

# APPLICATION FOR A PERMIT TO OPERATE A SEPTAGE LAND APPLICATION SITE

North Carolina Department of Environment and Natural Resources  
Division of Waste Management – Solid Waste Section  
401 Oberlin Rd., Ste. 150, Raleigh, N.C. 27605



## I. Site and Operator Information

1. Applicant Waste Management of Wilmington  
Address 3920 River Rd  
Wilmington, NC 28412  
Phone 910-798-1238

2. Contact person for site operation (if different from applicant): Gerald M Murrell  
Title or position Septic Operations Manager Phone: 910-798-1238  
Address 3920 River Rd  
Wilmington, NC 28412

3. Landowner Waste Management of Carolinas, Inc  
Address 3920 River Rd  
Wilmington, NC 28412

4. Site Location: County Columbus State Road Number HWY 211  
Directions to site: Hwy 74/76 West, Left on Hwy 211 towards Supply. Approx 10 miles.

5. Indicate whether request is: new  renewal  modification

For a permit renewal or modification, provide the following information:

Existing site permit number: SLAS  permit expiration date:

6. Number of acres meeting the requirements of the N.C. Septage Management Rules:

7. Substances other than septage or grease trap pumpings previously disposed of on the site:  
(a) None , or (b) Attach a list indicating other substances, the amounts discharged, and the dates of discharge.

8. Attach written, notarized landowner authorization to operate a septage disposal site signed by the landowner (if the permit applicant does not own the property). **If a corporation owns the land use a corporate landowner authorization form. If limited liability company owns the land, use a limited liability company landowner authorization form.**

9. Attach site evaluation report, including aerial photograph and soil analysis with metals results, unless the Division prepared the report.

10. Attach a vicinity map (county road map showing site location).

(over)



II. Site Management Information:

The following information shall be included with the application form:

- 1. Nutrient Management Plan
- 2. Soil Erosion and Runoff Control Plan
- 3. Alternative plan for disposal (detention facility permit number or wastewater treatment plant authorization): SDTF-65-01

- 4. Types of septage proposed to be discharged at the site (check all that apply):
  - (a) Domestic septage pumped from septic tanks X
  - (b) Grease trap pumpings X
  - (c) Portable toilet waste X
  - (d) Commercial / Industrial septage X
- 5. Proposed treatment method of each type of septage to be land applied (use additional paper to explain if necessary): Human septage is to be lime stabilized for a min. of 30 minutes until it reaches a PH of 12. Grease trap waste will be lime stabilized for a min. of two (2) hours until it reaches a PH of 12 before land application.

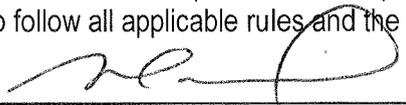
- 6. Proposed method of applying septage to land, including septage distribution plan if required \* (use additional paper to explain if necessary): Hose tow spray irrigation system to equally distribute all waste.

- 7. Demonstration from the appropriate state or federal government agency that the land application site complies with the Endangered Species Law \*\* or if any part of the site specified is not agricultural land (use additional paper to explain if necessary): No endangered Plants or Animals have been determined to be in the spray irrigation site.

III. Certification

I hereby certify that:

- 1. The information provided on this application is true, complete, and correct to the best of my knowledge.
- 2. I have read and understand the N.C. Septage Management Rules, and
- 3. I am aware of the potential consequences, including penalties and permit revocation, for failing to follow all applicable rules and the conditions of a Septage Land Application Site permit.

  
 \_\_\_\_\_  
 Signature\*\*\*

9/07/10  
 \_\_\_\_\_  
 Date

Gerald M Murrell  
Print name

Septic Operations Manager  
Title

Note: This application will not be reviewed until all parts of the application are complete.

\* Refer to Section .0821(e) of the N.C. Septage Management Rules.

\*\* Refer to Section .0821(g) of the N.C. Septage Management Rules.

\*\*\*Signature of company official required.



Permit Application  
Waste Management of Wilmington  
Land Application Site, Columbus County, North Carolina



The following information is submitted in accordance with requirements for septage land application systems. The material and supporting documentation is accurate and based on site investigations, review of maps and information. The proposed land receiver site is located in Columbus County near the Brunswick County line. The site occupies an area southwest of Highway 211 and was proposed as a landfill area previously. The property is wholly owned by Waste Management, Inc.

1a. Applicant:

Chris McKeithan, Waste Management of Wilmington,  
3920 River Road,  
Wilmington, NC,  
910 798 1221

1b. Land Owner: Waste Management

1c. Proposed Operators: Chris McKeithan and Jerry Murrell, Waste Management of Wilmington

2. Location: Columbus County, North Carolina

3. Location Map: Attached, see attachment 1.

4. Waste Material to applied: Liquid from dewatering activities associated with septage, grease trap and portable toilet waste. The bulk of the material proposed for land treatment consists of dewatered domestic septage (50%), Grease Trap waste (45%) and portable toilet waste (5%). All waste materials shall be dewatered at the Wilmington facility and the clarified liquid from this operation is to be applied to permitted land receiver sites. Should the dewatering operation malfunction, there is available storage at the Wilmington facility and should the outage be prolonged, materials will be transported to a cooperating facility for dewatering (i.e. Craven Ag Service) or to the cape fear public utility.

5. Site description: The proposed site is in rural Columbus County, the 600 acre site consists of pine and scrub/cut-over areas, no structures are present on the site. All processing will take place at the Wilmington operation.

6. Discharge to land: The liquid waste will be transported to the site from Wilmington in a leak proof, water-tight vehicle. Liquid will be discharged into a storage tank and pumped through a hose

through a hose reel system onto the site. A secondary application method involves application of the liquid using tractor towed tanks with spray discharge. A site evaluation and a nutrient management plan are attached.

7. Waste applied to the site will originate at Waste Management of Wilmington
8. Documentation from Columbus County: Attached, see attachment 2
9. Aerial Photograph: Attached, see attachment 3.
10. Landowner agreement: NA
11. Site investigation: Attached, see attachment 4.
12. Nutrient management: plan attached

Respectfully Submitted;



A. R. Rubin, REP



  
Dwayne A. Graham, RS, LSS 9/9/2020  
N.C. Licensed Soil Scientist # 1022

Site Assessment  
Columbus County



For

Receiver Sites, Waste Management Dewatered Septage, Grease Trap Waste, and Portable Toilet Waste

By

A. R. Rubin and Dwayne A. Graham, RS, LSS

Waste Management, Inc. of Wilmington has operated a land application program to accommodate septage, FOG, and portable toilet wastes generated in the Wilmington area. These materials have been lime treated and applied onto permitted land receiver sites at the Orton Plantation in Brunswick County. Waste Management is seeking additional options to accommodate these waste-streams and is developing a dewatering facility at the Wilmington operation. Through this dewatering activity the original waste-streams are separated into two components: a solid material containing between 25 and 40 % solids and a clarified liquid stream. The solid portion can be treated at an approved landfill, land applied or composted at permitted facilities; the liquid generated can be applied to permitted land receiver sites. Liquid loadings onto land can be increased significantly following this treatment and this is a driving force encouraging the dewatering. For this initial application, the liquid loading for the clarified liquid generated in the dewatering operation is limited to 50,000 gallons per acre per year. Should alternative capacity be required for septage, the loads will be limited to 25000 gallons per acre per year on the forest sites and 50,000 gallons per acre per year on the cropped sites proposed.

In support of this request for permitting the following activities were accomplished:

1. Waste analysis: 4 composite samples of the waste analyzed to generate a worst case land limiting constituent assessment. This assures the land area is specified to accommodate the most limiting of the constituents contained in the waste-stream.
2. A site and soils assessment was performed on the potential receiver site. The initial assessment by Dwayne Graham and a subsequent assessment by A. R. Rubin. Investigation consisted of evaluation of soil physical and chemical properties (NCDA Soil Fertility Tests).
3. This site report was developed in support of the permit request.

**Waste Analysis:** A pilot dewatering activity was developed utilizing small (5 gallon) batches of composited waste from collection vehicles. The polymer to be used in the dewatering operation was mixed with the incoming waste, the samples were allowed to settle separating the solid fraction from the liquid, and a composite sample of the liquid was collected through the surface layer for analysis. The waste samples were placed in a cooler, placed on ice and transported to NCDA Agronomic Services for testing. Table 1, below presents the results of the waste sampling and develops a design waste based on the average value of the test samples.

Table 1, Waste Analysis Data, Waste Management of Wilmington Dewatering Demonstration, results as mg/kg

Constituent	Sample 1	Sample 2	Sample 3	Sample 4	Ave1	Max	Min	Design value
TN	73	166	122	119	120	166	73	125
P	12	23	37	15	22	37	15	25
K	44	62	47	53	52	62	44	55
Ca	1054	690	601	1095	860	1095	601	900
Mg	18.7	37	38.5	21.6	29	38.5	18.7	35
Zn	.31	.75	.34	.42	.5	.75	.31	.6
Cu	.19	.29	.17	.33	.25	.33	.17	.25
Cd	.03	.02	.02	.01	.02	.03	.01	.02
Ni	.21	.2	.16	.15	.18	.21	.15	.2
Pb	.41	ND	ND	.25	.3	.41	.25	.3

The composite sample used in the load calculations presented in Tables 2a and 2b are based on the average of the sample results and then weighted to include approximately 20% portable toilet waste (PTW) that is anticipated once the building industry recovers.

Table 2a, Waste Loading Recommendations based on Limiting Constituent Analysis for Bermudagrass or annual grains (approximate based on RYE for Butters soil, considered the least productive of those reported in the area)

Constituent	Concentration	Mass(lb)/1000 gal	Agronomic load (lb/ac/yr)	Liquid required (gal)	limit
TN	125	1.1	180	163,000	165,000 gal/y
P	25	.2	40	200,000	
K	55	.5	80	160,000	165,000
Ca	900	7.5	NA	NA	
Mg	35	.3	NA	NA	
Zn	.6	.005	30	6000000	3200 years++
Cu	.25	.003	15	3000000	
Cd	.02	.0002	.5	25000000	
Ni	.2	.002	15	75000000	
Pb	.3	.003	5	16670000	

Based on the application onto Bermudagrass, the limiting constituents are nitrogen and potassium. Based on this analysis of several random samples a liquid load of 165,000 gallons per acre per year will supply the nitrogen and potassium necessary to raise a Bermudagrass crop on the site. Based on soil test results, this number could be increased if deficiencies are present.

Supplemental P will be required to optimize crop production, but the deficiencies are minimal. The site life is determined by the copper concentration in the material. When weighted to include the concentrations contributed by the septage, grease trap wastes, and portable toilet waste the

anticipated site life with a liquid load of 165,000 gallons per acre is over 3200 years as determined by the copper level in the material, the 50,000 gal/ac load will extend site life. Clearly the liquid load necessary to supply nitrogen is the land limiting constituent in this proposed land application operation.

Table 2b, Waste Loading Recommendations based on Limiting Constituent Analysis for Pines

Constituent	Concentration	Mass(lb)/1000 gal	Agronomic load (lb/ac/yr)	Liquid required (gal)	limit
TN	125	1.1	80	72000	72,000 gal/yr
P	25	.2	25	125,000	
K	55	.46	40	87,000	
Ca	900	7	NA	NA	
Mg	35	.3	NA	NA	
Zn	.6	.005	30	6000000	
Cu	.25	.002	25	3000000	5,600 years
Cd	.02	.0002	.5	25000000	
Ni	.2	.002	15	75000000	
Pb	.3	.003	5	16670000	

Based on the application onto pine trees, the limiting constituent is nitrogen and a liquid load of 72,000 gallons per acre per year will supply the nitrogen necessary to raise a pine crop on the site. Additional waste sampling may allow modification of these loadings depending on the average values developed through testing. Longleaf pines are sensitive to nitrogen and no upward adjustment in loading is recommended until thorough assessment is provided on waste quality and plant tissue. Conversion from longleaf to loblolly pine, a hardwood plantation, or a hay operation will result in higher loadings because the nutrient assimilation capacity is higher. These modifications, if desired, can be developed as the project proceeds. Supplemental P and K will be required to optimize crop production, but the deficiencies are minimal. The site life is determined by the copper concentration in the material.

**Site Characterization:**

The Columbus County site located on the Columbus County/Brunswick County line and slightly south of Hwy 87 contains over 600 acres. The site was initially purchased to develop a solid waste landfill. Of the 600 acres of land on the site the landfill was to cover only a portion of the site. The initial Graham Report suggests that over 115 acres of the site are acceptable for land application; this report addresses only a portion of that. Only approximately 40 acres on the site are proposed as a receiver for the liquid from the dewatering operation. These approximate 40 acres are located in the east central portion of the site. The proposed area is divided into four distinct areas. The larger of the proposed Field Areas 1 and 2 is divided roughly in half by a wetland area. The smaller of the smaller Field Area 3 is separated from Field Area 2 by an internal road. The proposed Field Area 4 is separated from Field 3 by a wetland area. The Soil Maps developed by Dwayne Graham, Attachments 1a and b, identify the relative location, geometry and area extent of the four proposed Field areas. These four areas are typically upland areas and wetlands are located along the lower elevations of the site and in depressional areas on uplands. The areas proposed as the receiver sites for the clarified liquid waste from Waste Management are

typically unaffected by these depressional wetlands; that is the primary reason for their selection. Further, the areas selected are isolated and their use will not be impacted by adjacent properties. The use of these proposed areas will require extensive site development and that will be addressed in the site management plan to be developed following permitting.

The slopes encountered on the site are minimal. The maximum slope encountered is 2% to 3% over the portions of the site intended to host the land treatment operation. Neither slope nor topography over the areas proposed as receiver areas for liquid waste pose limitations to the design or operation of this proposed land treatment facility.

The major site limitation is the presence of the wetlands throughout the site. The areas proposed to receive the clarified liquid from the dewatering operations are buffered from the wetland areas by at least the required minimum 50 feet. Maintenance of the buffers between the active land treatment areas and the wetland areas is necessary to assure compliance with regulatory requirements imposed through the NCDENR and the Corps of Engineers. Although these wetlands appear to be isolated, compliance with ancillary regulatory requirements is necessary.

Site limitations are minimal. The wetland areas can easily be buffered from the waste receiver areas. The site limitations encountered can easily be addressed through lay-out of the receiver areas and operations that assure no activities occur in these sensitive areas.

**Soil Materials:** the soils information necessary to develop a permit for land based waste treatment system must address the physical and chemical properties of the soil material on a site. To assess these properties, hand auger borings or backhoe pits are used to evaluate soil profiles. In support of this project hand auger borings were advanced at selected locations throughout these three defined areas. Hand auger borings were initially assessed by Mr. Graham and subsequently by Mr. Rubin. The assessment by Mr. Graham examined the entire 600 + acre property while that performed by Mr. Rubin examined in detail only the three areas proposed as receiver areas for this material and covering only 40 to 50 acres of the Waste Management Property in Columbus County.

The soil descriptions at selected areas through the three sites proposed are provided in the attachment to this report. In addition to the borings, samples of soil material were collected in each of the proposed areas and subjected to a battery of standard soil fertility tests as accomplished by NCDCA Agronomic Services in Raleigh. These standard fertility tests are required to optimize the nutrient loadings to the cropping system or systems proposed for waste receiver areas.

Soil materials encountered on these upland areas are typically well drained and moderately permeable. The areas are mapped in the Modern Soil Survey of Columbus County (1990) as Butters fine sand and the onsite assessment does confirm that this series is present along with a variety of additional soil materials characteristic of this soil catena. The borings indicate the presence of seasonal saturation at depths greater than 36 inches in the borings advanced; additional assessment performed by Mr. Graham suggests water table is present at between 24 and 36 inches on portions of the sites. The heavier textured, loamy subsoil encountered typically between 12 inches and 36 inches will restrict the migration of nutrients to the underlying groundwater; and this condition renders these sites and soils

ideal as receiver areas for the clarified liquid. These soils are typically bisequal; there is a historic layer of lighter textured soil material underlying the initial "b" horizon. These soil materials formed as upland areas from sandy and loamy marine sediments. The Butters series is good for agricultural and silvicultural production.

A further description of the method of delineation and the soils mapped within each proposed Field area was provided by Mr. Graham. Specifically, the focus of the soil mapping was to delineate the soils with regards to subsoil texture and seasonal-high-water-table (SHWT) depth. Initial overview of the areas indicated fine-loamy, sandy clay loam and coarse loamy, sandy loam subsoil within the upper 18 to 36 inches. The Septage Management Rules require soils with a minimum depth to SHWT for coarse-loamy and fine-loamy textures of 24 inches. The surface A and E horizons were consistently a loamy fine sand with thickness' of 12 to 15 inches underlain by Bt horizons of predominately of sandy clay loam and with sandy loam to depths of 36 to 40 inches and with indications of coarse loamy to sandy inclusions, as inclusions, with depth. The estimated depth to SHWT for Fields 1-3 was found to range from greater than 40 inches to 18 inches with an average between 30 to 36 inches. Based on these typical soil properties, these soils would be an inter-grade of Foreston and Noboco Series with inclusions of the Butters Soil Series along the upper landscape positions and within minor inclusions of Goldsboro to Lynchburg at the wetland edged. The estimated depth to SHWT for Field 4 was found to range from >30 inches to 18 inches with an average between 30 to 34 inches with SHWT to a minimum of 18 to 24 inches in sandy clay loam at the wetland area edges. The subsoil texture over much of Field 4 was a sandy clay loam with higher clay content. Based on these typical soil properties, these soils would be an inter-grade of Noboco and Goldsboro with minor inclusions of both the Foreston and Butters Series in the northernmost portion. Subsequent field determination and application boundaries of actual permitted fields would be limited to soils with the minimum 24 to 30 inches depth to seasonal-high-water-table and with either coarse loamy and fine-loamy subsoils. Mr. Graham has indicated that the use of Realistic Yield Expectation (RYE) data for the Butters Soil Series, as proposed herein, would be more conservative than that for the Noboco, Foreston or Goldsboro Series. A nutrient management plan is provided as an attachment to this report.

Soil chemical properties were assessed on potential receiver sites through standard NCDA Soil Tests. Soil materials were collected from the 0 to 6 inch depth at random locations through each of the proposed sites, composited from each site and tested by NCDA. The results of the soil fertility testing are summarized in Table 3, Soil Fertility Test Results, Waste Management, Columbus County, below.

Table 3, Soil Fertility Test Results, Waste Management, Columbus County (as standard NCDA results)

Parameter	Site 1	Site 2	Site 3	Site 4
OM	0.51	0.46	0.32	0.41
CEC	3.1	2.9	2.7	2.7
pH	4.6	4.6	4.6	4.8
P	4	5	3	3
K	7	6	6	6
Ca	19	15	18	26
Mg	6	6	7	7
Na	ND	ND	ND	0.1
Zn	20	18	15	10
Cu	10	20	20	15

Soil fertility levels are low. The NCDA soil test results suggest these sites have been used for pine production for many years. Had they been utilized for row crop production, the residual fertility levels may have been higher. The low fertility and low pH indicate that supplemental nutrients will be required to establish the proposed Bermudagrass crop. The lime added during the waste stabilization should supply sufficient buffering capacity to elevate soil pH into ranges considered optimum for maintenance of Bermudagrass. Presently, at present the low soil pH should be elevated by addition of Dolomitic Lime. This will add both calcium and magnesium to these low fertility sites. The recommended lime and nutrient additions are summarized in Table 3, Recommended Soil fertility Adjustments, Waste Management Receiver Sites, Columbus County, NC, below.

Table 3, Recommended Soil fertility Adjustments, Waste Management Receiver Sites, Columbus County, NC,

Nutrient	Site 2 (annual grain)	Site 3 (Bermudagrass)	Sites 1 and 4 (pine)
N (lb/ac)	60-80E/150-180M	60-80E/180-220M	60-80
P (lb/ac)	130-150	130-150	30-40
K (lb/ac)	130-140	130-140	130-140
Lime (T/ac)	2.2	2.1	1.2

"E" is associated with requirements to establish a crop, "M" is associated with maintenance requirements

**Cropping System:** The cropping systems proposed consist of Bermudagrass (site 2) and annual grasses such as Sudan grass or Millet (site 3) on major portions of the site and pines for the remainder of the area (sites 1 and 4). Establishing the Bermudagrass on these old pine plantation sites will require approximately one (1) year while the millet or Sudan are annual grasses and can be established for immediate use as receiver crops. Bermudagrass will require some time for establishment and during that initial year, loadings of the clarified liquid will supply critical irrigation water and nutrients necessary to establish this grass crop. Once a healthy grass crop is established, the liquid will be necessary for maintaining the crop. In addition, the nutrients and lime contained in the liquid will supply essential N, P, and K to the Bermudagrass crop and supplemental N, P, and K to the existing pines.

Bermudagrass crops require moderately high levels of nutrient and near neutral soil pH. The nitrogen required will increase once the crop is well established. In contrast, Longleaf Pines tolerate neither neutral soil pH nor nutrient additions over 75 to 80 pounds N/ac nor P additions over 20 pounds/ac. A pine plantation is well suited as a receiver, but at very low loadings of nutrients. Currently, the pine stand density is above the optimum of 440 stems per acre (approximately 10' x 10' spacing) as recommended for Long-Leaf pines and thinning is required. A report from SWE Group (Dr. Doug Frederick and Scott Frederick) is pending to describe options for use of the forested areas described as areas 1 and 4. The liquid loading to the tree crop will be limited to 50,000 gallons per acre per year In Accordance With (IAW) current rule and the application is proposed as a single year operation until the project can be demonstrated as a viable option for management of the clarified liquid to be generated at waste management or the septage collected at the Wilmington facility.

The Bermudagrass planting will require site modification to the proposed sites. Existing woody vegetation must be removed and the Bermudagrass established. The recommended sprigging rate for the Bermudagrass is 40 bu/ac if sprigged and incorporated or 60 bu/ac if broadcast and incorporated. In lieu of sprigging a hybrid Bermudagrass could be seeded at a rate of 15 to 20 pounds per acre (this is slightly higher than typical recommendations, but crop establishment is critical and the higher load is considered justifiable). New varieties of quality Bermudagrass are available through improved seed. The seeding option is the simpler of the methods to establish a viable cropping system. The Bermudagrass could be harvested as "turp" for use at waste management facilities should there be a need for establishing vegetation on waste management facilities or harvested as forage by local farmers. The "Giant" or the "Cherokee" variety of Bermudagrass is suitable for seeding. Bermudagrass is well suited as a cover on many soils including the low fertility soils prevalent on this site. The cover crop will be established in the early fall and left until early spring. Rye, oats or wheat will be developed as winter cover as soon as the permit is granted for this one-year operation. The liquid loading to the grass/grain crop will be limited to 50,000 gallons per acre per year IAW current rule and the application is proposed as a single year operation until the project can be demonstrated as a viable option for management of the clarified liquid to be generated at waste management or the septage collected at the Wilmington facility.

The annual grain crops are well suited to the area too. Use of Millet or Sorghum is an acceptable option for the site listed as area 2. Initial crop cover is to be provided by annual grass crop or small grain such as rye grass, oats, or wheat. This winter cover will be established as required to supply a crop cover during the winter. The cover will be removed in the early spring and replaced by millet or Sudan/sorghum. The crop will be managed as forage. The liquid loading to the annual grain crop will be limited to 50,000 gallons per acre per year IAW current rule and the application is proposed as a single year operation until the project can be demonstrated as a viable option for management of the clarified liquid to be generated at waste management or the septage collected at the Wilmington facility.

**Conclusions:** The potential receiver sites examined in support of the land application program for Waste Management of Wilmington are well suited as receiver areas for the dewatered liquid from the

as required to supply a crop cover during the winter. The cover will be removed in the early spring and replaced by millet or Sudan/sorghum. The crop will be managed as forage. The liquid loading to the annual grain crop will be limited to 50,000 gallons per acre per year IAW current rule and the application is proposed as a single year operation until the project can be demonstrated as a viable option for management of the clarified liquid to be generated at waste management or the septage collected at the Wilmington facility.

**Conclusions:** The potential receiver sites examined in support of the land application program for Waste Management of Wilmington are well suited as receiver areas for the dewatered liquid from the operation or for septage and grease trap waste. The use of the site for liquid from dewatering operations is an ideal use for the site. Soil material is rapidly permeable and liquid loadings can be as high as 0.5 inches per hour with annual loadings of 165,000 gallons per acre on Bermudagrass and 72,000 on pines. Soil fertility levels are low suggesting moderately high liquid and nutrient loadings can be tolerated on the site. Initial loadings requested are 50,000 gallons per acre per year during this initial year of the permit. The sites and the operation will be reassessed in 9 months and if the program is proceeding as planned, subsequent permit modifications will be presented requesting modifications to the liquid loading allowed during this initial year.

The most significant of the site limitations is the presence of wetlands through the area; these wetland areas are not intended as receivers for the liquid generated in this project. The wetland areas are located along lower elevations of the site and are not included in this request. The limitation created by these wetlands can be addressed by observing appropriate setbacks between the permitted receiver areas and the wetland areas.

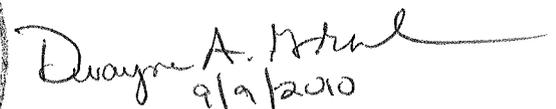
The liquid waste has been sampled and found to contain low levels of essential plant nutrients. The nutrients can be assimilated by Bermudagrass or pines. The liquid loading onto Bermudagrass is over 165,000 gallons per acre per year based on the analysis of the septage and grease trap wastes proposed for application onto the sites. If the percentage of waste containing portable toilet waste increases, liquid loadings will be reduced. Liquid loadings onto pines are approximately 72,000 gallons per acre per year and the concern for portable toilet waste is increased on pines because of their limited tolerance for nitrogen. Nonetheless, the requested liquid load is 50,000 gallons per acre per year since this is an initial application for the site and since higher liquid loads may necessitate a hearing process.

Site, soil, and waste properties are acceptable for the land application operations proposed.

Respectfully submitted;



A. R. Rubin, REP,



Dwayne A. Graham, RS, LSS  
N.C. Licensed Soil Scientist # 1022



Borings: 2 borings advanced at high elevations in each proposed field. Additional descriptions for soil materials along field fringe areas provided by Mr. Graham.

Field 1, Boring 1

0-8 - Gray brown to brown sand to loamy sand, granular, friable, many fine roots

8-12 - Pale gray brown to pale brown loamy sand, granular, friable many fine and medium roots

12-24 - Yellow brown sandy loam, few red mottles, weak, fine to medium sub-angular blocky structure, friable, few fine roots,

24-36 - Yellow brown sandy loam, weak medium sub-angular blocky structure, friable

36-44 - Pale yellow sand to loamy sand, few brown and yellow mottles, granular to weak, fine sub-angular blocky structure, friable to loose

44-60 - Pale yellow to white loamy sand to sandy loam with prominent red, yellow and brown mottles, friable,

60-64 - Pale yellow to white loamy sand, few gray mottles, friable

64 Boring terminated

Field 1, boring 2

0-10 - Dark brown sand to loamy sand, granular, friable, many fine roots

10-15 - Pale yellow brown to pale brown loamy sand, granular, friable many fine and medium roots

15-24 - Brown sandy loam, few red mottles, weak, fine to medium sub-angular blocky structure, friable, few fine roots,

24-36 - Pale brown to yellow brown sandy loam, weak medium sub-angular blocky structure, friable

36-44 - Pale yellow sand to loamy sand, few brown and yellow mottles, granular to weak, fine sub-angular blocky structure, friable to loose

44- 56 - Pale gray to white loamy sand to sandy loam with prominent red, yellow and brown mottles, friable,

56-60 - Pale yellow to white loamy sand, few gray mottles, friable

60 - Boring terminated with evidence of seasonal saturation at between 56 and 60 inches

Field 2, boring 1

0-10 - Dark brown sand to loamy sand, granular, friable, many fine and medium roots

10-15 - Pale yellow brown to pale brown loamy sand, granular, friable many fine and medium roots

15-24 - Brown sandy loam, few red mottles, weak, fine to medium sub-angular blocky structure, friable, few fine roots,

24-35 - Pale brown to yellow brown sandy loam, weak medium sub-angular blocky structure, friable

35-48 - Pale yellow sand to loamy sand, few brown and yellow mottles, granular to weak, fine sub-angular blocky structure, friable to loose

48- 56 - Pale gray to white loamy sand to sandy loam with prominent red, yellow and brown mottles, friable,

56-60 - Pale yellow to white loamy sand, few gray mottles, friable

60 - Boring terminated with evidence of seasonal saturation at between 56 and 60 inches

Field 2, boring 2

0-18 - Dark brown sand to loamy sand, granular, friable, many fine roots

8-15 - Pale yellow brown to pale brown loamy sand, granular, friable many fine and medium roots

15-25 - Brown sandy loam, few red mottles, weak, fine to medium sub-angular blocky structure, friable, few fine roots,

25-38 - Pale brown to yellow brown sandy loam, weak medium sub-angular blocky structure, friable

38-44 - Pale yellow sand to loamy sand, few brown and yellow mottles, granular to weak, fine sub-angular blocky structure, friable to loose

44- 56 - Pale gray to white loamy sand to sandy loam with prominent red, yellow and brown mottles, friable,

56-60 - Pale yellow to white loamy sand, few gray mottles, friable

60 - Boring terminated with evidence of seasonal saturation at between 56 and 60 inches

Field 3, boring 1

0-12 - Dark brown sand to loamy sand, granular, friable, many fine roots

12-15 - Pale yellow brown to pale brown loamy sand, granular, friable many fine and medium roots

15-24 - Brown sandy loam, few red mottles, weak, fine to medium sub-angular blocky structure, friable, few fine roots,

24-36 - Pale brown to yellow brown sandy loam, weak medium sub-angular blocky structure, friable

36-40 - Pale yellow sand to loamy sand, few brown and yellow mottles, granular to weak, fine sub-angular blocky structure, friable to loose

40- 56 - Pale gray to white loamy sand to sandy loam with prominent red, yellow and brown mottles, friable,

56-60 - Pale yellow to white loamy sand, few gray mottles, friable

60 - Boring terminated with evidence of seasonal saturation at between 56 and 60 inches

Field 3, boring 2

0-10 - Dark brown sand to loamy sand, granular, friable, many fine roots

10-12 - Pale yellow brown to pale brown loamy sand, granular, friable many fine and medium roots

12-20 - Brown sandy loam, few red mottles, weak, fine to medium sub-angular blocky structure, friable, few fine roots,

20-36 - Pale brown to yellow brown sandy loam, weak medium sub-angular blocky structure, friable

36-46 - Pale yellow sand to loamy sand, few brown and yellow mottles, granular to weak, fine sub-angular blocky structure, friable to loose

46- 60 - Pale gray to white loamy sand to sandy loam with prominent red, yellow and brown mottles, friable,

60 - Pale yellow to white loamy sand, few faint gray mottles, friable

60 - Boring terminated with evidence of seasonal saturation at between 56 and 60 inches

NOTE: Additional borings were advanced previously by Dwayne Graham as a component of an investigation for solid waste management activities. These additional borings were advanced throughout the entire tract. The focus of this assessment was only those portions of the tract considered as potential areas for the land application activities proposed. All information is available if deemed essential to the project proposed.



SAMPLE NUTRIENT MANAGEMENT PLAN FOR  
SEPTAGE APPLICATIONS TO BERMUDA GRASS, RYE GRASS and PINES at  
PROPOSED WASTE MANAGEMENT FACILITY  
COLUMBUS COUNTY, NC

Waste Management of Wilmington is proposing to apply dewatered septage, grease trap waste, and portable toilet waste onto a wholly owned parcel in Columbus County. The area available for the proposed land application operation is approximately 40 acres of the approximately 600 acre site. Clearly only a small portion of the property is intended to host this land application operation. The liquid loading to the site is proposed as 50,000 gallons per acre per year during this initial year of the operation. This loading is dictated by NC Rule for new operations.

On occasion, the dewatering operation may be inoperable; should that occur the untreated liquid will be stored at the Wilmington facility, but should the storage capacity be compromised, the untreated liquid may be applied to this site. Should that occur, untreated liquid loading to the pines would be reduced to 25000 gallons per acre while the load to the grassed area would remain at the proposed 50000 gallon load.

The site contains four (4) distinct areas identified as receiver areas for this liquid waste. These are listed as fields 1 through 4 on site maps contained in the application for the permit. Fields 1 and 4 are intended to remain in a pine stand. Fields 2 and 3 are proposed as small grain and Bermudagrass. This plan is intended for the initial year of the Waste Management land treatment operation. Subsequent investigation and nutrient plans will be submitted prior to expiration of this initial permit.

A. General Information:

1. Periodic sampling (at least 4/year) of the dewatered septage/fog/portable toilet waste will be conducted for waste analysis. (optional)
2. Field 1 contains approximately 12 acres and Field 2 contains approximately 10 acres, field 3 contains approximately 6 acres, and field 4 contains approximately 5 acres. The attached copy of the aerial photograph for the site shows field boundaries and identifications. In addition, the GPS coordinates have been provided through DWM.
3. The soil series exhibiting the lowest productivity on the site is Butters, other soils represented include Goldsboro, Foreston and Nobuca on portions of the site intended to receive the dewatered materials.
4. Septage will not be applied where the site is untrafficable (untrafficable is defined as soil that will allow a loaded truck to leave a depression in sod greater than 3 inches in depth).
5. All nitrogen recommendations for forages will be 75% of the realistic yield expectation nitrogen rate should the forage be grazed. Not Applicable

6. Septage storage shall be provided to account for the average volume of septage pumped per week, or an alternative plan, such as disposal at a waste treatment plant, should be in place. Storage provided at Waste Management parent facility in Wilmington, NC.

B. Crops to be grown and approximate planting times:

1. Fields 2 and 3, including buffer zones, will be seeded in coastal bermuda grass at a rate of 15 lb/acre in March-April, 2011 in order to establish a permanent stand. Immediate seeding will be small grain to provide winter cover at a rate of 50 lb-rye, wheat, or oats in September-October, 2010. Pine in fields 1 and 4 will be thinned and utilized as a receiver crop in year1 through 5 of this project. To promote stand establishment the following steps will be taken the first year (weed control/reduced number of harvests/reduced vehicular traffic, etc): weed control will be implemented in spring 2011 and limited access will be afforded during germination.\_\_\_\_\_.

Areas that develop with less than 90% groundcover by Bermudagrass will be re-seeded with Bermudagrass at a rate of 10 lb/acre in March each year until a stand density of 99% is realized.

Each year thereafter, the field will be overseeded with annual rye grass at a rate of approximately 40-50 lbs/acre September-October (drilled).

2. Field 2 will be treated the same as Field 3. Fields 1 and 4 will remain in a pine stand. The pine stand will be improved in accordance with recommendations provided by Dr. Douglas Frederick, NCSU Forestry and Mr. Scott Frederick, E.I., and president SWE Group.

C. Nitrogen needs for crops grown:

FIELDS 2 and 3: RYE = Realistic Yield Expectations N App. Rate + Suggested N application rate based on RYE for soil type. NOTE: The most restrictive of the soil resources was selected as the benchmark for this site. The nutrient load will be significantly reduced below this maximum because initial year loadings are limited to 50,000 gallons per acre.

Crop (hay)	RYE	N App. Rate	lbs N/acre
Coastal Bermudagrass	10 tons/acre x	40 lbs N/dry ton =	400
Annual rye grass	3.0 tons/acre x	25 lbs N/dry ton =	75
		Total =	475 (see note above)

Or, if the site will be grazed - NA

Crop (grazed)	RYE	N App. Rate	Reduction Factor	lbs N/acre
Coastal Bermudagrass	tons/acre x	40 lbs N/dry ton x	0.75 =	
Annual rye grass	tons/acre x	25 lbs N/dry ton x	0.75 =	
		Total =		

Pine stands in FIELDS 1 and 4: RYE = Realistic Yield Expectations N App. Rate + Suggested N application rate based on RYE for soil type. NOTE: The most restrictive of the soil resources was selected as the benchmark for this site. The nutrient load will be significantly reduced below this maximum because initial year loadings are limited to 50,000 gallons per acre. This liquid load is based on the reduced nutrient content in the dewatered materials.

Crop (hay)	Site Index	N App. Rate	lbs N/acre
Pine (Loblolly)	86	80	80
Pine (Longleaf)	76	80	80

D1. Relative application rates for Fields 2 and 3:

Month	Field	
	1	2
January	Low	Low
February	Low	Low
March	Medium	Med
April	High	High
May	Medium	Med
June	High	High
July	High	High
August	Medium	Med
September	Medium	Med
October	Low	Low
November	Low	Low
December	Low	Low

D2. Relative application rates for pine stands, fields 1 and 4

Month	Field	
	1	2
January	Low	Low
February	Low	Low
March	Medium	Medium
April	Medium	Medium
May	Medium	Medium
June	Medium	Medium
July	Medium	Medium
August	Medium	Medium
September	Medium	Medium
October	Low	Low
November	Low	Low
December	Low	Low

None = 0 gallons; Low = 5,000 gallons  
 Medium = 10,000 gallons; High = 15,000 gallons

NOTE: Cumulative application rate is not to exceed the permitted application rate. Annual application rate is not to exceed 50,000 gallons per acre.

#### E. Application Method

The preceding information is based on septage being evenly applied over the entire permitted site by Hose reel surface application/irrigation spraying in a full circle or part circle pattern depending on field position.

#### F. Additional Fertility Requirements

Phosphorus and potassium will be added in accordance with the soil test results for the crops grown. These requirements are contained in the application to utilize the area as a receiver (Rubin and Graham, 2010). Only minimal phosphorus and potassium will be added to support germination. A more thorough nutrient addition program will be implemented as the site is assessed as a receiver area. Dewatered septage, FOG and Portable toilet waste analysis is available, the phosphorus fertilizer requirement can be reduced by accounting for the amount of phosphorus in the septage. The analysis suggests these materials contain sufficient nutrient to support plant growth. The hydro-seeding operation proposed will supply sufficient nutrients to support germination.

The buffer areas will be fertilized with 100 lbs/acre of 10 – 10 - 10 N-P-K fertilizer to maintain production based on soil test results. This will take place in the hydro-seeding operation.

#### G. Harvest of the crops and their use:

1. The Bermudagrass will be cut as hay and baled whenever it reaches approximately 12 inches in height, or roughly every 4 to 6 weeks beginning in June. At least three harvests will be made from each fields 2 and 3 each year.
2. The rye grass will be cut as hay and baled in March and April of each year from Fields 1 and 2, respectively.
3. A 30-day waiting period must be observed between the last application of septage and harvest. Beginning about the first of March each year, septage will be applied strictly to Field 2 while the rye on Field 3 is undisturbed for 30 days. After 30 days the rye in Field 2 will be harvested and septage application switched to Field 3. After an additional 30 days, in late April to early May, the rye will be harvested from Field 2. By early May, a rotation will be established which can cycle every 30 to 45 days between bermuda grass harvests. By the end of October, rye will have been planted and the entire site will be available for septage application until the end of February the following year.
4. The hay will be sold to a local farmer to feed his beef cows and horses.
5. The fields could be grazed if a three-field rotation is established. The rotation is such that Field 1 is grazed while Field 2 is undisturbed and Field 3 receives septage. After 30 days, Field 2 will be grazed while Field 3 left undisturbed and Field 1 receives septage. For the third phase of the rotation, Field 3 is grazed while Field 1 is undisturbed and Field 2 receives septage. The following table shows the rotation pattern:

Month	Field 1	Field 2	Field 3
January	Graze	Wait	Apply
February	Apply	Graze	Wait
March	Wait	Apply	Graze
April	Graze	Wait	Apply
May	Apply	Graze	Wait
June	Wait	Apply	Graze
July	Graze	Wait	Apply
August	Apply	Graze	Wait
September	Wait	Apply	Graze
October	Graze	Wait	Apply
November	Apply	Graze	Wait
December	Wait	Apply	Graze

NOTE: Although grazing may be permitted, it is not proposed as the crop management option at this time. Hoof pressures exerted by grazing animals will reduce the permeability of the soil during this early stage of site use.

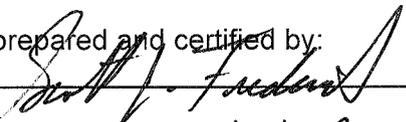
6. Pine stands will be thinned as directed by Dr. Frederick. Pine will remain in place for at least 2 years. After 2 years, the pine operation will be reassessed. Two potential options include replacing the natural regeneration with an established plantation or replacing the pine with Bermudagrass.

#### SOIL EROSION AND RUNOFF CONTROL PLAN

Given that slopes on this site do not exceed five percent, a 50 foot buffer, planted in bermuda and rye grasses, should suffice to prevent septage waste from migrating off of the fields. (More severe site conditions could require that soil erosion structures be installed before septage can be applied).

Submitted by:  Date: 9/24/10  
 Site Operator

This nutrient management plan prepared with cooperation from both Scott Frederick and Robert Rubin.

Plan prepared and certified by:  Date: 9/17/10

Address: 1001 Capability Dr., Ste 312  
Raleigh, NC 27606  
 Phone: 919.831.1234

Certification: NRCS Certified NMP Technical Specialist  
 Plan prepared in cooperation with:  
over

---

A. R. Rubin,  
192 Fearington Post  
Pittsboro, NC, 27312  
919 545 3066

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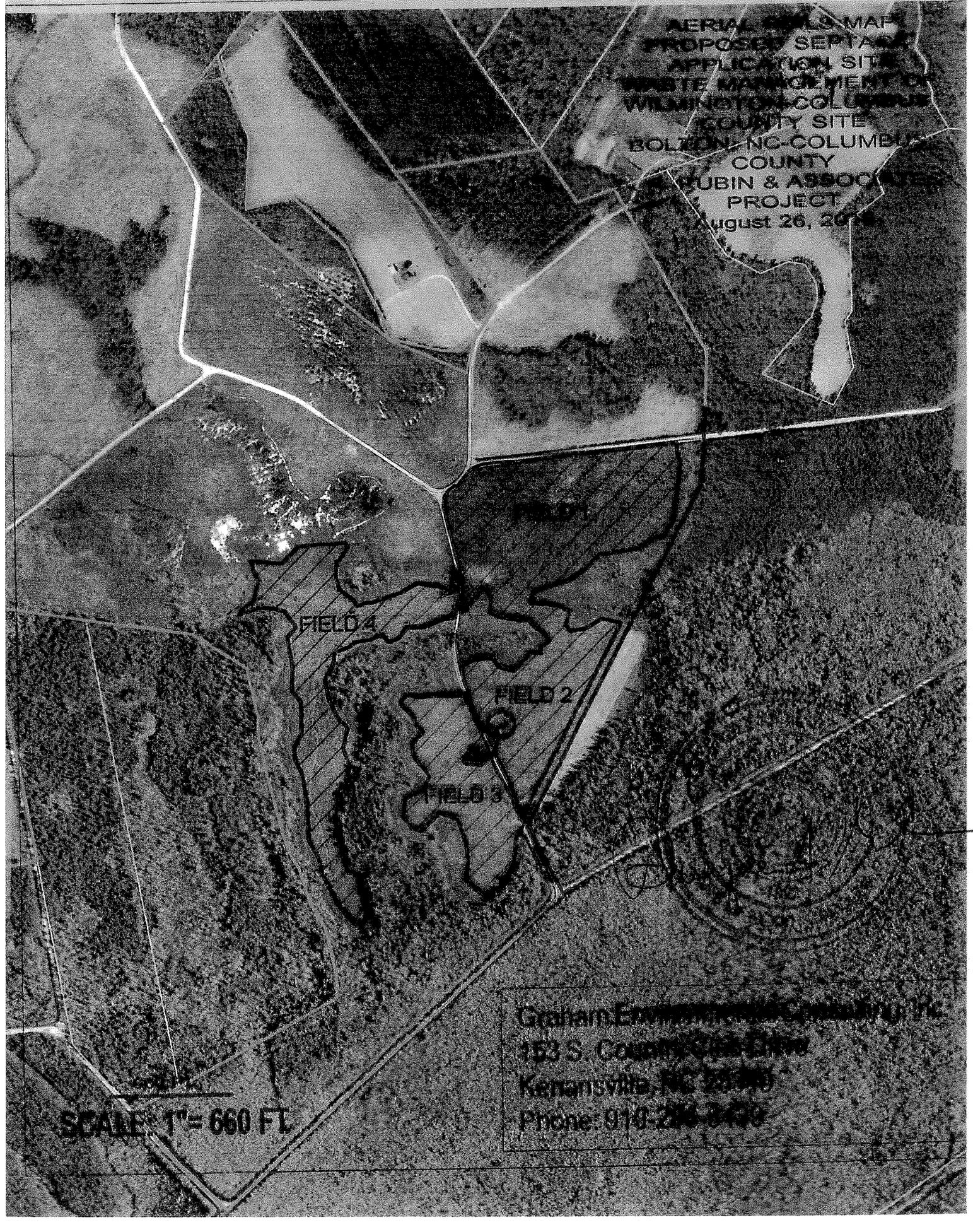
AERIAL SOILS MAP  
PROPOSED SEPTAGE  
APPLICATION SITE  
WASTE MANAGEMENT OF  
WILMINGTON-COLUMBIAN  
COUNTY SITE  
BOLTON, NC-COLUMBIAN  
COUNTY  
RUBIN & ASSOCIATES  
PROJECT  
August 26, 2010



SCALE: 1" = 660 FT

Graham Environmental Consulting, Inc.  
153 S. County Street  
Kenansville, NC 28749  
Phone: 910-295-8439

AERIAL SOILS MAP  
PROPOSED SEPTAGE  
APPLICATION SITE  
WASTE MANAGEMENT OF  
WILMINGTON-COLUMBUS  
COUNTY SITE  
BOLTON, NC-COLUMBUS  
COUNTY  
RUBIN & ASSOCIATES  
PROJECT  
August 26, 2014



SCALE: 1" = 660 FT

Graham Environmental Consulting, Inc.  
153 S. County Center Drive  
Kenansville, NC 28745  
Phone: 919-234-3400



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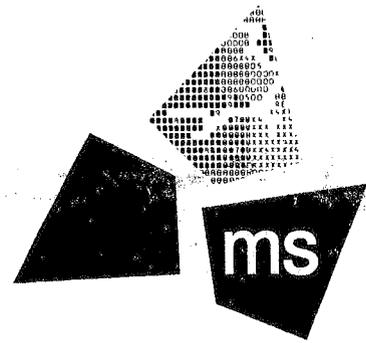
Kevin Martin of S&EC, Mr. Heath stated that “As I noted in the Brunswick Report, dry flat and sloping uplands, especially where they are located adjacent to perennial streams, should receive primary consideration for waste sites. The Riegel Ridge site meets this criterion because it is adjacent to Honey Island Swamp (creek).” A copy of the Ralph Heath letter is included as Exhibit 4.9A. The Brunswick County aquifers are protected because the landfill is sited in a discharge area, not a recharge area.

**4.10 - Endangered or Threatened Species:** The North Carolina Solid Waste Management Rules state that a new MSWLF unit shall not jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of critical habitat, protected under the Federal Endangered Species Act of 1973.

The site has been an active International Paper Company tree farming operation. During the 1999 season, a large area within the proposed landfill boundary was cut for harvest of existing trees. A Rare and Endangered Species Survey was completed under the guidelines of the Natural Heritage Program and all pertinent information is included under Exhibits 4.8A, 4.8B, 4.8C. In addition, refer to the section 4.8 - State Nature and Historic Preserve for additional information, as there is crossover review with regards to Parks and Recreation and Rare and Endangered Species. The Soil and Environmental Consultants, Inc. Rare and Endangered Species Study concluded that there are no plants or animals located within the proposed landfill boundary that are protected under the Federal Endangered Species Act of 1973. Therefore, the site is in compliance with the Division of Waste Management location restrictions regarding endangered or threatened species.

**ms consultants, inc.**  
engineers, architects, planners

336-B Carthage Street  
Sanford, North Carolina 27330-4207  
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Fax: (919) 774-6109  
www.msconsultants.com



November 22, 2004

Ms. Sherri Coghill  
NC Department of Environment and Natural Resources  
Division of Waste Management  
Solid Waste Permitting Branch  
401 Oberlin Road  
Raleigh, NC 27605



**Re: Riegel Ridge Landfill – Columbus County, North Carolina  
Revised Site Study Submittal (Revision 03)**

Dear Ms. Coghill:

Riegel Ridge, LLC (“Riegel Ridge”), a subsidiary of Waste Management of Carolinas, Inc., is pleased to submit herewith three copies of the revised Site Study Document, Volumes 1 and 2, along with three copies of Addendum No. 3 of the Site Hydrogeological Report, and Addendum No. 4, “Report of Supplemental Geotechnical Considerations”. While much of this technical support data has been previously submitted to your agency, the revisions add detail and clarity to prior submitted documents.

Riegel Ridge has continued its relationship with ms consultants, inc. (formerly Marlowe Dreitzler and Associates). Since the last Site Study was submitted to your agency in October 2003, Riegel Ridge has added GeoSyntec Consultants of Atlanta to the technical team. GeoSyntec has primarily reviewed prior technical documents for the purpose of value engineering and peer review. Addendum No. 3 to the Site Hydrogeological Report, and a Report of Supplemental Geotechnical Considerations as listed above have now been added to the Site Study. These last two documents contain four important changes from previous submittals:

- The earthen berm height has been lowered to an average height of 20-feet.
- The phasing plan has been revised.
- Base grades have been revised.
- The adjacent C&D landfill proposal has been dropped.



On October 10, 2003, I submitted Volumes I and II of the Riegel Ridge Landfill Site Study and described several supporting investigations that have been prepared as part of the regulatory review process. Several other events have occurred since that submission and are described in Attachment 1 to this letter the "Chronology of Permitting Issues".

Back on August 5, 2002, Ms. Coghill of your office provided a letter to me outlining nine specific items that had to be addressed to continue processing the site study application. These questions and our responses are contained in Attachment 2.

We look forward to meeting with you and discussing your concerns. If you have any questions, please contact Ken Daly of GeoSyntec (678-202-9500), or me (919-774-7303).

In addition, please note my address and phone number change for any future correspondence. Thank you for your continued assistance.

Sincerely,  
**ms consultants, inc.**

William W. Dreitzler, P.E.  
Technical Manager

Attachments: 1. Chronology of Permitting Issues  
2. Response to DENR-DWQ questions of August 5, 2002

Cc: Mr. Jim Coffey, Section Chief, Solid Waste Section, Division of Waste Management  
Mr. Jim Barber, Branch Head, SW Permitting Branch, Division of Waste Management  
Ms. Angie Pennock, Corps of Engineers  
Mr. Billy Joe Farmer, Columbus County Manager  
Mr. Mike Loyd, Waste Management  
Mr. Jim Dowland, Waste Management  
Mr. Ken Daly, GeoSyntec Consultants

## Realistic Yields for BuB: *Butters loamy fine sand, 0 to 3 percent slopes in Columbus County*

Crop	Yield	Nitrogen Factor	Realistic Nitrogen Rate (lbs/acre)	Estimated Phosphorus Removal (lbs P <sub>2</sub> O <sub>5</sub> /acre)
Barley (Grain)	68 Bushels	1.51	103	26
Corn (Grain)	100 Bushels	1.14	114	44
Corn (Silage)	0 Tons	11.1	0	0
Cotton	750 Pounds	0.089	67	22
Sorghum (Silage)	0 Tons	7.8	0	0
Oats (Grain)	85 Bushels	1.17	99	21
Peanuts	3000 Pounds	0	0	17
Rye (Grain)	50 Bushels	2.09	105	17
Small Grain (Silage)	8 Tons	11.4	91	43
Sorghum (Grain)	45 CWT	1.78	80	34
Soybeans (Double Cropped)	29 Bushels	0	0	23
Soybeans (Full Season)	35 Bushels	0	0	28
Soybeans (Double Cropped - Manured)	29 Bushels	3.91	113	23
Soybeans (Full Season - Manured)	35 Bushels	3.91	137	28
Tobacco (Burley)	0 Pounds	0.06	0	0
Tobacco (Flue Cured)	2400 Pounds	0.031	74	12
Triticale (Grain)	70 Bushels	1.53	107	23
Tropical Corn (Silage)	0 Tons	6.7	0	0
Wheat (Grain)	50 Bushels	2.09	105	25
Bahiagrass (Hay)	4 Tons	46	184	46
Caucasion/Old World Bluestem (Hay)	4.5 Tons	46	207	54
Common Bermudagrass (Hay)	4 Tons	46	184	48
Dallisgrass (Hay)	4 Tons	46	184	52
Fescue (Hay)	3 Tons	46	138	47
Hybrid Bermudagrass (Hay)	5.5 Tons	46	253	68
Hybrid Bermudagrass overseeded with Rescuegrass (Hay)	6.5 Tons	46	299	88
Mixed Cool Season Grass (Hay)	2 Tons	46	92	28
Orchardgrass (Hay)	2 Tons	46	92	29
Pearl Millet (Hay)	5 Tons	51	255	67

Rescuegrass (Hay)	3 Tons	46	138	34
Sorghum Sudan (Hay)	4.5 Tons	51	230	63
Timothy Grass (Hay)	0 Tons	46	0	0

## Realistic Yields for Fo: *Foreston loamy fine sand* in Columbus County

Crop	Yield	Nitrogen Factor	Realistic Nitrogen Rate (lbs/acre)	Estimated Phosphorus Removal (lbs P <sub>2</sub> O <sub>5</sub> /acre)
Barley (Grain)	74 Bushels	1.51	112	28
Corn (Grain)	120 Bushels	1.14	137	53
Corn (Silage)	24 Tons	11.1	266	82
Cotton	800 Pounds	0.089	71	23
Sorghum (Silage)	20.5 Tons	7.8	160	62
Oats (Grain)	94 Bushels	1.17	110	24
Peanuts	3500 Pounds	0	0	19
Rye (Grain)	55 Bushels	2.09	115	18
Small Grain (Silage)	9 Tons	11.4	103	49
Sorghum (Grain)	55 CWT	1.78	98	41
Soybeans (Double Cropped)	34 Bushels	0	0	27
Soybeans (Full Season)	40 Bushels	0	0	32
Soybeans (Double Cropped - Manured)	34 Bushels	3.91	133	27
Soybeans (Full Season - Manured)	40 Bushels	3.91	156	32
Tobacco (Burley)	0 Pounds	0.06	0	0
Tobacco (Flue Cured)	2900 Pounds	0.029	84	15
Triticale (Grain)	77 Bushels	1.53	118	26
Tropical Corn (Silage)	24 Tons	6.7	161	82
Wheat (Grain)	55 Bushels	2.09	115	28
Bahiagrass (Hay)	4.5 Tons	46	207	51
Caucasion/Old World Bluestem (Hay)	4.8 Tons	46	219	57
Common Bermudagrass (Hay)	4.5 Tons	46	207	54
Dallisgrass (Hay)	4.5 Tons	46	207	59
Fescue (Hay)	4 Tons	46	184	63
Hybrid Bermudagrass (Hay)	6 Tons	46	276	74
Hybrid Bermudagrass overseeded with	7.8 Tons	46	357	105

Rescuegrass (Hay)				
Mixed Cool Season Grass (Hay)	2.8 Tons	46	127	39
Orchardgrass (Hay)	2.8 Tons	46	127	40
Pearl Millet (Hay)	5 Tons	51	255	67
Rescuegrass (Hay)	4 Tons	46	184	45
Sorghum Sudan (Hay)	5.8 Tons	51	293	80
Timothy Grass (Hay)	0 Tons	46	0	0

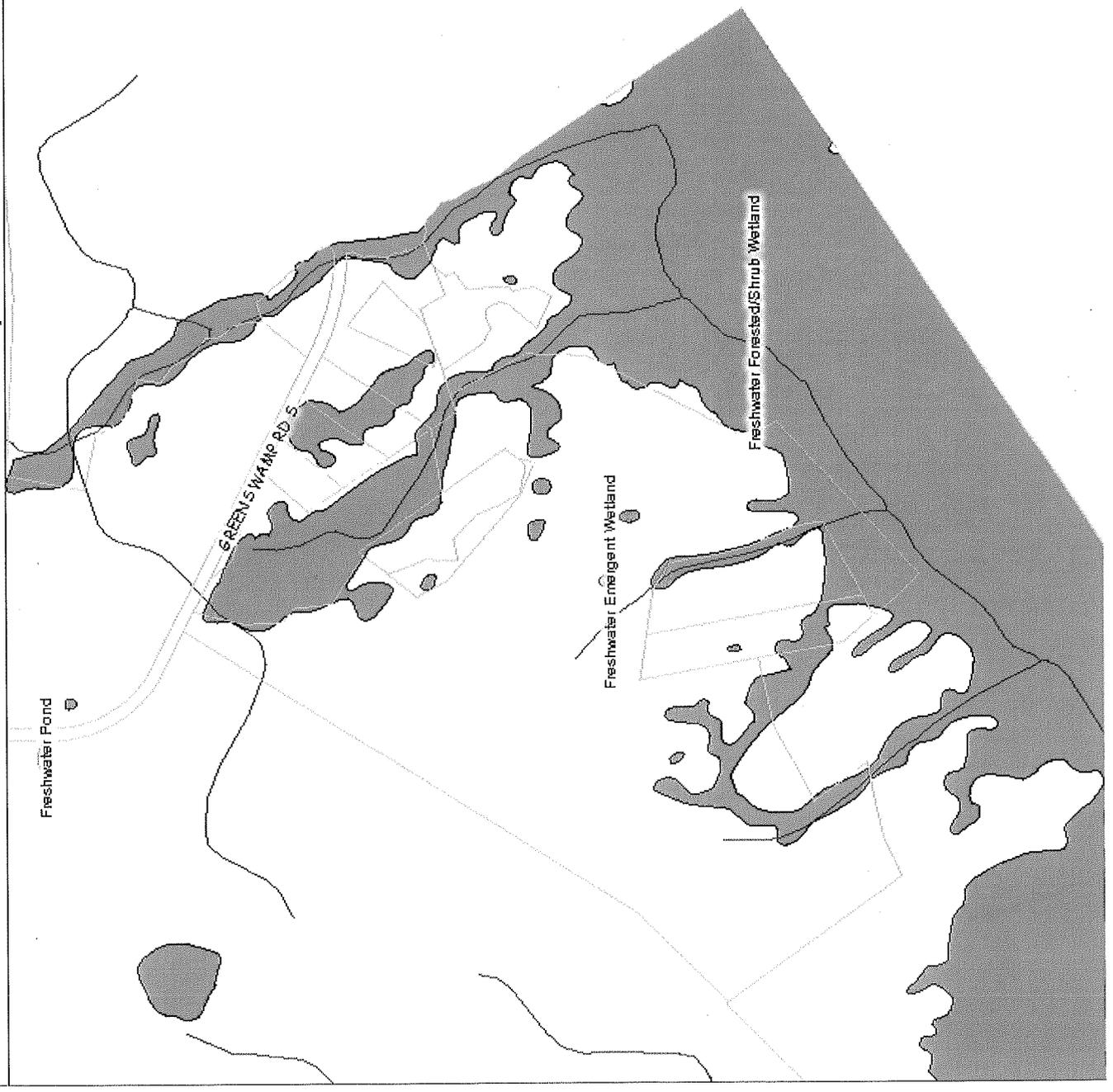
**Realistic Yields for GoA: *Goldsboro fine sandy loam, 0 to 2 percent slopes* in Columbus County**

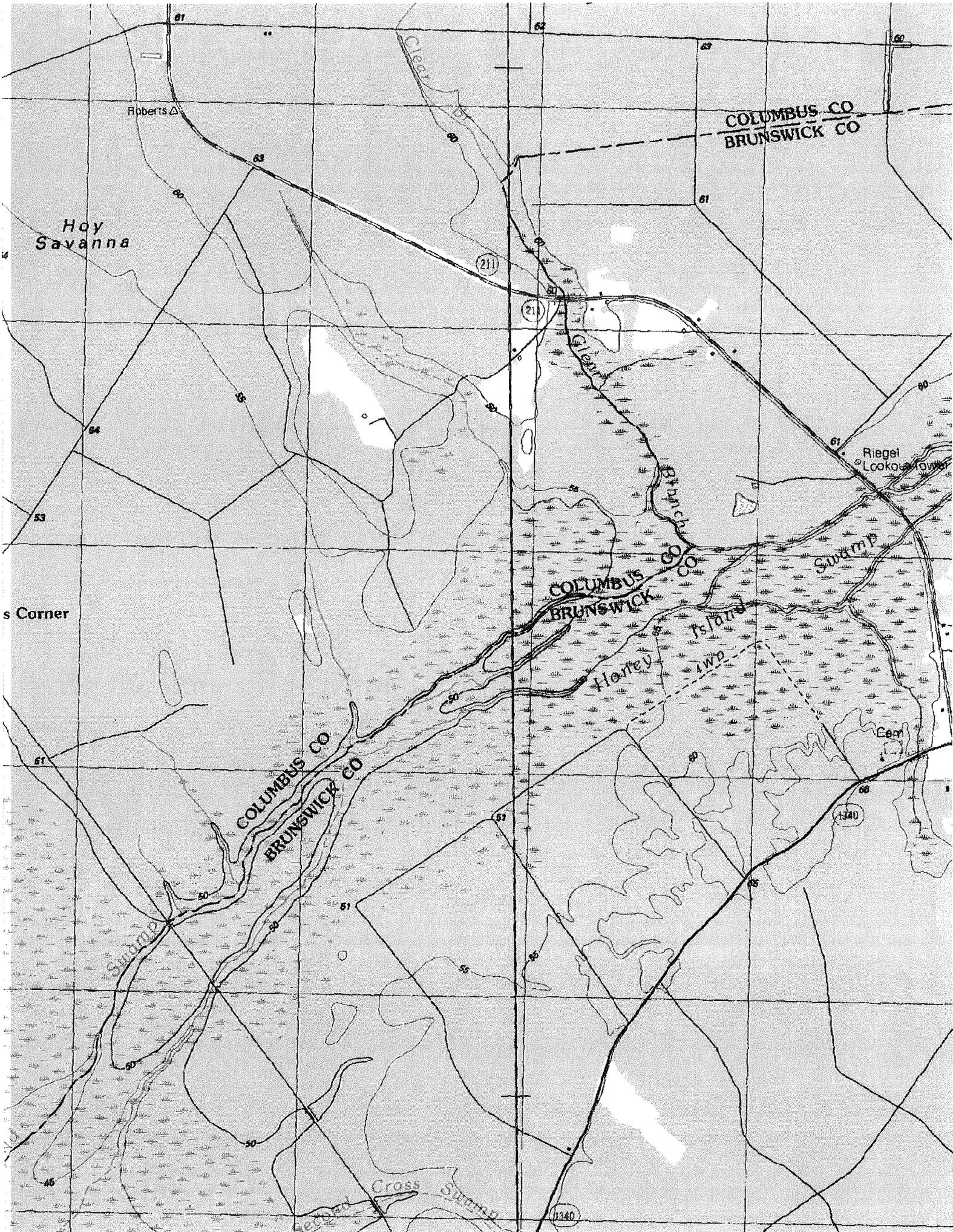
<b>Crop</b>	<b>Yield</b>	<b>Nitrogen Factor</b>	<b>Realistic Nitrogen Rate (lbs/acre)</b>	<b>Estimated Phosphorus Removal (lbs P<sub>2</sub>O<sub>5</sub>/acre)</b>
Barley (Grain)	88 Bushels	1.51	133	33
Corn (Grain)	130 Bushels	1.14	148	57
Corn (Silage)	24 Tons	11.1	266	82
Cotton	925 Pounds	0.089	82	27
Sorghum (Silage)	20.5 Tons	7.8	160	62
Oats (Grain)	110 Bushels	1.17	129	28
Peanuts	4000 Pounds	0	0	22
Rye (Grain)	65 Bushels	2.09	136	21
Small Grain (Silage)	10.5 Tons	11.4	120	57
Sorghum (Grain)	65 CWT	1.78	116	49
Soybeans (Double Cropped)	38 Bushels	0	0	30
Soybeans (Full Season)	45 Bushels	0	0	36
Soybeans (Double Cropped - Manured)	38 Bushels	3.91	149	30
Soybeans (Full Season - Manured)	45 Bushels	3.91	176	36
Tobacco (Burley)	0 Pounds	0.06	0	0
Tobacco (Flue Cured)	3400 Pounds	0.029	99	17
Triticale (Grain)	91 Bushels	1.53	139	30
Tropical Corn (Silage)	24 Tons	6.7	161	82
Wheat (Grain)	65 Bushels	2.09	136	33
Bahiagrass (Hay)	5 Tons	46	230	57
Caucasion/Old World Bluestem (Hay)	5.3 Tons	46	242	62
Common Bermudagrass (Hay)	5 Tons	46	230	61

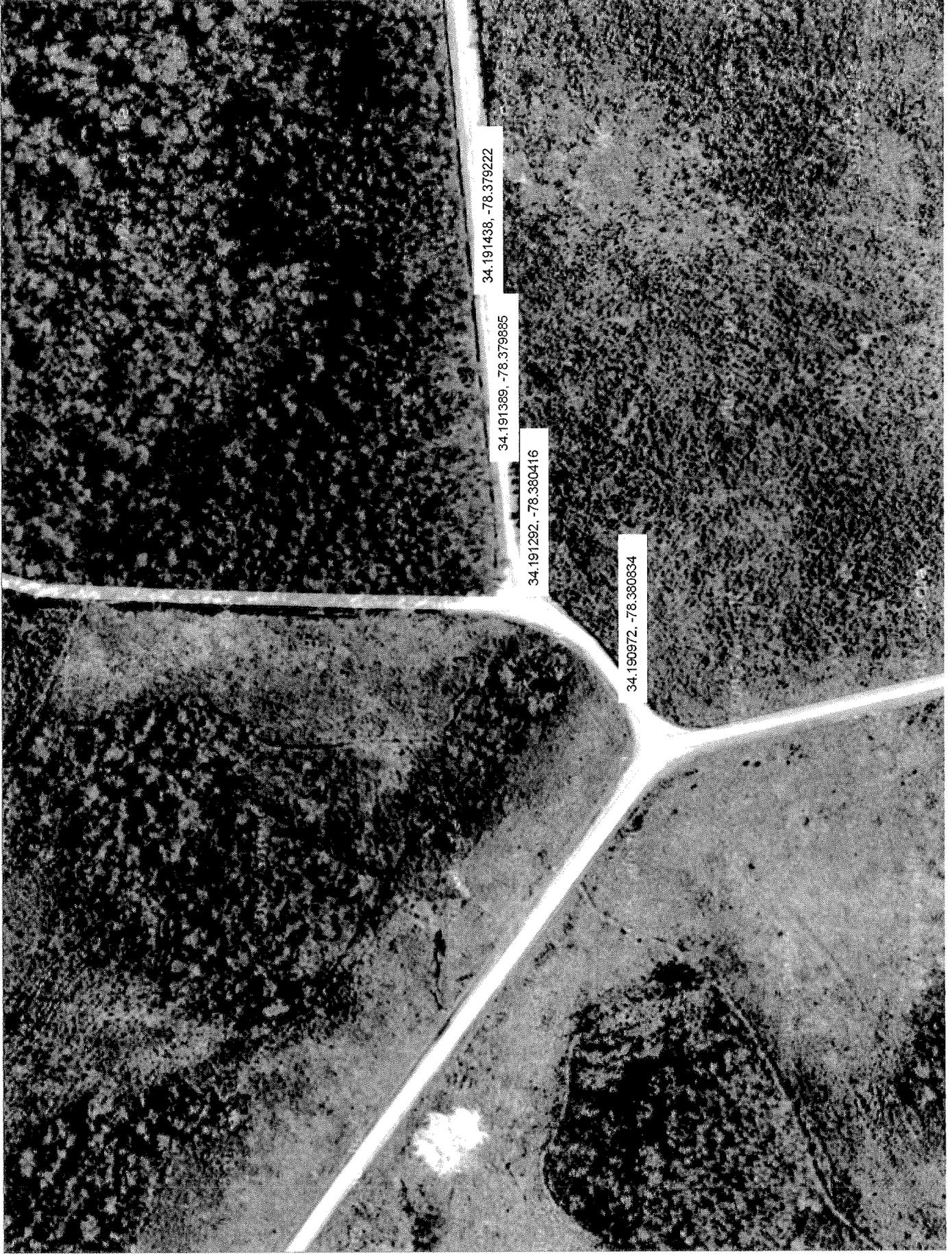
Dallisgrass (Hay)	5 Tons	46	230	66
Fescue (Hay)	4 Tons	46	184	63
Hybrid Bermudagrass (Hay)	6.5 Tons	46	299	80
Hybrid Bermudagrass overseeded with Rescuegrass (Hay)	8.3 Tons	46	380	112
Mixed Cool Season Grass (Hay)	2.8 Tons	46	127	39
Orchardgrass (Hay)	2.8 Tons	46	127	40
Pearl Millet (Hay)	5.5 Tons	51	281	73
Rescuegrass (Hay)	4 Tons	46	184	45
Sorghum Sudan (Hay)	6.3 Tons	51	319	87
Timothy Grass (Hay)	0 Tons	46	0	0



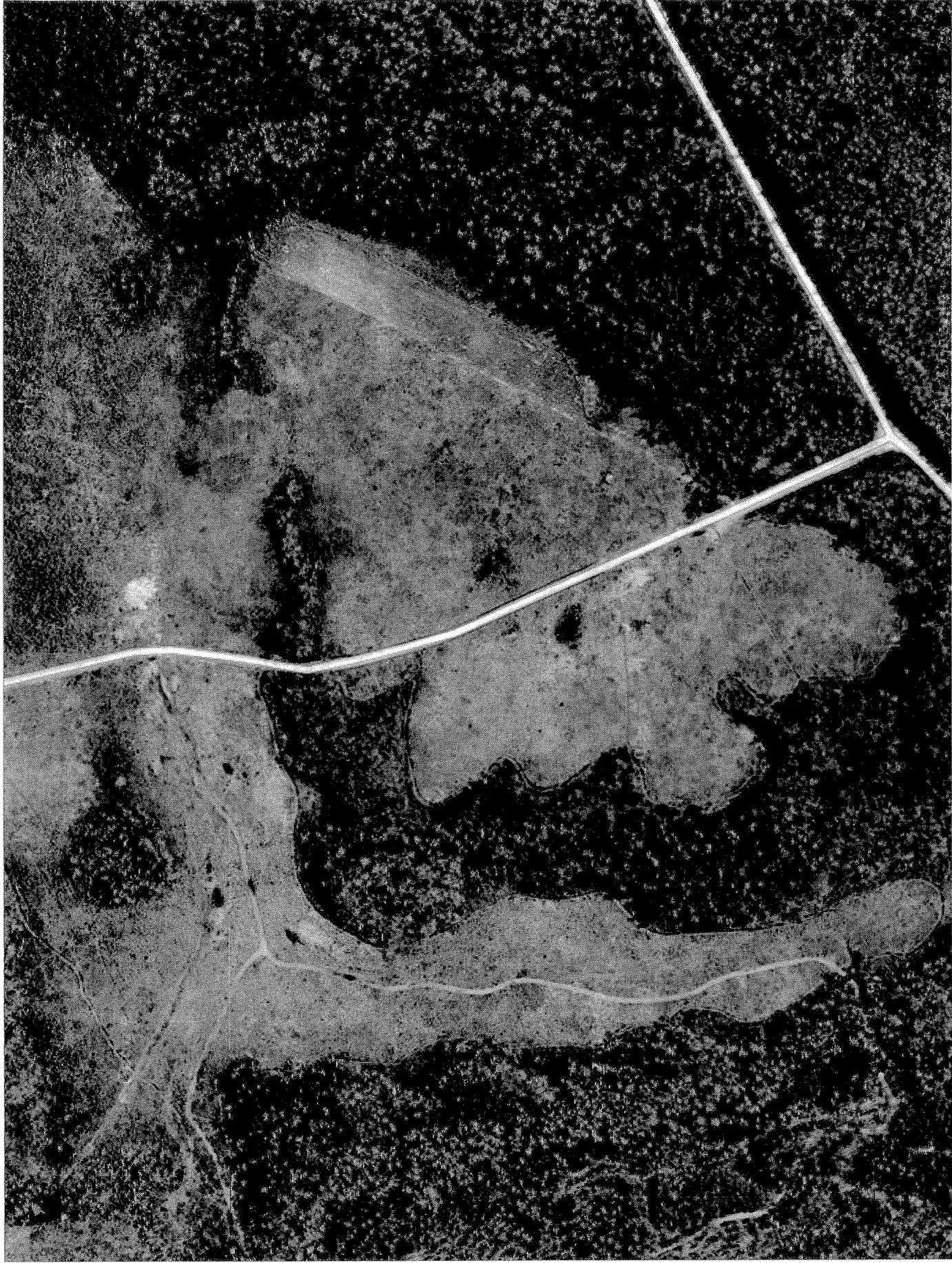
### ArcIMS HTML Viewer Map

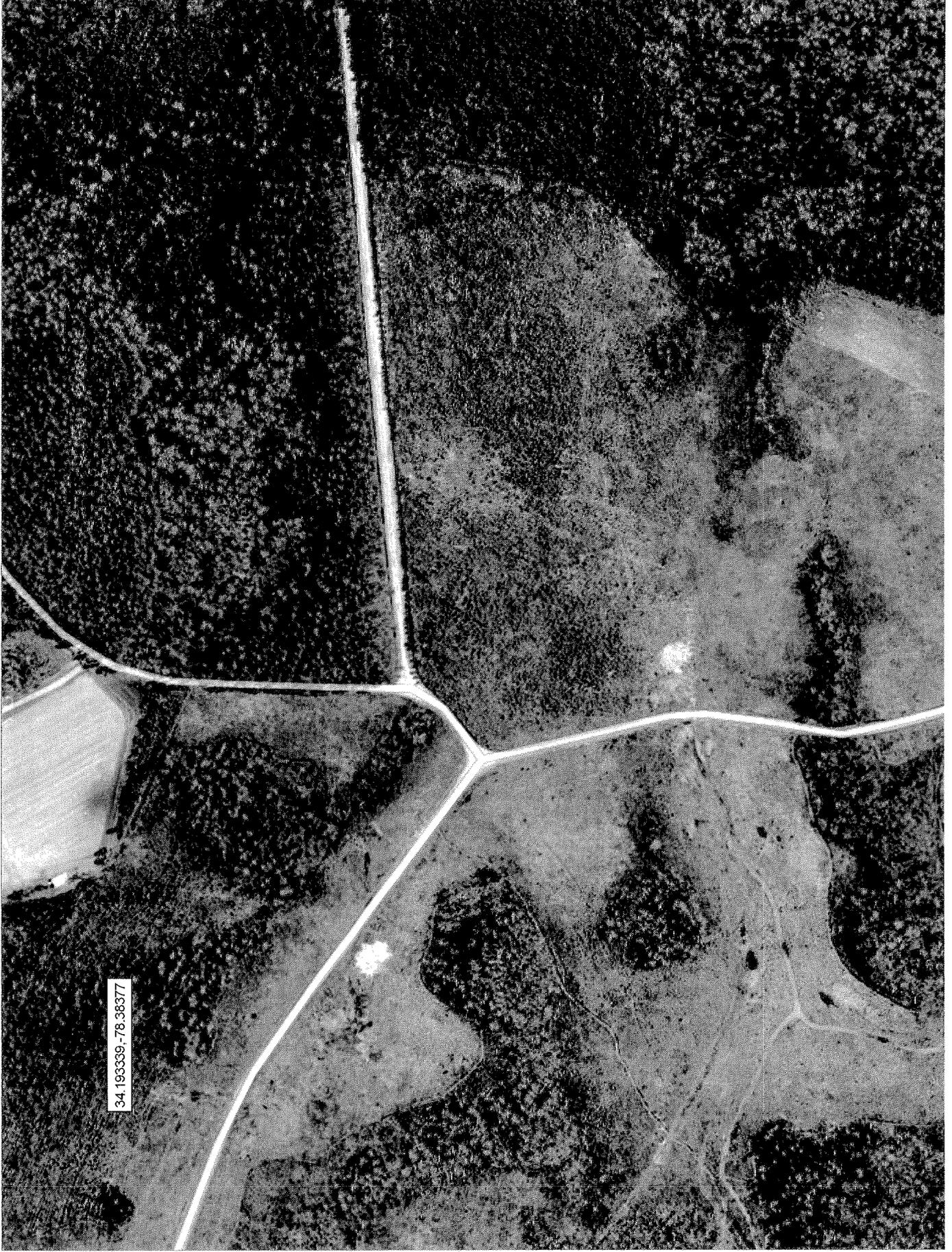






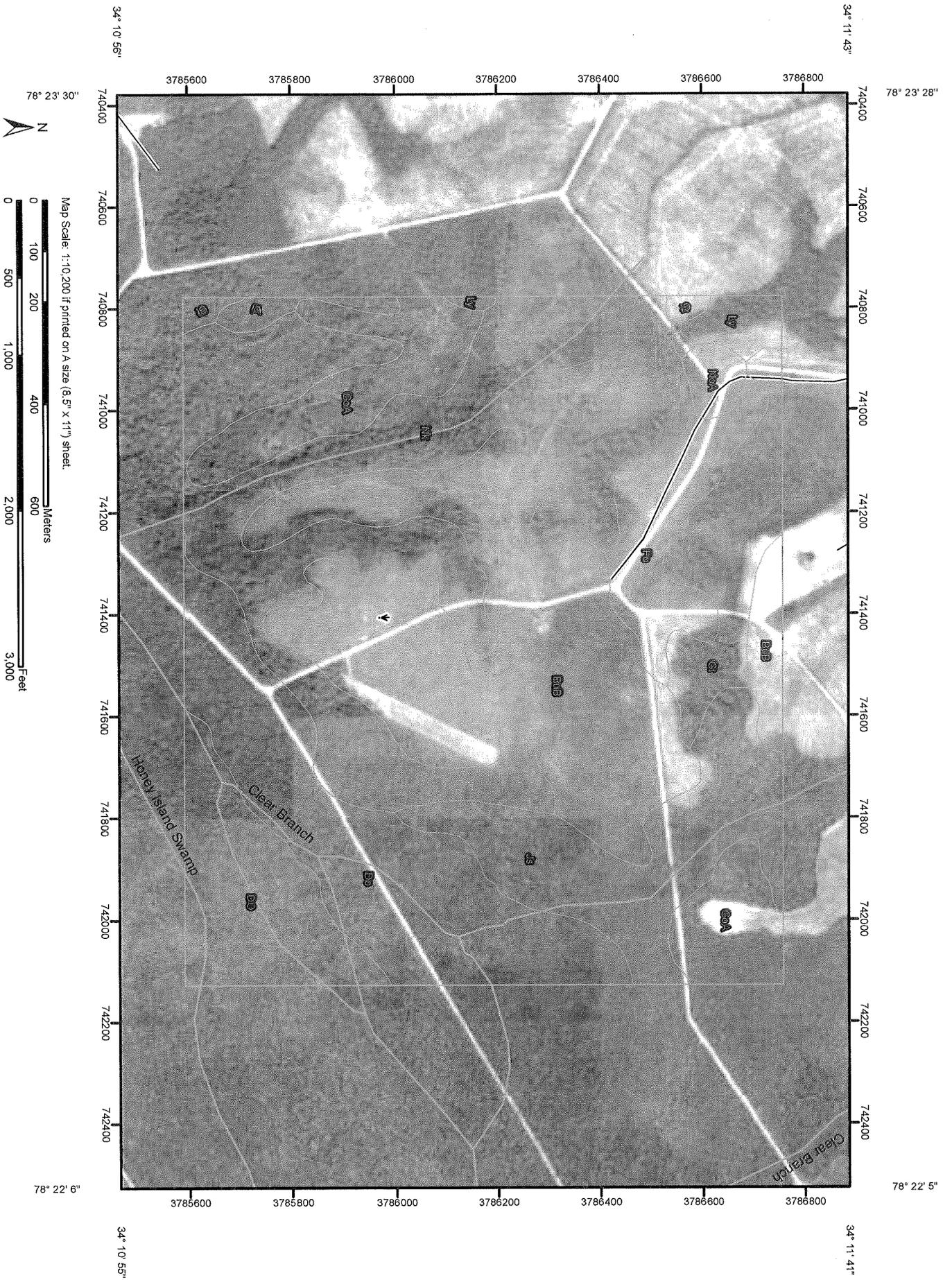
*Ditch Points (EST.)*





34, 193339, -78, 38377

Soil Map—Brunswick County, North Carolina, and Columbus County, North Carolina



## MAP LEGEND

	Area of Interest (AOI)		Very Stony Spot
	Soils		Wet Spot
	Soil Map Units		Other
<b>Special Point Features</b>			
	Blowout	<b>Special Line Features</b>	
	Borrow Pit		Gully
	Clay Spot		Short Steep Slope
	Closed Depression		Other
	Gravel Pit	<b>Political Features</b>	
	Gravelly Spot		Cities
	Landfill	<b>Water Features</b>	
	Lava Flow		Oceans
	Marsh or swamp		Streams and Canals
	Mine or Quarry	<b>Transportation</b>	
	Miscellaneous Water		Rails
	Perennial Water		Interstate Highways
	Rock Outcrop		US Routes
	Saline Spot		Major Roads
	Sandy Spot		Local Roads
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		
	Spoil Area		
	Stony Spot		

## MAP INFORMATION

Map Scale: 1:10,200 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000. Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Brunswick County, North Carolina  
 Survey Area Data: Version 12, Feb 27, 2008

Soil Survey Area: Columbus County, North Carolina  
 Survey Area Data: Version 11, Jul 16, 2009

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Date(s) aerial images were photographed: 6/30/2006; 7/3/2006; 6/29/2006

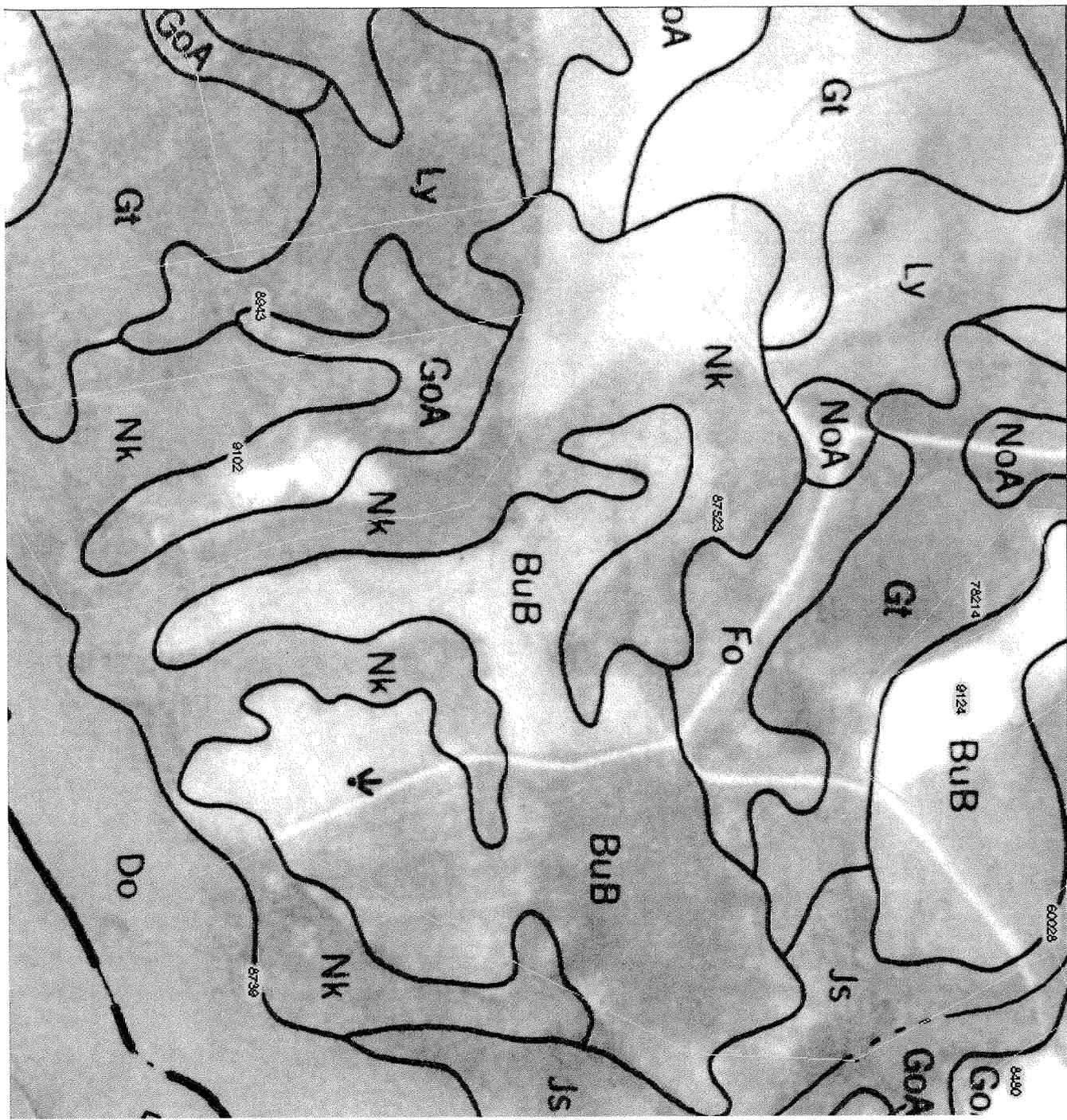
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

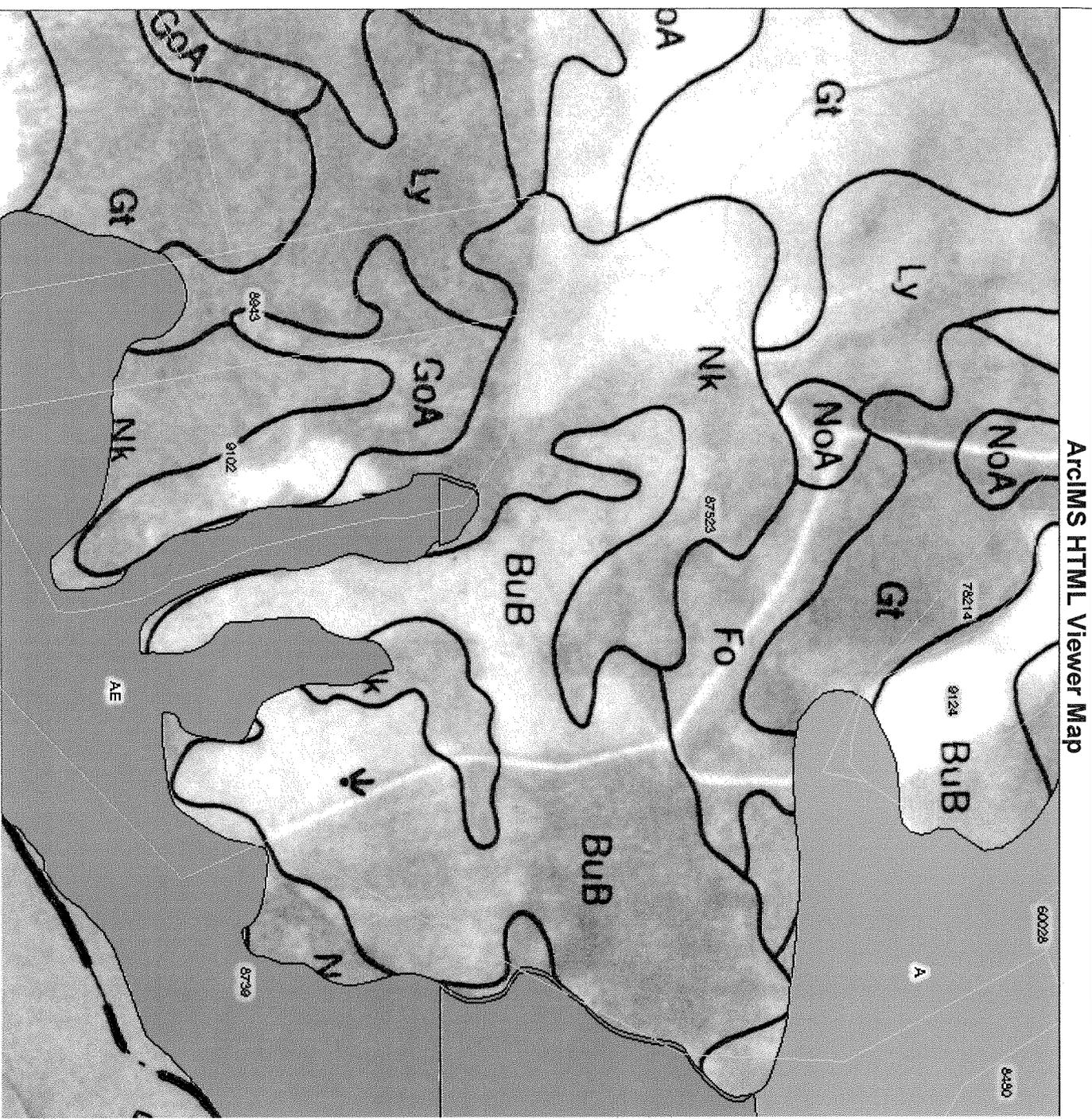
## Map Unit Legend

Brunswick County, North Carolina (NC019)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DO	Dorovan muck	26.5	6.8%
<b>Subtotals for Soil Survey Area</b>		<b>26.5</b>	<b>6.8%</b>
<b>Totals for Area of Interest</b>		<b>388.7</b>	<b>100.0%</b>

Columbus County, North Carolina (NC047)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BuB	Butters loamy fine sand, 0 to 3 percent slopes	94.3	24.3%
Do	Dorovan muck, frequently flooded	52.6	13.5%
Fo	Foreston loamy fine sand	18.0	4.6%
GoA	Goldsboro fine sandy loam, 0 to 2 percent slopes	30.5	7.9%
Gt	Grifton fine sandy loam	22.5	5.8%
Js	Johnston loam, frequently flooded	36.6	9.4%
Ly	Lynchburg fine sandy loam	8.3	2.1%
Nk	Nakina fine sandy loam	95.8	24.7%
NoA	Norfolk loamy fine sand, 0 to 2 percent slopes	3.5	0.9%
<b>Subtotals for Soil Survey Area</b>		<b>362.2</b>	<b>93.2%</b>
<b>Totals for Area of Interest</b>		<b>388.7</b>	<b>100.0%</b>

ArcIMS HTML Viewer Map





## Columbus County, North Carolina

### BuB—Butters loamy fine sand, 0 to 3 percent slopes

#### Map Unit Setting

*Elevation:* 20 to 160 feet

*Mean annual precipitation:* 40 to 55 inches

*Mean annual air temperature:* 59 to 70 degrees F

*Frost-free period:* 200 to 280 days

#### Map Unit Composition

*Butters and similar soils:* 80 percent

#### Description of Butters

##### Setting

*Landform:* Flats on marine terraces, broad interstream divides on marine terraces

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Sandy and loamy marine deposits and/or fluvio-marine deposits

##### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to high (0.57 to 1.98 in/hr)

*Depth to water table:* About 48 to 60 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water capacity:* Low (about 5.4 inches)

##### Interpretive groups

*Land capability (nonirrigated):* 2s

##### Typical profile

*0 to 11 inches:* Loamy fine sand

*11 to 18 inches:* Loamy fine sand

*18 to 29 inches:* Fine sandy loam

*29 to 48 inches:* Loamy fine sand

*48 to 80 inches:* Fine sandy loam

## Data Source Information

Soil Survey Area: Brunswick County, North Carolina

Survey Area Data: Version 12, Feb 27, 2008

Soil Survey Area: Columbus County, North Carolina

Survey Area Data: Version 11, Jul 16, 2009

Name of Stream	Description	Curr. Class	Date	Basin	Stream Index #
Peacock Branch	From source to Soules Swamp	C;Sw	09/01/74	Lumber	15-4-8-2
Juniper Creek	From source to Soules Swamp	C;Sw	09/01/74	Lumber	15-4-8-3
Cedar Branch	From source to Soules Swamp	C;Sw	09/01/74	Lumber	15-4-8-4
Fivemile Branch	From source to Cedar Branch	C;Sw	09/01/74	Lumber	15-4-8-4-1
Ruddy Branch	From source to Fivemile Branch	C;Sw	09/01/74	Lumber	15-4-8-4-1-1
Hog Branch	From source to Fivemile Branch	C;Sw	09/01/74	Lumber	15-4-8-4-1-2
Mire Branch	From source to Soules Swamp	C;Sw	09/01/74	Lumber	15-4-8-5
Deep Branch	From source to Soules Swamp	C;Sw	09/01/74	Lumber	15-4-8-6
Spring Branch	From source to Deep Branch	C;Sw	09/01/74	Lumber	15-4-8-6-1
Pine Log Branch	From source to Soules Swamp	C;Sw	09/01/74	Lumber	15-4-8-7
Mollie Branch	From source to Soules Swamp	C;Sw	09/01/74	Lumber	15-4-8-8
Richardson Swamp (Richardson Millpond)	From source to White Marsh	C;Sw	09/01/74	Lumber	15-4-9
Bear Branch	From source to Waccamaw River	C;Sw	12/01/63	Lumber	15-5
Gum Swamp Run	From source to Waccamaw River	C;Sw	12/01/63	Lumber	15-6
Juniper Creek	From source to Waccamaw River	C;Sw	12/01/63	Lumber	15-7
Honey Island Swamp	From source to Juniper Creek	C;Sw	12/01/63	Lumber	15-7-5
Clear Branch	From source to Honey Island Swamp	C;Sw	12/01/63	Lumber	15-7-5-1
Cross Swamp	From source to Waccamaw River	C;Sw	12/01/63	Lumber	15-9
CAPE FEAR RIVER	From U. S. Corps of Engineers Lock #1 near Acme to a point 0.5 mile upstream of raw water supply intake at Federal Paper Board Corporation (Riegelwood)	WS-IV;Sw	08/03/92	Cape Fear	18-(59)



## North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director

Division of Waste Management

Michael F. Easley, Governor  
William G. Ross Jr., Secretary

May 9, 2008

### **CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

Mr. Charles D. Case  
Hunton & Williams LLP  
Post Office Box 109  
Raleigh, North Carolina 27602

Re: Riegel Ridge, LLC and Waste Management of Carolinas, Inc. (Doc ID No: 4457)

Dear Mr. Case:

The General Assembly, under the provisions of Section 3 of Session Law 2007-543, found that it is in the public interest to provide for the potential compensation of an applicant who submitted an application for a permit for a solid waste management facility prior to August 1, 2006 and whose application would be denied under N.C.G.S. 130A-295.6(d). You submitted a request for reimbursement pursuant to that Law on December 21, 2007 on behalf of your client, Waste Management of Carolinas, Inc. and Riegel Ridge LLC.

The Division of Waste Management has completed the review of the request for reimbursement of costs incurred in the preparation of an application for a permit for a sanitary landfill. The review included clarifying information submitted by Mike Lloyd on March 10, 2008, pursuant to a request by the Division. The Division has determined that based upon information and documentation provided by Waste Management of Carolinas, Inc. and Riegel Ridge, LLC the companies are eligible to receive a total of \$1,578,514.08 for reimbursement of landfill application costs.

Costs eligible for reimbursement include funds spent for preparation of the landfill permit application and legal fees that were associated with obtaining a local franchise for the landfill.

Costs not eligible for reimbursement include legal fees associated with land acquisition and land conservation agreements. In addition, some requests were not deemed eligible for reimbursement because sufficient documentation was not provided to qualify the particular requests for reimbursement under the requirements of the law. Enclosed with this letter is the "SB cost Reimbursement Review" spreadsheet prepared by the Division depicting which specific requests for reimbursement have been deemed eligible, in whole or in part, which requests have been deemed ineligible, in whole or in part, and the reason for denial.

You should have your client sign and return to the Division the enclosed "Certification of Authenticity and Payment," certifying that the costs to be reimbursed were incurred by Waste Management of Carolinas, Inc. and Riegel Ridge, LLC, that the documentation supporting the costs is complete, accurate and truthful, that the costs

were paid in full, and that said costs are eligible for reimbursement under Section 3.(d) of Session Law 2007-543.

If your client agrees with the reimbursement determination in this letter and executes the Certification of Authenticity and Payment, then please also have your client execute the enclosed "Waiver and Covenant Not to Sue" as required pursuant to Section 3.(g) of the Law. Upon receipt of both the Certification and the Waiver and Covenant Not to Sue executed by your client, the Department will notify the Secretary of the Department of Revenue to reimburse these costs subject to the availability of funds from the proceeds of the tax imposed in accordance with N.C.G.S. 105-187.61.

If your client disagrees with the determination of the Division regarding eligibility of particular costs for reimbursement and believes that the determination is in error, it is the policy of this State to attempt to settle such a dispute through informal procedures. The Division encourages your client to schedule an informal conference to discuss this matter and to give your client an opportunity to review with the Division the reimbursement costs deemed eligible and ineligible. If your client desires an informal conference, please contact Ellen Lorscheider at 919.508.8499, or the address on this letterhead within the next thirty (30) days.

Whether or not your client chooses to schedule an informal conference, your client has a right to request an administrative hearing to contest this decision. To exercise this right, your client must file a written petition in accordance with N.C.G.S. 150B-23(a) within sixty (60) days of receipt of this certified letter. Said petition must state facts tending to establish that the agency has deprived your client of property, has otherwise substantially prejudiced your client's rights, and that the agency has: 1) exceeded its authority or jurisdiction; 2) acted erroneously; 3) failed to use proper procedure; 4) acted arbitrarily or capriciously; or 5) failed to act as required by law or rule.

The petition must be filed within sixty (60) days with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27699-6714. A copy of the petition must also be served on Ms. Mary Penny Thompson, General Counsel, North Carolina Department of Environment and Natural Resources, 1601 Mail Service Center, Raleigh, NC 27699-1601.

However it should be noted that the scheduling of an informal conference will not extend the sixty (60) day period to file a petition for an administrative hearing.

Sincerely,



Dexter Matthews  
Director

Enclosures

c: David P. Steiner, President, Waste Management of Carolinas, Inc.  
Paul S. Crissman, Chief, Solid Waste Section  
Ellen Lorscheider, Environmental Programs Manager  
Nancy Scott, Assistant Attorney General

Waste Management/Riegel Ridge LLC  
Riegel Ridge Landfill - Columbus County

A	B	C	D	E	F	G	H
1	SB 6 Cost Reimbursement Review						
2	Applicant:						
3	Facility:						
4							
5							
6	Page (s)	Firm	Documentation Provided	Eligible Costs	Ineligible Costs	Costs from "Summary"	Clarifying Information Needed
7	1	Air Survey Corp	Inv 39032 - RR	\$3,050.00		3,050.00	YES
8	2-3	Bogan Signs	Inv 250406 - RR LF Developm	\$803.25		803.25	YES
9	4	BP Barber	Inv s5-0473 - RR MSW	\$21,609.48		21,609.48	yes
10	5	BP Barber	Inv s6-0049 - RR MSW	\$9,610.11		9,610.11	yes
11	6	BP Barber	Inv s6-0086 - RR MSW	\$11,226.53		11,226.53	yes
12	7	BP Barber	Inv s6-0126 - RR MSW	\$7,121.55		7,121.55	yes
13	8	BP Barber	Inv s6-0198 - RR MSW	\$13,747.98		13,747.98	yes
14	9	DRJackson	Inv 000182 0 RR	\$2,380.00		2,380.00	yes
15	10	Const	Inv 0341 - RR	\$1,000.00		1,000.00	yes
16	11	Eco Solutions	Inv ES-11851 -RR MSW	\$1,510.00		1,510.00	yes
17	12	Eco Solutions	Inv ES-12077 -RR MSW	\$4,192.50		6,116.50	yes
18	13	Eco Solutions	Inv ES-12365 - RR MSW	\$1,000.00		1,000.00	yes
19	14	Eco Solutions	Inv ES-12567 - RR MSW	\$2,915.00		2,915.00	yes
20	15	Eco Solutions	Inv ES-12819 - RR MSW	\$282.00		282.00	yes
21	16	Eco Solutions	Inv ES-061502 - RR MSW	\$920.00		920.00	yes
22	17	Eco Solutions	Inv ES-062902 - RR MSW	\$970.00		970.00	yes
23	18	Eco Solutions	Inv ES-071302 - RR MSW	\$931.00		931.00	yes
24	19	Eco Solutions	Inv ES-081002 - RR MSW	\$112.00		112.00	yes
25	20	Eco Solutions	Inv ES-092102 - RR MSW	\$534.00		534.00	yes
26	21	Eco Solutions	Inv ES-100502 - RR MSW	\$151.00		151.00	yes
27	22	Evers Fencing	Inv 173 - Bolten, NC	\$1,300.00		1,300.00	yes
28	23-31	Geosyntec	Inv 133053 - RR	\$14,257.43		14,257.43	yes
29	32-47	Geosyntec	Inv 133366 - RR	\$14,428.51		14,428.51	yes
30	48-56	Geosyntec	Inv 133383 - RR	\$5,079.86		5,079.86	yes
31	57-65	Geosyntec	Inv 133520 - RR	\$8,167.15		8,167.15	yes
32	66-92	Geosyntec	Inv 133730 - RR	\$6,126.40		6,126.40	yes
33	93-104	Geosyntec	Inv 1331009 - RR	\$26,352.93		26,352.93	yes
34	105-106	Geosyntec	Inv 1331046 - RR	\$21,186.12		21,186.12	yes
35	107-118	Geosyntec	Inv 134022 - RR	\$27,296.19		27,296.19	yes
36	119-133	Geosyntec	Inv 134026 - RR	\$35,043.06		35,043.06	yes
37	134-143	Geosyntec	Inv 134321 - RR	\$36,463.75		36,463.75	yes
38	144-147	Geosyntec	Inv 134070 - RR	\$13,396.14		13,396.14	yes

A	B	C	D	E	F	G	H
Page (s)	Firm	Documentation Provided	Eligible Costs	Ineligible Costs	Costs from "Summary"		Clarifying Information Needed
6							
39	148-152 Geosyntec	Inv 134349 - RR	\$4,394.33		4,394.33	yes	
40	153-165 Geosyntec	Inv 1341250 - RR	\$18,779.51		18,779.51	yes	
41	166-173 Geosyntec	Inv 1341283 - RR	\$18,584.42		18,584.42	yes	
42	174-220 Geosyntec	Inv 136492 - RR	\$64,423.53		64,785.28	yes	Pg 186(#4) Noland Rcpt for "10 in PVC pipe" questioned is OK
43	186 Geosyntec					YES	Pg 186 Noland Rcpt for unknown product questioned is OK
44	186 Geosyntec					YES	Pg 186 Home Depot for unknown product questioned is OK
45	197 Geosyntec			\$361.75		No	Pg 197 4 hours auger rental in GA the March 10 response called this auger rental a "material" which it is not
46	221-223 Geosyntec	Inv 136704 - RR	\$60.08		60.08	yes	
47	224-228 Geosyntec	Inv 136748 - RR	\$3,960.99		3,960.99	YES	Work after 8/1/06
48	229-233 Geosyntec	Inv 1361037 - RR	\$218.74	\$3,853.92	4,072.66	partial	Work after 8/1/06
49	234-238 Geosyntec	Inv 137337 - RR		\$2,374.37	2,374.37	YES	March 10 response stated that the work was performed "prior to September 1, 2006" which is not sufficient (must be prior to Aug 1)
50	239 Golder	Inv 164209 - Greenfield Site	\$1,774.33		1,774.33	no	
51	240-243 Huntton&Wms	Inv F062900 - RR	\$1,499.40		1,499.40	YES	RR LANDFILL
52	244-249 Huntton&Wms	Inv F082842 - RR	\$3,421.68		3,421.68	YES	RR LANDFILL
53	250-253 Huntton&Wms	Inv F099791 - RR	\$789.22		789.22	YES	RR LANDFILL
54	254-257 Huntton&Wms	Inv F115305 - RR	\$729.39		729.39	YES	RR LANDFILL
55	258-260 Huntton&Wms	Inv F141916 - RR	\$1,599.35		1,599.35	YES	RR LANDFILL
56	261-266 Huntton&Wms	Inv F164885 - RR	\$1,918.96		1,918.96	YES	RR LANDFILL
57	267-270 Huntton&Wms	Inv F182674 - RR	\$1,821.66		1,821.66	YES	RR LANDFILL
58	271-277 Huntton&Wms	Inv F202808 - RR	\$9,728.04		9,728.04	YES	RR LANDFILL
59	278-286 Huntton&Wms	Inv F237058 - RR	\$12,927.97		12,927.90	YES	RR LANDFILL
60	287-292 Huntton&Wms	Inv F305071 - RR	\$11,932.65		11,932.65	YES	RR LANDFILL
61	293-298 Huntton&Wms	Inv F315344 - RR	\$1,692.23		1,692.23	YES	RR LANDFILL
62	299-317 Huntton&Wms	Inv F368644 - RR	\$8,556.68		18,738.68	partial	RR LANDFILL less below promissory note
63	304			\$712.00		No	
64	304			\$935.00		no	land- conservation easement closing
65	305			\$1,748.00		no	land- conservation easement
66	305			\$1,132.00		no	land- conservation easement
67	306			\$1,934.50		no	land- conservation easement
68	307			\$999.50		No	land- conservation easement
69	313			\$214.50		No	Acquisition agreement and closing

	A	B	C	D	E	F	G	H
6	Page (s)	Firm	Documentation Provided	Eligible Costs	Ineligible Costs	Costs from "Summary"		Clarifying Information Needed
70	314				\$2,506.50		No	Acquisition agreement and closing
71	318-324	Hunton&Wms	Inv F381451 - RR	\$1,931.20		1,931.20	YES	RR LANDFILL
72	325-331	Hunton&Wms	Inv F402609 - RR	\$3,638.76		3,918.76	YES	RR LANDFILL
73	330				\$280.00		No	land- conservation easement
74	332-359	Hunton&Wms	Inv F435531 - RR	\$96,236.83		97,452.83	YES	RR LANDFILL
75	338				\$494.00		No	land-conservation easement
76	338				\$722.00		No	land-conservation easement
77	360-371	Hunton&Wms	Inv F456050 - RR	\$30,085.21		30,085.21	YES	RR LANDFILL
78	372-382	Hunton&Wms	Inv F498954 - RR	\$14,608.69		14,608.69	YES	RR LANDFILL
79	383-392	Hunton&Wms	Inv F515268 - RR	\$14,252.12		14,252.12	YES	RR LANDFILL
80	393-400	Hunton&Wms	Inv F542633 - RR	\$1,310.36		2,260.36	YES	RR LANDFILL less below
81	399	Hunton&Wms			\$342.00		no	land-conservation easement
82	399	Hunton&Wms			\$152.00		No	land-conservation easement
83	399	Hunton&Wms			\$456.00		No	land-conservation easement
84	401-412	Hunton&Wms		\$2,310.11		6,432.11	YES	RR LANDFILL less below
85	405	Hunton&Wms			\$608.00		No	land-conservation easement
86	405	Hunton&Wms			\$190.00		No	land-conservation easement
87	405	Hunton&Wms			\$228.00		No	land-conservation easement
88	406	Hunton&Wms			\$456.00		No	land-conservation easement
89	406	Hunton&Wms			\$76.00		No	land-conservation easement
90	406	Hunton&Wms			\$532.00		No	land-conservation easement
91	406	Hunton&Wms			\$304.00		No	land-conservation easement
92	407	Hunton&Wms			\$494.00		No	land-conservation easement
93	407	Hunton&Wms			\$114.00		No	land-conservation easement
94	407	Hunton&Wms			\$532.00		No	land-conservation easement
95	407	Hunton&Wms			\$76.00		No	land-conservation easement
96	407	Hunton&Wms			\$210.00		No	land-conservation easement
97	409	Hunton&Wms			\$112.00		No	land-conservation easement
98	412	Hunton&Wms			\$152.00		No	land-conservation easement
99	412	Hunton&Wms			\$38.00		No	land-conservation easement
100	413-419	Hunton&Wms	Inv F605693 - RR	\$193.80		193.80	YES	RR LANDFILL
101	419-425	Hunton&Wms	Inv F625509 - RR	\$1,158.55		1,158.55	YES	RR LANDFILL
102	426-436	Hunton&Wms	Inv F646032 - RR	\$11,221.86		11,221.86	YES	RR Landfill
103	437-443	Hunton&Wms	Inv F671433 - RR	\$1,388.90		1,388.90	YES	RR LANDFILL
104	444-451	Hunton&Wms	Inv F690851 - RR	\$1,905.95		1,905.95	YES	RR LANDFILL
105	452-458	Hunton&Wms	Inv F705807 - RR	\$742.00		742.00	YES	RR LANDFILL
106	459-465	Hunton&Wms	Inv F775414 - RR	\$2,099.50		2,099.50	YES	RR LANDFILL
107	466-473	Hunton&Wms	Inv FR911103 - RR	\$3,483.69		3,483.69	YES	RR LANDFILL
108	474-479	Hunton&Wms	Inv F941475 - RR	\$1,286.64		1,286.64	YES	RR LANDFILL
109	480-485	Hunton&Wms	Inv F956765 - RR	\$1,491.24		1,491.24	YES	RR LANDFILL

A	B	C	D	E	F	G	H	
Page (s)	Firm	Documentation Provided	Eligible Costs	Ineligible Costs	Costs from "Summary"		Clarifying Information Needed	
110	486-499	MarloweDreizler	Inv 99-011-23 - RR Landfill	\$37,333.88		37,333.88	YES	Repeated in Reimbursement Pkg 9 starting on pg RR536
111	500-503	MarloweDreizler	Inv 03-037 - RR Landfill	\$985.37		985.37	yes	
112	504-505	MarloweDreizler	Inv 03-039-01 - RR Landfill	\$7,500.00		7,500.00	yes	
113	506-512	MSCconsultants	Inv 1	\$4,743.50		4,743.50	yes	
114	513-515	MSCconsultants	Inv 2	\$1,829.00		1,829.00	yes	
115	516-519	MSCconsultants	Inv 3	\$1,779.05		1,779.05	yes	
116	520-521	MSCconsultants	Inv 4	\$4,374.00		4,374.00	yes	
117	522-525	MSCconsultants	Inv 000000000002	\$1,274.04		1,274.04	yes	Invoice was not transmitted with application
118					\$625.00	625.00	no	
119	526	MSCconsultants	Inv 000000000004	\$326.83		326.83	yes	
120	527-529	MSCconsultants	Inv 000000000005	\$503.31		503.31	yes	
121	530-532	MSCconsultants	Inv 000000000006	\$1,998.00		1,998.00	yes	
122	533-534	MSCconsultants	Inv 000000000007	\$500.00		500.00	yes	
123	535	Ralph C. Heath	Ralph C. Heath	\$5,214.00		5,214.00	yes	
124	536-706	RieglerRidgelLLC	Reimbursement Pkg 1-9	\$843,168.03		1,036,430.30	partial	less properties as listed and some legal fees (see lines below)
125	536-550		Reimbursement Pkg 9					
126	551-615		Reimbursement Pkg 1					
127					\$10,000.00		no	W/m. M Long Property Option (35 acres)
128					\$5,000.00		no	Mack Little Property Option (25 acres)
129					\$90,000.00		no	International Paper Property Option (500-700 acres)
130	578-579	Patla, et al		\$594.83			no	land acquisition
131	580-583	Patla, et al		\$12,758.26			no	land, LLC, Acquisition Agreement "Waste Management Agreements"
132	584-585	Patla, et al		\$3,281.18			no	not allowed
133	586-589	Patla, et al		\$1,314.00			partial	1/2 land transactions, 1/2 franchise issues (invoice for \$2628) (from package above)
134	590-592	Patla, et al		\$1,564.00			no	lease, contract of sale, option contract
135	618-628		Reimbursement Pkg 2					
136	629-637		Reimbursement Pkg 3					
137	629-637		Reimbursement Pkg 4					

A	B	C	D	E	F	G	H
Page (s)	Firm	Documentation Provided	Eligible Costs	Ineligible Costs	Costs from "Summary"		Clarifying Information Needed
138 638-647		Reimbursement Pkg 5					
139 648-662		Reimbursement Pkg 6					
140 663-697		Reimbursement Pkg 7					
141							Wm. M Long Property Option (12 months)
142							Mack Little Property Option (12 months)
143							International Paper Property Option (12 months)
144 698-706		Reimbursement Pkg 8					
145							Wm. M Long Property Option (through 2002)
146							Mack Little Property Option (through 2002)
147							Huffman Property Option (through 2002)
148 712-714	S&ME	Inv 109846 - RR	\$6,004.59		6,004.59		
149 715-718	SmithAnderson et al	Inv 105146 - RR		\$8,240.58	8,240.58		"Real Estate Acquisition"
150 719-722	SmithAnderson et al	Inv 106879 - RR		\$12,350.95	12,350.95		"Real Estate Acquisition"
151 724-726	SmithAnderson et al	Inv 108061 - RR		\$3,355.20	3,355.20		"Real Estate Acquisition"
152 727-728	SmithAnderson et al	Inv 108061 - RR		\$25,493.76	25,493.76		"Real Estate Acquisition"; "prior balance" w/ no documentation "amt this bill" = \$28848.96 differs from summary
153 4 unnumbered	SmithAnderson et al	Inv 109855 - RR		\$4,060.82	4,683.32		March 10 response did not include this unnumbered page, amount did not correspond with spreadsheet
154 729-732	SmithAnderson et al	Inv 111435 - RR		\$1,570.50	1,570.50		"Real Estate Acquisition"
155	SmithAnderson et al			\$3,843.38	3,843.38		Invoice was not transmitted with application
156 733	Soil&Env	Inv 207778 - RR Landfill		\$1,953.53	1,953.53		
157 734	Soil&Env	Inv 30727 - RR Landfill		\$1,316.53	1,316.53		
158 735	WildlifeHabitat Council	Inv SV1970 - RR		\$1,701.58	1,701.50		
159 736	WildlifeHabitat Council	Inv SV1965 - RR		\$1,731.49	1,731.49		

	A	B	C	D	E	F	G	H
6	Page (s)	Firm	Documentation Provided	Eligible Costs	Ineligible Costs	Costs from "Summary"		Clarifying Information Needed
160	737	WildlifeHabitat Council	Inv SV2002 - RR	\$1,507.50		1,507.50		Invoice was not transmitted with application
161		Yeatman&Assoc			\$12,981.65	12,981.65	no	Invoice was not transmitted with application
162		Yeatman&Assoc			\$11,895.41	11,895.41	no	Invoice was not transmitted with application
163		Yeatman&Assoc			\$2,441.50	2,441.50	no	Invoice was not transmitted with application
164		Yeatman&Assoc			\$950.12	950.12	no	Invoice was not transmitted with application
165		Yeatman&Assoc			\$440.00	440.00	no	Invoice was not transmitted with application
166	738-740	Yeatman&Assoc	Inv 10578 - RR		\$6,926.05	6,926.05	NO	REAL ESTATE
167	741	Yeatman&Assoc	Inv 10628 - RR Acquisition		\$2,146.00	2,146.00	no	"Riegle Ridge Acquisition"
168	742-744	Yeatman&Assoc	Inv 10668 - RR Acquisition		\$7,353.26	7,353.26	No	"Riegle Ridge Acquisition"
169	745-746	Yeatman&Assoc	Inv 10685 - RR Acquisition		\$5,405.00	5,545.00	NO	RR Acquisition, "amount this bill" differs from summary
170	747-754	Yeatman&Assoc	Inv 10832 - RR Acquisition		\$9,301.78	9,467.60	NO	RR Acquisition, "amount this bill" differs from summary
171					\$3,756.78	3,756.78	NO	Remaining Balance not invoice
172	755-756	Yeatman&Assoc	Inv 10832 - RR Acquisition	\$1,447.34		1,447.34	YES	RR franchise, financial assurance was not submitted March 10
173	757	Yeatman&Assoc	Inv 10901 - RR Acquisition		\$36.35	36.35	no	was not submitted March 10, "amount this bill" = \$270 differs from summary
174	758	Yeatman&Assoc	Inv 10916 - RR Acquisition		\$261.35	261.35	no	Duplicate chg Pg 759
175	759	Yeatman&Assoc	Inv 10923 - RR Acquisition		\$270.00	270.00	No	
176								
177								
178		Totals:		\$1,918,821.83	\$1,578,514.08	\$340,307.75	\$1,921,674.00	Difference between Invoice amount and the amount on "Summary" due to Highlighted \$2,852.17

**CERTIFICATION OF AUTHENTICITY AND PAYMENT**

I certify that Waste Management of Carolinas, Inc. and Riegel Ridge, LLC ("the Companies") are eligible for reimbursement of costs incurred prior to August 1, 2006, for preparation of an application for a permit for a sanitary landfill, pursuant to Section of 3 of Chapter 543 of the 2007 North Carolina Session Laws (Senate Bill 6). I also certify that I am familiar with the invoices and other documentation submitted by the Companies, through their attorney, to the Department of Environment and Natural Resources for reimbursement pursuant to this legislation. I can fully testify that each invoice deemed eligible by the Department for reimbursement, together with supporting documentation, has been reviewed and authenticated by personnel knowledgeable of the costs incurred and paid for by the Companies for their application for a permit for the sanitary landfill for which the Companies are seeking reimbursement, that the invoices and documentation are complete, accurate and truthful, that said costs were incurred prior to August 1, 2006, and that said costs were paid by the Companies. I understand that the submission of a false statement, representation, certification or documentation to the Department under Article 9 of Chapter 130A of the General Statutes, is subject to criminal penalty as follows: guilty of a Class 2 misdemeanor, punishable by a fine up to \$10,000.00.

IN WITNESS WHEREOF, the Companies have caused this certificate to be signed in their company names by the President of Waste Management of Carolinas, Inc., the sole member of Riegel Ridge, LLC, and attested by \_\_\_\_\_, Secretary, this \_\_\_\_\_ day of \_\_\_\_\_, 2008.

Attest:

Waste Management of Carolinas, Inc. and Riegel Ridge, LLC :

By: \_\_\_\_\_

\_\_\_\_\_  
Secretary

President, Waste Management of Carolinas, Inc.

State of: \_\_\_\_\_

County of: \_\_\_\_\_

I, \_\_\_\_\_, a notary public, certify that \_\_\_\_\_ personally came before me this \_\_\_\_\_ day of \_\_\_\_\_, 2008, and acknowledged that s/he is the Secretary of Waste Management of Carolinas, Inc., and that by authority duly given and as the act of the above companies, the foregoing instrument was signed in their name by its President and attested by himself/herself as its Secretary.

Witness my hand and official seal, this the \_\_\_\_ day of \_\_\_\_\_, 2008

\_\_\_\_\_, Notary Public

(Seal)

My Commission Expires: \_\_\_\_\_

**WAIVER AND COVENANT NOT TO SUE**

Waste Management of Carolinas, Inc. and Riegel Ridge, LLC, ("the Companies") having submitted a request pursuant to Section 3 of Chapter 543 of the 2007 North Carolina Session Laws (Senate Bill 6) for reimbursement of costs incurred for preparation of a sanitary landfill permit application, hereby accepts reimbursement of costs determined by the State of North Carolina Department of Environment and Natural Resources ("Department") to be eligible for reimbursement under Section 3.(d) of said Session Law. By accepting the reimbursement of costs in the amount of \$1,578,514.08, the Companies waive recovery of any costs submitted for reimbursement which the Department did not deem eligible for reimbursement under the Session Law. The Companies further covenant not to sue or take any form of legal action against the State of North Carolina or any political subdivision of the State for recovery of any costs described in Sections 3.(d) and (e) of Chapter 543 of the 2007 Session Laws. This waiver and covenant, made pursuant to the requirements of Section 3.(g) of the Chapter 543 of the 2007 Session Laws, shall take effect upon receipt by the Companies of said reimbursement payment. It is further agreed that by the State of North Carolina making the reimbursement payment pursuant to said Session Law, the Companies waive, release and discharge all claims against the State of North Carolina and any political subdivision of the State for cost reimbursement pursuant to Section 3 of Chapter 543 of the 2007 Session Laws.

IN WITNESS WHEREOF, the Companies have caused this Waiver and Covenant Not to Sue to be signed in their company names by the President of Waste Management of Carolinas, Inc., the sole member of Riegel Ridge, LLC, and attested by its Secretary.

\_\_\_\_\_  
Attest:

Waste Management of Carolinas, Inc. and Riegel Ridge, LLC

\_\_\_\_\_  
Secretary

By: \_\_\_\_\_  
President, Waste Management of Carolinas, Inc.

State of \_\_\_\_\_  
County of \_\_\_\_\_

I, \_\_\_\_\_, a notary public, certify that \_\_\_\_\_ personally came before me and acknowledged that s/he is the Secretary of Waste Management of Carolinas, Inc., and that by authority duly given and as the act of the above companies, the foregoing instrument was signed in their name by the President of Waste Management of Carolinas, Inc., and attested by himself/herself as its Secretary.

Witness my hand and official seal, this the \_\_\_\_\_ day of \_\_\_\_\_, 2008.

\_\_\_\_\_, Notary Public

(Seal)

My Commission Expires: \_\_\_\_\_