L & L ENVIRONMENTAL SERVICES, LLC.

PO BOX 19491
CHARLOTTE, N.C. 28219-9491
O: 704-332-0911 - Fax: 704-848-4221
llenviro@att.net

10/5/2013

Division of Waste Management
Solid Waste Section
Mail Service Center # 1646
Raleigh, N.C. 27699-1646

Ref: Revised compost permit

Tony;

I have revised my application for a permit to operate our solid waste composting facility also a new engineering drawing is enclosed.

Thank You,

Ronnie Oaks

L & L ENVIRONMENTAL SERVICES LLC IS REQUESTING A PERMIT TO CONTINUE TO OPERATE OUR SOLID WASTE COMPOSTING FACILITY.

.1405 APPLICATION REQUIRMENTS FOR SOLID WASTE COMPOST FACILITIES.
WE ARE REQUESTIONG A LARGE TYPE 3 PERMIT FOR OUR FACILITY.

Aerial photograph enclosed showing all information requested.
A letter enclosed from Anson Co. zoning that compost site is approved.

.1404 (3) Rule 1404 Siting and Design

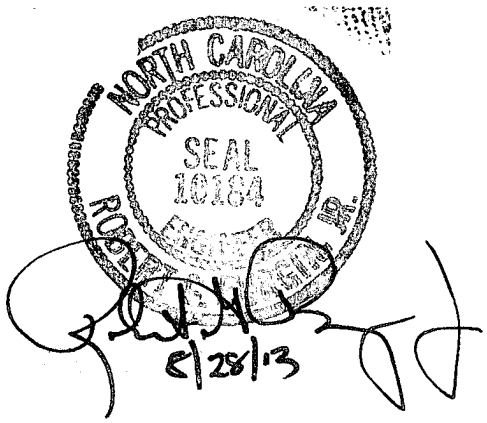
. Site is not located in a flood plain.
. Property line is over one fourth mile.
. All residences over one fourth mile including my own.
. No wells on property.
. Over one fourth mile to creek
. Compost site complies with water quality standard in North Carolina.
. There has not been a closed out disposal site on property.
. A 25 foot minimum distance will be maintained in compost area.
. The site meets surface water requirement.
. The site meets ground water requirements.
. Soil scientist report enclosed
. The facility is a type 3 not a type 4.
.The finished product is stored on an elevated area with good drainage where water will not collect around the base of compost.

B. There should not be a problem all minimum buffers are over one fourth mile.

C. Public access controlled by metal gates at entrance to site; locked and unlocked.
(2) Sedimentation pond on site.
(3) Compost will not be screened on windy days.
(4) Property line is over one fourth mile odor will not be a problem.

.1405 4 A: WASTE TYPES

. Pre and post consumer food waste
. Restaurant grease and domestic septage from de-watering box
. Agricultural waste
. Bakery waste
. Paper waste
. Domestic package plant waste from de-watering box
. Animal manure
. Poultry waste
. Fish waste
. Wood ash waste
. Garden waste
. Produce waste



SOURCES AND QUALITY OF COMPOSTED WASTE

. Restaurants
. Schools
. Residential homes
. Any business's with compostable types of waste mentioned above
. No hazardous waste will be accepted

QUANITY OF COMPOSTED WASTE

. Approx. 26 cubic yards of waste per day

SOURCE OF BULKING AGENTS

. Residential and municipal yard waste
. Wood chips
. Saw dust
. Old hay
. No treated wood products will be used only non-treated wood source

QUANITY OF BULKING AGENTS

. Approx. 52 cubic yards per day

RECYLING OF BULKING AGENTS EXPECTED

NO SEASONAL VARATION EXPECTED

AMMENDMENT SOURCES

. Sand
. Top soil

.1405 B: Soil scientist report enclosed.

5. ENGINEERING DRAWING ENCLOSED SHOWING

a. Contours
b. Dikes and trenches
c. Area photograph showing property lines.
d. Structures
c. Access roads.
f. Shown on engineering drawing.
g. No hazardous waste on site.
h. Located on drawing.
i. No flood plains or wetlands on site.
j. Refer to engineer drawing

6 A. Ronnie Oaks
2323 Diggs Road
Wadesboro, North Carolina 28170
O: 704-848-8801 M: 704-294-0230

B. To compost de-watering boxes, grease traps domestic only, package plants, food waste, paper products, agriculture waste.
C. One person is all that will be required to operate site. Manager, Clay Oaks.
D Monday – Friday, 8 am to 5 pm. A locked gate site.
E. Facility will not accept hazardous waste.
F. Site will not open in any bad weather conditions.
G. Noise, no problem one fourth mile from public access. If problem occurs with odor will cover Windrow with wood chips until problem is identified and corrected. Air borne particulates, will not operate on windy days.
Vectors: Feed stock arrives on site is processed as soon as possible that aerobic conditions are met with windrow temperature being met.
H. All finish compost will be used on farm also poor quality if it occurs. Future plans are to market compost at later date, also disposed of at landfill if needed.

7. A CAPACITY: Approx. 40,000 lb/17 cubic yards per day of organic material.

B.PROCESS FLOW DIAGRAM

Major equipment; consists of (1) one John Deere 4 wheel drive backhoe and (1) one Kubota 4 wheel Drive farm tractor of which all mixing, turning and moving of material will happen until other equipment is acquired.

Feed stock flow streams now arrive in 20 cubic yard de-watering boxes. Approx weight 8-10 tons-20,000 pounds, 10 cubic yards.

De-watering boxes are used on a necessary basis, then empted upon a 24 inch layer of wood chips, then more chips are added and mixed until desired consistency is acquired, compost is then placed in windrows upon site.

C. SIZE AND DECRIPTION

. Bulking agents are stored on site in a 240 ft x 100 ft. section and 80 ft. x 150 ft. section of non-active compost site.
. No storage of untreated solid waste on site

C. Finished compost is kept in an area of 144 ft. x 74 ft. on site.

D. MEASURING OF INPUT MATERIALS

. Feed stock is weighted in de-watering boxes before receipt.
. All wood chips are 2 inches or less and shredded before arrival to site.
. Proper mixing is performed by backhoe and or farm tractor.
. Proportioning predetermined at a 3 part wood, 1 part waste ratio at a moisture content of 45-65 %.
. Proportions are dependent upon moisture content of feed stock.

E. PROCESS DURATION

. Receiving: De-watering boxes are received on an as needed basis at compost facility and emptied upon a prepared layer of wood chips.
. Preparation: Feed stock is emptied on a 24 inch layer of wood chips then mixing is performed by tractor and chips are added to balance moisture and porosity.
. Composting: The windrow method will be used for active composting which takes approx. 90 – 120 days to achieve desired product results.

. Curing: Compost will cure for 30 days to form stabilized product.
. Distribution: The finished product will be stored until needed for farm use or sold as a soil amendment.

F. Non-compostable material is taken out by hand daily until screener is acquired and stored in bags until disposed of at landfill.

G. TEMPERATURE MONTORING POINTS

. Temperatures are taken daily at 25 ft. intervals of a depth of 18 inches and 36 inches on all compost rows. Daily except Saturday and Sunday and logged in paper work kept in office.
. Temperature's are taken with a compost thermometer with a 48 inch stem.

H. TEMPERATURE REQUIREMENTS

. During active composting a temperature of 131 degrees F (55 Celsius) or greater shall be maintained in the windrow for at least 15 days, turning windrow at least 5 times, this will meet requirements of Rule .1406 12 A.

I. AERATION METHOD

. Windrows shall be turned every 1 to 3 days for 15 days or until desired process is completed and aeration shall occur in windrows by the chimney effect regulated by proper bulk density.

J. AIR EMISSION AND CONTROL TECHNOLOGIES

. Do not create any air emission.

K. SURFACE WATER RUN-OFF CONTROL METHOD

. All surface water runoff is directed through earth burms or natural depression to grassy filter area.

L. RECYCLING

. Compost will be recycled for fertilizer to build up soil on farm.

8. LABELING

Information sheets shall be provided with the following:
Classification. Grade of compost.
Recommended uses.
Application rates.
Restrictions on usage.
Total end to any user of product at a later time when business grows.

9. Engineering drawing enclosed. 310 John Deere and Kubota farm tractor 4 wheel drive is all that is used as equipment.

C. IN THE EVENT OF

. Equipment break down: Facility utilizes 2 tractors to mix, turn and move compost if one breaks down the other will be used.
. Air pollution: No air pollution equipment is used at current time.
. Non conforming: Waste will be sent back to pickup point and customer notified.
. Spills: All spills will be cleaned by vacuum truck kept on site.
. Fires: If not able to be controlled by personnel.
. Particulates: No turning of windrows on extremely windy days.
. Noise: No noise problems due to location of site.
. Vectors: Check aerobic condition of windrows and review C:N Ratios.
. Odors: Aerobic conditions will be checked and/or a layer of wood chips placed upon problem windrows.
. Unusual traffic conditions: Site is controlled by main gate.

2. GENERAL DESIGN INFORMATION

Consist of mixing area, storage and amended area, leachate ponds, active compost area, concrete pit mixing, bulking agent and storage area.

COMPLIANCE OF OPERATIONAL REQUIREMENTS

. A copy of permit plans and operational reports will be kept on site at all times.
. Adequate erosion control measures will be met.
. Surface water will be diverted from operational compost curing and storage areas.
. Gates will be closed at all times unless operator is present.
. Operator will be present at all time facility is open to ensure compliance of operation procedures.
. Access road shall be maintained and in good condition.
. Site will only accept permitted wastes.
. No burning of solid waste.
. Fire extinguishers provided, local fire dept will be notified immediately when services needed.
. Safety , remedial and corrective action training shall be posted at front gate.
. Proper signage on pertinent information shall be posted on front gate.
. Traffic signs provided.
. No hazardous waste, asbestos, medical waste posted and accepted.
. Specified monitoring and reporting requirements shall be met.
. Compost produced shall be temperature controlled so pathogen reductions requirements are met.
. Compost shall meet all classification, distribution and quality standards per rule .1407 with final approval by solid waste section.
. Amount of compost shall not exceed storage capacity.

OPERATION INFORMATION AND INSTRUCTION

Feedstock is delivered to site and emptied upon 24 inch layer of woodchips, proper mixing and C:N Ratios are met by mixing by tractor then formed into windrows, temperature being at least 131 degrees or higher for 15 days being turned at least 5 times. After 90 days compost is removed into a curing/storage area for 30 days.

. All equipment is serviced and maintained daily and weekly.
. Chief operator, Clay Oaks, phone number O: 704-848-8801 or M: 704-252-9647.
. Personnel training by US Composting Council.
. Annual reports shall be submitted to solid waste division per rule .1408(c).

SAFETY INSTRUCTIONS

Fire, health and operations safety will be conducted frequently, any safety concerns or issues will be addressed by facility immediately.

3. INSPECTIONS

Inspections of incoming materials will be visually inspected with random examinations of entire contents.

. Visual monitoring daily of composting process using check list provided to employee.

MONITORING REQUIREMENTS

. Time and temperature for pathogen reduction
. Weights and volume of feedstock
. Contamination checks of feedstock
. Odors
. Moisture contents
. Maintenance procedures
. Sampling and analyzing shall be performed in accordance of rule .1408 solid waste compost rules
. Testing schedule is composite of sample of compost produced every 6 months or every 20,000 cubic yards whichever is first.
. Man made inert not to exceed 6 %
. All record keeping shall be kept according to solid waste rule .1408 (b)
. Soil erosion

4. EQUIPMENT SIZE

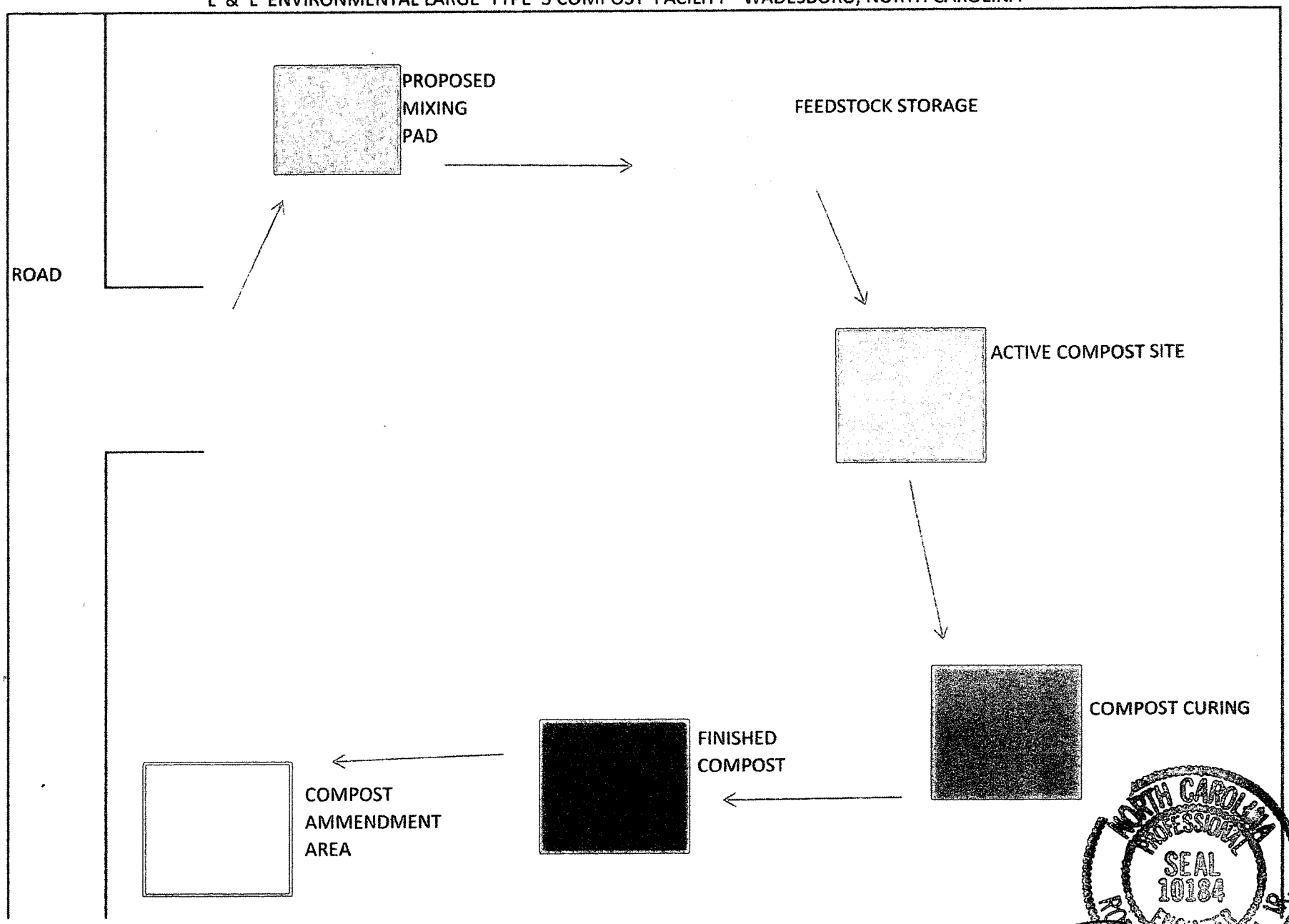
. 1 -310 E John Deere Backhoe
. 1 – 135 4 Wheel Drive Kubota Farm Tractor
. Detention time is active compost site 90 days
. Approx. storage capacity 7500 cubic yards
. Approx. flow rates 40,000 pounds per day
. Approx. 70 cubic yards per day

5. AS BUILT DRAWINGS

6. COPY OF ALL PERMITS AND APPROVALS

7. Product will be for farm use and as a soil amendment for agriculture and yard use all rules in solid waste sections .1407 and .1408 will be applied.

L & L ENVIRONMENTAL LARGE TYPE 3 COMPOST FACILITY - WADESBORO, NORTH CAROLINA



NORTH CAROLINA PROFESSIONAL SEAL 10184 ENGINEER ROBERT A. GOGGIN, JR.

8/29/13

Fac/Perm/Co ID #	Date	Doc ID#
0404	6/27/13	19184

L & L ENVIRONMENTAL SERVICES, LLC.
PO BOX 19491
CHARLOTTE, N.C. 28219-9491
O: 704-332-0911-Fax: 704-332-0955

6/24/13

NCDENR
Asheville Regional Office
Division of Solid Waste
2090 US 70 Highway
Swannanoa, N.C. 28778

Ref: Revised Operation Plan

Mr. Larry Frost;

L & L Environmental Services LLC, Has posted a sign including the name of the operation, contact information and permit number.

Sincerely

Clay Oaks

Clay Oaks

RECEIVED

JUN 26 2013

SOLID WASTE SECTION
ASHEVILLE REGIONAL OFFICE

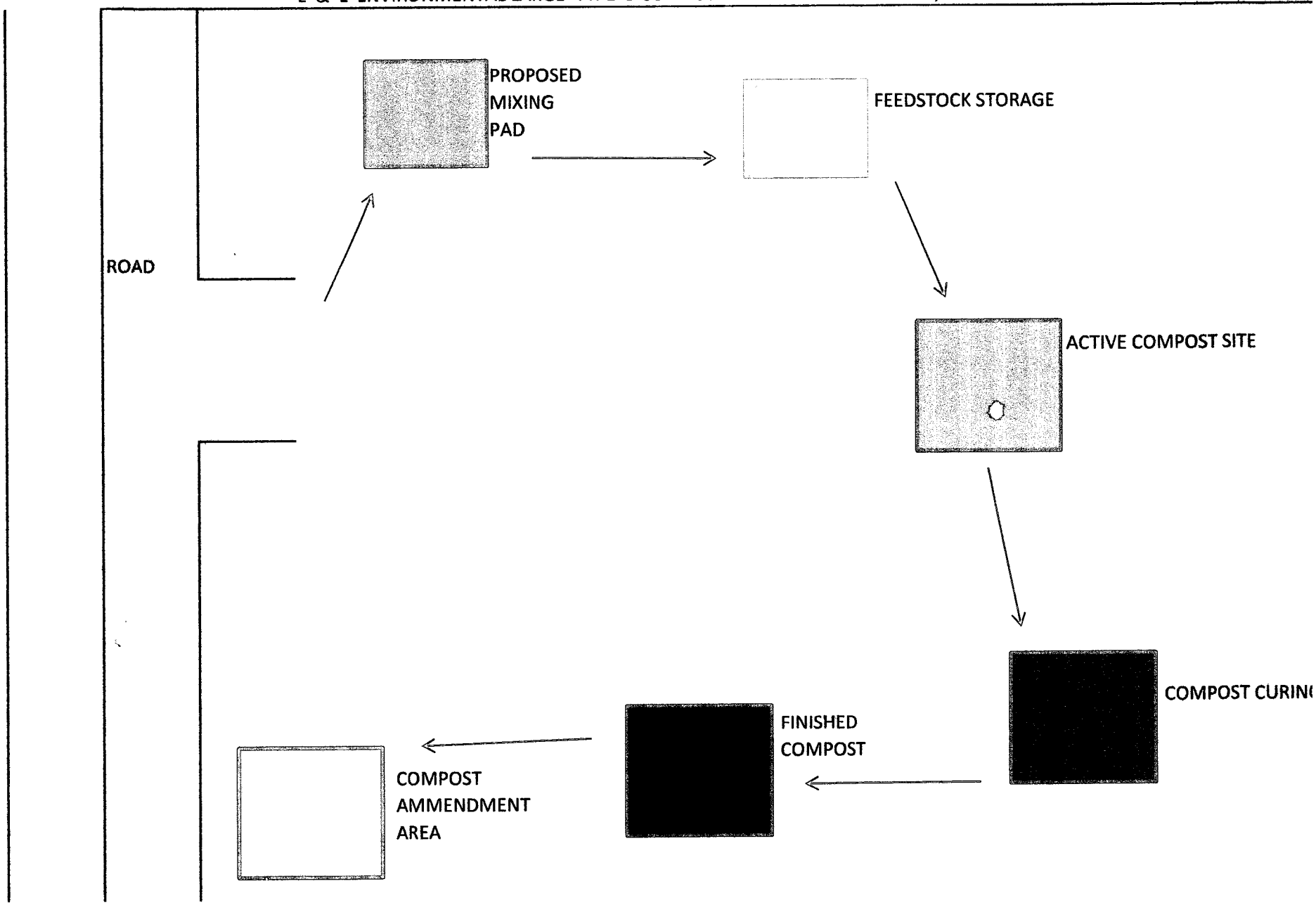
REVISED

OPERATION

PLAN

Process Flow Diagram

L & L ENVIRONMENTAL LARGE TYPE 3 COMPOST FACILITY - WADESBORO, NORTH CAROLINA



NCDA&CS Agronomic Division Phone: (919) 733-2655 Website: www.ncagr.gov/agronomi/ Report No. FY14-W001743

Diagnostic

Waste Report

Sampled: 08/25/2013 Received: 09/12/2013 Completed: 09/17/2013

Client: Jeff Gorelick
10810 Withers Cove Park Rd
Charlotte, NC 28278

Advisor: Roger Grisswakd
4242 Town & Country Dr
Charlotte, NC 28226

County: Mecklenburg

Farm:

Links to Helpful Information

Sample Information

Sample ID: BIN2
Waste Code: FCV
Description: Composted Veg. Residue
Comments:

Nutrient and Other Measurements

Nitrogen (N) (ppm)	
Total N	20400
Total Kjeldahl N	
Inorganic N	136
NH_4-N	30.4
NO_3-N	106
Organic N	20300
Urea	

P (ppm)	K (ppm)	Ca (ppm)	Mg (ppm)	S (ppm)	Fe (ppm)	Mn (ppm)	Zn (ppm)	Cu (ppm)	B (ppm)	Na (ppm)	C (ppm)
2600	11000	20100	4200	2190	5650	887	140	43.3	30.4	1060	304000

pH	DM (%)	SS (10^{-5}S/cm)	EC (mS/cm)	CCE (%)	ALE (tons)	C:N
6.63	35.3	851	8.51			14.9 : 1

Ni (ppm)	Cd (ppm)	Pb (ppm)	Al (ppm)	Se (ppm)	Li (ppm)	As (ppm)	Cr (ppm)	Co (ppm)	Cl (ppm)	Mo (ppm)
5.98	0.83	11.6								

Application Method

Estimate of Nutrients Available for First Crop (lb / ton)

N	P_2O_5	K_2O	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo

Other Elements (lb / ton)

Cl	Na	Ni	Cd	Pb	Al	Se	Li

Agronomist's Comments:

Aaron Pettit 9/17/2013 2:01 PM

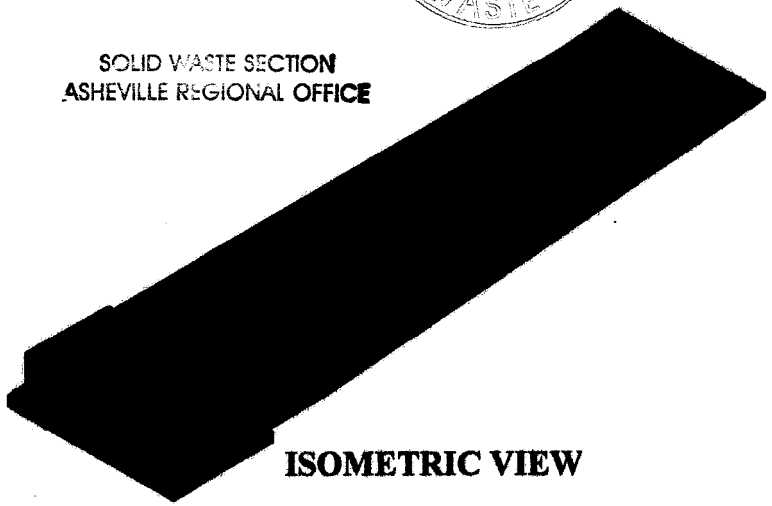
North Carolina Tobacco Trust Fund Commission

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 Troxler, Commissioner of Agriculture.

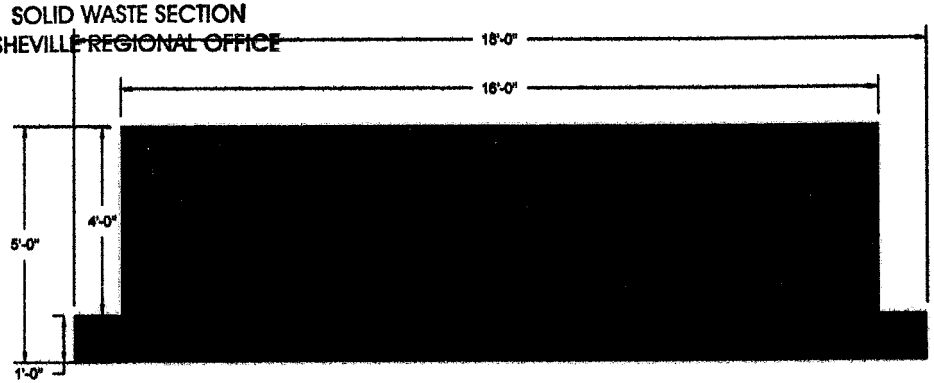
Fac/Perm/Co ID #	Date	Doc ID#
0405	7/25/13	19395

SOLID WASTE SECTION
ASHEVILLE REGIONAL OFFICE

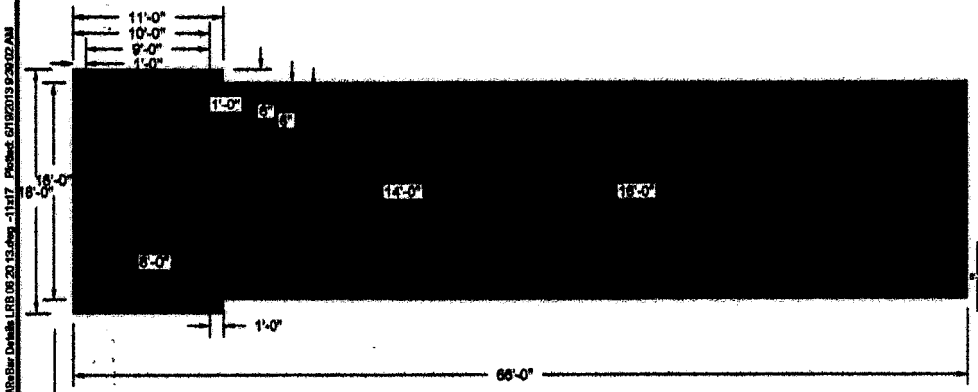


ISOMETRIC VIEW

SOLID WASTE SECTION
ASHEVILLE REGIONAL OFFICE

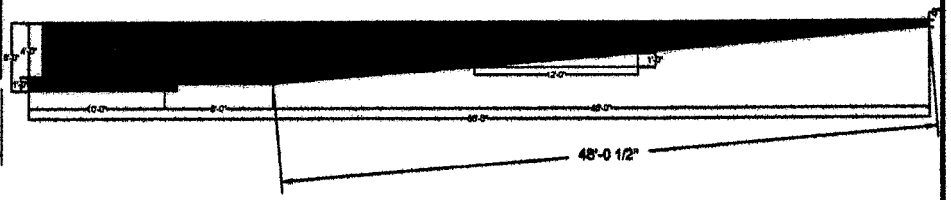


(A) END VIEW



TOP VIEW

NOTE: ALL CONCRETE TO BE AIR ENTRAINED 4,000 PSI AT 28 DAYS



(B) SIDE VIEW

(A) SECTION CALLOUT

(B) SECTION CALLOUT

Burgin Engineering Inc.
PO Box 1504 Irmo, SC 29063
(803) 781-2965

Prepared For:
Oaks Properties, LLC.
3304 Robinson Circle
Charlotte, NC 28206

Project:
Oaks Properties Composing Project
Solidification Pit

Sheet Title:
SOLIDIFICATION PIT OVERALL LAYOUT

Sheet No:
S1
1 of 4
Ansi B Size Sheet

Drawn By:	LRB
Checked By:	RGB
Approved By:	RGB
Date:	20 JUN 2013
Scale:	N.T.S.
Project No :	66-003

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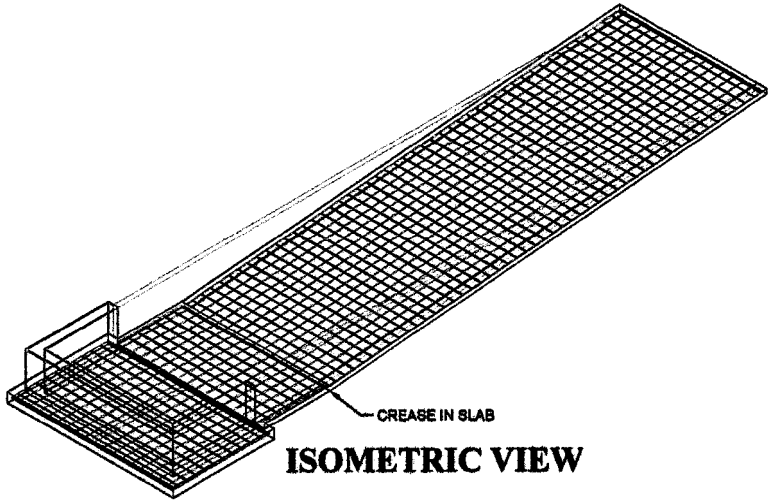
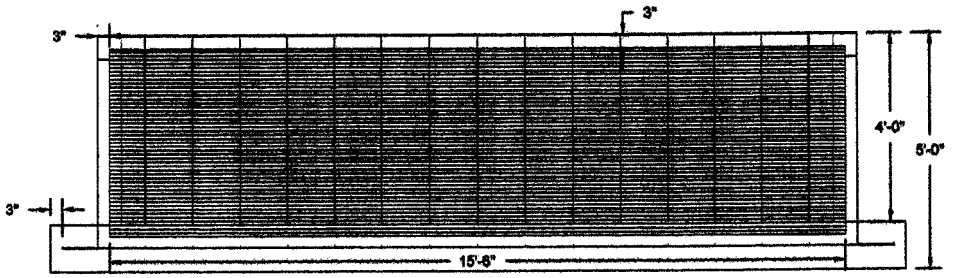


ISOMETRIC VIEW



(A) END VIEW

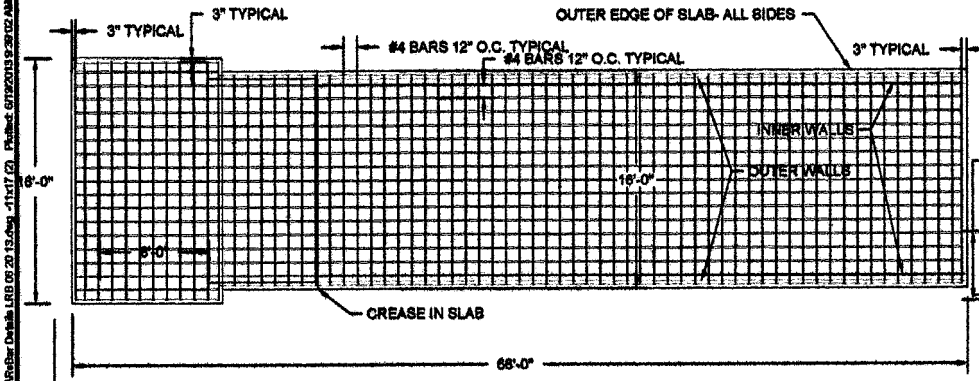
NOTE:

1- TWO MATS LAID 12" ON CENTER BOTH WAYS

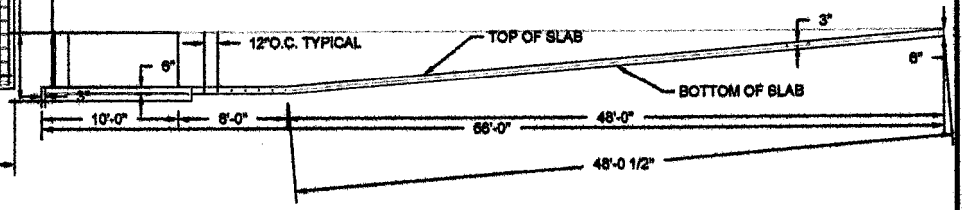
2-LENGTHS ARE APPROXIMATE AND WILL VARY WITH FIELD CONDITIONS

3- ALL REBAR TO BE #4 BARS

4- REBAR TO HAVE MINIMUM 3 INCHES OF CLEARANCE FROM ALL CONCRETE EDGES



TOP VIEW



(B) SIDE VIEW

(A) SECTION CALLOUT

(B) SECTION CALLOUT

Burgin Engineering Inc. PO Box 1804 Irmo, SC 29063 (803) 781-2948	Prepared For: **Oaks Properties, LLC.** **3304 Robinson Circle** **Charlotte, NC 28206**	Project: **Oaks Properties Composing Project Solidification Pit**	Sheet Title: **REBAR MAT MAIN SLAB**	Sheet No: **S2** 2 of 4 Ansi B Size Sheet	Drawn By: LRB Checked By: RGB Approved By: RGB Date: 20 JUN 2013 Scale: N.T.S. Project No : 68-003

NOTE:
1- LENGTHS ARE APPROXIMATE AND WILL VARY WITH FIELD CONDITIONS
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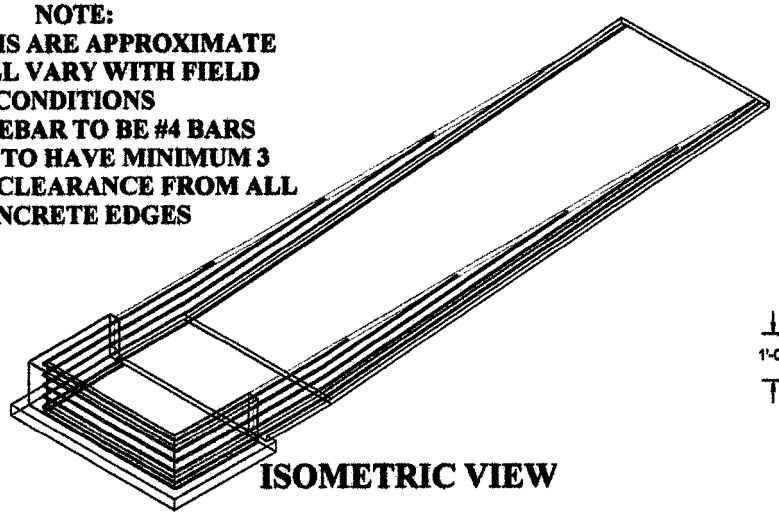
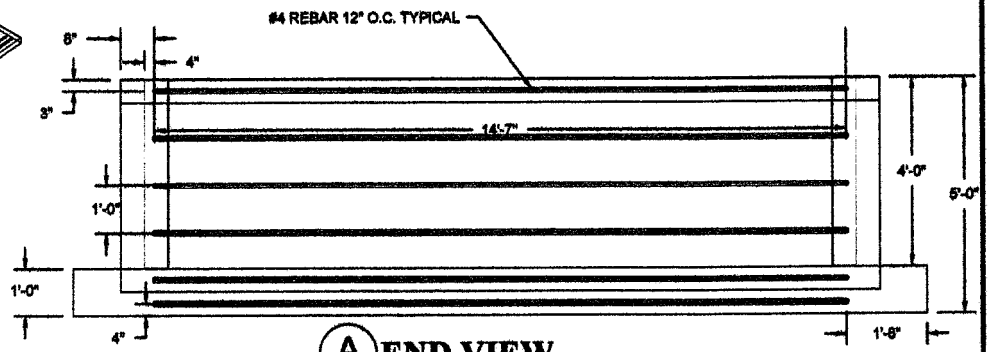
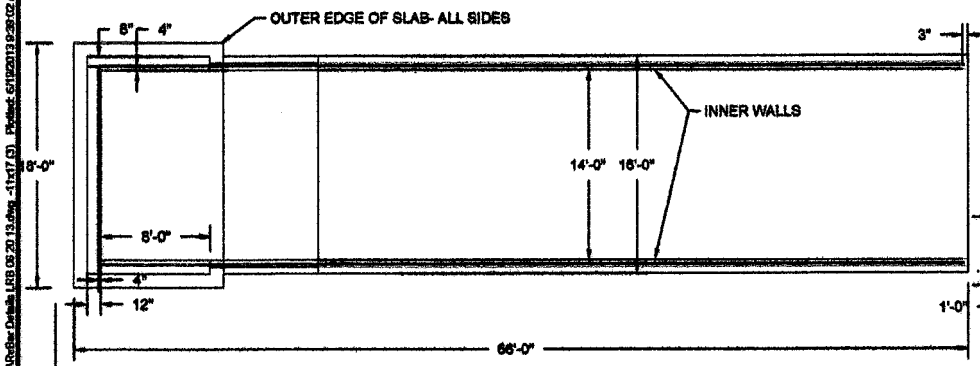


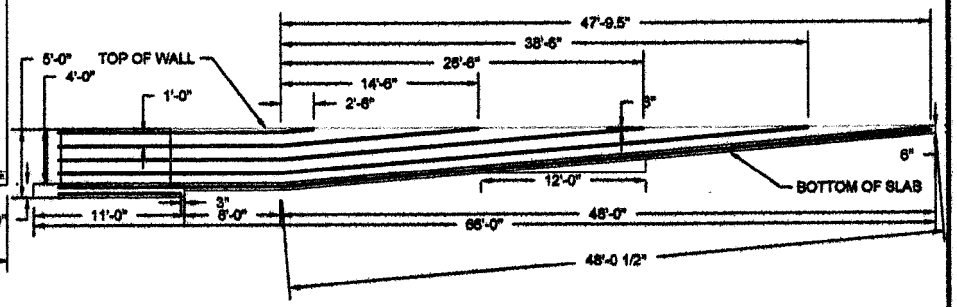
ISOMETRIC VIEW



A END VIEW



TOP VIEW



B SIDE VIEW

A — SECTION CALLOUT

B — SECTION CALLOUT

Burgin Engineering Inc. PO Box 1984 Irmo, SC 29063 (803) 781-2965	Prepared For: **Oaks Properties, LLC.** **3304 Robinson Circle** **Charlotte, NC 28206**	Project: **Oaks Properties** **Composing Project** **Solidification Pit**	Sheet Title: **REBAR DETAILS-WALLS HORIZONTAL**	Sheet No: **S3** 3 of 4 Ansi B Size Sheet	Drawn By: LRB Checked By: RGB Approved By: RGB Date: 20 JUN 2013 Scale: N.T.S. Project No: 66-003

NOTE:
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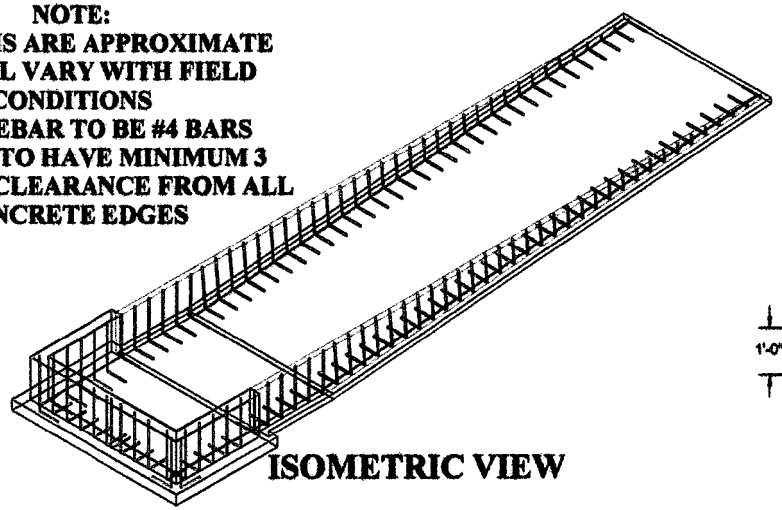
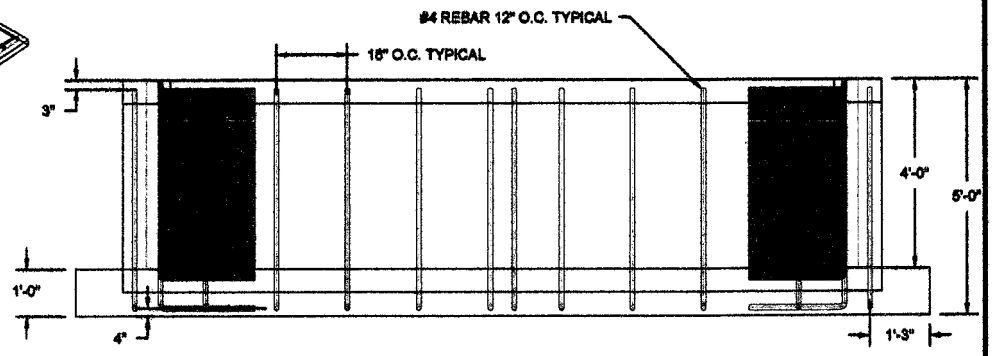
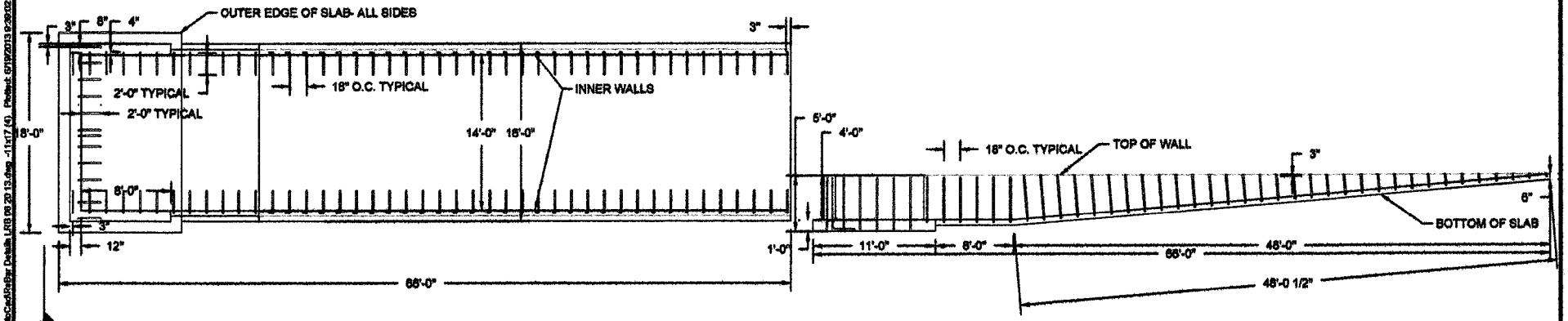


ISOMETRIC VIEW



(A) END VIEW



TOP VIEW

(B) SIDE VIEW

(A) SECTION CALLOUT

(B) SECTION CALLOUT

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Burgin Engineering Inc. PO Box 1664 Irmo, SC 29063 (803) 781-2966	Prepared For: **Oaks Properties, LLC.** **3304 Robinson Circle** **Charlotte, NC 28206**	Project: **Oaks Properties** **Composing Project** **Solidification Pit**	Sheet Title: **REBAR DETAILS-WALLS VERTICAL**	Sheet No: *S4* 4 of 4 Ansi B Size Sheet	Drawn By: LRB Checked By: RGB Approved By: RGB Date: 20 JUN 2013 Scale: N.T.S. Project No: 6-003

Fac/Perm/Co ID #	Date	Doc ID#
0404	5 130 113	19044

L & L ENVIRONMENTAL SERVICES LLC IS REQUESTING A PERMIT TO CONTINUE TO OPERATE OUR SOLID WASTE COMPOSTING FACILITY.

.1405 APPLICATION REQUIRMENTS FOR SOLID WASTE COMPOST FACILITIES.
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1402 LARGE TYPE III

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. Animal manure
. Poultry waste
. Fish waste
. Wood ash waste
. Garden waste
. Produce waste

SOURCES AND QUALITY OF COMPOSTED WASTE

. Restaurants
. Schools
. Residential homes
. Any business's with compostable types of waste mentioned above
. No hazardous waste will be accepted

QUANITY OF COMPOSTED WASTE

. Approx. 26 cubic yards of waste per day

SOURCE OF BULKING AGENTS

. Residential and municipal yard waste
. Wood chips
. Saw dust
. Old hay
. No treated wood products will be used only non-treated wood source

QUANITY OF BULKING AGENTS

. Approx. 52 cubic yards per day

RECYLING OF BULKING AGENTS EXPECTED

NO SEASONAL VARATION EXPECTED

AMMENDMENT SOURCES

. Sand
. Top soil

.1405 B: Soil scientist report enclosed.

5. ENGINEERING DRAWING ENCLOSED SHOWING

a. Contours
b. Dikes and trenches
c. Area photograph showing property lines.
d. Structures
c. Access roads.
f. Shown on engineering drawing.
g. No hazardous waste on site.
h. Located on drawing.
i. No flood plains or wetlands on site.
j. 30 year rain fall bench mark will be met on volume of leach ate pond

6 A. Clay Oaks PERSON RESPONSIBLE
2323 Diggs Road
Wadesboro, North Carolina 28170
O: 704-848-8801 M: 704-252-9647

B. To compost de-watering boxes, grease traps domestic only, package plants, food waste, paper products, agriculture waste.
C. One person is all that will be required to operate site. Manager, Clay Oaks.
D Monday – Friday, 8 am to 5 pm. A locked gate site.
E. Facility will not accept hazardous waste.
F. Site will not open in any bad weather conditions.
G. Noise, no problem one fourth mile from public access. If problem occurs with odor will cover Windrow with wood chips until problem is identified and corrected. Air borne particulates, will not operate on windy days.
Vectors: Feed stock arrives on site is processed as soon as possible that aerobic conditions are met with windrow temperature being met.
H. All finish compost will be used on farm also poor quality if it occurs. Future plans are to market compost at later date, also disposed of at landfill if needed.

7. A CAPACITY: Approx. 40,000 lb/17 cubic yards per day of organic material.

B.PROCESS FLOW DIAGRAM

Major equipment; consists of (1) one John Deere 4 wheel drive backhoe and (1) one Kubota 4 wheel Drive farm tractor of which all mixing, turning and moving of material will happen until other equipment is acquired.
Feed stock flow streams now arrive in 20 cubic yard de-watering boxes. Approx weight 8-10 tons-20,000 pounds, 10 cubic yards.
De-watering boxes are used on a necessary basis, then empted upon a 24 inch layer of wood chips, then more chips are added and mixed until desired consistency is acquired, compost is then placed in windrows upon site.

C. SIZE AND DECRIPTION

. Bulking agents are stored on site in a 240 ft x 100 ft. section and 80 ft. x 150 ft. section of non-active compost site.
. No storage of untreated solid waste on site

C. Finished compost is kept in an area of 144 ft. x 74 ft. on site.

D. MEASURING OF INPUT MATERIALS

. Feed stock is weighted in de-watering boxes before receipt.
. All wood chips are 2 inches or less and shredded before arrival to site.
. Proper mixing is performed by backhoe and or farm tractor.
. Proportioning predetermined at a 3 part wood, 1 part waste ratio at a moisture content of 45-65 %.
. Proportions are dependent upon moisture content of feed stock.

E. PROCESS DURATION

. Receiving: De-watering boxes are received on an as needed basis at compost facility and emptied upon a prepared layer of wood chips.
. Preparation: Feed stock is emptied on a 24 inch layer of wood chips then mixing is performed by tractor and chips are added to balance moisture and porosity.
. Composting: The windrow method will be used for active composting which takes approx. 90 – 120 days to achieve desired product results.

. Curing: Compost will cure for 30 days to form stabilized product.
. Distribution: The finished product will be stored until needed for farm use or sold as a soil amendment.

F. Non-compostable material is taken out by hand daily until screener is acquired and stored in bags until disposed of at landfill.

G. TEMPERATURE MONTORING POINTS

. Temperatures are taken daily at 25 ft. intervals of a depth of 18 inches and 36 inches on all compost rows. Daily except Saturday and Sunday and logged in paper work kept in office.
. Temperature's are taken with a compost thermometer with a 48 inch stem.

H. TEMPERATURE REQUIREMENTS

. During active composting a temperature of 131 degrees F (55 Celsius) or greater shall be maintained in the windrow for at least 15 days, turning windrow at least 5 times, this will meet requirements of Rule .1406 12 A.

I. AERATION METHOD

. Windrows shall be turned every 1 to 3 days for 15 days or until desired process is completed and aeration shall occur in windrows by the chimney effect regulated by proper bulk density.

J. AIR EMISSION AND CONTROL TECHNOLOGIES

. Do not create any air emission.

K. SURFACE WATER RUN-OFF CONTROL METHOD

. Control: All surface water run-off is collected then a series of earth burms and ditches are directed to a leachate storm water pond.
. Collect: Leachate is collected in a leachate pond and recycled (reused) in windrows to achieve proper moisture control.

L. RECYCLING

. Leachate: Run-off collected in storm water and is reused in moisture control in maintaining windrows.

8. LABELING

Information sheets shall be provided with the following:
Classification. Grade of compost.
Recommended uses.
Application rates.
Restrictions on usage.
Total end to any user of product at a later time when business grows.

9. Engineering drawing enclosed. 310 John Deere and Kubota farm tractor 4 wheel drive is all that is used as equipment.

C. IN THE EVENT OF

. Equipment break down: Facility utilizes 2 tractors to mix, turn and move compost if one breaks down the other will be used.
. Air pollution: No air pollution equipment is used at current time.
. Non conforming: Waste will be sent back to pickup point and customer notified.
. Spills: All spills will be cleaned by vacuum truck kept on site.
. Fires: If not able to be controlled by personnel.
. Particulates: No turning of windrows on extremely windy days.
. Noise: No noise problems due to location of site.
. Vectors: Check aerobic condition of windrows and review C:N Ratios.
. Odors: Aerobic conditions will be checked and/or a layer of wood chips placed upon problem windrows.
. Unusual traffic conditions: Site is controlled by main gate.

2. GENERAL DESIGN INFORMATION

Consist of mixing area, storage and amended area, leachate ponds, active compost area, concrete pit mixing, bulking agent and storage area.

COMPLIANCE OF OPERATIONAL REQUIREMENTS

. A copy of permit plans and operational reports will be kept on site at all times.
. Adequate erosion control measures will be met.
. Surface water will be diverted from operational compost curing and storage areas.
. Leachate shall be contained on site.
. Gates will be closed at all times unless operator is present.
. Operator will be present at all time facility is open to ensure compliance of operation procedures.
. Access road shall be maintained and in good condition.
. Site will only accept permitted wastes.
. No burning of solid waste.
. Fire extinguishers provided, local fire dept will be notified immediately when services needed.
. Safety , remedial and corrective action training shall be posted at front gate.
. Proper signage on pertinent information shall be posted on front gate.
. Traffic signs provided.
. No hazardous waste, asbestos, medical waste posted and accepted.
. Specified monitoring and reporting requirements shall be met.
. Compost produced shall be temperature controlled so pathogen reductions requirements are met.
. Compost shall meet all classification, distribution and quality standards per rule .1407 with final approval by solid waste section.
. Amount of compost shall not exceed storage capacity.

OPERATION INFORMATION AND INSTRUCTION

Feedstock is delivered to site and emptied upon 24 inch layer of woodchips, proper mixing and C:N Ratios are met by mixing by tractor then formed into windrows, temperature being at least 131 degrees or higher for 15 days being turned at least 5 times. After 90 days compost is removed into a curing/storage area for 30 days.

. All equipment is serviced and maintained daily and weekly.
. Chief operator, Clay Oaks, phone number O: 704-848-8801 or M: 704-252-9647.
. Personnel training by US Composting Council.
. Annual reports shall be submitted to solid waste division per rule .1408(c).

SAFETY INSTRUCTIONS

Fire, health and operations safety will be conducted frequently, any safety concerns or issues will be addressed by facility immediately.

3. INSPECTIONS

Inspections of incoming materials will be visually inspected with random examinations of entire contents.

. Visual monitoring daily of composting process using check list provided to employee.

MONITORING REQUIREMENTS

. Time and temperature for pathogen reduction
. Weights and volume of feedstock
. Contamination checks of feedstock
. Leachate and soil erosion
. Odors
. Moisture contents
. Maintenance procedures
. Sampling and analyzing shall be performed in accordance of rule .1408 solid waste compost rules
. Testing schedule is composite of sample of compost produced every 6 months or every 20,000 cubic yards whichever is first.
. Man made inert not to exceed 6 %
. All record keeping shall be kept according to solid waste rule .1408 (b)

4. EQUIPMENT SIZE

. 1 -310 E John Deere Backhoe
. 1 – 135 4 Wheel Drive Kubota Farm Tractor
. Detention time is active compost site 90 days
. Approx. storage capacity 7500 cubic yards
. Approx. flow rates 40,000 pounds per day
. Approx. 70 cubic yards per day

5. AS BUILT DRAWINGS

6. COPY OF ALL PERMITS AND APPROVALS

7. Product will be for farm use and as a soil amendment for agriculture and yard use all rules in solid waste sections .1407 and .1408 will be applied.

L & L ENVIRONMENTAL SERVICES, LLC.
2323 DIGGS ROAD
WADESBORO, N.C. 28170
704-848-8801

2/22/13

Division of Waste Management
Attn: Solid Waste Section
Mail Service Center # 1646
Raleigh, N.C. 27699-1646

ref: Compost permit large type 3 impermeable pad

Mr. Tony Gallagher;

Tony per our conversation Monday Feb 18, 2013, we discussed my new compost permit that Clay applied for; because of package plant sludge that we compost we might be required to install an impermeable pad.
The package plants we compost are domestic waste only and are only about 25 % of our waste we compost. You and I both know that domestic package plant waste is no different than septic tanks except package plant waste is treated that makes it cleaner and a better waste. Just because package plants fall under water, quality section the waste is domestic waste only and should fall under solid waste section in septic tank division.

I discussed this same issue with Mike when I applied for my temporary permit.
The company we worked for has sold five of their plants to the City of Charlotte, this is the reason it dropped to 25 %. Our company cannot afford financially to install an impermeable pad at this time maybe at a later date.
If this occurs, we will be forced to cut back to a type 2 permit or quit receiving any package plant waste at my business.

Gentlemen I did not know there was a permit charge for a compost permit. check enclosed.

Sincerely,

Ronnie Oaks

Ronnie Oaks

cc: Mr. Mike Scott

L & L ENVIRONMENTAL SERVICES, LLC.
PO BOX 19491
CHARLOTTE, N.C. 28219-9491
O: 704-332-0911-Fax: 704-332-0955

1/31/13

To Whom It May Concern;

Engineering Drawing

Mr. Robert Burgin, of Burgin Engineering Inc., Po Box 1804, Irmo, S.C., 29063. Phone 803-781-2965,

Informed me that he would be about 10 days late getting the drawing to me and apologizes for the delay.

I will send it to you as soon as I receive it.

I requested that he shows a mixing pit for our facility approx. 10,000 gallons in size, 12 ft x 50 ft x 3 ft deep.

We presently do not have one on site.

We presently have permits in place at same location:
SDTF 04-08
SLAS 04-08
Compost Demonstration: SWCD 04-01

Thank You,

Ronnie Oaks

Ronnie Oaks

ZONING

Anson County Planning Department
107 B Ashe Street
Wadesboro, NC 28170
704-694-2496
Fax 704-694-5864

To whom it may concern:

We are in the process of applying zoning to the county. Presently the property in question (ID# 740200426850, and 740200823982) is not zoned. The proposed use is compatible with the existing use. There are at present no zoning approvals or permitting required as the use is considered existing.

Sincerely,

Johanna Lodder
Planner

L & L ENVIRONMENTAL SERVICES, LLC.
PO BOX 19491
CHARLOTTE, N.C. 28219-9491
O: 704-332-0911-Fax: 704-332-0955

1/31/13

MAN MADE INERT TEST

OUR TEST FOR MAN MADE INERT IS LESS THAN 1 %.

CHAIN OF CUSTODY

PAR Laboratories, Inc
Phone (704) 588-8333
Fax (704) 588-8335

www.parlabs.com

Shipping:
2217 Graham Park Drive
Charlotte, NC 28273

Mailing:
PO Box 411483
Charlotte, NC 28241-1483

It is essential that all information recorded on this Chain of Custody document for acceptance by **PAR** Laboratories, Inc. and the North Carolina Department of Environmental and Natural Resources.

Company Name (billing): **L & L ENVIRONMENTAL SERVICES LLC**

Address: **2323 DIGGS ROAD**

City, State & Zip Code: WADESBORO, N.C. 28170

Point of Contact & Telephone Number: **RONNIE OAKS / 704-848-8801**

COMMENTS/SPECIAL INSTRUCTIONS

Bill:
L & L ENVIRONMENTAL SERVICE
2323 DIGGS ROAD
WADESBORO, NC 28170

Sample taken by: RONNIE OAKS

IS THIS FOR STATE or EPA REPORTING? YES _____ NO ___
***Sample type: DW ____ WW _____ GWMW ____ HW ____ Soil __X__ Other _____**
Sample Temp at time of sampling: _____ °C Sample Temp upon receipt: _____ °C
**** Preserved: Yes _____ No __X__ Teflon Liner/ Zero Headspace: Yes ___ No ___ N/A ___**

Client Sample I.D. (Sample Location / Number)	Comp	Grab	Preserv.	Set Up Date/Time	Collection Date/Time	Analyses Requested
LIQUID WASTE COMPOST 7 BAGS	X				7/10/12 8AM	COLIFORM TEST

Relinquished by: [signature] Date/Time 7/10/12 7-10-12 Received by: [signature] Date/Time 7-10-12/1425

Relinquished by: Date/Time Received by: Date/Time

* C=Composite G=Grab DW=Drinking Water WW=Wastewater GWMW=Groundwater Monitoring Well HW=Hazardous Waste ** See Other Side

www.parlabs.com

PAR Laboratories, Inc.
P.O. Box 411483
Charlotte, NC 28241-1483
Phone: (704) 588-8333 Fax: (704) 588-8335
NC CERT #20; SC CERT #99003

REPORT OF ANALYSES

Attn: RONNIE OAKS
L&L ENVIRONMENTAL SERVICES LLC
2323 DIGGS ROAD
WADESBORO, NC 28170-

PROJECT NAME: JUL 12
DATE: 07/20/12

SAMPLE NUMBER- 105632 SAMPLE ID- LIQUID WASTE COMPOST SAMPLE MATRIX- SO
DATE SAMPLED- 07/10/12 TIME SAMPLED- 0800
DATE RECEIVED- 07/10/12 SAMPLER- RO RECEIVED BY- DJ
TIME RECEIVED- 1425 DELIVERED BY- CO TYPE SAMPLE- Grab

ANALYSIS	METHOD	ANALYSIS DATE	TIME	BY	RESULT	UNITS
FECAL COLIFORM (GEOM. MEAN)	SM 9221 E	07/10/12	1530	RE	< 50	MPN/g

LABORATORY DIRECTOR

CLIENT NAME:	L&L ENVIRONMENTAL
SAMPLE ID:	LIQUID WASTE COMPOST
SAMPLE DATE:	07/10/12

Lab ID #	Sample #	TARE	SAMPLE WT	FINAL	% SOLIDS
105632	1	*1.2078*	*10.4163*	*7.5071*	68.41%
	2	*1.1604*	*12.3591*	*6.8589*	50.89%
	3	*1.1705*	*11.0729*	*8.0586*	69.56%
	4	*1.2058*	*10.5396*	*8.4994*	78.14%
	5	*1.1631*	*11.1007*	*7.3192*	61.95%
	6	*1.2062*	*10.3012*	*8.0259*	74.98%
	7	*1.2035*	*11.5736*	*7.5569*	61.27%

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LABORATORIES, INC

2217 Graham Park Drive
PO Box 411483
Charlotte, NC 28241-1483
NC Cert # 20; SC Cert # 99003001

CLIENT NAME:	L&L ENVIRONMENTAL
SAMPLE ID:	LIQUID WASTE COMPOST
SAMPLE DATE:	07/10/12
ANALYSIS:	FECAL COLIFORM, GEOMETRIC MEAN
ANALYSIS METHOD:	SM 9221 E

LAB ID #:	Sample #	F. Coliform	T. Solids %	FC/ gram
105632	1	< 18	68.41%	< 26.36
	2	< 21	50.89%	< 40.32
	3	< 35	69.56%	< 50.78
	4	< 33	78.14%	< 41.67
	5	< 49	61.95%	< 78.76
	6	< 85	74.98%	< 113.00
	7	< 23	61.27%	< 37.98

Fecal Coliform Geometric Mean=	LESS THAN 50

COMPOST
SECOND SAMPLE

PAR Laboratories, Inc.
P.O. Box 411483
Charlotte, NC 28241-1483
Phone: (704) 588-8333 Fax: (704) 588-8335
NC CERT #20; SC CERT #99003

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REPORT OF ANALYSES

Attn: RONNIE OAKS
L&L ENVIRONMENTAL SERVICES LLC
2323 DIGGS ROAD
WADESBORO, NC 28170-

PROJECT NAME: JUL 12
DATE: 08/16/12

SAMPLE NUMBER- 105911 SAMPLE ID- LIQUID WASTE COMPOST SAMPLE MATRIX- SO
DATE SAMPLED- 07/27/12 TIME SAMPLED- 1230
DATE RECEIVED- 07/30/12 SAMPLER- RO RECEIVED BY- DJ
TIME RECEIVED- 0940 DELIVERED BY- DO TYPE SAMPLE- Grab

ANALYSIS	METHOD	ANALYSIS DATE	TIME	BY	RESULT	UNITS
FECAL COLIFORM (GEOM. MEAN)	SM 9221 E	07/30/12	1150	RE	47	MPN/g

LABORATORY DIRECTOR

PROMPT·ACCURATE·RELIABLE
LABORATORIES, INC

2217 Graham Park Drive
PO Box 411483
Charlotte, NC 28241-1483
NC Cert # 20; SC Cert # 99003001

CLIENT NAME:	L & L ENVIRONMENTAL
SAMPLE ID:	LIQUID WASTE COMPOST
SAMPLE DATE:	07/27/12
ANALYSIS:	FECAL COLIFORM, GEOMETRIC MEAN
ANALYSIS METHOD:	SM 9221 E

LAB ID #:	Sample #	F. Coliform	T. Solids %	FC/ gram
105911	1	< 31	61.54%	< 49.82
	2	< 26	61.61%	< 42.40
	3	26	55.38%	46.51
	4	< 14	60.46%	< 23.72
	5	< 42	64.18%	< 65.69
	6	47	61.39%	75.89
	7	32	72.17%	43.67

Fecal Coliform Geometric Mean=	47

CHAIN OF CUSTODY

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Charlotte, NC 28273

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Company Name (billing): **L & L ENVIRONMENTAL SERVICES LLC**

Address: **2323 DIGGS ROAD**

City, State & Zip Code: WADESBORO, N.C. 28170

Point of Contact & Telephone Number: **RONNIE OAKS / 704-848-8801**

COMMENTS/SPECIAL INSTRUCTIONS

Bill:
L & L ENVIRONMENTAL SERVICE
2323 DIGGS ROAD
WADESBORO, NC 28170

Sample taken by: RONNIE OAKS

IS THIS FOR STATE or EPA REPORTING? YES _____ NO ___X__
***Sample type: DW ____ WW _____ GWMW ____ HW ____ Soil ____ Other _____**
Sample Temp at time of sampling: _____ °C Sample Temp upon receipt: _____ °C
**** Preserved: Yes __X___ No ____ Teflon Liner/ Zero Headspace: Yes ___ No ___ N/A ___**

Client Sample I.D. (Sample Location / Number)	Comp	Grab	Preserv.	Set Up Date/Time	Collection Date/Time	Analyses Requested
LIQUID WASTE COMPOST 7 BAGS	X				7//27/12 12:30 PM	FECAL COLIFORM TEST

Relinquished by: X Dayle Oakes — Date/Time 7/27/12 — Received by: [signature] — Date/Time 7-30-12/0940

Relinquished by: — Date/Time — Received by: — Date/Time

* C=Composite G=Grab DW=Drinking Water WW=Wastewater GWMW=Groundwater Monitoring Well HW=Hazardous Waste ** See Other Side

6040 W. Market St., Suite 111 Greensboro, NC 27409
PHONE (336) 510-0340 • FAX (336) 510-0341

January 30, 2013

L & L Environmental Services, LLC
2323 Diggs Road
Wadesboro, NC 28170

Attention: Ronnie Oaks

Reference: **SOILS EVALUATION OF TIER 3 COMPOSTING SITE**
Branch Residuals & Soils Project No. 2002-12

Dear Mr. Oaks:

On January 24, 2013 I completed an evaluation of the proposed composting site for L & L Environmental Services, LLC. Four soil borings were advanced to a depth of 4 feet as required under Section .1405 item 4(B) for the Application requirements for Solid Waste Composting Facilities. A map depicting the locations of the soil borings and the approximate area to be used in the composting operation is provided (Figure 1). The area evaluated is similar in size to the initial area approved for the pilot program.

The logs of the soil borings are attached. A seasonal high groundwater table was not encountered within 24 inches of the soil's surface for any of the borings that were advanced on the site. Also attached are selected pages from the Anson County Soil Survey concerning the soils that were encountered. Please note that the soil was mapped as Pacolet soil series but a small inclusion was found for one of the four borings. This inclusion does not match a soil series that was mapped in Anson County and is likely a relict feature from previous soils geomorphology. The presence of this soils does not change the site's suitability for proposed use.

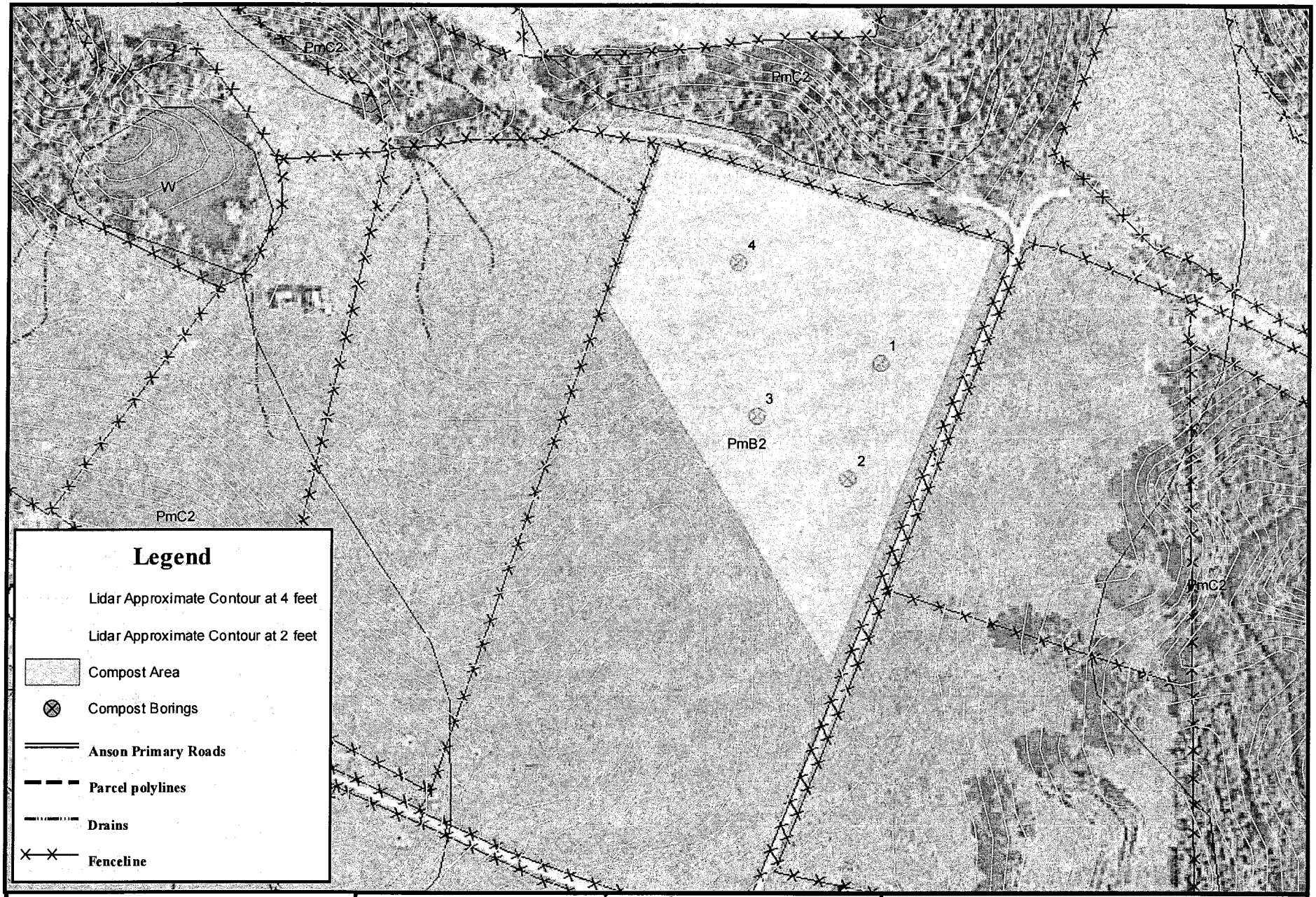
If any further information is required regarding this report, please do not hesitate to contact me at (336) 510-0340.

Sincerely,

LICENSED SOIL SCIENTIST
ROBERT T. BRANCH
1180
STATE OF NORTH CAROLINA

Robert T. Branch, L.S.S.
Licensed Soils Scientist #1180

Enclosures



All boundaries and points are approximate. This is not a surveyed document

Base aerial photograph obtained from USDA NAIP 2008.

Scale:	1" = 200' Approx.
Checked By:	RTB
Drawn By:	RTB
Date:	Jan - 13

BRANCH RESIDUALS & SOILS, LLC

L & L Environmental Services, LLC
Composting Area
Ronnie Oaks Farm

Compost Area and Soil Boring Location Map

Project No. 2002-12

SOIL EVALUATION FORM

BRANCH RESIDUALS & SOILS, LLC
8646 West Market Street - Suite 111 - Greensboro, NC 27409
PHONE (336) 510-0340 – FAX (336) 510-0341

Project Name L & L Environmental Services, Inc **Project Number** 2002-12

Owner Ronnie Oaks **Tract/Site** Compost

Operator Ronnie Oaks **Field** 1

Slope 0-3 **Sample No.** 1 **Crop** Fescue

Boring ID 1 **Landscape Position** Sideslope

Horizon	Depth	Texture	Color	Structure	Consistency	Mottles	Comments
Ap	0 - 6	SL	10 YR 4/3	wk med gr	fr	n/a	
BA	6 - 10	Lt SCL	7.5 YR 5/6	wk med sbk	fr	n/a	
Bt1	10 - 21	Hvy SCL	5 YR 5/6	mo med sbk	fr	7.5 YR 4/8 (c)	
BC	21 - 34	Hvy SL	7.5 YR 5/8	wk med sbk	fr	2.5 YR 4/8 (c)	
C	34 - 48+	SL	10 YR 5/8	sl ma	fr	2.5 YR 4/8 (c) 7.5 YR 5/6 (c)	Grading toward saprolite

Additional Comments

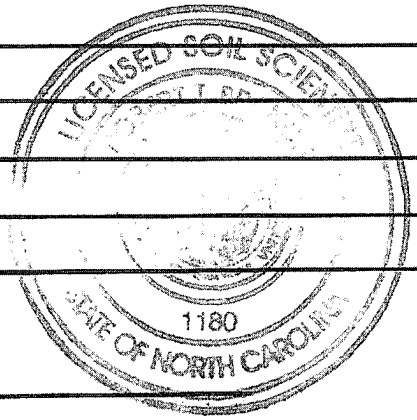
Depth to Apparent Water Table (in.) NE Depth to Seasonal Water Table (in. NE

Depth to Restrictive Horizon (in.) NE Type of Restrictive Horizon NE

Classification Fine, kaolinitic, thermic, Typic Kanhapudults

Most Closely Related Soil Series Pacolet

Discussion of Site



Described by: Robert T. Branch

Signed _____ Date 1/24/2013

SOIL EVALUATION FORM

BRANCH RESIDUALS & SOILS, LLC
8646 West Market Street - Suite 111 - Greensboro, NC 27409
PHONE (336) 510-0340 – FAX (336) 510-0341

Project Name L & L Environmental Services, Inc **Project Number** 2002-12

Owner Ronnie Oaks **Tract/Site** Compost

Operator Ronnie Oaks **Field** 2

Slope 2 - 4 **Sample No.** 2 **Crop** Fescue

Boring ID 2 **Landscape Position** Sideslope

Horizon	Depth	Texture	Color	Structure	Consistency	Mottles	Comments
Ap	0 - 6	SL	10 YR 4/3	wk med gr	fr	n/a	
Bt1	6 - 10	Hvy SL	7.5 YR 5/6	mo med sbk	fr	n/a	
Bt2	10 - 19	Hvy SCL	5 YR 5/6	mo med sbk	fr	7.5 YR 4/8 (c)	
BC	19 - 32	SCL	7.5 YR 5/8	wk med sbk	fr	2.5 YR 4/8 (c)	
C	32 - 48+	SL	10 YR 5/8	sl ma	fr	2.5 YR 4/8 (c) 7.5 YR 5/6 (c)	Grading toward saprolite

Additional Comments

Depth to Apparent Water Table (in.) NE Depth to Seasonal Water Table (in. NE

Depth to Restrictive Horizon (in.) NE Type of Restrictive Horizon NE

Classification Fine, kaolinitic, thermic, Typic Kanhapudults

Most Closely Related Soil Series Pacolet

Discussion of Site

LICENSED SOIL SCIENTIST ROBERT T. BRANCH 1180 STATE OF NORTH CAROLINA

Described by: Robert T. Branch

Signed

Date 1/24/2013

SOIL EVALUATION FORM

BRANCH RESIDUALS & SOILS, LLC

8646 West Market Street - Suite 111 - Greensboro, NC 27409
PHONE (336) 510-0340 – FAX (336) 510-0341

Project Name	L & L Environmental Services, Inc	**Project Number**	2002-12
Owner	Ronnie Oaks	**Tract/Site**	Compost
Operator	Ronnie Oaks	**Field**	3
Slope	2 - 4 **Sample No.** 3	**Crop**	Fescue
Boring ID	3	**Landscape Position**	Sideslope

Horizon	Depth	Texture	Color	Structure	Consistency	Mottles	Comments
Ap	0 - 6	SL	10 YR 4/3	wk med gr	fr	n/a	
BA	6 - 12	Hvy SL	5 YR 5/6	mo med sbk	fr	n/a	
Bt1	12 - 28	Hvy SCL	5 YR 5/6	mo med sbk	fr	7.5 YR 4/8 (c)	
Bt2	28 - 37	C	7.5 YR 5/8	st med sbk	fi	2.5 YR 4/8 (c)	Mn Concretions; sticky plastic
BC	37 - 48+	CL	7.5 YR 4/4	wk med sbk	fi	2.5 YR 4/8 (c) 10 YR 6/3 (c)	Grading toward C; Mn Concretions

Additional Comments

A variant with some slightly more sticky and plastic clay than normal for Pacolct. This is likely a relict feature and no active seasonal high water table.

Depth to Apparent Water Table (in.)	NE	Depth to Seasonal Water Table (in.	NE
Depth to Restrictive Horizon (in.)	NE	Type of Restrictive Horizon	NE
Classification	Fine, kaolinitic, thermic, Typic Kanhapudults		
Most Closely Related Soil Series	Pacolet Variant		

Discussion of Site

LICENSED SOIL SCIENTIST
1180
STATE OF NORTH CAROLINA

Described by: Robert T. Branch

Signed _____ Date 1/24/2013

SOIL EVALUATION FORM

BRANCH RESIDUALS & SOILS, LLC

8646 West Market Street - Suite 111 - Greensboro, NC 27409
PHONE (336) 510-0340 – FAX (336) 510-0341

Project Name L & L Environmental Services, Inc **Project Number** 2002-12

Owner Ronnie Oaks **Tract/Site** Compost

Operator Ronnie Oaks **Field** 4

Slope 1- 3 **Sample No.** 4 **Crop** Fescue

Boring ID 4 **Landscape Position** Sideslope

Horizon	Depth	Texture	Color	Structure	Consistency	Mottles	Comments
Ap	0 - 6	SL	10 YR 4/3	wk med gr	fr	n/a	
Bt1	6 - 21	Hvy SL	7.5 YR 5/6	mo med sbk	fr	n/a	
Bt2	21 - 34	SCL	7.5 YR 5/6	mo med sbk	fr	7.5 YR 4/8 (c)	Mn Concretions
BC	34 - 40	CL	7.5 YR 4/4	mo med sbk	fi	5 YR 4/4 (c)	Mn Concretions many
C	40 - 48+	SL	10 YR 4/4	sl ma	fr	2.5 YR 4/8 (c) 10 YR 6/2 (c)	Buckshot Mn Concretions

Additional Comments

A variant in the previous active erosion slope. Soil is similar to Shellbluff series but not flooded or in the correct land position. Seasonal water table is a relict condition and not thought to be active.

Depth to Apparent Water Table (in.) NE Depth to Seasonal Water Table (in. NE

Depth to Restrictive Horizon (in.) NE Type of Restrictive Horizon NE

Classification Fine, kaolinitic, thermic, Typic Kanhapudults

Most Closely Related Soil Series Pacolet Variant

Discussion of Site

LICENSED SOIL SCIENTIST ROBERT T. BRANCH 1180 STATE OF NORTH CAROLINA

Described by: Robert T Branch

Signed

Date 1/24/2013

Soil Description Explanation

All depths are in inches. n/a not applicable

Horizons are depicted in standard soil taxonomy.

Color and mottles refer to moist Soil Munsell Colors

Structure refers to the shape and size of the peds or individual soil units.

Consistency refers to the ease of which the soil can be crushed.

Mottles are defined as colors in the soil different from the predominant color matrix.

Horizons

A	Surface Horizon
E	Zone of leaching
B	Subsurface Horizon
C	Parent Material Horizon
R	Rock
BA, BE	Transition Horizons
BC, CR	Transition Horizons
t	Zone of accumulation of clay
Fill	Non-native soils

Texture

S	Sand
LS	Loamy sand
SL	Sandy loam
SCL	Sandy clay loam
SC	Sandy clay loam
C	Clay
L	Loam
CL	Clay loam
SI	Silt
SIL	Silt loam
SICL	Silty clay loam
SIC	Silty clay
Hvy	Heavy texture modifier
Lt	Light texture modifier
gr	Gravelly texture modifier

Consistency

vfr	very friable
fr	friable
fi	firm
vfi	very firm
lo	loose

NE	**Not Encountered**
NA	**Not Applicable**

Color

10 YR 4/3	Brown
10 YR 4/4	Dark yellowish brown
10 YR 5/8	Yellowish brown
10 YR 6/2	Light brownish gray
10 YR 6/3	Pale Brown
7.5 YR 4/4	Dark brown
7.5 YR 4/6	Strong brown
7.5 YR 4/8	Strong brown
7.5 YR 5/6	Strong brown
7.5 YR 5/8	Strong brown
5 YR 4/4	Reddish brown
5 YR 4/6	Yellowish red
5 YR 4/8	Distinct yellowish red
5 YR 5/6	Distinct yellowish red
5 YR 5/8	Distinct yellowish red
2.5 YR 3/6	Dark Red
2.5 YR 4/6	Red
2.5 YR 4/8	Red
Multi	Multi-colored

Structure

wk	weak
mo	moderate
st	strong
f	fine
med	medium
gr	granular
sbk	subangular blocky
sl	structureless
ma	massive

Comments

Mn	Manganese

Hazard of flooding: None
Shrink-swell potential: Low
Slope class: Gently sloping
Surface runoff: Medium
Hazard of water erosion: Severe
Parent material: Residuum weathered from porphyritic granite
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- Random areas of soils that have hard bedrock at a depth of less than 60 inches
- Random areas of Tarrus soils that have soft bedrock at a depth of 40 to 60 inches

Similar inclusions:
- Random areas of soils that have a yellow subsoil
- Random areas of soils that have a loamy subsoil
- Random areas of Cecil soils that have saprolite at a depth of more than 40 inches
- Random areas of Pacolet soils that have a surface layer of sandy loam, loam, or the gravelly analogues of those textures

Land Use

Dominant Uses: Cropland
Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Well suited
Commonly grown crops: Corn, soybeans, small grain, and cotton
Management concerns: Erodibility, tilth, and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations with soil-conserving crops help to minimize erosion, control surface runoff, and maximize the infiltration of rainfall.
- Incorporating crop residue into the soil or leaving residue on the soil surface helps to minimize clodding and crusting and maximizes the infiltration of water.
- Performing tillage only during periods when the soil is not wet helps to minimize clodding and crusting and increase the infiltration of water.
- Managing crops so that the maximum amount of plant residue remains on the soil surface helps to control soil blowing and conserve soil moisture.
- Applying lime and fertilizer according to recommendations based on soil tests helps to increase the availability of plant nutrients and maximizes crop productivity.

Pasture and hayland

Suitability: Well suited
Commonly grown crops: Tall fescue, orchardgrass, and legumes
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Planting adapted species helps to ensure the production of high-quality forage and reduce the hazard of erosion.
- Special care is needed when renovating pastures and establishing seedbeds to prevent further erosion.
- Using rotational grazing and implementing a well-planned clipping and harvesting schedule help to maintain pastures and increase forage production.
- Applying lime and fertilizer according to recommendations based on soil tests helps to increase the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited
Productivity class: Moderately high for loblolly pine
Management concerns: Equipment use and seedling survival
Management measures and considerations:
- Planting improved varieties of loblolly pine helps to increase productivity.
- Reforesting immediately after harvest using minimal site preparation and recommended tree species helps to control erosion and siltation of streams.
- Performing logging operations only during periods when the soil is not wet helps to prevent rutting of the soil surface and possible root damage from compaction.
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces mortality rates, and increases early seedling growth.

Urban Development

Dwellings

Suitability: Well suited
Management concerns:
- There are no significant limitations affecting dwellings.

Management measures and considerations:
- Vegetating cleared and graded areas as soon as possible or constructing silt fences helps to maintain soil stability and keep sediments onsite.

Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
• This map unit has severe limitations affecting the production of hay crops. A site should be selected on better suited soils.
• Preparing seedbeds on the contour or across the slope helps to minimize erosion and increase germination.
• Planting adapted species helps to ensure the production of high-quality forage and reduce the hazard of erosion.
• The slope limits equipment use in the steeper areas.
• Applying lime and fertilizer according to recommendations based on soil tests helps to increase the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating pastures.

Woodland

Suitability: Poorly suited
Productivity class: Moderately high for loblolly pine
Management concerns: Erodibility and equipment use
Management measures and considerations:
• Planting improved varieties of loblolly pine helps to increase productivity.
• Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
• Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
• Reforesting immediately after harvest using minimal site preparation and recommended tree species helps to control erosion and siltation of streams.
• Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope limitation.

Urban Development

Dwellings

Suitability: Poorly suited
Management concerns: Slope
Management measures and considerations:
• Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Vegetating cleared and graded areas as soon as possible or constructing silt fences helps to maintain soil stability and keep sediments onsite.

Septic tank absorption fields

Suitability: Poorly suited
Management concerns: Slope
Management measures and considerations:
• The Anson County Health Department should be contacted for guidance in developing sanitary facilities.

Local roads and streets

Suitability: Poorly suited
Management concerns: Slope
Management measures and considerations:
• Designing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and prevent excessive erosion.

Interpretive Groups

Land capability classification: VIIe
Woodland ordination symbol: 8R, based on loblolly pine as the indicator species

PmB2—Pacolet clay loam, 2 to 8 percent slopes, moderately eroded

Setting

Landscape: Piedmont; mainly in the eastern and southern parts of the county
Landform: Broad ridges
Landform position: Convex interfluves
Shape of areas: Irregular
Size of areas: 10 to 200 acres

Composition

Pacolet soil and similar inclusions: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 4 inches—reddish brown clay loam

Subsoil:
4 to 18 inches—red clay
18 to 32 inches—yellowish red sandy loam

Underlying material:
32 to 63 inches—yellowish red fine sandy loam saprolite

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 6.0 feet

Septic tank absorption fields

Suitability: Suited
Management concerns: Restricted permeability
Management measures and considerations:
• The Anson County Health Department should be contacted for guidance in developing sanitary facilities.
• Installing septic system distribution lines only during periods when the soil is not wet helps to prevent smearing and sealing of trench walls.

Local roads and streets

Suitability: Suited
Management concerns: Low strength
Management measures and considerations:
• Incorporating sand and gravel into the roadbed and compacting the roadbed help to improve soil strength.
• Vegetating cut and fill slopes as soon as possible after construction helps to stabilize the soil and prevent excessive erosion.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8C, based on loblolly pine as the indicator species

PmC2—Pacolet clay loam, 8 to 15 percent slopes, moderately eroded

Setting

Landscape: Piedmont; mainly in the eastern and southern parts of the county
Landform: Hillslopes
Landform position: Convex side slopes and nose slopes
Shape of areas: Elongated
Size of areas: 10 to 250 acres

Composition

Pacolet soil and similar inclusions: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 4 inches—reddish brown clay loam

Subsoil:
4 to 18 inches—red clay
18 to 32 inches—yellowish red sandy loam

Underlying material:
32 to 63 inches—yellowish red fine sandy loam saprolite

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 6.0 feet
Hazard of flooding: None
Shrink-swell potential: Low
Slope class: Strongly sloping
Surface runoff: Medium
Hazard of water erosion: Very severe
Parent material: Residuum weathered from porphyritic granite
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
• Random areas of soils that have hard bedrock at a depth of less than 60 inches
• Random areas of Tarrus soils that have soft bedrock at a depth of 40 to 60 inches

Similar inclusions:
• Random areas of soils that have a yellow subsoil
• Random areas of soils that have a loamy subsoil
• Random areas of Cecil soils that have saprolite at a depth of more than 40 inches
• Random areas of Pacolet soils that have a surface layer of sandy loam, loam, or the gravelly analogues of those textures

Land Use

Dominant Uses: Cropland
Other Uses: Pasture and hayland

Agricultural Development

Cropland

Suitability: Suited
Commonly grown crops: Corn, soybeans, small grain, and cotton
Management concerns: Erodibility, tilth, and soil fertility
Management measures and considerations:
• Resource management systems that include conservation tillage, crop residue management, stripcropping, and sod-based rotations help to prevent further erosion by stabilizing the soil, controlling surface runoff, and maximizing the infiltration of water.
• Incorporating crop residue into the soil or leaving residue on the soil surface helps to minimize clodding and crusting and maximizes the infiltration of water.
• Performing tillage only during periods when the soil

Table 11.—Building Site Development—Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
PmB2—Pacolet	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
PmC2—Pacolet	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
PnB—Pelion	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: droughty.
PoB*:						
Pinoka	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock.	Moderate: droughty, depth to rock.
Carbonton	Severe: depth to rock, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
PsC—Pinoka	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope.	Moderate: droughty, slope, depth to rock.
PsD—Pinoka	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
PwB3*:						
Polkton	Severe: wetness.	Severe: shrink-swell, wetness.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: wetness.
White Store	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength.	Moderate: wetness.
PwC3*:						
Polkton	Severe: wetness.	Severe: shrink-swell, wetness.	Severe: wetness, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: wetness, slope.
White Store	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: wetness, slope.
PwD3*:						
Polkton	Severe: wetness, slope.	Severe: shrink-swell, slope, wetness.	Severe: wetness, slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
White Store	Severe: wetness, slope.	Severe: wetness, shrink-swell, slope.	Severe: wetness, slope, shrink-swell.	Severe: wetness, shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
RaA—Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

See footnote at end of table.

Table 12.—Sanitary Facilities—Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
NgC---------- Nanford	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack.
NsB*:					
Nanford----------	Moderate: depth to rock, percs slowly.	Moderate: seepage, depth to rock, slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
Emporia----------	Severe: wetness, percs slowly.	Severe: seepage, slope, wetness.	Moderate: wetness, slope, too clayey.	Slight----------	Fair: slope, too clayey, wetness.
PgB---------- Pacolet	Moderate: percs slowly.	Moderate: seepage, slope.	Slight----------	Slight----------	Fair: small stones.
PgC---------- Pacolet	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: small stones, slope.
PgD, PgE---------- Pacolet	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
PmB2---------- Pacolet	Moderate: percs slowly.	Moderate: seepage, slope.	Slight----------	Slight----------	Fair: too clayey.
PmC2---------- Pacolet	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: too clayey, slope.
PnB---------- Pelion	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
PoB*:					
Pinoka----------	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock, small stones.
Carbonton----------	Severe: depth to rock, wetness.	Severe: depth to rock, wetness.	Severe: depth to rock, wetness.	Severe: depth to rock, wetness.	Poor: depth to rock, too clayey.
PsC---------- Pinoka	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock, small stones.
PsD---------- Pinoka	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.

See footnote at end of table.

Table 13.—Construction Materials—Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
MgB, MgC---------- Mayodan	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
MgD---------- Mayodan	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, slope.
MnC*: Mayodan----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Urban land----------	Variable----------	Variable----------	Variable----------	Variable.
MrB---------- McQueen	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MsA*: Misenheimer----------	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, too acid.
Callison----------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: depth to rock, too clayey, small stones.
NaB, NaC---------- Nanford	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, area reclaim.
NgC---------- Nanford	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, area reclaim.
NsB*: Nanford----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, area reclaim.
Emporia----------	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones.
PgB, PgC---------- Pacolet	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
PgD---------- Pacolet	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor.
PgE---------- Pacolet	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor.
PmB2, PmC2---------- Pacolet	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

See footnote at end of table.

Table 15.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 10 inches	Frag-ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO			4	10	40	200		
	In				Pct	Pct					Pct	
NsB*:												
Nanford------	0-7	Gravelly fine sandy loam.	SM, GM, ML	A-1, A-2, A-4	---	0-10	65-85	55-75	40-75	20-70	0-38	NP-10
	7-27	Silty clay loam, silty clay, clay.	CL, CH	A-7	---	0-5	80-100	75-100	70-95	65-90	40-60	15-30
	27-55	Channery silt loam, silt loam, silty clay loam.	CL, CL-ML, SC, GC	A-2, A-4, A-6	---	0-5	60-80	50-75	40-75	30-70	20-35	4-12
	55-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
Emporia------	0-11	Gravelly sandy loam.	SM, SC-SM	A-2, A-1, A-4	0-3	0-10	65-85	55-75	40-75	20-70	0-25	NP-15
	11-50	Sandy clay loam, sandy loam, clay loam.	SC, CL	A-2, A-4, A-6, A-7	0-2	0-5	90-100	80-100	45-95	25-70	20-50	8-30
	50-60	Stratified sandy loam to clay.	SM, SC, ML, CL	A-1, A-2, A-4, A-6	0	0-5	70-100	55-100	30-90	20-60	<40	NP-25
PgB, PgC, PgD, PgE---------- Pacolet	0-5	Gravelly sandy loam.	SM	A-2	0-2	0-3	75-90	70-85	55-75	15-30	<30	NP-3
	5-25	Gravelly sandy clay, clay loam, clay.	ML, MH	A-6, A-7	0-1	0-1	60-80	75-100	60-95	51-75	38-65	11-30
	25-60	Gravelly sandy loam, fine sandy loam, loam.	SM, SC-SM	A-4, A-2-4	0-1	0-2	60-80	50-75	40-75	30-50	<28	NP-6
PmB2, PmC2---- Pacolet	0-4	Clay loam-----	SC-SM, SC	A-4, A-6	0-1	0-1	95-100	90-100	65-87	36-50	20-40	4-17
	4-18	Sandy clay, clay loam, clay.	ML, MH, CL	A-6, A-7	0-1	0-1	80-100	80-100	60-100	51-75	38-65	11-33
	18-63	Sandy loam, fine sandy loam, loam.	SM, SC-SM	A-4, A-2-4	0-1	0-2	80-100	70-100	60-90	25-50	<28	NP-6
PnB---------- Pelion	0-10	Loamy sand----	SP, SM, SP-SM	A-2, A-3	0	0	98-100	95-100	45-85	5-30	10-25	NP
	10-24	Sandy clay loam, clay loam.	SC-SM, SC, CL-ML, CL	A-2, A-4, A-6	0	0	95-100	92-100	50-90	25-55	20-40	5-18
	24-40	Sandy clay loam, sandy clay, clay.	SC-SM, SC, CL-ML, CL	A-2, A-4, A-6, A-7	0	0	98-100	92-100	50-90	25-60	20-47	5-26
	40-65	Sandy clay loam, sandy loam.	SM, SC, SC-SM	A-2, A-4, A-6	0	0	98-100	92-100	50-90	18-60	<42	NP-22

See footnote at end of table.

Table 16.—Physical and Chemical Properties of the Soils—Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
								K	T		
	In	Pct	g/cc	In/hr	In/in	pH					Pct
PgB, PgC, PgD, PgE	0-5	8-20	1.00-1.50	2.0-6.0	0.06-0.10	4.5-6.5	Low	0.15	3	4	.5-2
Pacolet	5-25	35-65	1.30-1.50	0.6-2.0	0.12-0.15	4.5-6.0	Low	0.28			
	25-60	10-25	1.20-1.50	0.6-2.0	0.08-0.15	4.5-6.0	Low	0.28			
PmB2, PmC2	0-4	20-35	1.30-1.50	0.6-2.0	0.10-0.14	4.5-6.5	Low	0.24	2	5	.5-1
Pacolet	4-18	35-65	1.30-1.50	0.6-2.0	0.12-0.15	4.5-6.0	Low	0.28			
	18-63	10-25	1.20-1.50	0.6-2.0	0.08-0.15	4.5-6.0	Low	0.28			
PnB	0-10	2-10	1.35-1.75	>6.0	0.03-0.06	3.6-6.5	Low	0.15	3	2	.5-2
Pelion	10-24	18-35	1.40-1.60	0.6-2.0	0.12-0.16	3.6-5.5	Low	0.17			
	24-40	18-50	1.40-1.75	0.06-0.6	0.06-0.10	3.6-5.5	Low	0.20			
	40-65	10-40	1.40-1.60	0.6-2.0	0.06-0.10	3.6-5.5	Low	0.15			
PoB*:											
Pinoka	0-10	5-18	1.20-1.40	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.20	2-1	2	.5-2
	10-30	10-18	1.20-1.50	2.0-6.0	0.06-0.18	4.5-5.5	Low	0.24			
	30-60	---	---	0.2-0.6	---	---		---			
Carbonton	0-5	8-20	1.20-1.40	0.6-2.0	0.11-0.17	3.6-5.5	Low	0.24	3	2	.5-2
	5-28	35-60	1.25-1.55	0.06-0.2	0.12-0.17	3.6-5.0	Moderate	0.28			
	28-60	---	---	---	---	---		---			
PsC, PsD	0-10	5-18	1.20-1.40	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.20	2-1	2	.5-2
Pinoka	10-30	10-18	1.20-1.50	2.0-6.0	0.06-0.18	4.5-5.5	Low	0.24			
	30-60	---	---	0.2-0.6	---	---		---			
PwB3*, PwC3*, PwD3*:											
Polkton	0-7	27-40	1.25-1.50	0.2-0.6	0.15-0.20	4.5-6.5	Moderate	0.37	3-2	5	.2-1
	7-24	35-70	1.15-1.35	<0.06	0.15-0.17	4.5-5.5	Very high	0.37			
	24-36	20-40	1.25-1.50	0.06-0.6	0.15-0.20	4.5-5.5	High	0.37			
	36-52	---	---	0.00-0.06	---	---		---			
	52	---	---	0.00-0.01	---	---		---			
White Store	0-5	27-45	1.25-1.50	0.06-0.6	0.15-0.20	4.5-5.5	High	0.37	3	4	<.5
	5-48	45-70	1.15-1.35	<0.06	0.15-0.17	4.5-5.5	Very high	0.37			
	48-52	12-40	1.15-1.35	0.06-0.2	0.13-0.17	4.5-5.5	Moderate	0.32			
	52-60	---	---	---	---	---		---			
RaA	0-12	5-20	1.30-1.60	2.0-6.0	0.10-0.14	3.6-6.5	Low	0.20	5	3	1-6
Rains	12-30	18-35	1.30-1.60	0.6-2.0	0.11-0.15	3.6-5.5	Low	0.24			
	30-54	18-40	1.30-1.50	0.6-2.0	0.10-0.15	3.6-5.5	Low	0.28			
	54-62	15-45	1.30-1.60	0.6-2.0	0.10-0.15	3.6-5.5	Low	0.28			
RmA	0-10	10-27	1.30-1.60	0.6-2.0	0.16-0.24	4.5-6.5	Low	0.32	5	5	.5-2
Riverview	10-28	18-35	1.20-1.40	0.6-2.0	0.15-0.22	4.5-6.0	Low	0.24			
	28-62	10-25	1.20-1.50	0.6-2.0	0.08-0.15	4.5-6.0	Low	0.24			
RoA	0-7	10-27	1.20-1.50	0.6-2.0	0.14-0.20	3.5-5.5	Low	0.37	5	5	.5-2
Roanoke	7-52	35-60	1.35-1.65	0.06-0.2	0.10-0.19	3.5-5.5	Moderate	0.24			
	52-60	5-50	1.20-1.50	0.06-20	0.04-0.14	3.5-5.5	Moderate	0.24			
RwB*:											
Rock outcrop.											
Wake	0-18	3-12	1.65-1.80	6.0-20	0.03-0.08	4.5-6.0	Low	0.15	1	2	.5-1
	18	---	---	0.00-0.01	---	---		---			

See footnote at end of table.

A&L Eastern Laboratories, Inc.

7621 Whitepine Road Richmond VA 23237 Tel: 804-743-9401 Fax: 804-271-6446 Email: office@al-labs-eastern.com

Account #

Biosolids Sample Transmittal Form - Chain of Custody

Customer Information

Submitted By (Name & Address)	Charge To (Name & Address)	Copy To (Name & Address)
Ronnie Oaks 2323 Diggs Rd Weddesboro, NC 28170	L & L Environmental 2323 Diggs Rd Weddesboro NC 28170	

Project: Compost

Sample Information

Sample ID	Lab Number (Lab Use Only)	Collection Information: Type	Date	Time	Container Information: Number of Bottles	Type	Volume	SL1	SL2	503 Metals	Nitrogen Series	pH	CCE	Ag	Cl	Volatile Solids	Others
1		___ Grab ___ Composite	8/10/12	1pm	1	___ Glass ___ Plastic	___ oz ___ pint ___ qt		Nutrients & Metals								
		___ Grab ___ Composite				___ Glass ___ Plastic	___ oz ___ pint ___ qt										
		___ Grab ___ Composite				___ Glass ___ Plastic	___ oz ___ pint ___ qt										
		___ Grab ___ Composite				___ Glass ___ Plastic	___ oz ___ pint ___ qt										

Relinquished By: (Print & Signature)	Date	Time	Received By: (Print & Signature)
Ronnie Oaks	8/10/12	3:30pm	

Test Package Details

SL1: Total Solids (Moisture) Total Kjeldahl Nitrogen, Phosphorus and Potassium
SL2: Basic Test SL1 plus Sulfur, Calcium, Magnesium,Sodium, Iron, Aluminum, Manganese, Copper And Zinc
503 Metals: Arsenic, Cadmium, Chromium, Mercury, Molybdenum, Lead, Nickel, Selenium. (Copper & Zinc included in SL2)
Nitrogen Series: Total Kjeldahl, Ammonium, Nitrate & Organic Nitrogen.
CCE: Calcium Carbonate Equivalent or Total neutralization Value (For Lime Treated Sludge)

Special Instructions or Remarks

Report Number: 12-226-0206
Account Number: 46083
Submitted By: RONNIE OAKS

www.aleastern.com

A&L Eastern Laboratories, Inc.
7621 Whitepine Road Richmond, Virginia 23237 (804) 743-9401 Fax (804) 271-6446

Send To: L & L ENVIRONMENTAL LLC
RONNIE OAKS
2323 DIGGS RD
WADESBORO , NC 28170

Project : COMPOST
NC CERT#257

REPORT OF ANALYSIS

Lab Number : 89003
Sample Id : COMPOST 1

Date Sampled: 8/10/2012 13:00:00
Date Received: 08/13/2012 00:00
Date Reported: 08/20/2012

PARAMETER	RESULT (%)	RESULT (mg/kg)	QUANTITATION LIMIT (mg/kg*)	ANALYST	ANALYSIS DATE/TIME	METHOD
Total Solids *	52.91	529100	100.0	RD	08/13/2012 14:35	SM-2540G
Moisture *	47.09		100.0	RD	08/13/2012 14:35	SM-2540G
Total Kjeldahl Nitrogen	1.34	13400	10.0	TW	08/14/2012 09:49	SM-4500-NH3C-TKN
Total Phosphorus	0.55	5530	100	KM	08/16/2012 13:23	SW 6010C
Total Potassium	0.31	3100	100	KM	08/16/2012 13:23	SW 6010C
Total Calcium	2.23	22300	100	KM	08/16/2012 13:23	SW 6010C
Total Magnesium	0.78	7830	100	KM	08/16/2012 13:23	SW 6010C
Total Sodium	0.12	1200	100	KM	08/16/2012 13:23	SW 6010C
Total Iron		15700	1	KM	08/16/2012 13:23	SW 6010C
Total Aluminum		11100	10	KM	08/16/2012 13:23	SW 6010C
Total Copper		79	1	KM	08/16/2012 13:23	SW 6010C
Total Zinc		210	1	KM	08/16/2012 13:23	SW 6010C
Ammonia Nitrogen	0.05	491	10.0	MW	08/15/2012 09:15	SM-4500-NH3C
Organic N	1.29	12909	10.0		08/14/2012 09:49	CALCULATION
Nitrate+Nitrite-N		81.5	2.00	tw	08/14/2012 09:10	SM-4500NO3F
Total Cadmium		<1.0	1.0	KM	08/16/2012 13:23	SW 6010C
Total Chromium		102	5	KM	08/16/2012 13:23	SW 6010C
Total Nickel		10	5	KM	08/16/2012 13:23	SW 6010C

All values are on a dry weight basis except as noted by asterisk. Detection limit on all N series is on a wet basis.

Debbie Holt

Report Number: 12-226-0206
Account Number: 46083
Submitted By: RONNIE OAKS

www.aleastern.com

A&L Eastern Laboratories, Inc.
7621 Whitepine Road Richmond, Virginia 23237 (804) 743-9401 Fax (804) 271-6446

Send To: L & L ENVIRONMENTAL LLC
RONNIE OAKS
2323 DIGGS RD
WADESBORO , NC 28170

Project : COMPOST
NC CERT#257

REPORT OF ANALYSIS

Lab Number : 89003
Sample Id : COMPOST 1

Date Sampled: 8/10/2012 13:00:00
Date Received: 08/13/2012 00:00
Date Reported: 08/20/2012

PARAMETER	RESULT (%)	RESULT (mg/kg)	QUANTITATION LIMIT (mg/kg*)	ANALYST	ANALYSIS DATE/TIME	METHOD
Total Lead		20	5	KM	08/16/2012 13:23	SW 6010C
Total Arsenic		16.0	1.0	KM	08/16/2012 13:23	SW 6010C
Total Mercury		0.4	0.4	KM	08/16/2012 15:00	SW-7471B
Total Selenium		2.0	1.0	KM	08/16/2012 13:23	SW 6010C
pH (Standard Units) *	8.57			TW	08/14/2012 09:20	SW-9045D
Total Molybdenum		<5	5	KM	08/16/2012 13:23	SW 6010C
Chloride		1030	200	TW	08/16/2012 12:35	SM-4500Cl-D
Total Boron		16	1	KM	08/16/2012 13:23	SW 6010C
Conductivity (mmho/cm) *	1.90		0.010	JM	08/20/2012 08:20	SM-2510B

Comments:
QUALIFIER: THE LRB WAS OUT OF LIMITS FOR "Mo" . ALL OTHER QC DATA IS ACCEPTABLE.

All values are on a dry weight basis except as noted by asterisk. Detection limit on all N series is on a wet basis.

Debbie Holt