



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
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**

Craven Ag Services Inc.
John W. Dunham
2115 Hwy 55 West
New Bern, NC 28562

is hereby permitted to operate Septage Land Application Site with permit # **SLAS-25-09** located on SR 1400 in Craven County at approximate position 35.24899° N latitude and -77.18476° E 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

7/27/2015

Martin A. Gallagher, Supervisor
Composting & Land Application Branch,
Solid Waste Section
Division of Waste Management, NCDENR

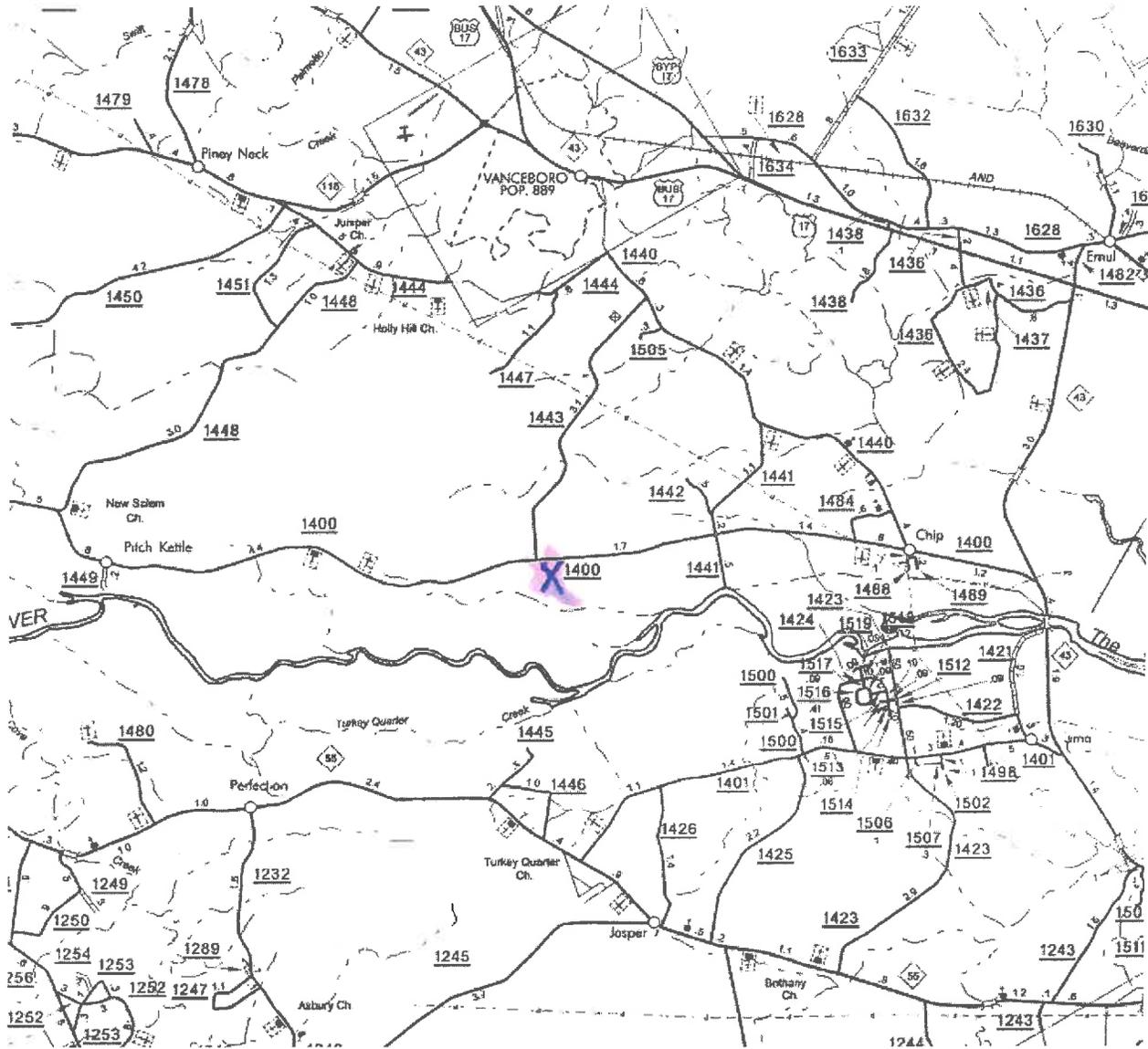
CONDITIONS OF OPERATING PERMIT

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 This permit shall become void if the soils fail to adequately assimilate the septage and shall be rescinded unless the site is maintained and operated in a manner which will protect the assigned water quality standards of both surface and ground waters.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 John W. Dunham and approved by the Division of Waste Management. The 4.3-acre site consists of one field that has been established in Coastal Bermudagrass. If the bermudagrass fails to re-establish after harvesting of the cereal rye, the field shall be planted in pearl millet each year during May or June. Cereal rye shall be planted in the fall. The 80% crop coverage must be maintained within the growing season for each crop. The planting and harvest recommendations shall be followed as outlined in the nutrient management plan. 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 SLAS-25-08 and SLAS-25-11. All discharges shall occur within the permitted area and shall be consistent with the crop rotation in the approved plan.
3. This site shall be operated and maintained in accordance with the erosion and runoff control plan submitted by John W. Dunham in such a manner as to prevent the migration of wastes off of the designated waste receiving site. The area around the permitted fields shall remain in bermudagrass and/or planted in millet or rye depending on the growing season. 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.
4. The issuance of this permit does not preclude 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.
5. 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.

6. This site is only permitted for the land application of domestic septage (including portable toilet waste), grease septage, and commercial/industrial septage. **Commercial/industrial septage shall only be land applied after the waste from each source is tested and the results approved by the Solid Waste Section.** The pH of domestic septage 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. For grease septage or grease septage mixed with domestic septage, the 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 2 hours prior to land application. **Grease septage that has been adequately treated to remove solids, fats, oils, and grease may be land applied without being diluted with domestic septage or water at 1:1 or greater ratio, unless crop damage occurs. Grease septage processed through the treatment facility shall be at pH 12 for 2 hours prior to land application.**
7. This site contains approximately 4.3 acres that are available for land application of septage. The maximum annual application rate for the site shall be 198,000 gallons per acre per year with a maximum of 90,000 gallons per acre per year that can be applied to the cereal rye. At this application rate, a maximum annual volume of 851,400 gallons may be applied to this site. This application rate is based on six submitted waste analyses from 2013 through 2015. The average nutrient concentrations are 138.6 ppm total nitrogen, 3.8 ppm phosphorus, and 76.2 ppm potassium. When considering residual nitrogen availability over a five (5) year period, the plant available nitrogen is approximately 0.70 lbs N / 1,000 gals. Application amounts to the field shall not exceed the maximum annual application rate or the monthly application rates listed in the approved nutrient management plan. The maximum annual application rate assumes equal septage distribution, on an annual basis, over the entire permitted area.
8. An approved above ground septage detention system with a minimum design capacity of 16,500 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.
9. Only the area designated on the attached site map shall be utilized for septage disposal. Each load of septage discharged at the site shall be distributed from a moving vehicle in such a manner that there is no standing water when the discharge is complete.

10. 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.
11. 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.
12. Any discharge of septage outside of the permitted boundaries via runoff, aerial drift, etc. is prohibited.
13. 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.
14. 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.
15. **This permit shall expire on December 17, 2018.** 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).
16. 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.
17. **The dewatered effluent shall be sampled and analyzed on a quarterly basis at a minimum. Each analysis shall include at a minimum the nitrogen constituents, phosphorus, potassium, soluble salts, pH, regulated metals except mercury, calcium, manganese, magnesium, iron, sulfur, boron and chlorine. Copies of the results shall be submitted to the Solid Waste Section for permit renewal or modification.**

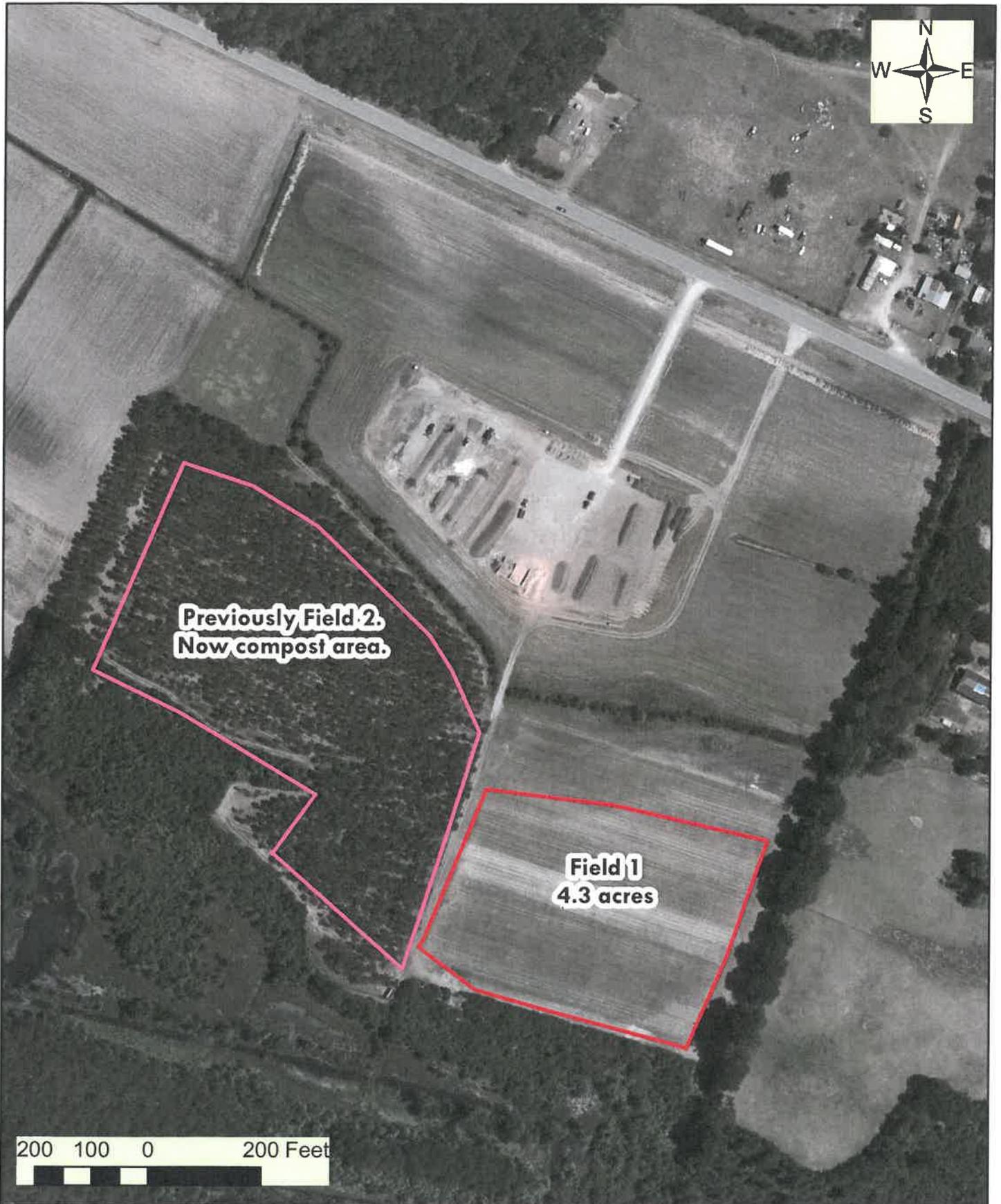
18. Any duly authorized officer, employee, or representative of the Division may, upon presentation of credentials, enter and inspect any property, premises, or place on or related to the disposal site and facility at any reasonable time for the purpose of determining compliance with this permit; may 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.
19. 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.
20. The areas that can be used for land application of septage shall be maintained to meet the minimum setback distances as described in NC Septage Management Rule 15A NCAC 13B .0837 (d) such as 500 feet from any existing wells, residences, places of business, or places of public assembly. Also, septage shall not be disposed of within 50 feet of any property line or within 100 feet of any ditch.
21. **Nutrient additions to the established crop shall not exceed the recommendations listed on the annual soil test report with the exception of nitrogen. Any supplemental nitrogen fertilizer additions to the crop shall account for residual nitrogen and shall not exceed the nitrogen requirement listed in the approved nutrient management plan. Also, any supplemental nitrogen added to the crop shall be recorded along with the septage application records.**



SLAS-25-09

- Craven Ag Services, Inc.
- Off of SR 1400
- Position: 35.24899° N latitude -77.18476° W longitude

SLAS-25-09



Source: Aerial image from Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community. Site boundary from NC DENR Division of Waste Management.
Map created by NC DENR Division of Waste Management for permitting purposes only.



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

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Secretary

August 6, 2015

Mr. John W. Dunham
Craven Ag Services Inc.
2115 Hwy 55 West
New Bern, NC 28562

**RE: SLAS-25-09 Permit Renewal
Craven Ag Services Inc.
SR 1400 in Craven County**

Dear Mr. Dunham:

The NC Division of Waste Management has reviewed your application for permit renewal of Septage Land Application Site, **Permit # SLAS-25-09**, in Craven County. Your application has been approved in accordance with NC Septage Management Rules and your permit, **SLAS-25-09**, is enclosed.

Please read all the permit conditions carefully. This site now only consists of one field. Field 2 has been removed from this permit. Your nutrient management and soil erosion and runoff control plans have been included in your permit. This permit shall expire on **December 17, 2018**. An application for permit renewal and your septage application logs should be submitted at least ninety (90) days prior to the expiration of your permit.

Again, please read all permit conditions carefully. 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 permit or septage in general, please contact me at (919) 707-8283. When communicating to the Division about this permit, please refer to it as "**SLAS-25-09**."

Sincerely,

Chester R. Cobb, Soil Scientist
Division of Waste Management, NCDENR

Enclosures

cc: Central File
John College, Environmental Senior Specialist
Craven 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 CRAWLER AG SERVICES, Inc. JOHN W. DUNHAM
Address 2115 HUNTER ST
NEW BORN, N.C. 28562
Phone _____

2. Contact person for site operation (if different from applicant): _____
Title or position _____ Phone _____
Address _____

3. Landowner John W. & Jane H. Dunham
Address 208 Hillcrest Dr. New Born, N.C.

4. Site Location: County CRAWLER State Road Number SR 1400
Directions to site: 35.24999° N lat & -77.18476° W longitude

5. Indicate whether request is: new _____ renewal modification

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

Existing site permit number: 25-09 permit expiration date: 12-17-13

6. Number of acres meeting the requirements of the N.C. Septage Management Rules: 4.3 acres.

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. On file

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

(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# 2508
4. Types of septage proposed to be discharged at the site (check all that apply):
 - (a) Domestic septage pumped from septic tanks
 - (b) Grease trap pumpings
 - (c) Portable toilet waste
 - (d) Commercial / Industrial septage
5. Proposed treatment method of each type of septage to be land applied (use additional paper to explain if necessary): De-watered see attached
6. Proposed method of applying septage to land, including septage distribution plan if required * (use additional paper to explain if necessary): Vacuum Applicator see attached
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): All ag see attached

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.

John W. Durkan
Signature***

11-1-13
Date

John W. Durkan
Print name

Owner
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.

ATTACHMENT FOR ITEMS 5, 6, & 7
FOR SLAS PERMIT APPLICATION



5. Proposed Treatment Method: All septage will be delivered to our detention facility where it will be screened and put in storage tanks. Before removing the septage from the detention facility it will be dewatered. (solids separated from the water) Once the septage is dewatered the liquid is brought to a pH of 12 and held there for a period of 2 hours. It is then hauled to one of our land application sites where it is evenly applied with a moving vacuum applicator.

6. Proposed Method of Applying septage to land: Once the tankers are loaded and the septage has met the pH requirements of 12 for two hours the septage is hauled to one of our land application sites where it is transferred to a vacuum applicator. As the applicator moves across the field it discharges the septage evenly to the surface of the land in such a manner as to have no standing liquid or soil disturbance resulting from the waste flow after the discharge is complete.

The solids that come from the septage during the dewatering process is carried to our composting facility in a water tight roll off box. There it is offloaded and ran through the proper composting processes.

7. The site is all agricultural land producing coastal Bermuda, rye, millet, or pine trees.

Signed John W. Deverhan

Date 11-1-13

Landowner's Authorization 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, John + Jene Dunham (name of site owner) hereby certify that I am the owner of 4-3 acres of land located 35.24899° N LAT + 77.18476° N Long and identified by _____ (book and page of recorded deed or tax map parcel) and that I agree to allow John Dunham (name of site operator) to use said land for septage land application for a period of 5 YEARS (length of time), beginning 12-17-13 (month, day and year) and that I have read the North Carolina Septage Management Rules *, and I understand and agree to maintain the restrictions on land use after septage land application ends **. I further understand that no septage may be land applied until the Division of Waste Management has issued a permit for a septage land application site. The above described property is owned solely by me or jointly with _____ (names of all co-owners, or state none).

Signature of landowner John W. Dunham Date 11-3-13

Signature of landowner Jene H. Dunham Date 11-3-13

Sworn to and subscribed before me this 6 day of November, 20 13.

Melissa J. Thomas
(Notary Public)

(OFFICIAL SEAL)

My Commission expires: 9/21/15

* 15A N.C. Admin. Code 13B Section .0800
** As required by Rule .0843

SEPTAGE LAND APPLICATION LOG

COVER SHEET



Site Operator: John W. Dunbar

SLAS Permit #: 2509

Site Location: 35.24899°N Latitude & -77.18476°W Longitude
(street address for the site or latitude and longitude)

Number of acres permitted: ~~11.1~~ 11.1

Permitted application rate: Pines 112,500 Bermuda & Rye 198,000
(gallons septage per acre per year)

Crop(s): Longleaf Pine, Bermuda, & Rye

Crop nitrogen requirement(s): Rye 98 lbs, Bermuda 196 lbs, Pines 80 lbs/acre
(pounds nitrogen per acre)

CERTIFICATION:

"I certify, under penalty of law, that the pathogen requirements in (insert either 503.32 (c)(1) or 503.32 (c)(2)) and the vector attraction reduction requirements in (insert 503.33 (b)(9), 503.33 (b)(10) or 503.33 (b)(12)) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

John W. Dunbar
(signature)

11-1-13
(date)

DEWATERED

**NUTRIENT MANAGEMENT PLAN
SEPTAGE APPLICATIONS TO COASTAL BERMUDA
OR MILLET AND CEREAL RYE**



**DUNHAM SITE 25-09 ON STATE ROAD 1400 (RIVER ROAD)
FOR
CRAVEN AG SERVICES, INC.
2115 HWY 55 WEST NEW BERN, NC
(252) 633-5334
DECEMBER 17,2013- DECEMBER 17,2018**

A. General Information:

1. This plan covers one field. Field 1 is 4.3 acres of established coastal Bermuda or millet with cover crop cereal rye.
2. The sites will be a total of approximately 4.3 acres.
3. The dominant soil series is Tarboro.
4. The landowner is John W. and Jene Dunham
5. Septage will be applied evenly to the surface of the land from a moving vehicle in such a manner as to have no standing liquid or soil disturbance resulting from the waste flow after the discharge is complete. Septage shall not be applied to a site if any liquid is ponded on the site, soils are too wet to prevent tracking or rutting by application equipment, or if the site is flooded, frozen, or snow covered
6. Septage storage will be provided to account for the average volume of septage and grease pumped per week. (100,000 gallons of storage on site)
7. No Septage will be applied to any field 30 days prior to harvest if hay is to be feed to livestock. To prevent leaching the maximum amount of dewatered septage/grease will not exceed 12,000 gallons per acre per application event.
8. The grease and septic waste will be ran through a bar screen and pumped to storage tanks. From the storage tanks the screened material will then be sent through a dewatering system where the solids are separated from the water. The solids remain in the box and the water is transferred to tankers for field application or it is moved back to dewatered storage tanks where it is held until it is land applied. The water will be applied to application sites and the dewatered solids will be disposed of at the landfill or composted.
9. Waste application rates are based on the quantity of plant available nitrogen from the waste and the nitrogen requirements of the crop to be grown. Any additional nutrients will be determined by soil samples taken annually before planting each crop. The operator of the site has waste applicators certification for land applicator of municipal sludge and animal waste.

Certification numbers from the N.C. Water Pollution Control System Operators Certification commission are: AW 19891 and LA 13203.

10. All boarders will be planted in coastal Bermuda, rye, or Pines dependent upon the crop season, and will be fertilized according to soils analysis and nutrient removal of each crop.
 11. Coastal Bermuda and Cereal Rye will be harvested for hay and used in composting or feed as feed for livestock.
- B. Crops to be grown, nitrogen requirements, and approximate planting and harvesting times:
- Field 1: the summer crop will be Established coastal Bermuda or millet (if Bermuda does not have an established cover after winter rye). followed by winter cover crop of cereal rye. Harvest of Bermuda will be in June, August, and October, Millet will be in August and October. Harvest of cereal rye will be in May. Rye will be planted in October or November after the last Bermuda or Millet harvest.

Realistic Yields (RYE) and Nitrogen needs for crops Grown: Any nutrients not provided by septage will be applied through commercial fertilizers as recommended by soils analysis's.

ANNUAL CEREAL RYE (HAY)

1. Realistic Yield Expectation 2 tons per acre.
2. Nitrogen requirements is 98 lbs per acre
3. Maximum uptake period Sept- October & Feb- April.
4. Will maintain an 80% stand by reseeding with 3 bushels per acre if necessary.

COASTAL BERMUDA (HAY)

1. Realistic Yield Expectation is 3.9 tons per acre
2. Nitrogen requirements is 196 lbs per acre
3. Maximum uptake period April-September
4. Will maintain an 80% stand. If areas die out will replace with sprigs at the rate of 35 bushels per acre.

PERAL MILLET (HAY)

1. Realistic Yield Expectation is 3.5 tons per acre
2. Nitrogen requirement is 194 lbs per acre
3. Maximum uptake period May-September
4. Will maintain an 80% stand by reseeding with 3 bushels per acre if necessary

C. Relative Application Rate, gallons per acre, and Harvest Schedule.

MONTH CROP Millet/ BERMUDA/RYE FIELDS

1

January	Rye	12000
February	Rye	18000
March	Rye	18000
April	Bermuda	24000
May	Bermuda	36000
June	Bermuda	36000
July	Bermuda	36000
August	Bermuda	36000
September	Bermuda	36000
October	Rye	24000
November	Rye	18000
December	Rye	12000

1. Total gallons per acre applied on Rye will not exceed 90,000
2. Total gallons per acre applied on Bermuda/Millet will not exceed 108,000
3. Depending upon crop growth and hay cutting conditions the Rye will be cut for hay once and Bermuda three times during growing season. If Bermuda does not recover from winter Rye Cover it will be replaced with Millet and will be harvested in August and October. The hay will be removed from the site and fed to livestock or used in composting.
4. No septage will be applied on any field 30 days prior to harvest if hay is to be feed to livestock.
5. The 30 day withdrawal period prior to harvest will be met by rotating to another permitted site or utilizing the SDTF facility.

6. To protect against leaching, no more than 12,000 gallons per acre per application will be applied per event. (An event is defined as one pass through the field per day.)

D. Application Method:

Septage will be evenly broadcast over the permitted fields with a tractor drawn Vacuum applicator.

E. Residual Plant Available Nitrogen (PAN) , Supplemental Nitrogen and other nutrient Determinations:

1. SEE ATTACHED ADDENDUM FOR NITROGEN CARRYOVER.

2. NITROGEN AND OTHER NUTRIENT APPLICATIONS WILL BE DETERMINED BASED ON THE AMOUNT OF DEWATERED SEPTAGE/GREASE APPLIED DURING THE GROWING SEASON OF THE CROPS, THE NUMBER OF YEARS OF APPLICATION, THEIR NUTRIENT REMOVAL, AND RYE'S. WASTE ANALYSIS WILL BE TAKEN QUARTERLY TO DETERMINE THE AMOUNT OF N, P, & K WE ARE GETTING FROM THE SEPTAGE/GREASE APPLICATIONS. MAXIMUM NITROGEN APPLICATION WILL BE BASED ON THE RYE OF EACH CROP. WASTE ANALYSIS THUS FAR SHOW N-P-K PER THOUSAND GALLONS TO BE AS FOLLOWS:

a. N .46 LBS

b. P .11 LBS

c. K .73 LBS

3. USING THE RELATIVE APPLICATION RATES IN C ABOVE WE WOULD GET THE FOLLOWING NUTRIENT APPLICATIONS FROM DEWATERED SEPTAGE/GREASE. ASSUMING WE APPLIED TO FULL CAPACITY.

a. Rye: Maximum amount 90,000 gallons per acre per growing season will be as follows:

1. 41.40 lbs of N

2. 9.90 lbs of P

3. 65.70 lbs of K

c. Coastal Bermuda or Millet: Maximum 108,000 gallons per acre per growing season will be as follows:

- 1. 49.68 lbs of N**
- 2. 11.88 lbs of P**
- 3. 78.84 lbs of K**

c. Supplemental N, P, & K: Assuming the full amount of dewatered septage/grease was applied to each crop as listed above the following supplemental nutrients may be needed.

Lbs of additional N / year	1	2	3	4	5
1. Nitrogen for Rye:	56	35.4	26	23	21
2. Nitrogen for Bermuda:	146	121	111	107	105
3. Nitrogen for Millet:	146	121	111	107	105
4. Phosphorus for all crops will be based on soil sample requirements and the total amount of phosphorus received from the dewatered septage/grease as well as crop utilization.					
5. Potassium for all crops will be based on soil sample requirements and the total amount of Potassium received from the dewatered septage/grease as well as crop utilization.					

IF THE CROPS DO NOT RECEIVE THE TOTAL GALLONS SUPPLEMENTAL NUTRIENTS WILL HAVE TO BE ADJUSTED ACCORDINGLY. THIS WILL BE DONE WITH TISSUE ANALYSIS, SOIL SAMPLE REPORTS, AND ACTUAL GALLONS APPLIED TO EACH CROP.

F. Harvest of crops and their use: a 30 day waiting period will be observed between the last application of septage and the first day of harvest for all hay that will be fed to cattle. Coastal Bermuda and Cereal Rye will be cut for hay and removed from the site to be fed to cattle or used as mulch. Depending upon the weather this plan calls for one (1) cutting of Rye in the spring, (3) cuttings of Bermuda in the summer. Pine Trees will be harvested when they mature.

G. Planting and Seeding Rates: Cereal Rye will be seeded at 3 bushels per acre with a no-till drill each fall after the last harvest of Bermuda. An 80 % stand will be maintained at all times during the growing season reseeding rye at 3 bu. per acre or re-

sprigging the Bermuda at 35 bu. per acre. The coastal Bermuda is a permanent established crop.

- H. Erosion and water quality protection: Given that slopes on these sites do not exceed five percent, the Buffer planted in Rye, Bermuda, or Pine Trees should suffice to prevent dewatered waste from migrating off of the fields. Each application event will be applied at hydrological rates to allow for soil absorption and prevent run off. Annual high water table for the Tarboro is greater than 6 feet therefore there should be no problem with any seasonal high water tables.

Site Operator: **Date**

John W. Durban 11-1-13

Plan Prepared By: **Date**

John W. Durban 11-1-13

Address:

2115 Hwy 55W
New Bern, N.C. 28562

Phone:

252-633-5334

Cell Phone:

~~252-633-6~~
252-670-8530

Nitrogen Calculations for SLAS-25-09, Dunham Site

CROP TABLE

Crop	RYE ¹	N rate (lbs/ac)
Hybrid bermudagrass (hay) ²	3.9 tons/ac	196
Rye ²	-	-
Pine		

¹ Realistic Yield Expectations for Tarboro sand, 0 to 6% slopes

² N rate for hybrid bermudagrass and rye overseed not to exceed the N rate for hybrid bermudagrass overseeded with rescuegrass (hay) of 225 lbs/ac.

Rye at an application rate of 60,000 gal/ac/yr.

Year	N Rate (lbs/1000 gal)	Total Available N (lbs/ac)
1	0.46	27.6
2	0.696	41.8
3	0.790	47.4
4	0.832	49.9
5	0.856	51.4

Hybrid bermudagrass at an application rate of 138,000 gal/ac/yr.

Year	N Rate (lbs/1000 gal)	Total Available N (lbs/ac)
1	0.46	63.5
2	0.696	96.0
3	0.790	109.0
4	0.832	114.8
5	0.856	118.1

Pines at an application rate of 112,500 gal/ac/yr.

Year	N Rate (lbs/1000 gal)	Total Available N (lbs/ac)
1	0.46	51.8
2	0.696	78.3
3	0.790	88.9
4	0.832	93.6
5	0.856	96.3

* Any supplemental N additions not to exceed N requirement for that crop for that year.

Craven
AG SERVICES, INC.

2115 Hwy 55 West New Bern, NC 28562



MR. Tony Gallagher
NC Division of Solid Waste
1646 Mail Service Center
Raleigh NC 27699-1646

Enclosed is the septage land application cover sheet. I failed to send it with my application.

I am sorry for any inconvenience this may have caused.

Thank you,

Billy Dunham
Craven Ag Services INC

Craven
AG SERVICES, INC.

2115 Hwy 55 West New Bern, NC 28562

Billy Dunham, President
Office – 252-633-5334
Cell- 252-670-8530



Chester Cobb
Division of Solid Waste
P O Box 27687
Raleigh NC 27611

Dear Chester Cobb

This is a request to put SLAS septage land application site 2508 field # 4 and 2509 field # 2 on the inactive list. We are no longer using them at this time.

Thank you,

Billy Dunham,
Craven AG Services, Inc.

SEPTAGE LAND APPLICATION LOG

COVER SHEET

Site Operator: John W. Dunbar
SLAS Permit #: 25-09
Site Location: 35.24899° N latitude & -77.18476° W longitude
(street address for the site or latitude and longitude)
Number of acres permitted: 4.3
Permitted application rate: 193,000 gallons/acre/year
(gallons septage per acre per year)
Crop(s): Coastal Bermuda + Rye
Crop nitrogen requirement(s): 250
(pounds nitrogen per acre)

CERTIFICATION:

"I certify, under penalty of law, that the pathogen requirements in (insert either 503.32 (c)(1) or 503.32 (c)(2)) and the vector attraction reduction requirements in (insert 503.33 (b)(9), 503.33 (b)(10) or 503.33 (b)(12)) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

John W. Dunbar
(signature)

11-3-14
(date)

Praven
AG SERVICES, INC.

2115 Hwy 55 West New Bern, NC 28562

BILLY DUNHAM, PRESIDENT
(252) 633-5334
(252) 670-8530

Mr. Chester Cobb
Composting & Land Application Branch
NC Division of Waste Management
1646 Mail Service Center
Raleigh, N. C. 27699-1646

Feb. 19, 2014



Dear Mr. Cobb:

I am sending you my four (4) waste water analysis from our dewatering of septage and grease for the year 2013.

Sincerely,

A handwritten signature in black ink that reads "Billy Dunham". The signature is written in a cursive style.

Billy Dunham

WASTE ANALYSES

Date	Total N	P	K	PAN	P2O5	K2O	Sample ID
	ppm	ppm	ppm	lbs / 1,000 gal			
4/3/2013	133	13	77.5	0.31	0.15	0.62	W006335
10/29/2013	65.9	0.69	110				2013-12610
11/14/2013	116	3.93	106	0.27	0.05	0.85	W003330
2/17/2014	121	0.08	68.5				2014-00918
12/4/2014	173	1.67	49.3				2014-14033
5/27/2015	223	3.69	45.7	0.52	0.04	0.37	W007382
-							
-							
Total	831.90	23.06	457.00	1.10			
Avg	138.65	3.84	76.17	0.37			
Median	127.00	2.68	73.00	0.31			
Calculations based on PAN				Calculations based on total N			
Total N	1.16	lbs/1,000gal		Total N	1.16	lbs/1,000gal	
PAN	0.37	lbs/1,000gal		PAN	0.46	lbs/1,000gal	
Remaining N	0.79	lbs/1,000gal		Remaining N	0.69	lbs/1,000gal	
First Year	0.37	lbs/1,000gal		First Year	0.46	lbs/1,000gal	
Second Year	0.52	lbs/1,000gal		Second Year	0.60	lbs/1,000gal	
Third Year	0.59	lbs/1,000gal		Third Year	0.66	lbs/1,000gal	
Forth Year	0.62	lbs/1,000gal		Forth Year	0.68	lbs/1,000gal	
Fifth Year	0.63	lbs/1,000gal		Fifth Year	0.70	lbs/1,000gal	
First to Second	0.16	lbs/1,000gal		First to Second	0.14	lbs/1,000gal	
First to Third	0.06	lbs/1,000gal		First to Third	0.06	lbs/1,000gal	
First to fourth	0.03	lbs/1,000gal		First to fourth	0.03	lbs/1,000gal	
First to fifth	0.02	lbs/1,000gal		First to fifth	0.01	lbs/1,000gal	

FORMULAS**Calculations based on PAN**

Total N (lb/1000 gal)	$N \text{ (ppm)} * 0.00835$
PAN	From report
Remaining N	Total N - PAN
First Year	PAN from report
Second Year	PAN + (remaining N * 0.2)
Third Year	PAN + 2nd yr N + (remaining N * 0.1)
Forth Year	PAN + 2nd yr N + 3rd yr N + (remaining N * 0.05)
Fifth Year	PAN + 2nd yr N + 3rd yr N + 4th yr N + (remaining N * 0.03)

Calculations based on Total N

Total N (lb/1000 gal)	$N \text{ (ppm)} * 0.00835$
PAN	Total N * 0.4
Remaining N	Total N - PAN
First Year	Total N * 0.4
Second Year	1st yr N + (remaining N * 0.2)
Third Year	1st yr N + 2nd yr N + (remaining N * 0.1)
Forth Year	1st yr N + 2nd yr N + 3rd yr N + (remaining N * 0.05)
Fifth Year	1st yr N + 2nd yr N + 3rd yr N + 4th yr N + (remaining N * 0.03)

Sample Information		Nutrient and Other Measurements																			
Sample ID: DWSS		Nitrogen (N) (ppm)		P (ppm)	K (ppm)	Ca (ppm)	Mg (ppm)	S (ppm)	Fe (ppm)	Mn (ppm)	Zn (ppm)	Cu (ppm)	B (ppm)	Na (ppm)	C (ppm)						
Waste Code: MLS		Total N	13.0	13.0	77.5	1080	46.4	12.7	2.20	0.15	0.24	0.28	0.87	239							
Description: Municipal (Lime Slab.)		Total Kjeldahl N	133																		
Comments: 4-3-2013		Inorganic N	64.7	pH	11.76	DM (%)	SS (10-5/cm)	EC (mS/cm)	CCE (%)	ALE(1000 gal.)	C:N										
		NH4-N	64.7																		
		NO3-N	0																		
	Organic N	68.1	Ni (ppm)	0.10	Cd (ppm)	0.04	Pb (ppm)	0.26													
	Urea																				
Application Method		Estimate of Nutrients Available for First Crop (lb / 1000 gal.)																			
Soil Incorporated		N	P2O5	K2O	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Cl	Na	Ni	Cd	Pb	Al	Se	Li
Broadcast		0.44	0.19	0.70	6.75	0.29	0.08	0.01	T	T	T	0.01			1.99	T	T	T			
		0.31	0.15	0.62	5.40	0.23	0.06	0.01	T	T	T	T			1.99	T	T	T			
		Other Elements (lb / 1000 gal.)																			
Understanding the Waste Report * - additional information: www.ncagr.gov/agronomi/pdf/files/lwaste.pdf & www.ncagr.gov/agronomi/pdf/files/wasteguide.pdf																					
Nutrient concentrations and other data on this report are provided so that waste materials can be applied at agronomic rates, thereby supplementing or reducing fertilizer application and preventing environmental contamination. In reading the Laboratory Results section, remember that materials with < 15% dry matter (generally liquids) are analyzed as received; all other wastes are dried first. Values in the Estimate of Nutrients Available for First Crop section are based on the type of waste and method of application you specify and reflect the fact that only 40-60% of the nitrogen and 70-100% of other nutrients become available within one year of application. The remainder <u>may or may not</u> ever become available.																					
* ppm = parts per million; S = siemens; mS = millisiemens; T = trace (<0.005 lb/unit); EC = electrical conductivity; CCE = calcium carbonate equivalence; ALE = agricultural lime equivalence; pH = acidity or basicity; DM% = % dry matter [for semi-solid and solid waste samples, this value facilitates conversion of dry-basis concentrations (ppm) back to wet-basis of original sample]; C:N ratio = carbon:nitrogen ratio.																					



ANALYTICAL & CONSULTING
CHEMISTS

Environmental Chemists, Inc.

6602 Windmill Way • Wilmington, NC 28405
(910) 392-0223 (Lab) • (910) 392-4424 (Fax)

710 Bowsertown Road • Manteo, NC 27954
(252) 473-5702

NCDENR: DWQ CERTIFICATE #94. DLS CERTIFICATE #37729

Craven Ag Services
2115 Hwy 55 W.
New Bern NC 28562
Attention: Bill Dunham

Date of Report: Oct 29, 2013
Customer PO #:
Report #: 2013-12610
Report to: Bill Dunham
Project ID: Dewatering Effluent

Lab ID	Sample ID: Craven Ag Services	Collect Date/Time	Matrix	Sampled by
13-30715	Site: dewater effluent	10/11/2013 10:40 AM	Water	Bill Dunham

Test	Method	Results	Date Analyzed
Cadmium	EPA 200.7	<0.010 mg/L	10/18/2013
Copper	EPA 200.7	<0.010 mg/L	10/22/2013
Lead	EPA 200.7	<0.010 mg/L	10/22/2013
Nickel	EPA 200.7	0.029 mg/L	10/18/2013
Potassium	EPA 200.7	110 mg/L	10/23/2013
Sodium	EPA 200.7	204 mg/L	10/24/2013
Zinc	EPA 200.7	0.045 mg/L	10/25/2013
Ammonia Nitrogen	EPA 350.1	54.2 mg/L	10/22/2013
Total Phosphorus	SM 4500 P F	0.69 mg/L	10/24/2013
Organic Nitrogen	Subtraction Method	11.7 mg/L	10/28/2013
Total Nitrogen (Calc)			
Total Kjeldahl Nitrogen (TKN)	EPA 351.2	65.9 mg/L	10/24/2013
Nitrate+Nitrite-Nitrogen	EPA 353.2	< 0.02 mg/L	10/16/2013
Total Nitrogen	Total Nitrogen	65.9 mg/L	10/28/2013

Comment:

Reviewed by: Maurole Ojeda

Jim Rice



Diagnostic Waste Report

Client: Craven Ag Services, Inc.
2115 Hwy 55 W
New Bern, NC 28562
Craven County

Advisor:

Sampled: 11/14/2013 **Received:** 11/22/2013 **Completed:** 12/02/2013 **Farm:** DUNHAM [Links to Helpful Information](#)

Sample Information

Sample ID: DW3
Waste Code: MLS
Description: Municipal (Lime Slab)
Comments:

Nutrient and Other Measurements		P (ppm)	K (ppm)	Ca (ppm)	Mg (ppm)	S (ppm)	Fe (ppm)	Mn (ppm)	Zn (ppm)	Cu (ppm)	B (ppm)	Na (ppm)	C (ppm)
Nitrogen (N) (ppm)													
Total N		3.93	106	9770	165	29.5	18.7	0.74	0.35	0.70	1.10	248	
Total Kjeldahl N													
Inorganic N													
NH4-N													
NO3-N													
Organic N													
Urea													
pH													
DM (%)													
SS (10-5S/cm)													
EC (mS/cm)													
CCE (%)													
ALE(1000 gal.)													
C:N													
Ni (ppm)													
Cd (ppm)													
Pb (ppm)													
Al (ppm)													
Se (ppm)													
Li (ppm)													
As (ppm)													
Cr (ppm)													
Co (ppm)													
Cl (ppm)													
Mo (ppm)													

Estimate of Nutrients Available for First Crop (lb / 1000 gal.)

Application Method	N	P2O5	K2O	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Cl	Na	Ni	Cd	Pb	Al	Se	Li
Soil Incorporated	0.39	0.06	0.96	61.1	1.03	0.18	0.12	T	T	T	0.01			2.07	T	T				0.01
Broadcast	0.27	0.05	0.85	48.9	0.83	0.15	0.09	T	T	T	0.01			2.07	T	T				0.01

Other Elements (lb / 1000 gal.)

Agonomist's Comments:
Brenda R. Cleveland 11/27/2013 4:16 PM



Reprogramming of the laboratory-information-management system that makes this report possible is being funded through a grant from the North Carolina Tobacco Trust Fund Commission.

Thank you for using agronomic services to manage nutrients and safeguard environmental quality.
- Steve Trotter, Commissioner of Agriculture.



ANALYTICAL & CONSULTING CHEMISTS

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(252) 473-5702

NCDENR: DWQ CERTIFICATE #94. DLS CERTIFICATE #37729

Craven Ag Services
2115 Hwy 55 W.
New Bern NC 28562
Attention: Bill Dunham

Date of Report: Feb 17, 2014
Customer PO #:
Report #: 2014-00918
Report to: Bill Dunham
Project ID: Dewatering Effluent

sampled 12-31-13

Lab ID	Sample ID:	Collect Date/Time	Matrix	Sampled by
14-02297	Site: DW 1	12/31/2013 10:00 AM	Water	Bill Dunham

Test	Method	Results	Date Analyzed
Copper	EPA 200.7	<0.010 mg/L	02/03/2014
Lead	EPA 200.7	<0.010 mg/L	02/03/2014
Nickel	EPA 200.7	<0.010 mg/L	02/03/2014
Potassium	EPA 200.7	68.5 mg/L	02/05/2014
Sodium	EPA 200.7	233 mg/L	02/05/2014
Zinc	EPA 200.7	0.015 mg/L	02/03/2014
Ammonia Nitrogen <small>Analyzed outside of holding time.</small>	EPA 350.1	52.9 mg/L	02/04/2014
Total Phosphorus <small>Analyzed outside of holding time.</small>	SM 4500 P F	0.08 mg/L	02/06/2014
Organic Nitrogen	Subtraction Method	68.1 mg/L	02/14/2014
Total Nitrogen (Calc)			
Total Kjeldahl Nitrogen (TKN) <small>Analyzed outside of holding time.</small>	EPA 351.2	121 mg/L	02/07/2014
Nitrate+Nitrite-Nitrogen <small>Analyzed outside of holding time.</small>	EPA 353.2	0.04 mg/L	02/04/2014
Total Nitrogen	Total Nitrogen	121 mg/L	02/14/2014



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ANALYTICAL & CONSULTING
CHEMISTS

NCDENR: DWQ CERTIFICATE #94. DLS CERTIFICATE #37729

Craven Ag Services
2115 Hwy 55 W.
New Bern NC 28562
Attention: Bill Dunham

Date of Report: Dec 04, 2014
Customer PO #:
Customer ID: 13080010
Report #: 2014-14033
Project ID: Dewatering Effluent

Lab ID	Sample ID:	Collect Date/Time	Matrix	Sampled by
14-34394	Site: dewater effluent	11/12/2014	Water	Bill Dunham

Test	Method	Results	Date Analyzed
Cadmium	EPA 200.7	<0.100 mg/L	11/18/2014
Copper	EPA 200.7	<0.100 mg/L	11/18/2014
Lead	EPA 200.7	<0.100 mg/L	11/18/2014
Nickel	EPA 200.7	0.287 mg/L	11/18/2014
Potassium	EPA 200.7	49.3 mg/L	11/19/2014
Sodium	EPA 200.7	238 mg/L	11/19/2014
Zinc	EPA 200.7	0.222 mg/L	11/18/2014
Ammonia Nitrogen	EPA 350.1	26.4 mg/L	11/14/2014
Total Phosphorus	SM 4500 P F	1.67 mg/L	11/17/2014
Organic Nitrogen	Subtraction Method	147 mg/L	12/04/2014
Total Nitrogen (Calc)			
Total Kjeldahl Nitrogen (TKN)	EPA 351.2	173 mg/L	11/17/2014
Nitrate+Nitrite-Nitrogen	EPA 353.2	0.14 mg/L	11/26/2014
Total Nitrogen	Total Nitrogen	173 mg/L	12/04/2014

Lab ID	Sample ID:	Collect Date/Time	Matrix	Sampled by
14-34402	Site: Compost	11/12/2014	Solid/Sludge	Bill Dunham

Test	Method	Results	Date Analyzed
Total Solids (%)	SM 2540 B -	50.6 %	11/13/2014
Fecal Density	SM 9221C E MPN 24 hr 503	31609 MPN/g	11/19/2014

Comment:

Reviewed by: Jim Peave



Environmental Chemists, Inc.

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710 Bowsertown Road • Manteo, NC 27954
(252) 473-5702

ANALYTICAL & CONSULTING
CHEMISTS

NC DENR: DWQ CERTIFICATE #94. DLS CERTIFICATE #37729

Craven Ag Services
2115 Hwy 55 W.
New Bern NC 28562
Attention: Bill Dunham

Date of Report: Mar 02, 2015
Customer PO #:
Customer ID: 13080010
Report #: 2015-01400
Project ID: Dewatering Effluent

Lab ID	Sample ID:	Collect Date/Time	Matrix	Sampled by
15-03107	Site: DW 1	2/3/2015 10:15 AM	Water	Bill Dunham

Test	Method	Results	Date Analyzed
Nitrate+Nitrite-Nitrogen	EPA 353.2	0.02 mg/L	02/04/2015

Lab ID	Sample ID:	Collect Date/Time	Matrix	Sampled by
15-03108	Site: DW 2	2/3/2015	Water	Bill Dunham

Test	Method	Results	Date Analyzed
Lead	EPA 200.7	<0.010 mg/L	02/10/2015
Nickel	EPA 200.7	0.033 mg/L	02/10/2015
Potassium	EPA 200.7	44.2 mg/L	02/10/2015
Sodium	EPA 200.7	218 mg/L	02/09/2015
Zinc	EPA 200.7	0.032 mg/L	02/10/2015

Dewatered Sludge

Lab ID	Sample ID:	Collect Date/Time	Matrix	Sampled by
15-03109	Site: DW3	2/3/2015 10:15 AM	Water	Bill Dunham

Test	Method	Results	Date Analyzed
Total Solids (%)	SM 2540 B	0.48 %	02/05/2015

Lab ID	Sample ID:	Collect Date/Time	Matrix	Sampled by
15-03110	Site: c-1	2/3/2015 10:15 AM	Solid/Sludge	Bill Dunham

Test	Method	Results	Date Analyzed
Total Solids (%)	SM 2540 B	44.1 %	02/05/2015
Fecal Density	SM 9221C E MPN 24 hr 503	53 MPN/g	02/04/2015

Compost

