



North Carolina Department of Environment and Natural Resources

Division of Waste Management

Pat McCrory
Governor

Dexter R. Matthews
Director

John E. Skvarla, III
Secretary

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION

PERMIT TO OPERATE A SEPTAGE LAND APPLICATION SITE

Waste Management of the Carolinas, Inc. – Wilmington District

Gerald M. Murrell
3920 River Road
Wilmington, NC 28412

is hereby permitted to operate Septage Land and Application Site with permit # **SLAS-24-08** located on NC Hwy 211 in Columbus County at approximate position 34.19057° N latitude and -78.37894° W longitude. This site is permitted only for operations that are conducted in accordance with the representations made in the approved application, with all conditions attached to this permit, and with all of the provisions of 15A NCAC 13B.0800 -- Septage Management. Failure to operate as permitted may result in the Department suspending or revoking this permit, initiating action to enjoin the unpermitted operation, imposing administrative penalties, or invoking any other remedy as provided in Chapter 130A, Article 1, Part 2 of the North Carolina General Statutes.

This permit shall be reviewed annually to determine if soil test results and management activities are in compliance with the Septage Management Rules and the conditions of this permit. Modifications, where necessary, shall be made in accordance with rules in effect at the time of review.

Date Issued 6/11/2013


Martin A. Gallagher, Branch Head
Composting & Land Application Branch

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Telephone 919-707-8200 \ Internet <http://portal.ncdenr.org/web/wm/sw>

CONDITIONS OF OPERATING PERMIT

1. This permit shall become void if the soils fail to adequately assimilate the septage and shall be rescinded unless the site is maintained and operated in a manner which will protect the assigned water quality standards of both surface and ground waters.
2. This site shall be operated and maintained in accordance with the nutrient management plan submitted by Waste Management of Carolinas, Inc. and approved by the Division of Waste Management. The 39.1 acres site will be divided into four fields as follows: Field 1 (15.1 acres), Field 2 (6.4 acres), Field 3 (5.2 acres), and Field 4 (12.4 acres). Fields 1 and 4 have an established stand of loblolly and longleaf pine trees. Fields 2 and 3 are to be established in bermudagrass at a seeding rate of 15 lb/ac in March – April. Sometime between the first of September and the end of October, a small grain crop will be planted at a rate of 100 lb/ac. The bermudagrass shall be cut as hay whenever it reaches a height of approximately 12 inches for about 3 harvests each year. The small grain shall be cut as hay and baled from each field in April or May of each year. The 30-day waiting period between the last application of septage and the harvest of a crop shall be met by alternating septage applications between the other permitted fields. Supplemental nutrients shall be added at rates that do not exceed soil test recommendations or realistic yield expectations (RYE). All discharges shall be consistent with the crop rotation listed in the approved plan.
3. **The management of the pine trees shall follow the recommendations of an established Forester. The understory growth within the irrigation lanes of the pine tree fields to receive or receiving septage shall be mowed to a height of 12 inches or less twice a year, once by the end of May and once by September 15.**
4. This site shall be operated and maintained in accordance with the soil erosion and runoff control plan submitted by Waste Management of Carolinas, Inc. in such a manner as to prevent the migration of wastes off of the designated waste receiving site. Areas around the permitted pine tree fields shall remain vegetated. Areas around the bermudagrass fields shall be established in bermudagrass with a small grain planted for the winter months. Any site improvements noted in the plan must be installed within 30 days of plan approval. The installation of groundwater monitoring wells shall be required as deemed necessary by the Division.

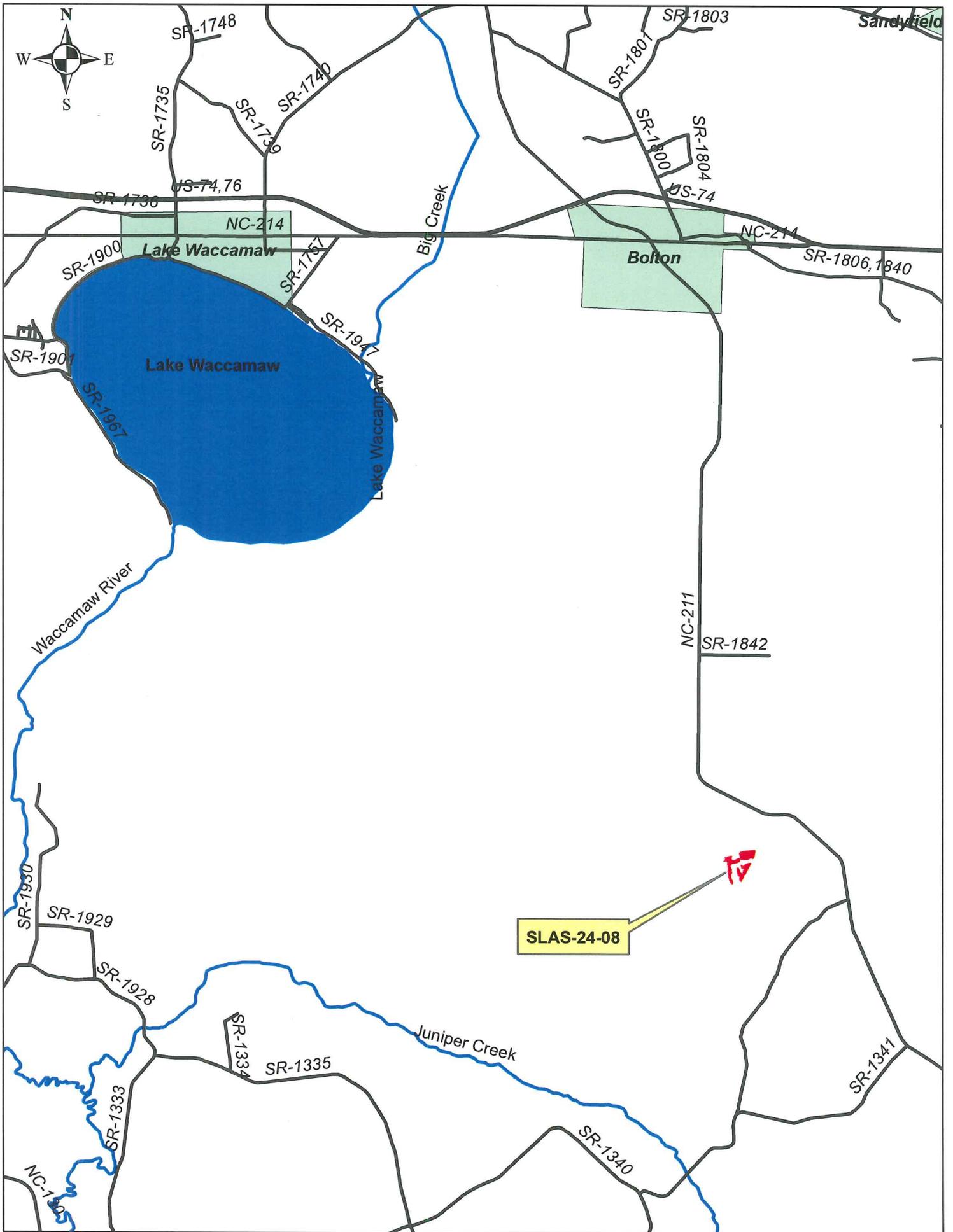
5. The issuance of this permit does not preclude or exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other local, state, and federal government agencies which have jurisdiction. It is the responsibility of the Permittee to be in compliance with the Federal Regulations listed in the Code of Federal Regulations, 40 CFR Part 503.
6. This permit may be modified or reissued at any time to incorporate any conditions, limitations, and/or monitoring requirements the Division deems necessary to adequately protect the environment and public health.
7. This site is only permitted for the land application of domestic septage, grease trap pumpings, and portable toilet waste. Domestic septage pH shall be raised to 12 or higher by alkali addition and, without the addition of additional alkali, shall remain at 12 or higher for 30 minutes prior to land application. Grease septage or grease septage mixed with domestic septage shall be raised to pH 12 or higher by alkali addition and, without the addition of additional alkali, shall remain at 12 or higher for 2 hours prior to land application. **Grease septage may be land applied without diluting 1:1 with domestic septage or water, if sufficiently processed (dewatered) through the SDTF facility (permit #65-01) and no crop damage occurs.**
8. **This site contains approximately 39.1 acres that are available for the land application of septage. The maximum annual application rate for the pines shall be 25,000 gallons per acre per year, for a total, maximum annual application of 687,500 gallons to Fields 1 and 4. The maximum annual application rate for the bermudagrass / small grain overseed shall be 50,000 gallons per acre per year, for a total, maximum annual application of 580,000 gallons to Fields 2 and 3. The total maximum permitted volume for this site is 1,267,500 gallons per year.** This application rate assumes equal septage distribution, on an annual basis, over the permitted area. Monthly septage applications shall not exceed the monthly relative application rates given in the approved nutrient management plan for the site. Daily septage applications shall be limited to a maximum of 27,154 gallons per acre where allowed based on the crop grown and monthly application rate listed within the nutrient management plan.
9. **The dewatered septage effluent shall be sampled and analyzed on a quarterly basis at a minimum. Copies of the results shall be submitted to the Division.**

10. An approved above ground septage detention system with a minimum design capacity of 25,000 gallons shall be available prior to operation of this site unless an approved wastewater treatment plant is available for use during periods of adverse weather. The storage capacity may be adjusted if it is demonstrated during the operation of the site that this volume of storage is inappropriate.
11. Only the area designated on the attached site map(s) shall be utilized for septage disposal. Septage shall be applied by use of a spreader vehicle and irrigation system as described in the distribution plan submitted by Waste Management of Wilmington. Septage shall be applied evenly within the permitted boundaries with no standing liquid after the discharge is complete. **Waste Management of Wilmington must adequately demonstrate to the Division that the irrigation system will evenly cover the designated areas and not spray septage outside of the permitted boundaries. The Division shall be notified of any proposed changes to the distribution plan prior to implementation.**
12. Septage shall not be applied during any precipitation event, or if there is standing water on the soil surface, if the soil surface is frozen, or if the soil surface is snow covered. The Permittee shall consider pending weather conditions when making the decision to land apply in order to prevent any discharge of septage outside of the permitted boundary.
13. Septage shall not be applied during periods of high soil moisture. Septage applications that will result in ruts greater than three inches in the soil surface are prohibited.
14. Any discharge of septage outside of the permitted boundaries via runoff, aerial drift, etc. is prohibited.
15. The Permittee shall notify the Division by telephone as soon as possible, but within twenty-four (24) hours of first knowledge, the occurrence of:
 - a. Any discharge of septage outside of the permitted boundaries.
 - b. Any application of septage in excess of the limits listed in Condition 8 of this permit or the nutrient management plan.

For reporting any emergency after normal business hours, contact the Division of Emergency Management at 1-800-858-0368.

16. This permit shall become voidable unless the land application activities are carried out in accordance with the conditions of this permit and in the manner approved by this Division. No one other than the Permittee or an employee of the firm named in this permit shall discharge septage at this site without prior appropriate notification and written approval from the Division.

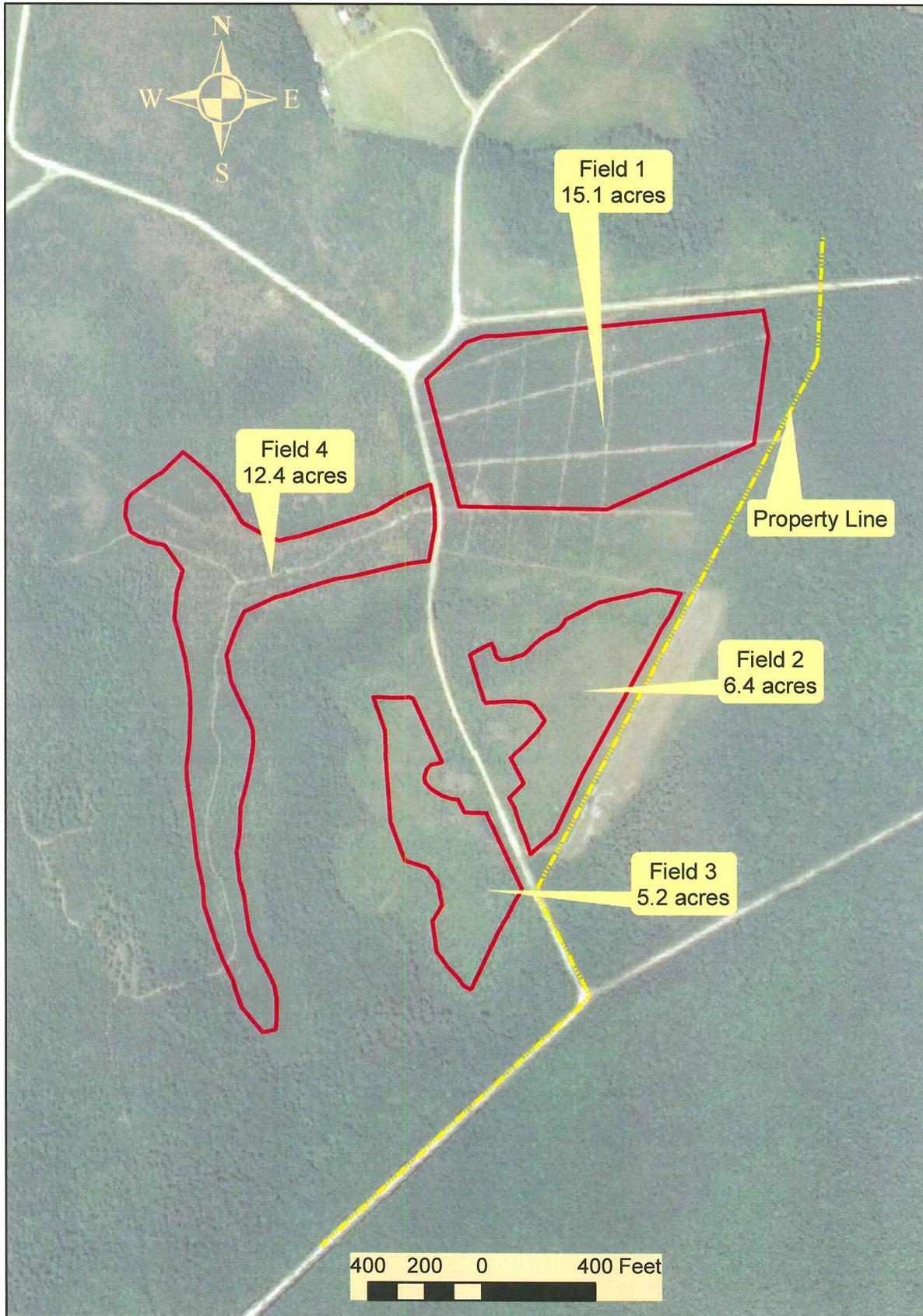
17. Prior to any transfer of this land, a notice shall be given to the new owner that gives full details of the materials applied or incorporated at this site. The Division shall be notified prior to site closure. This permit is non-transferable.
18. **This permit shall expire on June 11, 2014.** Modifications, when necessary, shall be made in accordance with the rules in effect at the time of renewal. An application for permit renewal shall be submitted at least ninety (90) days prior to the permit renewal date. A septage application log for the period of time this permit was valid shall be submitted along with an application for permit renewal or modification. The information required in the log is described in Rule 15A NCAC 13B .0838 (e) (1) of the NC Septage Management Rules and the Code of Federal Regulations, 40 CFR Part 503.17 (b).
19. Records shall be kept in accordance with 40 CFR 503.17(b). These records shall be made available to a representative of the Division upon request.
20. Any duly authorized officer, employee, or representative of the Division may, upon presentation of credentials, enter and inspect any property, premises, or place on or related to the disposal site and facility at any reasonable time for the purpose of determining compliance with this permit; may inspect or copy any records that must be kept under the conditions of this permit; or may obtain samples of groundwater, surface water, or leachate.
21. Field separations in the nutrient management plan and all pertinent setbacks shall be clearly located on the site. Boundaries of the permitted septage land application fields shall be clearly marked on the ground.
22. The areas that can be used for land application of septage shall be maintained at least 500 feet from any existing wells, residences, places of business, or places of public assembly. Septage shall not be disposed of within 50 feet of any property line or within 100 feet of any ditch.
23. **This site is considered inactive until further notice. Prior to the initial septage application, the site shall be inspected by a representative of the Division to determine compliance with NC Septage Management Rules and consistency with all permit conditions and the permit application. Crops must be present as specified in the nutrient management plan signed by Gerald Murrell on December 12, 2012 and modified by Shawn Carroll on May 5, 2013. Please notify the Division at least two (2) weeks prior to when you wish to reopen the site or field.**



SLAS-24-08



SLAS-24-08



NAD 1983, NC State Plane (FIPS 3200)

Source: 2010 NAIP Color Imagery, NCDA; site boundary, NC DENR Division of Waste Management.

Map created by NCDENR Division of Waste Management, Compost and Land Application Branch for permitting purposes only.



North Carolina Department of Environment and Natural Resources
Division of Waste Management

Pat McCrory
Governor

Dexter R. Matthews
Director

John E. Skvarla, III
Secretary

June 13, 2013

Mr. Gerald M. Murrell
Waste Management of Carolinas, Inc. – Wilmington District
3920 River Road
Wilmington, NC 28412

**RE: SLAS-24-08 Permit Renewal
Waste Management of Carolinas, Inc. – Wilmington District
Hwy 211 in Columbus County**

Dear Mr. Murrell:

The NC Division of Waste Management has reviewed your application for renewal of your permit to operate a septage land application site in Columbus County under permit number **SLAS-24-08**. Your application has been approved in accordance with NC Septage Management Rules and your permit, **SLAS-24-08**, is enclosed. Please read all permit conditions carefully.

The Division received a notification on June 3, 2013 from Waste Management of Carolinas, Inc. to place SLAS-24-08 on inactive status. **Please note that Permit Condition 23 states that "This site is considered inactive until further notice." The condition further states that this site must be inspected for compliance with NC Septage Management Rules, the enclosed permit, and the approved permit application prior to use. Please notify the Division at least two (2) weeks prior the date you would like to open the site.** Also, note that this permit is set to expire on **June 11, 2014** and that an application for permit renewal shall be submitted at least ninety (90) days prior to the expiration date as stated within Permit Condition 18.

Again, this site has been placed on inactive status with the Division. Remember that violations to the NC Septage Management Rules or this permit could subject you to administrative penalties of up to \$15,000 per violation per day. If you have any questions concerning your permits or septage in general, please do not hesitate to contact me at (919) 707-8283. When communicating to the Division about this permit, please refer to it as "**SLAS-24-08**."

Sincerely,

Chester Cobb, Soil Scientist

Composting & Land Application Branch

Enclosures

cc: Central File
Will Burke, Environmental Senior Specialist
Columbus County Health Department

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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
1646 Mail Service Center, Raleigh, NC 27699-1646

I. Site and Operator Information

1. Applicant Waste Management of Carolinas - Wilmington District
Address 3920 River Road
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 Road
Wilmington, NC 28412

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

4. Site Location: County Columbus State Road Number NC Highway 211
Directions to site: From NC Highway 214 in Bolton head south on NC Highway 211. Site is approximately 8 miles on right.

5. Indicate whether request is: new _____ renewal x modification _____

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

Existing site permit number: SLAS-24-08 permit expiration date: 9/12/2012

6. Number of acres meeting the requirements of the N.C. Septage Management Rules: 39.1 acres.

7. Substances other than septage or grease trap pumpings previously disposed of on the site:
(a) None x, 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

5. Proposed treatment method of each type of septage to be land applied (use additional paper to explain if necessary): Human septage will be stabilized with lime for a minimum of 30 minutes until it reaches a pH of 12. Grease trap waste will be stabilized with lime for a minimum of two (2) hours until it reaches a pH of 12 prior to land application.

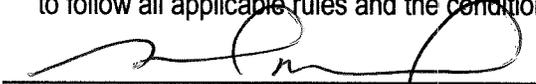
6. Proposed method of applying septage to land, including septage distribution plan if required * (use additional paper to explain if necessary): Hose spray reel irrigation system to equally distribute materials.

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 present in the spray irrigation areas.

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***

Gerald M. Murrell
Print name

5/29/12
Date

Septic Operations Manager
Title

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

* Refer to Section .0837(e) of the N.C. Septage Management Rules.

** Refer to Section .0837(g) of the N.C. Septage Management Rules.

***Signature of company official required.



3920 River Road
Wilmington, NC 28412
(910) 798-1230

May 25, 2012

Mr. Chester Cobb
NCDENR Division of Waste Management
Solid Waste Section - Septage Branch
217 West Jones Street
Raleigh, NC 27603

RE: **SLAS-24-08 Permit Renewal Application Package
Highway 211 In Columbus County
Waste Management of Carolinas, Inc.
DBA Waste Management of Wilmington**

Dear Mr. Cobb:

In accordance with Condition 18 of Septage Land Application Site (SLAS) Permit #SLAS-24-08, Waste Management of Carolinas, Inc. (WM) is submitting the following Permit Renewal Application Package. The package includes this cover letter and a completed and signed Application For A Permit to Operate A Septage Land Application Site.

Pursuant to 15A North Carolina Administrative Code (NCAC) 13B.0835(i), we are not resubmitting the original aerial photos, the vicinity map, or the soils report since no changes have occurred to those items.

Please note that although WM has properly maintained the site, no septage land application activities have been conducted to date. In addition, this application does not request an increased application rate beyond the limits established by the current permit.

As requested by you during our May 18 telephone conversation, we will be collecting representative samples of the Wilmington Dewatering Plant (SDTF-65-01) effluent in the near future for analyses indicated in 15A NCAC 13B.0838(b)(8), and will provide those results to your office as soon as they are received.

If additional information is required, please feel free to contact me at (910) 274-8869 or at scarrol3@wm.com.

Sincerely,
For Waste Management of Carolinas, Inc.


Shawn P. Carroll
Environmental Protection Manager

cc: Jerry Murrell and Chris McKeithan, WM of Wilmington

ATTACHMENT I

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

RECEIVED 4/11/13

AUTHORIZATION TO DISCHARGE SEPTAGE AT A SEPTAGE TREATMENT OR STORAGE FACILITY PERMITTED TO SOMEONE OTHER THAN YOURSELF

(This form is used by a detention or treatment facility permit holder to indicate that permission has been given to a permitted Septage Management Firm to discharge septage into the permit holders detention or treatment facility.)

I, John W. (Billy) Dunham
(Facility Operator)

2115 Hwy 55 W New Bern N.C. 28542
(Operator Address)

do hereby authorize: Chris McKeitham
(Owner of Septage Management Firm)

Waste Management
(Name of Septage Management Firm)

NCS # _____

3920 River Rd. Wilmington NC 28412
(Address of Septage Management Firm)

to utilize septage detention or treatment facility # SDTF25-08 for the treatment or storage of septage *
in 20 13. The facility will be operated in accordance with the Septage Management Rules **.

Date: 10-21-12

Signed John W Dunham
(Facility Operator)

* As defined in G.S. 130A-290(a)(32)
** As defined in 15A NCAC 13B .0800

Return the properly completed form to:
North Carolina Department of Environment and Natural Resources
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646

RECEIVED 4/11/13

AUTHORIZATION TO DISCHARGE SEPTAGE TO A WASTEWATER TREATMENT FACILITY

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

Fee assessments and waste determinations will be required at the discretion of the wastewater treatment facility. The facility has the ultimate prerogative to deny discharges of any wastes to the incoming wastewater stream.

I, Beth Eckert, Environmental Management Director, James A. Loughlin WWTP NPDES #NC0023965 _____

(Plant Operator and Name of Plant)

2311 N 23rd St, Wilmington, NC

(Address)

910-332-6558

(Phone Number)

do hereby authorize Waste Management Inc. _____

(Owner/Operator of Septage Management Firm)

of Waste Management of Wilmington

(Septage Management Firm Name and NCS number)

NCS #00121

to dispose of: domestic septage , portable toilet waste ,

grease septage (grease trap pumpings) commercial/industrial septage N/A, from

New Hanover

(County or other Geographic Area)

at the above named wastewater treatment facility. Septage shall be discharged at:

Septage Receiving Station

(Location)

between the hours of 9:00am-4:00pm

Reintroducing partially treated liquid into a grease trap is acceptable Yes No

This authorization shall be valid until December 31, 2016 _____

(Usually December 31, Year)

Signed

Beth Eckert

(Facility Operator)

Date

4-2-13

Sworn to and subscribed before me this

2

day of

April, 2013

Ante V. Meier

(Notary Public)

My Commission expires:

October 28, 2014

(OFFICIAL SEAL)

Note: Falsification of this document by the septage management firm shall lead to permit revocation.



3920 River Road
Wilmington, NC 28412
(910) 798-1230

June 3, 2013

Mr. Chester Cobb
NCDENR Division of Waste Management
Solid Waste Section - Septage Branch
217 West Jones Street
Raleigh, NC 27603



RE: **SLAS-24-08 Inactive Status Request
Highway 211, Columbus County
Waste Management of Carolinas, Inc.
DBA Waste Management of Wilmington**

Dear Mr. Cobb:

As indicated in recent discussions, Waste Management of Carolinas, Inc. (WM), Wilmington Hauling, is formally requesting that Septage Land Application Site (SLAS) Permit #SLAS-24-08 be placed on Inactive Status. The facility is currently disposing of effluent at the Cape Fear Public Utility Authority North-side Waste Water Treatment Plant (WWTP).

Please note that although WM has properly maintained the site, no septage land application activities have been conducted to date. The site will continue to be maintained, and if the Inactive Status is changed WM will provide the Solid Waste Section with adequate notification.

If additional information is required, please feel free to contact me at (910) 274-8869 or at scarrol3@wm.com.

Sincerely,
For Waste Management of Carolinas, Inc.

Shawn P. Carroll
Shawn P. Carroll
Environmental Protection Manager

cc: Laura Snow, District Manager
Jerry Murrell, Septic Operations Manager

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

* Ratios may vary depending on customer demand at the time of collection.

SAC 5/13/13

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 9/9/2010
N.C. Licensed Soil Scientist # 1022

Shawn P. Carroll 5/13/2013
WM Environmental Protection Manager

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 assessed for the proposed land application operation is approximately 40 acres of the approximately 600-acre site. Previous assessment of the site identified these 40 acres as most suited for a land based treatment effort. 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. NC Rule dictates this loading for new operations; however, since this is not a new permit for Waste Management, a liquid load based on nutrient levels could be justified.

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, but would more likely be transported to a permitted wastewater operation such as the City of Wallace or CFPWA. Should the land application option occur, untreated liquid loading to the pines would be reduced to 25,000 gallons per acre while the load to the grassed area would remain at the proposed 50,000 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; however a biofuel crop may be assessed in the near future. This plan is intended for the start-up year of the Waste Management land treatment operation. Subsequent investigation and nutrient plans will be submitted prior to expiration of this initial permit or annually as the cropping system may change to a biofuel crop.

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 represented include Goldsboro, Foreston and Nobuca on portions of the site intended to receive the dewatered materials. RYE calculations based on the ~~FORESTON~~ series. *BUTTERS*
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).

SPL
5/13/13



5. 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:

A FORAGE TYPE BERMUDAGRASS SUCH AS CHEYENNE

1. Fields 2 and 3, including buffer zones, will be seeded in Bermudagrass at a rate of 15 lb/acre in March-April, 2012 in order to establish a permanent stand. ~~Immediate seeding will be small grain to provide winter cover at a rate of 100 lb-rye, wheat, or oats in September-October, 2012 or other annual grass depending on season for example Sudangrass in late spring to summer.~~ This high rate for overseeding is recommended to assure crop establishment. Pine in fields 1 and 4 will be thinned and utilized as a receiver crop in year 1 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 2012 and limited access will be afforded during germination.

*FIELDS 2 & 3 WILL BE OVERSEEDED
SPC 5/13/13*

SPC 5/13/13

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 90% is realized.

→ FORAGE TYPE BERMUDAGRASS, SPC 5/13/13

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

The site was permitted, but NO material has been applied to the site since the permit was issued following the OAH hearing process.

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. Nutrient analysis for 2012 season:

Samples of the liquid generated in the process were collected and tested to determine the nutrient levels in the liquid. Samples were tested by NCDA and the results are presented below. The test results show wide variation in the levels of N and P in the liquid.

Sample	Concentration (ppm)	Max/1000 gal	RYE Load (Grass) (lb/ac/yr)	Gallons	RYE Load Pines (lb/ac/yr)	Gallons
1 (TN)	127	1.1	295	368K	80	73K
2 (TN)	86.3					

1 (TP)	6.3					
2 (TP)	37.8	0.3	40	2M	16	53K

D. 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	5.5 tons/acre x	40 lbs N/dry ton =	220
Annual rye grass	4.0 3.0 tons/acre x	25 lbs N/dry ton =	75
		Total =	295 (see note above)

Spc 5/13/13

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

Phosphorus loading rates are typically not determined, but based on crop tissue analysis and the concentrations measured in the liquid, the phosphorus RYE based loadings are 40 pounds per acre per year for grasses at 6.5 tons yield and 16 pounds for pines. The limiting nutrient load is P based on pines at 53K gal/ac and 73K gal/ac on grasses while the N based on the grasses is over 350K gal/ac.

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 unless approved by NCDWM.

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 and applying to areas not irrigated using a tractor towed tank vehicle with rear or side discharge capability.

F. Additional Fertility Requirements

Phosphorus and potassium will be added in accordance with the soil test results for the crops grown on the site. 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 nutrients 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 crop harvests will be removed from 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 2 and 3, 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 Bermudagrass 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. 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 on fields 2 and 3 or left as undisturbed pine trees on fields 1 and 4, 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). The buffer applies to site boundaries and a 50 foot vegetated buffer will be maintained between ditches and the waste application areas.

Submitted by:



Jerry Murrell, Site Operator

Date:

12/17/12

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

Plan prepared by:



A. R. Rubin

Date: 20 Oct, 2012

Address: 192 Fearington Post, Pittsboro, NC, 27312

Phone: 919 270 0344

Plan prepared in cooperation with:



Date: 31 Oct, 2012

Scott J. Frederick, CPSS

3216 Byers Dr., Raleigh, NC, 27607

Certification:

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Call Details								
ID	Category	Type	Caller First Name	Caller Last Name	Call Date	Call Time	Company	Phone Number
586	Permitting	Called	Shawn	Caroll	5/1/2013	11:15 AM	Waste Management of the Carolinas	910-274-8869

Comments

Talked to Shawn about:

- 1) need the original authorization from Sampson County.
- 2) pH of solids going to the New Hanover County Landfill.
- 3) The use of Foreston in the NMP instead of Noboco. Why the change? Shawn will check with Dr. Rubin.
- 4) Are you going inactive. He believes they will with the updated authorization from Cape Fear WWTP.
- 5) If not going inactive, need more info on sudangrass.
- 6) Need to to say "forage type: bermudagrass instead of just bermudagrass. Need to distinguish between common.
- 7) Use small grain instead of annual ryegrass.
- 8) Error with the yield of ryegrass (1 ton * 25 lbs/ton = 75 lbs N).

Can meet with me in Raleigh on May 13 concerning the changes needed to the NMP.