



State of Florida  
Division of Administrative Hearings  
The DeSoto Building, 1230 Apalachee Parkway  
Tallahassee, FL 32399-1550  
(904) 488-9675 • SunCom 278-9675

1193720

Sharyn L. Smith  
Director

Ann Cole  
Clerk

September 20, 1991

Carol Browner, Secretary  
Department of Environmental  
Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

33628

RE: Save Trail Ridge and the Environment Association,  
et al. vs. Department of Environmental Regulation  
and Trail Ridge Landfill, Inc., DOAH CASE NOS. 90-  
7295

Dear Ms. Browner:

Enclosed is a copy of the Recommended Order in the  
above-referenced case. Also enclosed are the transcript and  
exhibits which were admitted into evidence.

Very truly yours,

  
P. MICHAEL RUFF  
Hearing Officer

PMR/csm

Enclosures

cc: William Congdon, Esq.  
William D. Preston, Esq.  
Frank E. Matthews, Esq.  
Michael P. Petrovich, Esq.  
Laura Boyd Tearce, Esq.  
Kenneth F. Hoffman, Esq.  
Thomas G. Tomasello, Esq.  
Terence M. Brown, Esq.  
Maurice T. and Cathy L. Samples  
John G. Herring  
Ronnie E. and Laurie J. Hall  
Lambert L. and Norma J. Herring

**RECEIVED**  
SEP 23 1991  
Dept. of Environmental Reg.  
Office of General Counsel

EXHIBIT A

STATE OF FLORIDA  
DIVISION OF ADMINISTRATIVE HEARINGS

SAVE TRAIL RIDGE AND THE  
ENVIRONMENT ASSOCIATION,  
DAVID PHILLIPS, ELLEN LONG  
AND SOLLIE SOLOMONS,

Petitioners,

vs.

TRAIL RIDGE LANDFILL, INC.  
AND STATE OF FLORIDA,  
DEPARTMENT OF ENVIRONMENTAL  
REGULATION,

Respondents.

CASE NO. 90-7295

---

COASTAL ENVIRONMENTAL SOCIETY,  
INC. AND ST. JOHNS PRESERVATION  
ASSOCIATION, INC.,

Petitioners,

vs.

TRAIL RIDGE LANDFILL, INC. AND  
STATE OF FLORIDA, DEPARTMENT  
OF ENVIRONMENTAL REGULATION,

Respondents.

CASE NO. 90-7837

---

SAVE TRAIL RIDGE AND THE  
ENVIRONMENT, INC., ET AL.,

Petitioners,

vs.

TRAIL RIDGE LANDFILL, INC.,  
AND STATE OF FLORIDA,  
DEPARTMENT OF ENVIRONMENTAL  
REGULATION,

Respondents.

CASE NOS. 91-334  
91-335  
91-336  
91-337  
91-338  
91-339  
91-340  
91-341  
91-342  
91-343  
91-344  
91-345  
91-346

### RECOMMENDED ORDER

Pursuant to notice, this cause came on for hearing before P. Michael Ruff, duly designated Hearing Officer of the Division of Administrative Hearings, from May 14-30, 1991, in Jacksonville, Florida. The appearances were as follows:

### APPEARANCES

For Petitioner Baker County:	Terence M. Brown, Esq. Post Office Box 40 Starke, FL 32091-0040
For the remaining Petitioners:	Kenneth F. Hoffman, Esq. Thomas G. Tomasello, Esq. OERTEL, HOFFMAN, FERNANDEZ & COLE, P.A. 2700 Blair Stone Road, Suite C Post Office Box 6507 Tallahassee, FL 32314-6507
For Respondent Applicant:	William D. Preston, Esq. Thomas M. DeRose, Esq. Kathleen Blizzard, Esq. HOPPING, BOYD, GREEN & SAMS 123 South Calhoun Street Tallahassee, FL 32314
For Respondent DER:	William H. Congdon, Esq. Department of Environmental Regulation 2600 Blair Stone Road Tallahassee, FL 32399-2400

### STATEMENT OF THE ISSUES

The issues to be resolved in this proceeding concern whether the Applicant/Respondent, Trail Ridge Landfill, Inc., has provided reasonable assurances that its project, involving a proposed Solid Waste Class I and Class III landfill, access road, borrow areas, storm water and retention ponds, and other parts of its surface water management system, will comply with the various statutory and regulatory requirements cited herein and therefore whether a Management and Storage of Surface Waters (MSSW) permit,

a dredge and fill permit and a permit for the solid waste disposal facility should be issued.

#### PRELIMINARY STATEMENT

This proceeding involves an application by Trail Ridge Landfill, Inc. for a permit authorizing construction and operation of a solid waste management facility (landfill) in southwestern Duval County, Florida. It also concerns permit applications for dredge and fill permitting authority to fill approximately 1.61 acres of wetlands, for purposes of an access road, as well as permitting authority for a storm water discharge/surface water management system related to the operation of the proposed facility.

On October 11, 1990, DER issued its Notice of Intent to issue the dredge and fill permit involving the filling of 1.61 acres of wetlands so as to widen an access road for the landfill facility. The Notice of Intent to issue the permit was duly published and Save Trail Ridge And The Environment, Inc. (STRATE) along with Helen Long, David Phillips and Sollie Solomons timely filed a joint petition with the Department on October 30, 1990, requesting a formal proceeding to contest the Department's intent to issue. On November 2, 1990, Coastal Environmental Society, Inc. (CESI) and St. Johns Preservation Association (SJPA) also filed a timely joint petition with the Department challenging the intent to issue that permit. Additionally, on February 11, 1991, a Petition to Intervene in STRATE's challenge to the Department's intent to issue the dredge and fill permit was filed on behalf of the Baker County Board of County Commissioners. That intervention was granted.

On December 21, 1990, the DER issued a Notice of Intent to issue a solid waste management disposal permit to the Applicant concerning its proposal to construct a Class I and Class III Solid Waste Disposal Area (landfills). That Notice of Intent, and the draft permit incorporated in it, contained authorization for the construction and operation of a storm water discharge and surface water management system related to the operation of the landfills. The Notice of Intent was published December 24, 1990, in the Florida Times Union and December 27, 1990, in the Baker County Press. On January 2, 1991, Lambert and Norma Herring, John G. Herring, Ronnie and Laurie Hall and Maurice and Kathy Samples filed petitions with the Department challenging the proposed issuance of the solid waste permit. On January 4, 1991, STRATE filed a petition as did CESI and SJPA challenging the intent to issue the solid waste permit. On January 7, 1991, Darryl Sperry and the Baldwin-Maxville Coalition, Inc. each filed a petition challenging the intent to issue the permit. The Baker County Board of County Commissioners filed a petition on January 9, 1991. On January 10, 1991, Clarence Suggs, Myra O. Frasier, William Mark McCranie and Sylvia Webb-Thibault also filed petitions challenging the proposed solid waste permit.

On February 25, 1991, the Hearing Officer issued an order dismissing the petitions of Petitioners Herring, Samples and Hall. Petitioners Frasier and Webb-Thibault withdrew their petitions on April 3, 1991, and April 25, 1991, respectively. Petitioner Suggs was dismissed by an Order of the Hearing Officer

on May 8, 1991. In the meantime, all of the cases had been consolidated by Order of the Hearing Officer on February 7, 1991.

All the parties with the exception of Baldwin-Maxville Coalition (Coalition), Darryl Sperry and Baker County entered into a Prehearing Stipulation on May 10, 1991. During the course of the final hearing, the Coalition, Darryl Sperry and Baker County concurred with the provisions of the Prehearing Stipulation.

The cause came on for final hearing as noticed. At the hearing, the Applicant adduced the testimony of 17 witnesses. Seventy-five of the exhibits offered by the Applicant were admitted into evidence. The Petitioners also called 17 witnesses, and 17 of the Petitioners' exhibits were admitted into evidence. The Department adduced the testimony of two witnesses and produced two exhibits, admitted into evidence. The names of the 36 witnesses testifying, and the numerous scientific fields or disciplines in which many of them were qualified and accepted as having expertise, are reflected in the transcript, the original of which was filed with the Hearing Officer.

All interested members of the general public were afforded an opportunity to present testimony regarding the effects of the proposed Solid Waste Management Facility and related aspects of the project on themselves and their community at the "public comment" portion of the hearing, which was conducted on May 29, 1991, in Jacksonville. Clara Miles, Vince Taylor and Lorrie Hardeman testified in this aspect of the proceeding.

After the conclusion of the hearing, the parties obtained a transcript of the proceedings, which was filed with the Hearing Officer. Each party availed itself of the right to file Proposed Findings of Fact and Conclusions of Law in the form of Proposed Recommended Orders. STRATE thereafter voluntarily dismissed its petition and on June 18, 1991, an Order was entered by the Hearing Officer dismissing STRATE from the proceeding. Proposed Recommended Orders were timely filed by the remaining parties within the time period set by the Hearing Officer and agreed to by the parties. Shortly thereafter, a Motion to Strike the Proposed Recommended Order filed by the Applicant was filed by the Petitioners, on grounds that the 99-page Proposed Recommended Order filed by the Applicant exceeded the 40-page limit mandated by Rule 22I-6.\_\_\_\_, Florida Administrative Code. The Petitioners moved alternatively that, if the Applicant's pleading were not stricken, that they be allowed the opportunity to file a Proposed Recommended Order which was not limited to 40 pages, since the Applicants had exceeded that limit without obtaining leave from the Hearing Officer. After allowing the appropriate response time for the Applicant to respond to that motion and after receiving its response and memorandum of law, a telephonic conference call hearing on the Petitioners' motion was conducted by the Hearing Officer. After hearing argument on the Petitioners' Motion, the Hearing Officer entered an Order on July 12, 1991, in which the Hearing Officer held that the Proposed Recommended Order filed by the Applicant would not be stricken, but rather that leave and an extension of time would be

granted Petitioners to file a supplemental proposed recommended order containing those additional proposed findings of fact, conclusions of law and argument Petitioners felt necessary to counter the prejudicial effect of the Applicant's 99-page Proposed Recommended Order versus the original, 38-page Proposed Recommended Order filed by the Petitioners. On that basis, the Proposed Recommended Order filed by the Applicant was allowed to stand as filed.

Baker County then filed a Motion for leave to submit a Supplemental Proposed Recommended Order for the same reasons and an additional time period was allowed the County to submit that pleading. Baker County also filed a Motion to Strike the Proposed Recommended Order Filed by the Applicant on the basis that, in its Conclusions of Law portion, the Applicant stated the position that Baker County had failed to respond to requests for admission prior to hearing and therefore had waived its opportunity to litigate the various issues involving entitlement to the permits. Baker County contended that, because there was an alleged informal agreement that it would not be required to respond to the request for admissions, and because it had participated fully in the hearing, with an opportunity to present evidence and to cross-examine all opposing witnesses without objection, that the Applicant had therefore waived its right to insist that the subjects of the unanswered requests for admissions be deemed admitted. If they were so deemed, the effect would be to preclude Baker County from effectively litigating any of the material issues. The requisite period was



allowed the Applicant to reply to this motion by Baker County. In due time a response, with accompanying memorandum of law, was submitted by Trail Ridge. Immediately thereafter, and before Baker County's motion could be ruled upon by the Hearing Officer, Baker County elected to cease its opposition to the proposed permits by voluntarily dismissing its petition.

All Proposed Findings of Fact, Conclusions of Law and supporting arguments have been considered. Those Proposed Findings of Fact and Conclusions of Law submitted which are in accordance with the Hearing Officer's findings, conclusions and views stated herein have been accepted. Such proposed findings and conclusions and arguments which are inconsistent with the Hearing Officer's findings and conclusions are rejected. Certain proposed findings and conclusions have been omitted herein as not being relevant or necessary to a proper determination of material. The cause being finally at issue, this Recommended Order is now entered. All Proposed Findings of Fact, Conclusions of Law and supporting arguments have been considered. Specific rulings on Proposed Findings of Fact submitted are contained in the Appendix attached hereto and incorporated by reference herein.

#### FINDINGS OF FACT

##### The Parties

1. The Applicant, Trail Ridge Landfill, Inc. (Trail Ridge), is a corporation formed in 1989 for the purpose of developing a landfill project and providing waste disposal capacity for the City of Jacksonville. Trail Ridge Landfill, Inc. is a wholly-owned subsidiary of Waste Management of North

America, Inc. Its operating division is involved in the waste collection, recycling and disposal business. Waste Management of North America, Inc. is a wholly-owned subsidiary of Waste Management, Inc., which is involved in all facets of solid waste collection and disposal nationally.

2. The Florida Department of Environmental Regulation (DER) is an agency of the State of Florida charged with the responsibility of regulating solid waste management facilities and with permitting their initial construction and operation. It is charged with reviewing applications for permits for construction of such facilities, for reviewing applications for dredge and fill permits in wetlands or waters of the State and, as pertinent to the project involved in this proceeding, for storm water management and storage of surface water and the regulation thereof through its permitting and enforcement authority contained in Chapters 403 and 373, Florida Statutes, and Titles 40C and 17, Florida Administrative Code.

3. The Petitioners are Coastal Environmental Society, Inc. (CESI), a not-for-profit Florida corporation established for the purpose of protecting natural resources. St. Johns Preservation Association, Inc. (SJPA), also a not-for-profit Florida corporation established for the purpose of protecting the community, including environmental concerns; Baldwin-Maxville Coalition, Inc., also a not-for-profit corporation established to promote the health and welfare of its community, including environmental concerns; William McCranie, a resident of Jacksonville, Florida; Darryl Sperry, a resident and citizen who

lives 1 1/4 miles from the proposed landfill site in Baker County. All Petitioners have been established to be substantially affected by the proposed permitting and the projects related thereto and all have met pertinent standing requirements as a matter of fact and law. The Respondents do not contest the standing of the Petitioners.

#### Background and Purpose of the Project

4. The purpose of the proposed landfill facility is to address the solid waste disposal needs of the City of Jacksonville and Duval County (the City). The City currently disposes of solid waste at two landfills. One is on the east side of Jacksonville on Gervin Road, and the other is located in the north area of Jacksonville on Island Road. The presently used, east landfill is an unlined landfill currently operated pursuant to a DER Consent Order, in connection with which closure of that landfill is planned. The north landfill consists of three unlined cells and one lined cell. The City currently has unused landfill capacity at these two landfills which will last approximately one more year, but has also sought approval for expansion of the north landfill which would provide about two more additional years of capacity, if approved. The proposed landfill project, if approved, constructed and operated, would meet these solid waste disposal needs for approximately 20 to 25 years.

5. The project at hand began when the City issued a Request For Proposal for private companies to submit bids to the City for construction of additional landfill capacity somewhere

to the northwest of Jacksonville in Duval County. Two companies that met qualifying requirements submitted proposals in response to the request for proposals. Trail Ridge was one of those two qualifying bidders. The City selected the Applicant for contract award and then entered into a contract.

6. The Applicant has an option to purchase the proposed landfill site from Gilman Timber and Land Company (Gilman, Gilman Paper Company). After issuance of the permits to the Applicant, the option would be exercised. Thereafter the property would be immediately conveyed to the City from the Applicant. Thus the site of the proposed facility will ultimately be owned and controlled by the City, although the Applicant will operate the landfill under its contract with the City. Gilman presently uses the 1,288 acre site and several thousand surrounding acres for growing timber, principally pine trees, in a pine plantation-type operation grown for use as pulp wood. Much of the site and surrounding Gilman land is characterized by pine trees grown to an age of 20 years or less and then harvested. A great deal of the site property has recently been cut, chopped, plowed re-bedded and re-planted with pine trees. Although some of the site is characterized by mature timber, much of the timber has been recently planted or is otherwise timber not yet mature enough for harvest.

The option agreement provides that Trail Ridge will purchase the property from Gilman for \$10,000 per acre. The City will then purchase the 1,288 acres from the Applicant for \$2,600 per acre, which the Applicant maintains is the current, fair-

market-value for the land as it is currently used as pine plantation for growing pulp wood. These terms and conditions are a part of the City's Request For Proposals. In addition to paying the Applicant \$2,600 per acre for the 1,288 acre site, the City will pay the Applicant a fee over the life of the operation of the proposed landfill. The fee, amortized over the 20-year span of the agreement, will make up the difference between the Applicant's \$10,000 per acre purchase price paid to Gilman and the City's \$2,600 per acre initial purchase price paid to the Applicant. The City will thus ultimately re-pay Trail Ridge the \$10,000 per acre for the purchase price for the property. The Applicant corporation will operate the landfill over its entire useful life and then close it. Thus, the Applicant's own figures show the land is valued at \$3,348,800. The record does not reflect the reason for the purchase price paid to Gilman being \$12,880,000, of which the City will repay \$9,000,000 to the Applicant in the form of the operation fee, over and above the initial payment to the Applicant of \$3,348,800. In any event, the utilities payment to the Applicant of the \$12,880,000 for the land and the operation of the landfill only represents the recompense to the Applicant for the purchase funds expended for it to buy the site from Gilman. Additionally, the Applicant, through its option agreement with Gilman, is required to pay Gilman a \$60,000 per month option fee \$15,000 per month of that must be paid during the pendency of the option, with the remainder of the \$45,000 monthly fees due upon closing of the purchase.

7. The portion of the operation fee paid by the City over and above the \$2,600 per acre initial purchase price, attributable to the land appraisal itself, will be paid by the City on the basis of a certain dollar fee-per-ton of solid waste handled and disposed of in the landfill by the Applicant. Testimony indicates this will be approximately \$8.00-\$15.09 per ton, although the evidence as to which amount is indefinite. The testimony of Applicant's witness Allen, in any event, references these amounts as applicable to the City's solid waste "stream" handled by Trail Ridge at the proposed facility. Its contact with the City assures the Applicant of a minimum of 569,000 tons of waste per year to which the fee would apply. The City currently generates approximately 750,000 tons of waste per year. There is no evidence of what the construction or other capital costs or operation expenses related to the proposed facility will be over the useful life of the facility for the Applicant or related corporations..

#### Site and Design

8. The proposed site is 1,288 acres in size, located in southwestern Duval County, approximately three miles south of Interstate Highway 10, 1.5 miles west of U.S. Highway 301 and 1.14 miles north of State Road 228. The site is located in a sparsely populated area approximately 4 to 6 miles from the City of Baldwin, 5 miles from the City of Macclenny and 2 miles from the City of Maxville. A substantial portion of the proposed site will be left undisturbed and used as a buffer area to separate it from any surrounding development. There are water supply wells

within fairly close proximity to the site. One well is within a mile of the site and three are approximately 1.5 miles southeast of the site.

9. The proposed facility will include both a Class I and Class III solid waste disposal area. The Class I area will be approximately 148 acres in size, and the Class III area, 28 acres. The Class III disposal area will only be used for non-household refuse such as construction debris, tree and shrubbery clippings and the like, which will not generate deleterious substances in liquid or gaseous form, as will the Class I landfill. The remainder of the 1,288 acres will be used for buffer zones, dirt borrow areas, storm water management facilities and ancillary facilities necessary to the day to day operation of the landfill. No part of the Class III disposal area will be located within 200 feet of jurisdictional wetlands, which are the closest bodies of water.

10. The project will be located on "Trail Ridge," which is a relatively elevated geographic feature, extending generally in a north-south direction in western Duval County. Geologically, it is an ancient sand dune. There is a substantial decline in elevation of this portion of the ridge from west to east, which produces surface water drainage patterns in a west to east direction at the site, also accompanied by surface water drainage patterns in a southerly-northerly direction into wetlands which occur on the south and north verge of the site, because the site is a prong or easterly extension of Trail Ridge lying between wetlands which occur on the northerly, southerly and easterly boundaries of the Class I disposal site.

11. The 1,288 acres, including the landfill sites themselves, have been used for silvi-culture practices since 1948 or earlier, and are currently managed primarily as a slash pine plantation grown for pulp wood purposes. The present owner of the site, Gilman Paper Company, plans to continue this use of the site should the landfill project not be approved and constructed. Since 1948, the entire site, including much of the wetlands thereon, have been logged, some portions of it as many as three times.

The silvi-culture practices at the site include clear-cutting, chopping, burning, harrowing, tilling and bedding of the soil, and planting of pine trees. The pine trees are grown to be harvested on a 20-year cycle or less. Due to these intensive silvi-cultural practices, the natural conditions of the site have been significantly altered and much natural vegetation, such as bottom-land hardwoods, has been replaced by planted pine trees. The area has been extensively ditched for drainage purposes and logging roads have been constructed throughout the site.

12. The design of the Class I disposal area of the landfill includes three major components: a liner system, which includes a permanent leachate collection and removal system, a cap and closure system and a gas control system. The Class I disposal area is designed to be 140 feet high when the landfill is completed and closed in approximately 20-25 years. It will have typical landfill refuse "lifts," of approximately 8 to 12 feet in height, with a side slope grade of three horizontal feet to one vertical foot of elevation gain. This is the maximum



grade steepness allowed by DER rules. The Class III landfill, in which no household garbage, chemicals, oils and greases or other deleterious substances will be deposited, will include only a cap and closure system.

13. In order to carry out Department regulatory requirements designed to contain waste permanently in a well-defined area and to minimize the amount of leachate produced within a landfill, as well as to collect and remove leachate that is produced, the landfill will have, in effect, a double liner system. The liner system is designed to contain the leachate produced when rain water contacts waste in the landfill and to cause that leachate to percolate vertically downward through the landfill, capture it in the liner system, prevent it from contacting groundwater and to remove it and treat it. Leachate from the Class I disposal area will be contained by the liner system and removed by a leachate collection and removal system. The liner system, starting from the bottom and proceeding upward, will consist of a 6 inch thick layer of compacted, subgrade soil. Over that layer, a prefabricated "bentonite" clay-like material will be deposited. Directly over the bentonite layer will be a high density polyethylene liner (the secondary liner) called a "geomembrane." The bentonite material has the characteristic of swelling when contacted by a liquid so that, if the geomembrane leaks, the bentonite will swell and plug the hole in the liner above it. On top of the bentonite layer and the geomembrane layer, is a synthetic drainage material called "geonet." Geonet has a very high transmissivity rate and therefore has great

capacity to conduct water within its own plane. Lying immediately above the geonet material is a geotextile filter designed to keep sand out of the pores or interstices of the geonet. Above that geotextile filter is a second geomembrane (the primary liner). Above the second geomembrane is another geonet layer, as well as another geotextile filter layer. Then to protect the entire liner system from damage, two feet of clean sand will be placed above the uppermost geotextile filter layer. The two feet of sand also acts as a drainage layer for the uppermost geonet. The leachate that percolates down through the waste and the sand will contact the geonet and then be carried down slope on top of the geomembrane. This constitutes the leachate collection system. The bottom geonet is called the "leak detection system." This is because, if a hole develops in the primary liner, any leachate coming through the hole will be quickly drained away through the bottom geonet. The bottom geonet thus operates as a backup leachate collection system, since any leachate reaching the bottom geonet will also be discharged into the leachate removal system. If a leak should develop in the secondary liner, the bentonite material would quickly plug the leak, swelling and absorbing that liquid.

14. The Petitioners have stipulated that the Applicant has proposed a liner system and leachate collection system for the Class I disposal area which meets all criteria of Chapter 17-701, Florida Administrative Code, except as to the requirements of Rule 17-701.050(5)(c), (e)3. and 4. and (f)3., Florida Administrative Code.

15. The Applicant demonstrated that the liner system and leachate collection system will meet the criteria of Rule 17-701.050(5)(c), Florida Administrative Code. The liner system will be installed in accordance with a quality assurance plan. A specific condition already agreed upon will require the Applicant to submit for approval a revised quality control and assurance plan for installing the Class I synthetic liner system, after selection of the liner manufacturer and prior to the liner's installation. The liner system is designed so that it will be protected from puncture by waste materials or landfill operation equipment. In addition to the two feet of sand placed on top of the entire liner system to protect it, when initial waste disposal begins, the first lift of waste across the entire area of the liner system, as it is installed in phases, will be composed of 6-8 feet of "select waste" to protect the liner from puncture. Select waste is waste containing no pipes, roots or other potentially puncturing objects which could penetrate the sand layer to damage the liner system. A quality assurance engineer will be on site full-time supervising the initial placement of the select waste until that phase of the landfill operation is completed. A grant of the permit should be so conditioned.

16. The Applicant has established that the liner system and leachate collection system will meet the criteria of Rule 17-701.050(5)(e), Florida Administrative Code. The leachate depth on top of the primary and secondary liners will not exceed a foot because the geonet has the capacity to quickly remove

leachate from the liner. The actual hydraulic head of leachate on the primary liner will be only approximately 1/4 inch. The depth on the secondary liner was shown to be even less.

17. The liner system and leachate collection system will meet the criteria of Rule 17-701.050(5)(e)3. and (f)3., Florida Administrative Code. The design of the collection system, including the geotextile filter, will prevent clogging of the system throughout the active life and closure period of the landfill, primarily by placing a gravel aggregate around the collection pipe so as to prevent debris from entering the system. A pilot line will also be installed in each collection pipe to facilitate access for mechanical cleaning, should it be necessary. In the unlikely event of an obstruction in the system, the leachate would simply bypass that area and continue down-grade to the next downstream leachate collection pipe and be removed from the landfill for treatment by that means.

18. The liner system and leachate collection system will also meet the criteria of Rule 17-701.050(5)(e)4., Florida Administrative Code. The leachate collected will be carried downhill to pipes at the east end of the landfill. The leachate will then be pumped from the pipes into storage tanks. Trucks will then be filled with leachate to be transported to the City's Buckman Regional Wastewater Treatment Plant, owned and operated by the City, for treatment and disposal. Unrefuted evidence shows that this plant has adequate capacity and treatment capability to safely treat and handle the leachate. The truck loading areas will be equipped with berms and other means of

protecting the surrounding wetlands, surface and groundwaters from leachate spills during the truck filling process. The Applicant's evidence does not demonstrate, however, that the tanks themselves and the area surrounding them will have protective measures for containing leachate spills. In order to comply with the above rule, the totality of the evidence concerning the leachate collection, disposal system and treatment method demonstrates that the tanks should be accompanied by a surrounding containment system (walls or berms) which will have the capability of containing the entire capacity of a tank should failure of a leachate collection tank or related piping or valving occur. Any grant of the permit should be so conditioned.

19. The Petitioners have stipulated, and the Department agrees, that the Class III disposal area is exempt from the liner system and leachate collection system requirements of the above-cited rule provisions.

#### Covering and Closure System

20. Both the Class I and Class III landfills are designed with a composite soil covering system to minimize the amount of rainfall which can come into contact with the solid waste so as to minimize the creation of leachate. During the day to day landfill operations, a 6 inch initial cover will be applied to enclose each Class I landfill disposal cell on a daily basis, except for the working face itself, where waste is currently being deposited. The working face may be left uncovered, so long as solid waste is scheduled to be placed on it within an 18 hour period. A 6 inch initial cover will also be

applied once every week to enclose each Class III landfill disposal cell. Thereafter, an intermediate cover of one foot of compacted earth will be applied on top of the initial cover within seven days of initial completion, if a final cover or additional lift on top of that completed cell is not to be applied within 180 days of cell completion. The initial cover will consist of sandy soil, over which will come the intermediate cover of one foot of compacted earth. The final cover will be applied to those portions of the landfill which have been filled with waste to the extent of designed dimensions at the time those portions have been filled. The final cover, to be placed on the sides of the landfill and ultimately upon the top at the end of its useful life, will be placed on top of the 12 inches of intermediate soil layer and will consist of 12 inches of compacted clay with a permeability of  $1 \times 10^{-7}$  cm/sec. Next will come a layer of 12 inches of compacted soil and then a final layer of 12 inches of top soil, upon which the Applicant will plant grass for erosion control.

21. Erosion of the cover layers on the side slopes is designed to be minimized by closing areas of the landfill as they are filled, an operational procedure commonly referred to as "close as you go." The final cover layers placed on the landfill outside of the clay cap are designed to allow the establishment of a planted grass cover as soon as possible to minimize erosion of the cover material and the side slopes. In addition, the intermediate cover placed on top of and between each cell, beneath the clay layer surrounding the outside perimeter of the

landfill, has a high permeability, thereby acting as a drainage layer to direct rainfall and leachate vertically downward to the leachate collection system, as well as to collect runoff so as to retard erosion.

22. Erosion is also retarded, as is the runoff of storm water/leachate over the side slopes of the landfill, by containing storm water which comes into contact with the working face of the landfill cells. This will be accomplished by minimizing the size of the working face to approximately 42 feet width. This will serve to reduce the potential for storm water to contact waste. Additionally, berms will be constructed around the working faces of each active cell which will cause any runoff or storm water which gets inside the working face of the cell to remain there and to percolate through the land fill to eventually be collected as leachate by the collection system. If enough rain falls on the working face of a cell to cause an overflow of storm water over the berms, additional berms placed on the interior slopes of the landfill will catch the overflow and divert it back through the landfill and the leachate collection system.

23. The Applicant contends that normal maintenance equipment and personnel will be able to maintain the exterior side slopes of the landfill and thus minimize erosion. However, if erosion should become a problem, the Applicant proposes to install interceptor berms constructed on the side slopes, accompanied by various geotextural fabrics or synthetic materials proposed to be imbedded on the side slopes to help anchor the

interceptor berms. These berms, however, have been demonstrated by Petitioner's witness, Mr. Peavy, to be inadequate to retard erosion. In fact, they may promote erosion because they would be insufficiently anchored to the side slope (as designed with 3:1 slope) and the downhill slope of the berms themselves is considerably steeper than a 3:1 ratio, which will actually promote erosion. The erosion problem will be discussed in further detail infra, but the proposed "optional" berm system, consisting of two proposed berms down the length of the 450 foot side slope will have to be redesigned in order to serve the purpose of retarding side slope erosion.

24. The cap or cover for the exterior side slopes of the landfill will consist of a relatively impermeable clay layer overlain by a sand layer, as well as a top soil layer. Mr. Lithman, an expert in geotechnical engineering testifying for the Applicant, established that as a result of the side slope stability analysis he conducted of the clay layer for the Class I disposal area, that the clay layer would be stable, with a safety factor of 2.9-3, which is more than adequate for a slope as designed for the Class I disposal area (3:1).

Mr. Evander Peavy, testifying for the Petitioners and accepted as an expert witness in the fields of civil engineering, soil mechanics, surface water hydrology and hydraulics, agreed that there was an adequate safety factor in the clay cap layer itself and that no plane of failure would likely occur in that layer. The problem, however, lies in the sand layer immediately



predetermined or potential plane of failure will occur at the interface between the sand layer and clay layer. This is where the side slope of the landfill is most likely to fail. Failure means that the weight of the sand and soil layers on the outside of the clay layer would exceed the resisting forces, holding them back on the slope of the landfill, which would result in a deformation, slumping or break in the sand layer. If this slumping or break occurs in the sand layer and is not immediately repaired, rain water can erode the clay layer, which is highly erodible if exposed to rainfall. If not redressed soon, this could result in exposure of the waste of the landfill to rain water with the result that leachate could seep out of the side slopes of the landfill and enter surface waters of the State through the functioning of the storm water system.

25. The most likely layers a civil engineer would analyze to determine the stability of the side slope would be the sand and soil layers above the clay layer because they are the weaker layers in terms of adhesion, shearing and resistance to downward movement under stress. However, Mr. Lithman, Trail Ridge's expert who conducted a side-slope stability analysis, only analyzed failure in the clay layer initially, until he was called on rebuttal to address findings of Mr. Peavy.

The DER rule provision that allows 3:1 ratio side slopes for the sides of such landfills only serves as a guideline or maximum steepness criteria for design engineers. It does not relieve an engineer from analyzing slope stability in accord with good engineering practices. Analyzing side slope stability must

be done in terms of establishing "safety factors." An acceptable safety factor for a landfill is 1.5 because, if failure occurs, solid waste can quickly be uncovered which can cause leachate contamination to surface waters of the State. A safety factor of 1.5 is the commonly accepted factor for earthen dam design because of the risks posed by failure of such slopes or embankments. Mr. Peavy is extensively experienced in the design of earthen dams and similar earth works, including extensive analysis of slope constituents and design for stability under shear forces and other failure-inducing factors, as well as for resistance to erosive forces. He was engaged in such phases of engineering work for approximately 26 years, during which period he designed and oversaw construction of numerous dams, revetments and other earthen embankments and works of many types. Because of this, and because of the commonly accepted engineering methods and calculations he used in analyzing the stability and integrity of the side slopes of the landfill, involving plane of failure analysis and erosion damage analysis, his testimony is credited over that of the other witnesses testifying on the subject matters involving side slope integrity of the landfill.

Because of this, a safety factor was established for the side slopes of the landfill, for the sand and soil layers of 1.5. Safety factors of 1.25 are indeed commonly used for highway embankments, but highway embankments are not designed with predetermined or potential planes of failure, such as is involved at this landfill (as presently designed) between the sand-soil layers and the clay layer.

Trail Ridge's expert witness in this area, Mr. Lithman, had testified that a safety factor of 1.25 would be adequate because it was typical of DOT earthen embankments for roadways. Mr. Niehoff testified that a 1.3 safety factor was sufficient. In fact, however, Mr. Peavy, testifying for the Petitioners, calculated the safety factor of the side slopes of the landfill to actually be 0.85, using his initial assumption of a weight for a cubic foot of the sand-soil layer of approximately 100 pounds. Mr. Niehoff testifying for Trail Ridge found no basic fault with Mr. Peavy's analysis of the safety factor and alleged that his analysis was done with accepted engineering procedures, but only with use of slightly different assumptions. He testified that if he had used the same assumptions as Mr. Peavy, he would have reached the same conclusions. Mr. Peavy also calculated his safety factor again by employing the same equation used by Trail Ridge's expert, Mr. Lithman, and assumed instead that the unit of sand-soil layers was 125 pounds per cubic foot, as did Mr. Lithman. This assumption coupled with the internal angle of friction of 35 degrees used by Mr. Peavy, which was shown to be a conservative assumption, resulted in a calculated safety factor of 1.05, which is still unacceptable, even under Mr. Lithman's analysis, because Mr. Lithman opined that the safety factor should be 1.25. Using Mr. Peavy's equation, but his own assumptions as to angle of friction and weight per cubic foot of the sand-soil layer, Mr. Niehoff, testifying for the Applicant, calculated a safety factor of 1.3. This safety factor also is unacceptable because it is less than the 1.5 safety factor

established as proper by Mr. Peavy's testimony and, indeed, if Mr. Lithman's safety factor of 1.25 could be deemed acceptable, the 1.3 figure would result only in a marginal safety factor at best.

26. The major difference between the safety factor calculations of Mr. Peavy and Mr. Niehoff is that Mr. Peavy assumed that the sand-soil layer above the clay layer would be saturated, while Mr. Niehoff assumed that only 19 inches of the 24 inch sand-soil cover layer would be saturated by rainfall. However, Trail Ridge's own experts, Mr. Lithman and Mr. Niehoff, offered conflicting testimony between themselves on the amount of saturation to be expected. Like Mr. Peavy, Mr. Lithman did his analysis on the basis that the sand-soil layers would be saturated completely, contrary to Mr. Niehoff's subsequent testimony that this would not happen beyond a 19 inch depth in the layer. Mr. Niehoff's conclusions that the sand-soil layer would not become saturated or valid only if there is a complete grass cover over the entire side slopes of the landfill. He admitted that if the sand-soil layer became saturated, the safety factor would only be 1.1 or less according to his own calculations.

27. Trail Ridge offered no preponderant evidence to establish that an adequate grass cover could be established so as to prevent saturation of the sand-soil layer during the design 25-year, 24-hour storm event (approximately 8-9 inches rainfall in 24 hours). The evidence indicates, rather, that establishing and maintaining a grass cover on the side slopes of the landfill

will be very difficult to achieve on a uniform, completely grassed basis. This is because of erosion and because of the damage by equipment necessary to repeatedly repair erosion damage and because of the fact that much of the side slopes of the landfill will be, in effect, under construction until the landfill is completely built out and completed at the end of approximately 20 years. Even if the lower several lifts of the landfill, when covered on the "cover as you go" basis can achieve them, more recently deposited, will not have a complete grass cover. Thus, there is a substantial likelihood of saturation of the sand-soil layer, during storm events of the type for which the landfill is designed. Further, the volume of water that would saturate into the sand-soil layer, even if the landfill was completely grassed, will still be sufficient to totally saturate the lower 90 feet of the landfill side slopes above the clay layer in the event of a 25-year, 24-hour storm event.

28. If the sand-soil layers become saturated, sloughing or failure of those layers will occur at the toe of the landfill. If that occurs, then the clay layer, protective cap can be quickly eroded by subsequent rainfall and surface runoff. This will cause the waste within the landfill to be exposed to rainfall, generating leachate which can migrate to the surface of the landfill and thence to the storm water system and ultimately to the surface waters of the State. No provisions have been made in the design to remove water from the sand-soil layers once it reaches the area near the toe of the landfill to prevent sand-soil layer failure. The impermeability of the clay layer would

prevent the rainfall from migrating through the clay layer and continuing to the interior bottom of the landfill to be collected properly as leachate because the clay layer properly should be an impermeable barrier to storm water. Thus, a saturated condition of the sand-soil layers would be most likely to cause their sloughing and failure near the toe of the landfill, with resulting damage by erosion or cracking to the clay layer with the effect of allowing leachate to escape to surface waters of the State.

29. Although the Applicant's expert, Mr. Lithman, opined that side slope stability had not been a problem with the 3:1 ratio slopes at the City's Rosemary Hill Landfill, he admittedly was unaware of the height or length of the side slopes of that landfill. The longer the side slopes and the higher the landfill, the more likely it is that the sand-soil layers will become saturated and fail during design storm events or shortly thereafter, especially as the landfill, in its later years is built both longer and higher toward its final configuration. Further, Mr. Lithman and the Applicant's evidence does not reveal the composition of the side slopes of the Rosemary Hill Landfill, in terms of whether or not the clay and sand-soil layers designed in the proposed landfill are present. Due to the height of the proposed landfill, the lengths of its side slopes and the absence of design features such as terraces and benches, failure of the side slopes, especially in the later years of the landfill's life and, indeed, after closure (closed landfills can generate leachate) is likely to occur, based upon the facts established

through Mr. Peavy's testimony. The likely side slope failure is a result of the design flaw and is not a problem which can be cured by normal operation and maintenance activities. Indeed those activities may aggravate the problem through their deleterious effect on the establishment of a uniform, complete grass cover.

30. Because of the height of the proposed landfill, the length and slopes of its sides and the lack of design features such as benches or terraces, it is likely to experience significant side slope erosion due to storm water. The volume of rain water that would accumulate and flow down the sides of the landfill will achieve velocities which would destroy even a well established grass cover, especially in the later years of the landfill's life when the sides have reached significant length and height. Storm water would thus gain sufficient velocity to destroy a grass cover and to particularly attack those portions where the grass cover is incomplete, thinned or possessed of an insufficient root mat to hold the soil. Once erosion starts, small rills will form which will soon develop into deeper gullies, ultimately penetrating the sand-soil layer. It can then quickly erode away the resulting exposed clay cap layer, exposing the waste to storm water. Leachate could thus leak from the landfill. Because of the present design of the Class I landfill, the only way to repair erosion damage is to push material from the bottom with heavy machinery, such as bulldozers. These erosion maintenance activities themselves would prevent the establishment of a uniform solid grass cover.

31. The presently operated East Landfill in Duval County exhibits both side slope failure and erosion damage due to rainfall on its 3:1 slopes, including damage to the grass cover. Erosion damage to the slope layers due to erosion maintenance activities of the type which would be necessary to repair damage at the proposed landfill has occurred. Both erosion and side slope failure will ultimately result in exposure of solid waste to rainfall runoff and assure side slope seepage of leachate. The material eroded or sloughed away from the side slopes can obstruct the drainage conveyance system surrounding the landfill, rendering the MSSW/storm water system inoperative.

32. Because of the presently proposed design of the landfill, it would be impossible to effectively correct side slope erosion or failure, due especially to maintenance activities. Even if a uniform grass cover could be established in the last years of landfill operation and after closure, the great length and slope of sides of the landfill by that time would result in erosion even if the grass cover were initially uniform and solid on the entire slope of the landfill.

33. A change in the design of the landfill, however, whereby 15 foot wide benches or terraces would be incorporated into the sides of the landfill every 20 or so vertical feet, would likely prevent the side slope erosion and failure established to be likely by Mr. Peavy. In fact, benches or terraces similar to those found to be required by Mr. Peavy have had to be recently installed at the East Landfill in Duval County in order to resolve side slope erosion and failure problems on



those 3:1 slopes. The mere installation of interceptor berms, as depicted in TRL Exhibit 28, would not alleviate side slope failure and erosion problems, but rather would aggravate them and would reduce the safety factor of the side slopes to 0.5. Consequently, in order to grant the permit, it should be conditioned on the landfill being re-designed and constructed so as to incorporate benches or terraces at approximately 20 foot intervals on the slope of the landfill from bottom to top. Although this may potentially reduce the volume of space within the landfill, depending on how it is accomplished, it has been established that, without the use of the bench or terrace system, pollutant leachate cannot be reasonably assured to be prevented from entering State waters and wetlands.

#### Leachate Control

34. Leachate is any water coming in contact with solid waste. The chemical constituents of leachate which are present and will be present in the Duval County solid waste stream, to be disposed of at the proposed landfill, include chlorobenzene, volatile organics of various types, benzene, acetone, phenolic compounds, gasoline constituents, chloroform, methylethylketone, methylene chloride, toluene, xylene, ethylbenzene, total organic carbon, nitrogen, phosphorus and metals such as aluminum, chromium and zinc. Leachate thus contains toxic, hazardous and priority pollutants which will be disposed of in the landfill. The breakdown and degradation of solid waste can also generate additional toxic or hazardous compounds and substances.

35. Leachate can potentially be discharged in a proposed landfill into groundwater and surface waters in a number of ways, including leakage from the bottom of the landfill liner into groundwaters, including into the Class I storm water pond and surface waters of the State through discharge from the groundwater into the storm water pond system. It could also be deposited into the storm water system through spillage of leachate where tanker trucks are loaded, through seepage of leachate through the side slopes of the proposed landfill by damage to the integrity of those side slopes as found above. The Petitioners maintain that side slope seepage of leachate will occur because the permeability of the intermediate cover layers surrounding the cells of the landfill is significantly less than the permeability of solid waste. This will have the result, according to Petitioners, that leachate will migrate horizontally through the intermediate cover layers to the sides of the landfill. Once there it arguably would migrate to the surface of the landfill side slopes through erosion of the outer cover, and fissures in the clay due to drying from exposure to the sun and through erosion. Additionally, the Petitioners maintain that leachate will migrate downward through the peripheral intermediate cover layer under the clay and contact the impermeable clay anchor cap, build up hydraulic head pressure and thus seep out through landfill sides near the toe of the landfill. The Petitioners maintain that Trail Ridge's policy and proposal to punch holes in the intermediate cover layers atop the cells of the landfill to encourage downward migration of leachate

and discourage horizontal migration of leachate through the intermediate cover layers will be ineffective because the intermediate cover is more permeable than the solid waste itself so that punching holes in the intermediate cover to allow the leachate to migrate down through solid waste will actually not occur. Additionally the Petitioners contend that the filter system and the storm water pond will not treat the dissolved chemical components of the leachate specified in Petitioner's Exhibit 2 and that these dissolved components will move through the sand filters into waters of the State.

36. Contrary to Petitioner's contentions, however, the Applicant has demonstrated that leachate will not avoid capture by the leachate collection system by seeping horizontally through the cover or cap and out the sides of the landfill, provided that the side slope failure and erosion prevention measures found to be necessary in the above Findings of Fact are instituted in the design, construction and operation of the landfill. The design of the cap and closure system is basically a side slope seepage prevention system, except for the absence of terraces or benches. The intermediate soil cover beneath the clay cap and surrounding each cell of the landfill acts as a drainage medium. It will channel any seepage of leachate from the cells of solid waste through the permeable, intermediate soil cover, generally in a downward direction, both in and between the cells of the landfill throughout its cross-section, as well as downward through the intermediate soil cover lining immediately beneath the clay cap around the periphery of the landfill. This

system, if the above design deficiency is corrected, will tend to force the leachate downward into the collection system, as opposed to horizontally out the cover or the sides of the landfill. The reason this system will work in this manner is because the intermediate cover soil is more permeable than the solid waste itself. The permeability of the intermediate cover will promote vertical movement of the leachate because, as the leachate migrates across each cell, it will encounter the vertical, intermediate soil cover layer at the side of each cell and that will promote its moving downward toward the collection system. The water in the landfill will thus follow the path of least resistance, so that the vertical portions of the intermediate cover layers surrounding each cell and surrounding the sides of the landfill beneath the clay cap, coupled with the force of gravity, will provide a preferential path downward toward the leachate collection system. This finding includes consideration of the Petitioners' contention that leachate will migrate downward and contact the impermeable clay anchor cap and build up head pressure so that it will seep out of the sides at the toe of the landfill. The intermediate cover layer underlying the sides of the landfill beneath the clay anchor cap is connected with the leachate collection system underlying the bottom of the landfill. Thus, a continuous conduction of leachate down through the intermediate cover, permeable layer will allow the leachate to seep downward all the way to the leachate collection system rather than pooling behind the impermeable clay anchor cap. This condition will be enhanced by

the fact that surrounding each cell is the approximately vertical, permeable intermediate cover layer, throughout the entire cross-section of the landfill, such that much of the leachate will migrate downward in the interior of the landfill. Because of the ready conductance of leachate in a downward direction by the intermediate cover layers, Trail Ridge's policy of punching holes in the intermediate cover layer on the top of each cell in order to seek to prevent side slope seepage of leachate will be ineffective because the intermediate cover is more permeable than the solid waste. Thus, this procedure is unnecessary and, in fact, could become counter-productive to the extent that punching holes in the intermediate cover would allow rain water mixed with leachate to contact more of the solid waste contents of the landfill as it migrates down through the interior of each solid waste cell. This would result in a more highly concentrated form of leachate, which could pose more deleterious threats to ground and surface waters should it escape to ground and surface waters. Therefore, any grant of the permit should be conditioned on a prohibition of the Applicant thus violating the integrity of the intermediate cover layer overlying each cell as the landfill is built up in lifts.

#### Gas Control System

37. The Class I disposal area is designed with a gas control system which will prevent explosions and fires caused by the accumulation of methane gas due to decomposition of the waste in the landfill. The gas control system will prevent damage to the vegetation on the final cover of the closed portions of the

landfill or vegetation beyond the perimeter of the property. It will prevent objectionable odors off site. The Petitioners have stipulated that the Applicants' gas control system will be designed in accordance with Rule 17-701.050(5)(j), Florida Administrative Code. Although the Petitioners presented testimony of various persons who live in close proximity to other landfills, which were at one time operated by Waste Management subsidiary companies, neither the persons who testified of odor problems at those landfills, nor other witnesses presented testimony to show whether any of the landfills utilized a gas control system or one of equivalent design to that proposed for the subject facility. No evidence was presented to support a finding that the proposed landfill facility would produce objectionable odors to any significant degree. The Petitioners have further stipulated that the Class III disposal area is exempt from the gas control system requirements set forth in Rule 17-701.050(5)(i) and (j) and (6)(1), Florida Administrative Code, and the Department agrees.

#### Hydrogeology and Ground Water Monitoring

38. The Applicant filed as part of its application, and placed in evidence, a hydrogeological survey and groundwater monitoring plan, contained in TRL Exhibit 51. The hydrology of the proposed landfill site may fairly be characterized as complex because it contains many different features such as recharge and discharge areas, varying zones of conductivity, a sand component to the surficial aquifer as well as a rock aquifer component and multi-directional groundwater flows. Additionally, wetland

systems occur down-gradient from the higher levels of the surficial aquifer on the north, east and south sides of the proposed Class I disposal area. From the surface grade down to a depth of approximately 100 feet lies the surficial aquifer, which primarily consists of a coarse sand medium. Lying below the sand aquifer is a confining unit (relatively impermeable) identified as the Hawthorn Group, which consists of denser marls, dolomites and silver clays. Beneath the Hawthorn layer, at a depth of approximately 300-400 feet, is the Floridan aquifer, which serves as the principal deep water supply source for this part of Florida. Additionally, immediately above the Hawthorn layer in the deep zone of the surficial aquifer, a "rock aquifer" exists under a portion of the landfill site, generally the eastern-most portion. It was not shown to be continuous throughout the site. The rock aquifer is connected to the sand surficial aquifer lying above it. Zones of varying higher and lower permeability occur at various places within the surficial aquifer. Generally, groundwater at the site flows down-gradient in an easterly direction, caused by rain or surface water recharging the surficial aquifer on the higher portions of Trail Ridge, including the western side of the landfill Class I disposal site. The surficial aquifer then discharges this groundwater to the land surface and the wetlands lying on the eastern side of the site. Additionally, some northward and southward flow of groundwater occurs from recharge areas to the wetlands lying on the northerly and southerly boundaries of the Class I disposal site in the wetlands. The specific condition 19 contained in the

Department's Notice of Intent to issue permit and draft permit requires the Applicant to periodically (quarterly) sample monitoring wells to ensure that water quality standards are not exceeded at the boundary of a zone of discharge established by that specific condition and authorized by Rule 17-28.700(4)(a), Florida Administrative Code. A groundwater monitoring plan has been developed by the Applicant, with accompanying hydrogeological survey as mandated by Rule 17-28.700, Florida Administrative Code. The proposed groundwater monitoring system consists of 42 monitoring wells in and around the area of the proposed Class I and Class III landfill sites. The system is designed to monitor upgradient and downgradient flows in wells constructed to sample from the shallow and intermediate zone and from the deep zone (to some extent) on the east boundary of the Class I disposal site. Specific condition number 18 of the Notice of Intent to grant the permit and draft permit, to which the Applicant has agreed, requires that a detailed chemical characterization of a representative sample of leachate be performed, so as to allow for any necessary modifications to the list of chemical substances to be analyzed in water samples drawn from the monitoring wells on a quarterly basis.

39. Although there are up-gradient monitoring wells for the shallow and intermediate portions of the surficial aquifer, there are no upgradient monitoring wells for the deep zone of the surficial aquifer. There are no upgradient monitoring wells on the west side of the landfill in the deep zone. The deep zone of the surficial aquifer is the zone between



the intermediate zone and the top of the Hawthorn confining bed. The rock aquifer is present beneath the proposed landfill site and was encountered at well locations B-7, B-8, B-12 and B-14. That rock aquifer is hydrologically connected to and part of the deep zone, which is hydrogeologically connected throughout the site to the uppermost portions of the surficial aquifer lying beneath the landfill. The rock aquifer is a significant source of drinking water in Duval County and the surrounding northeast Florida area and is used as a supply source for domestic and commercial wells within one and one-half miles of the landfill Class I site.

40. "Sinkers" are immiscible liquids contained in landfill leachate that are denser than water. When released from the landfill they would sink to the first low permeability unit in the surficial aquifer. This would be at the bottom of the surficial aquifer at the rock unit. Once they encountered a lower permeability unit or strata, sinkers would then move in a more lateral direction downgradient in undetermined directions. The silty clay layer depicted on Figure 9 of TRL Exhibit 51 would intercept those sinkers and cause them to tend to move in a direction toward the silty clay layer intercepted by well B-1. At that point the sinkers would then have a tendency to move in a north or south direction on top of the confining zone. The direction those sinkers would move, following a gradient, cannot be determined at present from the groundwater monitoring plan because no deep wells are proposed in either of those areas which could detect sinkers. The groundwater monitoring plan is thus

not adequate for the deep zone or to detect pollutants that could migrate off site in the rock aquifer because there are no monitoring wells in the deep zone on the west, north and south sides of the Class I landfill area. Monitoring for sinker compounds in the deep zones is thus insufficient and water supply wells nearby in the deep zone would be at risk because there is no way to detect pollutants between those water supply wells and the source of the pollutants at the landfill.

41. The groundwater monitoring plan is inadequate because there is insufficient information to determine the direction of water flow in the deep zone. Sufficient upgradient monitoring wells in the deep zone are necessary in order to determine the direction of water flow in the deep zone which will in turn indicate where additional deep zone monitoring wells should be located to detect contaminants migrating off site.

42. Leachates also contain contaminant constituents or compounds called "floaters." Floaters are immiscible liquids which are lighter or less dense than water. They tend to float on top of the groundwater table. The hydrologic information depicted with the application and the Applicant's evidence is not sufficient to determine where floaters might migrate. The shallow monitoring wells referenced in TRL Exhibit 42 would not adequately detect floaters at or near the water table surface. Due to the lower lying stream or wetland systems on the north and south side of the Class I landfill on Trail Ridge, groundwater flows in the vicinity of those areas are likely moving northward and southward to some extent. Thus, TRL Exhibit 51, and

particularly Figure 14 of that exhibit, is insufficient to support a determination of where monitoring wells should be located because it does not include the impact of the stream or wetland systems on the north and south sides of the landfill. Groundwater contours bend into the stream areas on the north and south sides of the landfill which would indicate groundwater flow to the south and the north instead of just from west to east. The general shape of these contour lines would resemble the contour lines depicted in Figure 16 of TRL Exhibit 51. These contour lines bend back to the east and the west on the north and south sides of the Class I landfill.

43. Since there is groundwater flow to the north and to the south from the Class I landfill, intermediate and deep monitoring wells in addition to shallow wells, should be located along the west, north and south sides of the landfill. Because they are not in the groundwater monitoring plan thus far, the plan is inadequate. A grant of the permits should be conditioned on such additional wells being installed and made a part of the monitoring program, in accordance with the above findings.

44. A zone of discharge for the proposed landfill has been established pursuant to Rule 17-28.700(4)(a)2., Florida Administrative Code, which is intended to extend vertically from the base of the surficial aquifer and horizontally 100 feet beyond the footprint of the landfill or to the compliance groundwater monitoring wells, whichever is less. (See pages 611-618 of the transcript.) Therefore, even if the groundwater monitoring wells are closer than 100 feet to the footprint of the

landfill, they are to be used for monitoring for compliance with applicable water quality standards, including the primary and secondary drinking water standards for G-II groundwater, as contained in Rules 17-550.310 and 17-550.320, Florida Administrative Code. The Applicant has agreed to this location of the wells, their spatial relationship to the footprint of the landfill, to the zone of discharge and to their use for compliance purposes.

#### Storm Water and Surface Water Management System

45. The Applicant proposes as part of its permit application a storm water discharge and surface water management system. The application for permitting for that system was submitted to the DER which reviewed it using the Water Management District's permitting criteria set forth in Chapters 40C-4 and 40C-42, Florida Administrative Code. Pursuant to its independent permitting authority set forth in Section 373.413, Florida Statutes, the DER noticed its intent to issue the MSSW permit to the Applicant, based upon its opinion that the project will comply with applicable rules.

46. The proposed storm water discharge/surface water management system (MSSW system) will utilize roadside swales, perimeter ditches, catch basins, culverts, detention ponds and pump stations to manage storm water in compliance with Chapters 17-25, 40C-4 and 40C-42, Florida Administrative Code. The solid waste disposal areas will operate as watersheds, routing storm water in to the MSSW system. The retention areas have been designed to handle the retention treatment requirements of a 25-

year, 24-hour "design storm" runoff, resulting from approximately eight to nine inches of rainfall.

47. The system is comprised of three independent parts; the Class I landfill system, the Class III landfill system and the separate roadway surface water management system. The Class I system will use temporary berms to intercept storm water runoff from the cap cover system of the landfill, on top of the solid waste disposal area. These top berms will divert the storm water runoff to regularly spaced pipes which will convey the storm water into the perimeter swale located at the foot of the landfill side slopes. The runoff will then be diverted through a culvert into a concrete-lined perimeter ditch which will convey it to the pond. The top berms of the landfill also operate as erosion control features, capturing and channelling some storm water runoff away from the side slopes of the landfill, thereby assisting in erosion control. The Class I retention pond covers an area of approximately ten acres and will contain approximately 43 million gallons of water at design water levels. The peak flow of storm water runoff from a design 25-year, 24-hour storm can be accumulated and released at predetermined rates. The runoff from the first one inch of rainfall in a 72 hour period is retained and stored in the pond. No discharge will be allowed to the pond's outfall system, rather all the outfall from the runoff from the first inch of rainfall will be routed through the sand filter system prior to discharge.

48. When storm water runoff enters the pond, it will mix with the water already in the pond and become part of the

total water column. When a rainfall event then produces greater than one inch of rainfall, some water will have to be discharged from the pond by passing it through the sand filter and then discharging through the outfall structure. The water discharged is water which was already resident in the pond before the rainfall event, mixed with the current rainfall runoff from that hypothetical rainfall event. The volume of the pond is so large that storm water runoff will constitute a very small fraction of the actual water volume in the pond at any given time. On the average, it will take 33 days for a given molecule of storm water runoff to travel through the pond, the sand filter and then be discharged through the outfall system.

49. the sand filter system operates on a water level trigger device involving floats in wet wells attached to electrical switching mechanisms. When a certain water elevation in the wet wells, reflective of the elevation in the pond, is reached, the pumps automatically start and pump water into the filter chambers, causing the water to flow over a filtering sand. The filter will be maintained periodically by lowering of the water level to permit removal and replacement of the top six inches of sand in the filter.

50. The Class III storm water pond is similar in design to the Class I pond except that it will not use a top berm. Rather, a perimeter swale will function similarly to the Class I landfill top berm, intercepting storm water runoff from the top and side slopes of the Class III landfill. The Class III storm water pond is equipped with the same type of filtration and

pumping system as the Class I pond. The Class III system is designed also to retain the first inch of storm water runoff from a "design storm" rainfall in a 72 hour period. All of that runoff from the first inch of rainfall will likewise be routed through sand filtering prior to discharge.

51. The roadway storm water system utilizes grassed roadside swales to act as a retention structure to filter the storm water runoff. The runoff retained in the swales will be conveyed by pipe to a smaller detention and dispersion pond located between the Class I and Class III disposal areas and built with the same design constraints as the Class I pond. The roadway system will not use a pumping system to operate, but rather discharge will occur through natural action of gravity through the dispersion pond. The filtered storm water runoff from the Class I and Class III disposal areas will be discharged into adjacent wetlands after it leaves the ponds. The discharge will be performed by a wetland irrigation system. The irrigation system will discharge the filtered storm water through conveyance pipes to the wetland boundaries. There a series of perforated pipes will extend outward from the conveyance pipes themselves and serve as a means of gradually releasing the filtered storm water into the wetland area as a means of wetland replenishment and mitigation.

52. Concerning the issue of surface water quality, it has been established that the sand filtering systems on the Class I and Class III storm water ponds are capable of providing 100 percent of the treatment required by State water quality

standards when considered in conjunction with the treatment capability of the ponds themselves as natural lake systems. The individual sand filters each provide twice the capacity for treatment necessary which equates to a safety factor of 2. With both filters operating, there is a combined safety factor of 4. Although the Class I and Class III retention ponds are designed with filtration systems, the primary pollution removal system will be the ponds themselves operating as natural lakes. Once storm water enters the ponds, the average residence time is adequate to allow the biological processes of uptake and assimilation to function to remove the bulk of the pollutants, including those derived from any spillage of leachate into the storm water management system and ultimately deposited into the ponds. The volatile organic compounds which can occur in the leachate can largely be removed simply by the process of evaporation, due to the adequate retention time of any leachate-containing storm water which reaches the ponds.

53. It has been established that, due to the storm water pond's natural treatment mechanisms, especially the long retention time, the size and volume of the ponds, as well as the vegetated sides of the ponds, that, considering also the operation of the filter system, the water discharging from the Class I and Class III storm water treatment facility will have very low concentrations of total nitrogen, phosphorous, biochemical oxygen demand (BOD), suspended solids and heavy metals. The Applicant's expert witness on water quality and water chemistry, Dr. Harper, also assumed that the Class I



retention pond would have some leachate migration into the pond through groundwater influx. Worst case scenarios were used to estimate this possible influx and the results established a maximum deposition of 2.46 gallons of leachate into the pond over a 65 day period. This amount would be diluted by a factor of 14 million solely by new storm water runoff and rain normally expected under average rainfall conditions during such a 65 day period, without even considering the considerable dilution by the existing water volume of approximately 43 million gallons already in the pond in such a period. Dr. Harper's testimony is accepted.

54. It is unlikely that any runoff can enter the retention pond on one day and then exit within one day's time through the outfall overflow device. Even assuming that runoff occurs in excess of the designed one inch, that runoff would dilute with the large volume of water already present in the storm water pond. Thus, the new storm water would be mixed, diluted and subject to natural biological processes and the process of evaporation (of volatile organic compounds), operative in the pond before it can be released through the outfall structure. The runoff will enter the pond at the west end and discharge through the opposite or east end of the pond. The majority of water caused to be discharged through the outfall because of a larger-than-design storm event runoff would thus actually be water already present in the pond as opposed to incoming runoff from the recent rain event being deposited in the west end of the pond where the storm water system discharges from

the Class I disposal area. Even a rainfall event producing twice the designed-for volume would produce no effect on the water quality of the discharge. Further, along with the filter systems and the natural processes of biological uptake, assimilation as well as evaporation in the natural lake system which would operate in the pond, the side slopes of both ponds will be vegetated so as to further assist in uptake and removal of any pollutants present in the runoff, further mitigating any potential for water quality impacts.

55. It has been established that the surface water management system is designed to segregate surface water from leachate by minimizing the size of the landfill working face and reducing the potential for storm water to contact waste and become leachate. Further, a berm will be constructed around each working face which will encompass the entire active cell of the landfill, causing any runoff water entering the working face to remain there and percolate through the landfill to the leachate collection system, rather than entering the storm water system. If a severe rainfall event could cause leachate to overflow those berms, the design includes additional berms on the interior slopes of the landfill to catch that overflow and divert it back through the leachate collection system. The berms are re-located as the working face of the landfill changes, so they will continue to fulfill these functions on an ongoing basis. In terms of a worst case event, the Applicant has also established that the estimated impact of runoff from approximately one acre of exposed solid waste entering the retention pond would still cause no water quality impacts.

56. Further assurance of leachate segregation from surface waters is provided in a spillage control plan which would be activated in the event of leachate spillage from a tanker truck. In connection with this, any grant of the permit should be conditioned upon an adequate berm system surrounding the tank truck leachate filling device in order to contain any such spill to prevent the leachate from entering the storm water retention facilities and surface waters. Such a system should also be characterized by (and the permit conditioned upon) retention berms or other forms of containment being placed around each leachate storage tank, designed to retain the full capacity of such a leachate storage tank in the event of a catastrophic tank valve, piping or other failure.

57. It has been demonstrated, moreover, that if the leachate-storm water separation and control system were to fail in some way so that leachate directly entered the retention pond, the volume of leachate entering the pond would have to exceed approximately 150,000 gallons to cause any water quality violation in the storm water retention pond, even assuming the high concentration of contaminants in the leachate envisioned in the opinion of Dr. Robert Livingston, the Petitioners' aquatic ecologist and toxicologist. He raised concerns that pollution of the head water systems of the St. Johns and St. Mary's Rivers might result from the operation of the project. The Applicant has rebutted the concerns expressed by Dr. Livingston and Dr. Parks and established reasonable assurances that toxins and contaminants occurring in leachate will not deposit in surface

waters of the State in any significant or rule-violative amounts for the reasons expressed in the above Findings of Fact.

#### Draw-Down Effects

58. The Petitioners contend that there will be a draw-down of groundwater levels in surrounding wetlands caused by these storm water ponds and associated pumping, in violation of the Water Management District's rules and policy embodied in MSSW Handbook Section 10.6.3. This section presumes an adverse impact on wetlands will result if the system causes the groundwater table to be lowered more than five feet lower than the average dry season low water table. The Petitioners' expert in this area, Dr. Motz, estimated that a measurable draw-down of groundwater of one to two feet in the wetlands water table would extend outward as far as maybe 1,000 feet in all directions from each of the storm water ponds. Dr. Motz used a large error convergence factor in his calculations, however, and also used a model for a confined aquifer, which was not shown to exist at the subject site. He did not use a model which should be appropriate for unconfined or semiconfined aquifers which the evidence reveals is the more appropriate hydrogeology which would be employed in groundwater modeling for the subject site. Dr. Motz' use of a large error convergence factor can potentially result in an answer which is far from the actual appropriate draw-down figure. Numerical models are approximations of reality and the smaller the error convergence factor, then the closer to the real number of the cone of depression, or draw-down level, the model will give. Consequently, the use of an analytical groundwater,

cone of depression model was shown by the Applicants' witnesses to give a more accurate result, especially in view of the large error convergence factor employed by Dr. Motz in his numerical model. It was not shown that Dr. Motz had actually "calibrated" the groundwater model he employed.

59. The Applicants' hydrogeology expert, Don Miller, used three analytical and two empirical methods to determine radius of influence or draw-down from the storm water ponds and calibrated the models he used. Validating the data or calibrating the model is a way of making sure the model actually represents the situation intended. Calibration is performed in this instance by inputting some data and then seeing if the model itself could accurately predict the remainder of the data of interest. Using these various methods, Dr. Miller arrived at a range of radius of influence likely to occur from the Class I storm water pond of 167 feet to 184 feet at the western end of the pond and approximately 40 feet at the eastern end. The maximum radius of influence for the Class III storm water pond was shown to be approximately 160 feet at the western end and 0 at the northeastern corner. The other hydrogeology expert for the Applicant, Dr. Leve, performed a separate analytical analysis of draw-down using the Southwest Florida Water Management District's "KOCH" model to produce a projected radius of influence of approximately 167 feet, which is comparable to the projections of Dr. Miller. In conjunction with this, it was shown that Dr. Motz' use of a small value for groundwater infiltration and the large error convergence factor served to

increase his predicted radius of influence in an inaccurate way. Dr. Motz also used a higher value for transmissivity or hydraulic conductivity ("K"). The Applicant's experts relied on the average of the actual permeability test results obtained for the site. A different figure for transmissivity or hydraulic conductivity results from Dr. Motz taking into account two test wells in which hydraulic conductivity could not be measured because the well water level rose too quickly to obtain a measurement. Consequently, he predicted or assumed that that factor might affect the hydraulic conductivity at the site by a whole order of magnitude, which resulted in his 1,000 foot prediction for draw-down cone of influence. The problem here is that the evidence does not demonstrate clearly that this much-greater hydraulic conductivity factor with regard to these two wells, which was an isolated incident compared to all other wells tested, is not some mechanical or human error in the installation or evaluation of the wells. Further, even if one predicts the hydraulic conductivity of the unmeasured, apparently highly conductive wells at the geometric mean of all the hydraulic conductivity measurements for the water table zone (except for the marl zone) at  $3.0 \times 10^{-3}$  cm/sec or three times greater than the value used by the Applicant, it would result in a cone of influence of 265 feet instead of 184 feet. If one also assumed a value for the two ignored wells, as data points, by assuming that they had a hydraulic conductivity value of  $3.5 \times 10^{-3}$  cm/sec, the highest reported well conductivity value, and then employed that in the empirical formula used by Donald Miller, it would still

not greatly exceed the 265 foot cone of depression number. No evidence was adduced to demonstrate that a cone of depression of that magnitude would have any adverse affect on the wetlands, especially in view of the recharging of the wetlands through the storm water pumping and irrigation system. In summary, the totality of the evidence in the Applicant's case, especially on rebuttal, demonstrates that Dr. Motz' methodology significantly overestimated the radius of influence for draw-down at both storm water ponds.

60. The parties agree that the maximum draw-down of 16 feet would occur within the Class I storm water pond, where a "seepage face" would be formed where the pond would cut into the water table through earth borrowing activities. The maximum draw-down inside the Class III storm water pond, where a seepage face would be formed by the excavation into the water table to construct the pond, will be 14 feet. The lowered groundwater within the storm water ponds is due in part to the natural sloping land surface of that area and the concurrent natural slope of the water level before the ponds are even excavated. The slope of draw-down will decrease rapidly, that is, much of the 14 foot or 16 foot apparent draw-down amount will be the result of the relatively sheer seepage face formed by the pond excavation. At the top of that seepage face, the groundwater cone of depression will flatten out considerably and very rapidly so that, as the slope of the draw-down decreases rapidly in the immediate vicinity of the pond, the groundwater outside the ponds themselves will actually be lowered less than five feet.

61. The groundwater levels used in the application were based upon seasonal high water level for the site, rather than "average dry season low" water levels, as referenced in Section 10.6.3 of the Water Management District's Applicant's handbook. Therefore, the projected draw-downs are very conservative and would overestimate the actual draw-down for dry season low water table groundwater levels. Consequently, the weight of the evidence supports the Applicant's predictions on the effects of draw-down.

62. The evidence demonstrates that draw-down from the storm water ponds associated with both landfills will have either no impact or minimal impact on wetland species, either transitional or submerged, in the surrounding wetlands. Silviculture activities on the site have considerably altered the area and lowered the natural water table through the construction of drainage structures by the timber company in the past. In general, the wetland jurisdictional lines from the storm water ponds are based on United States Army Corps of Engineers (Corps) wetland criteria and thus do not contain species generally considered to be wetland species for purposes of DER dredge and fill or Water Management District MSSW jurisdictional purposes. Many species used by the Corps in determining jurisdiction, such as slash pine, can grow both in uplands or wetlands. The edges of the areas delineated as jurisdictional wetlands are dominated by transitional and upland plant species such as slash pine, gallberry, palmetto, grapevine and huckleberry, which can tolerate dry conditions. It is only as one's investigation



proceeds waterward or toward the center of the delineated wetlands, (in which area the land surface slopes down-gradient at the same area where the draw-down cone of influence rapidly diminishes to an insignificant level), that the plant species change to those species adapted to regular and periodic inundation for purposes of the State agencies' wetlands jurisdiction.

63. The draw-down maximum for any wetland location using the maximum projected radius from Dr. Miller's efforts of 184 feet, (17 feet beyond the projection based upon the Water Management District's model), is on the southwest edge of the Class I pond. Maximum draw-down there will be 24 inches at the wetland boundary line, that is, the Corps jurisdictional boundary line where the dominant plant species are transitional or upland plants such as slash pine, gallberry and bay trees. Pine trees at this point exhibit tall and vigorous growth which indicates that the water table, before installation of the ponds, is already well below the surface, otherwise these upland trees would lack sufficient oxygen to grow if water levels were closer to the surface. The potential draw-down here would thus have little effect on this vegetation. There will be essentially no draw-down effect further down-gradient beyond the DER Water Management District jurisdictional boundary, where the pines are already of diminished stature because of water existing close to the land's surface and where DER wetland jurisdictionally-listed plants predominate.

64. The draw-down at the wetland boundary line on the southeastern part of the Class I pond will be 9 2/3 inches. Wetland species which could be affected are found 50-60 feet beyond that radius of influence at this point.

65. The radius of influence on the northern side of the Class I pond will not cross any wetland boundary until it widens at the northwestern corner. The maximum draw-down at the wetland line near the northwestern corner of the pond would be approximately 15 1/2 inches. Here again the predominant plant species are the upland species of slash pine and gallberry and thus the draw-down will have little effect on those species for reasons mentioned above.

66. On the western edge of the Class III pond is an isolated wetland for purposes of the Water Management District MSSW and Corps jurisdiction only. The edge of that wetland is dominated by slash pine and gallberry. The estimated draw-down on the boundary line of that land in the area dominated by slash pine and gallberry is six inches. There will be no draw-down from that Class III borrow pond area in any wetland dominated by transitional or submerged species.

67. In addition to the above considerations and factual findings concerning the effect of the draw-down, the Applicant is proposing an irrigation system, as delineated above, which will deliver water to the wetlands to mitigate and replenish any minimal impacts of groundwater draw-down. The irrigation system will increase the degree and duration of saturation of the soils

at the wetlands' boundary. This will mitigate any minimal effect of draw-down and may actually have the effect of enhancing the health and quality of the wetlands over time, from the wetlands' boundary waterward. In order that the irrigation system will pose the maximum benefit and most closely imitate the natural systems, the irrigation system will be designed for flexible operation. A wetlands ecologist will review the wetlands quarterly and adjust the irrigation system as necessary, as to location and operational regime, in order to properly maintain the health, including water levels and hydro-periods in the wetlands. The Applicant has agreed that the grant of the permit be conditioned to allow for this ongoing quarterly investigation and adjustment.

68. Dr. Motz indicated in his testimony his belief that, to a large extent, the water pumped to the wetlands through the irrigation system would simply immediately migrate to the groundwater and immediately back to the storm water pond, through the effects of the draw-down, and not serve the purpose of replenishing the wetlands. He admitted, however, that he did not know whether the proposed irrigation system would work or not. The Applicant's expert witness in this regard, Dr. Leve, established that the irrigation system would effectively distribute water into the wetlands and saturate the surface due to the "mound effect" of water at the irrigation systems' discharge point at the wetland boundary. He used a standard, generally-accepted "mounding model" to predict the effects of the mounding for the irrigation system. Mounding is a

hydrogeological phenomenon whereby water will mound up and create a zone of saturation in the soil at the point of discharge to the ground surface. Mr. Leve ran that model for a cross-section of each of the storm water pumps. He also ran the model for two different values of groundwater inputs into the ponds. A figure of 28,800 gallons of groundwater infiltration into the pond per day, as predicted by the Applicant's expert witnesses, and the 100,000 gallon per day groundwater input predicted by Dr. Motz was used. For both cross-section locations examined by Dr. Leve, the discharge of 28,000 gallons per day at the wetland boundary would raise groundwater levels by approximately three inches. The discharge of 100,000 gallons per day at the same locations through the irrigation system would increase water levels by approximately nine inches. These calculations were based upon the discharge of the groundwater inputs into the storm water pond only. Discharge additionally of the inputs from storm water runoff from the surface of the landfill into the pond and then through the irrigation system would also be delivered into the wetlands as warranted.

69. Additionally, a berm system will prevent surface water runoff from entering the north dirt borrow area. A berm will be constructed at the eastern boundary of the north borrow area to maintain an interior water elevation of 125 feet or one foot above the natural ground, whichever is higher. Water levels will thus be maintained at the north borrow area so that there will be no lowering or de-watering of the groundwater table. Additionally, storm water will be diverted by berms along the

west end of both the Class I and Class III landfills upgradient and into the wetlands, so that the adjoining wetlands receive significant surface water recharge that previously did not flow into those wetlands.

#### Mitigation

70. A mitigation plan was proposed for purposes of both the dredge and fill permit application and, in the solid waste landfill application, for the MSSW permitting. It was incorporated into the draft dredge and fill permit and draft landfill permit incorporated in the Department's Notice of Intent to issue. The mitigation plan and other measures will offset the impacts from filling and other activities caused by the project in both the dredge and fill and MSSW jurisdictional wetlands on the site. The proposed mitigation measures include the creation of 4.76 acres of new wetlands; the irrigation of the wetlands surrounding the Class I and Class III storm water ponds, as delineated above, and the diversion of surface water around the landfills into the wetlands to aid in their recharge.

71. A high quality, forested wetland will be created utilizing the reliable method of mulching and an extensive hardwood planting program which will include red maple, sweetgum, cypress and tupelo trees. The created wetland will contain deep water and transitional zones. The area will be monitored to insure 80 percent survival of the trees planted and routine maintenance will be performed. Approval of this mitigation plan and any issuance of the permits should include the requirement that rapid replanting be done to replace any dead trees and such

approval should also be conditioned on the use of the largest trees possible to be planted, by appropriate tree planting equipment, so that the beneficial uptake and filtering functions, as well as wildlife habitat functions of such hardwood wetlands can begin operating as a mitigatory factor as soon as possible.

72. The created wetland area will replace lost wetlands with a wetland type of higher quality and potentially higher habitat function, depending upon the maturity of the trees planted (see above condition). The wetland replacement ratio attendant to the creation of this wetland area is proposed to be 2.8:1 and the permit should be conditioned on at least that ratio being observed in the mitigation wetland installation plan.

73. Although there was some testimony critical of the wetland creation proposal because it would alter 4.76 acres of uplands which might be of significance to the wildlife in the area, in fact the site of the mitigation area is currently pine plantation which has been greatly altered from its natural state. It does not currently provide high quality upland wildlife habitat. Additionally, only 30-40 percent of the uplands on the entire tract will be altered by the entire project construction proposed. This leaves a majority of the uplands presently on the site in their current condition to the extent that it serves as wildlife habitat at the present time. A conversion of the subject area into a high quality hardwood forest wetland, which would remain bordered by upland on one side in any event, will not have any significant impact on the present value of the mitigation areas as habitat.

### Wetlands Assessment and Impacts

74. Through the use of consultant personnel skilled in the fields of surveying, biology and botany, the Applicant established jurisdictional lines demarcating the boundaries of DER jurisdiction for dredge and fill permitting purposes and MSSW permitting purposes in the field and adduced evidence of those boundaries at the hearing. The jurisdictional lines established were conservative in the sense that they reflect the jurisdictional standards of the U.S. Army Corps of Engineers, which is generally landward of the lines which would be established by the plant communities characteristic of DER dredge and fill and Water Management District MSSW jurisdiction. The locations of the flags as placed by the biology-botany consultant were then professionally surveyed and plotted by a trained surveyor such that the jurisdictional line was signed and sealed as a "specific purpose of survey." Further, a biologist met with the surveyors weekly to review the plotted line to ensure accuracy. That survey was submitted to the Department in connection with the applications herein. The Department supports that jurisdictional determination in this proceeding. The Department's own jurisdictional determination staff members were on the sites of the jurisdictional determinations for approximately eight days.

75. The location of the wetland jurisdictional line for purposes of MSSW permitting has not been challenged by Petitioners, and no evidence regarding MSSW jurisdiction has been presented by Petitioners in this proceeding. The wetlands

jurisdictional survey prepared by the Petitioners, however, showed "new" DER jurisdictional wetlands which would represent, if accepted, an alteration of the DER jurisdictional wetland boundary. Additionally, the challenge to the DER jurisdictional determination is restricted by the Petitioners to the area around the Class I landfill footprint and its associated storm water pond. No evidence has been presented regarding the jurisdictional determination for the remainder of the site and project, including the access road.

76. Witness Don Garlick has a degree in marine biology with additional coursework and training in the field of botany, including field training in wetland species. He visited the site for seven days for the purpose of critiquing the dredge and fill DER jurisdictional line established by the Applicant and offered as proof by the Applicant in this proceeding. In the 2-3 mile segment of the jurisdictional line around the Class I landfill and associated storm water pond, Mr. Garlick opined that there were three gaps 18-20 feet wide where he did not agree with the dredge and fill jurisdictional line determination. These areas represented by the gaps, if the gaps were determined to be jurisdictional, would add rather long, linear features of putative wetlands to the jurisdictional wetlands already encompassed by the proposed Class I portion of the project. They would add approximately 1/2 acre of additional DER jurisdictional wetlands impacted by the project.

77. The Petitioners, however, did not establish the duration of water flow at any of the areas in which dredge and



fill jurisdiction was contested. Mr. Garlick stated that water was flowing each of the seven days he was on the site, from March 28 to May 8, 1991, but stated that it was raining when he was there on April 23. He did not review rainfall data to determine whether it had rained prior to any of his visits. Likewise, he was not shown to have reviewed any groundwater data or to have performed any tests to ascertain groundwater levels in relation to claiming jurisdiction over the disputed Areas A, B, C and D depicted on Petitioners' Exhibit 8.

78. This site has not experienced a prolonged drought. For the period 1988 through the hearing, only the latter portion of 1990 reflected a significant lack of rainfall based on rainfall data obtained from the National Oceanic and Atmospheric Administration Office (NOAA) at the U.S. Navy's nearby Cecil Field, as well as the Jacksonville International Airport. Nineteen eighty-eight, in fact, had above-average rainfall of 61 inches. The Class I landfill area was originally "flagged" in September and early October 1989. July, August and September 1989 were months of above average rainfall. September 1989 had 14 inches of rain, twice the normal rainfall. Nineteen ninety had slightly less than half of its average rainfall for the year, although it started out with normal rainfall and became dry in the fall months. There has since been twice the normal rainfall for the few months of 1991 prior to the hearing.

79. A drought of the type and duration experienced in the latter part of 1990 would have had no significant effect on the plants at the sites in question (sites A, B, C and D). They

are perennial plants that remain year-round and therefore are adapted to drought and flood conditions. (T-2047)<sup>1</sup> The Applicant's jurisdictional determination based upon dominant plant species, established by its consultant in evidence was based upon perennial plant species. Therefore, the hydrological conditions on the site were normal ones when these areas were originally reviewed in 1989 and the jurisdictional delineations established and the conditions found at the site shortly prior to the hearing in March through early May 1991 by Mr. Garlick were unusually wet conditions and do not reflect the normal conditions prevailing at the site.

80. Mr. Byron Peacock was accepted as an expert in wetlands ecology and botany with a B.S. degree in each of those disciplines, with emphasis on Florida wetland species, especially with regard to Florida fresh water wetlands. Mr. Peacock is quite familiar with the site, having been to the site "dozens of times" since September 1989, almost every month for a 21-month period. Mr. Godley, another of Applicant's expert witnesses, also visited the areas put into contention by Mr. Garlick in his testimony for purposes of testifying in rebuttal and also concluded that these areas were not jurisdictional for purposes of the DER's dredge and fill jurisdiction. Mr. Mike Eaton of DER visited at least one of the areas or sites in contention and was of the same opinion.

---

<sup>1</sup> See Blanton, et al. vs. Gosciecki, 9 FALR 4335, 4343 (June 8, 1987).

81. Mr. Garlick had relied on flowing water being present and the plants present to determine that Area A, a ditch along Hells Bay Road, was a jurisdictional wetland area. The areas on both sides are upland. Mr. Garlick testified that there were breaks in the vegetation in Area A and that the vegetation was sufficient to establish a connection. Area A does not contain sufficient water to support a dominance of listed wetland species under either the "a or b tests," as provided in Rule 17-301.400(1)(a) and (b), Florida Administrative Code. There is upland vegetation growing all the way across the ditch on both sides at its connecting point and point of discharge to dredge and fill wetlands. If the ditch held water it would be wettest at this point of discharge into the jurisdictional wetlands, but the ditch does not contain water on a regular and periodic basis, as established by the testimony of Mr. Peacock. Therefore, the water observed in the ditch by Mr. Garlick would have been surface water runoff from the recent high rainfall.

82. Concerning Area B in the Class I storm water pond footprint, Mr. Garlick indicated that he relied on herbaceous wetland plants as a basis for his finding of that as a jurisdictional area. He used the "b test" vegetation method of at least 80 percent transitional plants, less than 10 percent submerged or upland species, as well as the presence of "other indicators" of regular and periodic inundation for that Area B for purposes of the rule cited last above. Area B is a logging road and lies between upland stands of planted pines. It has been used as a road within the past year and there are "rutted-

out" or gouged areas in the road caused by vehicular traffic which have puddled water, but between the puddles are areas dominated by upland vegetation. There is also a clear vegetative break in jurisdiction at the point where Area B connects to the jurisdictional line at Area B's southern end. The vegetation at that connecting point is a mixture of red root, a transitional plant and many upland species, the dominant one being amphicarpum muhlenbergianum, which looks similar to red root in the field. Mr. Garlick testified that red root was the predominant plant in Area B. Mr. Garlick may have mistaken amphicarpum muhlenbergianum for red root. He was not familiar with that upland species and did not know if it was found at the site. A review of photographs from the 1950s, 1960s, 1970s and 1980s showed that Area B had historically always been uplands. The evidence shows that this area holds water only in limited areas following rainfall and that there is no hydrological, "a or b test" vegetative connection between these areas and jurisdictional waters of the State.

83. Area C, located on the west side of the present West Fiftone Road, also contains part of an old road bed, as well as a ditch. Area C was determined to be within MSSW jurisdiction by the Applicant, but was also claimed as a dredge and fill jurisdictional area by Mr. Garlick for the Petitioner. Mr. Garlick indicated in his testimony that plants in Area C were mixed transitional and submerged species, but were sufficient to make out the area as within DER jurisdiction, based upon those plants. He also testified that different parts of Area C met the "a test" or the "b test."

84. The ditch on the eastern side of Area C is dominated by upland vegetation, including amphicarpum grass, slash pine and goldenrod. The slash pines growing in the ditch, as shown by a photograph in evidence, were several years old. This ditch was dry on all of Mr. Peacock's visits to the site except recently during heavy rains. The remainder of Area C is characterized by a canopy of slash pines, a subcanopy of titi shrub of an upland type, with less than ten percent of the vegetation being characterized by bay and tupelos. There is a ground cover over most of that area consisting of upland species such as chokeberry, gallberry and reindeer moss. This area was determined to be jurisdictional for MSSW purposes because of a wet area in the middle containing fetter bush and sweet gallberry, which are both transitional species for jurisdictional purposes. The entire Area C was delineated as MSSW in the permit application, even though it may not all be jurisdictional, simply for ease of delineation and survey. The MSSW wetland areas within Area C, however, have no vegetative or hydrologic connection to the dredge and fill jurisdictional wetlands. Area C thus does not contain sufficient water or vegetation under either the A or B test connected with other jurisdictional areas to be considered jurisdictional for purposes of the DER's dredge and fill jurisdiction.

85. Area D consists of a rutted trail road used on a regular basis by persons visiting the tract. There is an upland pine plantation on either side of the roadway. Mr. Garlick contended there was a "flow way" in Area D, but that the

vegetation was spotty or sporadic. During the past 21 months, Area D was dry every time Mr. Peacock was on the site, except recently after prolonged, heavy rains. At the eastern end of Area D near its connection to Area C, there is a patch of upland amphicarpum grass, growing all the way across the ditch and road. There is also the presence of beak rush, an upland plant which looks similar to submerged rush. There is insufficient water or wetland vegetation under either the a or b test to establish that this Area D is jurisdictional.

86. The evidence thus did not support the Petitioner's contention that additional dredge and fill wetlands would be impacted by the project. The areas claimed by the Petitioners as additional jurisdictional wetlands did not contain sufficient water to be determined jurisdictional, pursuant to DER Rule 17-301, Florida Administrative Code. These areas held water only at certain times of the year in direct response to heavy or frequent rainfall and were normally influenced, that is, fed, by surface water rather than groundwater. Likewise, these areas did not contain sufficient plant species in the canopy, subcanopy or ground cover to be considered jurisdictional pursuant to vegetation indices and procedures delineated in Rule 17-301.400(1)(a) or (b), Florida Administrative Code.

87. Mr. Mike Eaton of DER testified and established a 1990 DER policy embodied in a memorandum admitted into evidence explaining how the Department employs the above-cited rule for purposes of using hydric soils in making dredge and fill jurisdictional determinations. Both Mr. Eaton and the DER policy

in evidence established that hydric soils are not used by the Department except as an indicator of regular and periodic inundation once "b test" vegetation has been determined to be present for purposes of the above rule. Mr. Garlick testified that he used hydric soils as a "back up" to jurisdictional determinations based upon hydrology and plants. He did not identify any area where his jurisdictional determination was based on soils alone. The Department policy memorandum in evidence emphasizes the importance, in jurisdictional determinations with hydric soils as an aid, of not merely determining whether the soil in question is hydric, but also of investigating the specific characteristics of the soil profile, which the Department maintains must be performed by a soils scientist.

88. Mr. Carlisle, a soil scientist, visited the site and took samples of the areas indicated by Mr. Garlick. These locations were located in an approximate fashion by Mr. Garlick on Petitioner's Exhibit 8 at the hearing. Thirty-four of the 35 samples taken were determined to be hydric by Dr. Carlisle. There are, however, breaks of up to approximately 525 feet between the hydric soils test findings in Areas A, B and D and yet the distance between one hydric and non-hydric soil test finding was shown to be approximately 50 feet. No soil samples were taken by Dr. Carlisle in Area C. These samples are found to provide an insufficient basis for determining the presence of hydric soils throughout Areas A-D. Additionally, Areas A-D did not contain areas of "b test" vegetation contiguous to other

jurisdictional areas. Therefore, even if hydric soils had been present throughout these areas, these soils standing alone, without supporting "b test" vegetation, are insufficient to establish jurisdiction in the areas maintained to be so by Mr. Garlick.

#### General Wetland Impacts

89. This project will impact wetlands subject to the DER jurisdiction and which are jurisdictional for MSSW purposes under Chapter 40C-4, Florida Administrative Code, the rules of the St. Johns River Water Management District. Thus, a dredge and fill permit is required pursuant to Section 403.91 et seq., Florida Statutes, and DER Rule 17-312, Florida Administrative Code. Areas subject to DER dredge and fill jurisdiction and MSSW permitting jurisdiction are considered pursuant to DER Rules 17-301 and 40C-4, Florida Administrative Code.

90. The 1,288 acre site contains approximately 550 acres of wetland, much of which contains planted pines as well as some naturally occurring pines, as well as hardwood swamp, cypress and gum swamp, seepage slope, ditches and swales. Virtually all of the wetlands have been adversely affected in some way by the forestry practices which have occurred and are still occurring on the site. Most of the sloughs and natural flow-ways have been channelized. Ditching has drained the adjacent wetlands and significantly altered the hydrology of the entire wetland system on the site. The wetland known as Hells Bay Swamp, immediately east of the landfills, is currently being clear cut by the Gilman Paper Company. The 550 acres of wetlands



are jurisdictional for either dredge and fill or MSSW purposes or both. Some 3.17 acres of MSSW wetlands will be impacted by project construction; 1.61 acres of these are also dredge and fill wetlands. The 1.61 acres of the impacted dredge and fill and MSSW wetlands consist of roadside ditches along the Hells Bay Road and a road on the north side of the Class I landfill. These roads are currently subject to logging traffic, which decreases the usage of the roadways and ditches by wildlife. Consequently, the master of species present and using these ditches is limited. In addition to the 1.61 acres of ditches, the impacted MSSW wetlands also include 0.16 acres of wetland ditches along the entrance road in proximity to dredge and fill wetlands, a 0.80 acre isolated cypress head wetland located within the footprint of the Class I landfill and a 0.60 acre wetland located along West Fiftone Road extending into the south border of the Class I landfill footprint. The 0.80 acre cypress head has already been impacted by a logging road or fire break, and ditches have been constructed through the interior of it. The larger cypresses have been logged, and the remaining vegetation is sparse, rendering it of little quality as habitat for fish and wildlife. The 0.60 acre wetland extending into the south border of the Class I landfill is an old road bed with evidence of ruts from vehicular traffic depicted on photographs in evidence. This area has a slash pine canopy and is dominated by titi shrubs, with a few black gum and traditional wetland plant species such as fetter bush and gallberry in disconnected areas. It is a low quality wetland of scant value as habitat for fish or wildlife.

91. Prior to and during construction, as a condition on a grant of the permits, all wetlands on the site will be protected from erosion, siltation, scouring or excessive deposition of turbidity, de-watering or other construction and operationally-related impacts by the installation and use of siltation barriers placed at wetland boundaries. Because of the significant possibility of the impacts mentioned above, especially siltation and turbidity, to the wetlands during the construction phase of the facilities and attendant to ultimate operation of the landfill itself, grant of the permit should be conditioned on acceptance of monthly inspections by DER enforcement personnel once construction has begun.

#### Wildlife and Archaeological Resource Impacts

92. Wildlife surveys were conducted by expert witness Isaac Rhodes Robinson and members of his staff, as well as by Biological Research Associates, Inc. in the months preceding the hearing. Mr. Robinson and the biologists on his staff spent approximately 1,000 man hours surveying the site, and Mr. Robinson, accepted as an expert in wildlife ecology and wetland ecology, testified on behalf of the Applicant in this proceeding. Assessments of the site were performed by reviewing relevant literature as well as conducting field surveys for both upland and wetland species. No evidence was found of any threatened or endangered species on the site. Mr. Robinson and his staff conducted surveys in 1990 and in early 1991 and biologists from Mr. Robinson's staff were present on the site at various times from September 1989 through the time of the hearing. Surveys

performed by Mr. Robinson and his personnel were conducted in accordance with Florida Game and Fresh Water Fish Commission (FGFWFC) guidelines and exceeded that agency's requirements by surveying 100 percent of the upland areas. No testimony of any witness in this proceeding indicated any physical evidence of use of the site by any endangered or threatened species.

93. Wildlife surveys revealed a small colony of gopher tortoises, listed as a species of special concern by the FGFWFC in a marginal habitat zone on the extreme western boundary of the Class I disposal area. The colony consists of less than ten individuals and there will not be a significant impact to the tortoises because the individuals will be trapped and relocated to a more suitable habitat on another area of the Applicant's tract, which will be undisturbed by the landfill or its operations, or else to a suitable habitat area off-site, as directed by the FGFWFC.

94. Jay Stephen Godley was accepted as an expert in wildlife ecology and wetlands ecology. He directed an independent assessment of the site and project's impacts. The assessment included reviewing permitting documents, aerial photographs and literature pertaining to wildlife use of the site, as well as over 90 man hours spent at the site. He confirmed that the small population of gopher tortoises was the only significant species on the site and that the project would not significantly impact any listed wildlife species. Extensive trapping and investigation of gopher tortoise and armadillo burrows reveal no evidence of listed "commensal" species, or

those species commonly found in association with gopher tortoises, such as Florida mice, gopher frogs, Florida pine snakes, or Eastern indigo snakes. In addition, the isolated cypress head in the Class I landfill footprint was sampled for gopher frog tadpoles, and none were found. Florida pine snakes prefer scrub or sand hill habitats, neither of which are found on the site. Pine flatwoods environments, without the presence of either sand hill or scrub habitat, like this site, are not good indigo snake habitat. No indigo snakes' shed skins or other evidence of indigo snake frequency were observed on the site. Indigo snakes are large black snakes which are active during daylight hours and easy to observe in the course of extensive surveys such as those that were conducted for purposes of this project. Considering the amount of time spent by the various biologists on the site, it is quite likely that indigo snakes would have been observed if they frequented this site.

95. The project will have no significant impact on wading birds. All wetlands were surveyed for listed bird species for a minimum of five days using FGFWFC guidelines. No wading birds were observed on the site during the 21 month period of review by Mr. Robinson's firm. The existence of the wood stork, bald eagle or Florida sand hill crane was not established on this site and is considered unlikely by the expert witnesses, whose opinions are accepted. No eagle nests were observed and, since the tree cover provides very limited extent of open water, the site is less than satisfactory as habitat for the little blue heron, snowy egret and Louisiana heron. The only wading bird

observed by the Petitioner's expert witness on wildlife issues was a little blue heron observed in a wetland area east of the site, which is off the site being purchased by the Applicant and which was recently clear-cut by the Gilman Paper Company.

96. The project will have no significant adverse impact on the Florida black bear's habitat. The black bear is a threatened species, but black bears do not use the site. No evidence was presented that black bears have ever been present on or in the immediate vicinity of the site. No witness, including Mr. Goodowns, an employee of Gilman Paper Company who has frequently visited and worked on this site over many years, has ever observed a black bear or any sign of a black bear present on the site. Bee hives have been kept at the site since at least 1969 and, although these are very attractive to black bears, they have never been known to have disturbed the hives, nor has it ever been necessary for bee keepers to erect electric fences or other devices to protect the hives from bears. The site presently is not far isolated from human activity, which fact deters the use of it as a habitat or an occasional travel way for black bears. It is located in an area completely enclosed by I-10, State Roads 228 and U.S. Highway 301, all heavily traveled public highways, as well as in close proximity to the town of Maxville, approximately two miles away, and Macclenny, approximately five miles away. Highways with high traffic volumes are significant barriers to movements of black bears, rendering it even less likely that black bears have or will frequent the site.

97. The only evidence of potential black bear presence anywhere near the site presented by the Petitioners was the site's position near the Osceola Black Bear Range, as interpreted from one published article, as well as indication of three bear road kills from six to 15 miles away from the site, and supposed black bear movements recorded by the FGFWFC, all represented on a hand-drawn map, only admitted as corroborative hearsay pursuant to Section 120.58, Florida Statutes. The map exhibit contained the expert's own redrawing of his interpretation of the extent of the Osceola Black Bear Range from the article he referenced, which itself was not offered into evidence. Bear movements depicted on the map really consisted of those of a bear apprehended by the FGFWFC and released in the area. The map did not show any roads, therefore making location and distances to the reported road kills speculative at best.

98. Because black bears do not use this site and because of its encirclement by significant human activity, the site is not significant as a bear dispersal corridor or travelway between the Osceola Forest bear population and the Ocala Forest population. No direct evidence by radio-telemetry data or otherwise was offered to show that black bears actually move between the Osceola and Ocala Forest populations, nor particularly that they move through the area in the immediate vicinity of the project site. Construction of the landfill would not prevent the movement or foraging of black bears through the site. Neither fencing nor presence of traffic on the landfill access roads only during daylight hours would prevent such

movement. It is also unlikely that bears would likely be hit by traffic on the roads because the noisy trucks which will use the road would provide ample warning to bears of any danger from traffic so they would avoid it.

99. If the landfill were constructed on this site, less than one-half of 5/100 of one percent of the 3,800 square-mile area of the Osceola Black Bear Range, referenced by the Petitioners' expert witness, would be impacted. The site itself does not provide high quality black bear foraging or denning habitat. Even the Petitioners' expert characterized it as "good" or "better than average" habitat. All but 3.17 acres of the area to be impacted by the project is upland, consisting primarily of pine flatwoods. Authoritative studies show that flatwoods are not heavily utilized by bears, which spend 70 percent of their time in swamp or wetland habitat. The 550 acres of wetlands, including approximately 280 acres of swamps, which will be left undisturbed on the site, will provide habitat and travel corridors for the black bears should any ever frequent the site. Additionally, the 4.76 acres of hardwood wetlands to be created as mitigation, would add high quality wetland habitat for black bears. Therefore, due to the extremely small area involved, the unlikelihood of use by black bears and the mitigation proposed, the landfill will have virtually no impact on black bear habitat, travelways or populations. The evidence thus established that the project will not have an adverse impact on endangered or threatened species or their habitats. Because the site has been under extensive commercial forest management and harvest

operations for over forty years, the density of plant and animal life has been reduced, thus making the site as a whole, low quality wildlife habitat.

#### CONCLUSIONS OF LAW

The Division of Administrative Hearings has jurisdiction over the subject matter of and the parties to this proceeding. Section 120.57(1), Florida Statutes.

Petitioners CESI, SJPA, Baldwin-Maxville Coalition, William Mark McCranie and Darryl Sperry have established standing in this proceeding regarding their substantial interests reflected in the issues raised in their petitions. Moreover, their standing was uncontested and it is concluded as a matter of law that those Petitioners have standing.

The Department has the authority to require the various permits sought for the construction and operation of the proposed project, pursuant to the various provisions cited in the Recommended Order contained in Chapters 373 and 403, Florida Statutes, as well as Chapters 17-25, 17-12, 17-701, 40C-4 and 40C-42, Florida Administrative Code.

The Applicant has the burden of demonstrating that it has provided reasonable assurances that it meets the statutory and rule requirements for the permit sought. Florida Department of Transportation vs. JWC Co., Inc., 396 So.2d 778 (Fla. 1st DCA 1981). The Applicant's burden mandated by this decision requires that the Applicant make a preliminary showing of its entitlement to the permits as delineated in its application. The Petitioners then have the burden of going forward to demonstrate "contrary



evidence of equivalent quality" in proving the truth of the facts alleged in their petitions. This proof has to create more than a mere equipoise. If the Applicant makes its preliminary showing of entitlement, the Petitioners have a burden to go forward with evidence presenting more than speculative concerns of potential or possible adverse environmental effects. Chipola Basin Protective Group, Inc. vs. Fla. Chapter Sierra Club, 11 FALR.467, 480-481 (Final Order 2/29/88). The Applicant, however, has the ultimate burden of persuasion in such a proceeding and, if the Petitioners present contrary evidence of an equivalent quality to the Applicant's prima facie evidence of entitlement, the Applicant must come forward and present evidence in the nature of rebuttal of a preponderant quality. See, Florida Department of Transportation vs. JWC Co., Inc., supra, and Fitzpatrick vs. City of Miami Beach, 328 So.2d 578 (Fla. 3rd DCA 1976).

#### Solid Waste Permit

The Applicant has established by preponderant evidence that the solid waste management facility proposed will not violate the prohibitions set forth in Rule 17-701.040, Florida Administrative Code. Although solid waste will be disposed of in part within 200 feet of a natural body of water in the Class I disposal area, the Applicant has established that the permanent leachate collection and removal system in the Class I area will result in compliance with water quality standards enumerated in Chapter 17-3, Florida Administrative Code. Storm water control methods will meet the requirements of Chapter 17-25, Florida Administrative Code, in accordance with Rule 17-701.040(2)(g),

Florida Administrative Code. The site location for the landfill facilities will be clearly accessible due to its close proximity to the primary public highways described in the above Findings of Fact. The site location complies with Rule 17-701.050(c)1., Florida Administrative Code.

Preponderant evidence adduced by the Applicant has established that the solid waste management facility will meet the landfill performance and design standards set forth in Rule 17-701.050(5), Florida Administrative Code. The liner system proposed for Class I disposal area will meet or exceed Department standards and will be installed in accordance with a quality control plan which incorporates the liner manufacturer's specifications and recommendations. Further, the Applicant will submit to the Department for approval a revised quality control and assurance plan, in response to a specific condition contained in the Notice of Intent to grant the subject permit. Accordingly, the Applicant has provided reasonable assurances that the specific requirements of Rule 17-701.050(5)(c), Florida Administrative Code, will be met.

The Applicant has established that the leachate collection and removal system for the Class I disposal area will operate so that the leachate depth on top of each liner will not exceed the standard of one foot depth. In fact, the Applicant, by unrefuted testimony, has established that leachate depth will likely approximate 1/4 inch on top of the primary liner and even less above the secondary liner. The Applicant has provided reasonable assurances that the requirements of Rule 17-701.050(e), Florida Administrative Code, will be attained.

It is further established by preponderant expert testimony that the leachate collection system will be designed and operated to prevent its obstruction. There will be effective methods for removing obstructions in the leachate collection system, should they occur, as described more fully in the above Findings of Fact. Thus, reasonable assurances have been provided that the requirements of Rule 17-701.050(5)(e)3. and (f)3., Florida Administrative Code, are satisfied.

The leachate collection system was established to be designed and constructed so as to provide removal of leachate within the drainage system to a central collection point for treatment and disposal. The leachate will be collected in storage tanks and then taken to the City's Buckman Regional Waste Water Treatment Plant for treatment and disposal. Provided a grant of the permit is accompanied by the condition that the truck loading stations contain a sufficient berming or containment system to allow containment and recovery of any potential spills of leachate and that the leachate collection tanks are surrounded by a containment system which will contain a full tank capacity spill, it is concluded, under those conditions, that reasonable assurances have been shown that requirements of Rule 17-701.050(e)4., Florida Administrative Code, will be complied with.

Reasonable assurances must be provided that the landfill's covering system, including the relatively impermeable clay cap, meets the requirements of applicable rules, including Rule 17-701.050(m), (n) and (o), Florida Administrative Code.

The present design of the landfill closure system and cover, reflected in the Applicant's evidence, includes design features intended to prevent the seepage of leachate through the covering system and out the sides of the landfill and erosion of the landfill's cap or covering system. This is essentially to be accomplished, as proposed by the Applicant, through the internal berming system to contain leachate and to keep it separate from "clean" storm water and, as to erosion, the use of berms around the top of the landfill during its useful life as it is built upward and around the top of the finished, closed landfill. The Petitioners, however, presented preponderant evidence that side-slope failure of the sand-soil outer layers of the landfill will be likely as will erosion damage, such that storm water can contact the clay cap with the significant risk that the clay cap can be eroded or cracked such that solid waste can be exposed to rain and storm water, with resultant leachate leakage out the sides of the landfill. Because of this and because of the likelihood that a complete grass cover cannot be maintained due to runoff velocities in the later stages of the landfill's life, when the slope is much higher and longer; because of erosion repair activities with heavy equipment, as more particularly delineated in the above Findings of Fact, the present 3:1 slopes of the landfill must be redesigned and for the reasons more particularly delineated in the Findings of Fact. Consequently, a grant of the permit should be conditioned upon the installation of 15 foot benches or terraces at approximately 20 foot intervals, which will permit adequate grassing and will retard

rainfall runoff velocities sufficiently to minimize or prevent slope failure, erosion damage and consequent potential exposure of solid waste to storm water in the manner and for the reasons delineated in the above Findings of Fact. If such redesign and resultant construction is effected as a condition on the grant of the permit, then the cap/closure system will be reasonably assured to comply with DER rules as delineated herein.

The Applicant has established through preponderant evidence that the gas control system proposed for the Class I disposal area will be designed, operated and capable of preventing objectionable odors and potential fires through accidental ignition of methane gas generated by the Class I landfill. The Petitioners presented testimony of odor problems occurring at other landfills in Duval County which are older and some of which are closed. These landfills were not shown to have a similar design and operational features, however, and there was not shown to be a sufficient similarity between these other landfills and that proposed by Trail Ridge so as to conclude that the gas control system as proposed will not be adequate. In fact, it was not established that the other landfills have such a gas control system. The Applicant has established reasonable assurances, therefore, that the requirements of Rule 17-701.050(5)(1), (j) and (6)(1), Florida Administrative Code, will be met.

The storm water and surface water management system will be capable of treating the runoff from more than the first inch of rainfall. Not only will the runoff be filtered through

sand filters and discharged through the outfall structure to the wetlands, but the operation of the large storm water ponds themselves as, in effect, natural lake systems, will provide effective treatment through evaporation and biological uptake and assimilation, enhanced by the vegetative sides proposed for the storm water ponds. This will reasonably assure that should any leachate contamination reach the storm water ponds that it will not pose a threat to quality of surface waters of the State. The system will thus comply with Rules 17-25.040(5) and 40C-42.041(5), Florida Administrative Code, and the system will meet the performance and design standards set forth in Rule 17-701.050(5)(g) and (h), Florida Administrative Code, as well as the requirements of Chapters 17-25 and 40C-4, as well as 40C-42, Florida Administrative Code.

Rule 17-701.050(5), Florida Administrative Code, provides that achievement of performance standards contained in that subsection regarding landfill performance and design will be presumed to provide reasonable assurance that water quality standards of Chapter 17-3, Florida Administrative Code, will be met. Since reasonable assurances have been provided that the storm water surface water management system will meet performance and design standards set forth in the rule cited last above, it is presumed as a matter of law that the Applicant has provided reasonable assurances that water quality standards contained in Chapter 17-3 will be met. Since this has been established by preponderant expert testimony and evidence, including that adduced upon rebuttal, the presumption has not been overcome.

If necessary conditions to a grant of the permit are imposed as delineated in the above Findings of Fact, concerning the groundwater monitoring wells and plan, then groundwater monitoring requirements of applicable rules will be assured to be achieved. It is not concluded that any failure to have the hydrogeological survey signed and sealed by a professional geologist precludes a finding of reasonable assurances that groundwater monitoring and hydrogeological surveying will be appropriately conducted and carried out, in accordance with applicable rules, so long as such reasonable assurances have been proven in the de novo evidentiary hearing context, as is the case here provided the groundwater monitoring well installation and monitoring program is done in accordance with the above-found conditions. In light of the requirements of Rule 17-701.050(3)(b), Florida Administrative Code, it has been established that the geological foundation and subterranean features underlying the landfill site provide adequate structural support for the landfill and that the soil removal activities from the borrow areas will not cause structural support failure below the landfill. Indeed, those foundation and structural support features are not contested in this proceeding. The proposed groundwater monitoring plan consists of a system of 42 monitoring wells proposed to be installed to monitor up-gradient and down-gradient flows in groundwater so as to detect the migration of contaminants that may occur in the ground water at the Class I disposal site. The monitoring wells are intended to provide predictive evaluation of the composition and migration of

any discharge from the facility to groundwater. Because of the lack of monitoring wells on the west, south and north sides of the Class I landfill and the need proven by the Petitioners to monitor for immiscible sinkers and floater leachate constituents in the deep zone and the top surface of the groundwater table, the groundwater plan should be altered so as to provide for the installation of such wells in order to be able to effectively monitor the deep and very shallow zones for such contaminants as more particularly described in the above Findings of Fact. Such wells should be so installed and positioned as to monitor both up-gradient and down-gradient flows to properly detect migration of any contaminants in the deep zone and in the water table surface area of the surficial aquifer.

The Applicant and the Department have appropriately agreed that the monitoring wells are to be used as compliance wells and they should be located no farther from the landfill footprint than the outer boundary of the agreed-upon zone of discharge. Any grant of the permit should be conditioned upon these alterations to the groundwater monitoring, well installation and operation plan being carried out, as found to be necessary in the above Findings of Fact. Assuming this is accomplished, then the resultingly altered hydrogeological survey and groundwater monitoring program will meet the reasonable assurance requirements of Rules 17-701.050(3) and (6) and 17-29.700, Florida Administrative Code, and the related requirements in Chapters 17-3 and 17-4, Florida Administrative Code.



The Applicant has established reasonable assurance that the landfill operation standards set forth in Rule 17-701.050(6), Florida Administrative Code, will be met. Evidence was adduced in an attempt to establish that operations and maintenance of the proposed facility in accordance with applicable rules will not be accomplished because of evidence of alleged noncompliance at other landfills operated by the Applicant corporation or other related corporations. This evidence did not establish, however, a relationship between the problems identified at those landfills and the proposed operation of the proposed facility, since it was not proven that the facilities are of similar design, that similar operational standards, methods and procedures have historically been legally imposed upon the operators of those other landfills nor that they have failed to carry them out. Indeed, if such unsatisfactory conditions or operational characteristics should develop at the subject landfill facility during its useful life, then the construction and operation standards of the permits applicable to the facilities would not be met and the Department would proceed with appropriate enforcement action. Such has been reasonably assured not to be the case, however, based upon the design and operational standards, methods and procedures proposed to be carried out should the permits be granted and assuming that the conditions upon the granting of the permits found to be necessary in the above Findings of Fact are imposed and carried out.

Storm Water and Surface Water Management Permitting  
(MSSW)

The DER has concurrent permitting authority as provided for in Section 373.413, Florida Statutes, in addition to the permitting authority of the Water Management District. The Department has proposed to issue the MSSW permit to the Applicant, and it is the customary practice that the DER reviews MSSW permit applications where projects involving solid waste disposal are involved, as it interprets the above statutory section. The standards embodied in the Water Management District's rules and in the incorporated "Applicant's handbook" have been considered in resolving issues regarding the MSSW permit application. Sections 373.413 and 373.416, Florida Statutes, establish two statutory criteria: "not be harmful to the water resources of the district" and "not be inconsistent with the overall objectives of the district" for evaluating applications for MSSW permits. These statutory sections are implemented by Chapter 40C-4, Florida Administrative Code, and the provisions of Part II of the MSSW Applicant's Handbook (AH) which are adopted by reference in Rule 40C-4.091, Florida Administrative Code. These rules, specifically paragraphs 40C-4.301(1)(a) and 40C-4.301(2)(a), Florida Administrative Code, as well as Sections 9 and 10 of the Applicant's Handbook, which tracks the rules, sets forth the requirements for the construction and operation of the proposed system. Additionally, pursuant to Subsection 40C-42.061(1), Florida Administrative Code, whenever the construction of a new storm water discharge facility requires an MSSW permit, the storm water discharge

requirements as established pursuant to Chapter 40C-42, Florida Administrative Code, or reviewed as part of the MSSW permit application. Consequently, the Applicant's MSSW permit application is also governed by Chapter 40C-42, Florida Administrative Code, and must meet the storm water permitting requirements therein for permit issuance. Whenever a storm water discharge facility requires, or is part of a facility that requires an MSSW permit, no separate storm water discharge permit is required. Rule 40C-42.061, Florida Administrative Code.

The Applicant has provided reasonable assurances that due to the design and operational safeguards to be imposed, the MSSW/storm water system will be beneficial to the public and will not significantly impact surrounding residents and uses; that the landfill system is capable of being operated; that the project will meet State water quality standards and that, in view of the safeguards to keep leachate away from the storm water MSSW system, as well as the levels of storm water treatment the system will effect, that there will be no significant impact on the quality of receiving waters, inducement of pollution and that minimal impacts on wildlife will be mitigated. Other criteria in Rule 40C-4.301(1)(a), Florida Administrative Code, are not applicable to this project, are not in dispute and Petitioners have provided no evidence with regard thereto. The project will thus not be inconsistent with the overall "objectives of the District."

Construction of MSSW facilities and storm water facilities are reviewed under criteria to determine whether they

will be "harmful to the water resources of the District with cross-references to design criteria specified in the Applicant's Handbook." Section 373.413(1), Florida Statutes.

Reasonable assurances have been established that the swales, conveyances and retention ponds of the MSSW system will be capable of being operated and will provide adequate control of the required water quantity to avoid deleterious effects and thus meet the applicable criteria of the above rules.

The Petitioners have challenged whether the MSSW storm water system would adversely affect surface and groundwater levels and surface water flows, specifically as that provision is implemented through Section 10.2.1(d) of the Applicant's Handbook and is further clarified by section 10.6.3 of the Applicant's Handbook, which provides:

It is presumed that an adverse impact will result if the system causes the groundwater table to be lowered: (a) more than an average three feet lower over the project area than the average dry season water table; or (b) at any location, more than five feet lower than the average dry season low water table; or (c) to a level that would drain adjacent surface water bodies below a minimum level established by the governing board pursuant to Section 373.042, F.S.

In accordance with the above Findings of Fact concerning groundwater levels, cones of influence or draw-down and the irrigation/replenishment portion of the MSSW system, preponderantly demonstrated by the Applicant's expert witnesses, it has been demonstrated that the facility meets the requirements of the above provisions because there will be no draw-down of ground water levels in excess of five feet outside the MSSW ponds

themselves. Any presumption of harm caused by draw-down has been adequately rebutted because the draw-down has been demonstrated to have no significant environmental effects.

It has been established that the landfill project, including the MSSW storm water system, will not pose an adverse impact on surface or groundwater quality, including impacts to wetlands. This conclusion is supported by the above Findings of Fact concerning the treatment capabilities of the storm water ponds, the design and operation of the entire storm water and surface water management system, and the design and operation of the landfills themselves, especially with regard to the measures designed to separate leachate from storm water, provided that all applicable conditions found to be necessary in the above Findings of Fact are instituted and carried out. Assuming these conditions are embodied in the permits and are carried out under appropriate DER supervision, reasonable assurances have been provided that all water quality standards will be met.

In addition to the water quality impacts on wetlands, substantial evidence has been offered on the issue of impacts to wetlands through draw-down and diversion of the wetlands' natural rain water recharge. The effects of draw-down on the wetlands have been shown not to be significant. Any minimal effects will be mitigated by the wetland irrigation system, which will be adjusted to ascertain that proper amounts of water are discharged to the wetlands on appropriate schedules, by the on-going monitoring efforts of an appropriately trained ecologist. Additionally, diversion of surface water by the berm system on

the western boundary of the landfill footprint into the wetlands will also serve to mitigate lost rainfall recharge, which would otherwise have come from the area of the landfill footprint itself.

Reasonable assurances have been established by preponderant evidence adduced by the Applicant that the lengthy retention time of the large capacity retention ponds, operating in effect as natural lake systems, the vegetated banks and the sand filtration system will ensure that any contaminants reaching the ponds through accidental spillage or groundwater influx will be substantially treated and reduced to such low concentrations that none of the standards of Chapter 17-3, Florida Administrative Code, will be violated.

#### MSSW Permitting Wildlife Impacts

Section 10.7.4 of the Applicant's Handbook, "Wetlands Review Criteria," specifies the scope of MSSW considerations for wildlife impacts as follows:

The District will, except when threatened or endangered species are involved, consider only the impacts to off-site aquatic and wetland dependent species relative to the functions currently being provided by the wetlands to these types of fish and wildlife. This assessment of off-site impacts is based upon a review of pertinent scientific literature, soils and hydrologic information, and a general understanding of the ecological resources of the site. Generally, site-specific biological data collection is required. An applicant must provide reasonable assurance that a proposed system will not cause adverse off-site changes in:

- (a) The habitat of an aquatic and wetland-dependent species,

- (b) The abundance and diversity of aquatic and wetland-dependent species, and
- (c) The food sources of aquatic and wetland-dependent species.

The only exception to limiting review of a system under this subsection to off-site impacts is where wetlands are used or reasonable scientific judgment would indicate use by threatened or endangered species listed in Sections 39-27.003 and 39-27.004, Florida Administrative Code, which are aquatic or wetland-dependent. In this instance, both off-site and on-site impacts will be assessed. In addition to the assurances regarding off-site impacts discussed in the previous paragraph, an applicant must provide reasonable assurances that a proposed system will not cause adverse changes in:

- (a) The habitat of threatened or endangered species,
- (b) The abundance and diversity of threatened or endangered species, and
- (c) The food sources of threatened or endangered species.

The District exercises jurisdiction over "waters in the State" including wetlands, whether they are isolated or not. An isolated wetland, per Section 373.414, Florida Statutes, is a wetland not within the jurisdiction of the DER for the purposes of regulation of dredging or filling.

Reasonable assurances have been provided that any loss of habitat of off-site "unlisted" wetland-dependent species in the vicinity of the project will be mitigated by the replacement of 3.17 acres of ditches and impacted wetlands with 4.76 acres of higher quality hardwood forest wetlands. No threatened or endangered aquatic or wetland-dependent species were shown to use this site. In fact, the only significant species using the site was a small colony of the upland gopher tortoise. This is a species of special concern, but it is an upland species. Because

threatened Florida black bears do not use the site, impacts to that species need not be considered. However, to the extent that the area might provide some limited potential habitat for occasional presence of black bears in the future, the creation of 4.76 acres of high quality hardwood wetlands sufficiently mitigates any insignificant impact to wetland habitat for the black bear. Therefore, the Applicant has provided reasonable assurances that no wildlife impacts in violation of the above authority will be occasioned.

Rule 40C-4.301(1)(a)10., Florida Administrative Code, directly addresses impacts from MSSW system on natural resources, fish and wildlife. Rule 40C-4.301(2)(a)6., Florida Administrative Code, does so indirectly through Section 10.2.1(e), Applicant's Handbook. Compliance with subparagraphs 40C-4.301(1)(a)10., Florida Administrative Code and 40C-4.301(2)(a)6., Florida Administrative Code, aside from the portion dealing with water quality, is determined through compliance with the wetland review criteria set forth in subsection 10.7.4, Applicant's Handbook, quoted above. Applicant's Handbook section 10.2.1 states:

It is presumed that a system meets the standards listed in subsection 10.1.2 if the system meets the following criteria:

- (e) Hydrologically related environmental functions and water quality must not be adversely impacted (see section 10.7).

The Applicant has established reasonable assurances that the appropriate review criteria referenced above are met and therefore that the corresponding objectives and standards have



been satisfied and that the project complies with all applicable criteria in Rule 40C-4 and the Applicant's Handbook incorporated therein. Therefore, the MSSW/storm water permit should be issued.

### Dredge and Fill Permit

#### Jurisdiction

DER dredge and fill jurisdiction is determined pursuant to Rules 17-301 and 17-312, Florida Administrative Code. The pertinent portions of these rules are as follows:

#### 17-312.030 Jurisdiction.

- (1) Pursuant to sections 403.031(12) and 403.913, F.S., dredging and filling conducted in, on or over those surface waters of the state as provided in this rule, require a permit from the Debarment unless specifically exempted in sections 403.813, 403.913, 403.927, F.S., or rule 17-312.050, F.A.C.
- (2) For the purposes of this rule, surface waters of the state are those waters listed below and excavated water bodies, except for waters exempted by rule 17-312.050(4), F.A.C., which connect directly or via an excavated water body or series of excavated water bodies to those waters listed below:
  - (d) Rivers, streams and natural tributaries thereto, excluding those intermittent streams, tributaries or portions thereof defined in subsection 403.913(5), F.S. Standard hydrological methods shall be used to determine which streams constitute intermittent streams and intermittent tributaries. An intermittent stream or intermittent tributary means a stream that flows only at certain times of the year, flows in direct response to rainfall, and is normally an influent stream except when the ground water table arises above the normal wet season level. Those portions of a stream or tributary which are

intermittent and are located upstream of all nonintermittent portions of the stream or tributary are not subject to dredge and fill permitting unless there is a continuation of jurisdiction as determined pursuant to F.A.C. rule 17-3.022.

17.301.400 Determination of Landward Extent of Surface Waters of the State.

- (1) The line demarcating the landward extent of surface waters, as defined in section 403.031, F.S., shall be established for any water body, pursuant to section 403.817, F.S., by dominant plant species. Dominance shall be determined in a plant stratum (canopy, subcanopy, or ground cover).

[The following subparagraph is commonly called the "A test"]:

- (a) The existence of surface water, as defined in section 403.031, F.S., shall first be identified. Vegetation shall then be inspected moving landward. In all cases the Department shall attempt to locate the line demarcating the landward extent of waters of the State by visual methods or by aerial photo interpretation. The line demarcating the landward extent of the waters shall be the boundary of the area where, using the submerged and transitional species listed in paragraphs (2) and (3) below:
  1. The areal extent of submerged and transitional species or any combination thereof, in the selected stratum, is greater than 50 percent of all the plant species for that stratum and
  2. The areal extent of the submerged species in selected stratum is greater than 50 percent of areal extent of all the plant species in that stratum, and
  3. The areal extent of the submerged species in the selected stratum is greater than the areal extent of upland species in that stratum.

[The following paragraph is commonly called the "B test."]

(b) The landward extent of a surface water shall include any other area where:

1. The areal extent of the transitional species in the selected stratum is greater than 80 percent of all the plant species in that stratum, and
2. The areal extent of the submerged species in the selected stratum is less than 10 percent of all the plant species in that stratum, and
3. The areal extent of the upland species in the selected stratum is less than 10 percent of all the plant species in that stratum, and
4. The Department establishes by competent substantial evidence by using such factors as hydrology, swollen buttresses, lichen lines, or other indicators that the area is subject to regular and periodic inundation.

. . .

The testimony of DER witness Mike Eaton, together with a written memorandum of Department policy on the use of hydric soils and jurisdictional determinations dated January 18, 1991, which was accepted into evidence, was not rebutted and establishes that DER interprets the above rule provisions concerning jurisdictional determination as requiring that hydric soils be only considered as a conjunctive determining factor in determining jurisdiction only in the presence of "B test" vegetation. It was thus established that the Department has consistently required that another "indicator" of regular and periodic inundation accompany a finding of dominant "b test" vegetation, determined to be dominant in the manner provided in

paragraph (b) quoted above. The Department has thus interpreted the rule quoted above as requiring the use of hydric soils as a corroborative determining factor when dominant vegetation according to the above-quoted "b test" can be made. Under the Department's consistently followed interpretation, the simple presence of hydric soil is not alone sufficient to a claim of jurisdiction. See Blanton vs. Goscini, Broward Co. and DER, 9 FALR 4333, 4343 (Final Order June 8, 1987). An agency's interpretation of its statutes and rules should be accorded great weight. Little Munyon Island, Inc. vs. DER, 492 So.2d 735, 737 (Fla. 1st DCA 1986). This interpretation by the agency concerning the use of hydric soils and jurisdictional determination was unrefuted and is accepted. Under the above rules, an area claimed for jurisdictional purposes must either be a water body listed in Section 403.918(2)(a)1., Florida Statutes, or be connected to such a water body by the dominance of plants listed in Rule 17-301.400(2) and (3), Florida Administrative Code (the Vegetative Index). The Petitioners raised an issue concerning Areas A, B, C and D, referenced in the above Findings of Fact, as being additional jurisdictional wetland areas in excess of those claimed to be jurisdictional by the Applicant's expert witnesses. However, none of the areas Petitioner maintained were jurisdictional contained sufficient flowing or standing water on a regular basis to be considered surface waters of the State, pursuant to Rule 17-12.030, Florida Administrative Code, for jurisdictional purposes. All waters in those additional areas claimed as jurisdictional by Petitioners flowed

only at certain times of the year and only in response to rainfall. They did not have sufficient listed vegetation to reflect regular and periodic inundation. None of these areas contained sufficient dominance of transitional and submerged plants, contiguous to confirmed jurisdictional areas, to support a finding of jurisdiction under the "a test" of the above-quoted rule. Finally, none of the areas contained sufficient vegetation, contiguous to confirmed jurisdictional areas, to support use of the "b test" of the above-quoted rule. Pursuant to the Department's interpretation, placed in evidence, and the use of the conjunctive "and" between paragraphs 3 and 4 of paragraph B of the above-quoted rule, it is clear that hydric soil should not be used as an "other indicator of regular and periodic inundation" in the absence of such "B test" vegetation.

The Applicant has taken the position that direct impacts to dredge and fill wetlands posed by the project as those wetlands are defined by the above jurisdictional tests are limited to the construction and operation of the access road for the landfill itself. The Applicant acknowledges, however, that the Department has interpreted Section 403.918, Florida Statutes, and related rules and decisional law as requiring consideration of certain secondary impacts directly related to construction and operation of an entire project such as this one. Thus, the analysis of entitlement to the dredge and fill permit application must first consider what work or activities will comprise the proposed project which are cognizable under the Department's permitting authority.

Although a proposed project might normally be considered to consist totally of work in the wetlands themselves and its effects, the Department has interpreted the above-cited statute and attendant rules to include upland work or activities within the scope of the project if that work or activity is causally related or closely connected to the work occurring within the contiguous jurisdictional wetlands. See J. T. McCormick vs. City of Jacksonville and DER, 12 FALR 960 (FO 1/22/90), appeals docketed subnom, St. Johns Co. vs. State of Fla., DER, 90-358 Fla. 5th DCA (2/20/90), J. T. McCormick vs. Fla. Land and Water Adjudicatory Comm., 91-560 (Fla. 5th DCA 3/18/91) (consolidated into docket no. 90-358); The Conservancy, Inc. and Fla. Audubon Society vs. A. Vernon Allen Builder, Inc. and DER, \_\_\_\_ So.2d \_\_\_\_ 16 FLW 834, 837 no. 2 (1st DCA March 29, 1991), appeal docketed, no. 77,968 (Fla. May 20, 1991) (Fla. 1st DCA 1991). Because of the interrelationship between the contiguous wetlands works for the access roads, the landfills to be constructed at the end of those roads and the storm water discharge/MSSW systems, the impacts related to all of this work, as well as the benefits resulting from it should be evaluated.

The Applicant presented prima facie evidence of entitlement to the proposed permit. The Petitioners did not raise any issues concerning cumulative impacts. However, the issues raised by the Petitioners with regard to the MSSW permit--water quality, wildlife and wetlands functions--are also relevant to the dredge and fill permitting issue.

Subsection 403 918(1), Florida Statutes, states:

- (1) A permit may not be issued under ss. 403.91-403.929 unless the applicant provides the Department with reasonable assurance that water quality standards will not be violated.

The Applicant has provided reasonable assurances that the proposed project will not violate Class III surface water or Class G-2 groundwater water quality standards as established pursuant to Chapter 403, Florida Statutes, and in Rules 17-302.500, 17-302.510, 17-302.560, 17-550.310, 17-550.320, 17-3.402 and 17-3.404, Florida Administrative Code. In reaching this conclusion, consideration has been given to all evidence regarding the possibility of water quality violations related to the construction and use of the access road, the construction and operation of the landfill and the construction of the MSSW/storm water system. Provided those conditions found necessary to be imposed upon the design, construction and operation of the subject facility are imposed with any grant of the permit and carried out, then reasonable assurances exist that the proposed project will not violate the above-mentioned water quality standards.

Section 403.918(2), Florida Statutes, provides as follows:

- (2) A permit may not be issued under ss. 403.91-403.929 unless the applicant provides the Department with reasonable assurance that the project is not contrary to public interest. However, for a project which significantly degrades or is within an Outstanding Florida Water, as provided by Department rule, the applicant must provide reasonable assurance that the project will be clearly in the public interest.

- (a) In determining whether a project is not contrary to the public interest, or is clearly in the public interest, the Department shall consider and balance the following criteria:
1. Whether the project will adversely affect the public health, safety, welfare or the property of others;
  2. Whether the project will adversely affect the conservation of fish and wildlife, including endangered or threatened species, or their habitats;
  3. Whether the project will adversely affect navigation or the flow of water or cause harmful erosion or shoaling;
  4. Whether the project will adversely affect the fishing or recreational values or marine productivity in the vicinity of the project;
  5. Whether the project will be of a temporary or permanent nature;
  6. Whether the project will adversely affect or will enhance significant historical and archaeological resources under the provisions of s. 267.061; and
  7. The current condition and relative value of functions being performed by areas affected by the proposed activity.

Section 403.919, Florida Statutes, is commonly called the "cumulative impacts test." It is not really a third test, however, for grant of a dredge and fill permit, but rather a further analysis to be applied to water quality and public interest tests quoted above. See, Peebles vs. DER, 12 FALR 1961 (Final Order April 11, 1990).

The seven public interest criteria quoted above should be weighed and balanced against each other with an adverse impact as to one criterion possibly being offset by an attendant benefit



for another criterion. See, Peebles, supra. and McKnight, et al. vs. Deep Water Land Trust and DER, 10 FALR 7207, 7223, 7224 (November 15, 1988).

Concerning the first of the above public interest criteria, the Petitioners have stipulated that the project will not affect the property of the Petitioners. The size of the buffer zones around the proposed project, coupled with the project's design, and proposed construction and operation in conformance with the permitting standards applicable to it, provided that conditions found above to be necessary are imposed and carried out, will ensure that the public health, safety or welfare or the property of others will not be adversely affected. The impacts from the project on the limited number of residents in the immediate area of the landfill will be minimal due to operational measures designed to limit odor, noise, litter and traffic. Indeed, there will be a positive benefit to the public from the disposal of waste in an environmentally sound landfill (if necessary conditions found above are imposed), rather than at a landfill such as the existing, unlined Gervin Road landfill referenced in the evidence. As noted by the First District Court of Appeal in 1800 Atlantic Developers vs. DER and City of Key West, 552 So.2d 946 (Fla. 1st DCA 1989), "the fact that a substantial public need or benefit would be met by approving a project may be taken into consideration" in the public interest test balancing process.

Concerning the criterion regarding conservation of fish and wildlife, it has been established that the proposed project

will be located on property that has been extensively ditched, drained and timbered. Due to the poor quality of the habitat involved in the project in these wetlands, the property does not provide significant habitat. The landfill project will not have significant adverse impact on endangered or threatened species or their habitat. No endangered or threatened species were shown to use the subject site and potential use of an area by a "stray" individual or occasional use by a species is not deemed significant in the permit review process. McCormick, 12 FALR at 54; Old Port Cove Property Owners Assn., Inc. vs. DER, 9 FALR 3821, 3833-3844, 3859-61 (July 1, 1987) and Schatz vs. ITT Community Development Corp., 7 FALR 907, 915-18 (December 9, 1984). The minimal, speculative potential of this site as black bear habitat is therefore not legally significant. Even so, the creation of the hardwood forest wetland mitigation area would sufficiently mitigate for any insignificant habitat loss to black bears posed by the project. The impact of the landfill on the only species of any significance identified on the site, the gopher tortoise, (an upland species of special concern) is minimal, as less than ten individuals of this species will be affected. This impact will be mitigated by relocation of those individuals in accordance with guidelines and the direction of personnel of the FGFWFC. The Applicant has thus provided reasonable assurances that the landfill project will not have any significant adverse impact on fish and wildlife, including endangered or threatened species, or their habitat. Because of the impact of the landfill project on the upland species, the

gopher tortoise, and the secondary impact of the dredge and fill project, this criterion must be weighed slightly in the negative for the Applicant.

Concerning the standard regarding navigation, flow of water and harmful erosion or shoaling, the Petitioners have stipulated that the project involved in the dredge and fill permitting will not affect navigation. No evidence was adduced to indicate that the project would affect navigation or cause harmful erosion or shoaling. If the project is designed, constructed and operated in accordance with the conditions found in the above Findings of Fact to be necessary, no adverse impact on the flow of water will be occasioned by the project. Thus, this criterion should be accorded neutral weight.

With regard to fishing, recreational values or marine productivity, marine productivity on the site is agreed not to be at issue. No significant evidence was adduced to show that fishing or recreational values will be affected at all by the project, thus Criterion 4 is accorded neutral weight as well in the public interest balancing process.

Concerning the question of the project's temporary or permanent nature, no substantial evidence was presented regarding impacts related to the temporal nature of the facility. The Petitioners' evidence relates somewhat to the temporal nature of the facility in terms of the erosive effects of rain water and rain water velocities in the later years of the landfill as the sides and height of the landfill approach their maximum configuration, as well as some testimony regarding the effects of

leachate constituents deposited in State waters over time. However, the preponderant evidence adduced by the Applicant, when considered in conjunction with the necessary conditions required to be imposed upon a grant of the permit, and supported by that portion of the Petitioners' evidence accepted by the Hearing Officer, shows that reasonable assurances exist that the semi-permanent nature of the landfill project will not cause adverse environmental impacts to the various public interest considerations or water quality considerations referenced in the statute quoted last above. Moreover, the expected life of the landfill is 20 years. After closure, many environmental impacts under the purview of the dredge and fill permitting may be expected to lessen or cease altogether. Therefore, on balance, this criterion is weighed slightly in favor of the Applicant.

Concerning significant historical and archaeological resources, no evidence was presented by the Petitioners at all on this subject. The landfill activities, however, were shown by archaeologist Johnson not to adversely affect any significant historical or archaeological resources. Moreover, the extent of archaeological survey work performed by Mr. Johnson or those under his direction or control at the tract, in which is contained the landfill site, will be a significant benefit to the public by virtue of the discoveries made on the tract and the mapping and cataloging of the finds made there. Therefore, this criterion is weighed in favor of the Applicant.

The last of the seven public interest criteria concerns the current condition and relative value of functions of areas

affected. The evidence establishes that the contiguous DER jurisdictional lands to be impacted by the proposed project are 1.6 acres of road side ditches. It is also possible that some contiguous wetlands will be impacted somewhat by draw-down resulting from storm water ponds. None of the wetlands to be impacted or potentially impacted are of high quality. Thus, the relative value of the functions being performed by these wetlands is low. Although the relative value of these wetlands is low, adverse impacts do add negative weight to the public interest balance. Because the evidence reflects that the wetlands affected have been impacted adversely for years by silvi-culture practices, the areas are performing minimal wetland and habitat functions and negative impacts are minimal.

If, after the seven criteria are balanced, there are sufficient negative impacts when balanced against positive aspects of the project as to make the project ordinarily unpermissible, then mitigation which addresses those particular negative impacts or shortcomings may be considered to offset those negative impacts and make the project therefore permissible. Section 403.918(2)(b), Florida Statutes (Supp. 1990). Chipola Basin Protective Group, Inc. vs. DER, 11 FALR 467 (12/29/88); Port Everglades Authority vs. DER, 9 FALR 5613 (10/9/87).

The Applicant has proposed a mitigation plan, including a 4.76 acre wetland creation area and irrigation of wetlands surrounding the Class I and Class II storm water ponds by pumping in diversion of surface water flow. The mitigation plan, if

carried out, has been shown to be adequate compensation for any direct or secondary impacts related to the question of dredge and fill permitting with regard to the minimal effects to be expected of draw-down of groundwater on dredge and fill jurisdictional wetlands as well as any minimal impact to wildlife species and their habitats considering the weight of the positive public need shown for the project and the archeological resource benefits shown by the surveying, planning and designing process for the landfill project.

On balance, due to the positive weight given Criteria 1, 5 and 6, the neutral weight accorded Criteria 3 and 4 and the minimal negative values assigned to Criteria 2 and 7, when considered in conjunction with the mitigation portion of the project, which will offset those negative impacts, reasonable assurances have been provided that the landfill project will not be contrary to the public interest under the seven statutory criteria referenced above. It follows therefore that the dredge and fill permit should be issued.

Section 403.919, Florida Statutes (1989), requires consideration be given concerning whether the cumulative impacts of the project or similar projects existing, under construction, or reasonably expected in the future will adversely impact the water quality and public interest considerations embodied in Section 403.918(1) and (2), Florida Statutes. There is no evidence to show that any other landfill project is reasonably expected in this area if this permit is granted and, further, that the area would remain subject to silvi-culture practices for

the foreseeable future. There is no evidence that cumulative impacts from other projects would affect this area, and the project, judged on its own merits, assuming the above-found necessary conditions are imposed thereon, is found to be permissible.

Section 403.707, Florida Statutes (1989), concerning solid waste permitting provides at paragraph 6(c) as follows:

The Department may issue a construction permit pursuant to this part only to a solid waste management facility which provides the conditions necessary to control the safe movement of wastes or waste constituents into surface or groundwaters or the atmosphere and which will be operated, maintained, and closed by qualified or properly trained personnel. Such facility shall, if necessary:

- (c) Provide for the most economically feasible, cost effective, and environmentally safe control of leachate, gas, storm water, and disease vectors and prevent the endangerment of public health and the environment.

The Petitioners apparently contend that the project will not be economically feasible and cost effective as a means of control of the above-named, deleterious effluvia of such a landfill, based upon the Petitioners' view that the land cost is exorbitant. The Petitioner contends that the \$10,000/acre land cost for property appraised at \$2,600/acre, to be paid to the Applicant by the City of Jacksonville as an approximate \$3.8 million initial land cost, with the remaining \$9 million of the Applicant's land cost recovered from the City by a fee over the 20-year life of the landfill, based upon approximately \$15.09/ton operating fee paid to the Applicant will not constitute an economically feasible,

cost effective control of the deleterious constituents of solid waste disposal operations. It is concluded, however, that the above-quoted statutory provision, concerning economic feasibility and cost effectiveness, relates only to the direct questions of economic feasibility and cost effectiveness attendant to the actual operation of the landfill as a solid waste and related pollutant disposal and treatment process in terms of the regulatory authority given the DER in the statutes and rules cited in this Recommended Order to regulate such matters through permitting and enforcement powers. It is not deemed that the above statute and the other legal authority relevant to this proceeding accord the Department authority to consider secondarily related cost elements of the project such as land costs, price-per-ton operation fees, the contractual guarantee of a 569,000 ton/year waste stream to the Applicant or other indirect costs of waste disposal at the proposed landfill project which might be borne by the taxpayers and waste disposal rate payers of the City of Jacksonville. In this context, therefore, and assuming that the above-found necessary conditions to granting of the various permits are imposed by Final Order and carried out, it has been established that the operation of the project, as so conditioned, will be approved economically feasible, cost effective and environmentally safe control of the various pollutant constituents referenced in the above statutory authority.



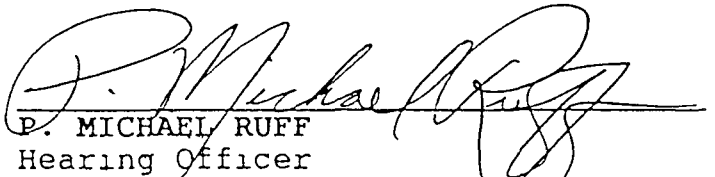
### RECOMMENDATION

Having considered the foregoing Findings of Fact, Conclusions of Law, the evidence of record, the candor and demeanor of the witnesses and the pleadings and arguments of the parties, it is, therefore

#### RECOMMENDED:

That a Final Order be entered by the Department of Environmental Regulation approving Trail Ridge Landfill, Inc.'s applications for the above-referenced permits for the proposed solid waste management facility, including a solid waste management facility permit, a storm water/management and storage of surface waters permit and a dredge and fill permit, provided those mandatory conditions specified in the Notices of Intent to issue such permits, as well as those conditions found to be necessary in the above Findings of Fact and Conclusions of Law are made mandatory conditions of permitting and subsequent facility operations.

DONE AND ENTERED this 20<sup>th</sup> day of September, 1991, in Tallahassee, Leon County, Florida.

  
P. MICHAEL RUFF  
Hearing Officer  
Division of Administrative Hearings  
The DeSoto Building  
1230 Apalachee Parkway  
Tallahassee, FL 32399-1550  
(904) 488-9675

Filed with the Clerk of the  
Division of Administrative Hearings  
this 20<sup>th</sup> day of September, 1991.

NOTICE OF RIGHT TO SUBMIT EXCEPTIONS

All parties have the right to submit written exceptions to this Recommended Order. All agencies allow each party at least 10 days in which to submit written exceptions. Some agencies allow a larger period within which to submit written exceptions. You should contact the agency that will issue the final order in this case concerning agency rules on the deadline for filing exceptions to this Recommended Order. Any exceptions to this Recommended Order should be filed with the agency that will issue the final order in this case.

Copies furnished to:

William Congdon, Esq.  
Office of General Counsel  
Department of Environmental Regulation  
2600 Blair Stone Road, Rm. 672  
Tallahassee, FL 32399-2400

Carol Browner, Secretary  
Department of Environmental  
Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

William D. Preston, Esq.  
Frank E. Matthews, Esq.  
Michael P. Petrovich, Esq.  
Laura Boyd Tearce, Esq.  
HOPPING, BOYD, ET AL.  
P.O. Box 6526  
Tallahassee, FL 32314

Kenneth F. Hoffman, Esq.  
Thomas G. Tomasello, Esq.  
OERTEL, HOFFMAN, ET AL.  
2700 Blair Stone Road  
Tallahassee, FL 32301

Terence M. Brown, Esq.  
Terence M. Brown, P.A.  
P.O. Box 40  
Starke, FL 32091

Maurice T. and Cathy L. Samples  
7814 U.S. Highway 301 South  
Baldwin, FL 32234

John G. Herring  
7810 U.S. Highway 301 South  
Baldwin, FL 32234

Ronnie E. and Laurie J. Hall  
7806 U.S. Highway 301 South  
Baldwin, FL 32234

Lambert L. and Norma J. Herring  
7810 U.S. Highway 301 South  
Baldwin, FL 32234

APPENDIX TO RECOMMENDED ORDER  
CASE NOS. 90-7295, et al.

Applicant's Proposed Findings of Fact

- 1-7. Accepted.
- 8. Rejected as immaterial in the de novo context of this proceeding.
- 9-13. Accepted.
- 14. Rejected as irrelevant.
- 15-25. Accepted.
- 26-39. Rejected as to their overall material and probative import as not being entirely in accord with the preponderant weight of the evidence and as being subordinate to the Hearing Officer's Findings of Fact on the subject matter depicted in these Proposed Findings of Fact. Reasonable assurances that these aspects of the project will be carried out in a manner which comports with the relevant statutes and rules is dependant on the conditions found necessary by the Hearing Officer being imposed on any grant of the permits involved and subsequent construction and operation of the project..
- 40-43. Accepted.
- 44. Rejected as to its material and probative import as not being entirely in accord with the preponderant weight of the evidence and subordinate to the Hearing Officer's Findings of Fact on this subject matter.
- 45. Accepted.
- 46-47. Rejected as to its material and probative import as not being entirely in accordance with the preponderant weight of the evidence and as being subordinate to the Hearing Officer's Findings of Fact on this subject matter.
- 48-57. Accepted.
- 58. Rejected as subordinate to the Hearing Officer's Findings of Fact on this subject matter.
- 59-66. Accepted.
- 67. Rejected as subordinate to the Hearing Officer's Findings of Fact on this subject matter.
- 68. Accepted in general but subordinate to the Hearing Officer's Findings of Fact on this subject matter.
- 69-98. Accepted.
- 99-112. Accepted in part but subordinate to the Hearing Officer's Findings of Fact on these subject matters and, to the extent these Proposed Findings of Fact are inconsistent with the Hearing Officer's Findings of Fact on these subject matters, they are rejected.
- 113-116. Accepted.
- 117. Rejected as unnecessary.

Petitioner's Proposed Findings of Fact

- 1-3. Accepted, although number 3 is not entirely material and relevant to the issues framed by the environmental permitting statutes and rules applicable to this proceeding.
- 4-15. Rejected in the consideration of the de novo context of this proceeding in which the facial contents of the application are not at issue, but rather whether the various elements of the project proposed in the application are supported by preponderant evidence vis a vis the objections to them raised in the petitions opposing it. Whether the application specified all elements and details of the proposed design, construction and operation of the facilities sought to be permitted is not material once a de novo proceeding is triggered by an appropriately filed petition, which raises relevant and material issues concerning the project sought to be permitted. At that point the material considerations are whether or not preponderant evidence is offered probative of the various aspects of the project proposed by the application, as presented, absent a showing that a Petitioner, even after engaging in extensive prehearing discovery, was surprised by any issues raised or evidence offered with regard to any elements of the proposed project because they were not initially "pled" in the application, which is not the case here.
- 16-28. Accepted, except as modified by the Hearing Officer's Findings of Fact.
- 29-30. Rejected as subordinate to the Hearing Officer's Findings of Fact on this subject matter.
- 31-38. Rejected as not entirely in accord with the preponderant weight of the evidence and as subordinate to the Hearing Officer's Findings of Fact on this subject matter.
- 39-42. Accepted.
- 43-45. Rejected as not entirely in accord with the preponderant weight of the evidence and as subordinate to the Hearing Officer's Findings of Fact on this subject matter.
46. Rejected as not in accord with the preponderant weight of the evidence.
- 47-49. Accepted.
- 50-58. Rejected as not entirely in accord with the preponderant weight of the evidence and as subordinate to the Hearing Officer's Findings of Fact on this subject matter.
59. Accepted but not dispositive of material issues.
60. Accepted but not in itself dispositive of material issues.
- 61-64. Rejected as not entirely in accord with the preponderant weight of the evidence and as subordinate to the Hearing Officer's Findings of Fact on this subject matter.

- 65-67. Accepted.  
68. Rejected as immaterial.  
69-94. Accepted except as modified by the Hearing Officer's Findings of Fact on these subject matters.  
95. Rejected as irrelevant and immaterial.  
96-103. Accepted.  
104-110. Rejected as subordinate to the Hearing Officer's Findings of Fact on this subject matter, including those conditions found to be necessary to any grant of the permits.  
111-115. Rejected as subordinate to the Hearing Officer's Findings of Fact on this subject matter and not in their entirety supported by the preponderant weight of the evidence.  
116-135. Accepted.  
136. Rejected as immaterial in the de novo context of this proceeding, as more particularly discussed in the rulings on Proposed Findings 4-15.  
137-147. Rejected as subordinate to the Hearing Officer's Findings of Fact on this subject matter and as not entirely in accord with the preponderant weight of the evidence.  
148-149. Accepted.  
150-153. Rejected as subordinate to the Hearing Officer's Findings of Fact on this subject matter and as not in accord with the preponderant weight of the evidence.  
154. Accepted.  
155. Rejected as subordinate to the Hearing Officer's Findings of Fact on this subject matter.  
156-159. Accepted but not in themselves materially dispositive.  
160-161. Accepted but not dispositive of material issues.  
162-164. Accepted.  
165-175. Accepted but not shown to be materially dispositive because of the failure to demonstrate a nexus between the design and operations of the existing landfills with the proposed design and operations of the landfills for which the permits are sought.  
176. Rejected as not in accordance with the preponderant weight of the evidence.  
177-187. Accepted but not in themselves materially dispositive, especially because they amount to recitations of testimony isolated from the context of the testimony of the witnesses depicted in these Findings of Fact.