



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

Beverly Eaves Perdue
Governor

Dexter R. Matthews
Director

Dee Freeman
Secretary

March 22, 2012

Mr. Shane Brantley
David Brantley & Sons
37 Pine Ridge Road
Zebulon, NC 27597

Re: Solid Waste Compost Permit SWC-35-06

Dear Mr. Brantley:

Enclosed is your permit to operate a Small, Type 3 Solid Waste Compost Facility in Zebulon, North Carolina. Please carefully read all permit conditions. The operation manual submitted with your application has been incorporated into your permit. Your permit number is SWC-35-06. The permit expiration date is March 22, 2017.

Ms. Shawn McKee, Environmental Senior Specialist, will be responsible for facility inspections. Ms. McKee can be contacted at 919-707-8284. If you have any questions please feel free to contact the Solid Waste Section Chief, Michael Scott, at 919-707-8246 or myself via e-mail at megan.mueller@ncdenr.gov.

Sincerely,

Megan Mueller, Environmental Technician
Composting & Land Application Branch

cc: Shawn McKee, Environmental Senior Specialist, DWM
Central File, Solid Waste Section, Division of Waste Management

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT
1646 MAIL SERVICE CENTER
RALEIGH, N.C. 27699

David Brantley & Sons, Inc.

is hereby issued a permit to operate a

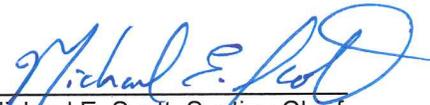
Small, TYPE 3 SOLID WASTE COMPOST FACILITY

at 37 Pine Ridge Road, Franklin County, N.C.

Permit Number: SWC-35-06

in accordance with Article 9, Chapter 130A, of the General Statutes of North Carolina and all rules promulgated thereunder and subject to the conditions set forth in this permit.

3/22/12
Date


Michael E. Scott, Section Chief
Solid Waste Section

Permit Conditions:

1. Operation and maintenance of this facility shall be in accordance with the Solid Waste Compost Rules (15A NCAC 13B, Section .1400), the Permit Application and the Operation and Maintenance Manual submitted with the permit application, and these permit conditions. Failure to comply may result in compliance actions or permit revocation by the Division of Waste Management.
2. This facility shall be operated in such a manner that erosion and runoff from the site shall be controlled. Any leachate generated at the facility and any runoff from the facility shall be managed in such a manner that ground or surface water quality will not be adversely affected. The facility shall be maintained to prevent the accumulation of stormwater or leachate on travel areas or active composting sites.
3. An appropriate Division of Water Quality permit for managing any stormwater or wastewater at the facility shall be maintained as required.
4. Only materials specifically listed in the permit application may be managed at this facility. Before additional materials may be added, there must be adequate testing and prior approval by the Division of Waste Management in writing.
5. All compost produced at the facility shall meet the requirements of Rule .1407 of the Solid Waste Compost Rules and the permit application.
6. Testing and reporting shall be conducted in accordance with the requirements of Rule .1408 and the permit application. An annual report of facility activities for the fiscal year July 1 to June 30 shall be submitted to the Division by August 1 of each year on forms provided by the Division. This report shall include the amount of materials composted in tons.
7. The compost operation and the compost pad shall be operated and maintained with sufficient dust control measures to minimize airborne emissions and to prevent dust from becoming a nuisance or safety hazard.
8. Compost process data shall be maintained in writing as required to document temperatures, moisture levels and aeration intervals.

9. Windrow dimensions for active composting shall be limited to a maximum of 8' high x 14' wide unless otherwise approved by the Division.
10. Windrow turning shall not occur without consulting weather forecasts for favorable conditions including temperature, wind direction, temperature inversions, and precipitation.
11. The odor management plan shall be followed to minimize odors at the facility boundary. Upon receipt of a facility complaint the facility operator shall investigate and take action as necessary to minimize the cause of the complaint. A copy of all complaints regarding this facility shall be maintained for two years including the operator's actions taken to resolve the complaints.
12. Feedstocks shall not be received that are in an anaerobic state.
13. The facility shall be operated in a manner that reduces the potential for odor and vector attraction.
14. The facility operational capacity for this permit shall be limited to 7,850 tons of feedstocks per year received for composting.
15. This permit shall expire on March 22, 2017. Changes in ownership, increase in facility capacity, or receiving feed stocks not identified in the permit application shall require a permit modification.

.1405 APPLICATION FOR SOLID WASTE COMPOST FACILITIES



- (a) Shane Brantley 37 Pine Ridge Rd Zebulon, NC 27597 919-669-5187
davidbrantleyandsons@yahoo.com
Cory Brantley 37 Pine Ridge Rd Zebulon, NC 27597 919-669-5188
1installer@gmail.com
- (b) Small type 3 compost facility

(1) Aerial photographs:

- (a) The site is permitted as a land application and septage detention-treatment facility. DENR has copies of maps.
- (b) The entire property is owned by David Brantley and sons Inc.
- (c) All buildings, homes, wells, watercourses, dry runs and roads within 500 feet of the facility.

(2) Letter of zoning approval from the Franklin County Planning has been delivered to DEHNR

Attached and states composting as one of the approved activities

(3) Rule .1404 Sitting and Design requirements;

(a) The site meets the following requirements:

1. The site is not located in a floodplain.
2. The nearest property line is the Odean Mullen property 100 feet from the compost windrows. This is the southeast side of the property.
3. There is a buffer exceeding 700 feet between the compost area and any residence or dwelling not owned by David Brantley & Sons.
4. There are no wells within 1200 feet of compost facility.
5. There is no perennial stream within 1000 feet of the compost facility.
6. The nearest river is Norris Creek. The distance to the river is 400'.
7. The site is not located over a closed-out burial or disposal area.
8. The facility will not hinder the access of firefighting equipment.
9. The site meets the following surface water requirements:

(a) The site is small, cleared area of about two acres. The immediate down slope area from the windrows are protected by an earth berm.

(b) Beyond the berm a field of fescue grass 180' wide that is now permitted for land application. The border of this field is surrounded by small woods and underbrush for 1500' until it reaches Norris Creek.

(c) The wooded area will prevent any run-off from polluting surface water.

(d) This area will also prevent any nonpoint source pollution of waters

10. The site meets the following groundwater requirements:

(a) The soil in the area of the site is sandy, clay and the depth to the seasonal high water table is greater than 24 inches (soils report done by John Davis prior to land application approval).

(b) The facility uses a concrete pad to mix the wood chips into the waste with a drainage system to retain the leachate.

(c) The finish product will be dry enough to pass the Paint Filter Liquids Test;

(d) The permeability of the concrete pad is no greater than 1×10^{-7} centimeters per second.

11. The site meets the following design requirements.

(a) David Brantley & Sons does not allow public access to the facility, only permitted personnel are allowed on site.

(b) The site meets any applicable SPC requirements:

(c) The site meets any applicable APC requirements.

(d) The site is designed so that it does not emit odors or gases outside the property.

aa. Immediate mixing of material

bb. Turning of windrows

cc. Monitoring of wind

dd. Covering of windrows with wood chips as needed

ee. In the event of odor problems or complaints laboratory analysis will be taken from the incoming waste stream as well as the blended product to examine waste strength characteristics. Furthermore wood chips to dewatered waste ratios will be changed to alleviate the problem.

(4) WASTE TYPE:

- (a) The site will be used for composting residential septage and grease trap waste from restaurants. The estimated cubic yards of waste is from 600 to 1500 yds annually.
- (b) Storage will be done on site over 100 feet away from windrows and the storage is up slope to prevent any cross contamination.
- (c) Chips are supplied by Truework, Woodchuck, Jordan Tree Service & Asplundh on an average of 30 yards per week.

(5) MAP OF SITE—see existing maps of land application for 35-07

Attached

(6) OPERATIONS—

(a) Compost administrator (Shane Brantley) 2009 until. Address—272 Johnson Town Rd Zebulon 27597.

(b) Employees of David Brantley & Sons will carry out the day to day operations of the facility. Justin Bunn is the Plant Manager. Contact #: 919-673-2280 Responsibilities are as follows:

1. To check & log temperatures of compost windrows
2. To add wood chips as needed for treatment of odor
3. Turn the windrows at least 5 times in 15 days & log the dates
4. Take samples of finished compost & deliver to NCDA

Albino Valazquez is an assistant. Responsibilities are as follows:

1. To blend wood chips with the dewatered cake
2. To remove material to first windrow using a backhoe

(c) Hours of Operation: Monday-Friday 7:30am-4:30pm & Saturday by appointment only.

(d) Adverse weather

1. Site will be cleaned prior to a severe weather event
2. Storage tanks will be lowered to safe levels, about 25% full
3. All electrical breakers are to be cut off

4. Facility will only accept waste on an emergency basis during times of adverse weather. Furthermore the waste will be held in tank until such time as the adverse weather has abated to fully process the waste.

(e) Finished Product

1. We will produce a Class A compost.

(7) DESIGN:

(a) Design capacity of the facility:

1. The facility capacity is 20,000 gallons per day. The type will be a small 3 type producing Call A compost. At present we can store 94,000 gallons of septage, grease or dewatered waste between 2 sites, 35-06 & 35-07.

(b) See diagram

Attached

(c) Measuring & Mixing:

1. The equipment used in the mixing all have a one yard bucket. The buckets are counted as needed to mix the cake with the wood chips. After material is properly mixed, the material is placed in Windrow A. Each bucket will be counted as one yard.

(d) Windrows:

1. Windrow (A) begins the process of compost. It is monitored until it reaches the temperature of 131 degrees. Once it reaches this temperature it is moved to Windrow (B). Windrow (B) will be monitored every day for temperatures & will be aerated a minimum of 5 times during this 15 day period. Meeting standard 15NCAC 1406 (12)(A). Once this has been achieved the product will be moved once more to our bulk storage pile for further decomposition or usage.

(e) Monitoring:

1. We monitor the temperature by using a 3' gauge & a 6' gauge. Each windrow will be checked at 3-6 points in the rows. Each reading will be recorded onto our log sheet. The temperatures are checked daily except on weekends. The temperature gauges are kept in the Polymer Building.

(f) Process Duration:

1. From the time of receiving the septage or grease to Class A Compost would be 90-180 days.

(g) Aeration Method:

When aeration is needed, a backhoe is used to turn the row over & aerate the material.

(h) Surface Water Control:

1. All leachate will be contained by a berm at the lower end of the windrows. Any leachate that exceeds boundaries will be cleaned up with the necessary equipment and lime will be applied.

2. Site is located in the middle of 3 acre field. It is not subject to surface water flow and runoff will not be present.

(8). RULE .1407: Compost that exceeds the minimum metal concentration levels defined in 1407 will either be reprocessed through the system or properly disposed of (Wake or Sampson county landfills). The facility is expected to be class A and will therefore meet the metal concentration requirements 40 CFR 503.13(B)(3).

(9) FACILITY PLANS

(a) Equipment:

1. 310sg John Deere backhoe, 555 New Holland Backhoe, 865 New Holland skid Steer. All equipment can be used for transport of blended waste and chips to wind rows or flipping wind rows. In the event of a breakdown one machine is taken out of service and another is brought online while repairs are being made.

(b) Spills:

1. Will be cleaned up with the necessary equipment backhoe, pump truck or hand labor. Lime will also be applied

(c) Fires:

1. The facility is very open with easy access in and around all areas of the compost windrows, bulking agents & buildings. There are 2 fire departments less than 3 miles of the plant.

(d) Operations & Maintenance:

1. The facility is designed to receive septage & grease trap waste. The finished product of dewatered waste is a semi-solid cake of septage & grease waste. This is dumped into a concrete mixing trough and is then mixed with wood chips. Once it is mixed it is carried by a backhoe to windrow (A). This will start the composting process. When windrow (A) reaches a temperature of 131 degrees it will be moved to windrow (B). Temperature readings are taken daily and recorded (excluding weekends). Reading of 131 degrees for 15 consecutive days will be considered passing. At this point windrow (B) is removed by backhoe & placed into our bulk storage for further decomposing. Sampling will be done according to 15A NCAC 13B .1408 for this type of facility. Any waste found to be non-conforming will be disposed of in the roll off dumpster at David Brantley and Sons shop yard located 500 yards west of the site. This dumpster is serviced by Waste Industries on a weekly basis.

(10) 1408 methods for testing and reporting requirements:

(a) The compost products from Type 2, 3, and 4 facilities shall be sampled and analyzed as follows.

1. A compost site sample of the compost produced at each compost facility shall be analyzed at intervals of every 20,000 tons of compost produced or every six months, whichever comes first, for test parameters for each Type of facility as designated in Table 3 of this rule. Standard methods equivalent to those in Table 3 may be approved by the Division.

2. Testing shall include waste analysis for heavy metals, fecal coli form or salmonella and foreign matter. The foreign matter test will follow rule 1408 (a) (5).

(11) RECORD KEEPING:

Shall meet the requirements specified in 15A NCAC 13B .1408

(a) Daily operational records

1. Minimum temperature, length of compost period and quantity of material processed.
2. Analytical results on compost testing.
3. The quantity and type of waste processed into compost.
4. The quantity and type of compost removed for use or removal

(b) Monitoring requirements:

1. All monitoring and reporting requirements will be met.
2. Daily records will verify proper curing and pathogen reduction. Testing will include fecal coli form or salmonella testing.



Franklin County Planning & Inspections

215 E. Nash St.
Louisburg, NC 27549

Phone: 919.496.2909
Fax: 919.496.2637

www.franklincountync.us

September 7, 2011

David Brantley
37 Pine Ridge Rd.
Zebulon, NC 27597

RE: Zoning Verification

Dear Mr. Brantley:

The current zoning for the 56 acre tract located off NC 39 HWY Franklin County PIN: 2729-13-1487 is Residential-30 (R-30). Agricultural activities are allowed on this property.

Agricultural Uses include but are not limited to the following:

Livestock
Crop Production
Composting

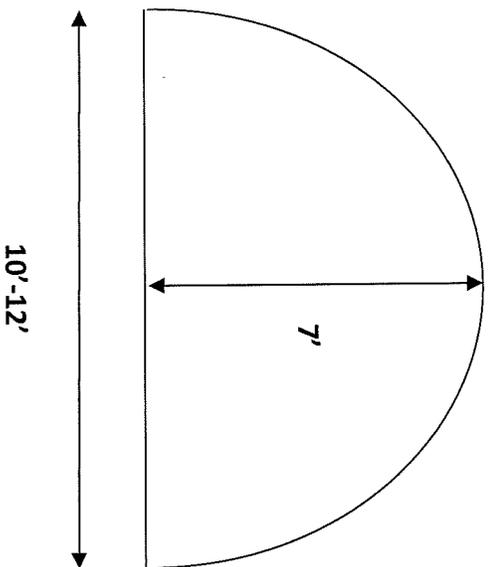
Please feel free to contact me at (919)-496-2909 if you have any further questions or concerns.

Sincerely,

Jason Rogers
Planner I

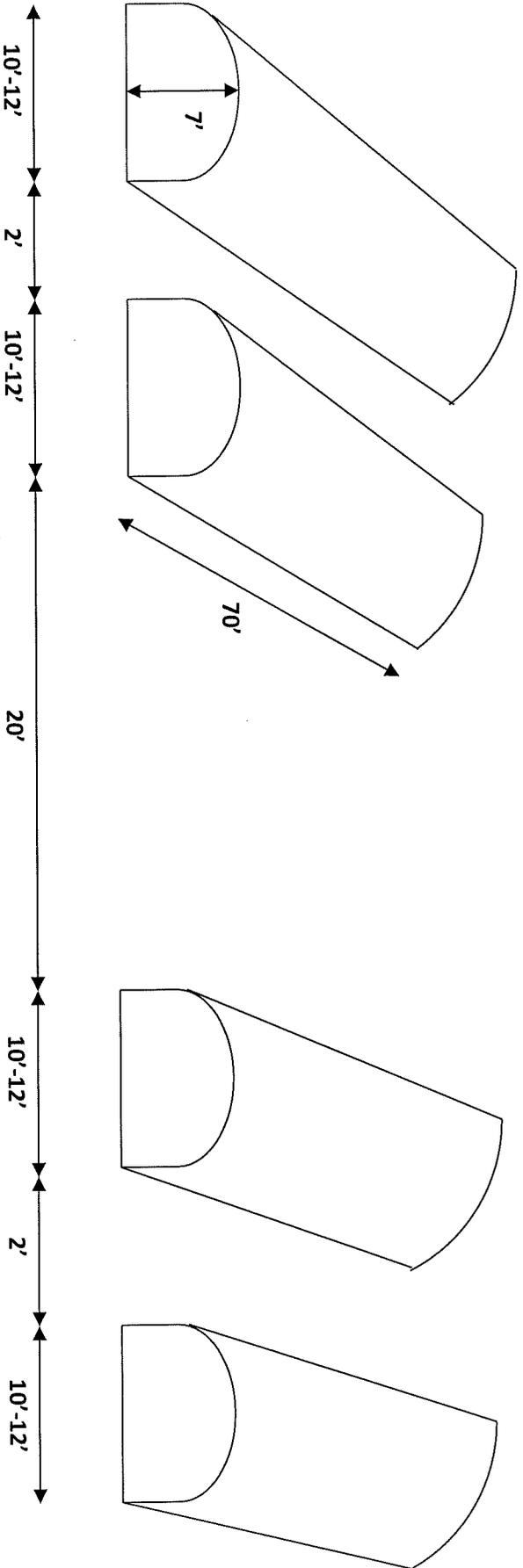
"Equal Opportunity Employer"

DAVID BRANTLEY & SONS, INC
TYPICAL WINDROW SHAPES



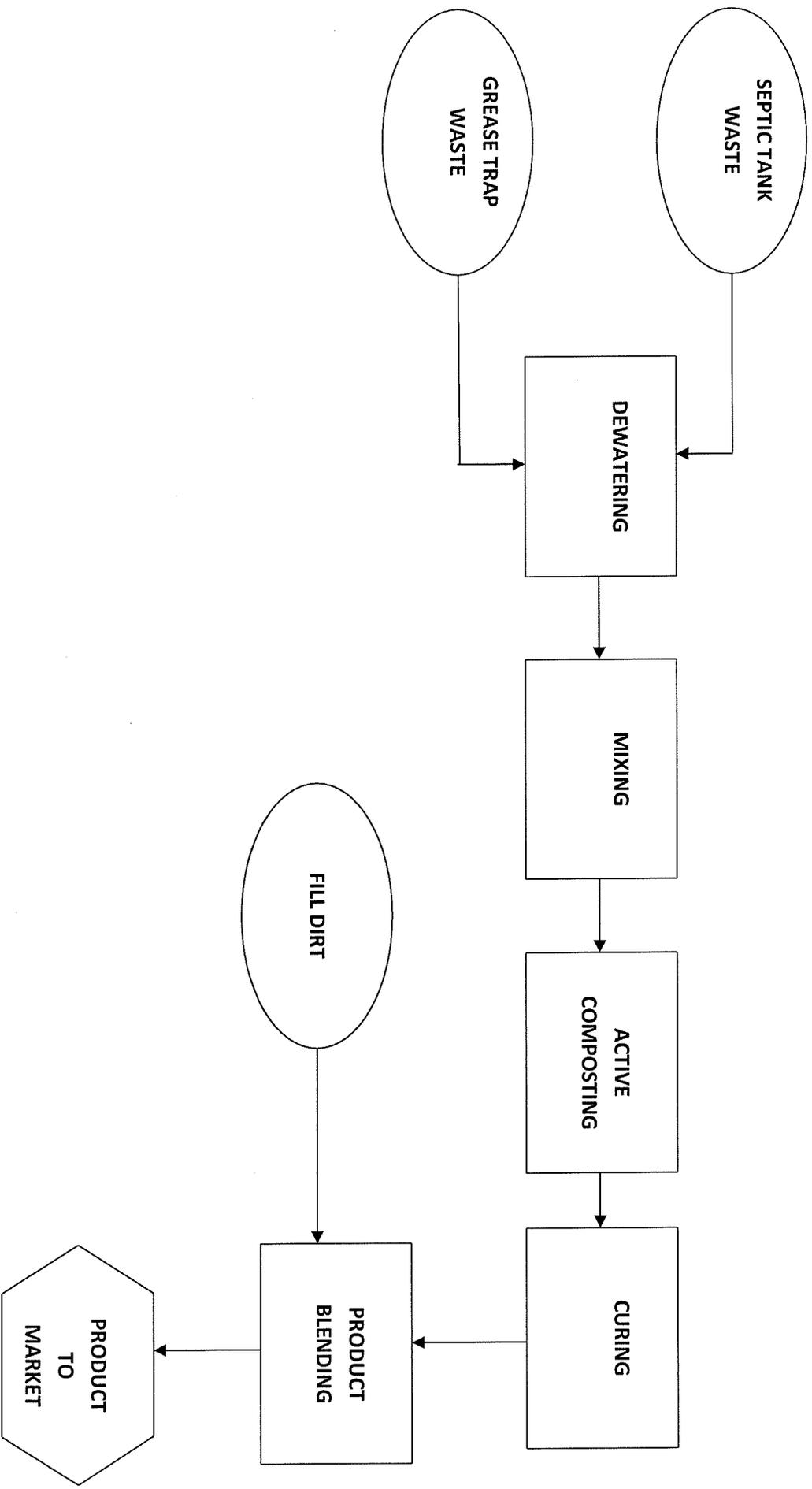
WINDROWS TURNED WITH A BUCKET LOADER

DAVID BRANTLEY & SONS, INC
DIMENSIONS & SPACING FOR WINDROWS



BUCKET LOADER-TURNED WINDROWS

DAVID BRANTLEY & SONS, INC
COMPOSTING FACILITY
PROCESS FLOW CHART



Client: David Brantley & Sons, Inc.
 Project: Dewatering Box and Compost Demonstration
 Project No.: A41401.00
 Subject: Compost System Design
 Date: September 30, 2008

Assumptions:

1. The total amount of sludge to be composted = 3 wet tons per day.
2. Wood chips are added to the wet sludge at the rate of 2 cubic yards of chips per cubic yard of wet sludge.
3. 3/4 of the wood chips are recovered by screening and reuse.
4. The water content and total weight of the compost mixture is reduced by approximately 30 to 40 percent.
5. Volatile solids content is reduced by about 10 to 15 percent.
6. The density decreases 15 to 20 percent because of evaporation.
7. The extended aerated pile system is used.

Constituent: (Standards)	Bulk Density (lbs/cy)
Dewatered Sludge =	1,600
New Wood Chips =	500
Recycled Wood Chips =	600
Screened Compost =	865
Unscreened Compost =	1,000

Assume the Process Variables: (Standards)

Sc (Fractional solids content of sludge cake):	0.20
Vc (Volatile solids content of sludge cake, fraction of dry solids):	0.75
Kc (Fraction of sludge cake volatile solids degradable under composting conditions):	0.45
Sb (Fractional solids content of external bulking agent):	0.70
Volatile solids content of external bulking agent:	0.90
Kb (Fraction of external bulking agent volatile solids degradable under composting conditions):	0.10
Sr (Fractional solids content of recycle):	0.70
Vr (Volatile solids content of recycle):	0.80
Kr (Fraction of recycle volatile solids degradable under composting conditions):	0.10

Sludge Composting Frequency (days per week) =	5
Volume per Work Day (wet tons) =	4.20

F1 (Assumption Standard):	0.75
F2 (Assumption Standard):	0.25

Xr (Total wet weight of recycle/day) =	2.36
Xb (Total wet weight of external bulking agent/day) =	0.79

W (Amendment ratio) =	9.04
	Less than 10, Amendment not Required

Constituent	Mass (tons/day)	Volume (cy/day)
Dewatered Sludge =	4.20	5.25
New Wood Chips =	0.79	3.15
Recycled Wood Chips =	2.36	7.875
Total =	7.35	16.275

Size Pile

Height (between 5 ft and 8 ft) =	7.00
Width =	7.00
Length (between 10 ft and 90 ft) =	40.00
Extended per day (ft) =	2.00

Wood chips required to construct a 1 ft pad for the compost (cy/day) =	2.96
Unscreened compost is required each day to cover the pile 18" (cy/day) =	4.44
Minimum Blower Size (cf/min) (Optional) =	62.48

Use Gast R4-P series regenerative blower

Mueller, Megan E

From: Patterson, Elizabeth
Sent: Tuesday, January 03, 2012 8:32 AM
To: Scott, Michael; Mueller, Megan E
Subject: FW: compost

Please see the bottom of the email where Shane runs through his calculations again.

Liz Patterson
Office Assistant
Composting and Land Application Branch

DENR, Division of Waste Management
MAILING ADDRESS: 1646 Mail Service Center, Raleigh, NC 27699-1646
PHYSICAL ADDRESS: Green Square Complex, 217 W. Jones Street, Raleigh, NC 27603
Phone & Fax: 919-707-8285
Elizabeth.Patterson@ncdenr.gov
<http://portal.ncdenr.org/web/wm/sw>

E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: Cory Brantley [<mailto:davidbrantleyandsons@yahoo.com>]
Sent: Monday, January 02, 2012 2:23 PM
To: Patterson, Elizabeth
Subject: Fw: compost

Please confirm receipt of this e-mail

Thanks,

*Robin Maynard
David Brantley & Sons
37 Pine Ridge Rd
Zebulon, NC 27597
Office: 252-478-3721
Fax: 252-478-4644*

<http://www.davidbrantley-sonsinc.com/>

<http://rmaynard.bodybyvi.com/>
Join the Visalus 90 Day Challenge!!!!
919-810-9802

*"Life is not the way it's supposed to be. It's the way it is.
The way you cope with it, is what makes the difference."*

----- Forwarded Message -----

From: teresa brantley <brantley.family@att.net>
To: davidbrantleyandsons@yahoo.com

Calculations seem okay!
MEM
1/4/12

Sent: Friday, December 30, 2011 9:16 AM
Subject: Re: compost

The Brantley Family

From: teresa brantley <brantley.family@att.net>
To: davidbrantleyandsons@yahoo.com
Sent: Fri, December 16, 2011 8:27:44 AM
Subject: compost

Our windrows will be approximately 7' high 12' wide and 70' long.

$7 \times 12 \times 70 = 5880$ sq ft divide by ^{1 cu yrd.} 27 gives us cubic yards of 217.7 cubic yards. The dry weigh of wet compost is around 1500 lbs. $1500 \times 217.7 = 326,550$ lbs divided by 2000 lbs = 163.27 wet tons.

If we used one windrow of time and temperature of 131 degrees for 15 days that would give us 24 completed cycles in a year thus producing 3918.6 tons per years of wet compost. this is what one windrow can produce and the pad that we have at present can support two windrows of 7' high--12'wide and 70' long, so the maxium amount of wet tons in a year is 7,838.2 tons

The Brantley Family



(3x3x3 for 1 cu yrd.)

$$1.) 7 \times 12 \times 70 = 5880 \text{ sq ft} \div 27 = \boxed{217.7 \text{ cu. yds}}$$

$$2.) 217.7 \times 1500 \text{ lbs wet wt} = \boxed{326,550 \text{ lbs}} / 2000 \text{ lbs} \\ = \boxed{163.275 \text{ tons}}$$

$$3.) 163.275 \times 24 \text{ cycles} = 3918.6 \text{ tons / yr for 1 windrow}$$

$$\text{pad supports 2} \rightarrow \text{so } \boxed{7837.2}$$



North Carolina Department of Environment and Natural Resources

Division of Water Quality

Charles Wakild, P. E.
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary



MEMO

February 16, 2012

To: Michael Scott, Chief Solid Waste Section, Division of Waste Management

From: Ken Pickle, DWQ Stormwater Permitting Unit

**Subject: David Brantley & Sons, Zebulon, NC
Demonstration Composting site, Small Type 3**

Discussion

1. Based on my observations on site on February 15, 2012, this facility does not require an NPDES surface water discharge permit.
2. On the day of my visit there was no evidence that the facility has a point-source discharge of either stormwater or wastewater associated with the area of composting activity. On this basis an NPDES surface water discharge permit is not required. Based on the observed topography and industrial activity configuration, any runoff or leachate that would be generated would travel into the immediately adjacent land application field, which has approximately 200' of very gently rolling topography covered with a well established fescue crop.
3. I advised Mr. Shane Brantley of my conclusions during the visit to his site.

Ken Pickle
DWQ Stormwater Permitting Unit

Jon Risgaard, DWQ Land Application Unit
Danny Smith, DWQ Raleigh Regional Office Surface Water Protection Supervisor
SPU County Files, Franklin County