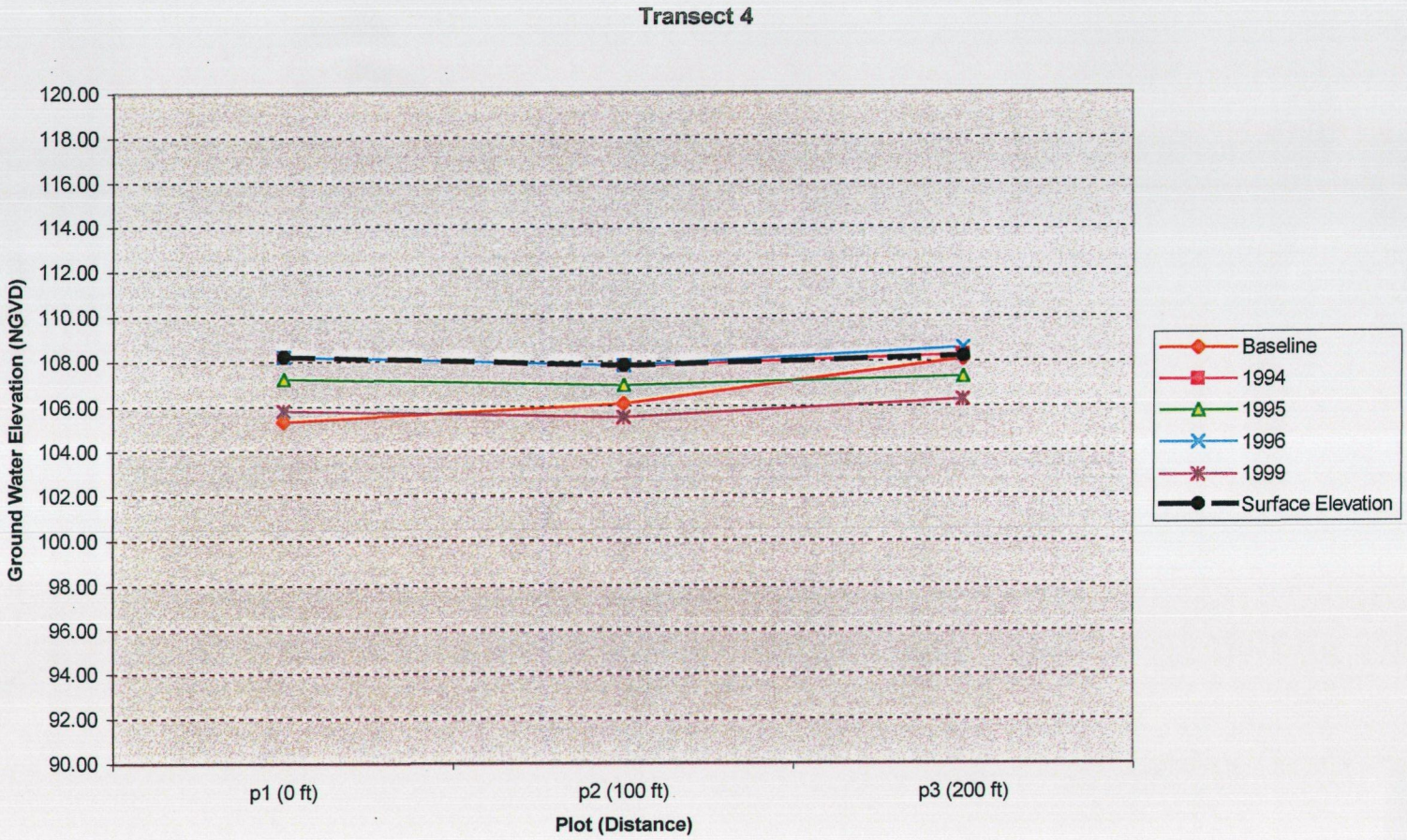


ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No.	16



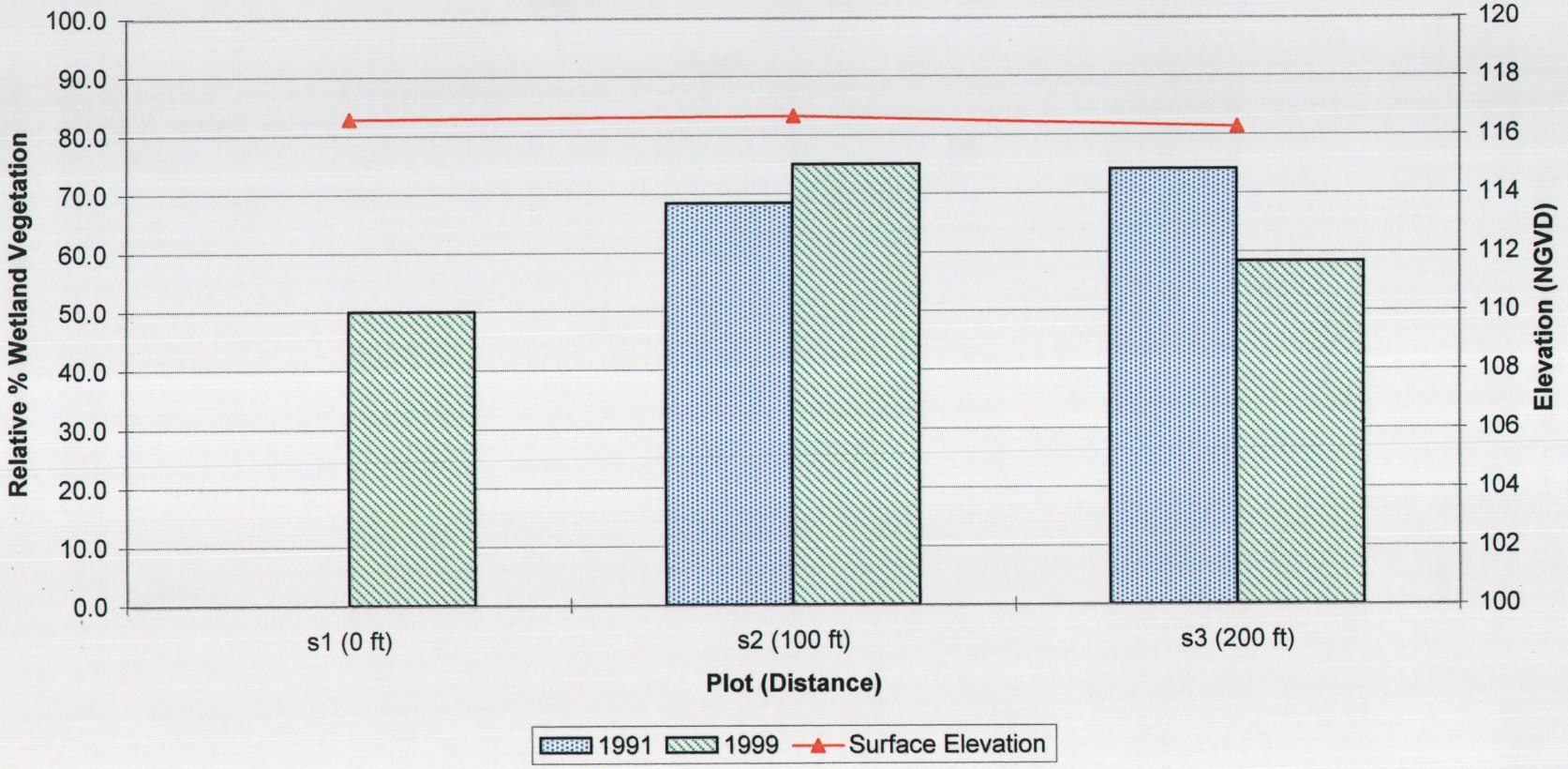
ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

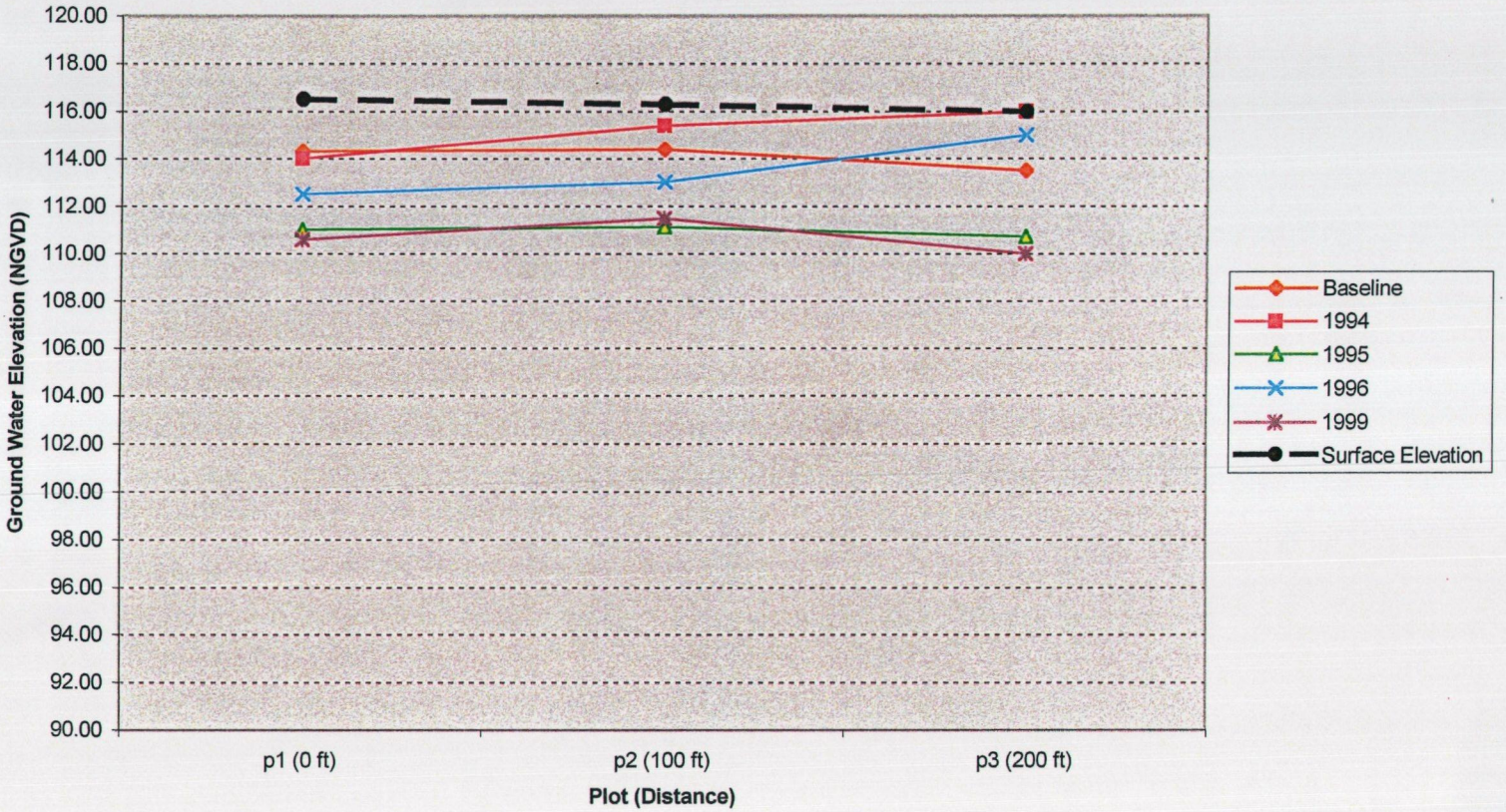
Project No.	EJ02131.00
Date	September 2002
Figure No.	17

Transect 5



ENVIRONMENTAL SERVICES, INC.	Trail Ridge Landfill Jacksonville, Florida	Project No. EJ02131.00 Date September 2002 Figure No. 18

Transect 5



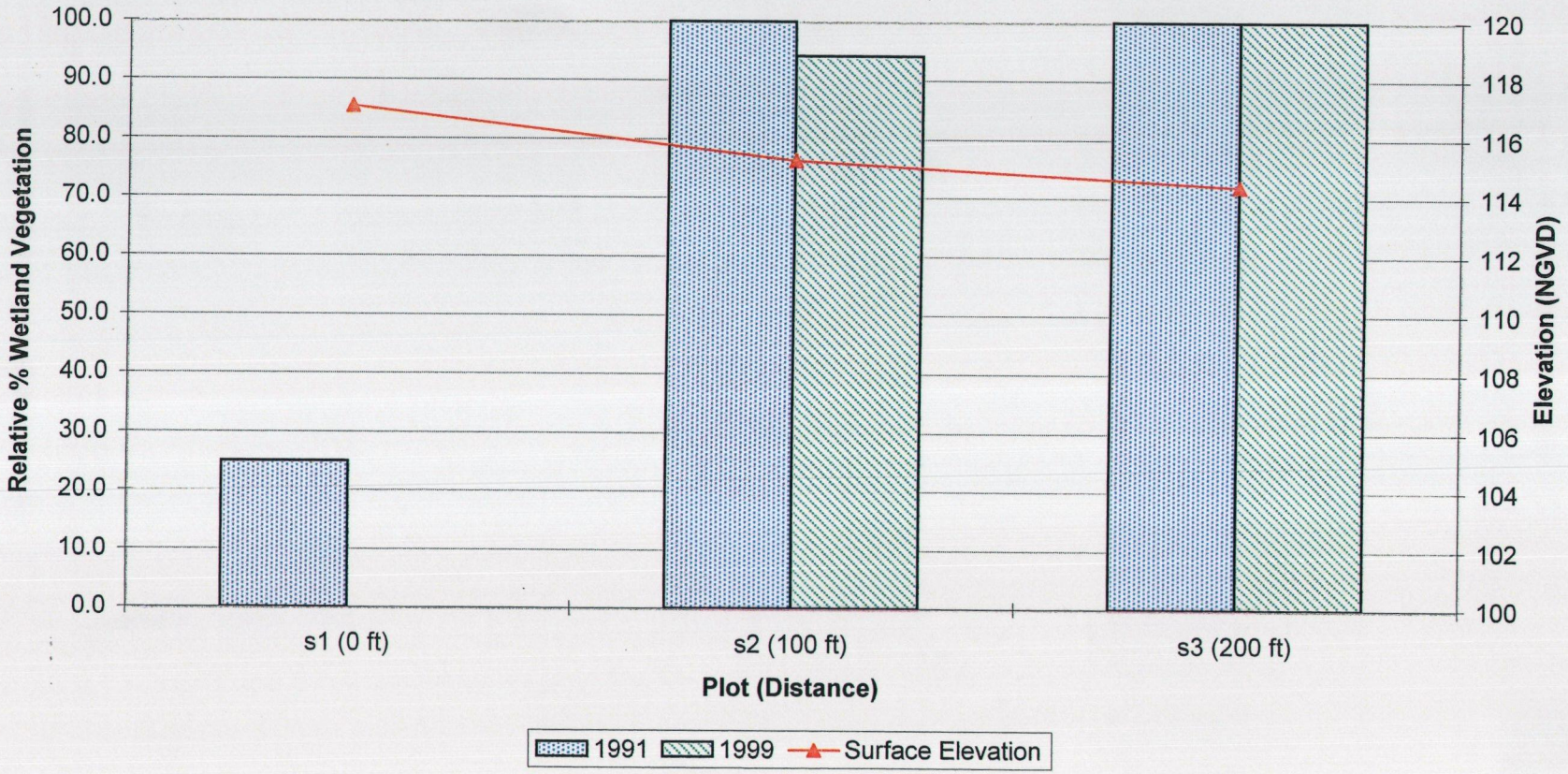
ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No.	19

Transect 6



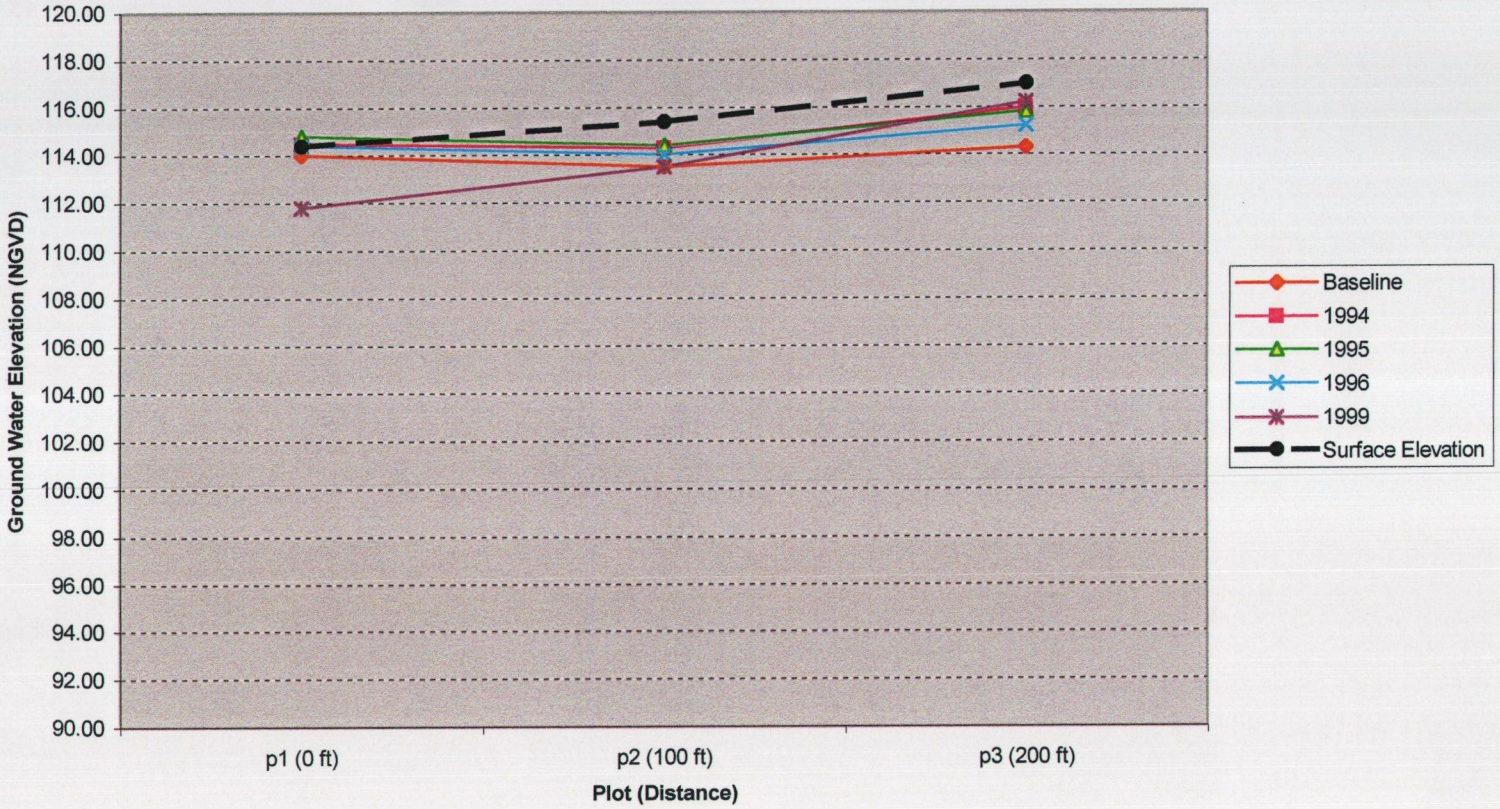
ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

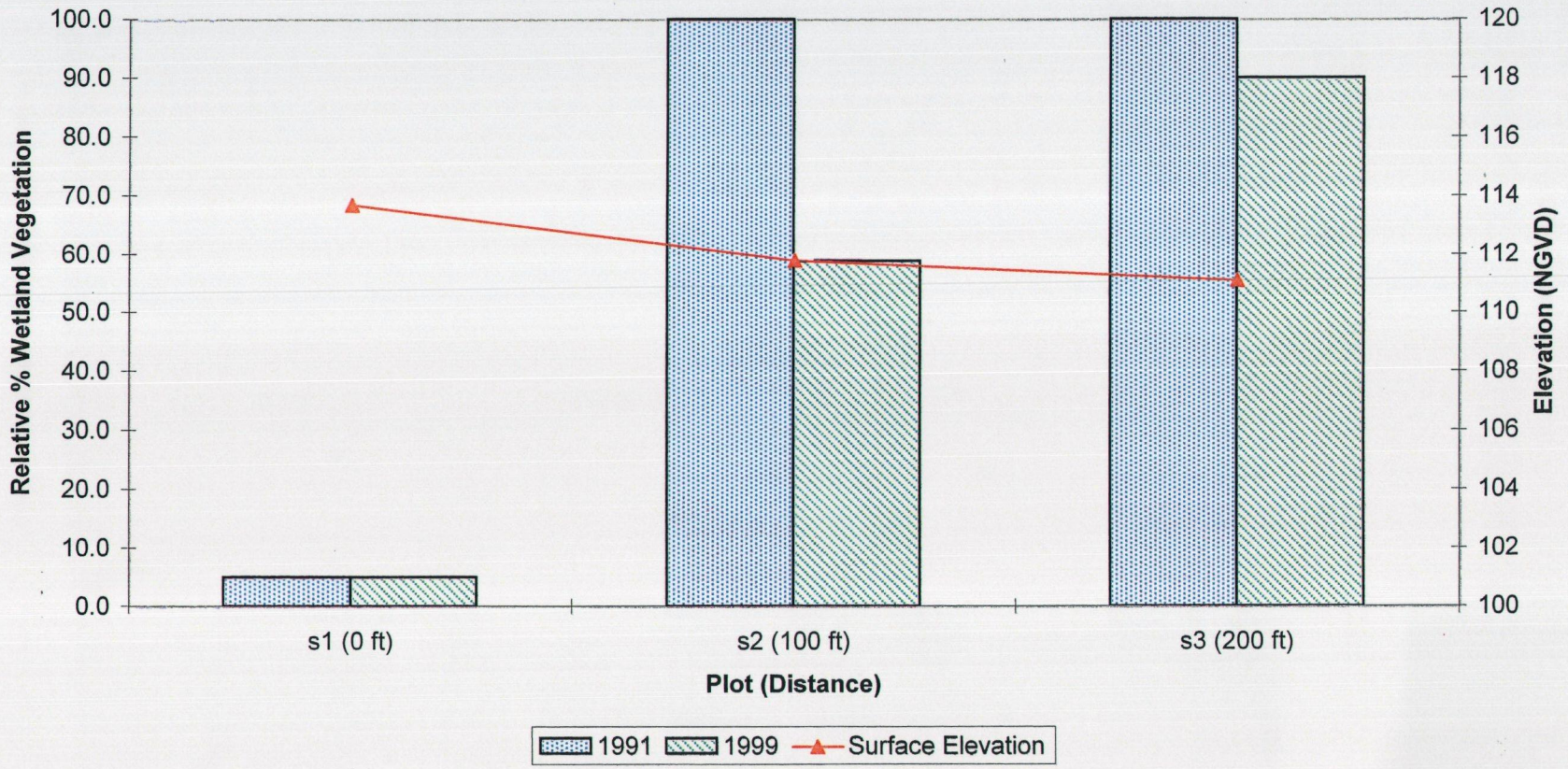
Project No.	EJ02131.00
Date	September 2002
Figure No.	20

Transect 6



ENVIRONMENTAL SERVICES, INC.	Trail Ridge Landfill Jacksonville, Florida	Project No. EJ02131.00 Date September 2002 Figure No. 21

Transect 7

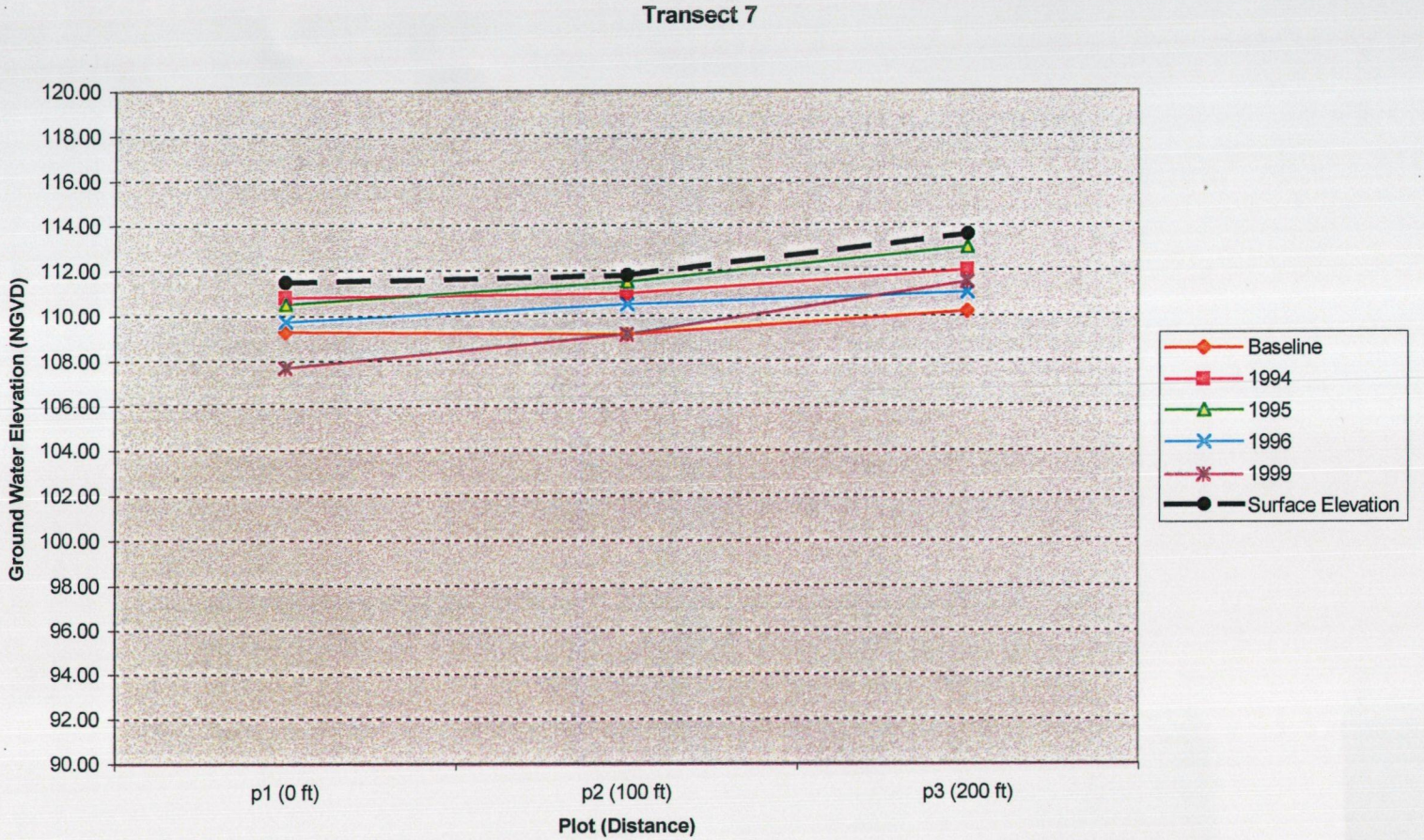


ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No.	22

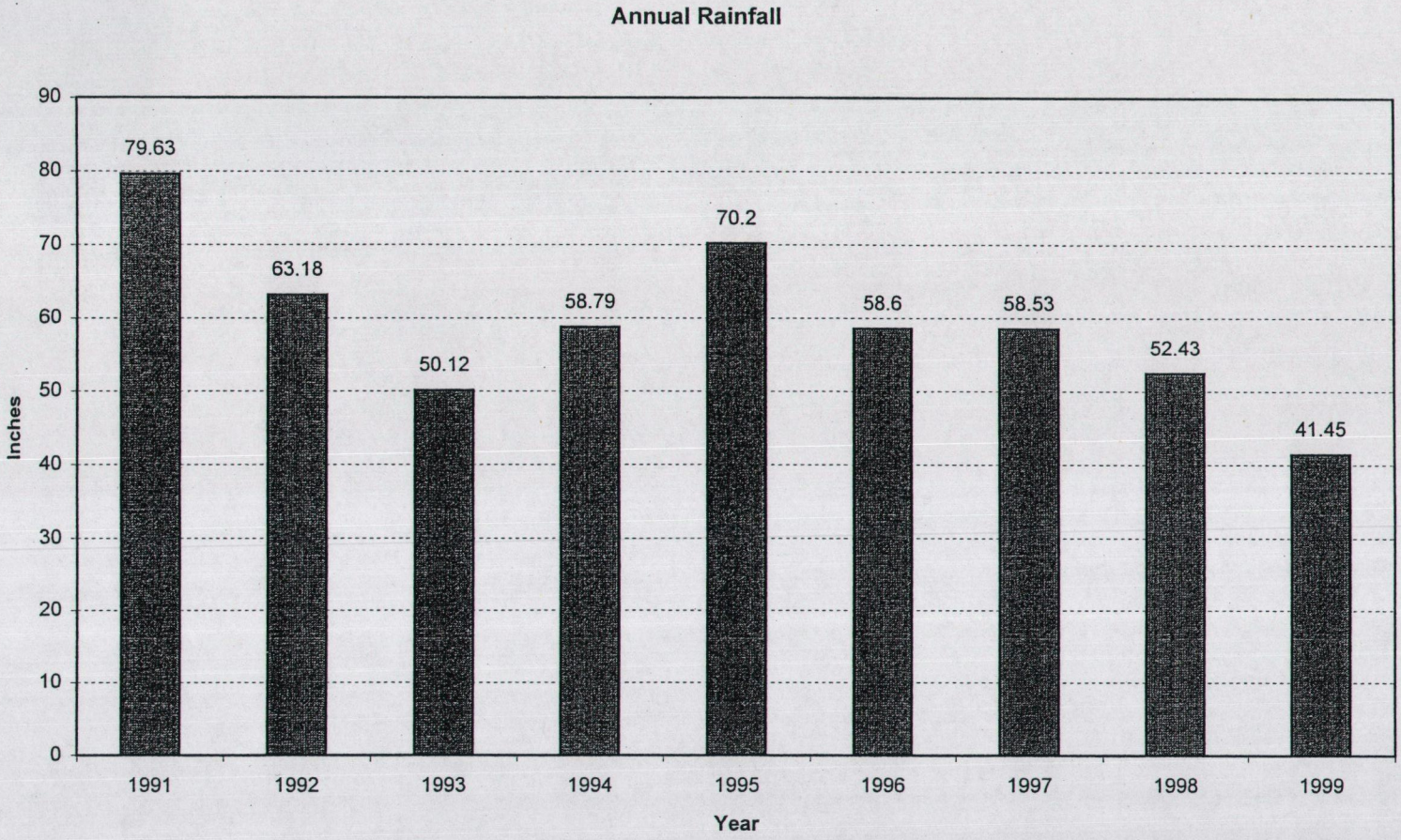


ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No.	23



ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida

Project No.	EJ02131.00
Date	September 2002
Figure No. 24	

ATTACHMENT A

Permit Conditions for Monitoring Wetlands At Trail Ridge Landfill

SPECIFIC CONDITIONS:

construction and every year thereafter. A registered Florida Professional Engineer must sign and seal the report certifying the system is functioning as designed.

b. The reports shall be submitted to the Department's Stormwater Engineer at 7825 Baymeadows Way, Suite B-200, Jacksonville, Florida 32256-7590.

C MS C. If the stormwater management system is not functioning as designed and permitted, operational maintenance must be performed immediately to restore the system. If operational maintenance measures are insufficient to enable the system to meet the design standards, the Permittee must either replace the system or construct an alternative design. In such a case, the Permittee must submit a permit modification application within sixty (60) days of the date the system was determined to be design deficient.

CMS 50. **Hydrology Monitoring Requirement.** All piezometers (installed as part of the requirements of Specific Condition No. 48I(a) of Permit Number SC16-184444) at the wetland/upland boundary and at existing groundwater monitoring locations, installed to determine groundwater elevations in the wetland discharge areas, shall be monitored at 6 month intervals commencing 6 months from the permit receipt date. The hydrology monitoring reports shall be submitted to the Department's Northeast District's Environmental Resource Permitting Section within 45 days from the monitoring event.

C MS 51. **Wetland Vegetation Monitoring.** The vegetation in the wetland areas of discharge shall be monitored every 2 years commencing from the permit receipt date. These vegetation monitoring reports shall utilize the transects established in the Base Line Study (required in Specific Condition Number 48I(a) of Permit Number SC16-184444) and shall include all the required information in this Base Line Study. These vegetation monitoring reports shall be submitted to the Department's Northeast District's Environmental Resource Permitting Section no later than 30 days after each monitoring event.

CMS 52. **Monitoring report.** Each vegetative monitoring report shall document any quantitative changes in vegetational composition which indicates any significant changes in the hydroperiod of the wetlands. Monitoring data shall be collected from all previously established quadrants along the existing transects. Each vegetative monitoring report shall contain an explanation of short term trends caused by, but not limited to, rainfall, fire, flooding and or other natural events and an explanation of any potential long term trends based on past reports which indicate potential changes in the hydroperiod of the wetland. The Department shall review the vegetative monitoring reports and the Permittee shall take whatever corrective remedial actions required by the Department in the event of significant indications of changes or potential changes in the hydroperiod of the wetland.

CMS 53. **Erosion control.** The Permittee shall take all appropriate measures to insure that the wetland stormwater discharge system does not cause erosion into any wetland area during construction and operation.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST DISTRICT
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256-7590

Interoffice Memorandum

TO: Julia Boesch
Solid Waste

THROUGH: Ken Kohn
Industrial Wastewater

FROM: Dean Setiono
Industrial Wastewater DS

DATE: January 10, 2003

SUBJECT: Duval County – Stormwater Review
Trail Ridge Landfill – First RAI Response

My stormwater review of the First RAI Response for Trail Ridge Landfill is complete, based upon the information provided on December 16, 2002. Based on my review, comments number 12 in the First RAI Response adequately addressed the capacity, flow rate and velocity for the terrace swales. Therefore additional stormwater RAI regarding the terrace swales will not be necessary.

If you have any questions concerning this matter, please feel free to contact me.

FLORIDA

Department of
Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

May 17, 1996

Mr. Robert E. Hice
Environmental Coordinator
Ameristeel
Jacksonville Steel Mill Division
Post Office Box 518
Baldwin, Florida 32234

Dear Mr. Hice:

Ameristeel Slag Disposal
Duval County - Solid Waste

The Department has reviewed your May 16 submittal of the results of the slag column leaching test designed to demonstrate whether or not your mill's processed slag meets the requirements of Section 403.7045(1)(g)(2), Florida Statutes.

These results, in combination with previous results and your confirmation that slag that is collected during furnace maintenance or Melt Shop clean-up or might otherwise be contaminated will continue to be transported to a properly permitted TSDF, provide adequate assurance for the Department to reach the determination that your processed slag may be considered an industrial byproduct under Florida Statutes, and therefore not regulated as solid waste, provided that:

a majority of the processed slag is demonstrated to be sold, used, or reused within one year;

the slag is not utilized in such a manner that it is placed in the environment in a greater than six-foot thickness; and

neither the slag nor your processing operation is found to be a source of pollution.

Thank you very much for your cooperation in this matter. The Department appreciates the responsible and professional manner in which you approached this issue. If you have any questions

concerning the Department's determination, please do not hesitate to contact me at (904)448-4320, extension 355.

Sincerely,

Michael J. Fitzsimmons
Waste Program Administrator

MJF:mn

cc: Chris McGuire, Office of General Counsel, DEP

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

January 28, 1998

Mr. Greg Maths
General Manager & Division President
Trail Ridge Landfill, Inc.
5110 U.S. Highway 301
Baldwin, Florida 32234

Duval County - Stormwater
Modification of the Stormwater System
Permit No. MS16-296691 to Solid Waste
Permit No. SC16-184444

Dear Mr. Maths:

On January 26, 1998, the Department conducted an inspection of the stormwater system located adjacent to the Trail Ridge Landfill. After reviewing the as-built plan submitted to the Department along with the review of the permit and associated construction plans and calculations, the Department finds that the constructed modification of the stormwater system is in compliance with Chapter 373, Florida Statutes, Chapters 40C-4 and 40C-42, F.A.C.

It is the Department's understanding that the permit will now move into the operational phase with Trail Ridge Landfill, Inc. being the responsible entity for the operation and maintenance of the stormwater system. It is the responsibility of Trail Ridge Landfill, Inc. to meet all conditions of the permit and provide information on monitoring to the Department as required by the permit. This information is to be submitted to the stormwater engineer.

If you have any questions, please feel free to call me at (904) 448-4340, extension 345.

Sincerely,

R. Shayan

Reza Shayan, E.I.
Stormwater Compliance Engineer

RS/lgb

cc: Juanita Bader-Clem, P.E.
Jeremy Tyler
David Apple
Mary Nogas

Department of
Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

May 17, 1996

Mr. Robert E. Hice
Environmental Coordinator
Ameristeel
Jacksonville Steel Mill Division
Post Office Box 518
Baldwin, Florida 32234

Dear Mr. Hice:

Ameristeel Slag Disposal
Duval County - Solid Waste

The Department has reviewed your May 16 submittal of the results of the slag column leaching test designed to demonstrate whether or not your mill's processed slag meets the requirements of Section 403.7045(1)(g)(2), Florida Statutes.

These results, in combination with previous results and your confirmation that slag that is collected during furnace maintenance or Melt Shop clean-up or might otherwise be contaminated will continue to be transported to a properly permitted TSDF, provide adequate assurance for the Department to reach the determination that your processed slag may be considered an industrial byproduct under Florida Statutes, and therefore not regulated as solid waste, provided that:

a majority of the processed slag is demonstrated to be sold, used, or reused within one year;

the slag is not utilized in such a manner that it is placed in the environment in a greater than six-foot thickness; and

neither the slag nor your processing operation is found to be a source of pollution.

Thank you very much for your cooperation in this matter. The Department appreciates the responsible and professional manner in which you approached this issue. If you have any questions

concerning the Department's determination, please do not hesitate to contact me at (904)448-4320, extension 355.

Sincerely,

Michael J. Fitzsimmons

Michael J. Fitzsimmons
Waste Program Administrator

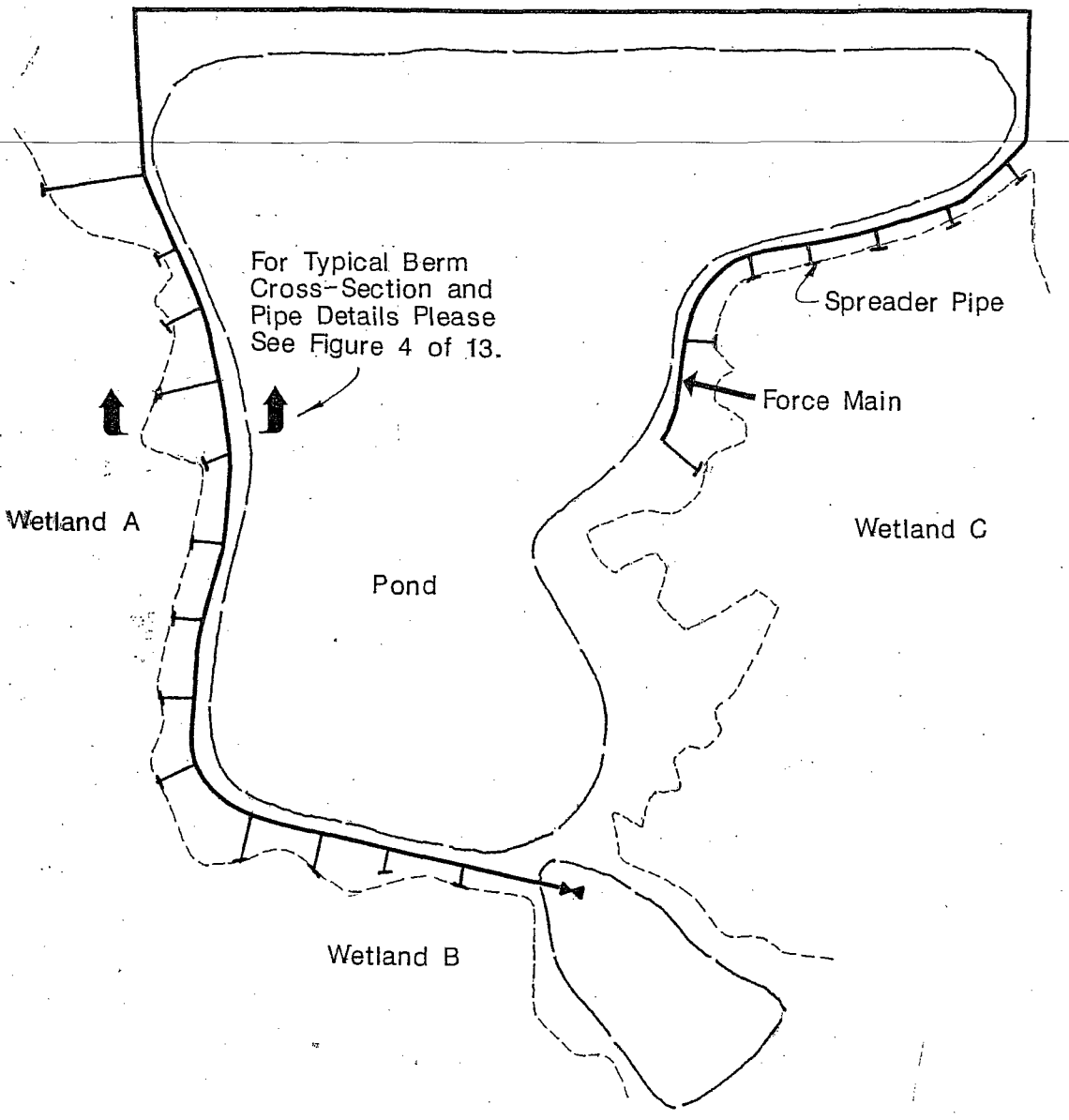
MJF:mn

cc: Chris McGuire, Office of General Counsel, DEP

ENVIRONMENTAL SERVICES, INC.

Trail Ridge Landfill

Jacksonville, Florida



Detailed Plan View of Wetland Irrigation System

Project No.	EJ02131.00
Date	September 2002
Figure No. 3	

PROPERTY BOUNDARY

BAKER COUNTY | SECTION 24

DUVAL COUNTY | SECTION 19

GP-10 GP-9 GP-8 GP-7 GP-6

PHASE VB PHASE VC PHASE IVB PHASE IVA PHASE IIC PHASE IIB PHASE IIA

PROPERTY BOUNDARY

EXISTING STORMWATER POND

WETLANDS

UPLANDS

OPERATIONS BUILDING

ADMINISTRATION BUILDING

GM-04 GM-05 GM-01 GM-02 GM-03

N

GRAPHIC SCALE

(IN FEET)
1 INCH = 400 FEET

LEGEND

▲ GAS PROBE
GP-10 GAS PROBE NUMBER
GM-04 GAS MONITORING LOCATION

REVISIONS:

ETM NO. 02-025
DRAWN BY: S.J.L.
DESIGNED BY: J.B.C.
CHECKED BY: J.B.C.
DATE: SEPTEMBER 24, 2002

GAS PROBE PLAN

TRAIL RIDGE LANDFILL PERMIT RENEWAL
FOR
TRAIL RIDGE LANDFILL, INC.

England-Thims & Miller, Inc.
ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS
14775 ST. AUGUSTINE ROAD JACKSONVILLE, FLORIDA 32258
CERTIFICATE OF AUTHORIZATION NUMBER: 6084
PHONE NUMBER (904) 642-8990 FAX NUMBER (904) 646-9485

DRAWING NO.

APPENDIX F

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS

Principals
James E England, P E , CEO
Douglas C Miller, P E , President
N Hugh Mathews, P E , Exec V P
Joseph A Tarver, Exec., V P
Juanitta Bader Clem, P.E., V.P.
Scott A. Wild, P.E., P.S.M., V.P.

Fax Transmission

To:	Julia Boesch	**Date:**	October 23, 2003
From:	Juanitta Bader Clem	**Pages:**	8, including this cover sheet.
Reference:	Trail Ridge Landfill Permit Renewal		
ETM No.:	02-025		

If you do not receive all pages or have difficulty reading this document, please contact Juanitta Clem at (904) 642-8990.

Dear Julia:

Please see the attached letter and technical memorandum regarding the draft permit for the referenced project. We would like to meet with you next week to review these comments.

If you have any questions, please feel free to give me a call.

Sincerely,

Juanitta Clem

Attachment

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • GIS • LANDSCAPE ARCHITECTS

Principals
Douglas C. Miller, P.E., CEO
N. Hugh Mathews, P.E., President
Joseph A. Tarver, Exec. V.P.
Juanita Bader Clem, P.E., V.P.
Scott A. Wild, P.E., PSM, V.P.
Samuel R. Crissinger, CPA, V.P.
Robert A. Mizell, Jr., P.E., V.P.
Bryan R. Stewart, V.P.

Emeritus
James E. England, P.E.
Robert E. Thims

October 24, 2003

Ms. Mary Nogas, P. E.
Department of Environmental Protection
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
FDEP File Numbers 13493-010 and 13493-011
ET&M Project No. 02-025-03

Dear Ms. Nogas:

In conjunction with Trail Ridge Landfill, Inc., we have reviewed the draft permit for the referenced project and have the following comments that we would like to discuss with the Department:

1. Page 1 – The location of the geosynthetic clay layer is below the secondary liner in Phases IA, IB, IC, IIA, IIB, and IIC.

2. Page 6, Specific Condition No. 3, Other Applicable Permits – This condition requires the applicant to obtain all necessary permits including the Suwannee Water Management District, which should be changed to the St. Johns River Water Management District.

3. Page 7, Specific Condition No. 6, Permit Renewal – The May 24, 2011 deadline for renewing the permit is not consistent with the permit expiration date.

4. Page 7. Specific Condition No. 9, Design Elevations and Annual Survey - The Permittee must submit the annual survey within 30 days of conducting the survey. The previous permit required 60 days. Thirty days is not sufficient time. Further, the condition requires that the survey include "all points designed for terraces and the location of the toes of the sideslopes". Will the contours be sufficient? Further, Specific Condition No. 11 on Page 8 requires the remaining site life and capacity to be submitted between July 1 and September 1 of each year. These data are determined from the annual aerial survey as well. We propose to have the elevations, remaining site life, and capacity submitted all together between July 1 and September 1.

5. Page 7, Specific Condition No. 10, Financial Assurance – Per this condition, the deadline for submittal of the annual audit is "December 31 of each year, unless a Single Audit accounting system is utilized, then the audit shall be submitted by March 31 of the following year". However, Rule 62-701.630(5)(c), FAC, requires filing "no later than March 31 of the following year."

6. Pages 8-9, Specific Condition No. 14a, Active Gas Collection System, Authorization and Permits – The reference to passive flares in the last sentence of this condition could be deleted since the facility has an operating active gas collection system.

7. Page 10, Specific Condition No. 14g - This condition requires that a temporary header that is inoperable be severed and abandoned. The permit should allow for rehabilitation of the header should it be feasible.

8. Page 11, Specific Condition No. 16, Operating Personnel - The following sentence "Also for the same amount of waste during the peak hours of 10:00 a.m. to 3:00 p.m. the same minimum personnel shall be provided." is confusing. The phrase "same minimum" requirement must be clarified because in one case there are six persons required and in the other case, five persons are required.

9. Page 12, Specific Condition No. 18, Maximum Daily Tonnage - The maximum tonnage has been set at 5000 tons (except during emergency situations) with a minimum of 9 people (2 spotters, 3 laborers and 4 equipment operators). However, based upon the "matrix", 9 people are required during the peak hours only (6:00 AM - 7:00 AM and 10:00 AM – 3:00 PM).

10. Page 12, Specific Condition No. 19, Fill Phasing Plan - The third sentence should be revised as follows: "The facility shall place waste ~~in~~ and conduct operations in a manner to prevent the ponding of ~~leachate~~ stormwater in waste, the mixing of leachate with stormwater, and the running off of leachate into the stormwater system."

11. Page 13, Specific Condition No. 21, Waste Inspection at the Working Face – This requires that the solid waste be "completely inspected", prior to compaction. This is not consistent with landfill operations (waste is spread and compacted at the same time).

12. Page 15, Specific Condition No. 27, Subsection c., the Permittee is limited to an eight foot high pile of processed tires, whereas Rule 62-711.540(4), FAC allows for a ten foot high pile.

    In Subsection e., the Department referenced FAC Rule 62-701.711(530)(5) which should be Rule 62-711.530(5).

13. Page 17, Specific Condition 32A – It is requested that the words "as initial cover" be added to the end of the last sentence of the first paragraph of this condition. Further, under the section called "Records," it is requested that the word "material" in the first two sentences be changed to "contaminated soil" for clarity.

14. Pages 18-19, Specific Condition No. 33, Wet Weather Area – It may not be possible to always locate the wet weather area on an interior slope and why is that an issue? Further, why is the Department so concerned with the leachate ponding in the wet weather area? The fifth sentence should be split into two sentences. (The wet weather area shall have either initial or intermediate cover. The facility shall apply either initial cover or tarp approved by specific condition number 30 of this permit to the wet weather area at the end of the workday.)

    Also, the last sentence should be stricken because the word heavy is not defined. The facility in the past has shown it can operate during rain events.

15. Page 19, Specific Condition No. 34, Inspection – This condition requires that the active areas be inspected on a weekly basis and the closed areas at a minimum on a monthly basis. It was agreed during the permitting process to conduct inspections on a monthly basis and after major storm events.

16. Pages 19-20, Specific Condition No. 35, Gas Monitoring Probes – Subsection a. references Attachment 8 which is the same as Attachment 6.

17. Page 20, Specific Condition No. 36, Gas Monitoring Well Maintenance – This condition also references Attachment 8, which is the same as Attachment 6. The proposed condition requires that the repair or replacement of a gas monitoring well/probe have a construction completion report from the "professional engineer or professional geologist in charge of installation". Why does it warrant a professional engineer or professional geologist?

18. Page 21, Specific Condition No. 37, Contingency Operations – First, there are two Subsections "b". The second Subsection b. requires that the facility cease accepting waste in the event of a fire at the working face and not recommence waste acceptance activities until the fire is extinguished or the Permittee obtains authorization from the Department. This is not acceptable since the operations can be moved to the wet weather area during such a situation.

19. Page 21, Specific Condition No. 38b, Action Leachate Leakage Rate - This condition requires that the quantity of leachate collected be recorded Monday through Friday at a minimum and "any other day the facility is operating, at a minimum". Please clarify whether the Permittee is required to record the flow on Saturdays.

    Also in the third sentence, after the word "manometer," the words "or equivalent device" should be added.

20. Page 22, Specific Condition No. 38d, Pump Station and flow meter maintenance – Please note that the flow in the leachate collection system is from west to east.

21. Pages 23-25, Specific Condition No. 39, Leachate Monitoring - The first sentence indicates that the leachate monitoring schedule shall be conducted in conjunction with the groundwater monitoring schedule specified in Specific Condition No. 41o. The reference condition appears to be a typographical error and should be Specific Condition 48o. Rule 62-701.510(6)(c)1., FAC requires leachate sampling and analysis annually. We hereby request that the semi-annual requirement for sampling leachate be deleted and the facility be required to monitor leachate for the list of parameters on an annual basis only. Further, why does the sampling require "Those parameter listed in 40CFR Part 258, Appendix I" which is not in the listed parameters in Rule 62-701.510(8)(e), FAC? Further, on page 24, second paragraph, please explain the reference to "Biological evaluations."

22. Pages 25-27, Specific Condition No. 41, Closure Phasing Plan and Final Cover Application – In Subsection a., the last sentence references Specific Condition No. 15 which should be Specific Condition No. 19.

In Subsection b., it is stated that "All earthen materials shall be uncontaminated". Please clarify whether an analysis must be conducted on all earthen materials used in closures. Further, for the final cover system design, the Department indicated "**minimum** 40 mil geomembrane." We hereby request that the word "minimum" be changed to "average thickness" per F.A.C. Rule 60-701.600(5)(f)4.

23. Page 27, Specific Condition No. 42, Non-authorized, Subsection b - Should include reuse of processed waste tires for initial cover.

24. Page 29, Specific Condition No. 46 - This condition references obtaining a Title V Air Operating Permit. The facility has a Title V permit. Further, the proposed condition indicates that a landfill is subject to Subpart WWW if the design capacity is equal to or greater than 2.5 million Megagrams or 2.5 million cubic meters. In Subpart WWW rules, it states 2.5 Megagrams **and** 2.5 million cubic meters (i.e., it has to meet both conditions).

25. Page 33, Specific Condition No. 48j, Groundwater Monitoring Requirements, the initial sampling of the wells has been completed so this condition is no longer relevant and should be deleted.

26. Page 33. Specific Condition No. 48l – Since the report submittal deadline is more clearly stated in Specific Condition No. 48m, we hereby request the following be removed from the condition, "The Permittee shall submit to the Department the results of the groundwater monitoring well water quality analysis no later than the fifteenth (15) day of the month following the end of the sampling period."

27. In addition to the above comments, please see the attached Technical Memorandum from Steve Clarke with Waste Management.

We would greatly appreciate if we can discuss the aforementioned comments with you at your earliest convenience. If you have any questions, please feel free to give me a call.

Sincerely,
ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem, P.E.
Vice President

cc: Greg Mathes
Achaya Kelapanda
Mark Behel
Steve Clarke
Chris Pearson

WASTE MANAGEMENT

TECHNICAL MEMORANDUM

TO: MARK BEHEL, WASTE MANAGEMENT; JUANITTA BADDER-CLEM, ETM

FROM: STEVE CLARKE, DIRECTOR - WASTE MANAGEMENT GROUNDWATER PROGRAMS

SUBJECT: TRAIL RIDGE LANDFILL – GROUNDWATER RELATED PERMIT ISSUES

DATE: 10/23/03

CC: GREG MATHES, WASTE MANAGEMENT

PROPOSED TRAIL RIDGE LANDFILL PERMIT GROUNDWATER RELATED ISSUES

There are several groundwater and leachate related permit conditions that are no longer required regulatorily. The specific conditions in the Trail Ridge permit should be modified to reflect the most current regulatory requirements. Following are comments specific to the groundwater and leachate related permit conditions:

Specific Condition 39, Issue 1: Semi-Annual Leachate Monitoring

Permit Condition

- Page 23, last paragraph: Leachate Monitoring. Leachate shall be sampled semi-annually in conjunction with the groundwater monitoring schedule ... A composite sample will be take from the drain valve of each of the five (5) leachate collection system storage tanks and one (1) sample shall be taken from the leachate detection system storage tanks ..

Regulatory Requirement:

- FAC 62-701 510(6)(c) Routine leachate sampling 1. Leachate shall be sampled and analyzed annually for the parameters listed in paragraphs (8)(c) and (d) of this section.

Comment/Recommended Change:

- The 5/27/2001 update to the Solid Waste Regulations recognized that annual leachate monitoring is sufficient for evaluating leachate quality. Accordingly, we request that the semi-annual requirement be deleted and the facility be required to monitor leachate for listed parameters on an *annual basis* only

Specific Condition 39, Issue 2: Detection Levels

Permit Condition:

- Page 24, 3rd paragraph: Detection levels shall be at or below groundwater standards and/or criteria. Leachate sampling results shall be reported on the attached Groundwater Monitoring Report Form ..

Regulatory Requirement:

- FAC 62-701 200 Definitions. (79) "Method detection limit" means the smallest concentration of an analyte of interest that can be measured and reported with 99 percent confidence that the concentration is greater than zero. The method detection limit shall be determined pursuant to procedures outlined in Chapter 62-160, F A C., which is hereby incorporated by reference.

Comment:

- There is no state regulatory requirement that detection levels be set at or below water quality criteria. In fact, for many analytes, there are analytical methods that can meet published FDEP water quality criteria. The 1994 Groundwater Guidance Criteria booklet recognizes this by setting the water quality criteria at the practical quantitation limit, where the health-based guidance concentration is lower than what can reasonably be measured in a laboratory. Further, proposed changes to Chapters 62-770 (petroleum), 62-782 (dry-cleaning solvents) and 62-785 (brown fields), developed through workshops, recognize the problems of reporting and quantifying analytical data at low levels by defining the Best achievable detection limit (BADL) as the practical quantitation limit.

  We request that the text be changed to the following *Reporting levels shall be at or below groundwater standards and/or criteria, unless dilution of the sample is necessary due to interferences or the method detection limit, as defined by FAC 62-160, is higher than a specific criteria*.

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • GIS • LANDSCAPE ARCHITECTS
14775 St. Augustine Road, Jacksonville, FL. 32258
(904) 642-8990 Fax: (904) 646-9485 http://www.etminc.com

LETTER OF TRANSMITTAL

To:	Department of Environmental Protection	**Date:**	October 23, 2003
ATTN:	Mary Nogas	**Job No:**	02-025-03
Address:	7825 Baymeadows Way	**Reference:**	Trail Ridge Landfill
	Suite B-200		
	Jacksonville, Florida 32256		
		VIA:	**COURIER**

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of Letter ☐ Change Order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1			Draft Permit with attached Comments

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
2003 OCT 24 A 10:49
NORTHEAST DISTRICT JACKSONVILLE, FL

THESE ARE TRANSMITTED AS CHECKED BELOW:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ for corrected prints

☐ Review and comment ☐ _____

☐ FOR BIDS DUE _____, 2003 ☐ PRINTS RETURNED AFTER LOAN TO US

Remarks If you have any quuestions, please contact us.

COPY TO: Achaya Kelapanda, Mark Behel, Greg Mathes, Steve Clarke, Chris Pearson, File

SIGNED: Beth Ann Dutton
Beth Ann Dutton for Juanitta Clem

G:\LANDFILL\TRAIL\permit\transmit.DEP.MN.doc

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • GIS • LANDSCAPE ARCHITECTS

Principals
Douglas C. Miller, P.E., CEO
N. Hugh Mathews, P.E., President
Joseph A. Tarver, Exec., V.P.
Juanitta Bader Clem, P.E., V.P.
Scott A. Wild, P.E., PSM, V.P.
Samuel R. Crissinger, CPA, V.P.
Robert A. Mizell, Jr., P.E., V.P.
Bryan R. Stewart, V.P.

Emeritus
James E. England, P.E.
Robert E. Thims

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION
2003 OCT 24 A 10:49
NORTHEAST DISTRICT
JACKSONVILLE, FL

October 24, 2003

Ms. Mary Nogas, P. E.
Department of Environmental Protection
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
FDEP File Numbers 13493-010 and 13493-011
ET&M Project No. 02-025-03

Dear Ms. Nogas:

In conjunction with Trail Ridge Landfill, Inc., we have reviewed the draft permit for the referenced project and have the following comments that we would like to discuss with the Department:

1. Page 1 – The location of the geosynthetic clay layer is below the secondary liner in Phases IA, IB, IC, IIA, IIB, and IIC.

2. Page 6, Specific Condition No. 3, Other Applicable Permits – This condition requires the applicant to obtain all necessary permits including the Suwannee Water Management District, which should be changed to the St. Johns River Water Management District.

3. Page 7, Specific Condition No. 6, Permit Renewal – The May 24, 2011 deadline for renewing the permit is not consistent with the permit expiration date.

4. Page 7. Specific Condition No. 9, Design Elevations and Annual Survey - The Permittee must submit the annual survey within 30 days of conducting the survey. The previous permit required 60 days. Thirty days is not sufficient time. Further, the condition requires that the survey include "all points designed for terraces and the location of the toes of the sideslopes". Will the contours be sufficient? Further, Specific Condition No. 11 on Page 8 requires the remaining site life and capacity to be submitted between July 1 and September 1 of each year. These data are determined from the annual aerial survey as well. We propose to have the elevations, remaining site life, and capacity submitted all together between July 1 and September 1.

5. Page 7, Specific Condition No. 10, Financial Assurance – Per this condition, the deadline for submittal of the annual audit is "December 31 of each year, unless a Single Audit accounting system is utilized, then the audit shall be submitted by March 31 of the following year". However, Rule 62-701.630(5)(c), FAC, requires filing "no later than March 31 of the following year."

6. Pages 8-9, Specific Condition No. 14a, Active Gas Collection System, Authorization and Permits – The reference to passive flares in the last sentence of this condition could be deleted since the facility has an operating active gas collection system.

7. Page 10, Specific Condition No. 14g - This condition requires that a temporary header that is inoperable be severed and abandoned. The permit should allow for rehabilitation of the header should it be feasible.

8. Page 11, Specific Condition No. 16, Operating Personnel - The following sentence "Also for the same amount of waste during the peak hours of 10:00 a.m. to 3:00 p.m. the same minimum personnel shall be provided." is confusing. The phrase "same minimum" requirement must be clarified because in one case there are six persons required and in the other case, five persons are required.

9. Page 12, Specific Condition No. 18, Maximum Daily Tonnage - The maximum tonnage has been set at 5000 tons (except during emergency situations) with a minimum of 9 people (2 spotters, 3 laborers and 4 equipment operators). However, based upon the "matrix", 9 people are required during the peak hours only (6:00 AM - 7:00 AM and 10:00 AM – 3:00 PM).

10. Page 12, Specific Condition No. 19, Fill Phasing Plan - The third sentence should be revised as follows: "The facility shall place waste ~~in~~ and conduct operations in a manner to prevent the ponding of ~~leachate~~ stormwater in waste, the mixing of leachate with stormwater, and the running off of leachate into the stormwater system."

11. Page 13, Specific Condition No. 21, Waste Inspection at the Working Face – This requires that the solid waste be "completely inspected", prior to compaction. This is not consistent with landfill operations (waste is spread and compacted at the same time).

12. Page 15, Specific Condition No. 27, Subsection c., the Permittee is limited to an eight foot high pile of processed tires, whereas Rule 62-711.540(4), FAC allows for a ten foot high pile.

    In Subsection e., the Department referenced FAC Rule 62-701.711(530)(5) which should be Rule 62-711.530(5).

13. Page 17, Specific Condition 32A – It is requested that the words "as initial cover" be added to the end of the last sentence of the first paragraph of this condition. Further, under the section called "Records," it is requested that the word "material" in the first two sentences be changed to "contaminated soil" for clarity.

14. Pages 18-19, Specific Condition No. 33, Wet Weather Area – It may not be possible to always locate the wet weather area on an interior slope and why is that an issue? Further, why is the Department so concerned with the leachate ponding in the wet weather area? The fifth sentence should be split into two sentences. (The wet weather area shall have either initial or intermediate cover. The facility shall apply either initial cover or tarp approved by specific condition number 30 of this permit to the wet weather area at the end of the workday.)

    Also, the last sentence should be stricken because the word heavy is not defined. The facility in the past has shown it can operate during rain events.

15. Page 19, Specific Condition No. 34, Inspection – This condition requires that the active areas be inspected on a weekly basis and the closed areas at a minimum on a monthly basis. It was agreed during the permitting process to conduct inspections on a monthly basis and after major storm events.

16. Pages 19-20, Specific Condition No. 35, Gas Monitoring Probes – Subsection a. references Attachment 8 which is the same as Attachment 6.

17. Page 20, Specific Condition No. 36, Gas Monitoring Well Maintenance – This condition also references Attachment 8, which is the same as Attachment 6. The proposed condition requires that the repair or replacement of a gas monitoring well/probe have a construction completion report from the "professional engineer or professional geologist in charge of installation". Why does it warrant a professional engineer or professional geologist?

18. Page 21, Specific Condition No. 37, Contingency Operations – First, there are two Subsections "b". The second Subsection b. requires that the facility cease accepting waste in the event of a fire at the working face and not recommence waste acceptance activities until the fire is extinguished or the Permittee obtains authorization from the Department. This is not acceptable since the operations can be moved to the wet weather area during such a situation.

19. Page 21, Specific Condition No. 38b, Action Leachate Leakage Rate - This condition requires that the quantity of leachate collected be recorded Monday through Friday at a minimum and "any other day the facility is operating, at a minimum". Please clarify whether the Permittee is required to record the flow on Saturdays.

    Also in the third sentence, after the word "manometer," the words "or equivalent device" should be added.

20. Page 22, Specific Condition No. 38d, Pump Station and flow meter maintenance – Please note that the flow in the leachate collection system is from west to east.

21. Pages 23-25, Specific Condition No. 39, Leachate Monitoring - The first sentence indicates that the leachate monitoring schedule shall be conducted in conjunction with the groundwater monitoring schedule specified in Specific Condition No. 41o. The reference condition appears to be a typographical error and should be Specific Condition 48o. Rule 62-701.510(6)(c)1., FAC requires leachate sampling and analysis annually. We hereby request that the semi-annual requirement for sampling leachate be deleted and the facility be required to monitor leachate for the list of parameters on an annual basis only. Further, why does the sampling require "Those parameter listed in 40CFR Part 258, Appendix I" which is not in the listed parameters in Rule 62-701.510(8)(e), FAC? Further, on page 24, second paragraph, please explain the reference to "Biological evaluations."

22. Pages 25-27, Specific Condition No. 41, Closure Phasing Plan and Final Cover Application – In Subsection a., the last sentence references Specific Condition No. 15 which should be Specific Condition No. 19.

In Subsection b., it is stated that "All earthen materials shall be uncontaminated". Please clarify whether an analysis must be conducted on all earthen materials used in closures. Further, for the final cover system design, the Department indicated "**minimum** 40 mil geomembrane." We hereby request that the word "minimum" be changed to "average thickness" per F.A.C. Rule 60-701.600(5)(f)4.

23. Page 27, Specific Condition No. 42, Non-authorized, Subsection b - Should include reuse of processed waste tires for initial cover.

24. Page 29, Specific Condition No. 46 - This condition references obtaining a Title V Air Operating Permit. The facility has a Title V permit. Further, the proposed condition indicates that a landfill is subject to Subpart WWW if the design capacity is equal to or greater than 2.5 million Megagrams or 2.5 million cubic meters. In Subpart WWW rules, it states 2.5 Megagrams **and** 2.5 million cubic meters (i.e., it has to meet both conditions).

25. Page 33, Specific Condition No. 48j, Groundwater Monitoring Requirements, the initial sampling of the wells has been completed so this condition is no longer relevant and should be deleted.

26. Page 33. Specific Condition No. 48l – Since the report submittal deadline is more clearly stated in Specific Condition No. 48m, we hereby request the following be removed from the condition, "The Permittee shall submit to the Department the results of the groundwater monitoring well water quality analysis no later than the fifteenth (15) day of the month following the end of the sampling period."

27. In addition to the above comments, please see the attached Technical Memorandum from Steve Clarke with Waste Management.

We would greatly appreciate if we can discuss the aforementioned comments with you at your earliest convenience. If you have any questions, please feel free to give me a call.

Sincerely,
ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem, P.E.
Vice President

cc: Greg Mathes
Achaya Kelapanda
Mark Behel
Steve Clarke
Chris Pearson

WASTE MANAGEMENT

TECHNICAL MEMORANDUM

TO: MARK BEHEL, WASTE MANAGEMENT, JUANTITA BADDER-CLEM, ETM

FROM: STEVE CLARKE, DIRECTOR - WASTE MANAGEMENT GROUNDWATER PROGRAMS

SUBJECT: TRAIL RIDGE LANDFILL – GROUNDWATER RELATED PERMIT ISSUES

DATE: 10/23/03

CC: GREG MATHES, WASTE MANAGEMENT

PROPOSED TRAIL RIDGE LANDFILL PERMIT GROUNDWATER RELATED ISSUES

There are several groundwater and leachate related permit conditions that are no longer required regulatorily. The specific conditions in the Trail Ridge permit should be modified to reflect the most current regulatory requirements. Following are comments specific to the groundwater and leachate related permit conditions:

Specific Condition 39, Issue 1: Semi-Annual Leachate Monitoring

Permit Condition

- Page 23, last paragraph: Leachate Monitoring. Leachate shall be sampled semi-annually in conjunction with the groundwater monitoring schedule ... A composite sample will be take from the drain valve of each of the five (5) leachate collection system storage tanks and one (1) sample shall be taken from the leachate detection system storage tanks ...

Regulatory Requirement:

- FAC 62-701.510(6)(c) Routine leachate sampling 1. Leachate shall be sampled and analyzed annually for the parameters listed in paragraphs (8)(c) and (d) of this section.

Comment/Recommended Change:

- The 5/27/2001 update to the Solid Waste Regulations recognized that annual leachate monitoring is sufficient for evaluating leachate quality. Accordingly, we request that the semi-annual requirement be deleted and the facility be required to monitor leachate for listed parameters on an *annual basis* only.

Specific Condition 39, Issue 2: Detection Levels

Permit Condition:

- Page 24, 3rd paragraph: Detection levels shall be at or below groundwater standards and/or criteria. Leachate sampling results shall be reported on the attached Groundwater Monitoring Report Form ...

Regulatory Requirement:

- FAC 62-701.200 Definitions: (79) "Method detection limit" means the smallest concentration of an analyte of interest that can be measured and reported with 99 percent confidence that the concentration is greater than zero. The method detection limit shall be determined pursuant to procedures outlined in Chapter 62-160, F.A.C., which is hereby incorporated by reference.

Comment:

- There is no state regulatory requirement that detection levels be set at or below water quality criteria. In fact, for many analytes, there are analytical methods that can meet published FDEP water quality criteria. The 1994 Groundwater Guidance Criteria booklet recognizes this by setting the water quality criteria at the practical quantitation limit, where the health-based guidance concentration is lower than what can reasonably be measured in a laboratory. Further, proposed changes to Chapters 62-770 (petroleum), 62-782 (dry-cleaning solvents) and 62-785 (brown fields), developed through workshops, recognize the problems of reporting and quantifying analytical data at low levels by defining the Best achievable detection limit (BADL) as the practical quantitation limit.

  We request that the text be changed to the following: *Reporting levels shall be at or below groundwater standards and/or criteria, unless dilution of the sample is necessary due to interferences or the method detection limit, as defined by FAC 62-160, is higher than a specific criteria.*

WASTE MANAGEMENT

PROPOSED TRAIL RIDGE LANDFILL PERMIT
GROUNDWATER RELATED ISSUES (CONTINUED)

Specific Condition 39, Issue 3: Leachate Reporting

Permit Condition:

- Page 24, 3rd paragraph: Detection levels shall be at or below groundwater standards and/or criteria. Leachate sampling results shall be reported on the attached Groundwater Monitoring Report Form ...

Comment:

- Reporting of data in electronic format, as an alternative, should be allowed. See comments, below, for recommended changes.

Specific Condition 48, Issue 2: Groundwater Sampling Results Reporting

Permit Condition:

- Page 32, Condition 48 l.: Groundwater sampling reports shall be reported on the attached Parameter Monitoring Report Form ... In order to facilitate entry ...

Regulatory Requirement:

- F.A.C. 62-701.510(9) Water quality monitoring reporting. (a) The landfill owner or operator shall report all water quality and leachate monitoring results to the Department semi-annually ... Water quality data contained in the report may be submitted to the Department electronically, and may be used in place of written copies of the data, if approved by the Department in the permit....

Comment:

- We request that the permit be modified to allow for reporting of analytical data in an electronic format. This will facilitate reporting of the data, reduce paper work, and will eliminate potential data entry errors when transferring data from the state forms.

  We request that the following sentence be added to this section and to the above referenced paragraph in Specific Condition 39 (Leachate Reporting): *Upon Department approval, groundwater and leachate analytical data may be submitted to the Department electronically, in lieu of the state forms.*

Specific Condition 48, Issue 3: Groundwater Resampling and Reporting

Permit Condition:

- Page 35, Condition 48 p.: If, at any time, groundwater standards and/or criteria are exceeded, or if parameter concentrations are significantly above unaffected background water quality, the Permittee shall notify the Department within seventy-two (72) hours of the discovery and resample the monitor well(s) to verify the contamination analysis within fourteen (14) days from the date the Permittee receives the results...

Regulatory requirement

- FAC 62-701.510(7)(a) Evaluation monitoring. If monitoring parameters are detected in detection wells in concentrations which are significantly above background water quality ...the Permittee may resample the wells within 30 days after the sampling data is received, to confirm the data.... Should the Permittee choose not to resample, the Department will consider the water quality analysis as representative of current ground water conditions at the facility. If the data is confirmed, or if the Permittee chooses not to resample, the Permittee shall notify the Department in writing within 14 days of this finding.

Comment

- We would request that FDEP change the language to *require Department notification within 14 days after verification and to allow a resample within 30 days of receipt of results*, consistent with the FDEP solid waste regulations. As the condition currently stands, 72-hour notification is often trigged by laboratory contamination issues (false positives). In addition, FDEP agreed in the 5/27/2001 update to the SW regulations, that 30 days is appropriate.

Specific Condition 41, Issue 4: Assessment Monitoring

Permit Condition:

1. Page 35, Condition 48 p., 3rd paragraph: *If the groundwater standards and/or criteria are exceeded in a detection well ... the Permittee shall implement the Assessment Monitoring and Corrective Action requirements of F.A.C. Rule 62-701.510*

Comment:

The language in FAC 62-701.510(7)(b) has been changed to the effect that, under FAC 62-701.510(7)(b)(1), "Evaluation Monitoring" replaces "Assessment Monitoring. In addition, exceedances in detection wells require "Preventative Action" if the water quality criteria are exceeded beyond the ZOD. Similarly, Corrective action is requirements are specified for compliance wells under FAC 62-701.510(7)(b)(2). The permit should changed to be consistent with the language in the regulation.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST DISTRICT
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256-7590

Interoffice Memorandum

TO: Julia Boesch
Solid Waste

THROUGH: Ken Kohn
Industrial Wastewater

FROM: Dean Setiono
Industrial Wastewater

DATE: January 10, 2003

SUBJECT: Duval County – Stormwater Review
Trail Ridge Landfill – First RAI Response

My stormwater review of the First RAI Response for Trail Ridge Landfill is complete, based upon the information provided on December 16, 2002. Based on my review, comments number 12 in the First RAI Response adequately addressed the capacity, flow rate and velocity for the terrace swales. Therefore additional stormwater RAI regarding the terrace swales will not be necessary.

If you have any questions concerning this matter, please feel free to contact me.

TRAIL RIDGE LANDFILL, INC.
A WASTE MANAGEMENT COMPANY

5110 U.S. Highway 301 South
Baldwin, FL 32234-3608
(904) 289-9100
(904) 289-9013 Fax

JUN 13 PM 12 57
STATE OF FLORIDA
DEP - NE DISTRICT
JACKSONVILLE

June 11, 2002

Mr. Richard Robinson
Air Pollution Permitting Section
Regulatory and Environmental Services Department
117 West Duval Street, Suite 225
Jacksonville, Florida 32202

Re: Submittal of 2002 Annual NSPS Report
Landfill Gas Management System
Trail Ridge Landfill, Inc.
Title V Permit No.: 0310358-002-AV

Dear Mr. Robinson:

Enclosed, please find two (2) copies of the annual report of information required by 40 CFR 60.757(f)(1) through (f)(6) as listed on page 18 of the Trail Ridge Landfill Final Title V Air Operations Permit. This annual report submittal contains information for the annual period of June 2001 through May 2002. Trail Ridge Landfill, Inc. contracted with Waste Energy Technology, LLC (WET) to prepare this report.

If you have any questions or comments, please call me at (904) 289-9100.

Sincerely,

Greg Mathes
Director of Landfill Operations

GM:lh
Enclosures

cc: Ms. Mary Nogas, PE, w/o encl.
Mr. L. Chris Pearson, w/encl.
Ms. Carolyn McCreedy, w/o encl.
Mr. Achaya Kelapanda, w/o encl.

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • GIS • LANDSCAPE ARCHITECTS
14775 St. Augustine Road, Jacksonville, FL. 32258
(904) 642-8990 Fax: (904) 646-9485 http://www.etminc.com

LETTER OF TRANSMITTAL

To:	Department of Environmental Protection	**Date:**	October 23, 2003
ATTN:	Mary Nogas	**Job No:**	02-025-03
Address:	7825 Baymeadows Way	**Reference:**	Trail Ridge Landfill
	Suite B-200		
	Jacksonville, Florida 32256		
		VIA:	**COURIER**

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of Letter ☐ Change Order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1			Draft Permit with attached Comments

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
2003 OCT 24 A 10:49
NORTHEAST DISTRICT JACKSONVILLE, FL

THESE ARE TRANSMITTED AS CHECKED BELOW:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ for corrected prints

☐ Review and comment ☐ _____

☐ FOR BIDS DUE _____, 2003 ☐ PRINTS RETURNED AFTER LOAN TO US

Remarks If you have any quuestions, please contact us.

COPY TO: Achaya Kelapanda, Mark Behel, Greg Mathes, Steve Clarke, Chris Pearson, File

SIGNED: Beth Ann Dutton
Beth Ann Dutton for Juanitta Clem

G:\LANDFILL\TRAIL\permit\transmit.DEP.MN.doc

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • GIS • LANDSCAPE ARCHITECTS

Principals
Douglas C. Miller, P.E., CEO
N. Hugh Mathews, P.E., President
Joseph A. Tarver, Exec., V.P.
Juanitta Bader Clem, P.E., V.P.
Scott A. Wild, P.E., PSM, V.P.
Samuel R. Crissinger, CPA, V.P.
Robert A. Mizell, Jr., P.E., V.P.
Bryan R. Stewart, V.P.

Emeritus
James E. England, P.E.
Robert E. Thims

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION
2003 OCT 24 A 10:49
NORTHEAST DISTRICT
JACKSONVILLE, FL

October 24, 2003

Ms. Mary Nogas, P. E.
Department of Environmental Protection
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
FDEP File Numbers 13493-010 and 13493-011
ET&M Project No. 02-025-03

Dear Ms. Nogas:

In conjunction with Trail Ridge Landfill, Inc., we have reviewed the draft permit for the referenced project and have the following comments that we would like to discuss with the Department:

1. Page 1 – The location of the geosynthetic clay layer is below the secondary liner in Phases IA, IB, IC, IIA, IIB, and IIC.

2. Page 6, Specific Condition No. 3, Other Applicable Permits – This condition requires the applicant to obtain all necessary permits including the Suwannee Water Management District, which should be changed to the St. Johns River Water Management District.

3. Page 7, Specific Condition No. 6, Permit Renewal – The May 24, 2011 deadline for renewing the permit is not consistent with the permit expiration date.

4. Page 7. Specific Condition No. 9, Design Elevations and Annual Survey - The Permittee must submit the annual survey within 30 days of conducting the survey. The previous permit required 60 days. Thirty days is not sufficient time. Further, the condition requires that the survey include "all points designed for terraces and the location of the toes of the sideslopes". Will the contours be sufficient? Further, Specific Condition No. 11 on Page 8 requires the remaining site life and capacity to be submitted between July 1 and September 1 of each year. These data are determined from the annual aerial survey as well. We propose to have the elevations, remaining site life, and capacity submitted all together between July 1 and September 1.

5. Page 7, Specific Condition No. 10, Financial Assurance – Per this condition, the deadline for submittal of the annual audit is "December 31 of each year, unless a Single Audit accounting system is utilized, then the audit shall be submitted by March 31 of the following year". However, Rule 62-701.630(5)(c), FAC, requires filing "no later than March 31 of the following year."

6. Pages 8-9, Specific Condition No. 14a, Active Gas Collection System, Authorization and Permits – The reference to passive flares in the last sentence of this condition could be deleted since the facility has an operating active gas collection system.

7. Page 10, Specific Condition No. 14g - This condition requires that a temporary header that is inoperable be severed and abandoned. The permit should allow for rehabilitation of the header should it be feasible.

8. Page 11, Specific Condition No. 16, Operating Personnel - The following sentence "Also for the same amount of waste during the peak hours of 10:00 a.m. to 3:00 p.m. the same minimum personnel shall be provided." is confusing. The phrase "same minimum" requirement must be clarified because in one case there are six persons required and in the other case, five persons are required.

9. Page 12, Specific Condition No. 18, Maximum Daily Tonnage - The maximum tonnage has been set at 5000 tons (except during emergency situations) with a minimum of 9 people (2 spotters, 3 laborers and 4 equipment operators). However, based upon the "matrix", 9 people are required during the peak hours only (6:00 AM - 7:00 AM and 10:00 AM – 3:00 PM).

10. Page 12, Specific Condition No. 19, Fill Phasing Plan - The third sentence should be revised as follows: "The facility shall place waste ~~in~~ and conduct operations in a manner to prevent the ponding of ~~leachate~~ stormwater in waste, the mixing of leachate with stormwater, and the running off of leachate into the stormwater system."

11. Page 13, Specific Condition No. 21, Waste Inspection at the Working Face – This requires that the solid waste be "completely inspected", prior to compaction. This is not consistent with landfill operations (waste is spread and compacted at the same time).

12. Page 15, Specific Condition No. 27, Subsection c., the Permittee is limited to an eight foot high pile of processed tires, whereas Rule 62-711.540(4), FAC allows for a ten foot high pile.

    In Subsection e., the Department referenced FAC Rule 62-701.711(530)(5) which should be Rule 62-711.530(5).

13. Page 17, Specific Condition 32A – It is requested that the words "as initial cover" be added to the end of the last sentence of the first paragraph of this condition. Further, under the section called "Records," it is requested that the word "material" in the first two sentences be changed to "contaminated soil" for clarity.

14. Pages 18-19, Specific Condition No. 33, Wet Weather Area – It may not be possible to always locate the wet weather area on an interior slope and why is that an issue? Further, why is the Department so concerned with the leachate ponding in the wet weather area? The fifth sentence should be split into two sentences. (The wet weather area shall have either initial or intermediate cover. The facility shall apply either initial cover or tarp approved by specific condition number 30 of this permit to the wet weather area at the end of the workday.)

    Also, the last sentence should be stricken because the word heavy is not defined. The facility in the past has shown it can operate during rain events.

15. Page 19, Specific Condition No. 34, Inspection – This condition requires that the active areas be inspected on a weekly basis and the closed areas at a minimum on a monthly basis. It was agreed during the permitting process to conduct inspections on a monthly basis and after major storm events.

16. Pages 19-20, Specific Condition No. 35, Gas Monitoring Probes – Subsection a. references Attachment 8 which is the same as Attachment 6.

17. Page 20, Specific Condition No. 36, Gas Monitoring Well Maintenance – This condition also references Attachment 8, which is the same as Attachment 6. The proposed condition requires that the repair or replacement of a gas monitoring well/probe have a construction completion report from the "professional engineer or professional geologist in charge of installation". Why does it warrant a professional engineer or professional geologist?

18. Page 21, Specific Condition No. 37, Contingency Operations – First, there are two Subsections "b". The second Subsection b. requires that the facility cease accepting waste in the event of a fire at the working face and not recommence waste acceptance activities until the fire is extinguished or the Permittee obtains authorization from the Department. This is not acceptable since the operations can be moved to the wet weather area during such a situation.

19. Page 21, Specific Condition No. 38b, Action Leachate Leakage Rate - This condition requires that the quantity of leachate collected be recorded Monday through Friday at a minimum and "any other day the facility is operating, at a minimum". Please clarify whether the Permittee is required to record the flow on Saturdays.

    Also in the third sentence, after the word "manometer," the words "or equivalent device" should be added.

20. Page 22, Specific Condition No. 38d, Pump Station and flow meter maintenance – Please note that the flow in the leachate collection system is from west to east.

21. Pages 23-25, Specific Condition No. 39, Leachate Monitoring - The first sentence indicates that the leachate monitoring schedule shall be conducted in conjunction with the groundwater monitoring schedule specified in Specific Condition No. 41o. The reference condition appears to be a typographical error and should be Specific Condition 48o. Rule 62-701.510(6)(c)1., FAC requires leachate sampling and analysis annually. We hereby request that the semi-annual requirement for sampling leachate be deleted and the facility be required to monitor leachate for the list of parameters on an annual basis only. Further, why does the sampling require "Those parameter listed in 40CFR Part 258, Appendix I" which is not in the listed parameters in Rule 62-701.510(8)(e), FAC? Further, on page 24, second paragraph, please explain the reference to "Biological evaluations."

22. Pages 25-27, Specific Condition No. 41, Closure Phasing Plan and Final Cover Application – In Subsection a., the last sentence references Specific Condition No. 15 which should be Specific Condition No. 19.

In Subsection b., it is stated that "All earthen materials shall be uncontaminated". Please clarify whether an analysis must be conducted on all earthen materials used in closures. Further, for the final cover system design, the Department indicated "**minimum** 40 mil geomembrane." We hereby request that the word "minimum" be changed to "average thickness" per F.A.C. Rule 60-701.600(5)(f)4.

23. Page 27, Specific Condition No. 42, Non-authorized, Subsection b - Should include reuse of processed waste tires for initial cover.

24. Page 29, Specific Condition No. 46 - This condition references obtaining a Title V Air Operating Permit. The facility has a Title V permit. Further, the proposed condition indicates that a landfill is subject to Subpart WWW if the design capacity is equal to or greater than 2.5 million Megagrams or 2.5 million cubic meters. In Subpart WWW rules, it states 2.5 Megagrams **and** 2.5 million cubic meters (i.e., it has to meet both conditions).

25. Page 33, Specific Condition No. 48j, Groundwater Monitoring Requirements, the initial sampling of the wells has been completed so this condition is no longer relevant and should be deleted.

26. Page 33. Specific Condition No. 48l – Since the report submittal deadline is more clearly stated in Specific Condition No. 48m, we hereby request the following be removed from the condition, "The Permittee shall submit to the Department the results of the groundwater monitoring well water quality analysis no later than the fifteenth (15) day of the month following the end of the sampling period."

27. In addition to the above comments, please see the attached Technical Memorandum from Steve Clarke with Waste Management.

We would greatly appreciate if we can discuss the aforementioned comments with you at your earliest convenience. If you have any questions, please feel free to give me a call.

Sincerely,
ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem, P.E.
Vice President

cc: Greg Mathes
Achaya Kelapanda
Mark Behel
Steve Clarke
Chris Pearson

WASTE MANAGEMENT

TECHNICAL MEMORANDUM

TO: MARK BEHEL, WASTE MANAGEMENT, JUANTITA BADDER-CLEM, ETM

FROM: STEVE CLARKE, DIRECTOR - WASTE MANAGEMENT GROUNDWATER PROGRAMS

SUBJECT: TRAIL RIDGE LANDFILL – GROUNDWATER RELATED PERMIT ISSUES

DATE: 10/23/03

CC: GREG MATHES, WASTE MANAGEMENT

PROPOSED TRAIL RIDGE LANDFILL PERMIT GROUNDWATER RELATED ISSUES

There are several groundwater and leachate related permit conditions that are no longer required regulatorily. The specific conditions in the Trail Ridge permit should be modified to reflect the most current regulatory requirements. Following are comments specific to the groundwater and leachate related permit conditions:

Specific Condition 39, Issue 1: Semi-Annual Leachate Monitoring

Permit Condition

- Page 23, last paragraph: Leachate Monitoring. Leachate shall be sampled semi-annually in conjunction with the groundwater monitoring schedule ... A composite sample will be take from the drain valve of each of the five (5) leachate collection system storage tanks and one (1) sample shall be taken from the leachate detection system storage tanks ...

Regulatory Requirement:

- FAC 62-701.510(6)(c) Routine leachate sampling 1. Leachate shall be sampled and analyzed annually for the parameters listed in paragraphs (8)(c) and (d) of this section.

Comment/Recommended Change:

- The 5/27/2001 update to the Solid Waste Regulations recognized that annual leachate monitoring is sufficient for evaluating leachate quality. Accordingly, we request that the semi-annual requirement be deleted and the facility be required to monitor leachate for listed parameters on an *annual basis* only.

Specific Condition 39, Issue 2: Detection Levels

Permit Condition:

- Page 24, 3rd paragraph: Detection levels shall be at or below groundwater standards and/or criteria. Leachate sampling results shall be reported on the attached Groundwater Monitoring Report Form ...

Regulatory Requirement:

- FAC 62-701.200 Definitions: (79) "Method detection limit" means the smallest concentration of an analyte of interest that can be measured and reported with 99 percent confidence that the concentration is greater than zero. The method detection limit shall be determined pursuant to procedures outlined in Chapter 62-160, F.A.C., which is hereby incorporated by reference.

Comment:

- There is no state regulatory requirement that detection levels be set at or below water quality criteria. In fact, for many analytes, there are analytical methods that can meet published FDEP water quality criteria. The 1994 Groundwater Guidance Criteria booklet recognizes this by setting the water quality criteria at the practical quantitation limit, where the health-based guidance concentration is lower than what can reasonably be measured in a laboratory. Further, proposed changes to Chapters 62-770 (petroleum), 62-782 (dry-cleaning solvents) and 62-785 (brown fields), developed through workshops, recognize the problems of reporting and quantifying analytical data at low levels by defining the Best achievable detection limit (BADL) as the practical quantitation limit.

  We request that the text be changed to the following: *Reporting levels shall be at or below groundwater standards and/or criteria, unless dilution of the sample is necessary due to interferences or the method detection limit, as defined by FAC 62-160, is higher than a specific criteria.*

PROPOSED TRAIL RIDGE LANDFILL PERMIT
GROUNDWATER RELATED ISSUES (CONTINUED)

Specific Condition 39, Issue 3: Leachate Reporting

Permit Condition:

- Page 24, 3rd paragraph: Detection levels shall be at or below groundwater standards and/or criteria. Leachate sampling results shall be reported on the attached Groundwater Monitoring Report Form ...

Comment:

- Reporting of data in electronic format, as an alternative, should be allowed. See comments, below, for recommended changes.

Specific Condition 48, Issue 2: Groundwater Sampling Results Reporting

Permit Condition:

- Page 32, Condition 48 l.: Groundwater sampling reports shall be reported on the attached Parameter Monitoring Report Form ... In order to facilitate entry ...

Regulatory Requirement:

- F.A.C. 62-701.510(9) Water quality monitoring reporting. (a) The landfill owner or operator shall report all water quality and leachate monitoring results to the Department semi-annually ... Water quality data contained in the report may be submitted to the Department electronically, and may be used in place of written copies of the data, if approved by the Department in the permit....

Comment:

- We request that the permit be modified to allow for reporting of analytical data in an electronic format. This will facilitate reporting of the data, reduce paper work, and will eliminate potential data entry errors when transferring data from the state forms.

  We request that the following sentence be added to this section and to the above referenced paragraph in Specific Condition 39 (Leachate Reporting): *Upon Department approval, groundwater and leachate analytical data may be submitted to the Department electronically, in lieu of the state forms.*

Specific Condition 48, Issue 3: Groundwater Resampling and Reporting

Permit Condition:

- Page 35, Condition 48 p.: If, at any time, groundwater standards and/or criteria are exceeded, or if parameter concentrations are significantly above unaffected background water quality, the Permittee shall notify the Department within seventy-two (72) hours of the discovery and resample the monitor well(s) to verify the contamination analysis within fourteen (14) days from the date the Permittee receives the results...

Regulatory requirement

- FAC 62-701.510(7)(a) Evaluation monitoring. If monitoring parameters are detected in detection wells in concentrations which are significantly above background water quality ...the Permittee may resample the wells within 30 days after the sampling data is received, to confirm the data.... Should the Permittee choose not to resample, the Department will consider the water quality analysis as representative of current ground water conditions at the facility. If the data is confirmed, or if the Permittee chooses not to resample, the Permittee shall notify the Department in writing within 14 days of this finding.

Comment

- We would request that FDEP change the language to *require Department notification within 14 days after verification and to allow a resample within 30 days of receipt of results*, consistent with the FDEP solid waste regulations. As the condition currently stands, 72-hour notification is often trigged by laboratory contamination issues (false positives). In addition, FDEP agreed in the 5/27/2001 update to the SW regulations, that 30 days is appropriate.

Specific Condition 41, Issue 4: Assessment Monitoring

Permit Condition:

1. Page 35, Condition 48 p., 3rd paragraph: *If the groundwater standards and/or criteria are exceeded in a detection well ... the Permittee shall implement the Assessment Monitoring and Corrective Action requirements of F.A.C. Rule 62-701.510*

Comment:

The language in FAC 62-701.510(7)(b) has been changed to the effect that, under FAC 62-701.510(7)(b)(1), "Evaluation Monitoring" replaces "Assessment Monitoring. In addition, exceedances in detection wells require "Preventative Action" if the water quality criteria are exceeded beyond the ZOD. Similarly, Corrective action is requirements are specified for compliance wells under FAC 62-701.510(7)(b)(2). The permit should changed to be consistent with the language in the regulation.

Boesch, Julia

From: Juanitta Clem [ClemJ@etminc.com]
Sent: Thursday, August 07, 2003 4:09 PM
To: Boesch, Julia
Cc: Achaya Kelapanda (E-mail); Greg Mathes (E-mail); Mark Behel (E-mail)
Subject: Trail Ridge Landfill

LeakageRevised2.doc

Dear Julia:

Please find herewith the revised Primary Liner Leakage calculations for the referenced project. I apologize for the conversion error in the previous calculations. I will have original copies delivered to you tomorrow morning.

Juanitta Clem
ENGLAND, THIMS & MILLER, INC.

<<LeakageRevised2.doc>>

Trail Ridge Landfill
Primary Liner Leakage

Although geomembranes have very low permeability, they still allow some leakage. Leakage through geomembranes can occur due to pinholes and larger holes (holes larger than the geomembrane thickness). The leakage due to pinholes is negligible compared to the larger holes and is therefore ignored. The leakage due to large holes can be calculated by Bernoulli's equation for flow through an aperture, as follows:

$$Q = 0.6\ a\ \sqrt{2gh}$$

Where:
- Q = Leakage rate through one geomembrane hole
- a = Area of geomembrane hole
- g = Acceleration of gravity = 9.81 m/s^2
- h = Head of liquid on top of geomembrane

Say:

a = 1 cm^2 (per acre) = 1 x 10^{-4} m^2

h = 5.6 mil* = 0.0056 in = 1.42 x 10^{-4} m

* The maximum head on the liner as determined in the First Permit Renewal, Appendix E, October 28, 1996.

Therefore:

$$Q = (0.6)\ (1 \times 10^{-4}\ m^2) \sqrt{\ 2\ (9.81\ m/s^2)\ (1.42 \times 10^{-4}\ m)}$$

$$Q = 3.17 \times 10^{-6}\ m^3/sec\ \text{(per acre)}$$

$$Q = 72.51\ \frac{\text{gallons}}{\text{day}}\ \text{(per acre)}$$

Assume a trigger rate at 3.5 times this rate.

$$Q_{Max} = 253.8\ \frac{\text{gallons}}{\text{day}}\ \text{(per acre)} = 1.11 \times 10^{-5}\ m^3/sec\ \text{(per acre)}$$

Check to make sure the geonet can handle the trigger rate leakage.

$t_{LCL} = (Q / k)^{1/2}$ (J.P. Giroud, 1997)

Where:

k	=	θ/t
t_{LCL}	=	Minimum Thickness of Secondary Geonet
Q	=	Maximum Flow Rate for Secondary Geonet
k	=	Hydraulic Conductivity of Secondary Geonet
θ	=	Hydraulic Transmissivity of the Secondary Geonet (m^2/sec)
t	=	Thickness of Secondary Geonet

Say:

θ	=	2.26×10^{-3} m^2/sec
t	=	200 mil = 0.2 inches = 5.1×10^{-3} m
Q	=	1.11×10^{-5} m^3/sec

Therefore:

$k = (2.26 \times 10^{-3} \text{ m}^2/\text{sec}) / (5.1 \times 10^{-3} \text{ m}) = 0.44$ m/sec

$t_{LCL} = (1.11 \times 10^{-5} \text{ m}^3/\text{sec} / 0.44 \text{ m/sec})^{1/2} = 5.02 \times 10^{-3}$ m

$= 197.7$ mil

Since the geonet has a minimum thickness of 200 mil, the geonet can handle the flow.

The smallest cell is 17.7 acres, so the flow per cell is:

$$Q_{Total} = 253.8 \frac{\text{gallons}}{\text{day} * \text{ac}} * 17.7 \text{ ac}$$

$$\Rightarrow 4{,}492.3 \frac{\text{gallons}}{\text{day}} \text{ per cell}$$

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS

Principals
James E. England, P.E., CEO
Douglas C. Miller, P.E., President
N. Hugh Mathews, P.E., Exec., V.P.
Joseph A. Tarver, Exec., V.P.
Juanitta Bader Clem, P.E., V.P.
Scott A. Wild, P.E., PSM, V.P.
Samuel R. Crissinger, CPA, V.P
Robert A. Mizell, Jr., P.E., V.P.
Bryan R. Stewart, V.P.

January 30, 2004

Ms. Mary Nogas
Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7590

Reference: Trail Ridge Landfill – Management & Storage of Surface Waters
DEP Permit No.0013493-010-SC
ETM Project No. 03-154

Dear Ms. Nogas:

On behalf of Trail Ridge Landfill, Inc. and the City of Jacksonville, we hereby request that approximately one-half an acre of the drainage area of the existing ancillary facilities detention pond be removed from that drainage area. The area to be removed will be modified to include a roadway and fuel station, which will have a separate stormwater management system that will be constructed, operated and maintained by the City of Jacksonville. On January 30, 2004, we applied for an Environmental Resource Permit for this area. Please see the attached revised site plan (Drawing No. 4 of the approved Trail Ridge Landfill Permit Documents) which shows the location of the proposed fuel station as well as the Site Plan for the fuel station area. We request that the Department respond in writing that they agree with this request.

If you have any questions, please give me a call at 265-3181. Thank you for your assistance.

Sincerely,

ENGLAND-THIMS & MILLER, INC.

Juanitta B. Clem, P.E.
Vice President

Attachments

cc: Chris Pearson: Solid Waste & Resource Management
Greg Mathes: Trail Ridge Landfill, Inc.
Ken Kohn, FDEP

RECEIVED
JAN 30 2004
STATE OF FLORIDA
DEP ENV. PROTECTION
NE DISTRICT JAX

14775 ST. AUGUSTINE RD. • JACKSONVILLE, FL 32258 • TEL: (904) 642-8990 • FAX: (904) 646-9485

Boesch, Julia

From: Boesch, Julia
Sent: Monday, February 23, 2004 10:45 AM
To: Jarvis, Katheryn
Cc: Kohn, Kenneth
Subject: Tail Ridge Fuel Station proposal received January 30, 2004

Katheryn,
The solid waste section has no comments concerning the proposed Fuel station at the Trail Ridge Landfill. However, since they are proposing fuel tanks I was thinking that you may want to contact the tanks section, if you haven't already, to make sure they have no comments as well.
Thanks,
Julia

APPLICATION FOR ENVIRONMENTAL RESOURCE PERMIT

TRAIL RIDGE FUEL STATION

FOR

CITY OF JACKSONVILLE

CITY DEV. NO.

SUBMITTED BY

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS

14775 St. Augustine Road
Jacksonville, FL 32258
Certification of Authorization No. 2584
Phone: 904.642-8990
Fax: 904.646.9485

January 30, 2004

This report was prepared by me
or under my direct supervision.

Scott A. Knowles, P.E. #55391

England · Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • GIS • LANDSCAPE ARCHITECTS
14775 St. Augustine Road, Jacksonville, FL. 32258
(904) 642-8990 Fax: (904) 646-9485 http://www.etminc.com

LETTER OF TRANSMITTAL

To: Florida DEP
ATTN: Mary Nogas
Address: 7785 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Date: January 30, 2004
Job No: 03-154
Reference: Trail Ridge Fuel Site

VIA: **HAND DELIVERY**

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop Drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications
☒ Copy of Letter ☐ Change Order ☐ _____

RECEIVED
JAN 30 2004
STATE OF FLORIDA
DEPT. OF ENV. PROTECTION
NORTHEAST DISTRICT/JAX

COPIES	DATE	NO.	DESCRIPTION
2			Set of Site Plans
1			Copy of ERP Applications
1			Hydrology Study
1			Cover Letter

THESE ARE TRANSMITTED AS CHECKED BELOW:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ for corrected prints
☒ Review and comment ☐ _____
☐ FOR BIDS DUE _____, 2003 ☐ PRINTS RETURNED AFTER LOAN TO US

Remarks

COPY TO: File

SIGNED:
Scott A. Knowles, P.E.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST DISTRICT
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256-7590

Interoffice Memorandum

TO: Mary Nogas
Solid Waste Permitting

THROUGH: Ken Kohn KIC
NPDES / Stormwater Section Supervisor

FROM: Katheryn Jarvis
Engineering Support

DATE: February 4, 2004

SUBJECT: Duval County – ERP Application Review
Trail Ridge Fuel Station
Application No. 16-0226914-001-SI

Attached is a copy of the application for the subject facility. Please review the application and if additional information needs to be requested, please provide those comments by no later than February 23, 2004, in order to meet the 30-day review period, which ends February 29, 2004. Your assistance in this matter is appreciated.

SECTION A

FOR AGENCY USE ONLY	
ACOE Application #	DEP/WMD Application # 16022694-001-SI
Date Application Received	Date Application Received
Proposed Project Lat.	Fee Received $
Proposed Project Long.	Fee Receipt #

RECEIVED

PART 1:

Are any of the activities described in this application proposed to occur in, on, or over wetlands or other surface waters?

☐ yes ☒ no

Is this application being filed by or on behalf of a government entity or drainage district? ☒ yes ☐ no

JAN 30 2004

FLORIDA DEPT. OF ENV. PROTECTION NE DISTRICT-JAX

A. Type of Environmental Resource Permit Requested (check at least one). See Attachment 2 for thresholds and descriptions.

- ☐ Noticed General - include information requested in Section B.
- ☐ Standard General (Single Family Dwelling) - include information requested in Sections C and D.
- ☐ Standard General (all other Standard General projects) - include information requested in Sections C and E.
- ☐ Individual (Single Family Dwelling) - include information requested in Sections C and D.
- ☒ Individual (all other Individual projects) - include information requested in Sections C and E.
- ☐ Conceptual - include information requested in Sections C and E.
- ☐ Mitigation Bank Permit (construction) - include information requested in Sections C and F. (If the proposed mitigation bank involves the construction of a surface water management system requiring another permit defined above, check the appropriate box and submit the information requested by the applicable section.)
- ☐ Mitigation Bank (conceptual) - include information requested in Sections C and F.

B. Type of activity for which you are applying (check at least one)

- ☒ Construction or operation of a new system, other than a solid waste facility, including dredging or filling in, on or over wetlands and other surface waters.
- ☐ Construction, expansion or modification of a solid waste facility.
- ☐ Alteration or operation of an existing system which was not previously permitted by a WMD or DEP.
- ☐ Modification of a system previously permitted by a WMD or DEP.

  Provide previous permit numbers:_____

  - ☐ Alteration of a system
  - ☐ Abandonment of a system
  - ☐ Removal of a system
  - ☐ Extension of permit duration
  - ☐ Construction of additional phases of a system

C. Are you requesting authorization to use Sovereign Submerged Lands?

☐ yes ☒ no

(See Section G and Attachment 5 for more information before answering this question.)

D. For activities in, on,or over wetlands or other surface waters, check type of federal dredge and fill permit requested:

☐ Individual ☐ Programmatic General ☐ General
☐ Nationwide ☒ Not Applicable

E. Are you claiming to qualify for an exemption? ☐ yes ☒ no

If yes, provide rule number if known. _____

PART 3: A. OWNER(S) OF LAND	B. ENTITY TO RECEIVE PERMIT (IF OTHER THAN OWNER)
Name Chris Pearson	Name
Title and Company City of Jacksonville, Solid Waste Div.	Title and Company
Address 444 E. Duval St., Suite 200	Address
City, State, Zip Jacksonville, FL 32202	City, State, Zip
Telephone and Fax (P)904-630-4593	Telephone and Fax
C. AGENT AUTHORIZED TO SECURE PERMIT	**D. CONSULTANT (IF DIFFERENT FROM AGENT)**
Name	Name Scott A Knowles, P.E.
Title and Company	Title and Company Project Engineer, England-Thims & Miller, Inc.
Address	Address 14475 St. Augustine Rd
City, State, Zip	City, State, Zip Jacksonville, FL 32258
Telephone and Fax	Telephone and Fax (P)904-642-8990, (F)904-646-9455

PART 4: (Please provide metric equivalent for federally funded projects):

A. Name of Project, including phase if applicable: Trail Ridge Fuel Station

B. Is this application for part of a multi-phase project?
☐yes ☒no

C. Total applicant-owned area contiguous to the project?
148 ac.; _____ ha.

D. Total area served by the system: 0.48 ac.; _____ ha.

E. Impervious area for which a permit is sought: 0.23 ac.; _____ ha.

F. Volume of water that the system is capable of impounding:
0.16 ac. ft.; _____ m

G. What is the total area of work in, on, or over wetlands or other surface waters?
0 ac.; _____ ha. _____ sq. ft.; _____ sq. m.

H. Total volume of material to be dredged: 0 yd; _____ m

I. Number of new boat slips proposed: 0 wet slips; 0 dry slips

PART 5:

Project location (use additional sheets if needed):

County(ies)Duval		
Section(s) 19	Township 3S	Range 23E
Section(s)	Township	Range
Section(s)	Township	Range

Land Grant name, if applicable:

Tax Parcel Identification Number: _____

Street Address Road or other location:5110 U.S. Hwy 301

City, Zip Code, if applicable: Baldwin, 32234

PART 6: Describe in general terms the proposed project, system, or activity.

Construction of 0.23 acres of paved drive for a fuel station and construction of a wet detention pond.

PART 7:

A. If there have been any pre-application meetings, including on-site meetings, with regulatory staff, please list the date(s), location(s), and names of key staff and project representatives.
N/A

B. Please identify by number any MSSW/Wetland Resource/ERP/ACOE Permits pending, issued or denied for projects at the location, and any related enforcement actions.

Agency	Date	No.\Type of Application	Action Taken
DEP, Solid Waste Permit	_____	184444, 184445, 184447	_____
_____	_____	_____	_____
_____	_____	_____	_____

C. Note: The following information is required for projects proposed to occur in, on or over wetlands that need a federal dredge and fill permit or an authorization to use state owned submerged lands. Please provide the names, addresses and zip codes of property owners whose property directly adjoins the project (excluding application) and/or (for proprietary authorizations) is located within a 500 ft. radius of the applicant's land. Please attach a plan view showing the owner's names and adjoining property lines. Attach additional sheets if necessary.

1. 2.

3. 4.

5. 6.
trt

7. 8.

PART 8:

A. By signing this application form, I am applying, or I am applying on behalf of the applicant, for the permit and any proprietary authorizations identified above, according to the supporting data and other incidental information filed with this application. I am familiar with the information contained in this application and represent that such information is true, complete and accurate. I understand this is an application and not a permit, and that work prior to approval is a violation. I understand that this application and any permit issued or proprietary authorization issued pursuant thereto, does not relive me of any obligation for obtaining any other required federal, state, water management district or local permit prior to commencement of construction. I agree, or I agree on behalf of the applicant, to operate and maintain the permitted system unless the permitting agency authorizes transfer of the permit to a responsible operation entity. I understand that knowingly making any false statement or representation in this application is a violation of Section 373.430, F.S. and 18 U.S.C. Section 1001.

Chris Pearson
Typed/Printed Name of Applicant (If no Agent is used) or Agent (If one is so authorized below)

Signature of Applicant/Agent — Date: 1/15/04

Operations Manager
(Corporate Title if applicable)

AN AGENT MAY SIGN ABOVE ONLY IF THE APPLICANT COMPLETES THE FOLLOWING:

B. I hereby designate and authorize the agent listed above to act on my behalf, or on behalf of my corporation, as the agent in the processing of this application for the permit and/or proprietary authorization indicated above; and to furnish, on request, supplemental information in support of the application. In addition, I authorize the above-listed agent to bind me, or my corporation, to perform any requirements which may be necessary to procure the permit or authorization indicated above. I understand that knowingly making any false statement or representation in this application is a violation of Section 373.430, F.S. and 18 U.S.C. Section 1001.

Typed/Printed Name of Applicant	Signature of Applicant	Date

(Corporate Title if applicable)

Please note: The applicant's original signature (not a copy) is required above.

PERSON AUTHORIZING ACCESS TO THE PROPERTY MUST COMPLETE THE FOLLOWING:

C. I either own the property described in this application or I have legal authority to allow access to the property, and I consent, after receiving prior notification, to any site visit on the property by agents or personnel from the Department of Environmental Protection, the Water Management District and the U.S. Army Corps of Engineers necessary for the review and inspection of the proposed project specified in this application. I authorize these agents or personnel to enter the property as many times as may be necessary to make such review and inspection. Further, I agree to provide entry to the project site for such agents or personnel to monitor permitted work if a permit is granted.

Chris Pearson Typed/Printed Name of Applicant	Signature of Applicant	Date: 1/15/04

Operations Manager
(Corporate Title if applicable)

SECTION C

Environmental Resource Permit Notice of Receipt of Application

Note: this form does not need to be submitted for noticed general permits.
This information is required in addition to that required in other sections of the application. Please submit five copies of this notice of receipt of application and all attachments with the other required information. Please submit all information on 8 1/2" x 11" paper.

Project Name	Trail Ridge Fuel Station
County	Duval
Owner	City of Jacksonville
Applicant:	City of Jacksonville, Environmental Resource Dept., Solid Waste Division
Applicant's Address:	444 E. Duval St., Suite 200, Jacksonville, FL 32202

1. Indicate the project boundaries on a USGS quadrangle map. Attach a location map showing the boundary of the proposed activity. The map should also contain a north arrow and a graphic scale; show Section(s), Township(s), and Range(s); and must be of sufficient detail to allow a person unfamiliar with the site to find it.

2. Provide the names of all wetlands, or other surface waters that would be dredged, filled, impounded, diverted, drained, or would receive discharge (either directly or indirectly), or would otherwise be impacted by the proposed activity, and specify if they are in an Outstanding Florida Water or Aquatic Preserve:
Headwaters of Deep Creek – Class III Water Body

3. Attach a depiction (plan and section views), which clearly shows the works or other facilities proposed to be constructed. Use multiple sheets, if necessary. Use a scale sufficient to show the location and type of works.

4. Briefly describe the proposed project (such as "construct dock with boat shelter", "replace two existing culverts", "construct surface water management system to serve 150 acre residential development"):
Construct a wet detention pond to serve 0.23acres of pavement for a fuel station

5. Specify the acreage of wetlands or other surface waters, if any, that are proposed to be filled, excavated, or otherwise disturbed or impacted by the proposed activity:

filled 0 ac.; 0 excavated ac.;

other impacts 0 ac.

6. Provide a brief statement describing any proposed mitigation for impacts to wetlands and other surface waters (attach additional sheets if necessary):
N/A

FOR AGENCY USE ONLY

Application Name:
Application Number:
Office where the application can be inspected:

Note to Notice recipient: The information in this notice has been submitted by the applicant, and has not been verified by the agency. It may be incorrect, incomplete or may be subject to change.

RECEIVED

JAN 30 2004

STATE OF FLORIDA
DEPT. OF ENV. PROTECTION
NORTHEAST DISTRICT-JAX

APPLICATION FOR ENVIRONMENTAL RESOURCE PERMIT

TRAIL RIDGE FUEL STATION

FOR

CITY OF JACKSONVILLE

CITY DEV. NO.

SUBMITTED BY

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS

14775 St. Augustine Road
Jacksonville, FL 32258
Certification of Authorization No. 2584
Phone: 904.642-8990
Fax: 904.646.9485

January 30, 2004

This report was prepared by me or under my direct supervision.

30 JAN 04

Scott A. Knowles, P.E. #55391

England-Thims & Miller, Inc
Trail Ridge Fuel Site

CONTENTS

1) Project Description 1

2) Basis of Design Calculations 2-4

3) Predevelopment – Existing Conditions 5-6
   25 YR/ 24 HR Storm ICPR Model Output
   Mean Annual Storm ICPR Model Output

4) Postdevelopment – Basin 1, Pond Routing 7-17
   25 YR/ 24 HR Storm ICPR Model Output
   Mean Annual Storm ICPR Model Output

5) Pre/Post Discharge Analyses 18

6) Pond Permanent Pool Volume 18

7) Pond Bleed Down Analysis 19-20

ATTACHMENTS

1) ICPR Input Report A1-3

2) Predeveloped Condition A4

3) Postdeveloped Condition A5

4) Vicinity Map A6

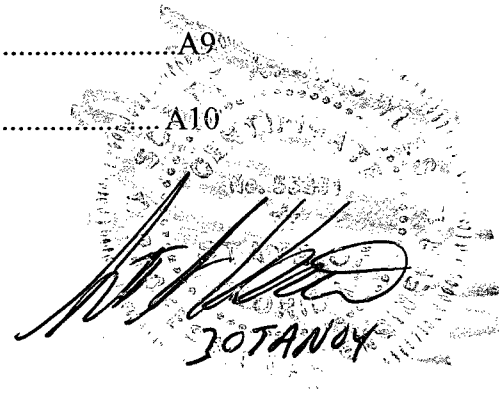
5) Aerial Map A6

6) USGS Quadrangle Map A7

7) Landuse Map A8

8) Soils Map A9

9) Drainage System Calculations A10



PROJECT DESCRIPTION
Trail Ridge Fuel Site

This submittal is an application for an Environmental Resource Permit for the proposed Trail Ridge Landfill fuel station facility. The project site is located at 5110 U.S. Hwy 301 in Baldwin, FL. Construction will include a wet detention pond system, and a 0.23 acre paved fueling area.

Runoff from the proposed fuel station site will be treated with a wet detention pond. The pond is designed to detain the first 2.5 inches of runoff from the impervious area as well as provide attenuation of the increased runoff due to development. The pond is equipped with a 2.75" diameter bleed down orifice set at the normal pool elevation. A 9" wide rectangular weir is situated above the required treatment volume to provide attenuation of the runoff to below the predeveloped condition. The weir will be fitted with a skimmer to prevent oil and floating debris from discharging to the adjacent wetland. The water level in the pond was estimated from the NRCS Soil Survey for Duval County. Based on the soils map, the soil type at the site is Pottsburg fine sand, and the seasonal high water elevation is typically 1'-2' below natural grade. Based on this, a normal water elevation of 100 was used throughout the hydrologic models.

A pre/post discharge analysis has been performed for the 25 year/ 24 hour, and the Mean Annual storm events using the SCS Method in ICPR. Runoff curve numbers for pre- and post-developed conditions were estimated using recommended values from the NRCS Tr-55. Times of concentration were determined using the Velocities for Upland method outlined in the NRCS National Engineering Handbook. Based on the calculations presented, the post-development discharge rates do not exceed the pre-development discharge for any of the modeled design storms.

No wetland impacts are proposed for this development.

MSSW Operation and Maintenance

The stormwater collection and treatment system will be operated and maintained by the City of Jacksonville. Following is a suggested maintenance schedule for the stormwater management system:

Frequency	Task
Weekly	Mow around basins
Weekly	Remove trash from storm structures
Monthly	Inspect outlet control structures and catch basins
Bi-annually	Remove nuisance plants within detention pond

BASIS OF DESIGN CALCULATIONS
Trail Ridge Fuel Site

Pond routing was modeled using the SCS Method in ICPR. Total rainfall values used in the calculations were derived from the FDOT rainfall curves for Zone 4

Required Treatment Volume

Wet detention systems must provide treatment of runoff from the greater of 1" over the project area or 2.5" over the impervious area. The treatment volumes required for each basin are:

Basin 1

Basin Area (ac)	0.48
Impervious Area	0.23

One inch of runoff	=	0.04 ac-ft
2.5 inches times impervious area	=	0.05 ac-ft
Treatment Volume Required	=	**0.05 ac-ft**

Pond 1

	Stage	Area (ac)	Storage (ac-ft)
Top of Bank	102.00	0.21	0.34
N.W.L.	100.00	0.13	0.00

Weir Elevation =	100.50
Treatment Provided =	0.08 ac-ft

Curve Numbers

The SCS curve numbers used in the calculations were estimated based on the type of use and amount of impervious area in the basin. A predevelopment curve number of 61 (Open space, good condition) was used for the basin. The postdeveloped curve number used for the basin was:

Basin 1

Use	Area (ac)	CN	CN x A
Impervious	0.23	98	22.54
Pond	0.18	100	18.00
Grass	0.07	61	4.27
Total =	**0.48**		**44.81**

CN = 44.81 / 0.48 = **93**

Times of Concentration

Times of concentration for the basin were estimated using the Velocities for Upland Method. The longest flow path for the basin was separated into segments based on length of flow and on type of ground cover. The travel times for each segment were then summed to establish the time of concentration:

Predeveloped

Segment #	1
Length (ft)	310
Cover Type	grass
Slope (%)	0.9
Velocity (fps)	0.3
Travel Time (min)	20.67

Time of Concentraction (min)= 20.7

Basin 1

Segment #	1	2
Length (ft)	150	15
Cover Type	pave	pipe
Slope (%)	1.0	0.5
Velocity (fps)	2.0	1.4
Travel Time (min)	1.25	0.18

Time of Concentraction (min)= 1.4

Use 5 min. minimum

PREDEVELOPMENT MODEL OUTPUT

Name:	PRE	PRE
Group:	PRE	PRE
Simulation:	HYD25	HYDMEAN
Node:	PRE	PRE
Type:	SCS	SCS
Unit Hydrograph:	Uh323	Uh323
Peaking Factor:	323.0	323.0
Spec Time Inc(min):	2.67	2.67
Comp Time Inc(min):	2.67	2.67
Rain File:	Scsii-24	Scsii-24
Rain Amount(in):	9.500	4.950
Duration(hrs):	24.00	24.00
Status:	Onsite	Onsite
TC(min):	20.00	20.00
Time Shift(hrs):	0.00	0.00
Area(ac):	0.480	0.480
Vol of Unit Hyd(in):	1.001	1.001
Curve Num:	61.000	61.000
DCIA(%):	0.000	0.000
Time Max(hrs):	12.13	12.13
Flow Max(cfs):	1.746	0.455
Runoff Volume(in):	4.627	1.340
Runoff Volume(ft3):	8061.628	2334.373

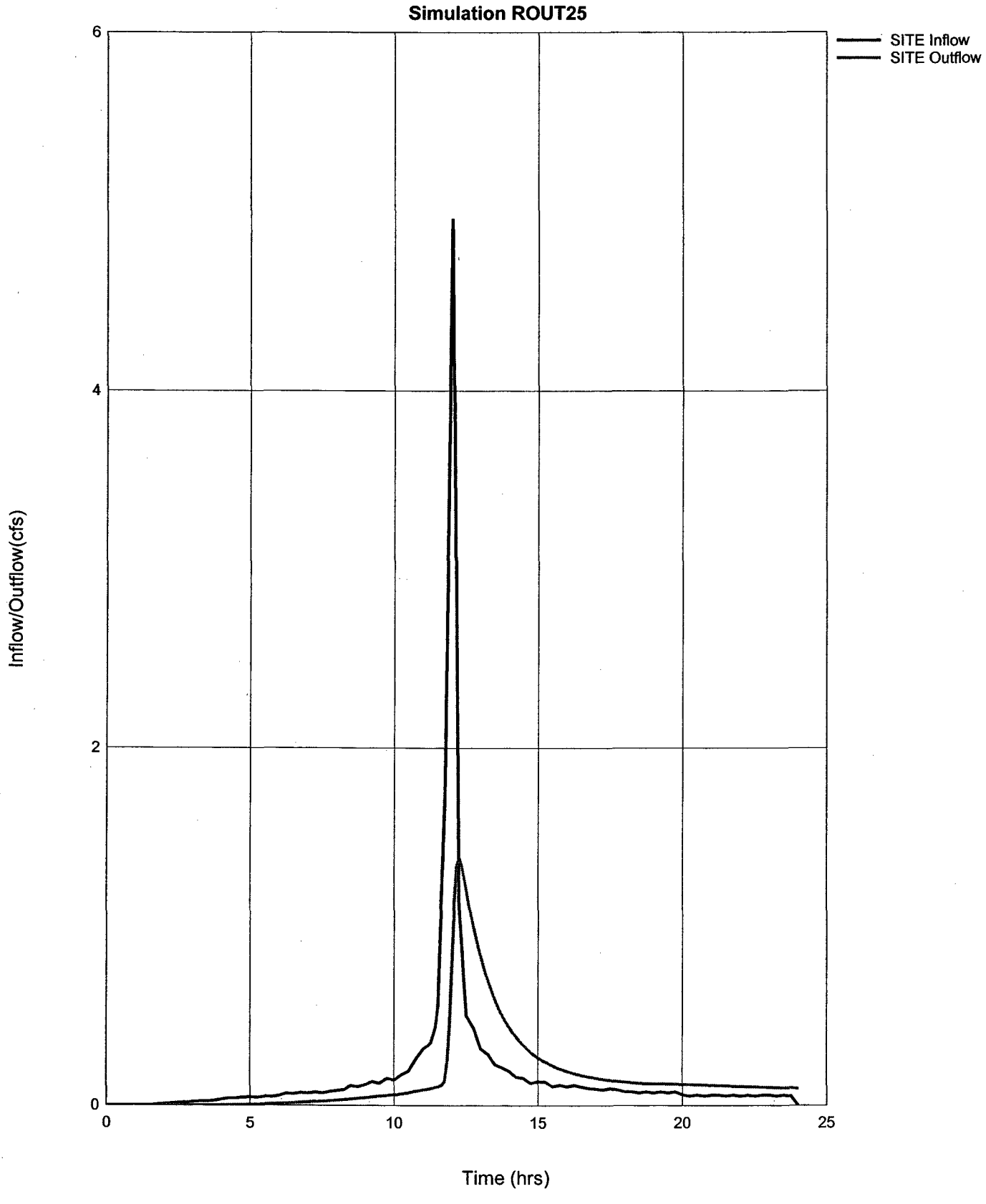
POSTDEVELOPMENT MODEL OUTPUT

Name:	SITE	SITE
Group:	POST	POST
Simulation:	HYD25	HYDMEAN
Node:	SITE	SITE
Type:	SCS	SCS
Unit Hydrograph:	Uh323	Uh323
Peaking Factor:	323.0	323.0
Spec Time Inc(min):	0.67	0.67
Comp Time Inc(min):	0.67	0.67
Rain File:	Scsii-24	Scsii-24
Rain Amount(in):	9.500	4.950
Duration(hrs):	24.00	24.00
Status:	Onsite	Onsite
TC(min):	5.00	5.00
Time Shift(hrs):	0.00	0.00
Area(ac):	0.480	0.480
Vol of Unit Hyd(in):	1.000	1.000
Curve Num:	93.000	93.000
DCIA(%):	0.000	0.000
Time Max(hrs):	12.00	12.00
Flow Max(cfs):	4.968	2.496
Runoff Volume(in):	8.657	4.151
Runoff Volume(ft3):	15083.174	7231.978

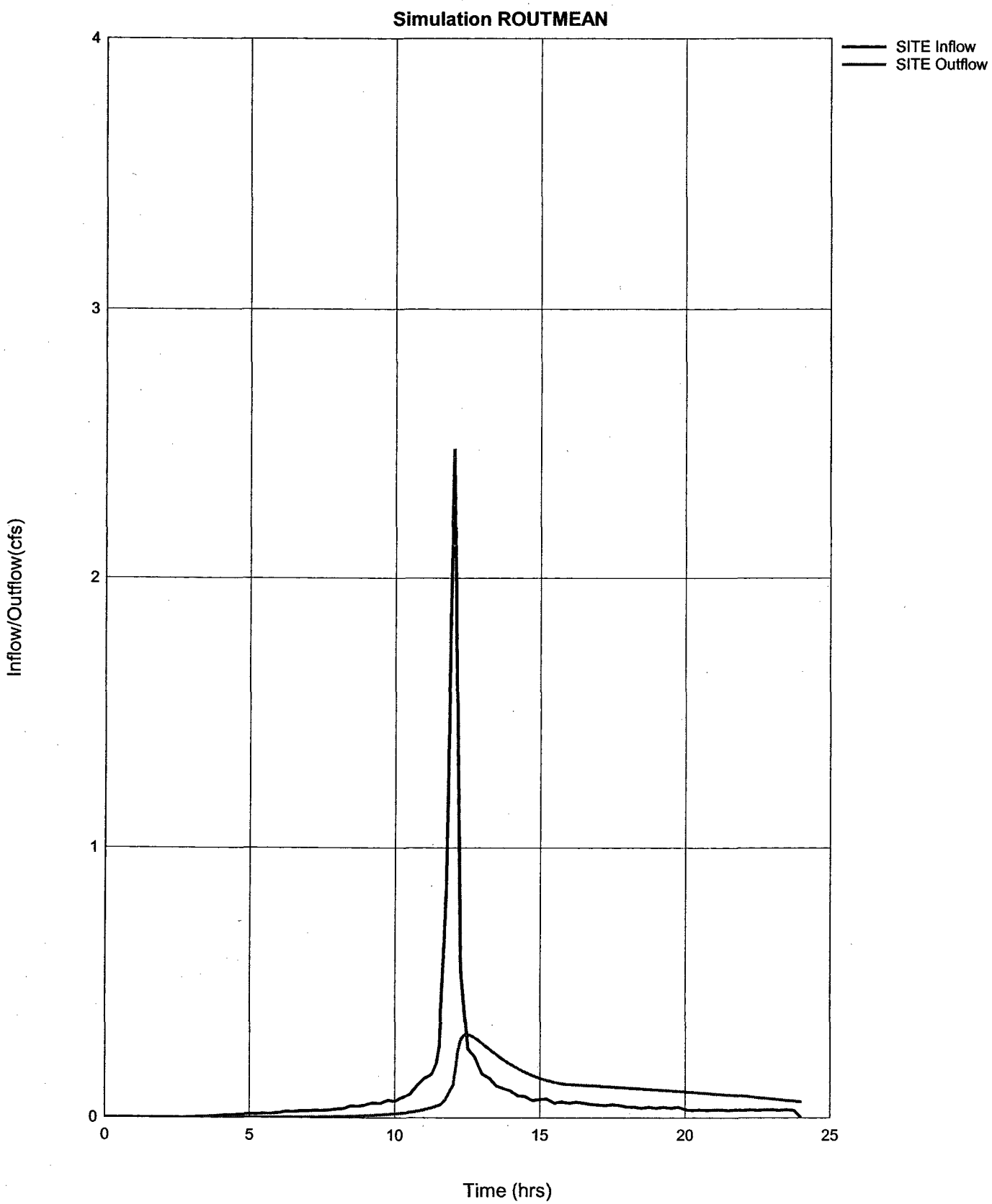
Postdeveloped Node Min/Max Report

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
OUT	POST	ROUT25	0.00	99.600	100.500	0.0000	0	12.23	1.389	0.00	0.000
SITE	POST	ROUT25	12.23	101.126	102.000	0.0050	7625	12.00	4.964	12.23	1.389
OUT	POST	ROUTMEAN	0.00	99.600	100.500	0.0000	0	12.46	0.309	0.00	0.000
SITE	POST	ROUTMEAN	12.46	100.666	102.000	0.0050	6823	12.00	2.485	12.46	0.309

Postdeveloped 25 year Storm Inflow/Outflow Graph



Postdeveloped Mean Annual Storm Inflow/Outflow Graph



Postdeveloped 25 year Time Series Report

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
ROUT25	SITE	POST	0.00	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUT25	SITE	POST	0.26	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUT25	SITE	POST	0.50	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUT25	SITE	POST	0.77	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUT25	SITE	POST	1.02	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUT25	SITE	POST	1.27	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUT25	SITE	POST	1.52	100.000	102.000	5663	0.001	0.000	0.0	0.0
ROUT25	SITE	POST	1.77	100.000	102.000	5663	0.004	0.000	0.0	0.0
ROUT25	SITE	POST	2.02	100.001	102.000	5665	0.008	0.000	0.0	0.0
ROUT25	SITE	POST	2.27	100.003	102.000	5668	0.010	0.000	0.0	0.0
ROUT25	SITE	POST	2.52	100.005	102.000	5671	0.014	0.000	0.0	0.0
ROUT25	SITE	POST	2.77	100.007	102.000	5675	0.016	0.000	0.0	0.0
ROUT25	SITE	POST	3.02	100.010	102.000	5680	0.019	0.000	0.0	0.0
ROUT25	SITE	POST	3.27	100.013	102.000	5686	0.022	0.000	0.0	0.0
ROUT25	SITE	POST	3.52	100.016	102.000	5691	0.022	0.000	0.0	0.0
ROUT25	SITE	POST	3.77	100.020	102.000	5698	0.026	0.001	0.0	0.0
ROUT25	SITE	POST	4.02	100.025	102.000	5706	0.033	0.001	0.0	0.0
ROUT25	SITE	POST	4.27	100.030	102.000	5715	0.039	0.001	0.0	0.0
ROUT25	SITE	POST	4.52	100.036	102.000	5726	0.039	0.002	0.0	0.0
ROUT25	SITE	POST	4.77	100.042	102.000	5736	0.044	0.003	0.0	0.0
ROUT25	SITE	POST	5.02	100.049	102.000	5748	0.046	0.004	0.0	0.0
ROUT25	SITE	POST	5.27	100.055	102.000	5759	0.044	0.005	0.0	0.0
ROUT25	SITE	POST	5.52	100.062	102.000	5770	0.049	0.006	0.0	0.0
ROUT25	SITE	POST	5.77	100.068	102.000	5781	0.047	0.007	0.0	0.0
ROUT25	SITE	POST	6.02	100.075	102.000	5793	0.053	0.009	0.0	0.0
ROUT25	SITE	POST	6.27	100.082	102.000	5806	0.067	0.011	0.0	0.0
ROUT25	SITE	POST	6.52	100.091	102.000	5821	0.064	0.013	0.0	0.0
ROUT25	SITE	POST	6.77	100.099	102.000	5835	0.071	0.015	0.0	0.0
ROUT25	SITE	POST	7.02	100.107	102.000	5849	0.067	0.018	0.0	0.0
ROUT25	SITE	POST	7.27	100.115	102.000	5863	0.073	0.020	0.0	0.0
ROUT25	SITE	POST	7.52	100.122	102.000	5876	0.069	0.023	0.0	0.0
ROUT25	SITE	POST	7.77	100.130	102.000	5889	0.076	0.025	0.0	0.0
ROUT25	SITE	POST	8.02	100.138	102.000	5903	0.078	0.028	0.0	0.0
ROUT25	SITE	POST	8.27	100.146	102.000	5917	0.087	0.031	0.0	0.0
ROUT25	SITE	POST	8.35	100.149	102.000	5922	0.095	0.032	0.0	0.0
ROUT25	SITE	POST	8.43	100.152	102.000	5928	0.103	0.033	0.0	0.0
ROUT25	SITE	POST	8.52	100.156	102.000	5934	0.110	0.035	0.0	0.0
ROUT25	SITE	POST	8.60	100.159	102.000	5941	0.107	0.036	0.0	0.0
ROUT25	SITE	POST	8.68	100.163	102.000	5947	0.105	0.038	0.0	0.0
ROUT25	SITE	POST	8.77	100.166	102.000	5953	0.104	0.039	0.0	0.0
ROUT25	SITE	POST	8.85	100.170	102.000	5958	0.108	0.040	0.0	0.0
ROUT25	SITE	POST	8.93	100.173	102.000	5964	0.111	0.041	0.0	0.0
ROUT25	SITE	POST	9.02	100.177	102.000	5971	0.115	0.043	0.0	0.0
ROUT25	SITE	POST	9.10	100.180	102.000	5977	0.121	0.044	0.0	0.0
ROUT25	SITE	POST	9.18	100.184	102.000	5984	0.127	0.046	0.0	0.0
ROUT25	SITE	POST	9.27	100.189	102.000	5991	0.131	0.047	0.0	0.0
ROUT25	SITE	POST	9.35	100.193	102.000	5998	0.128	0.049	0.0	0.0
ROUT25	SITE	POST	9.43	100.196	102.000	6005	0.125	0.050	0.0	0.0
ROUT25	SITE	POST	9.52	100.200	102.000	6011	0.124	0.052	0.0	0.0
ROUT25	SITE	POST	9.60	100.204	102.000	6018	0.134	0.053	0.0	0.0
ROUT25	SITE	POST	9.68	100.208	102.000	6025	0.143	0.054	0.0	0.0
ROUT25	SITE	POST	9.77	100.213	102.000	6033	0.150	0.056	0.0	0.0
ROUT25	SITE	POST	9.85	100.217	102.000	6041	0.146	0.057	0.0	0.0
ROUT25	SITE	POST	9.93	100.222	102.000	6049	0.143	0.058	0.0	0.0
ROUT25	SITE	POST	10.02	100.226	102.000	6056	0.142	0.059	0.0	0.0
ROUT25	SITE	POST	10.10	100.230	102.000	6064	0.152	0.060	0.0	0.0
ROUT25	SITE	POST	10.18	100.235	102.000	6072	0.162	0.062	0.0	0.0
ROUT25	SITE	POST	10.27	100.240	102.000	6081	0.172	0.064	0.0	0.0

Postdeveloped 25 year Time Series Report

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
ROUT25	SITE	POST	10.35	100.245	102.000	6090	0.178	0.067	0.0	0.0
ROUT25	SITE	POST	10.43	100.251	102.000	6100	0.184	0.069	0.0	0.0
ROUT25	SITE	POST	10.52	100.257	102.000	6110	0.193	0.072	0.0	0.0
ROUT25	SITE	POST	10.60	100.263	102.000	6121	0.217	0.074	0.0	0.0
ROUT25	SITE	POST	10.68	100.271	102.000	6134	0.240	0.078	0.1	0.0
ROUT25	SITE	POST	10.77	100.279	102.000	6149	0.262	0.081	0.1	0.0
ROUT25	SITE	POST	10.85	100.288	102.000	6165	0.282	0.083	0.1	0.0
ROUT25	SITE	POST	10.93	100.298	102.000	6183	0.301	0.085	0.1	0.0
ROUT25	SITE	POST	11.02	100.309	102.000	6202	0.318	0.088	0.1	0.0
ROUT25	SITE	POST	11.10	100.321	102.000	6221	0.326	0.090	0.1	0.0
ROUT25	SITE	POST	11.18	100.332	102.000	6242	0.335	0.093	0.1	0.0
ROUT25	SITE	POST	11.27	100.344	102.000	6262	0.350	0.095	0.1	0.0
ROUT25	SITE	POST	11.35	100.357	102.000	6285	0.392	0.098	0.1	0.0
ROUT25	SITE	POST	11.43	100.372	102.000	6311	0.434	0.101	0.1	0.0
ROUT25	SITE	POST	11.52	100.389	102.000	6341	0.547	0.104	0.1	0.0
ROUT25	SITE	POST	11.59	100.416	102.000	6387	0.910	0.109	0.1	0.0
ROUT25	SITE	POST	11.67	100.460	102.000	6465	1.299	0.117	0.1	0.0
ROUT25	SITE	POST	11.75	100.523	102.000	6574	1.729	0.135	0.1	0.0
ROUT25	SITE	POST	11.84	100.616	102.000	6736	2.814	0.236	0.1	0.0
ROUT25	SITE	POST	11.92	100.744	102.000	6958	3.873	0.446	0.1	0.0
ROUT25	SITE	POST	12.00	100.905	102.000	7239	4.964	0.795	0.2	0.0
ROUT25	SITE	POST	12.09	101.043	102.000	7480	3.643	1.151	0.2	0.0
ROUT25	SITE	POST	12.17	101.111	102.000	7599	2.372	1.345	0.2	0.0
ROUT25	SITE	POST	12.25	101.125	102.000	7622	1.077	1.384	0.2	0.1
ROUT25	SITE	POST	12.34	101.109	102.000	7595	0.880	1.339	0.2	0.1
ROUT25	SITE	POST	12.42	101.088	102.000	7558	0.681	1.277	0.2	0.1
ROUT25	SITE	POST	12.51	101.061	102.000	7511	0.498	1.201	0.2	0.1
ROUT25	SITE	POST	12.58	101.036	102.000	7467	0.479	1.132	0.2	0.1
ROUT25	SITE	POST	12.67	101.010	102.000	7422	0.458	1.061	0.3	0.1
ROUT25	SITE	POST	12.76	100.985	102.000	7379	0.435	0.996	0.3	0.1
ROUT25	SITE	POST	12.84	100.962	102.000	7339	0.394	0.936	0.3	0.1
ROUT25	SITE	POST	12.92	100.942	102.000	7305	0.358	0.886	0.3	0.1
ROUT25	SITE	POST	13.00	100.920	102.000	7266	0.317	0.832	0.3	0.1
ROUT25	SITE	POST	13.09	100.899	102.000	7229	0.307	0.781	0.3	0.1
ROUT25	SITE	POST	13.17	100.880	102.000	7195	0.296	0.735	0.3	0.1
ROUT25	SITE	POST	13.26	100.862	102.000	7165	0.285	0.694	0.3	0.1
ROUT25	SITE	POST	13.34	100.846	102.000	7137	0.266	0.658	0.3	0.1
ROUT25	SITE	POST	13.43	100.828	102.000	7105	0.245	0.618	0.3	0.1
ROUT25	SITE	POST	13.51	100.813	102.000	7079	0.227	0.586	0.3	0.2
ROUT25	SITE	POST	13.59	100.799	102.000	7054	0.222	0.556	0.3	0.2
ROUT25	SITE	POST	13.67	100.785	102.000	7031	0.216	0.528	0.3	0.2
ROUT25	SITE	POST	13.75	100.772	102.000	7009	0.210	0.502	0.3	0.2
ROUT25	SITE	POST	13.84	100.760	102.000	6987	0.204	0.478	0.3	0.2
ROUT25	SITE	POST	13.92	100.749	102.000	6967	0.197	0.456	0.3	0.2
ROUT25	SITE	POST	14.00	100.738	102.000	6948	0.191	0.435	0.3	0.2
ROUT25	SITE	POST	14.09	100.727	102.000	6930	0.179	0.416	0.3	0.2
ROUT25	SITE	POST	14.17	100.717	102.000	6913	0.168	0.397	0.3	0.2
ROUT25	SITE	POST	14.25	100.707	102.000	6895	0.157	0.380	0.3	0.2
ROUT25	SITE	POST	14.34	100.698	102.000	6879	0.156	0.363	0.3	0.2
ROUT25	SITE	POST	14.42	100.689	102.000	6864	0.154	0.348	0.3	0.2
ROUT25	SITE	POST	14.50	100.681	102.000	6849	0.152	0.334	0.3	0.2
ROUT25	SITE	POST	14.59	100.673	102.000	6836	0.142	0.321	0.3	0.2
ROUT25	SITE	POST	14.67	100.665	102.000	6822	0.132	0.308	0.3	0.2
ROUT25	SITE	POST	14.75	100.658	102.000	6808	0.123	0.296	0.3	0.2
ROUT25	SITE	POST	14.84	100.650	102.000	6796	0.126	0.285	0.3	0.2
ROUT25	SITE	POST	14.92	100.643	102.000	6784	0.129	0.275	0.3	0.2
ROUT25	SITE	POST	15.00	100.637	102.000	6773	0.132	0.266	0.3	0.2
ROUT25	SITE	POST	15.09	100.632	102.000	6763	0.132	0.257	0.3	0.2

Postdeveloped 25 year Time Series Report

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
ROUT25	SITE	POST	15.17	100.626	102.000	6754	0.133	0.249	0.3	0.2
ROUT25	SITE	POST	15.25	100.621	102.000	6745	0.132	0.242	0.3	0.2
ROUT25	SITE	POST	15.34	100.616	102.000	6736	0.123	0.236	0.3	0.2
ROUT25	SITE	POST	15.42	100.611	102.000	6728	0.114	0.229	0.3	0.2
ROUT25	SITE	POST	15.50	100.606	102.000	6718	0.105	0.222	0.3	0.2
ROUT25	SITE	POST	15.59	100.601	102.000	6710	0.108	0.215	0.3	0.2
ROUT25	SITE	POST	15.67	100.596	102.000	6702	0.111	0.209	0.3	0.2
ROUT25	SITE	POST	15.75	100.592	102.000	6694	0.113	0.204	0.3	0.2
ROUT25	SITE	POST	15.84	100.588	102.000	6687	0.110	0.199	0.3	0.2
ROUT25	SITE	POST	15.92	100.584	102.000	6680	0.107	0.194	0.3	0.2
ROUT25	SITE	POST	16.00	100.580	102.000	6674	0.104	0.190	0.3	0.2
ROUT25	SITE	POST	16.25	100.570	102.000	6656	0.113	0.178	0.3	0.2
ROUT25	SITE	POST	16.50	100.561	102.000	6641	0.104	0.169	0.3	0.2
ROUT25	SITE	POST	16.75	100.552	102.000	6625	0.096	0.160	0.3	0.2
ROUT25	SITE	POST	17.00	100.544	102.000	6611	0.095	0.152	0.3	0.2
ROUT25	SITE	POST	17.25	100.536	102.000	6597	0.087	0.145	0.3	0.2
ROUT25	SITE	POST	17.50	100.529	102.000	6585	0.095	0.140	0.3	0.2
ROUT25	SITE	POST	17.75	100.523	102.000	6574	0.087	0.135	0.3	0.2
ROUT25	SITE	POST	18.00	100.516	102.000	6562	0.077	0.130	0.3	0.2
ROUT25	SITE	POST	18.25	100.509	102.000	6549	0.076	0.127	0.3	0.2
ROUT25	SITE	POST	18.50	100.501	102.000	6537	0.070	0.124	0.3	0.3
ROUT25	SITE	POST	18.75	100.495	102.000	6525	0.076	0.122	0.3	0.3
ROUT25	SITE	POST	19.00	100.488	102.000	6513	0.070	0.121	0.3	0.3
ROUT25	SITE	POST	19.25	100.481	102.000	6501	0.076	0.120	0.3	0.3
ROUT25	SITE	POST	19.50	100.475	102.000	6490	0.070	0.119	0.3	0.3
ROUT25	SITE	POST	19.75	100.468	102.000	6479	0.075	0.118	0.3	0.3
ROUT25	SITE	POST	20.00	100.461	102.000	6466	0.058	0.117	0.3	0.3
ROUT25	SITE	POST	20.25	100.453	102.000	6452	0.052	0.115	0.3	0.3
ROUT25	SITE	POST	20.50	100.444	102.000	6437	0.057	0.114	0.3	0.3
ROUT25	SITE	POST	20.75	100.436	102.000	6423	0.052	0.113	0.3	0.3
ROUT25	SITE	POST	21.00	100.428	102.000	6409	0.057	0.111	0.3	0.3
ROUT25	SITE	POST	21.25	100.421	102.000	6395	0.057	0.110	0.3	0.3
ROUT25	SITE	POST	21.50	100.413	102.000	6382	0.052	0.108	0.3	0.3
ROUT25	SITE	POST	21.75	100.405	102.000	6369	0.057	0.107	0.3	0.3
ROUT25	SITE	POST	22.00	100.398	102.000	6356	0.052	0.106	0.3	0.3
ROUT25	SITE	POST	22.25	100.391	102.000	6344	0.057	0.104	0.3	0.3
ROUT25	SITE	POST	22.50	100.384	102.000	6332	0.052	0.103	0.3	0.3
ROUT25	SITE	POST	22.75	100.377	102.000	6320	0.057	0.102	0.3	0.3
ROUT25	SITE	POST	23.00	100.371	102.000	6309	0.057	0.100	0.3	0.3
ROUT25	SITE	POST	23.25	100.364	102.000	6298	0.052	0.099	0.3	0.3
ROUT25	SITE	POST	23.50	100.358	102.000	6287	0.057	0.098	0.3	0.3
ROUT25	SITE	POST	23.75	100.352	102.000	6276	0.052	0.097	0.3	0.3
ROUT25	SITE	POST	24.00	100.344	102.000	6263	0.000	0.095	0.3	0.3
ROUT25	SITE	POST	24.01	100.344	102.000	6263	0.000	0.095	0.3	0.3

Postdeveloped Mean Annual Storm Time Series Report

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
ROUTMEAN	SITE	POST	0.00	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUTMEAN	SITE	POST	0.26	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUTMEAN	SITE	POST	0.50	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUTMEAN	SITE	POST	0.77	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUTMEAN	SITE	POST	1.02	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUTMEAN	SITE	POST	1.27	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUTMEAN	SITE	POST	1.52	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUTMEAN	SITE	POST	1.77	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUTMEAN	SITE	POST	2.02	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUTMEAN	SITE	POST	2.27	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUTMEAN	SITE	POST	2.52	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUTMEAN	SITE	POST	2.77	100.000	102.000	5663	0.000	0.000	0.0	0.0
ROUTMEAN	SITE	POST	3.02	100.000	102.000	5663	0.001	0.000	0.0	0.0
ROUTMEAN	SITE	POST	3.27	100.000	102.000	5664	0.002	0.000	0.0	0.0
ROUTMEAN	SITE	POST	3.52	100.001	102.000	5664	0.003	0.000	0.0	0.0
ROUTMEAN	SITE	POST	3.77	100.001	102.000	5665	0.004	0.000	0.0	0.0
ROUTMEAN	SITE	POST	4.02	100.002	102.000	5667	0.007	0.000	0.0	0.0
ROUTMEAN	SITE	POST	4.27	100.004	102.000	5669	0.009	0.000	0.0	0.0
ROUTMEAN	SITE	POST	4.52	100.005	102.000	5672	0.009	0.000	0.0	0.0
ROUTMEAN	SITE	POST	4.77	100.007	102.000	5674	0.011	0.000	0.0	0.0
ROUTMEAN	SITE	POST	5.02	100.009	102.000	5678	0.013	0.000	0.0	0.0
ROUTMEAN	SITE	POST	5.27	100.011	102.000	5681	0.013	0.000	0.0	0.0
ROUTMEAN	SITE	POST	5.52	100.013	102.000	5685	0.015	0.000	0.0	0.0
ROUTMEAN	SITE	POST	5.77	100.015	102.000	5689	0.015	0.000	0.0	0.0
ROUTMEAN	SITE	POST	6.02	100.017	102.000	5693	0.017	0.000	0.0	0.0
ROUTMEAN	SITE	POST	6.27	100.021	102.000	5699	0.022	0.001	0.0	0.0
ROUTMEAN	SITE	POST	6.52	100.024	102.000	5704	0.022	0.001	0.0	0.0
ROUTMEAN	SITE	POST	6.77	100.027	102.000	5710	0.025	0.001	0.0	0.0
ROUTMEAN	SITE	POST	7.02	100.031	102.000	5717	0.024	0.001	0.0	0.0
ROUTMEAN	SITE	POST	7.27	100.035	102.000	5723	0.027	0.002	0.0	0.0
ROUTMEAN	SITE	POST	7.52	100.038	102.000	5730	0.026	0.002	0.0	0.0
ROUTMEAN	SITE	POST	7.77	100.042	102.000	5737	0.029	0.003	0.0	0.0
ROUTMEAN	SITE	POST	8.02	100.046	102.000	5744	0.030	0.003	0.0	0.0
ROUTMEAN	SITE	POST	8.27	100.051	102.000	5751	0.034	0.004	0.0	0.0
ROUTMEAN	SITE	POST	8.35	100.053	102.000	5754	0.038	0.004	0.0	0.0
ROUTMEAN	SITE	POST	8.43	100.054	102.000	5757	0.041	0.005	0.0	0.0
ROUTMEAN	SITE	POST	8.52	100.056	102.000	5761	0.044	0.005	0.0	0.0
ROUTMEAN	SITE	POST	8.60	100.058	102.000	5764	0.043	0.005	0.0	0.0
ROUTMEAN	SITE	POST	8.68	100.060	102.000	5768	0.042	0.006	0.0	0.0
ROUTMEAN	SITE	POST	8.77	100.062	102.000	5771	0.042	0.006	0.0	0.0
ROUTMEAN	SITE	POST	8.85	100.064	102.000	5774	0.044	0.007	0.0	0.0
ROUTMEAN	SITE	POST	8.93	100.066	102.000	5778	0.045	0.007	0.0	0.0
ROUTMEAN	SITE	POST	9.02	100.068	102.000	5781	0.047	0.007	0.0	0.0
ROUTMEAN	SITE	POST	9.10	100.070	102.000	5785	0.050	0.008	0.0	0.0
ROUTMEAN	SITE	POST	9.18	100.072	102.000	5789	0.053	0.008	0.0	0.0
ROUTMEAN	SITE	POST	9.27	100.075	102.000	5793	0.055	0.009	0.0	0.0
ROUTMEAN	SITE	POST	9.35	100.077	102.000	5797	0.054	0.009	0.0	0.0
ROUTMEAN	SITE	POST	9.43	100.079	102.000	5801	0.052	0.010	0.0	0.0
ROUTMEAN	SITE	POST	9.52	100.081	102.000	5805	0.052	0.011	0.0	0.0
ROUTMEAN	SITE	POST	9.60	100.084	102.000	5809	0.057	0.011	0.0	0.0
ROUTMEAN	SITE	POST	9.68	100.086	102.000	5813	0.061	0.012	0.0	0.0
ROUTMEAN	SITE	POST	9.77	100.089	102.000	5817	0.064	0.012	0.0	0.0
ROUTMEAN	SITE	POST	9.85	100.091	102.000	5822	0.063	0.013	0.0	0.0
ROUTMEAN	SITE	POST	9.93	100.094	102.000	5826	0.062	0.014	0.0	0.0
ROUTMEAN	SITE	POST	10.02	100.096	102.000	5831	0.062	0.015	0.0	0.0
ROUTMEAN	SITE	POST	10.10	100.099	102.000	5835	0.066	0.015	0.0	0.0
ROUTMEAN	SITE	POST	10.18	100.102	102.000	5840	0.071	0.016	0.0	0.0
ROUTMEAN	SITE	POST	10.27	100.105	102.000	5845	0.075	0.017	0.0	0.0

Postdeveloped Mean Annual Storm Time Series Report

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
ROUTMEAN	SITE	POST	10.35	100.108	102.000	5850	0.078	0.018	0.0	0.0
ROUTMEAN	SITE	POST	10.43	100.111	102.000	5856	0.081	0.019	0.0	0.0
ROUTMEAN	SITE	POST	10.52	100.114	102.000	5861	0.086	0.020	0.0	0.0
ROUTMEAN	SITE	POST	10.60	100.118	102.000	5868	0.097	0.021	0.0	0.0
ROUTMEAN	SITE	POST	10.68	100.122	102.000	5875	0.108	0.022	0.0	0.0
ROUTMEAN	SITE	POST	10.77	100.126	102.000	5883	0.118	0.024	0.0	0.0
ROUTMEAN	SITE	POST	10.85	100.131	102.000	5892	0.128	0.026	0.0	0.0
ROUTMEAN	SITE	POST	10.93	100.137	102.000	5901	0.137	0.028	0.0	0.0
ROUTMEAN	SITE	POST	11.02	100.142	102.000	5911	0.145	0.030	0.0	0.0
ROUTMEAN	SITE	POST	11.10	100.148	102.000	5921	0.150	0.032	0.0	0.0
ROUTMEAN	SITE	POST	11.18	100.154	102.000	5932	0.154	0.034	0.0	0.0
ROUTMEAN	SITE	POST	11.27	100.161	102.000	5943	0.162	0.037	0.0	0.0
ROUTMEAN	SITE	POST	11.35	100.167	102.000	5954	0.183	0.039	0.0	0.0
ROUTMEAN	SITE	POST	11.43	100.175	102.000	5968	0.203	0.042	0.0	0.0
ROUTMEAN	SITE	POST	11.52	100.184	102.000	5983	0.258	0.045	0.0	0.0
ROUTMEAN	SITE	POST	11.60	100.199	102.000	6010	0.455	0.051	0.0	0.0
ROUTMEAN	SITE	POST	11.68	100.222	102.000	6049	0.636	0.058	0.0	0.0
ROUTMEAN	SITE	POST	11.76	100.253	102.000	6104	0.852	0.070	0.0	0.0
ROUTMEAN	SITE	POST	11.84	100.303	102.000	6190	1.395	0.086	0.0	0.0
ROUTMEAN	SITE	POST	11.92	100.378	102.000	6322	1.955	0.102	0.1	0.0
ROUTMEAN	SITE	POST	12.00	100.476	102.000	6493	2.480	0.119	0.1	0.0
ROUTMEAN	SITE	POST	12.09	100.569	102.000	6654	1.827	0.177	0.1	0.0
ROUTMEAN	SITE	POST	12.17	100.626	102.000	6753	1.188	0.249	0.1	0.0
ROUTMEAN	SITE	POST	12.25	100.652	102.000	6799	0.548	0.288	0.1	0.0
ROUTMEAN	SITE	POST	12.34	100.661	102.000	6815	0.449	0.302	0.1	0.0
ROUTMEAN	SITE	POST	12.42	100.665	102.000	6822	0.350	0.308	0.1	0.0
ROUTMEAN	SITE	POST	12.50	100.665	102.000	6821	0.255	0.308	0.1	0.0
ROUTMEAN	SITE	POST	12.59	100.662	102.000	6817	0.243	0.304	0.1	0.0
ROUTMEAN	SITE	POST	12.67	100.659	102.000	6812	0.233	0.299	0.1	0.0
ROUTMEAN	SITE	POST	12.75	100.657	102.000	6807	0.224	0.295	0.1	0.0
ROUTMEAN	SITE	POST	12.83	100.653	102.000	6801	0.203	0.290	0.1	0.0
ROUTMEAN	SITE	POST	12.92	100.649	102.000	6794	0.183	0.283	0.1	0.0
ROUTMEAN	SITE	POST	13.00	100.644	102.000	6785	0.162	0.276	0.1	0.0
ROUTMEAN	SITE	POST	13.08	100.639	102.000	6777	0.157	0.268	0.1	0.0
ROUTMEAN	SITE	POST	13.17	100.634	102.000	6768	0.152	0.261	0.1	0.0
ROUTMEAN	SITE	POST	13.25	100.630	102.000	6760	0.146	0.254	0.1	0.0
ROUTMEAN	SITE	POST	13.33	100.625	102.000	6751	0.136	0.247	0.1	0.0
ROUTMEAN	SITE	POST	13.42	100.620	102.000	6742	0.126	0.240	0.1	0.0
ROUTMEAN	SITE	POST	13.50	100.614	102.000	6733	0.117	0.233	0.1	0.0
ROUTMEAN	SITE	POST	13.58	100.609	102.000	6724	0.113	0.226	0.1	0.0
ROUTMEAN	SITE	POST	13.67	100.604	102.000	6716	0.110	0.220	0.1	0.0
ROUTMEAN	SITE	POST	13.75	100.600	102.000	6707	0.107	0.214	0.1	0.0
ROUTMEAN	SITE	POST	13.83	100.595	102.000	6699	0.104	0.208	0.1	0.0
ROUTMEAN	SITE	POST	13.92	100.590	102.000	6691	0.101	0.202	0.1	0.0
ROUTMEAN	SITE	POST	14.00	100.586	102.000	6683	0.098	0.196	0.1	0.0
ROUTMEAN	SITE	POST	14.08	100.581	102.000	6676	0.092	0.191	0.1	0.1
ROUTMEAN	SITE	POST	14.17	100.577	102.000	6668	0.086	0.186	0.1	0.1
ROUTMEAN	SITE	POST	14.25	100.572	102.000	6660	0.081	0.181	0.1	0.1
ROUTMEAN	SITE	POST	14.33	100.568	102.000	6652	0.080	0.176	0.1	0.1
ROUTMEAN	SITE	POST	14.42	100.564	102.000	6645	0.079	0.171	0.1	0.1
ROUTMEAN	SITE	POST	14.50	100.559	102.000	6638	0.078	0.167	0.1	0.1
ROUTMEAN	SITE	POST	14.58	100.555	102.000	6630	0.073	0.163	0.1	0.1
ROUTMEAN	SITE	POST	14.67	100.551	102.000	6623	0.068	0.159	0.1	0.1
ROUTMEAN	SITE	POST	14.75	100.547	102.000	6616	0.063	0.155	0.1	0.1
ROUTMEAN	SITE	POST	14.83	100.543	102.000	6609	0.065	0.151	0.1	0.1
ROUTMEAN	SITE	POST	14.92	100.539	102.000	6602	0.066	0.148	0.1	0.1
ROUTMEAN	SITE	POST	15.00	100.536	102.000	6596	0.068	0.145	0.1	0.1
ROUTMEAN	SITE	POST	15.08	100.532	102.000	6590	0.068	0.142	0.1	0.1

Postdeveloped Mean Annual Storm Time Series Report

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
ROUTMEAN	SITE	POST	15.17	100.529	102.000	6584	0.068	0.139	0.1	0.1
ROUTMEAN	SITE	POST	15.25	100.526	102.000	6579	0.068	0.137	0.1	0.1
ROUTMEAN	SITE	POST	15.33	100.522	102.000	6573	0.063	0.135	0.1	0.1
ROUTMEAN	SITE	POST	15.42	100.519	102.000	6567	0.059	0.133	0.1	0.1
ROUTMEAN	SITE	POST	15.50	100.516	102.000	6561	0.054	0.130	0.1	0.1
ROUTMEAN	SITE	POST	15.58	100.512	102.000	6555	0.055	0.128	0.1	0.1
ROUTMEAN	SITE	POST	15.67	100.509	102.000	6550	0.057	0.127	0.1	0.1
ROUTMEAN	SITE	POST	15.75	100.506	102.000	6544	0.058	0.125	0.1	0.1
ROUTMEAN	SITE	POST	15.83	100.503	102.000	6539	0.057	0.124	0.1	0.1
ROUTMEAN	SITE	POST	15.92	100.500	102.000	6533	0.055	0.123	0.1	0.1
ROUTMEAN	SITE	POST	16.00	100.496	102.000	6528	0.054	0.123	0.1	0.1
ROUTMEAN	SITE	POST	16.25	100.487	102.000	6512	0.058	0.121	0.1	0.1
ROUTMEAN	SITE	POST	16.50	100.478	102.000	6496	0.054	0.120	0.1	0.1
ROUTMEAN	SITE	POST	16.75	100.469	102.000	6480	0.049	0.118	0.1	0.1
ROUTMEAN	SITE	POST	17.00	100.459	102.000	6463	0.049	0.117	0.1	0.1
ROUTMEAN	SITE	POST	17.25	100.450	102.000	6447	0.045	0.115	0.1	0.1
ROUTMEAN	SITE	POST	17.50	100.440	102.000	6430	0.049	0.113	0.2	0.1
ROUTMEAN	SITE	POST	17.75	100.431	102.000	6414	0.045	0.112	0.2	0.1
ROUTMEAN	SITE	POST	18.00	100.421	102.000	6397	0.039	0.110	0.2	0.1
ROUTMEAN	SITE	POST	18.25	100.412	102.000	6380	0.039	0.108	0.2	0.1
ROUTMEAN	SITE	POST	18.50	100.402	102.000	6363	0.036	0.106	0.2	0.1
ROUTMEAN	SITE	POST	18.75	100.392	102.000	6346	0.039	0.105	0.2	0.1
ROUTMEAN	SITE	POST	19.00	100.383	102.000	6330	0.036	0.103	0.2	0.1
ROUTMEAN	SITE	POST	19.25	100.374	102.000	6314	0.039	0.101	0.2	0.1
ROUTMEAN	SITE	POST	19.50	100.365	102.000	6298	0.036	0.099	0.2	0.1
ROUTMEAN	SITE	POST	19.75	100.356	102.000	6283	0.039	0.097	0.2	0.1
ROUTMEAN	SITE	POST	20.00	100.347	102.000	6267	0.030	0.096	0.2	0.1
ROUTMEAN	SITE	POST	20.25	100.337	102.000	6251	0.027	0.094	0.2	0.1
ROUTMEAN	SITE	POST	20.50	100.328	102.000	6234	0.029	0.092	0.2	0.1
ROUTMEAN	SITE	POST	20.75	100.319	102.000	6219	0.027	0.090	0.2	0.1
ROUTMEAN	SITE	POST	21.00	100.310	102.000	6203	0.029	0.088	0.2	0.1
ROUTMEAN	SITE	POST	21.25	100.302	102.000	6189	0.029	0.086	0.2	0.1
ROUTMEAN	SITE	POST	21.50	100.293	102.000	6174	0.027	0.084	0.2	0.1
ROUTMEAN	SITE	POST	21.75	100.285	102.000	6160	0.029	0.082	0.2	0.1
ROUTMEAN	SITE	POST	22.00	100.278	102.000	6147	0.027	0.080	0.2	0.1
ROUTMEAN	SITE	POST	22.25	100.270	102.000	6134	0.029	0.077	0.2	0.1
ROUTMEAN	SITE	POST	22.50	100.263	102.000	6121	0.027	0.074	0.2	0.1
ROUTMEAN	SITE	POST	22.75	100.257	102.000	6110	0.029	0.072	0.2	0.1
ROUTMEAN	SITE	POST	23.00	100.251	102.000	6099	0.029	0.069	0.2	0.1
ROUTMEAN	SITE	POST	23.25	100.245	102.000	6089	0.027	0.066	0.2	0.1
ROUTMEAN	SITE	POST	23.50	100.239	102.000	6080	0.029	0.064	0.2	0.1
ROUTMEAN	SITE	POST	23.75	100.234	102.000	6071	0.027	0.062	0.2	0.1
ROUTMEAN	SITE	POST	24.00	100.228	102.000	6061	0.000	0.060	0.2	0.1
ROUTMEAN	SITE	POST	24.01	100.228	102.000	6061	0.000	0.060	0.2	0.1

PRE/POST DISCHARGE ANALYSIS
Trail Ridge Fuel Site

Following is the Pre/Post Analysis for the Trail Ridge Fuel Site. Results for the 25 yr/24 hr and Mean Annual storm events are shown.

Predeveloped Basin

25 Year Storm

Q25pre = 1.76 cfs

Mean Annual

Qmean-pre = 0.46 cfs

Postdeveloped Basin

25 Year Storm

Q25 = 1.39 cfs

Mean Annual

Qmean = 0.31 cfs

The postdevelopment discharges do not exceed predevelopment discharges. Therefore, required attenuation of the stormwater runoff has been met.

POND PERMANENT POOL VOLUME

To meet the design requirements for a wet detention pond, the pond must be designed to maintain a permanent pool for 21 days during the wet season. The permanent pool volume required is:

$$\text{Permanent pool volume required} = \frac{(\text{Area ac})(\text{Runoff Coeff.})(30 \text{ in})(21 \text{ days})}{(153 \text{ days})(12 \text{ in/ft})}$$

= **0.14 ac-ft**

	Stage	Area (ac)	Storage (ac-ft)
N.W.L.	100.00	0.13	0.28
Bot of Pond	96.00	0.01	0.00

The pond volume below N.W.L. = 0.28 ac-ft

Therefore adequate storage is provided

POND BLEED-DOWN ANALYSIS
Trail Ridge Fuel Site

Outflow from the pond will be routed through a circular orifice and a rectangular weir. The orifice will serve as the bleed down device for the pond and will discharge at the normal water level. The rectangular weir will discharge above the required treatment volume and will attenuate runoff from the system to below the predeveloped discharge rate. Discharge from the orifice was estimated using the orifice flow equation:

$$q = aC\sqrt{2gh}$$

where: a = Flow area of orifice (ft^2)
C = Orifice coefficient
g = Gravity constant (ft/s^2)
h = Head above orifice center (ft)

The pond was modeled to determine the estimated times for ½ and for the full treatment volume to recover. The results of the model are on the following page.

ENGLAND, THIMS & MILLER, INC.

PROJECT: **Trail Ridge Fuel Station**

DATE **12/19/2003**
ETM No. **03-154**

Pond Bleed Down Analysis

		Area (sq ft)	Area (ac)	Vol (cu ft)	Vol (ac-ft)
Treatment El	100.50	5,205	0.12	2,389	0.055
NWL El	100.00	4,350	0.10	0	0
Reqd Treatmnt	2,087	cuft			

1/2 Volume	1,044	cu ft
1/2 V El	100.28	
Full V El	100.06	

Orifice D	2.75	in
Orifice A	0.0412	sq ft

1/2 Recover	2.1	hr
Full Recover	4.9	hr

Stage	Storage (cu ft)	Qout (cfs)	Δt (hr)	t total (hr)
100.50	2,389	0.16	0.00	0.00
100.45	2,150	0.15	0.44	0.44
100.40	1,911	0.14	0.46	0.89
100.35	1,672	0.14	0.48	1.37
100.30	1,433	0.13	0.51	1.88
100.25	1,194	0.12	0.54	2.41
100.20	956	0.11	0.58	2.99
100.15	717	0.10	0.62	3.61
100.10	478	0.09	0.69	4.30
100.05	239	0.08	0.77	5.08
100.00	0	0.07	0.91	5.98

$$Q = A \times C \times \sqrt{2gh}$$

ATTACHMENTS

==========
==== Basins ==========
==========

Name: PRE | Node: PRE | Status: Onsite
Group: PRE | Type: SCS Unit Hydrograph

Unit Hydrograph: Uh323 | Peaking Factor: 323.0
Rainfall File: Scsii-24 | Storm Duration(hrs): 24.00
Rainfall Amount(in): 9.500 | Time of Conc(min): 20.00
Area(ac): 0.480 | Time Shift(hrs): 0.00
Curve Number: 61.00 | Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Predeveloped Condition

Name: SITE | Node: SITE | Status: Onsite
Group: POST | Type: SCS Unit Hydrograph

Unit Hydrograph: Uh323 | Peaking Factor: 323.0
Rainfall File: Scsii-24 | Storm Duration(hrs): 24.00
Rainfall Amount(in): 9.500 | Time of Conc(min): 5.00
Area(ac): 0.480 | Time Shift(hrs): 0.00
Curve Number: 93.00 | Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Postdeveloped Condition

==========
==== Nodes ==========
==========

Name: OUT | Base Flow(cfs): 0.000 | Init Stage(ft): 99.600
Group: POST | Warn Stage(ft): 100.500
Type: Time/Stage

Discharge

Time(hrs)	Stage(ft)
0.00	99.600
24.00	99.600

Name: SITE | Base Flow(cfs): 0.000 | Init Stage(ft): 100.000
Group: POST | Warn Stage(ft): 102.000
Type: Stage/Area

Site Pond

Stage(ft)	Area(ac)
100.000	0.1300
102.000	0.2100

==========
==== Weirs ==========
==========

Name: ORIFICE | From Node: SITE
Group: POST | To Node: OUT
Flow: Both | Count: 1
Type: Vertical: Mavis | Geometry: Circular

Span(in): 2.75
Rise(in): 2.75
Invert(ft): 100.000
Control Elevation(ft): 100.000
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

Bleed Down Orifice

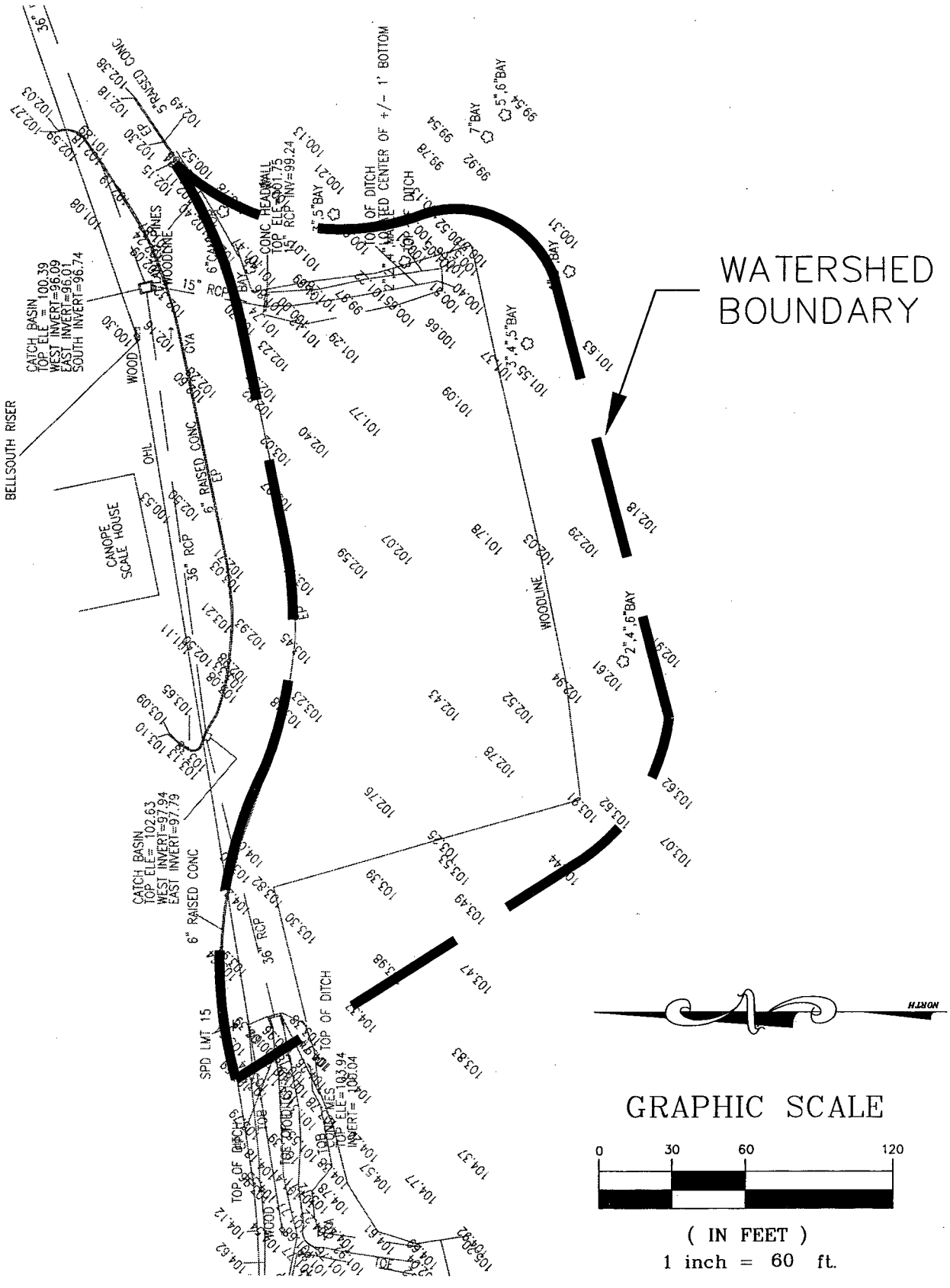
Name: WEIR | From Node: SITE
Group: POST | To Node: OUT
Flow: Both | Count: 1
Type: Vertical: Mavis | Geometry: Rectangular

```
                  Span(in): 9.00
                  Rise(in): 24.00
                Invert(ft): 100.500
       Control Elevation(ft): 100.500
                                        TABLE
            Bottom Clip(in): 0.000
               Top Clip(in): 0.000
         Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600

Weir

================================================================================
==== Hydrology Simulations =====================================================
================================================================================

        Name: HYD25
    Filename: G:\03-154\Admin\Calcs\ICPR\Output\Hyd25.R32

     Override Defaults: Yes
   Storm Duration(hrs): 24.00
         Rainfall File: Scsii-24
   Rainfall Amount(in): 9.50

Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          15.00

--------------------------------------------------------------------------------

        Name: HYDMEAN
    Filename: G:\03-154\Admin\Calcs\ICPR\Output\Hydmean.R32

     Override Defaults: Yes
   Storm Duration(hrs): 24.00
         Rainfall File: Scsii-24
   Rainfall Amount(in): 4.95

Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          15.00

================================================================================
==== Routing Simulations =======================================================
================================================================================

        Name: ROUT25              Hydrology Sim: HYD25
    Filename: G:\03-154\Admin\Calcs\ICPR\Output\ROUT25.I32

     Execute: Yes         Restart: No            Patch: No
 Alternative: No

       Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
  Time Step Optimizer: 10.000
      Start Time(hrs): 0.000                     End Time(hrs): 24.00
   Min Calc Time(sec): 0.5000               Max Calc Time(sec): 60.0000
      Boundary Stages:                         Boundary Flows:

25 year, 24 hour design storm routing

Time(hrs)       Print Inc(min)
--------------- ---------------
8.000           15.000
16.000          5.000
24.000          15.000

Group           Run
--------------- -----
POST            Yes


--------------------------------------------------------------------------------

        Name: ROUTMEAN            Hydrology Sim: HYDMEAN
    Filename: G:\03-154\Admin\Calcs\ICPR\Output\ROUTMEAN.I32

     Execute: Yes         Restart: No            Patch: No
 Alternative: No

       Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
  Time Step Optimizer: 10.000
      Start Time(hrs): 0.000                     End Time(hrs): 24.00
   Min Calc Time(sec): 0.5000               Max Calc Time(sec): 60.0000
      Boundary Stages:                         Boundary Flows:

Mean Annual design storm routing
```

Time(hrs)	Print Inc(min)
8.000	15.000
16.000	5.000
24.000	15.000

Group	Run
POST	Yes

==========
==== Boundary Conditions ==========
==========

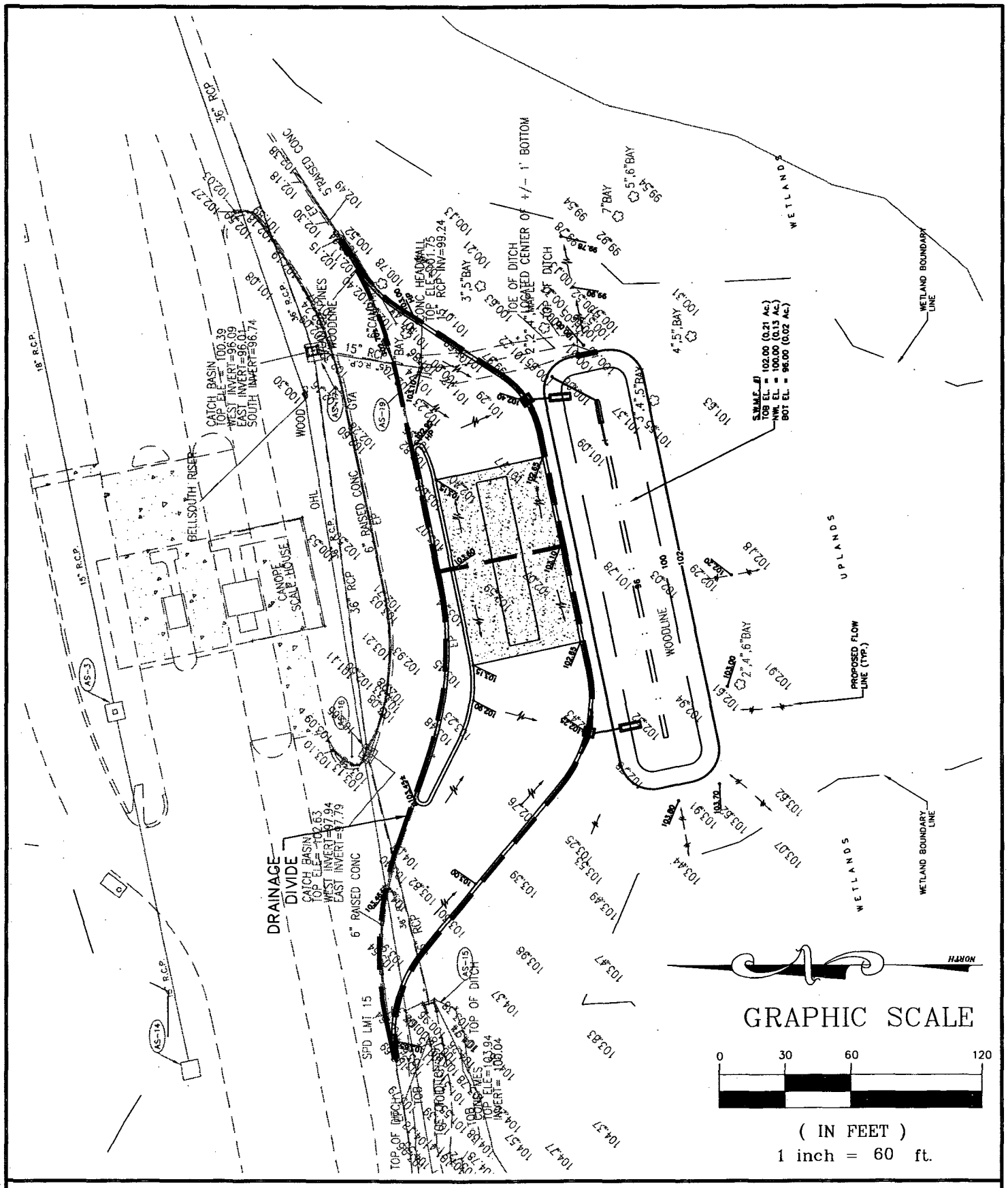


England-Thims & Miller, Inc.
ENGINEERS - PLANNERS
SURVEYORS - LANDSCAPE ARCHITECTS
14775 St. Augustine Road
Jacksonville, Florida 32258
Certificate of Authorization No.:2584
Phone No. (904) 642-8990
Fax No. (904) 646-9485

PRE DEVELOPMENT CONDITION

TRAIL RIDGE FUEL SITE
FOR
CITY OF JACKSONVILLE

ETM NO.	E03-154
DATE:	JAN., 2004
DRAWN BY:	R.A.E.
DRAWING NO.	

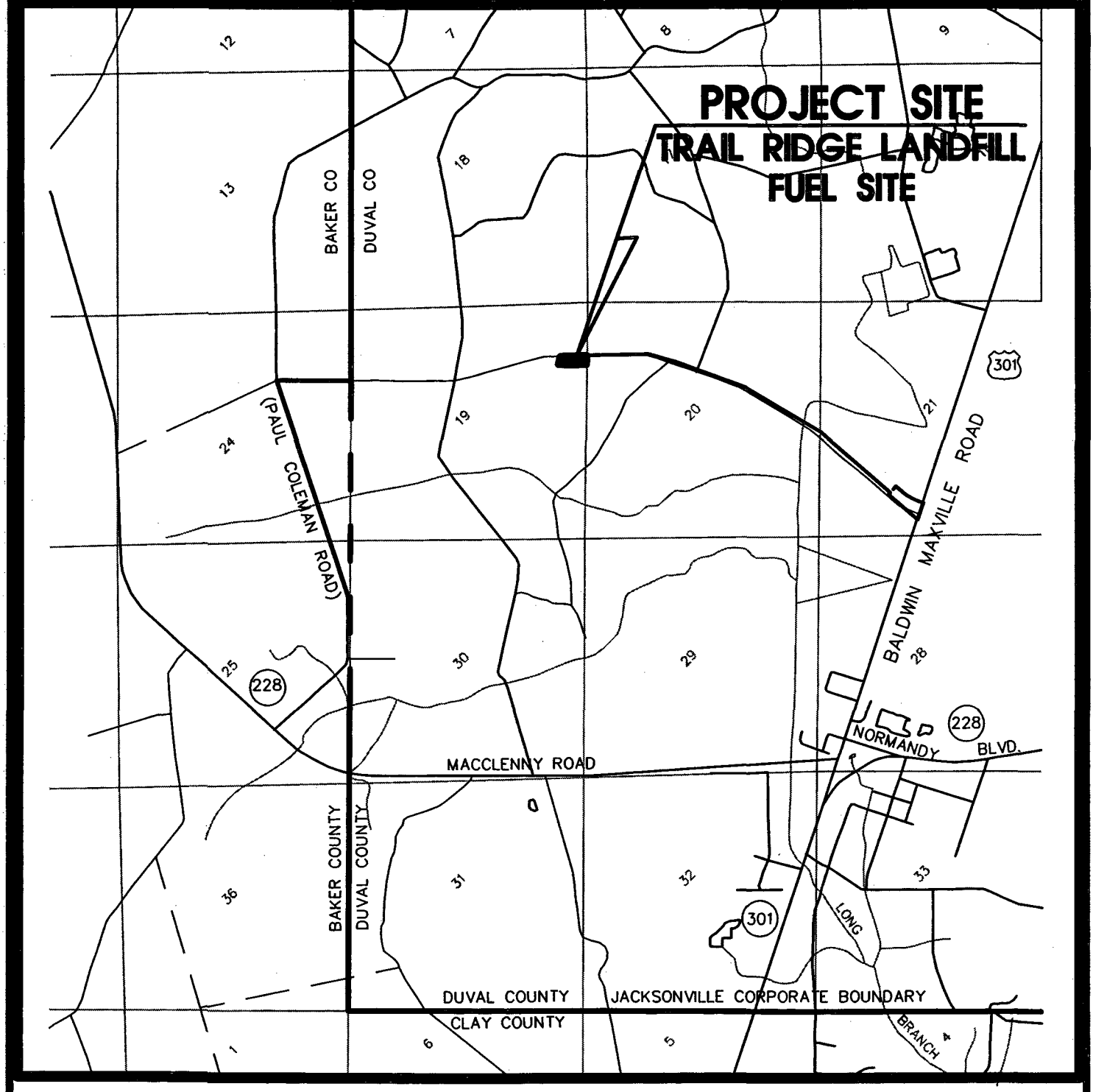


England-Thims & Miller, Inc.
ENGINEERS - PLANNERS
SURVEYORS - LANDSCAPE ARCHITECTS
14775 St. Augustine Road
Jacksonville, Florida 32258
Certificate of Authorization No.:2584
Phone No. (904) 642-8990
Fax No. (904) 646-9485

POST DEVELOPMENT CONDITION

TRAIL RIDGE FUEL SITE
FOR
CITY OF JACKSONVILLE

ETM NO.	E03-154
DATE:	JAN., 2004
DRAWN BY:	R.A.E.
DRAWING NO.	



England-Thims & Miller, Inc.
ENGINEERS - PLANNERS
SURVEYORS - LANDSCAPE ARCHITECTS
14775 St. Augustine Road
Jacksonville, Florida 32258
Certificate of Authorization No.:2584
Phone No. (904) 642-8990
Fax No. (904) 646-9485

VICINITY MAP

TRAIL RIDGE FUEL SITE
FOR
CITY OF JACKSONVILLE

ETM NO.	E03-154
DATE:	JAN., 2004
DRAWN BY:	R.A.E.
DRAWING NO.	

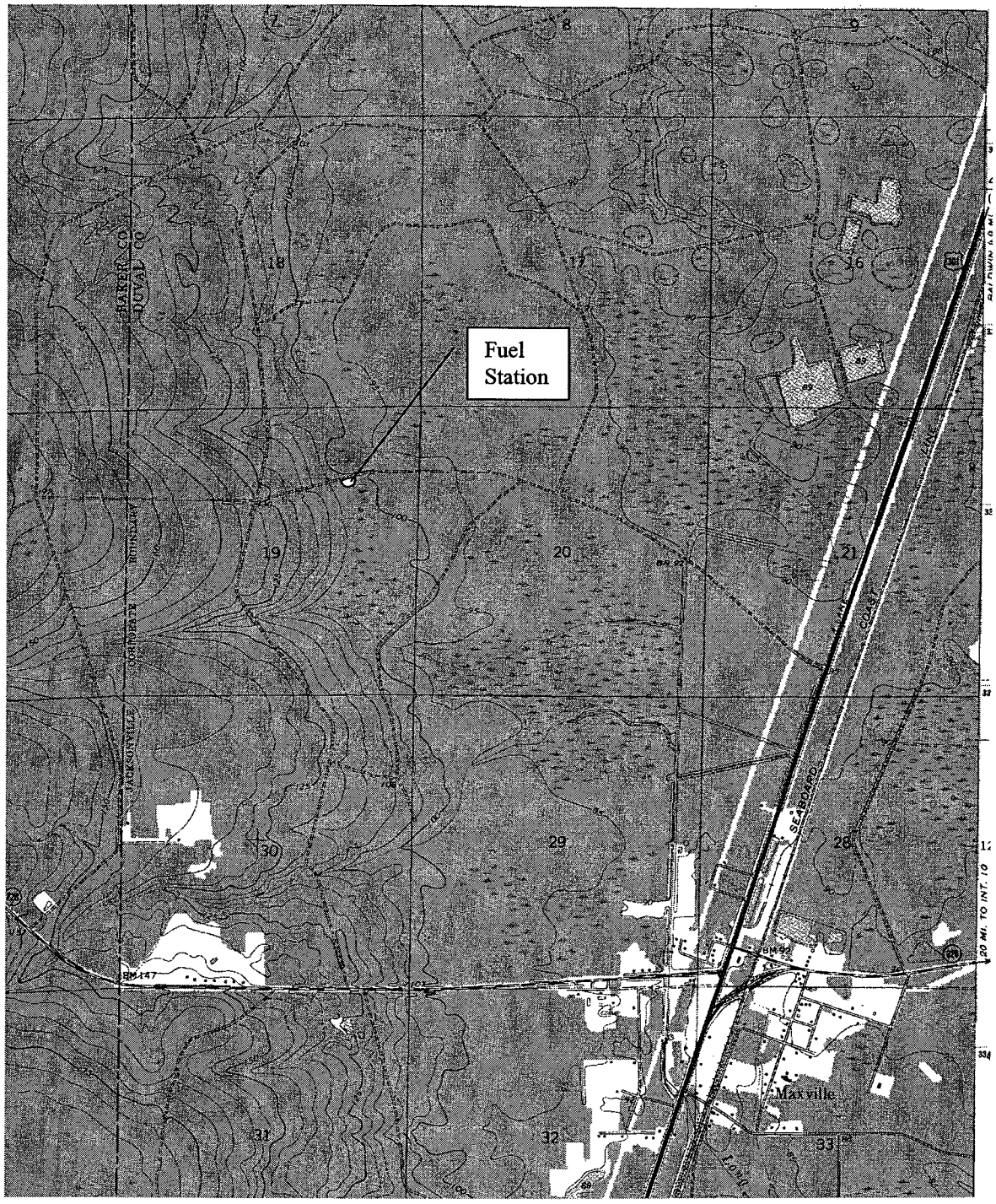
G:\03-154\Design\Support\VICINITY.dwg, 01/30/2004 01:03:15 PM, knowless

Scale: 1" = 400'

Trail Ridge Fuel Station
Aerial Photo
March 15, 2002

N

England-Thims & Miller, Inc.
Engineers • Planners • Surveyors • Landscape Architects



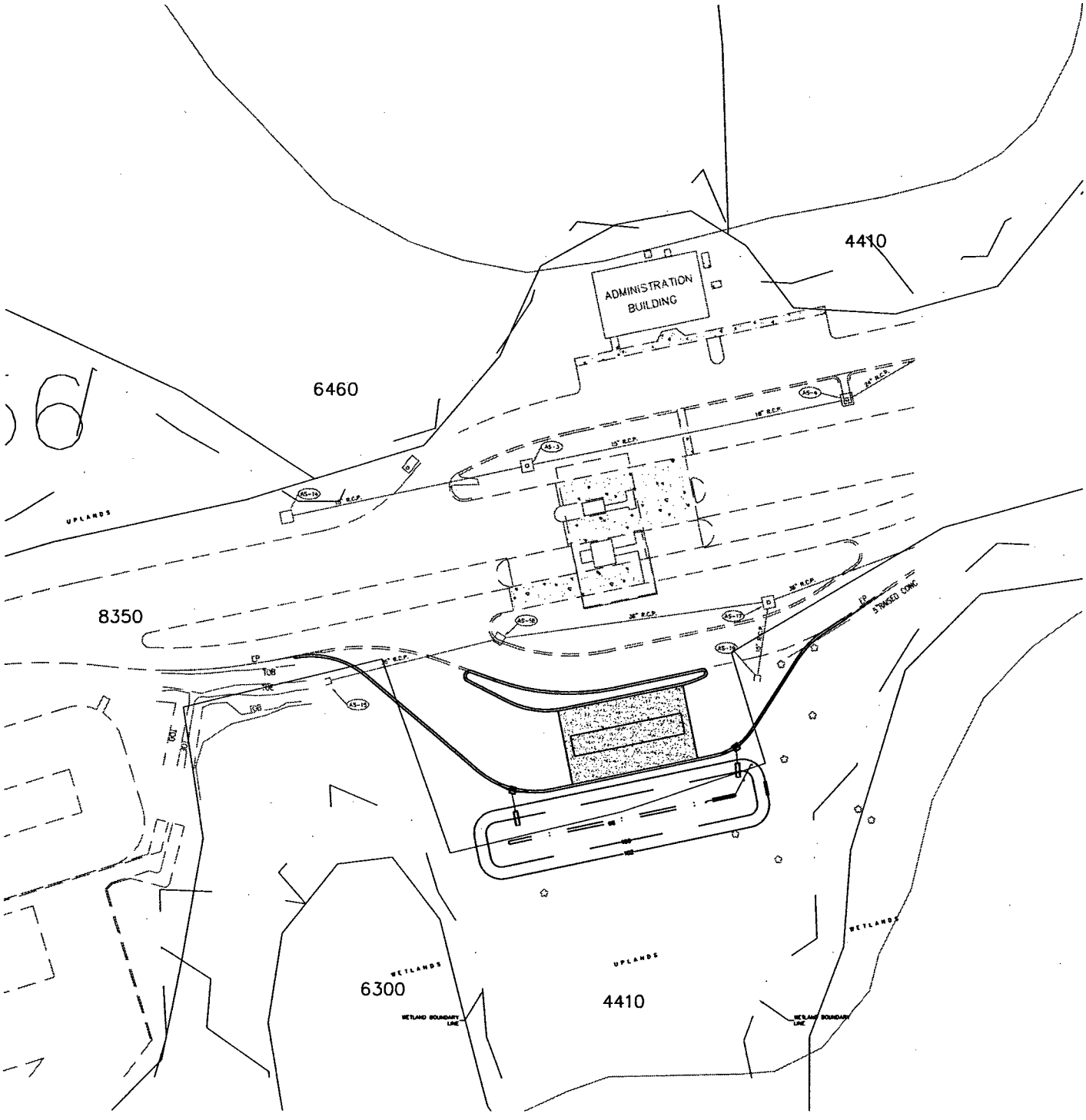
Trail Ridge Fuel Station
USGS Quadrangle Map

Maxville, FL Quad

Scale: 1" = 3000'

N

England-Thims & Miller, Inc.
Engineers · Planners · Surveyors · Landscape Architects



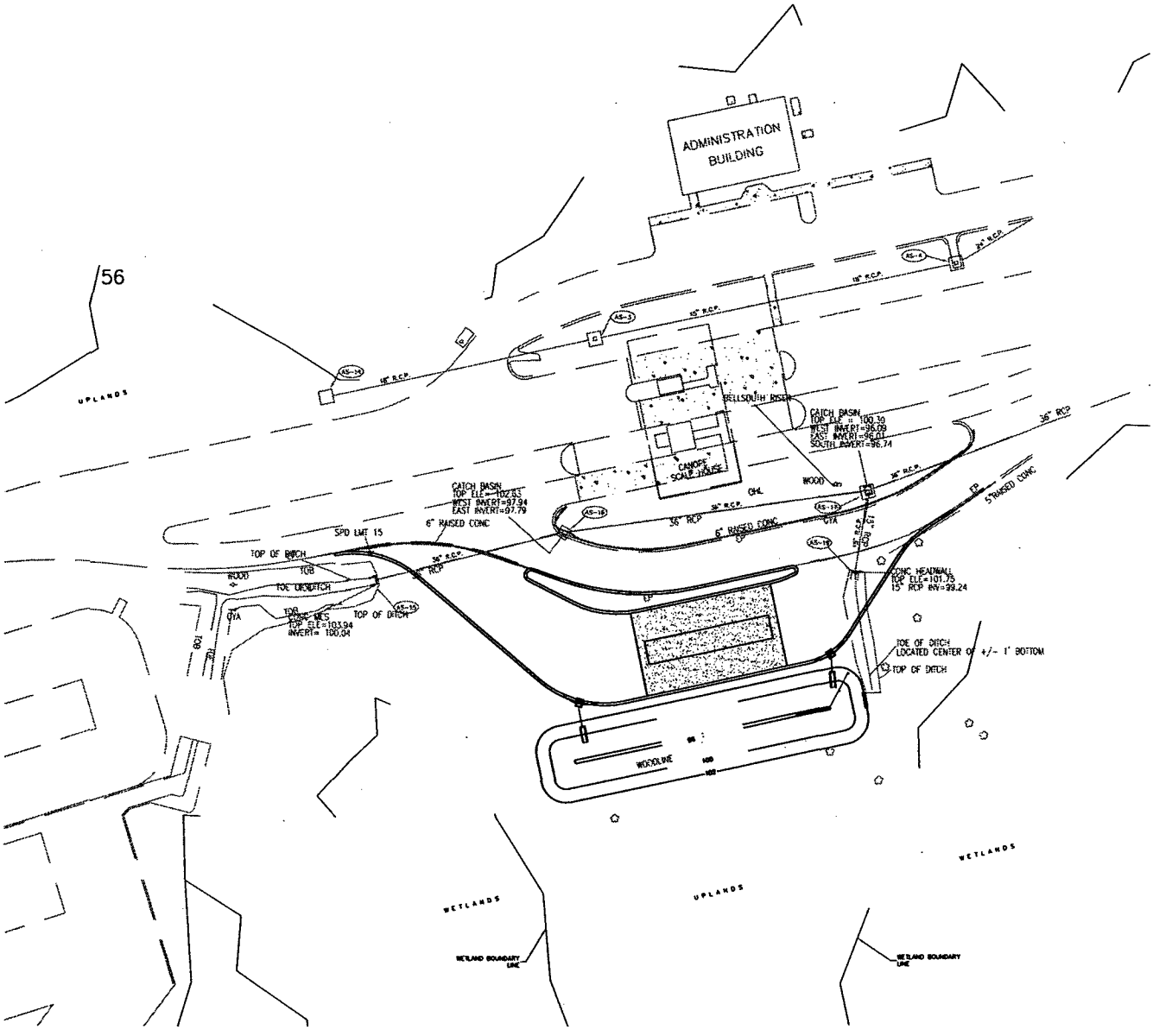
4410 – CONIFEROUS FOREST
6300 – WETLAND
6460 – WETLAND
8350 – SOLID WASTE DISPOSAL

England-Thims & Miller, Inc.
ENGINEERS - PLANNERS
SURVEYORS - LANDSCAPE ARCHITECTS
14775 St. Augustine Road
Jacksonville, Florida 32258
Certificate of Authorization No.:2584
Phone No. (904) 642-8990
Fax No. (904) 646-9485

LANDUSE MAP

TRAIL RIDGE FUEL SITE
FOR
CITY OF JACKSONVILLE

ETM NO.	E03-154
DATE:	JAN., 2004
DRAWN BY:	R.A.E.
DRAWING NO.	



56 = POTTSBURG FINE SAND

England-Thims & Miller, Inc.
ENGINEERS - PLANNERS
SURVEYORS - LANDSCAPE ARCHITECTS
14775 St. Augustine Road
Jacksonville, Florida 32258
Certificate of Authorization No.:2584
Phone No. (904) 642-8990
Fax No. (904) 646-9485

SOILS MAP

TRAIL RIDGE FUEL SITE
FOR
CITY OF JACKSONVILLE

ETM NO.	E03-154
DATE:	JAN., 2004
DRAWN BY:	R.A.E.
DRAWING NO.	

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS

DRAINAGE CALCULATIONS

Trail Ridge Fuel Site

PROJECT Trail Ridge Fuel Site
PROJECT # 03-154
DATE 1/19/04
PAGE 1 OF 1

Up Struct	Type of Struct	Down Struct	Length (Ft)	Type of Line	Drainage Area (Ac) C= 0.95 / C= 0.7 / C= 0.3 — Incr.	C*A	Sum	Tc (min.)	TL (min.)	Time Accum (min.)	i	Total (CA)	Top or Grate Elev.	Elev. of H.G. — Crown El. / Invert El. — Up End	Dn End	Fall	Pipe Diam (in.)	n	Slope (%)	Vel. (fps)	Q (cfs)	Head Loss — Entrance Losses / Bend Losses / Total (ft)	Remarks
S-1	DWCB Single Inlet	S-2	24	RCP	0.24	0.23	0.23	5.00	0.08	5.08	7.27	0.23	102.25	100.02	100.00	0.02	15	0.013	0.07%	1.35	1.66	0.014	K= 0.5
					0.00	0.00								98.25	98.05							0.000	K= 0
					0.00	0.00								97.00	96.80	0.20			0.83%	4.81	5.90	0.014	
S-2	MES																						
S-3	DWCB Single Inlet	S-4	20	RCP	0.14	0.13	0.13	5.00	0.06	5.06	7.27	0.13	102.40	100.00	100.00	0.00	15	0.013	0.02%	0.79	0.97	0.005	K= 0.5
					0.00	0.00								98.25	98.05							0.000	K= 0
					0.00	0.00								97.00	96.80	0.20			1.00%	5.26	6.46	0.005	
S-4	MES																						

LARGE NUMBER

OF MAPS

SCANNED

SEPARATELY