

Durham CO. 32-04

1999

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City of Durham, North Carolina

**Application for Type 1 Yard Waste Composting
Facility**

**November, 1998
Revised June, 1999**

APPROVED
DIVISION OF SOLID WASTE MANAGEMENT
DATE 7/9/99 BY TL

City of Durham, North Carolina
Application for Type 1 Yard Waste Composting Facility
November, 1998
Revised June, 1999

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I. Introduction

Background

The City of Durham obtained a permit for a yard waste composting facility to begin operation in January, 1992. The facility is located on a portion of the borrow area of the closed sanitary landfill which has an entrance at 2115 East Club Boulevard. The yard waste received at the facility is from both City Yard Waste vehicles and the public. This application is for a renewal of Permit No. 32-04-YW.

II. Application Requirements

A. Aerial Photograph

See Tab 1

B. Letter from Zoning Authority

See Tab 2

C. Explanation of Site Compliance

1. The site does not restrict the flow of the 100-year flood, reduce the temporary storage capacity of the floodplain, and is protected against washout of solid waste which would pose a threat to human life, wildlife, land or water resources.

This site is not within the 100 -year floodplain, and therefore does not reduce the temporary storage capacity of the floodplain. The site is protected against washout of solid waste by surrounding buffer areas. See site plan, Tab 5.

2. A buffer greater than 50 ft. is in place between all property lines and compost areas.

See Map, Tab 5 for buffer limits.

3. A buffer greater than 200 ft. is in place between the compost area and residences or dwellings.

See Map, Tab 5 for buffer limits.

4. A buffer greater than 100 feet exists between all wells and compost areas.

See Map, Tab 5 for buffer limits.

5. A buffer greater than 50 feet exists between perennial streams/rivers and compost areas.

See Map, Tab 5 for buffer limits.

6. The compost facility is located in accordance with 15A NCAC 2B.0200 Classification and Water Quality Standards for Surface Waters in North Carolina.

See State Water Quality Site Visit Letter, Tab 3

7. This facility is not located over a closed-out disposal area.
8. The distance between compost areas and swales or berms is more than 25 feet.

See Map, Tab 5 for distances.

9. The site meets all surface water requirements.

See State Water Quality Letter, Tab 3

- **The site meets the requirements of the NPDES under section 402 of the Clean Water Act.**
- **The site does not violate non-source pollution water quality standards.**

10. The site meets all groundwater requirements.

- a. **Does not contravene groundwater standards as established under 15A NCAC 2L. Leachate from the site is minimal and organic.**
- b. **The portions of the site used for waste receipt and storage, active composting, and curing have a soil texture finer than loamy sand and the depth to the seasonal high water table is over 12 inches. Refer to letter from Carl Matyac regarding soil classification**

and water table at the site from original application (Tab 4, page 1).

- c. N/A
- d. N/A
- e. N/A

11. The site shall meet the following design requirements:

- a. A site shall not allow uncontrolled public access.

Access to this site is controlled from a lockable gate entrance at 2115 East Club Boulevard. This gate is opened at 7:30 am and closed at 4:30 pm Monday through Friday . On Saturday the gate is opened at 7:30 am and closed at 12:00 noon. Each vehicle is given access to the site after being weighed and inspected at the scale house.

- b. The site meets the requirements of the SPC Law (15A NCAC 4).

As part of the approval process for the sanitary landfill borrow area within which the compost area sits, a sedimentation and erosion control plan was submitted and approved. This approval was reaffirmed for the compost facility by Debbie Fuquay of the NC Department of Environment and Natural Resources, Land Quality Section on November 12, 1998.

See Sedimentation and Erosion Control Inspection Report, Tab 4, page 2.

- c. The site meets the Air Pollution Control requirements (15A NCAC 2D) to minimize fugitive emissions and odors.

The site's operations are within these requirements. Air pollution is minimized by incorporating the waste into windrows and maintaining aeration.

- d. The site releases no odors and protects against odors from crossing property boundaries.

Odor is controlled by maintaining windrow aeration as needed. The site is located in a sparsely populated area and minimum buffer requirements are met. No odor complaints have been reported regarding this site.

D. Report of Waste Data

The waste consists of leaves, grass clippings, stems, pruning materials and small brush that is generated in residential and commercial lawn and garden care in the City of Durham. During the last few years, approximately 4500 tons of this material have been handled per year. This waste is to be composted as is, without the addition of bulking agents. Clean wood and pallets are proposed for grinding as a mulch at the same facility.

The facility uses natural soil as a pad. This soil was evaluated by a soil scientist for the initial permit. This information is included (Tab 4, page 1) and states that this site contains loam soil and there was not evidence of the seasonal high water table in the four foot test pit that was excavated for examination.

E. Site Plan

See Map, Tab 5.

F. Site Operation Description

1. Persons responsible for facility operation:

<i>Nancy L. Newell</i>	<i>Solid Waste Manager</i>	<i>919 560-4381</i>
<i>Frederick X. Ravin</i>	<i>Disposal Supervisor</i>	<i>919 560-4611</i>
<i>101 City Hall Plaza</i>		
<i>Durham, NC 27701</i>		

2. Personnel required:

1 operator/waste screener - The responsibilities of this position include screening the waste as it is received to reduce the likelihood of unacceptable waste being received. In addition, this position would involve operation of the loader used for windrow aeration and formation. Internal windrow temperature checks and removal of unacceptable waste are included in these duties.

1 disposal attendant - The responsibilities of this position include a visual inspection of loads as well as verbal questioning regarding the materials included in the load brought for yard waste disposal.

1 disposal supervisor - The responsibilities of this position include the oversight of the overall composting operation.

3. Incoming yard waste should only consist of leaves, grass clippings, stems, pruning materials, small brush and biodegradable paper yard waste bags generated in residential and commercial lawn and garden care in the City of Durham. The yard waste is to be received and weighed at the scale house, and checked for unacceptable waste. The unacceptable waste shall be removed by the customer and placed in a stationary waste container for small vehicles or taken to the transfer station tipping floor, depending on the type of waste. The unacceptable waste is then loaded onto the transfer trailers and hauled for disposal to the Brunswick Waste Management Facility in Lawrenceville, Virginia. The uncontaminated yard waste shall then be unloaded by the yard waste customer at a temporary receiving area near the transfer station or at the compost facility itself. The temporary receiving area will be located near the transfer station and will allow for small trucks to unload and be observed by the attendant stationed in that area. The yard waste will regularly be loaded onto articulated dump trucks for transport to the yard waste compost facility that is located to the north of the closed landfill. At either unloading area, the waste screener shall check the yard waste materials again for unacceptable waste. If unacceptable waste is discovered at either location, the load shall be rejected and the yard waste customer shall be directed to return to the scale house for re-weighing. Any extraneous unacceptable waste found after the customer has left the site shall be placed into on-site roll-off containers or trash trailers which are picked up for transport back to the transfer station for disposal in Virginia. The waste is then formed into static windrows of 8 to 10 feet high and 10 to 15 feet wide. The windrows will be at least 20 feet apart. The waste should be processed at least twice a year through a large tub grinder to reduce the particle size and enhance the composting process. This service would be provided by a contractor rather than by the City.
4. Special precautions and procedures for operating during wind, heavy rain, snow, freezing or other adverse conditions will be

taken by using the temporary receiving area. Limiting the access directly to the compost site will be recommended during these events. Since the duration of these adverse conditions are usually short in Durham, there is little need for special procedures other than limiting the turning of the windrows and keeping the unloading area available. Snow and freezing conditions occur at a season that generates little yard waste other than branches and pruned materials.

5. The compost facility is located within a larger tract of property owned by the City. There are no close neighbors or facilities. There have been no complaints regarding odors, vectors, air borne particulates or noise generated from the yard waste compost site during the facility's operation. If needed, dust control will be provided by the use of a water truck to spray and moisten dry areas. Odor control measures will consist of incorporating yard waste with significant amounts of grass evenly into the windrow with other materials within 48 hours or before the waste begins to heat, cause odors or attract vectors. All windrows will be turned at least monthly. If odor becomes a problem, more frequent turnings will be performed. Regular temperature checks will also serve as an indicator for the frequency of turning.
6. The finished compost product will be available for use by the City's Parks and Recreation Department, other City departments, local citizens and gardeners. Long range plans include making arrangements to screen and market the compost in order to offset the costs involved in this operation. If the compost is not desirable by the public, it can be used by City departments and in the maintenance of the closed landfill. The compost may also be useful in producing other compost products that involve biosolids.

G. Facility Design Report

1. **Design Capacity = 30,000 cubic yards**

The City's 32.5 acre tract is located within the city limits just north of East Club Blvd. and just west of Glenn Rd. The facility handles the leaves and limbs collected at the curb by City crews as well as materials brought in by the public. The City will not pick up limbs and leaves contaminated with any foreign materials. 10 acres of this tract is currently being used for the windrowing of leaves and the grinding of limbs. Assuming that

approximately 3,000 cubic yards of material can be composted on an acre of property, the current design capacity of the facility is 30,000 cubic yards. Currently, the City's Compost Facility brings in approximately 4500 tons or 22,500 cubic yards of yard waste.

2. **Process Flow Diagram**

See Tab 6

3. **Yard waste is weighed as it arrives at the scale house of the City's Disposal Facility. It will be routinely shredded or ground at least two times per year and mixed using a front-end loader. When grass is brought in large quantities, it is incorporated into the yard waste windrows within 48 hours or before the waste begins to heat, cause odors or attract vectors. No other materials are included other than yard waste and biodegradable paper yard waste bags.**
4. **The process is expected to last approximately six to nine months, no longer than a year, from the reception of the waste materials until the cured compost is distributed.**
5. **Monitoring shall be done in order to meet record keeping and reporting requirements. Record keeping requirements include daily operations records which detail temperature data and quantity of material processed. Compost product from this Type 1 facility is not required to be tested. Records should also show the quantity and type of waste that is both received and processed into compost. In addition, the quantity and type of compost removed for use or disposal should be recorded. Monthly the daily temperature records shall be checked to ensure that the pathogen reduction criteria is met.**
6. **The compost temperature shall be checked in order to maintain at or above 55 degrees Celsius (131 degrees F) for three days and aerated to maintain elevated temperatures.**
7. **The compost shall be aerated by being turned with a front-end loader with a 2.5 cubic yard capacity bucket.**
8. **The surface water shall be controlled with the use of swales and berms to prevent run-off and with sedimentation basins to properly manage the run-off. The drainage ways are stable**

ditches and swales covered with well-established ground cover containing only runoff. The facility does not discharge directly to waters of the State. No composted materials are removed from the site via storm water runoff. Only leaves, limbs, brush, etc., are composted on site; therefore, runoff passes through composting materials and grassed swales. Leachate generated is minimal.

H. Label Description

Classification of the compost is Grade A;

The compost and mulch that is produced at the City's Type 1 facility shall contain minimal pathogenic organisms, shall be free from offensive odor, and shall contain no sharp particles that would cause injury to persons handling the compost. Under these conditions, the compost product shall have unrestricted applications and distributions; and directions will be provided with the compost product.

A sample label is shown below.

<p style="text-align: center;">Classification Grade A</p> <p style="text-align: center;"><u>Recommended uses for this product:</u> Use as a soil amendment Use for seedling mixtures</p> <p style="text-align: center;"><u>Application:</u> <i>For soil amendment</i>, mix product directly into soil by working it into plant beds or apply a two-inch layer to soil surface. Use a light layer to mulch your house plants and then water as usual. <i>For seedling mixtures</i>, use 1:1 mixture of compost, topsoil or 1/3 compost, 1/3 topsoil, 1/6 sand, 1/6 vermiculite or perlite. Line your holes or seed pockets with the compost, mix with soil and then plant your transplants or seeds.</p> <p style="text-align: center;">No restrictions on use</p> <p style="text-align: center;">For more information on composting, contact the North Carolina Cooperative Extension Service</p>

I. Facility Plans and Specifications

This facility is shown in the site plan. There are no special buildings or equipment that are specifically designed for composting. The front end loader is a multipurpose piece of equipment. The grinder is to be provided by a contractor and the specifications are not available.

J. Operation and Maintenance Manual

See enclosed copy, Tab 7.

City of Durham, North Carolina
Renewal Application for a Type 1 Yard Waste Composting Facility
July, 2004

(Original Application – November, 1998)
(Revised Application – June, 1999)

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**Durham
City/County
Planning Department**



101 City Hall Plaza
Durham, NC 27701

Telephone: (919) 560-4137
Fax: (919) 560-4641

Mr. Ted Lyon
Solid Waste Section
NC Department of Environment and Natural Resources
Post Office Box 29603
Raleigh, NC 27611-9603

Re: Zoning approval for renewal of a Yard Waste permit for the City of Durham.

Dear Mr. Lyon;

This letter is being submitted in accordance with North Carolina General Statutes 130A-294, -309.03, -309.11, and -309.29 at the request of the City of Durham. The City of Durham Yard Waste Center was formerly designated as I-2 (Light Industrial) for the original permit in December of 1991. It is currently zoned as I-3(d) (Heavy Industrial). This designation allows for the operation of a Type 1 yard waste center.

I hope this information is adequate to satisfy your request. If you should have any questions, please contact me at 560-4137, ext. 223.

Sincerely,

Steven L. Medlin, AICP
Senior Planner

cc: Nancy Newell



3) Explanation of Siting and Design Standards Compliance

The site does not restrict the flow of the 100-year flood, reduce the temporary storage capacity of the floodplain, and is protected against washout of solid waste which would pose a threat to human life, wildlife, land, or water resources.

This site is not within the 100-year floodplain, and therefore does not reduce the temporary storage capacity of the floodplain. The site is protected against washout of solid waste by surrounding buffer areas.

See TAB 5 – (Yard Waste Composting Facility Site Plan)

Waste and Soil Evaluation Reports

4) Waste Type(s), Source, and Quantity and Soil Evaluation Reports

a) *Waste type(s), source and estimated quantity;*

The waste consists of leaves, grass clippings, stems, pruning materials and small brush generated in residential and commercial lawn and garden care in the City and County of Durham. Clean wood and pallets are used for grinding as mulch at the same facility. This waste is composted as is, without the addition of bulking agents.

During Fiscal Year 2003-2004, the facility received and processed 17,000 tons of this material. The facility will likely receive similar quantities of material annually during the foreseeable future.

b) *Soil evaluation of site by a soil scientist.*

The facility uses natural soil as a pad. Per the enclosed letter from the Agricultural Extension Service (*under this tab*), the soil was evaluated by a soil scientist for the initial permit. The site contains loam soil and there was not evidence of the seasonal high water table in the four foot test pit that was excavated for examination.



AGRICULTURAL
EXTENSION
SERVICE

North Carolina State University
College of Agriculture and Life Sciences

Address reply to:
County Extension Office

721 Foster Street
Durham, North Carolina 27701
November 4, 1991

Nancy Clayton
City of Durham Sanitation Dept.
101 City Hall Plaza
Durham, N.C. 27701



Dear Ms. Clayton:

I visited the Durham City Landfill at 2115 E. Club Blvd. on October 30, 1991 for the purpose of evaluating the soil at the proposed composting site.

A pit was dug approximately 4 feet deep. I collected soil samples from the bottom and sides of the pit for textural classification and for evidence of water table levels. I determined that the sample was a loam soil. This was confirmed by Mr. Eddie Culberson of the Soil and Water Conservation Service.

There was no evidence that the water table was present or had ever been present at the bottom of the pit.

I am looking forward to working with you on this project.

Sincerely,

Carl A. Matyac, Ph.D.
Assoc. Agricultural Ext. Agent

SEDIMENTATION INSPECTION REPORT

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
LAND QUALITY SECTION: 3800 Barrett Drive, Raleigh, NC 27609 (919) 571-4700

County Durham Project: Durham Compost Facility River Basin Neuse #1:03-04-c
Person Financially Responsible City of Durham
Address 101 City Hall Plaza Durham, NC 27701 ATTN: A.T. Kolan, Director

1. Project Location IN of landfill Pictures: Yes No Prints Slides Video

2. Weather and Soil Conditions COOL; workable

3. Is site currently under notice of violation? Yes No

4. Is the site in compliance with the S.P.C.A. and rules? Yes No If no, check violations below:

5. Violations:
- a. No approved plan, G.S. 113A-57 (4) and 15A N.C.A.C 4B.0007(c)
 - b. Failure to follow approved plan, G.S. 113A-61.1
 - c. Failure to submit revised plan, G.S. 113A-54.1(b) and 15A N.C.A.C. 4B.0018(a)
 - d. Failure to provide adequate groundcover, G.S. 113A-57(3) and 15A N.C.A.C. 4B.0007(b) or 15A N.C.A.C 4B.0024(e)
 - e. Insufficient measures to retain sediment on site, G.S. 113A-57(3)
 - f. Failure to take all reasonable measures, 15A N.C.A.C.4B.0005
 - g. Inadequate buffer zone, G.S. 113A-57(1)
 - h. Graded slopes and fills too steep, G.S. 113A-57(2) or 15A N.C.A.C. 4B.0024(d)
 - i. Unprotected exposed slopes, G.S. 113A-57(2)
 - j. Failure to maintain erosion control measures, 15A N.C.A.C. 4B.0013
 - k. Other(describe) _____

6. Has sedimentation damage occurred since last inspection? Yes If yes, where? (check all that apply): No

Lake/natural watercourse on the tract Lake/natural watercourse off the tract Other property
Description _____

Degree of damage: Slight Moderate Severe

7. Contact made with (Name) Newell, Brown Title _____

Inspection Report given or sent to Person Financially Responsible. Date given/sent delivered on site

8. Corrective actions needed:

*
Comments: Sediment basins are in place and functioning properly to control sediment on the site; ground cover is sufficient on areas adjacent to active stockpiles of woody materials - site looks fine; well-controlled. Periodically monitor basins for any maintenance needs.

Report by: Debbie Jugway Others Present _____

Date of Inspection 11-12-98 Time arriving on site 10:20 am Time leaving site 11:00 am

cc: Nancy Newell Jennifer Brown

Facility Operation

6) Operations Plan

a) Persons responsible for facility operation:

Roosevelt Carter	Solid Waste Administrator	919 560-4186 Ext. 253;
Billy Gregory	Crew Leader	919 475-2383

b) Personnel Required:

1. **Operator/Waste Screener** – The responsibilities of this position include screening the waste as is received to reduce the likelihood of unacceptable waste being received. In addition, this position operates the loader used for windrow aeration and formation. Internal temperature checks and removal of unacceptable waste are also included in these duties.
2. **Disposal Attendant** – The responsibilities of this position include a visual inspection of loads as well as verbal questioning regarding the materials included in the load brought for yard waste disposal.
3. **Disposal Supervisor** – The responsibilities of this position include the oversight of the overall composting operation.

c) Operations Plan for the Facility

See "The City of Durham - Operations and Maintenance Manual for a Type 1 Yard Waste Composting Facility" under separate cover.

d) Inclement Weather Precautions;

Special precautions and procedures for operating during wind, heavy rain, snow, freezing or other adverse conditions will be taken by using the temporary receiving area. Limiting access directly to the compost site is recommended during these events. Since the duration of these adverse conditions is usually short in Durham, there is little need for special procedures other than limiting the turning of the windrows and keeping the unloading area available. Snow and freezing conditions occur at a season that generates little yard waste other than branches and pruned materials.

e) Noise, vectors, air borne particulates, and odor controls;

The compost facility is located within a larger tract of property owned by the City. There are no close neighbors or facilities. There have been no complaints regarding odors, vectors, air borne particulates or noise generated from the yard waste compost site during the facility's operation. Dust control is provided by the use of a water truck to spray and moisten dry areas. Odor control measures consist of incorporating yard waste with significant amounts of grass evenly into the windrow with other materials within 48 hours or before the waste begins to heat, cause odors or attract vectors. All windrows are turned at least monthly. More frequent turnings will be performed if odor becomes a problem. Regular temperature checks serve as an indicator for the frequency of turning.

Facility Operation

f) Describe ultimate use for finished compost, method for removal from the site, and contingency plan.

The finished compost product is available for use by the City's Parks and Recreation Department, other City and County departments, Durham County School District, local citizens and gardeners. Current operations include screening and marketing compost and mulch to offset the costs involved in this operation.

Excess compost or other residue not readily marketable is made available for free pick-up by large earth material vendors for use in their products.

Facility Report

7) Facility Design Report

a) Design capacity;

The City's 32.5 acre tract is located within the city limits just north of East Club Blvd., just west of Glenn Road. The facility handles the leaves and limbs collected at the curb by City crews as well as materials brought in by the public and private contractors. The City does not pick up limbs and leaves contaminated with any foreign materials. Assuming that approximately 3,000 cubic yards of material can be composted on an acre of property, the current design capacity of the facility is 30,000 cubic yards. In FY 2004, 17,000 tons of yard waste was brought into the facility.

b) Process flow diagram;

See "Process Flow Diagram-Yard Waste" under this tab

c) Means for measuring, shredding, mixing, and proportioning input materials;

Yard waste is weighed as it arrives at the scale house of the City's Solid Waste Disposal Facility. It is routinely shredded or ground at least two times per year and mixed using a front-end loader. When grass is brought in large quantities, it is incorporated into the yard waste windrows within 48 hours or before the waste begins to heat, cause odors or attract vectors. No other materials are included other than yard waste and biodegradable paper yard waste bags. No air

d) Anticipated process duration, etc.

The process is expected to last approximately six to nine months, no longer than a year, from the reception of the waste materials until the cured compost is distributed.

e) Describe location of all temperature, air and any other type of monitoring points, and frequency of monitoring;

Monitoring is done in order to meet record keeping and reporting requirements. Record keeping requirements include daily operations records which detail temperature data and quantity of material processed. Records show the quantity and type of waste that is both received and processed into compost. The daily temperature records shall be checked monthly to ensure that the pathogen reduction criteria are met.

f) Describe how temperature control and monitoring equipment demonstrate meeting facility requirements;

The compost temperature shall be checked in order to maintain at or above 55 degrees Celsius (131 degrees F) for three days and aerated to maintain elevated temperatures. ★

g) Method of aeration provided and capacity of aeration equipment;

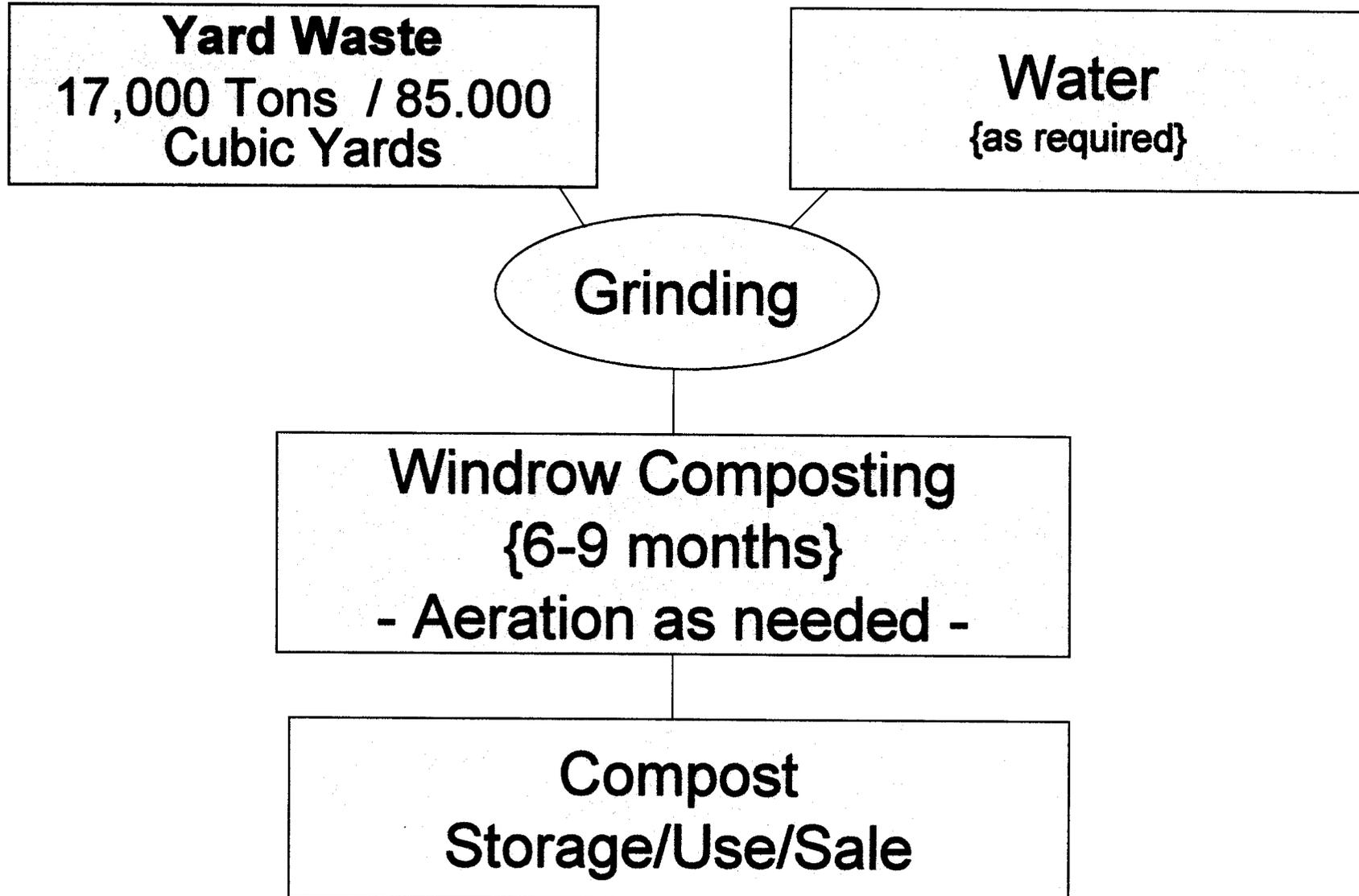
The compost is aerated by being turned with a front-end loader with a 2.5 cubic yard capacity bucket.

Facility Report

h) Describe method to control surface water run-on and run-off, etc.

Surface water is controlled with the use of swales and berms to prevent run-off and with sedimentation basins to properly manage the run-off. The drainage ways are stable ditches and swales covered with well-established ground cover containing only runoff. The facility does not discharge directly to waters of the State. No composted materials are removed from the site via storm water runoff. Only leaves, limbs, brush, etc., are composted on site; therefore, runoff passes through composting materials and grassed swales. Leachate generated is minimal.

Process Flow Diagram-Yard Wastes



Product Label

8) Label Description per Rule .1407

Classification of the compost is Grade A. Compost and mulch produced at the City's Type 1 facility contains minimal pathogenic organisms and is free of offensive odors or sharp particles that would cause injury to persons handling the compost. Under these conditions, the compost product shall have unrestricted applications and distributions; and directions will be provided with the compost product.

See sample label below.

Classification Grade A

Recommended uses for this product:

Use as a soil amendment
Use for seedling mixtures

Application:

For soil amendment, mix product directly into soil by working it into plant beds or apply a two-inch layer to soil surface. Use a light layer to mulch your house plants and then water as usual.

For seedling mixtures, use 1:1 mixture of compost, topsoil or 1/3 compost, 1/3 topsoil, 1/6 sand, 1/6 vermiculite or perlite. Line your holes or seed pockets with the compost, mix with soil and then plant your transplants or seeds.

No restrictions on use

For more information on composting, contact the North Carolina Cooperative Extension Service

Plans and Specifications

9) Facility Plans and Specifications

The facility is shown on the site plan (*see Tab 5*). There are no special buildings or equipment specifically designed for composting. The front end loader used in facility operations is a multipurpose piece of equipment. The grinder is provided by a contractor and the specifications are not available.

Operations and Maintenance Manual

10) Detailed Operations and Maintenance Manual

(See manual under separate cover)

Operations and Maintenance Manual for a Type 1 Yard Waste Composting Facility

The purpose of this manual is to serve as a reference to all entities involved in the operation of the City of Durham's Yard Waste Center. It shall be kept on-site and shall be easily accessible.

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Tab 5

6.Plans and Operations Reports

Tab 6

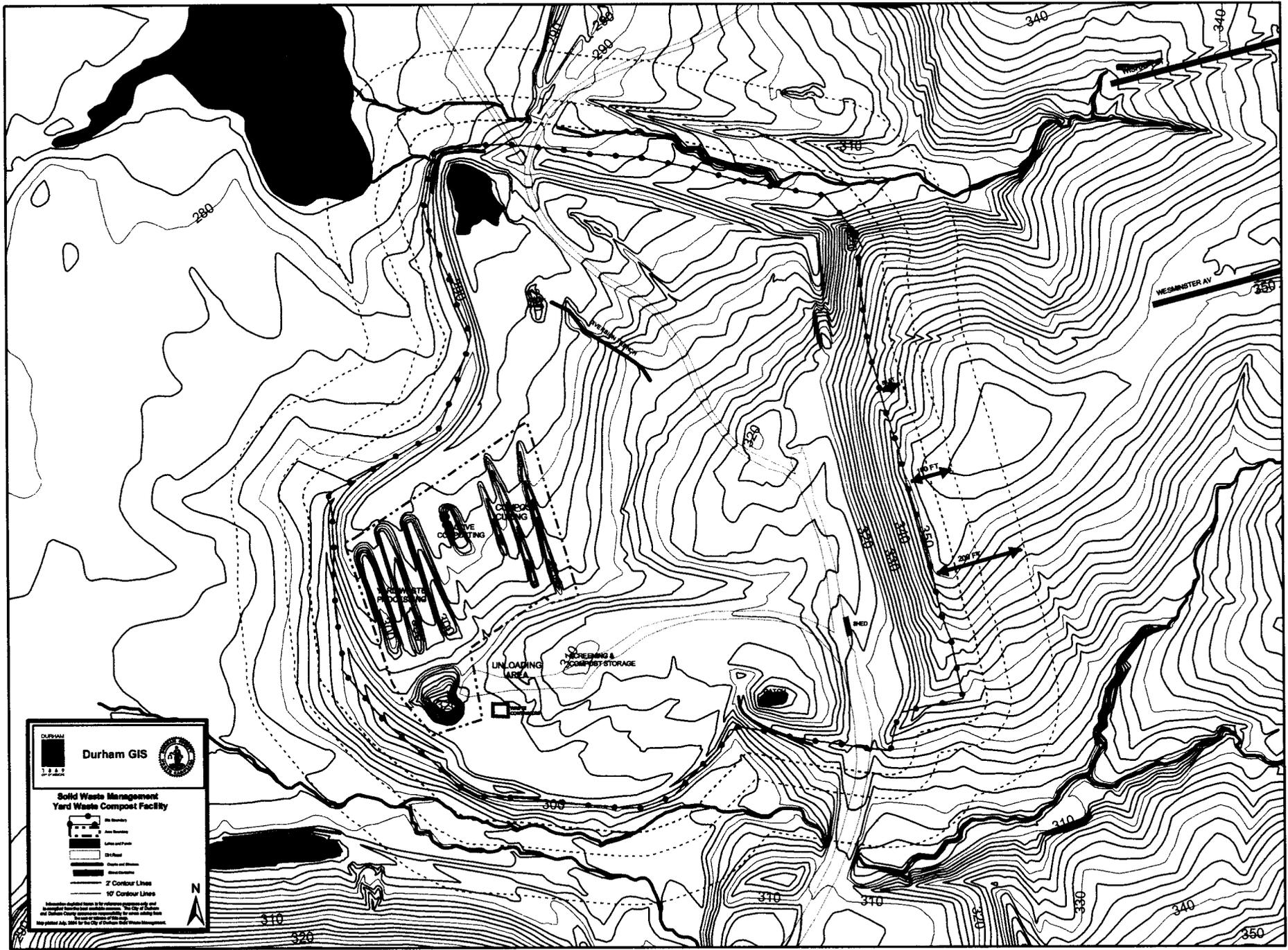
- a. Monthly Monitoring Report
- b. Annual Yard Waste Composting Facility Report

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 Operations and Maintenance Manual submitted with the permit application.

Failure to comply may result in compliance actions or permit revocation.

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 shall be managed in such a manner that it will not be allowed to adversely impact ground or surface waters.
3. Any inaccuracies found in the site plan shall be corrected within 30 days of notification.
4. Only materials specifically listed in the permit application may be managed at this facility without adequate testing and prior approval of the Division of Waste Management.
5. Wastes with low carbon-nitrogen ratios, such as grass clippings, shall be incorporated into windrows prior to the waste starting to compost (heat), create odors or attract vectors.
6. Compost produced at the facility shall meet the requirements of Rule .1407 of the Solid Waste Compost Rules and the permit application.
7. 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.
8. Groundwater monitoring wells may be required if there is indication of the potential for groundwater contamination.
9. 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.



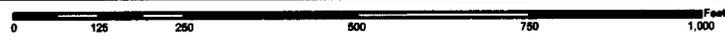
DURHAM
2012

Durham GIS

**Solid Waste Management
Yard Waste Compost Facility**

- Site Boundary
- Site Features
- Utility and Easement
- 20' Buffer
- 20' Buffer
- 2' Contour Lines
- 10' Contour Lines

Information displayed herein is for reference only and does not constitute a warranty or representation. The City of Durham and Durham County assume no responsibility for errors or omissions. Last updated July, 2011 for the City of Durham Solid Waste Management.



Quality Assurance Plan

3. Quality Assurance Plan

Incoming yard waste should only consist of leaves, grass clippings, stems, pruning materials, small brush and biodegradable paper yard waste bags generated in residential and commercial lawn and garden care in the City and County of Durham.

a. Inspection of incoming material

Yard waste is received and weighed at the scale house, and checked for unacceptable waste. Unacceptable waste is removed by the customer and placed in a stationary waste container for small vehicles or taken to the transfer station tipping floor, depending on the type of waste. The unacceptable waste is then loaded into transfer trailers and hauled for disposal to the Brunswick Waste Management Facility in Lawrenceville, Virginia.

Uncontaminated yard waste is unloaded by yard waste customers at a designated receiving area at the compost facility. The receiving area allows small trucks to unload and be observed by the attendant stationed in that area. The waste screener shall check the yard waste materials again for unacceptable waste. If unacceptable waste is discovered during either check, the load shall be rejected and the yard waste customer shall be directed to return to the scale house for reweighing. Any extraneous unacceptable waste found after the customer has left the site shall be placed into on-site containers for transport back to the transfer station for disposal as municipal solid waste.

The hours of the compost facility are the same as the hours of the City's Waste Disposal and Recycling Center at 2115 East Club Boulevard. The opening and closing of the compost facility is thus linked with the opening and closing of the access gate at that location.

b. Approval process

Yard waste will be unloaded in the designated receiving area of the compost facility. The yard waste will be formed into static windrows of 8 to 10 feet high and 10 to 15 feet wide using a front-end loader in the processing area. The waste should be processed at least twice a year through a large tub grinder to reduce the particle size and enhance the composting process. This service may be provided by a contractor rather than the City. Once the yard waste is ground, the windrows will be reformed in the active compost area. Once this is done, the temperatures will be taken with a compost thermometer and recorded on a daily temperature record sheet to ensure that pathogen reduction criteria are met. The windrows shall be at least 20 feet apart.

24 TIME The compost will be moved to the curing area after the compost process is completed. Once cured, the compost will be placed in a stockpile for distribution.

Quality Assurance Plan – (Cont.)

The following positions are responsible for maintaining quality:

1 Operator/Waste Screener - Responsibilities of this position include screening the waste as it is received to reduce the likelihood of unacceptable waste being received. This position is also responsible for operation of the loader used for windrow aeration and formation, internal windrow temperature checks, and removal of unacceptable waste.

1 Disposal Attendant - Responsibilities of this position include visual inspection of loads as well as verbal questioning regarding the materials included in loads brought in for yard waste disposal.

1 Disposal Supervisor – Responsibilities of this position include oversight of the total composting operation.

Persons responsible for facility operation:

Roosevelt Carter Facilities Manager 919 560-4186
101 City Hall Plaza
Durham, NC 27701

c. Monitoring procedures

Dust control will be provided by the use of a water truck to spray and moisten dry areas if needed. Regular temperature checks by the operator will also serve as an indicator for the frequency of turning.

what is regular

Contingency

4. Contingency Plans

a. Equipment breakdown

In the event of equipment breakdown, there is similar equipment available in other departmental divisions that can be used.

b. Non-conforming waste

Non-conforming waste that is inadvertently received shall be removed by the operator/screener and properly disposed.

a. Spills

Any spills will be handled by taking measures to contain the spill and properly dispose of contaminated soil. A hazardous waste contractor may be called if necessary. The City currently has a contract with EcoFlo of Greensboro, NC for handling household hazardous waste.

b. Fires, vectors, odors

In case of fire, employees shall use fire extinguishers which are kept on the loader equipment, and shall notify the Fire Department which has a station just outside the entrance to the Waste Disposal and Recycling Center facility.

am 13 sand
not
W { Odor control measures will consist of thoroughly incorporating significant amounts of grass into the yard waste windrows within 48 hours. All windrows will be turned at least monthly using a front-end loader. If odor becomes a problem, more frequent turnings will be performed.

Special precautions and procedures for operating during wind, heavy rain, snow, freezing or other adverse conditions will be taken. Since the duration of these adverse conditions is usually short in Durham, there is little need for special procedures other than limiting the turning of the windrows and keeping the unloading area available. Snow and freezing conditions occur at a season that generates little yard waste other than branches and pruned materials.

Operational Requirements

5. Operational Requirements

a. Plan and Permit Requirements

The City of Durham has an approved site plan, Section 2, which meets all state and federal regulations for air quality, surface and groundwater quality, erosion and sedimentation. *where is it scale*

The City is required to have a permit for its Yard Waste Facility under NC General Statutes 130A-294; -309.03; -309.11; and -309.29. The current permit, No. 32-04-YW, is for a Type 1 Compost Facility, "which may receive yard and garden waste, silvicultural waste, untreated and unpainted wood waste or any combination thereof." ?

A copy of the permit, plans and operations reports shall be maintained in this manual in the administrative offices of the Waste Disposal and Recycling Center.

b. Adequate erosion control measures

Much of the area will be protected from erosion by the yard waste itself. Current erosion control measures include diversion ditches around the perimeter of the compost site, a forested buffer and sedimentation basins.

c. Surface water diversion

ON S. to plan
Surface water shall be controlled with the use of swales to prevent run-off and with sedimentation basins to properly manage the run-off. The drainage ways are stable ditches and swales covered with well-established ground cover which contains any runoff. The facility does not discharge directly to waters of the State. No composted materials are removed from the site via storm water runoff. Only leaves, limbs, brush, etc., are composted on site; therefore, runoff passes through composting materials and grassed swales. Leachate generation is minimal. The surface water diversions shall be inspected monthly and after flood events to determine their condition and effectiveness. *approved plan? inspection + report procedure*

d. Leachate containment

A Type 1 compost facility produces minimal leachate thus no containment provision is included.

e. Access & Security requirements

- **Unauthorized entry** - The site has an entrance on East Club Boulevard that is secured by gates at the end of the day, thereby preventing unauthorized entry.
- **Operator on duty** - There shall be an operator on duty to inspect incoming wastes, keep the site maintained, keep the compost turned and temperatures monitored whenever the compost facility is open for receiving waste.
- **All weather access road** - There shall be an all weather access road to the site.

Operational Requirements – (Cont.)

f. Acceptance of only permitted wastes

Permitted wastes are waste materials that result from landscaping and yard maintenance such as brush, grass, tree limbs, and similar vegetative materials. Biodegradable paper yard waste bags are acceptable. Acceptance of only these materials shall be achieved by scale house staff inspection and examination by the facility's operator/waste screener.

g. Safety requirements

- **Open burning prohibited** – open burning of solid waste is prohibited at this site. Any fire on the site should be extinguished immediately.
- **Fire extinguishers** – fire extinguishers are available on equipment. The City's fire station at the facility entrance will respond when needed. The disposal supervisor should be contracted and 911 called for response if the fire cannot be put out with the extinguisher.
- **Personnel training** – personnel training shall be provided to ensure that all employees are familiar with the site and its safety procedures. Remedial and corrective action procedures will be included in this training.
- **Personal Protective Equipment** – personal protective equipment, such as safety shoes and vests should be worn at all times at the site. Additional equipment such as safety glasses, gloves, and dust masks are available and shall be worn as needed in turning windrows and examining waste.
- **Hazardous Waste** – any hazardous waste found shall be removed and the disposal supervisor notified. Appropriate treatment of this waste shall be determined by the disposal supervisor and division manager.

h. Sign requirements

- A sign listing acceptable waste, dumping procedures, hours, and permit number is required on-site and is posted at the entrance on Club Boulevard.
- Traffic signs are placed around the site as necessary to direct citizens to the proper unloading area.
- Clear, readable statements are placed on site that “no hazardous waste, asbestos-containing waste, or medical waste can be received at this site.”

Operational Requirements – (Cont.)

i. Reporting requirements

Record keeping requirements include submittal of daily operations records, monthly reports, and annual reports to the Disposal Supervisor which detail temperature data and quantity of material processed. An annual report for the period from July 1 to June 30 shall be submitted by the City to the Division of Waste Management of the North Carolina Department of Environment and Natural Resources by August 1 each year. The report shall include:

1. The facility name, address, and permit number;
2. The total quantity in tons, and type of waste received at the facility during the year covered by the reports, including tons of waste received from local governments;
3. The total quantity in tons, and type of waste processed into compost during the year covered by the report;
4. The total quantity in tons and type of compost produced at the facility, by product classification, during the year covered by the report;
5. The total quantity in tons and type of compost removed for use or disposal from the facility, product classification, along with a general description of the market if for use during the year covered by the report;
6. Monthly temperature monitoring to support the operational requirements.

Monthly reports, which contain daily entries, as well as a copy of the annual report, will be kept in the official operating record in the Solid Waste Management Department's Waste Disposal and Recycling Division's Administrative Office. Sample records are in Section 6. Compost product from this Type 1 facility is not required to be tested.

j. Monitoring requirements

Temperature & aeration – monitoring shall be done in order to meet record keeping and reporting requirements. The daily temperature records shall be checked to ensure that the pathogen reduction criteria are met.

The compost temperature shall be checked in order to maintain at or above 55 degrees Celsius (131 degrees F) for three days and aerated to maintain elevated temperatures.

The compost shall be aerated by being turned with a front-end loader with a 2.5 cubic yard capacity bucket. The compost product from this Type 1 facility is not required to be tested.

depth spacing more detailed alt frequency

Frequency

Operational Requirements – (Cont.)

The operator shall perform a weekly moisture test using the following “squeeze method”:

If the product is squeezed and falls apart, water will be added. If the product is squeezed and water drains from it, it will be allowed to dry. When the product stays together and does not give off water, it will be considered to be at optimum moisture.

k. Compost Product

The compost classification is Grade A.

The finished compost product is available for use by City and County of Durham Departments, the Durham Public Schools, local citizens and gardeners

depot info
windrow - how
many windrows

Plans and Reports

6. Plans and Operations Reports

See Blank “Monthly Monitoring” and “Annual” reports behind this tab.



City Of Durham Yard Waste Composting Facility Annual Report 200_

City of Durham
Waste Disposal and
Recycling Center
2115 E. Club Blvd.
Durham, NC 27704

Permit number 32-04-YW

919-560-4461

Sludge values in dry weight (if applicable) _____

Type of Material Received _____

Name of local government _____

Total tons received _____

Name of local government _____

Total tons received _____

Total tons received from local gov'ts of origin _____

Total Quantity Received (tons) _____

Sludge values in dry weight _____

Type of waste processed into compost _____

Total tons of compost produced _____

Type of Compost _____

Tons _____

Type of Compost _____

Tons _____

Total Quantity of Compost Produced (tons) _____

Type of compost removed (by product classification) _____

Type _____

Total (tons) _____

Type _____

Total (tons) _____

Total Quantity Removed for Use or Disposal (tons) _____

Market Description _____

Monthly Temperature Criteria Met? (Y/N)

Jan. _____

Feb. _____

Mar. _____

April _____

May _____

June _____

July _____

Aug. _____

Sept. _____

Oct. _____

Nov. _____

Dec. _____

**Durham
City/County
Planning Department**



101 City Hall Plaza
Durham, NC 27701
Telephone: (919) 560-4137
Fax: (919) 560-4641

Mr. Ted Lyon
Solid Waste Section
NC Department of Environment and Natural Resources
Post Office Box 29603
Raleigh, NC 27611-9603

Re: Zoning approval for renewal of a Yard Waste permit for the City of Durham.

Dear Mr. Lyon;

This letter is being submitted in accordance with North Carolina General Statutes 130A-294, -309.03, -309.11, and -309.29 at the request of the City of Durham. The City of Durham Yard Waste Center was formerly designated as I-2 (Light Industrial) for the original permit in December of 1991. It is currently zoned as I-3(d) (Heavy Industrial). This designation allows for the operation of a Type 1 yard waste center.

I hope this information is adequate to satisfy your request. If you should have any questions, please contact me at 560-4137, ext. 223.

Sincerely,

A handwritten signature in black ink that reads "Steven L. Medlin". The signature is written in a cursive, flowing style.

Steven L. Medlin, AICP
Senior Planner

cc: Nancy Newell

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
RALEIGH REGIONAL OFFICE



DIVISION OF WATER QUALITY
November 20, 1998

JAMES B. HUNT JR.
GOVERNOR

Jennifer Brown
Waste Reduction Coordinator
City of Durham
101 City Hall Plaza
Durham, NC 27701

WAYNE McDEVITT
SECRETARY

Subject: City of Durham Yard Waste Composting Facility
Water Quality Compliance

Dear Ms. Brown:

At your request, I performed a site visit to the City of Durham Yard Waste Composting Facility on November 13, 1998. Your cooperation during this site visit was greatly appreciated. This letter is written as a response to observations made during the site visit.

The operation of the facility was discussed, including stormwater handling practices. We walked along portions of the water containment and diversion structures, and discussed where the water flows during storm events. The facility appeared to be designed, operated and maintained in a way which would not have a significant adverse impact on surface waters in the area. It should be noted, however, that the Division of Waste Management has ultimate authority over permitting and inspection of this facility.

If you have any questions or comments on this matter, please feel free to contact me at (919) 571-4700 x251.

Sincerely,

Timothy D. Baldwin
Environmental Engineer

h:\letters\dcmpst.ltr

3800 BARRETT DRIVE, SUITE 101, RALEIGH, NORTH CAROLINA 27609
PHONE 919-571-4700 FAX 919-571-4718

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER - 50% RECYCLED/10% POST-CONSUMER PAPER



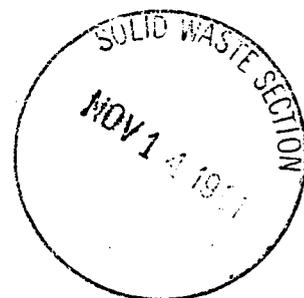
**AGRICULTURAL
EXTENSION
SERVICE**

15
North Carolina State University
College of Agriculture and Life Sciences

Address reply to:
County Extension Office

721 Foster Street
Durham, North Carolina 27701
November 4, 1991

Nancy Clayton
City of Durham Sanitation Dept.
101 City Hall Plaza
Durham, N.C. 27701



Dear Ms. Clayton:

I visited the Durham City Landfill at 2115 E. Club Blvd. on October 30, 1991 for the purpose of evaluating the soil at the proposed composting site.

A pit was dug approximately 4 feet deep. I collected soil samples from the bottom and sides of the pit for textural classification and for evidence of water table levels. I determined that the sample was a loam soil. This was confirmed by Mr. Eddie Culberson of the Soil and Water Conservation Service.

There was no evidence that the water table was present or had ever been present at the bottom of the pit.

I am looking forward to working with you on this project.

Sincerely,

Carl A. Matyac, Ph.D.
Assoc. Agricultural Ext. Agent

SEDIMENTATION INSPECTION REPORT

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
LAND QUALITY SECTION: 3800 Barrett Drive, Raleigh, NC 27609 (919) 571-4700

County Durham Project: Durham Compost Facility River Basin Neuse #1:03-04-1
Person Financially Responsible City of Durham
Address 101 City Hall Plaza Durham, NC 27701 Attn: A.T. Kolan, Director

1. Project Location IN of landfill Pictures: Yes No Prints Slides Video

2. Weather and Soil Conditions cool; workable

3. Is site currently under notice of violation? Yes No

4. Is the site in compliance with the S.P.C.A. and rules? Yes No If no, check violations below:

5. Violations:
- a. No approved plan, G.S. 113A-57 (4) and 15A N.C.A.C 4B.0007(c)
 - b. Failure to follow approved plan, G.S. 113A-61.1
 - c. Failure to submit revised plan, G.S. 113A-54.1(b) and 15A N.C.A.C. 4B.0018(a)
 - d. Failure to provide adequate groundcover, G.S. 113A-57(3) and 15A N.C.A.C. 4B.0007(b) or 15A N.C.A.C 4B.0024(e)
 - e. Insufficient measures to retain sediment on site, G.S. 113A-57(3)
 - f. Failure to take all reasonable measures, 15A N.C.A.C.4B.0005
 - g. Inadequate buffer zone, G.S. 113A-57(1)
 - h. Graded slopes and fills too steep, G.S. 113A-57(2) or 15A N.C.A.C. 4B.0024(d)
 - i. Unprotected exposed slopes, G.S. 113A-57(2)
 - j. Failure to maintain erosion control measures, 15A N.C.A.C. 4B.0013
 - k. Other(describe) _____

6. Has sedimentation damage occurred since last inspection? Yes If yes, where? (check all that apply): No

Lake/natural watercourse on the tract Lake/natural watercourse off the tract Other property

Description _____

Degree of damage: Slight Moderate Severe

7. Contact made with (Name) Newell, Brown * Title _____

Inspection Report given or sent to Person Financially Responsible. Date given/sent delivered on site

8. Corrective actions needed:

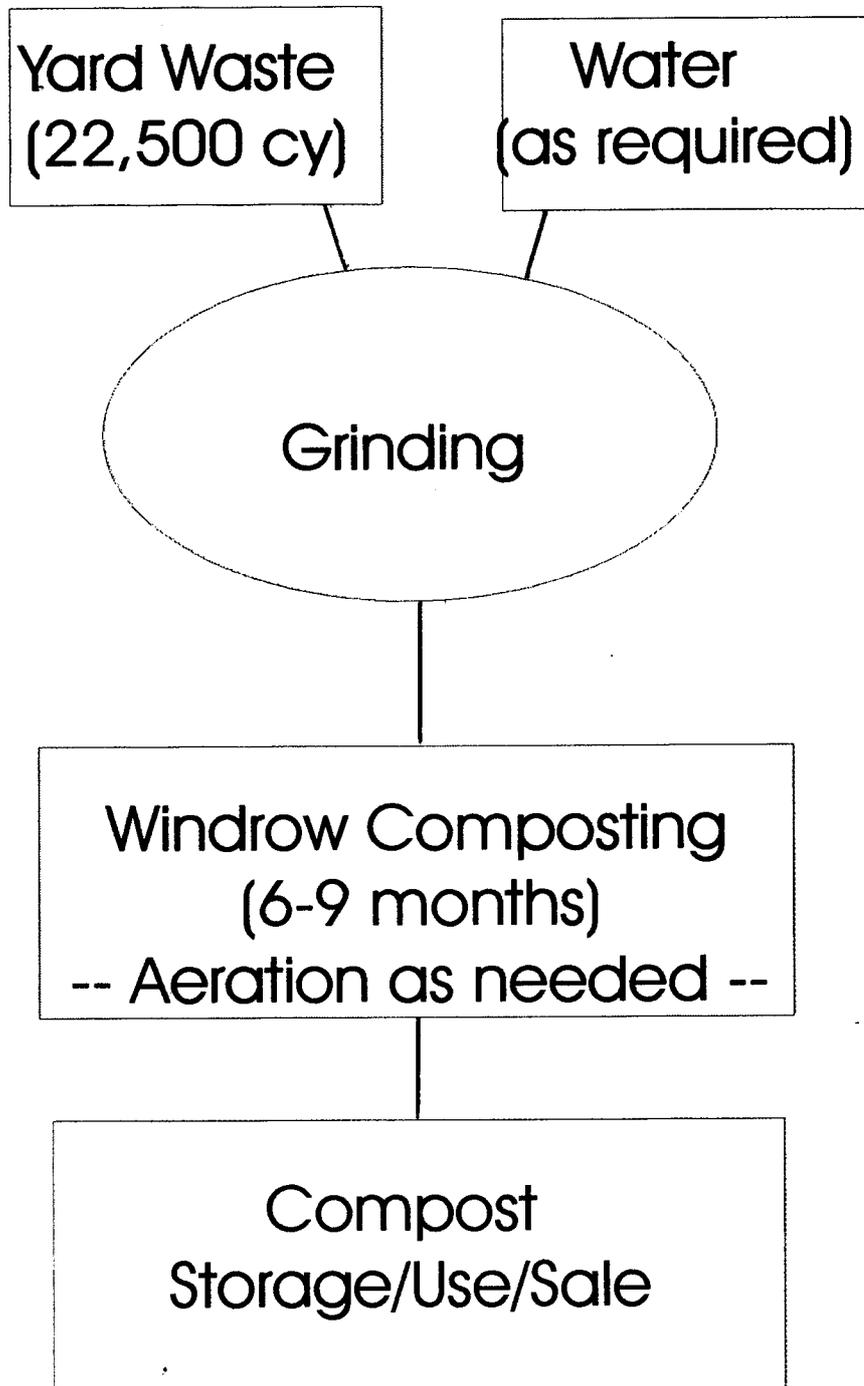
* Comments: Sediment basins are in place and functioning properly to control sediment on the site; ground cover is sufficient on areas adjacent to active stockpiles of woody materials - site looks fine; well-controlled. Periodically monitor basins for any maintenance needs.

Report by: Debbie Fuguy Others Present _____

Date of Inspection 11-12-98 Time arriving on site 10:20 am Time leaving site 11:00 am

cc: Nancy Newell Jennifer Brown

Process Flow Diagram-Yard Wastes



The City of Durham

**Operation and Maintenance Manual for
a Type 1 Yard Waste Composting Facility**

Operation and Maintenance Manual for a Type 1 Yard Waste Composting Facility

The purpose of this manual is to serve as a reference to all entities involved in the operation of the City's Yard Waste Center. It shall be placed on-site and shall be easily accessible.

Table of Contents:

1. Yard Waste Permit

2. Approved Site Plan

3. Quality Assurance Plan

- Inspection of incoming material
- Approved process
- Monitoring procedures

4. Contingency Plans

- Equipment breakdown
- Non-conforming waste
- Spills
- Fires, vectors, odors

5. Operational Requirements

- Plan and Permit Requirements
- Adequate erosion control measures
- Surface water diversion
- Leachate containment
- Access & Security requirements
 - Unauthorized entry
 - Operator on duty
 - All weather access road
- Acceptance of only permitted wastes
- Safety requirements
 - Open burning prohibited
 - Fire extinguishers
 - Personnel training

Personal Protective Equipment
Hazardous Waste

Sign requirements

Reporting requirements

Monitoring requirements

Temperature & aeration

Compost Product

6. Plans and Operations Reports

Blank Report Form Originals

1. Yard Waste Permit

2. Approved Site Plan

3. Quality Assurance Plan

Inspection of Incoming Material

Incoming yard waste should only consist of leaves, grass clippings, stems, pruning materials, small brush and biodegradable paper yard waste bags generated in residential and commercial lawn and garden care in the City of Durham. The yard waste is to be received and weighed at the scale house, and checked for unacceptable waste. The unacceptable waste shall be removed by the customer and placed in a stationary waste container for small vehicles or taken to the transfer station tipping floor, depending on the type of waste. The unacceptable waste is then loaded onto the transfer trailers and hauled for disposal to the Brunswick Waste Management Facility in Lawrenceville, Virginia. The uncontaminated yard waste shall then be unloaded by the yard waste customer at a temporary receiving area near the transfer station or at the compost facility itself. The temporary receiving area will be located near the transfer station and will allow for small trucks to unload and be observed by the attendant stationed in that area. The yard waste will regularly be loaded onto articulated dump trucks for transport to the yard waste compost facility that is located to the north of the closed landfill. At either unloading area, the waste screener shall check the yard waste materials again for unacceptable waste. If unacceptable waste is discovered at either location, the load shall be rejected and the yard waste customer shall be directed to return to the scale house for re-weighing. Any extraneous unacceptable waste found after the customer has left the site shall be placed into on-site roll-off containers or trash trailers which are picked up for transport back to the transfer station for disposal in Virginia.

The hours of the compost facility are the same as the hours of the City's Waste Disposal and Recycling Center at 2115 East Club Boulevard. The opening and closing of the compost facility is thus associated with the opening and closing of the gate at that location.

Approved Process

Yard waste will be unloaded in either the temporary receiving area on the transfer station grounds or in the unloading area of the compost facility. The yard waste will be formed into static windrows of 8 to 10 feet high and 10 to 15 feet wide using a front-end loader in the processing area. The waste should be processed at least twice a year through a large tub grinder to reduce the particle size and enhance the composting process. This service would be provided by a contractor rather than by the City. Once the yard waste is ground, the windrows will be reformed in the active compost area. Once this is done, the temperatures will be taken with a compost thermometer and recorded on a daily temperature

record sheet to ensure that the pathogen reduction criteria is met. The windrows will be at least 20 feet apart.

After the compost process is completed, the compost will be moved to the curing area. Once cured, the compost will be placed in a stockpile for distribution.

The following positions are responsible for maintaining this quality:

1 operator/waste screener - The responsibilities of this position include screening the waste as it is received to reduce the likelihood of unacceptable waste being received. In addition, this position would involve operation of the loader used for windrow aeration and formation. Internal windrow temperature checks and removal of unacceptable waste are included in these duties.

1 disposal attendant - The responsibilities of this position include a visual inspection of loads as well as verbal questioning regarding the materials included in the load brought for yard waste disposal.

1 disposal supervisor - The responsibilities of this position include the oversight of the overall composting operation.

Persons responsible for facility operation:

Nancy L. Newell	Solid Waste Manager	919 560-4381
Frederick X. Ravin	Disposal Supervisor	919 560-4611
101 City Hall Plaza		
Durham, NC 27701		

Monitoring Procedures

If needed, dust control will be provided by the use of a water truck to spray and moisten dry areas. Regular temperature checks by the operator will also serve as an indicator for the frequency of turning.

4. Contingency Plans

- a. In the event of equipment breakdown, there is similar equipment available in other departmental divisions that can be used.
- b. Non-conforming waste, if inadvertently received, shall be removed by the operator/screener and properly disposed.
- c. Any spills will be handled by taking measures to contain the spill and properly dispose of contaminated soil. A hazardous waste contractor

may be called if necessary. Currently the City has a contract with Safety Kleen for handling household hazardous waste.

- d. In case of fire, employees shall use fire extinguishers which are kept on the loader equipment, and shall notify the Fire Department which has a station just outside the entrance to the Waste Disposal and Recycling Center facility.
- e. Odor control measures will consist of incorporating significant amounts of grass into the yard waste windrows thoroughly within 48 hours. All windrows will be turned at least monthly using a front-end loader. If odor becomes a problem, more frequent turnings will be performed.
- f. Special precautions and procedures for operating during wind, heavy rain, snow, freezing or other adverse conditions will be taken by using the temporary receiving area. Limiting the access directly to the compost site will be recommended during these events. Since the duration of these adverse conditions are usually short in Durham, there is little need for special procedures other than limiting the turning of the windrows and keeping the unloading area available. Snow and freezing conditions occur at a season that generates little yard waste other than branches and pruned materials.

5. Operational Requirements

Plan and Permit Requirements

The City of Durham has an approved site plan, Section 2, which meets all state and federal regulations for Air Quality, Surface and Groundwater Quality, Erosion and Sedimentation.

The City of Durham is required to have a permit for its Yard Waste Facility under NC General Statutes 130A-294; -309.03; -309.11; and -309.29. The current permit, No. 32-04-YW, is for a Type 1 Compost Facility, "which may receive yard and garden waste, silvicultural waste, untreated and unpainted wood waste or any combination thereof."

A copy of the permit, plans and operations reports shall be maintained in this manual in the administrative offices of the Waste Disposal and Recycling Center.

Adequate Erosion Control Measures

Much of the area will be protected from erosion by the yard waste itself. Current erosion control measures include diversion ditches around the perimeter of the compost site, a forested buffer and sedimentation basins.

Surface Water Diversion

The surface water shall be controlled with the use of swales to prevent run-off and with sedimentation basins to properly manage the run-off. The drainage ways are stable ditches and swales covered with well-established ground cover which contains any runoff. The facility does not discharge directly to waters of the State. No composted materials are removed from the site via storm water runoff. Only leaves, limbs, brush, etc., are composted on site; therefore, runoff passes through composting materials and grassed swales. Leachate generated is minimal. The surface water diversions shall be inspected monthly and after flood events to determine their condition and effectiveness.

Leachate Containment

There is minimal leachate produced from a Type 1 compost facility and will therefore not be contained.

Access & Security Requirements

The site has an entrance on East Club Boulevard that is secured by gates at the end of the day, thereby preventing unauthorized entry.

When the compost area is open for receiving waste, there shall be an operator on duty to inspect the incoming wastes, keep the site maintained, keep the compost turned and temperatures monitored.

Once the landfill closure is completed, there shall be an all weather access road to the site.

Acceptance of Only Permitted Wastes

Permitted wastes are yard waste materials that result from landscaping and yard maintenance such as brush, grass, tree limbs, and similar vegetative materials. Biodegradable paper yard waste bags are acceptable. Acceptance of only these materials shall be achieved by the presence of an operator and by the examination by the scale staff.

Safety Requirements

Open burning of solid waste is prohibited at this site. Any fire on the site should be extinguished immediately.

Fire extinguishers are available on equipment. The City fire station at the facility entrance will respond when needed. The disposal supervisor should be contacted and 911 called for response if the fire cannot be put out with the extinguisher.

Personnel training shall be provided to ensure that all employees are familiar with the site and its safety procedures. Remedial and correction action procedures will be included in this training.

Personal protective equipment, such as safety shoes and vests should be worn at all times at the site. Additional equipment items such as safety glasses, gloves, and dust masks are available and shall be worn as needed in turning windrows and examining waste.

Any hazardous waste found shall be removed and the disposal supervisor notified. Appropriate treatment of this waste shall be determined by supervisor and division head.

Sign Requirements

A sign listing acceptable waste, dumping procedures, hours, and permit number is required on-site and is posted at the entrance on Club Boulevard.

Traffic signs are to be placed around the site as necessary to direct citizens to the proper unloading area.

Clear, readable statements are placed on site that "no hazardous waste, asbestos-containing waste or medical waste can be received at the site."

Reporting Requirements

Record keeping requirements include the submittal of daily operations records, monthly reports, and annual reports to the Disposal Supervisor which detail temperature data and quantity of material processed. An annual report for the period from July 1 to June 30 shall be submitted by the City to the Division of Waste Management of the North Carolina Department of Environment and Natural Resources by August 1 each year. The report shall include:

1. The facility name, address and permit number;

2. The total quantity in tons, and type of waste received at the facility during the year covered by the reports, including tons of waste received from local governments of origin;
3. The total quantity in tons, and type of waste processed into compost during the year covered by the report;
4. The total quantity in tons and type of compost produced at the facility, by product classification, during the year covered by the report;
5. The total quantity in tons and type of compost removed for use or disposal from the facility, by product classification, along with a general description of the market if for use during the year covered by the report;
6. Monthly temperature monitoring to support the operational requirements.

Monthly reports, which contain daily entries, as well as a copy of the annual report will be kept in the official operating record in the City's Waste Disposal and Waste Reduction Division Administrative Office. Sample records are in Section 6. Compost product from this Type 1 facility is not required to be tested.

Monitoring Requirements

Monitoring shall be done in order to meet record keeping and reporting requirements. The daily temperature records shall be checked to ensure that the pathogen reduction criteria is met.

The compost temperature shall be checked in order to maintain at or above 55 degrees Celsius (131 degrees F) for three days and aerated to maintain elevated temperatures.

The compost shall be aerated by being turned with a front-end loader with a 2.5 cubic yard capacity bucket. The compost product from this Type 1 facility is not required to be tested.

The operator shall perform a weekly moisture test using the following "squeeze method":

If the product is squeezed and falls apart, water will be added. If the product is squeezed and water drains from it, it will be allowed to dry. When the product stays together and does not give off water, it will be considered to be at optimum moisture.

The Compost Product

Classification of the compost is Grade A;
The finished compost product will be available for use by the City's Parks and Recreation Department, other City departments, local citizens and gardeners.

Long range plans include making arrangements to screen and market the compost in order to offset the costs involved in this operation. If the compost is not desirable by the public, it can be used by City departments and in the maintenance of the closed landfill. The compost may also be useful in producing other compost products that involve biosolids.

6. Plans and Operations Reports

Blank reporting forms enclosed.



City Of Durham Yard Waste Composting Facility Annual Report 200_

City of Durham
Waste Disposal and
Recycling Center
2115 E. Club Blvd.
Durham, NC 27704

Permit number 32-04-YW

919-560-4461

Sludge values in dry weight (if applicable) _____

Type of Material Received _____

Name of local government _____

Total tons received _____

Name of local government _____

Total tons received _____

Total tons received from local gov'ts of origin _____

Total Quantity Received (tons) _____

Sludge values in dry weight _____

Type of waste processed into compost _____

Total tons of compost produced _____

Type of Compost _____

Tons _____

Type of Compost _____

Tons _____

Total Quantity of Compost Produced (tons) _____

Type of compost removed (by product classification) _____

Type _____

Total (tons) _____

Type _____

Total (tons) _____

Total Quantity Removed for Use or Disposal (tons) _____

Market Description _____

Monthly Temperature Criteria Met? (Y/N)

Jan. _____

Feb. _____

Mar. _____

April _____

May _____

June _____

July _____

Aug. _____

Sept. _____

Oct. _____

Nov. _____

Dec. _____

City of Durham, North Carolina

**Application for Type 1 Yard Waste Composting
Facility**

**November, 1998
Revised June, 1999**

City of Durham, North Carolina
Application for Type 1 Yard Waste Composting Facility
November, 1998
Revised June, 1999

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City Of Durham Yard Waste Composting Facility Annual Report 200_

City of Durham
Waste Disposal and
Recycling Center
2115 E. Club Blvd.
Durham, NC 27704

Permit number 32-04-YW

919-560-4461

Sludge values in dry weight (if applicable) _____

Type of Material Received _____

Name of local government _____

Total tons received _____

Name of local government _____

Total tons received _____

Total tons received from local gov'ts of origin _____

Total Quantity Received (tons) _____

Sludge values in dry weight _____

Type of waste processed into compost _____

Total tons of compost produced _____

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Tons _____

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Monthly Temperature Criteria Met? (Y/N)

Jan. _____

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Aug. _____

Sept. _____

Oct. _____

Nov. _____

Dec. _____

I. Introduction

Background

The City of Durham obtained a permit for a yard waste composting facility to begin operation in January, 1992. The facility is located on a portion of the borrow area of the closed sanitary landfill which has an entrance at 2115 East Club Boulevard. The yard waste received at the facility is from both City Yard Waste vehicles and the public. This application is for a renewal of Permit No. 32-04-YW.

II. Application Requirements

A. Aerial Photograph

See Tab 1

B. Letter from Zoning Authority

See Tab 2

C. Explanation of Site Compliance

1. The site does not restrict the flow of the 100-year flood, reduce the temporary storage capacity of the floodplain, and is protected against washout of solid waste which would pose a threat to human life, wildlife, land or water resources.

This site is not within the 100 -year floodplain, and therefore does not reduce the temporary storage capacity of the floodplain. The site is protected against washout of solid waste by surrounding buffer areas. See site plan, Tab 5.

2. A buffer greater than 50 ft. is in place between all property lines and compost areas.

See Map, Tab 5 for buffer limits.

3. A buffer greater than 200 ft. is in place between the compost area and residences or dwellings.

See Map, Tab 5 for buffer limits.

4. A buffer greater than 100 feet exists between all wells and compost areas.

See Map, Tab 5 for buffer limits.

5. A buffer greater than 50 feet exists between perennial streams/rivers and compost areas.

See Map, Tab 5 for buffer limits.

6. The compost facility is located in accordance with 15A NCAC 2B.0200 Classification and Water Quality Standards for Surface Waters in North Carolina.

See State Water Quality Site Visit Letter, Tab 3

7. This facility is not located over a closed-out disposal area.
8. The distance between compost areas and swales or berms is more than 25 feet.

See Map, Tab 5 for distances.

9. The site meets all surface water requirements.

See State Water Quality Letter, Tab 3

- **The site meets the requirements of the NPDES under section 402 of the Clean Water Act.**
- **The site does not violate non-source pollution water quality standards.**

10. The site meets all groundwater requirements.

- a. **Does not contravene groundwater standards as established under 15A NCAC 2L. Leachate from the site is minimal and organic.**
- b. **The portions of the site used for waste receipt and storage, active composting, and curing have a soil texture finer than loamy sand and the depth to the seasonal high water table is over 12 inches. Refer to letter from Carl Matyac regarding soil classification**

and water table at the site from original application (Tab 4, page 1).

- c. N/A
- d. N/A
- e. N/A

11. The site shall meet the following design requirements:

- a. A site shall not allow uncontrolled public access.

Access to this site is controlled from a lockable gate entrance at 2115 East Club Boulevard. This gate is opened at 7:30 am and closed at 4:30 pm Monday through Friday . On Saturday the gate is opened at 7:30 am and closed at 12:00 noon. Each vehicle is given access to the site after being weighed and inspected at the scale house.

- b. The site meets the requirements of the SPC Law (15A NCAC 4).

As part of the approval process for the sanitary landfill borrow area within which the compost area sits, a sedimentation and erosion control plan was submitted and approved. This approval was reaffirmed for the compost facility by Debbie Fuquay of the NC Department of Environment and Natural Resources, Land Quality Section on November 12, 1998.

See Sedimentation and Erosion Control Inspection Report, Tab 4, page 2.

- c. The site meets the Air Pollution Control requirements (15A NCAC 2D) to minimize fugitive emissions and odors.

The site's operations are within these requirements. Air pollution is minimized by incorporating the waste into windrows and maintaining aeration.

- d. The site releases no odors and protects against odors from crossing property boundaries.

Odor is controlled by maintaining windrow aeration as needed. The site is located in a sparsely populated area and minimum buffer requirements are met. No odor complaints have been reported regarding this site.

D. Report of Waste Data

The waste consists of leaves, grass clippings, stems, pruning materials and small brush that is generated in residential and commercial lawn and garden care in the City of Durham. During the last few years, approximately 4500 tons of this material have been handled per year. This waste is to be composted as is, without the addition of bulking agents. Clean wood and pallets are proposed for grinding as a mulch at the same facility.

The facility uses natural soil as a pad. This soil was evaluated by a soil scientist for the initial permit. This information is included (Tab 4, page 1) and states that this site contains loam soil and there was not evidence of the seasonal high water table in the four foot test pit that was excavated for examination.

E. Site Plan

See Map, Tab 5.

F. Site Operation Description

1. Persons responsible for facility operation:

<i>Nancy L. Newell</i>	<i>Solid Waste Manager</i>	<i>919 560-4381</i>
<i>Frederick X. Ravin</i>	<i>Disposal Supervisor</i>	<i>919 560-4611</i>
<i>101 City Hall Plaza</i>		
<i>Durham, NC 27701</i>		

2. Personnel required:

1 operator/waste screener - The responsibilities of this position include screening the waste as it is received to reduce the likelihood of unacceptable waste being received. In addition, this position would involve operation of the loader used for windrow aeration and formation. Internal windrow temperature checks and removal of unacceptable waste are included in these duties.

1 disposal attendant - The responsibilities of this position include a visual inspection of loads as well as verbal questioning regarding the materials included in the load brought for yard waste disposal.

1 disposal supervisor - The responsibilities of this position include the oversight of the overall composting operation.

3. Incoming yard waste should only consist of leaves, grass clippings, stems, pruning materials, small brush and biodegradable paper yard waste bags generated in residential and commercial lawn and garden care in the City of Durham. The yard waste is to be received and weighed at the scale house, and checked for unacceptable waste. The unacceptable waste shall be removed by the customer and placed in a stationary waste container for small vehicles or taken to the transfer station tipping floor, depending on the type of waste. The unacceptable waste is then loaded onto the transfer trailers and hauled for disposal to the Brunswick Waste Management Facility in Lawrenceville, Virginia. The uncontaminated yard waste shall then be unloaded by the yard waste customer at a temporary receiving area near the transfer station or at the compost facility itself. The temporary receiving area will be located near the transfer station and will allow for small trucks to unload and be observed by the attendant stationed in that area. The yard waste will regularly be loaded onto articulated dump trucks for transport to the yard waste compost facility that is located to the north of the closed landfill. At either unloading area, the waste screener shall check the yard waste materials again for unacceptable waste. If unacceptable waste is discovered at either location, the load shall be rejected and the yard waste customer shall be directed to return to the scale house for re-weighing. Any extraneous unacceptable waste found after the customer has left the site shall be placed into on-site roll-off containers or trash trailers which are picked up for transport back to the transfer station for disposal in Virginia. The waste is then formed into static windrows of 8 to 10 feet high and 10 to 15 feet wide. The windrows will be at least 20 feet apart. The waste should be processed at least twice a year through a large tub grinder to reduce the particle size and enhance the composting process. This service would be provided by a contractor rather than by the City.
4. Special precautions and procedures for operating during wind, heavy rain, snow, freezing or other adverse conditions will be

taken by using the temporary receiving area. Limiting the access directly to the compost site will be recommended during these events. Since the duration of these adverse conditions are usually short in Durham, there is little need for special procedures other than limiting the turning of the windrows and keeping the unloading area available. Snow and freezing conditions occur at a season that generates little yard waste other than branches and pruned materials.

5. The compost facility is located within a larger tract of property owned by the City. There are no close neighbors or facilities. There have been no complaints regarding odors, vectors, air borne particulates or noise generated from the yard waste compost site during the facility's operation. If needed, dust control will be provided by the use of a water truck to spray and moisten dry areas. Odor control measures will consist of incorporating yard waste with significant amounts of grass evenly into the windrow with other materials within 48 hours or before the waste begins to heat, cause odors or attract vectors. All windrows will be turned at least monthly. If odor becomes a problem, more frequent turnings will be performed. Regular temperature checks will also serve as an indicator for the frequency of turning.
6. The finished compost product will be available for use by the City's Parks and Recreation Department, other City departments, local citizens and gardeners. Long range plans include making arrangements to screen and market the compost in order to offset the costs involved in this operation. If the compost is not desirable by the public, it can be used by City departments and in the maintenance of the closed landfill. The compost may also be useful in producing other compost products that involve biosolids.

G. Facility Design Report

1. **Design Capacity = 30,000 cubic yards**
The City's 32.5 acre tract is located within the city limits just north of East Club Blvd. and just west of Glenn Rd. The facility handles the leaves and limbs collected at the curb by City crews as well as materials brought in by the public. The City will not pick up limbs and leaves contaminated with any foreign materials. 10 acres of this tract is currently being used for the windrowing of leaves and the grinding of limbs. Assuming that

approximately 3,000 cubic yards of material can be composted on an acre of property, the current design capacity of the facility is 30,000 cubic yards. Currently, the City's Compost Facility brings in approximately 4500 tons or 22,500 cubic yards of yard waste.

2. **Process Flow Diagram**

See Tab 6

3. **Yard waste is weighed as it arrives at the scale house of the City's Disposal Facility. It will be routinely shredded or ground at least two times per year and mixed using a front-end loader. When grass is brought in large quantities, it is incorporated into the yard waste windrows within 48 hours or before the waste begins to heat, cause odors or attract vectors. No other materials are included other than yard waste and biodegradable paper yard waste bags.**
4. **The process is expected to last approximately six to nine months, no longer than a year, from the reception of the waste materials until the cured compost is distributed.**
5. **Monitoring shall be done in order to meet record keeping and reporting requirements. Record keeping requirements include daily operations records which detail temperature data and quantity of material processed. Compost product from this Type 1 facility is not required to be tested. Records should also show the quantity and type of waste that is both received and processed into compost. In addition, the quantity and type of compost removed for use or disposal should be recorded. Monthly the daily temperature records shall be checked to ensure that the pathogen reduction criteria is met.**
6. **The compost temperature shall be checked in order to maintain at or above 55 degrees Celsius (131 degrees F) for three days and aerated to maintain elevated temperatures.**
7. **The compost shall be aerated by being turned with a front-end loader with a 2.5 cubic yard capacity bucket.**
8. **The surface water shall be controlled with the use of swales and berms to prevent run-off and with sedimentation basins to properly manage the run-off. The drainage ways are stable**

ditches and swales covered with well-established ground cover containing only runoff. The facility does not discharge directly to waters of the State. No composted materials are removed from the site via storm water runoff. Only leaves, limbs, brush, etc., are composted on site; therefore, runoff passes through composting materials and grassed swales. Leachate generated is minimal.

H. Label Description

Classification of the compost is Grade A;

The compost and mulch that is produced at the City's Type 1 facility shall contain minimal pathogenic organisms, shall be free from offensive odor, and shall contain no sharp particles that would cause injury to persons handling the compost. Under these conditions, the compost product shall have unrestricted applications and distributions; and directions will be provided with the compost product.

A sample label is shown below.

<p style="text-align: center;">Classification Grade A</p> <p style="text-align: center;"><u>Recommended uses for this product:</u> Use as a soil amendment Use for seedling mixtures</p> <p style="text-align: center;"><u>Application:</u> <i>For soil amendment</i>, mix product directly into soil by working it into plant beds or apply a two-inch layer to soil surface. Use a light layer to mulch your house plants and then water as usual. <i>For seedling mixtures</i>, use 1:1 mixture of compost, topsoil or 1/3 compost, 1/3 topsoil, 1/6 sand, 1/6 vermiculite or perlite. Line your holes or seed pockets with the compost, mix with soil and then plant your transplants or seeds.</p> <p style="text-align: center;">No restrictions on use</p> <p style="text-align: center;">For more information on composting, contact the North Carolina Cooperative Extension Service</p>

I. Facility Plans and Specifications

This facility is shown in the site plan. There are no special buildings or equipment that are specifically designed for composting. The front end loader is a multipurpose piece of equipment. The grinder is to be provided by a contractor and the specifications are not available.

J. Operation and Maintenance Manual

See enclosed copy, Tab 7.

The City of Durham

**Operation and Maintenance Manual for
a Type 1 Yard Waste Composting Facility**

Operation and Maintenance Manual for a Type 1 Yard Waste Composting Facility

The purpose of this manual is to serve as a reference to all entities involved in the operation of the City's Yard Waste Center. It shall be placed on-site and shall be easily accessible.

Table of Contents:

1. Yard Waste Permit

2. Approved Site Plan

3. Quality Assurance Plan

- Inspection of incoming material
- Approved process
- Monitoring procedures

4. Contingency Plans

- Equipment breakdown
- Non-conforming waste
- Spills
- Fires, vectors, odors

5. Operational Requirements

- Plan and Permit Requirements
- Adequate erosion control measures
- Surface water diversion
- Leachate containment
- Access & Security requirements
 - Unauthorized entry
 - Operator on duty
 - All weather access road
- Acceptance of only permitted wastes
- Safety requirements
 - Open burning prohibited
 - Fire extinguishers
 - Personnel training

Personal Protective Equipment
Hazardous Waste

Sign requirements

Reporting requirements

Monitoring requirements

Temperature & aeration

Compost Product

6. Plans and Operations Reports

Blank Report Form Originals

1. Yard Waste Permit

2. Approved Site Plan

3. Quality Assurance Plan

Inspection of Incoming Material

Incoming yard waste should only consist of leaves, grass clippings, stems, pruning materials, small brush and biodegradable paper yard waste bags generated in residential and commercial lawn and garden care in the City of Durham. The yard waste is to be received and weighed at the scale house, and checked for unacceptable waste. The unacceptable waste shall be removed by the customer and placed in a stationary waste container for small vehicles or taken to the transfer station tipping floor, depending on the type of waste. The unacceptable waste is then loaded onto the transfer trailers and hauled for disposal to the Brunswick Waste Management Facility in Lawrenceville, Virginia. The uncontaminated yard waste shall then be unloaded by the yard waste customer at a temporary receiving area near the transfer station or at the compost facility itself. The temporary receiving area will be located near the transfer station and will allow for small trucks to unload and be observed by the attendant stationed in that area. The yard waste will regularly be loaded onto articulated dump trucks for transport to the yard waste compost facility that is located to the north of the closed landfill. At either unloading area, the waste screener shall check the yard waste materials again for unacceptable waste. If unacceptable waste is discovered at either location, the load shall be rejected and the yard waste customer shall be directed to return to the scale house for re-weighing. Any extraneous unacceptable waste found after the customer has left the site shall be placed into on-site roll-off containers or trash trailers which are picked up for transport back to the transfer station for disposal in Virginia.

The hours of the compost facility are the same as the hours of the City's Waste Disposal and Recycling Center at 2115 East Club Boulevard. The opening and closing of the compost facility is thus associated with the opening and closing of the gate at that location.

Approved Process

Yard waste will be unloaded in either the temporary receiving area on the transfer station grounds or in the unloading area of the compost facility. The yard waste will be formed into static windrows of 8 to 10 feet high and 10 to 15 feet wide using a front-end loader in the processing area. The waste should be processed at least twice a year through a large tub grinder to reduce the particle size and enhance the composting process. This service would be provided by a contractor rather than by the City. Once the yard waste is ground, the windrows will be reformed in the active compost area. Once this is done, the temperatures will be taken with a compost thermometer and recorded on a daily temperature

record sheet to ensure that the pathogen reduction criteria is met. The windrows will be at least 20 feet apart.

After the compost process is completed, the compost will be moved to the curing area. Once cured, the compost will be placed in a stockpile for distribution.

The following positions are responsible for maintaining this quality:

1 operator/waste screener - The responsibilities of this position include screening the waste as it is received to reduce the likelihood of unacceptable waste being received. In addition, this position would involve operation of the loader used for windrow aeration and formation. Internal windrow temperature checks and removal of unacceptable waste are included in these duties.

1 disposal attendant - The responsibilities of this position include a visual inspection of loads as well as verbal questioning regarding the materials included in the load brought for yard waste disposal.

1 disposal supervisor - The responsibilities of this position include the oversight of the overall composting operation.

Persons responsible for facility operation:

Nancy L. Newell	Solid Waste Manager	919 560-4381
Frederick X. Ravin	Disposal Supervisor	919 560-4611
101 City Hall Plaza		
Durham, NC 27701		

Monitoring Procedures

If needed, dust control will be provided by the use of a water truck to spray and moisten dry areas. Regular temperature checks by the operator will also serve as an indicator for the frequency of turning.

4. Contingency Plans

- a. In the event of equipment breakdown, there is similar equipment available in other departmental divisions that can be used.
- b. Non-conforming waste, if inadvertently received, shall be removed by the operator/screener and properly disposed.
- c. Any spills will be handled by taking measures to contain the spill and properly dispose of contaminated soil. A hazardous waste contractor

may be called if necessary. Currently the City has a contract with Safety Kleen for handling household hazardous waste.

- d. In case of fire, employees shall use fire extinguishers which are kept on the loader equipment, and shall notify the Fire Department which has a station just outside the entrance to the Waste Disposal and Recycling Center facility.
- e. Odor control measures will consist of incorporating significant amounts of grass into the yard waste windrows thoroughly within 48 hours. All windrows will be turned at least monthly using a front-end loader. If odor becomes a problem, more frequent turnings will be performed.
- f. Special precautions and procedures for operating during wind, heavy rain, snow, freezing or other adverse conditions will be taken by using the temporary receiving area. Limiting the access directly to the compost site will be recommended during these events. Since the duration of these adverse conditions are usually short in Durham, there is little need for special procedures other than limiting the turning of the windrows and keeping the unloading area available. Snow and freezing conditions occur at a season that generates little yard waste other than branches and pruned materials.

5. Operational Requirements

Plan and Permit Requirements

The City of Durham has an approved site plan, Section 2, which meets all state and federal regulations for Air Quality, Surface and Groundwater Quality, Erosion and Sedimentation.

The City of Durham is required to have a permit for its Yard Waste Facility under NC General Statutes 130A-294; -309.03; -309.11; and -309.29. The current permit, No. 32-04-YW, is for a Type 1 Compost Facility, "which may receive yard and garden waste, silvicultural waste, untreated and unpainted wood waste or any combination thereof."

A copy of the permit, plans and operations reports shall be maintained in this manual in the administrative offices of the Waste Disposal and Recycling Center.

Adequate Erosion Control Measures

Much of the area will be protected from erosion by the yard waste itself. Current erosion control measures include diversion ditches around the perimeter of the compost site, a forested buffer and sedimentation basins.

Surface Water Diversion

The surface water shall be controlled with the use of swales to prevent run-off and with sedimentation basins to properly manage the run-off. The drainage ways are stable ditches and swales covered with well-established ground cover which contains any runoff. The facility does not discharge directly to waters of the State. No composted materials are removed from the site via storm water runoff. Only leaves, limbs, brush, etc., are composted on site; therefore, runoff passes through composting materials and grassed swales. Leachate generated is minimal. The surface water diversions shall be inspected monthly and after flood events to determine their condition and effectiveness.

Leachate Containment

There is minimal leachate produced from a Type 1 compost facility and will therefore not be contained.

Access & Security Requirements

The site has an entrance on East Club Boulevard that is secured by gates at the end of the day, thereby preventing unauthorized entry.

When the compost area is open for receiving waste, there shall be an operator on duty to inspect the incoming wastes, keep the site maintained, keep the compost turned and temperatures monitored.

Once the landfill closure is completed, there shall be an all weather access road to the site.

Acceptance of Only Permitted Wastes

Permitted wastes are yard waste materials that result from landscaping and yard maintenance such as brush, grass, tree limbs, and similar vegetative materials. Biodegradable paper yard waste bags are acceptable. Acceptance of only these materials shall be achieved by the presence of an operator and by the examination by the scale staff.

Safety Requirements

Open burning of solid waste is prohibited at this site. Any fire on the site should be extinguished immediately.

Fire extinguishers are available on equipment . The City fire station at the facility entrance will respond when needed. The disposal supervisor should be contacted and 911 called for response if the fire cannot be put out with the extinguisher.

Personnel training shall be provided to ensure that all employees are familiar with the site and its safety procedures. Remedial and correction action procedures will be included in this training.

Personal protective equipment, such as safety shoes and vests should be worn at all times at the site. Additional equipment items such as safety glasses, gloves, and dust masks are available and shall be worn as needed in turning windrows and examining waste.

Any hazardous waste found shall be removed and the disposal supervisor notified. Appropriate treatment of this waste shall be determined by supervisor and division head.

Sign Requirements

A sign listing acceptable waste, dumping procedures, hours, and permit number is required on-site and is posted at the entrance on Club Boulevard.

Traffic signs are to be placed around the site as necessary to direct citizens to the proper unloading area.

Clear, readable statements are placed on site that "no hazardous waste, asbestos-containing waste or medical waste can be received at the site."

Reporting Requirements

Record keeping requirements include the submittal of daily operations records, monthly reports, and annual reports to the Disposal Supervisor which detail temperature data and quantity of material processed. An annual report for the period from July 1 to June 30 shall be submitted by the City to the Division of Waste Management of the North Carolina Department of Environment and Natural Resources by August 1 each year. The report shall include:

1. The facility name, address and permit number;

2. The total quantity in tons, and type of waste received at the facility during the year covered by the reports, including tons of waste received from local governments of origin;
3. The total quantity in tons, and type of waste processed into compost during the year covered by the report;
4. The total quantity in tons and type of compost produced at the facility, by product classification, during the year covered by the report;
5. The total quantity in tons and type of compost removed for use or disposal from the facility, by product classification, along with a general description of the market if for use during the year covered by the report;
6. Monthly temperature monitoring to support the operational requirements.

Monthly reports, which contain daily entries, as well as a copy of the annual report will be kept in the official operating record in the City's Waste Disposal and Waste Reduction Division Administrative Office. Sample records are in Section 6. Compost product from this Type 1 facility is not required to be tested.

Monitoring Requirements

Monitoring shall be done in order to meet record keeping and reporting requirements. The daily temperature records shall be checked to ensure that the pathogen reduction criteria is met.

The compost temperature shall be checked in order to maintain at or above 55 degrees Celsius (131 degrees F) for three days and aerated to maintain elevated temperatures.

The compost shall be aerated by being turned with a front-end loader with a 2.5 cubic yard capacity bucket. The compost product from this Type 1 facility is not required to be tested.

The operator shall perform a weekly moisture test using the following "squeeze method":

If the product is squeezed and falls apart, water will be added. If the product is squeezed and water drains from it, it will be allowed to dry. When the product stays together and does not give off water, it will be considered to be at optimum moisture.

The Compost Product

Classification of the compost is Grade A;
The finished compost product will be available for use by the City's Parks and Recreation Department, other City departments, local citizens and gardeners.

Long range plans include making arrangements to screen and market the compost in order to offset the costs involved in this operation. If the compost is not desirable by the public, it can be used by City departments and in the maintenance of the closed landfill. The compost may also be useful in producing other compost products that involve biosolids.

6. Plans and Operations Reports

Blank reporting forms enclosed.



City Of Durham Yard Waste Composting Facility Annual Report 200_

City of Durham
Waste Disposal and
Recycling Center
2115 E. Club Blvd.
Durham, NC 27704

Permit number 32-04-YW

919-560-4461

Sludge values in dry weight (if applicable) _____

Type of Material Received _____

Name of local government _____

Total tons received _____

Name of local government _____

Total tons received _____

Total tons received from local gov'ts of origin _____

Total Quantity Received (tons) _____

Sludge values in dry weight _____

Type of waste processed into compost _____

Total tons of compost produced _____

Type of Compost _____

Tons _____

Type of Compost _____

Tons _____

Total Quantity of Compost Produced (tons) _____

Type of compost removed (by product classification) _____

Type _____

Total (tons) _____

Type _____

Total (tons) _____

Total Quantity Removed for Use or Disposal (tons) _____

Market Description _____

Monthly Temperature Criteria Met? (Y/N)

Jan. _____

Feb. _____

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Sept. _____

Oct. _____

Nov. _____

Dec. _____


**NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES**
DIVISION OF WASTE MANAGEMENT

July 9, 1999

JAMES B. HUNT JR.
GOVERNOR

WAYNE McDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

Mrs. Nancy Newell
Environmental Resources Department
101 City Hall Plaza
Durham, North Carolina 27701

Re: Solid Waste Compost Facility – Permit # SWC-32-04 – Durham County

Dear Mrs. Newell:

Enclosed is your permit to operate a Large Type I Solid Waste Compost Facility in Durham County. Please carefully read all permit conditions. Your Operation and Maintenance Manual has been incorporated into the permit conditions. A permit modification will be required to add any additional feed stocks.

Mark Fry, Waste Management Specialist, will be responsible for facility inspections. Mr. Fry can be contacted at 910-486-1191.

If you have questions, please feel free to contact me at 919-733-0692, extension 253.

Sincerely,



Ted Lyon, Supervisor
Composting & Land Application Branch

cc: Mark Fry, Waste Management Specialist
Central Files – Solid Waste Section

h:cla/compost/permits/32-durham/SWC-32-04-99cl

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT
PO BOX 29603 RALEIGH, N.C. 27611

City of Durham, NC

is hereby issued a permit to operate a

LARGE, TYPE 1 SOLID WASTE COMPOST FACILITY

at 2115 Club Boulevard

Permit Number SWC-32-04

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.


Dexter R. Matthews, Chief Date 7-7-99
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. Failure to comply may result in compliance actions or permit revocation.
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 shall be managed in such a manner that it will not be allowed to adversely impact ground or surface waters.
3. Any inaccuracies found in the site plan shall be corrected within 30 days of notification.
4. Only materials specifically listed in the permit application may be managed at this facility without adequate testing and prior approval of the Division of Waste Management.
5. Wastes with low carbon-nitrogen ratios, such as grass clippings, shall be incorporated into the windrows prior to the waste starting to compost (heat), create odors or attract vectors.
6. Compost produced at the facility shall meet the requirements of Rule .1407 of the Solid Waste Compost Rules and the permit application.
7. 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
8. Groundwater monitoring wells may be required if there is indication of the potential for groundwater contamination.
9. 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.
10. Use of the temporary receiving area shall cease effective August 1, 1999. After that date all yard waste must be received in the areas noted on the site plan.
11. This permit shall expire on July 7, 2004. Changes in ownership, increase in facility capacity, or receiving additional feedstocks shall require a permit modification.

DURHAM



1 8 6 9
CITY OF MEDICINE



**City of Durham
North Carolina**

Environmental Resources Department
101 City Hall Plaza
Durham, NC 27701

(919) 560-4381 FAX (919) 560-4479

June 15, 1999

Mr. Ted Lyon, Composting and Septage Branch Supervisor
401 Oberlin Road, Suite 150
Division of Waste Management, Solid Waste Section
NCDENR
Raleigh, NC 27605



Dear Mr. Lyon;

Enclosed are four copies of the revised Yard Waste Permit application No. 32-04-YW. Three of the four applications have an aerial photograph of the site enclosed at tab one. The fourth photo is enclosed in the previously-submitted application.

Please contact myself or Nancy Newell at 560-4381 with any questions.
Thank you.

Sincerely,

Jennifer Brown
Waste Reduction Coordinator
Disposal and Waste Reduction Services
Environmental Resources Dept.
City of Durham, NC

SEDIMENTATION INSPECTION REPORT

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES

LAND QUALITY SECTION: 3800 Barrett Drive, Raleigh, NC 27609 (919) 571-4700

County Durham Project: Durham Compost Facility River Basin Neuse #1:03-04
Person Financially Responsible City of Durham
Address 101 City Hall Plaza Durham, NC 27701 Attn: A.T. Bolan, Director

1. Project Location IN of landfill Pictures: Yes No Prints Slides Video

2. Weather and Soil Conditions cool; workable

3. Is site currently under notice of violation? Yes No

4. Is the site in compliance with the S.P.C.A. and rules? Yes No

If no, check violations below:

5. Violations:

- a. No approved plan, G.S. 113A-57 (4) and 15A N.C.A.C 4B.0007(c)
- b. Failure to follow approved plan, G.S. 113A-61.1
- c. Failure to submit revised plan, G.S. 113A-54.1(b) and 15A N.C.A.C. 4B.0018(a)
- d. Failure to provide adequate groundcover, G.S. 113A-57(3) and 15A N.C.A.C. 4B.0007(b) or 15A N.C.A.C 4B.0024(e)
- e. Insufficient measures to retain sediment on site, G.S. 113A-57(3)
- f. Failure to take all reasonable measures, 15A N.C.A.C.4B.0005
- g. Inadequate buffer zone, G.S. 113A-57(1)
- h. Graded slopes and fills too steep, G.S. 113A-57(2) or 15A N.C.A.C. 4B.0024(d)
- i. Unprotected exposed slopes, G.S. 113A-57(2)
- j. Failure to maintain erosion control measures, 15A N.C.A.C. 4B.0013
- k. Other(describe) _____

6. Has sedimentation damage occurred since last inspection? Yes If yes, where? (check all that apply): No

Lake/natural watercourse on the tract Lake/natural watercourse off the tract Other property

Description _____

Degree of damage: Slight Moderate Severe

7. Contact made with (Name) Newell, Brawn Title _____
Inspection Report given or sent to Person Financially Responsible. Date given/sent delivered on site

8. Corrective actions needed:

*
Comments: Sediment basins are in place and functioning properly to control sediment on the site; ground cover is sufficient on areas adjacent to active stockpiles of woody materials - site looks fine; well-controlled. Periodically monitor basins for any maintenance needs.

Report by: Debbie Fugway Others Present _____

Date of Inspection 11-12-98 Time arriving on site 10:20 am Time leaving site 11:00 am

cc: Nancy Newell . Jennifer Brawn

TET

**NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES**
DIVISION OF WASTE MANAGEMENT



JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

March 3, 1999

Mrs. Nancy Lee Newell, P.E.
Solid Waste Manager, City of Durham
Environmental Resources Department
101 City Hall Plaza
Durham, North Carolina 27701

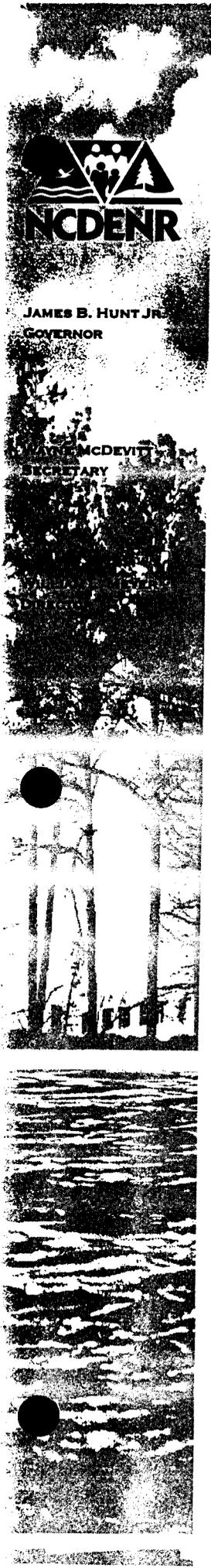
Re: Yardwaste Compost Permit – Permit #32-04 – Durham County

Dear Mrs. Newell:

The North Carolina Division of Waste Management, Solid Waste Section, has reviewed the application you submitted to have the City of Durham's Yardwaste Facility permitted. Following is a list of items which need to be addressed before we can complete our review.

1. In Item #3 of the facility design report, the application should indicate that high nitrogen containing waste such as grass clippings will be incorporated into windrows within 48 hours or "before the waste begins to heat, cause odors or attract vectors". This should also be included in the operation and maintenance manual.
2. The sample label shown indicates that the final product can be used as a liquid fertilizer. This statement needs to be explained.
3. The operation and maintenance manual refers to a "temporary receiving area", "a waste container for small vehicles", and an area where unacceptable waste will be "set aside". These areas need to be located on the site plan. The site plan should also indicate where the grinder will be located when at the facility.
4. Other information on the operation of the facility that should be in the operation and maintenance manual include how windrows are formed and turned; how often and with what temperatures are monitored; where records are kept; any opening and closing procedures; and an outline of the annual report as addressed in Rule .1408(c).

The operation and maintenance manual should provide enough information that someone could step in and operate the facility using the manual. Items addressed in #4 above should bring the manual closer to that goal.



A site visit will be scheduled in the very near future to review the site plan and the site itself. If you have questions concerning these matters, please feel free to contact me at 919-733-0692, extension 253.

Sincerely,

A handwritten signature in black ink that reads "Ted Lyon". The signature is written in a cursive style with a large, sweeping initial "T" and a long, horizontal flourish extending to the right.

Ted Lyon, Supervisor
Composting & Land Application Branch

h:cla/compost/apprev/32-durh/newell 32-04