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***CAROLINA RESOURCE RECOVERY***  
**MEBANE, NORTH CAROLINA**

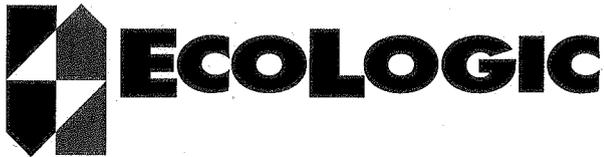
***APPLICATION FOR PERMIT  
TO CONSTRUCT AND OPERATE***

March 2000

**Applicant: Steven S. Scott**



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March 3, 2000

Mr. Timothy A. Jewett  
NC Dept. of Env. and Natural Resources  
Solid Waste Section  
585 Waughtown Street  
Winston-Salem, North Carolina 27107

**RE: Application for Permit to Construct and Operate  
Carolina Resource Recovery  
Mebane, North Carolina**

Dear Tim:

On behalf of Steven S. Scott of Mebane, NC, EcoLogic Associates, P.C. offers this application for a new permit to construct and operate Carolina Resource Recovery, an organic and inert waste management facility. The facility will include LCID treatment and processing, Type 1 composting, and an LCID landfill.

In accordance with the requirements outlined in Rules .0565, .1405 and current guidance for LCID Treatment and Processing facilities, the following information is being provided:

- (1) A narrative including the following:
  - (a) a description of the facility purpose and a general overview,
  - (b) a demonstration of compliance with siting requirements, and
  - (c) a design report describing major design features and assumptions;
- (2) Operating plans for each of the three operating units;
- (3) Drawings 1 through 5 to address illustrative requirements; and
- (4) An appendix containing several required documents, such as a copy of the deed, a letter from the Fire Marshal, a zoning verification letter, and so forth.

Application for Permit – Carolina Resource Recovery

Your expeditious review of this application would be greatly appreciated. If there are any questions regarding this letter or the enclosures, please contact the undersigned at (336) 271-3093.

Respectfully,



Mark A. Taylor, PE, CPESC  
Project Manager



C: Steven S. Scott

Enclosures

# APPLICATION FOR PERMIT TO CONSTRUCT AND OPERATE

## CAROLINA RESOURCE RECOVERY (An organic and inert waste management facility)

Mebane, NC

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## **FACILITY PURPOSE AND OVERVIEW**

Name of Facility: Carolina Resource Recovery  
Address: 3285 Jones Drive  
Mebane, NC 27302  
Responsible Person: Steven S. Scott, Owner and General Manager  
Phone Number: (919) 563-3469

The Carolina Resource Recovery facility ("the facility") will include land clearing and inert debris (LCID) treatment and processing and disposal (landfill) operations along with a large Type I composting facility. The overall purpose and operational goal of the facility is to complement the integrated landscape products production and distribution operations of Scott Sand & Stone, Inc., a landscape materials supplier owned by the proposed facility's owner and located on adjacent property.

The desired product of the composting facility is high quality compost for on-site blending with inorganic soil and for bulk sale to landscapers and contractors for direct application to soils in need of organic amendment. Mulch will also be produced as dictated by market demand. Demand for these products is normally strong from about March 15 through November 15.

These goals will be accomplished by the removal, processing, decomposition, refining and use/sale of the organic portion of the land-clearing and inert debris waste stream, commonly referred to as "wood and yard wastes". It is the intent of the facility to accept land-clearing and inert debris, yard waste, uncontaminated pallets and other acceptable wood from residential and commercial generators for recycling. Uncontaminated soil will also be accepted from grading contractors for on-site blending, sale and distribution. Inert debris and residual waste from treatment and processing will be landfilled on site in a former clay pit.

The facility will encourage recycling and discourage landfilling and/or improper disposal of organic materials. An additional environmental benefit of the facility is reclamation of a former clay pit on the site that was used as a source of raw material for brick manufacture.

### **COMPLIANCE WITH SITING REQUIREMENTS (15A NCAC 13B .0564 AND .1404)**

Floodplains No flood zones (100-year or otherwise) are documented on or near the site. The nearest documented flood zone is along Tributary A to Haw Creek about one-half mile north of the site (see FEMA map in Appendix).

Endangered Species No federally protected endangered or threatened species are documented on or within 1 mile of the site. Refer to the attached letter from the NC Division of Parks and Recreation, Natural Heritage Program dated August 12, 1999 included in the Appendix.

Archaeological/Historical Sites No properties of architectural, historic, or archaeological significance are documented by the state within close proximity that would be affected by the project. Refer to the attached letter from the NC Division of Archives and History dated August 18, 1999 included in the Appendix.

Parks, Recreation, Scenic Areas No parks or similar facilities are documented within 1 mile of the site. Refer to the attached letter from the NC Division of Parks and Recreation, Natural Heritage Program dated August 12, 1999 included in the Appendix.

Wetlands Based on a site reconnaissance by an environmental scientist, no significant areas of jurisdictional wetlands exist on the site; however, a few small areas of probable jurisdictional wetlands were noted and are highlighted on the attached drawings. Refer to the attached letter from

Spangler Environmental, Inc. dated October 4, 1999 included in the Appendix. The proposed site development has been designed to avoid these probable wetland areas so that further delineation is not needed (see Design Plan).

Adequate Soil

Proposed grading at the site will result in a net soil surplus of about 12,500 cubic yards, more than enough to meet landfill operational cover needs (see Design Report). Some additional on-site excavation or importation of landfill final cover soil may be needed if the landfill is developed to its maximum areal extent.

Groundwater and Rock

A subsurface exploration was performed to address the various criteria for vertical separation between waste treatment, processing and disposal and seasonal high groundwater and rock. Since the exploration was performed in October, 1999 following several weeks of near-record rainfall, the groundwater levels observed are believed to represent a reasonable estimate of seasonal highs. In no case was the groundwater table observed within 12 inches of the ground surface. In two cases in the landfill area, groundwater was measured less than 4 feet below the ground surface (TP-14 and TP-15). Filling is proposed in that area to provide more than the required separation (at least 5.5 feet). Outcroppings and/or areas of exposed weathered rock are evident in some previously excavated areas of the site, but a subsurface exploration revealed that these materials can be excavated with conventional equipment and thus are not rock. No further excavation is planned in those areas. Refer to the attached tables titled "Test Boring/Pit Log" and "Groundwater Observations" included in the Appendix.

Buffers

Adequate area exists on site to provide the required buffers from disposal and processing activities, and the proposed site development plan provides for those buffers (see Design Plan). Required buffers vary from

## CRR Application for Permit to Construct and Operate

50 feet to 200 feet depending on the proposed use and the affected feature, but generally fall in the range of 50 to 100 feet for streams and property lines.

### Zoning

This is not an issue since Alamance County has no zoning ordinance. Refer to the attached letter from Tom King, Assistant Planning Director, Alamance County Planning Department dated November 1, 1999 included in the Appendix.

### Watersheds

The site is not in a watershed according to maps on file at the Alamance County Planning Department. The County also confirmed this. Refer to the attached letter from Tom King, Assistant Planning Director, Alamance County Planning Department dated November 1, 1999 included in the Appendix.

## **DESIGN REPORT**

### LCID Treatment and Processing Facility

The LCID treatment and processing (T&P) facility will be located in the southern portion of the site and will occupy about 2.8 acres (see Design Plan and Figure 1). The existing grade will be utilized as the base grade, for the most part, though excavation in the southern section is planned to provide soil borrow and provide a regular surface for site operations. The design base grade calls for a 2 percent minimum base slope and a 3(H):1(V) or 33 percent perimeter cut slope. Stormwater will be directed to perimeter channels that are designed to direct it to a temporary sediment trap. The design layout allows for 20-foot fire lanes around and between the stockpiles (see Figure 1).

Though inflow of waste materials to the facility cannot be accurately predicted due to the commercial nature of the operation and the cyclical nature of land development, knowledge

of ongoing practices and waste generators in the local market suggests that a design inflow for organic wastes of 600 cubic yards per week (the equivalent of 50 tandem axle dump trucks) is reasonable. Land clearing normally experiences seasonal peaks from about March 15 through June 30 and again from about September 1 through November 15. Somewhat less activity occurs during July and August, and very little activity occurs during the winter (November 15 through March 15).

An area about 100 feet square is provided in the west end of the T&P area for organic waste screening and blending operations. The remainder of the area will be used to segregate incoming wastes prior to processing and to stockpile organic wastes prior to grinding. Stockpiles averaging 14 feet high by 30 feet wide at the base are envisioned. The T&P area provides enough room to store approximately 5,600 cubic yards of stockpiled materials at capacity. At the design inflow of 600 cubic yards per week, over 9 weeks of storage of unprocessed organic waste is available in the T&P area. Overflow storage of incoming wastes, as needed, will occur in the LCID landfill area. Refer to Figure 1.

### LCID Landfill

The LCID landfill will be located in the central portion of the site and will occupy about 7.7 acres if fully developed (see Design Plan). The existing grade will be utilized as the base grade, for the most part, with some initial grading needed to remove remnants of former clay mining (mounds, ridges, depressions, etc.) and provide a regular surface for site operations. The design base grade calls for a 2 percent minimum base slope. No excavation below the prevailing base grade is planned, but filling will occur in the east end of the landfill area to raise the base grade above the regulatory limit relative to groundwater. At least 5.5 feet of vertical separation between the landfill bottom and seasonal high groundwater is provided by the base grade design.

The landfill will be constructed in increments, with no more than one (1) acre of active fill area open at one time. Exterior fill slopes are designed to be constructed at a 4(H):1(V) or 25 percent slope. The final grades shown on the Design Plan provide a total airspace volume

(waste disposal plus cover soil volume) of about 290,000 cubic yards. Assuming that operational cover soil will consume 2 percent of the post-settlement volume, the amount of operational cover needed is about 5,800 cubic yards. Final cover volume would be about 13,700 cubic yards if the landfill area were fully developed.

Stormwater will be directed to perimeter channels or permanent diversions that are designed to direct it to temporary sediment traps. Periodically, inactive areas that have received soil cover will be seeded with native grasses and/or legumes to stabilize soils against erosion.

### Composting Facility

The Type 1 composting facility will be located in the western portion of the site and will occupy about 4.8 acres (see Design Plan and Figure 2). The existing grade will be utilized as the base grade, for the most part, though some excavation in the central section is planned to provide soil borrow and provide a regular surface for site operations. The design base grade calls for a 5 percent minimum base slope. Stormwater will be directed to permanent diversions that are designed to direct it to a temporary sediment trap. The design layout allows for 20-foot fire lanes around and between groupings of windrows (see Figure 2).

The entire area will be used for open windrow composting of processed organic wastes. The natural soils will form the pad for composting operations. Based on the site subsurface exploration performed in October, 1999, the site soils are typical Piedmont residual soils comprised of fine sandy clayey silt or silty clay. The USDA soil classification for these soil types would typically be loam or silt loam. The SCS Soil Survey of Alamance County indicates that the predominant soil types in the area are Georgeville silt loam, Herndon silt loam and Orange silt loam.

The windrows shall be constructed with varied feedstocks (variable C:N ratios) in combinations designed to assure a high quality, marketable compost product. Temperature and percent moisture will be monitored and turning will be employed as needed to maintain aerobic conditions and suitable elevated temperatures to expedite composting (thermophilic

decomposition), reduce odors, and reduce pathogens. This stage should take about 2 to 4 weeks. Stabilization will be performed in the original windrows if required. The stabilization stage should take up to an additional 4 weeks. Aeration and turning will be accomplished with a front-end loader. The temperature in the windrows will be monitored at least 3 times per week, 48 hours apart to confirm the achievement and duration of elevated temperature. Percent moisture in the windrows will be monitored at least weekly to assess the need for moisture addition.

The operating plan for the on-site T&P facility supplying the composting operation calls for grinding and screening stockpiled wastes when approximately 8 weeks of input, or 4,800 cubic yards, has accumulated. The grinding should reduce volume by a factor of 6 or 7, so the design input to the composting facility is 800 cubic yards every 8 weeks. Assuming a 50 percent volume reduction after 8 weeks of high rate decomposition and stabilization, and combining windrows at that time to restore their original size, the cumulative storage required with steady output of 50 cubic yards per week is 1,200 cubic yards. Using the same assumptions, if sales of finished compost were to stop for 4 months during the winter (11/15 through 3/15), the required storage capacity would be 2,200 cubic yards.

The design calls for windrows averaging 8 to 10 feet wide by 5 to 7 feet high at the center and triangular or trapezoidal in cross-section. The composting area provides enough room to store approximately 8,300 cubic yards of materials at capacity. Thus, considerable excess storage capacity is provided by the design to accommodate seasonal and economy-based reductions in product demand and/or input that exceeds the projected amount.

**OPERATING PLAN**  
**CAROLINA RESOURCE RECOVERY**  
**LCID TREATMENT & PROCESSING FACILITY**

**Mebane, NC**

Steven S. Scott, Owner	919-563-3469	Office
Emergency Contact (24 Hours)	TBA	
Swepsonville Fire Dept.	336-578-1500	Fire Station
<b>FIRE/RESCUE EMERGENCIES</b>	<b>911</b>	<b>Fire/EMS</b>

Operating Hours: Mon. – Fri.: 7:00 am – 6:00 pm Sat.: 7:00 am – 12:00 pm

1. The facility will accept only the following solid wastes:

Land clearing waste, asphalt, brick, concrete, concrete block, uncontaminated soil, gravel and rock, untreated and unpainted wood, uncontaminated pallets, and yard trash.

2. A design inflow for organic wastes of 600 cubic yards per week (the equivalent of 50 tandem axle dump trucks) is projected. No estimate of inert debris input is available, but that is a secondary purpose of the facility and no processing of inert debris is planned beyond separating it from usable wood waste. Reusable materials such as brick or stone may be transported to neighboring Scott Sand & Stone, Inc. if a market for such materials exists.
3. Treatment and processing operations will consist of sorting and segregating incoming wastes by type, stockpiling organic waste until enough is on hand for cost-effective grinding by contract (estimated at 3,200 to 4,800 cubic yards), separating soil from stumps by use of a steel grid, grizzly, or similar device, grinding and screening organic wastes and soil, and blending partially or fully composted organic waste with soil.
4. The processed organic waste will be transported to the adjacent, on-site composting facility for recycling into high quality compost for blending with soil and sale to landscaping contractors and others. Grinding should reduce the organic waste volume by a factor of 6 or 7, so the design input to the composting facility is 800 cubic yards every 8 weeks.

5. An area about 100 feet square in the west end of the T&P area is designated for organic waste screening and blending operations. The remainder of the area will be used to segregate incoming wastes prior to processing and to stockpile organic wastes prior to grinding. Stockpiles averaging 14 feet high by 30 feet wide at the base are needed for efficient grinding operations. The T&P area provides enough room to store approximately 5,600 cubic yards of stockpiled materials at capacity. At the design inflow of 600 cubic yards per week, over 9 weeks of storage of unprocessed organic waste is available. Overflow storage of incoming wastes, as needed, will occur in the on-site LCID landfill area.
6. All non-recyclable material and unusable inert debris will be landfilled in the on-site LCID landfill.
7. The following equipment is planned for use at the facility. Additional equipment and vehicles are available at Scott Sand & Stone (contiguous site) for use at the facility as needed.

1980 Fiat Allis 345-B Loader

Ford 555-B Loader

1988 Dresser 520B Wheel Loader

1997 John Deere 5300 Tractor with 540 Loader

1999 Extec Screener with vibrating grid and stacking conveyor

8. The facility will be adequately secured by a gate to prevent access except when an attendant is on duty, and to prevent unauthorized access at all times. An attendant will be on duty at all times while the facility is open for public use to prevent acceptance of unauthorized wastes.
9. Access roads will be of all-weather construction and properly maintained.
10. Surface water will be diverted from the working area. Adequate erosion control measures, structures, or devices will be utilized to prevent silt from leaving the site and to prevent excessive on site erosion. All runoff from disturbed areas will be directed to sediment traps.
11. A sign will be posted at the facility entrance showing the contact name and telephone number in case of an emergency, the operating hours, acceptable wastes and the permit number.
12. Monthly safety meetings will be held for all on-site employees. Instruction will be given on accident prevention, procedures for emergencies and on managing small fires.

13. Fire, ambulance and police telephone numbers will be posted in a place that is readily accessible. The facility personnel shall be trained in basic on-site fire response procedures and shall have access to heavy equipment, water and extinguishers to aid in the early suppression of fire. Fire suppression may include isolating and spreading burning material, application of water or chemical suppressant, and/or covering with soil.

**OPERATING PLAN**  
**CAROLINA RESOURCE RECOVERY LCID LANDFILL**  
**Mebane, NC**

Steven S. Scott, Owner	919-563-3469	Office
Emergency Contact (24 Hours)	TBA	
Swepsonville Fire Dept.	336-578-1500	Fire Station
<b>FIRE/RESCUE EMERGENCIES</b>	<b>911</b>	<b>Fire/EMS</b>

Operating Hours: Mon. – Fri.: 7:00 am – 6:00 pm Sat.: 7:00 am – 12:00 pm

1. The landfill will accept only the following solid wastes:

Land clearing waste, asphalt, brick, concrete, concrete block, uncontaminated soil, gravel and rock, untreated and unpainted wood, uncontaminated pallets and yard trash.

2. Disposed solid waste will be restricted to the smallest area feasible and compacted as densely as practical.
3. Adequate soil cover (6 inches minimum) will be applied monthly, or when the active area reaches one (1) acre in size, whichever occurs first. Soil will be obtained from on-site borrow sources.
4. Within 120 calendar days after completion of any phase of disposal operations, the disposal area will be covered with a minimum of one foot of suitable soil cover sloped to allow surface water runoff in a controlled manner.
5. Sufficient ground cover will be provided to restrain erosion within 30 working days or 120 calendar days upon completion of any phase of landfill development.
6. The facility will be adequately secured by a gate to prevent access except when an attendant is on duty, and to prevent unauthorized access at all times. An attendant will be on duty at all times while the landfill is open for public use to prevent acceptance of unauthorized wastes.

7. Access roads will be of all-weather construction and properly maintained.
8. Surface water will be diverted from the working face and will not be impounded over waste. Adequate erosion control measures, structures, or devices will be utilized to prevent silt from leaving the site and to prevent excessive on site erosion. All runoff from disturbed areas will be directed to sediment traps located around the perimeter of the landfill.
9. Solid waste will not be disposed of in water.
10. Open burning of solid waste is prohibited.
11. The concentration of explosive gases generated by the facility will be controlled so as to not exceed:
  - (a) twenty five percent (25%) of the lower explosive limit (LEL) for the gases in facility structures; and
  - (b) the lower explosive limit for the gases at the property boundary.
12. Leachate will be properly managed on site through the use of current best management practices, though no leachate of consequence is expected.
13. A sign will be posted at the facility entrance showing the contact name and telephone number in case of an emergency, the operating hours, acceptable wastes and the permit number.
14. When operations cease at this facility, the entire area will be graded and covered with a minimum of one foot of suitable soil, mulched, and seeded.
15. Monthly safety meetings will be held for all on-site employees. Instruction will be given on accident prevention, procedures for emergencies and on managing small fires.
16. Fire, ambulance and police telephone numbers will be posted in a place that is readily accessible. The facility personnel shall be trained in basic on-site fire response procedures and shall have access to heavy equipment, water and extinguishers to aid in the early suppression of fire. Fire suppression may include isolating and spreading burning material, application of water or chemical suppressant, and/or covering with soil.

# **OPERATING PLAN**

## ***CAROLINA RESOURCE RECOVERY COMPOSTING FACILITY***

**MEBANE, NORTH CAROLINA**

**March 2000**

Prepared for:

***Steven S. Scott***  
Mebane, North Carolina

Prepared by:



***EcoLogic Associates, P.C.***  
2007 Yanceyville St., Suite 223  
Greensboro, North Carolina 27405

**OPERATING PLAN**  
**CAROLINA RESOURCE RECOVERY COMPOSTING FACILITY**  
**Mebane, NC**

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# CRR Composting Facility Operating Plan

## I. Facility Overview

Steven S. Scott, Owner and General Mgr.	919- 563-3469	Office
Emergency Contact (24 Hours)	TBA	
Swepsonville Fire Dept.	336-578-1500	Fire Station
FIRE/RESCUE EMERGENCIES	911	Fire/EMS

### Site Personnel:

- Composting Supervisor: Supervises site operations and site personnel under the direction of the General Manager.
- Gate Attendant: Controls access, records transactions and directs vehicles.
- Equipment Operators: Operate equipment associated with composting operations.
- Technicians: Perform labor and monitoring tasks at the site.

The Carolina Resource Recovery facility (“the facility”) will include a large Type I composting facility along with land clearing and inert debris (LCID) treatment and processing and disposal (landfill) operations. The overall operational goal of the facility is to complement the integrated landscape products production and distribution operations of Scott Sand & Stone, Inc. The desired product of the composting facility is high quality compost for blending with inorganic soil and for bulk sale to landscapers and contractors for direct application to soils in need of organic amendment.

These goals will be accomplished by the removal, processing, decomposition, refining and use/sale of the organic portion of the land-clearing and inert debris waste stream, commonly referred to as “wood and yard wastes”. It is the intent of the facility to accept land-clearing and inert debris, yard waste, uncontaminated pallets and other acceptable wood from residential and commercial generators for recycling.

II. Operations Overview

A. Hours of Operation

The facility will have scheduled hours of operation as follows:

Monday through Friday	7:00 am - 6:00 pm
Saturday	7:00 am - 12:00 pm
Sunday	Closed

B. Receiving

All vehicles entering the facility will be stopped and recorded, with the hauler name, vehicle type and size, and type of waste materials noted. The gate attendant will then direct the vehicle driver to the appropriate off-loading area (i.e. wood processing area, inert debris processing area, etc.). The gate attendant will notify the appropriate facility employee to allow inspection of materials as they are being off-loaded. The visual inspection will ensure that received materials are compatible with the intent and goals of the facility (see "Acceptable Materials", Section III. A). Those materials not acceptable at the facility shall be handled as outlined in Section III. B.

C. Staging and Processing

The staging area will be that portion of the facility so designated (see Design Plan) for the off-loading and temporary storage of incoming materials. The treatment and processing area will be used for the storage of organic wastes prior to grinding, processing materials, i.e., grinding of wood, separation of inert debris and large wood items, refining of compost, etc. These areas will be constructed and maintained to allow good access and use in various weather conditions to facilitate the uninterrupted use of the facility.

D. High Rate Decomposition

The first stage of composting will be accomplished in open, aerated windrows. The construction and maintenance of the windrows shall be as described in Section III. C. The windrows will be constructed in the designated composting area (see Figure 2). The windrows shall be constructed with varied feedstocks (variable C:N ratios) in combinations designed to assure a high quality, marketable compost product. Temperature and percent moisture will be monitored and turning will be employed as needed to maintain aerobic conditions and suitable elevated temperatures to expedite composting (thermophilic decomposition), reduce odors, and reduce pathogens. This stage should take about 2 to 4 weeks.

E. Stabilization

The stabilizing of fresh compost to produce mature compost will be provided for as dictated by market demands. Stabilization is the gradual reduction of microbial activity in the presence of moisture and aeration, and is accomplished by continuing the aerated windrow composting process under the same controlled conditions as in the first stage. Thus, stabilization will be performed in the original windrows if required. Since the target market is consumers of bulk quantities of blended soils and/or compost for soil amendment, a highly stabilized compost product is not envisioned. The degree of stabilization achieved may also depend on demand versus production rates. The stabilization stage should take up to an additional 4 weeks.

F. Refining, Curing, and Quality Control

The compost will be refined by screening to remove oversize particles and foreign material and improve the consistency and quality of the final product. Screening will normally occur in the treatment and processing area as the compost is transferred from the windrows to the final storage area (see Design Plan). Oversize material will be run back through the process or utilized as mulch. Foreign matter will be disposed of in the landfill (see Design Plan).

Curing will be effected in the final storage area if and only if additional humification is desired to satisfy market demands.

Quality control will consist of regular measurement of temperature and percent moisture and periodic manual/visual inspection for particle size and the presence of foreign material. It may also occasionally include measurement of particle size and gradation, pH, biochemical oxygen demand (BOD), heavy metals and/or phytotoxins.

#### G. Storage and Load-Out

In the storage and load-out area, market-ready compost will be stockpiled until sale. The storage and load-out area shall be maintained to facilitate stormwater drainage and allow easy access and movement of equipment for loading. Trucks arriving at the facility to load compost shall check in at the gatehouse. The gate attendant will direct trucks to the storage and load-out area and notify the facility staff of the need to load product. The loaded vehicles will then return to the gatehouse for checkout.

#### H. Product Use and Marketability

It is the intent of the facility to develop products that have the attributes desired for use as a soil amendment in landscaping projects, parks, golf courses, highway right-of-ways and beautification projects. Carolina Resource Recovery intends to blend soils for sale to landscaping contractors. In addition, commercial landscapers and private citizens will be able to purchase the compost directly. The established market contacts of Scott Sand & Stone, Inc., a landscape materials supplier owned by the proposed facility's owner, will be instrumental in developing and sustaining markets for the finished products.

Given the intended use of the compost, market sensitivity to quality is not expected to be as great as if the compost was to be marketed as a mature compost product for retail sale. Thus, lack of demand due to poor quality is considered a minimal risk. In the event of changed market conditions resulting in declining demand for the product, on-site storage can

## CRR Composting Facility Operating Plan

be maximized, limits on operating hours and/or intake quantity can be imposed, and/or incoming organic waste can be landfilled in the facility's on-site LCID landfill for permanent disposal or future recovery and composting.

### III. Operating Procedures

The purpose of this section is to establish the standard operating procedures for managing materials and producing compost at the facility. These procedures may be refined or modified as experience is gained with the facility and the process.

#### A. Acceptable Materials

The facility is designed as a Type 1 wood and yard waste composting facility. Acceptable materials shall include land clearing waste, untreated and unpainted wood waste, uncontaminated pallets, yard and garden waste (leaves, grass, brush, limbs), silvicultural waste, and other biodegradable organic wastes determined to be suitable for the composting process and acceptable to NC DENR.

#### B. Receipt and Preparation of Materials

The gate attendant will make a visual check of incoming loads prior to receipt, under normal conditions, for those loads not coming from a familiar source. Any non-conforming/unauthorized materials shall not be allowed to off-load. The gate attendant will be knowledgeable of approved disposal options for various non-conforming/unauthorized materials, and drivers with such materials will be directed to an appropriate disposal location.

Upon receipt, the materials shall be off-loaded at the staging area, or in the case of high inflow, at the treatment and processing area, which will serve as an overflow area. When possible, loads will be examined for contaminants, nonconforming and/or unauthorized materials as they are dumped and spread. Any nonconforming and/or unauthorized materials found during off-loading shall be reloaded into the delivery vehicle.

In the event non-conforming/unauthorized wastes are discovered in the staging/processing area, those materials shall be separated by the facility staff. A location shall be established for the temporary storage of those materials that cannot be legally or practically disposed of in the on-site LCID landfill. Facility personnel shall be responsible for the loading and transporting of such materials to an appropriate and properly permitted disposal facility.

The preparation of incoming wastes will consist of grinding, screening and mixing of stumps, wood waste, brush, leaves, etc. This preparation will be performed in the treatment and processing area (see Design Plan). The facility staff will be responsible for preparation of the materials in a manner suitable for introduction as compost feedstocks.

Grass clippings shall be incorporated into windrows and turned within 48 hours of on-site arrival. This will reduce the potential for odors and increase space available in the staging area for incoming materials.

### C. Windrow Composting

The windrows will be constructed in the designated composting area (see Figure 2). The windrows shall be constructed with varied feedstocks (variable C:N ratios) in combinations designed to assure a high quality, marketable compost product. Temperature and percent moisture will be monitored and turning will be employed as needed to maintain aerobic conditions and suitable elevated temperatures to expedite composting (thermophilic decomposition), reduce odors, and reduce pathogens. This stage should take about 2 to 4 weeks.

#### 1. Feedstock Properties

The feedstock raw materials are assumed to be brush and stumps, land-clearing debris, yard trash including grass and plant clippings, silvicultural wastes, and clean wood waste such as pallets. Leaf wastes may be expected in the fall and Christmas trees in January. Stumps

may contain a large amount of soil, which will be screened out before composting.

The carbon:nitrogen ratio (C:N) of the feedstocks is a critical factor affecting the rate of decomposition. Different feedstocks will contain different amounts of decomposable carbon and nitrogen. High carbon waste such as wood is sometimes called "brown waste", while high nitrogen waste such as fresh grass clippings is sometimes called "green waste." During windrow construction, the layering of feedstocks should be designed to result in a mixture having a suitable carbon:nitrogen ratio. The C:N ratio should ideally be in the 25:1 to 40:1 range. The average carbon:nitrogen ratios for some typical feedstock materials are as follows:

<u>Waste Material</u>	<u>C:N Ratio</u>
Wood Chips	800:1
Sawdust	400:1
Straw	100:1
Leaves (dry)	90:1
Leaves (fresh)	40:1
Grass Clippings	20:1

The initial carbon:nitrogen ratio of the feedstock should be adjusted to a maximum of about 40:1 to provide sufficient nitrogen nutrients for vigorous composting, and a minimum of about 25:1 to minimize ammonia formation and other odors. As compost matures, reductions in C:N to 10-15:1 may result as carbon is released during the humification process. The use of partially composted materials as a layered feedstock is permissible. Such material would have a lower C:N ratio and thus would act as an inoculate of nitrogen to reduce the C:N ratio of brown waste feedstocks. For example, materials that have been in the composting process 3 to 6 weeks might be layered into a new windrow of leaves and wood chips to lower the C:N ratio and thus increase the initial decomposition rate. Urea and ammonium nitrate are other convenient sources of nitrogen that could be used as an inoculate to lower the initial

C:N ratio; however, they must be used with care to avoid excessive addition that could result in ammonia formation.

The chemical property pH is the measure of acidity/alkalinity. The correct pH balance plays an important role in the composting process. The pH balance affects the quantity of nutrients available to support the microbial activity. The closer the compost mixture is to neutral (pH = 7), the more efficient the composting process will be, thus a pH in the range of 6 to 8 is desired. Lime can be used as an additive to the feedstock layers if necessary to increase pH levels.

The particle size of feedstocks also affects the rate of decomposition. Small particle sizes provide more surface area for microbial activity which results in a rapid decomposition rate. Particle size reduction also results in feedstock volume reduction. Small particle sizes must be balanced by the need to have voids between particles (air space) for oxygen to access the microorganisms. Thus, blending of feedstocks to ensure a good distribution (gradation) of particle sizes is needed to promote oxygen availability and microbial activity.

## 2. Placement

The windrows will be constructed in the composting area as shown on Figure 2. The windrows will be approximately 8 to 10 feet wide by 5 to 7 feet high at the center and will be triangular or trapezoidal in cross-section. The windrows will be constructed using layered feedstocks as necessary to optimize carbon:nitrogen (C:N) ratios.

The prepared materials will be placed in the windrows either by dump trucks off-loading in a continuous length dumping method or by a front-end loader. The first layer of feedstock may range in depth from 12 to 60 inches depending on the percentage and number of feedstocks being used to generate the desired type of compost. Where multiple layers are employed, the feedstock for the second and subsequent layers shall be placed by a front-end loader.

During and/or after layering of the feedstocks, the equipment operator will mix the layered

feedstocks in the windrow. After mixing, the front-end loader will create the desired windrow size and shape. Care must be taken not to compact the feedstocks during placement and/or shaping in order to maintain a porous, fluffed pile.

### 3. Moisture Modification

Control of the amount of water in the composting material is a critical element in achieving optimum aerobic composting results. The microbes (bacteria) responsible for the aerobic decomposition process need appropriate quantities of water, oxygen and nutrients to accomplish humification. The amount of moisture in the windrow (percent moisture) should be maintained between 45 and 60 percent. (Percent moisture = weight of water in moist compost ÷ moist (total) weight of compost) Percents moisture outside these limits will cause a reduction in microbial activity, slowing the composting process.

During the initial layering of the feedstocks, it is preferable to know the percents moisture of the various feedstocks. This will enable the proper moisture level to be attained throughout the windrow during its construction. Make-up water should be applied as needed during the layering of feedstocks to promote uniform moisture distribution during mixing and to retard runoff. Make-up water will be pumped from a spring-fed farm pond located about 600 feet south of the composting area on land owned by the facility owner.

Once the composting process begins, increased temperature and subsequent turning (aeration) will cause a substantial loss of moisture. Measurement of compost percent moisture in the windrows at least weekly will determine the need for water addition during subsequent turnings. Turning of the piles with a front-end loader will be done in such a way as to thoroughly mix make-up water uniformly with the compost.

The exposed windrows will allow some rain to infiltrate the compost and increase the percent moisture. The facility staff must be aware of current moisture conditions and forecasted weather when determining the need for moisture modification of the windrows. Maintaining a triangular cross-sectional shape of the windrow will help reduce rainfall infiltration when

moisture conditions are high-normal or excessive. More frequent turning may be required in such cases to promote drying.

The grade of the composting area must be maintained to promote rapid drainage of stormwater runoff. Ponding of water in the composting area should not be allowed to occur.

#### 4. Aeration (Turning)

Aeration of the composting materials is necessary for aerobic biological processes. Aeration provides compost oxygenation, helps ensure process stability, and enables temperature control. Insufficient aeration can result in elevated temperatures that retard microbiological activity (slow the decomposition process). In addition, the compost may go anaerobic (lack of oxygen), a condition that causes noxious odors and can produce plant toxins. Excessive aeration, on the other hand, accelerates heat removal and increases evaporation, which can also result in a reduced rate of decomposition. Thus, the proper frequency and extent of aeration (turning) is critical to an efficient composting process, in terms of both temperature control and oxygenation. The physical mixing during turning also breaks up air channels and clumps, blends materials from top to bottom in the windrow, and provides for uniform microbial activity. Compost temperature can also be controlled by windrow size.

Aeration and turning will be accomplished with a front-end loader. If and when the throughput of the facility justifies the expense, a compost turner may be employed. The frequency of turning will be dictated by temperature and moisture conditions as well as odor, if it should occur.

In order to maintain a high rate of decomposition, the temperature should be controlled to be within the range of 45 to 55 degrees C (113 to 131 degrees F). For destruction of pathogens, however, the temperature of the compost must be allowed to remain above 55 degrees C (131 degrees F) for at least three (3) days, and the compost must be aerated during that time to maintain the elevated temperature and expose all of the compost to it (15A NCAC 13B .1406(10)). This process also inactivates most weed seeds. Then, the temperature will be

lowered to within the range for optimum decomposition (45 to 55 °C).

Care should be taken to not let the compost temperature climb above 70 degrees C (158 degrees F) because microbial activity is sharply reduced at that point. At temperatures above 80 degrees C (176 degrees F), sterilization of the microbes can occur, completely stopping the composting process until recolonization occurs. Caution should also be exercised to not allow mixing of compost materials that have undergone pathogen and weed seed destruction with those that haven't, either in the windrows or in equipment or vehicles used to process or transport the compost.

#### D. Compost Stabilization

Since the target market is consumers of bulk quantities of blended soils and/or compost for soil amendment, a highly stabilized compost product is not envisioned. The degree of stabilization achieved may also depend on demand versus production rates. The stabilization stage, if employed, should take up to an additional 4 weeks.

The stabilizing of fresh compost to produce mature compost will be provided for as dictated by market demands. Stabilization is the gradual reduction of microbial activity in the presence of moisture and aeration, and is accomplished by continuing the aerated windrow composting process under the same controlled conditions as in the first stage. Thus, stabilization will be performed in the original windrows if required. Combining windrows of similar age may facilitate the stabilizing process. This will also maximize the space utilization of the compost area.

#### E. Refining and Curing

The compost will be refined by screening to remove oversize particles and foreign material and improve the consistency and quality of the final product. Prior to refining the compost, the addition of moisture to the windrows will be discontinued to interrupt microbial activity and allow the compost to cool and dry to a consistency suitable for screening.

Screening will normally occur in the treatment and processing area as the compost is transferred from the windrows to the final storage area (see Design Plan). If compost is transferred to the final storage area without screening, screening shall occur prior to load-out of compost for sale and use. Oversize material will be run back through the process or utilized as mulch. Foreign matter will be disposed of in the landfill (see Design Plan).

Curing will be effected in the final storage area if and only if additional humification is desired to satisfy market demands. As such, curing will be accomplished in static piles or windrows so that aerobic conditions, temperature and percent moisture can be monitored and managed.

#### F. Quality Control

The Composting Supervisor will be the responsible party for achieving and maintaining quality control standards in the composting process. The temperature in the windrows will be monitored at least 3 times per week, 48 hours apart to confirm the achievement and duration of elevated temperature. Percent moisture in the windrows will be monitored at least weekly to assess the need for moisture addition.

Random, periodic manual/visual inspections of refined compost will be made for particle size verification and the presence of foreign material. Particle size distribution will be based on customer demand, but in no case shall man-made inerts be allowed to exceed 1 inch. These manual/visual inspections will also allow assessment and confirmation that the compost product is free from offensive odor and contains no sharp particles that would cause injury to persons handling the compost.

Quality control may also occasionally include measurement of particle size and gradation, pH, biochemical oxygen demand (BOD), heavy metals and/or phytotoxins as needed to satisfy quality control and production issues, customer needs and/or regulatory concerns.

G. Odor, Dust, Noise and Vector Control

The facility shall be operated utilizing procedures that will minimize odor, dust, noise and vectors.

Grass clippings will likely present the biggest potential odor problem at the facility. Grass clippings and other green wastes begin decomposing quickly and may go "anaerobic", creating foul odor. Odors may also be released during mixing or turning of the windrows. Several steps will be taken to control odor problems, namely:

1. Grass will be processed and turned into windrows within 48 hours of arrival at the staging area;
2. Windrows will be aerated frequently;
3. Wind should be minimal or blowing away from neighbors when compost turning occurs (whenever feasible);
4. Large natural buffers will be maintained, including berms as needed, to help minimize odor effects on neighbors; and
5. When windrows are deemed to be in the anaerobic state, lime may be applied to return pH to near neutral.

Dust will be controlled by the application of water spray, both on the compost in the windrows and on the facility roads during hot, dry weather. The application of make-up water to the compost during turning, to modify (increase) the percent moisture, should alleviate most problems with dust in the active composting area. In the refining process, a water mist may be needed on the screen and/or conveyor to control dust from the finer fraction during agitation. Waste screening and windrow turning may be postponed during periods of high wind to reduce dusting.

Noise is not expected to be a problem given the nature of the proposed operation and the relative isolation of the site. Only a few pieces of conventional heavy equipment are proposed to operate at the facility, with the exception of a tub grinder that will operate in the

adjacent treatment and processing area 2 or 3 days every 6 to 10 weeks. The facility is situated on the south side of the 59-acre site, opposite the low-density residential development to the north. The land to the south of the site (125 acres) is owned and occupied by Scott Sand & Stone, Inc., a landscape materials supplier owned by the proposed facility's owner, thus, noise will not be a concern there. Land to the east and west is mostly wooded and/or cultivated, i.e., undeveloped.

Regarding vectors, the facility staff shall maintain proper drainage and minimize standing water to reduce the potential for mosquito breeding. The wastes being processed and handled are not likely to attract vectors since they are not putrescible.

#### H. Operations in Inclement Weather

The waste types accepted and processed at the facility are not especially moisture sensitive and will not generate leachate, so inclement weather presents no particular challenges beyond road maintenance to maintain access and moisture and temperature control in the compost windrows (see Sections II.C.3 and 4). Windrow construction and turning may be postponed during periods of wet and/or very cold weather to avoid disruptions to the composting process. Similarly, waste screening and windrow construction and turning may be postponed during periods of high wind to reduce dusting and maintain site orderliness.

#### I. Record Keeping and Reporting

The gate attendant will maintain daily records of waste received, by type, quantity (vehicle size and percent full) and source. The record will also indicate the disposition of the waste, i.e., direct resale, processing only before sale, processing for compost, or landfill.

The Composting Supervisor shall be the responsible party for recording information for each windrow constructed. The windrow report will contain the following, with date and time noted for each entry: 1) quantity and types of feedstocks and layering scheme, 2) percent moisture at time of windrow construction and before subsequent modifications, 3) initial temperature of

the windrow (48 to 72 hours after construction), periodic temperatures of windrow, and the approximate location of testing points, 4) date of each turning of windrow, 5) date when windrows are combined, if done, 6) length of composting period, 7) analytical results from compost testing, and 8) comments or general notes on processing, weather, etc.

The facility staff should maintain a daily calendar where notations of weather conditions and other relevant information can be recorded. This information will be used in comparing and analyzing windrow reports for processing rates, moisture variations, volume reduction and compost quality.

An annual report will be prepared and submitted to the Division of Waste Management for the period July 1 to June 30 each year on or before August 1. The report will document the total quantity and types of waste received, including waste received from local governments, and the quantities of compost produced and sold. It will also document temperature monitoring results to demonstrate compliance with pathogen destruction criteria.

#### IV. Equipment

The following equipment is planned for use at the facility. Additional equipment and vehicles are available at Scott Sand & Stone (contiguous site) for use at the facility as needed.

1980 Fiat Allis 345-B Loader

Ford 555-B Loader

1988 Dresser 520B Wheel Loader

1997 John Deere 5300 Tractor with 540 Loader

1999 Extec Screener with vibrating grid and stacking conveyor

V. Security, Safety and Fire

A. Security

The facility will be a restricted access facility. As a restricted access facility, there are posted hours of operation. Customers will be allowed to use the facility only during the posted hours unless special arrangements are made with the Facility Manager.

To prevent access during non-operational hours, fencing and/or gates shall be installed at all potential points of vehicle access. Security of the facility shall be aided by the strategic placement of lights to discourage theft, vandalism and other nuisance behavior.

B. Safety

The safety of personnel and users of the facility shall be a high priority. Safety practices shall encompass all people working, delivering materials, or receiving finished product at the facility. The operation shall be conducted in compliance with all applicable state and federal OSHA standards. Telephone numbers of emergency agencies shall be prominently displayed, and all staff shall be familiar with those numbers and the location of telephones. In the event of injury, OSHA guidelines shall be followed to ensure the proper response and reporting of incidents.

Equipment shall be used in the manner described in the owner's manual, with special attention to safety features and safe operating guidelines. The facility staff shall maintain equipment in safe operating condition. The staff will be familiar with and follow the equipment manufacturers' recommendations for the safe use and maintenance of the equipment.

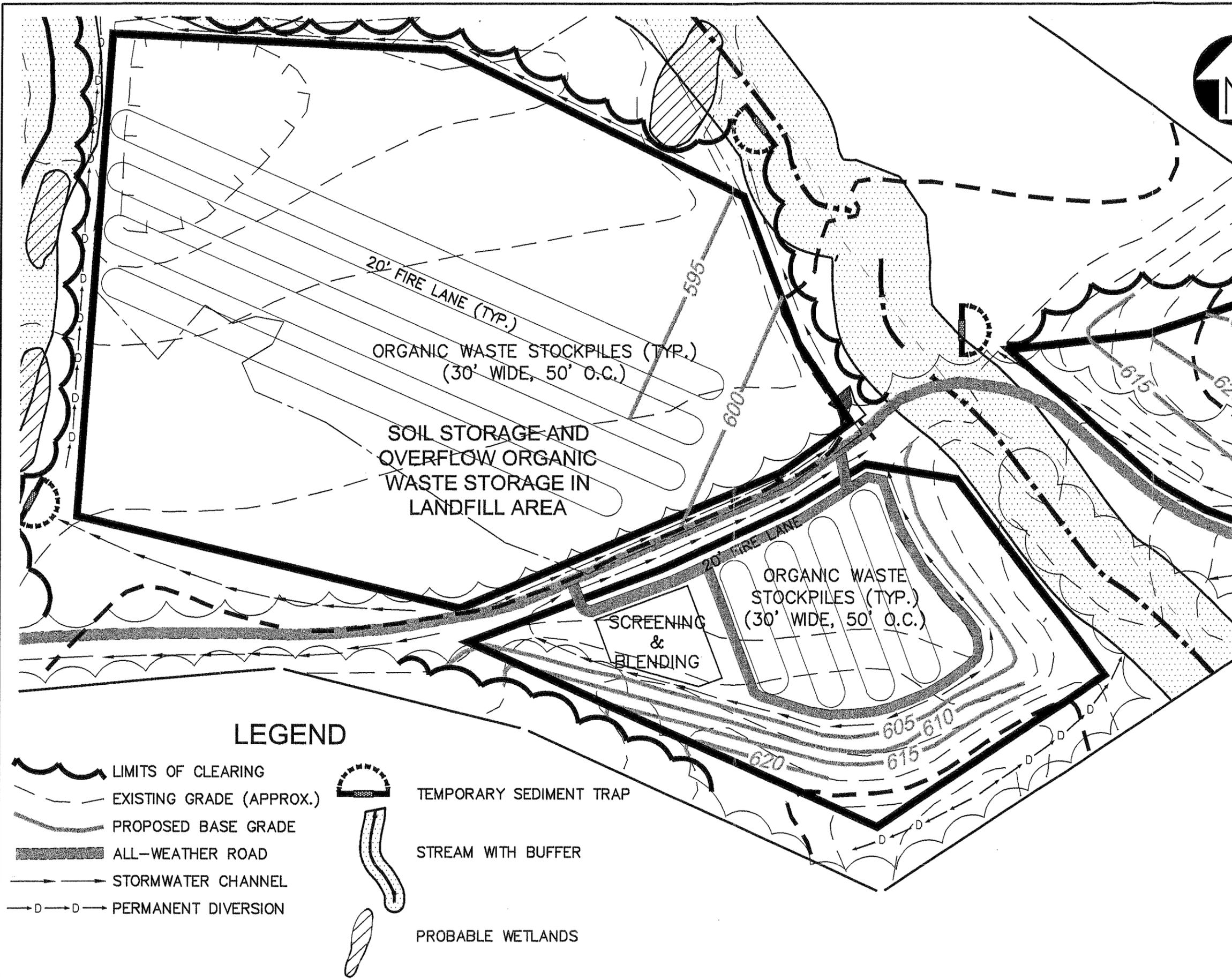
C. Fire

The aerobic composting process is exothermic, i.e., heat is generated by the high rate decomposition process. If excessive heat develops in the presence of flammable feedstocks,

the potential exists for occasional fires. The facility personnel shall be trained in basic on-site fire response procedures and shall have access to heavy equipment, water and extinguishers to aid in the early suppression of fire. Fire suppression may include isolating and spreading burning material, application of water or chemical suppressant, and/or covering with soil.

The facility design and operation shall allow access and movement of emergency fire fighting equipment at all times. Fire lanes 20 feet wide will be provided around the facility perimeter and intermittently within the composting area (See Figure 2). The facility management shall arrange periodic fire drills to train and ready site personnel for proper response. All occurrences of fire shall be reported to and reviewed by the Swepsonville Fire Department so that procedures can be established to prevent the reoccurrence of similar circumstance. Fire shall be reported to the Division of Waste Management and others as required by the permit.

11x17Treatment and Processing Layout.dwg w/Xref  
 DES\_PLAN (22 x 34 Design Plan.dwg)  
 PARRISH\_SURVEY (Property Line from Parrish.dwg)  
 T\_P (T&P Layout.dwg)



**ECOLOGIC**  
 ECOLOGIC ASSOCIATES, P.C.  
 2007 YANCEYVILLE STREET  
 SUITE 223  
 GREENSBORO, NC 27405-5004  
 PHONE: 336/271-3093  
 FAX: 336/271-3094

PROJECT:  
 CAROLINA  
 RESOURCE RECOVERY  
 MEBANE, NC



TREATMENT &  
 PROCESSING  
 AREA LAYOUT

SCALE: 1"=100'  
 DATE: 3/06/00  
 DRN. BY: PK  
 CHECKED BY: MAT

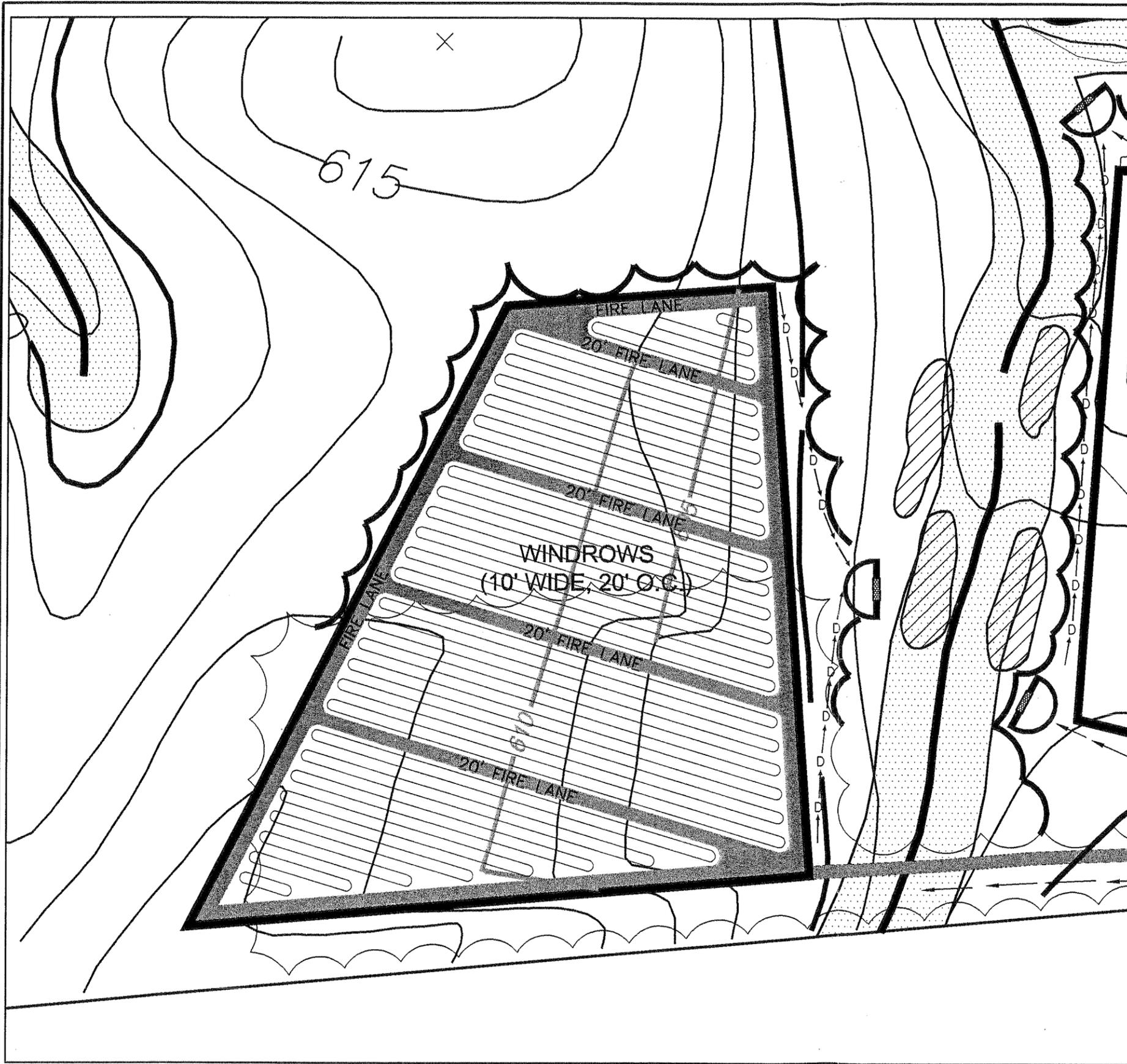
PROJECT NO:  
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SHEET 1 OF 1

DRAWING

FIGURE 1

11x17Compos...g Area Layout.dwg w/Xref  
 COMPAREA (Composting Area Layout.dwg)  
 DES\_PLAN (22 x 34 Design Plan.dwg)  
 PARRISH\_SURVEY (Property Line from Parrish.dwg)



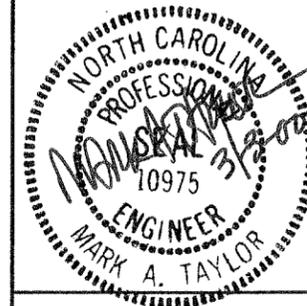
**LEGEND**

- LIMITS OF CLEARING
- EXISTING GRADE (APPROX.)
- PROPOSED BASE GRADE
- ALL-WEATHER ROAD
- STORMWATER CHANNEL
- PERMANENT DIVERSION
- TEMPORARY SEDIMENT TRAP
- STREAM WITH BUFFER
- PROBABLE WETLANDS



PROJECT:

CAROLINA  
 RESOURCE RECOVERY  
 MEBANE, NC



COMPOSTING AREA  
 LAYOUT

SCALE: 1"=100'  
 DATE: 2/18/00  
 DRN. BY: PK  
 CHECKED BY: MAT

PROJECT NO:  
 -

SHEET 1 OF 1

DRAWING

**FIGURE 2**



ECOLOGIC ASSOCIATES, P.C.  
 2007 YANCEYVILLE STREET  
 SUITE 223  
 GREENSBORO, NC 27405-5004

PHONE: 336/271-3093  
 FAX: 336/271-3094

**APPLICATION FOR PERMIT TO CONSTRUCT AND OPERATE**

**CAROLINA RESOURCE RECOVERY  
Mebane, NC**

**DRAWINGS SUBMITTED SEPARATELY**

- Drawing 1    Cover Sheet
- Drawing 2    Aerial Photo
- Drawing 3    1/4-Mile Radius Map
- Drawing 4    Design Plan
- Drawing 5    Cross Sections

**APPLICATION FOR PERMIT TO CONSTRUCT AND OPERATE**

**CAROLINA RESOURCE RECOVERY  
Mebane, NC**

**APPENDIX**

TABLE OF CONTENTS

Copy of deed

Fire Marshal letter

FEMA flood zone map

Endangered species letter

Archaeological/historic sites letter

Wetlands assessment report

Test boring/pit log and Groundwater observations

Zoning/watershed letter

This Deed was prepared at the request of the Grantor based upon information and property description provided by the Grantor and without title examination, survey, or verification of property description.



Real Estate  
Excise Tax

Instrument Prepared By: JOHN H. VERNON, III  
Vernon, Vernon, Woolen, Brown, Andrews & Garrett, P.A  
P.O. Box 2958, Burlington, NC 27216-2958

NORTH CAROLINA  
ALAMANCE COUNTY

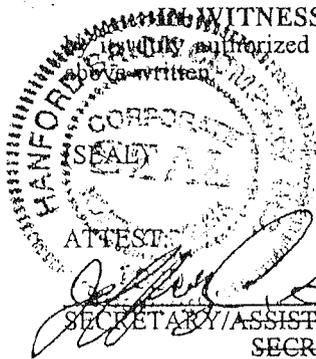
QUITCLAIM DEED

THIS DEED made as of the 29<sup>th</sup> day of September, 1997 by and between HANFORD BRICK COMPANY, INC., a Corporation organized under the laws of the State of North Carolina, whose address is P.O. Box 1215, Burlington, NC 27216-1215, (the "Grantor") and STEVEN S. SCOTT, whose address is 3285 James Road, Mebane, NC 27302 (the "Grantee"). The designations Grantor and Grantee as used herein shall respectively include said parties, their heirs, successors and assigns.

WITNESSETH THAT the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has remised and released and by these presents does remise, release, forever quitclaim and convey unto the Grantee all of the Grantor's right, title, claim and interest in and to all of the real property located in Alamance County, North Carolina described on Exhibit "A" attached hereto and made a part hereof.

TO HAVE AND TO HOLD the above described real property and all privileges and appurtenances thereto belonging to the Grantee free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under it.

IN WITNESS WHEREOF, the Grantor has caused this instrument to be signed in its corporate name by duly authorized officers and its seal affixed by authority of its Board of Directors, the day and year first above written.



HANFORD BRICK COMPANY, INC.

BY: James E. Hanford  
JAMES E. HANFORD, PRESIDENT

STATE OF NORTH CAROLINA  
COUNTY OF ALAMANCE

I, Donna A. Crabtree, a Notary Public for the above State and County, do hereby certify that JEFFREY C. SMITH personally appeared before me this day and acknowledged that he is Secretary/~~Assistant Secretary~~ of HANFORD BRICK COMPANY, INC., a corporation and that by authority duly given and as the act of the corporation the foregoing Deed was signed in its name by its President, sealed with its corporate seal and attested by himself as its Secretary/~~Assistant Secretary~~.

Witness my hand and notarial seal this the 29 day of Sept., 1997.

Donna A. Crabtree  
Notary Public

My Commission Expires



"Exhibit A"

Tract 1: A certain tract or parcel of land lying and being in Thompson Township, Alamance County, North Carolina, more particularly bounded and described as follows:

BEGINNING at a Hickory a common corner between Paul Terrell and Woodrow James and H. A. Scott and running thence with the line of H. A. Scott and Woodrow James, South 54° 51' East 1,555.62 ft. to an iron pipe, said pipe being a common corner between Woodrow James, M. G. Sutton and H. A. Scott; thence South 33° 34' East 116 ft. to an iron pipe; thence South 20° 28' 30" East 75 ft. to an iron pipe; thence South 84° 14' 30" West 311.8 ft. to an iron pipe; thence South 56° 45' West 563.97 ft. to an iron pipe; thence North 65° 36' West 399.34 ft. to an iron pipe; thence North 76° 06' West 256.97 ft. to an iron pipe; thence South 84° 53' West 1,349.95 ft. to an iron pipe in the line between Paul Terrell and H. A. Scott; thence with the line of Paul Terrell and H. A. Scott, North 01° 52' East 1,023.76 ft. to an iron pipe; thence continuing with the line of H. A. Scott and Paul Terrell, North 75° 35' East 1,368.87 ft. to the point and place of BEGINNING. Said tract containing 57.85 acres, more or less.

Tract 2: That certain tract or parcel of land in Thompson Township, Alamance County, North Carolina, adjoining the lands of Woodrow James, Margaret W. Scott, M. G. Sutton and County Road, bounded and described as follows:

BEGINNING at an iron stake, corner with Woodrow James, Margaret W. Scott and M. G. Sutton; running thence with the line of said Sutton and Scott, S. 33 deg. 34' E. 116 feet; thence S. 20 deg. 28' 30" E. 75 feet; thence N. 84 deg. 14' 30" E. 104.50 feet to the center line of County Road No. 2131; thence with the center line of said County Road, N. 7 deg. 04' W. 322.26 feet to a point, corner in the line between Woodrow James and M. G. Sutton; thence S. 43 deg. 26' W. 225 feet to the BEGINNING, containing 0.84 of an acre, more or less. The above description was obtained from a plat and survey made by Wachter Surveys, Inc., Greensboro, N.C., March, 1963.

State of North Carolina Alamance County  
 The foregoing certificate of  
Donna A. Crabtree

A Notary (Notaries) Public of the Designated Governmental  
 units is (are) certified to be correct

This the 6 day of Oct 1987  
 NADINE S. FUQUA Shirley Williams  
 Register of Deeds By Assistant/Deputy

FILED

BOOK 1115 PAGE 845

'97 OCT -6 A9:25su

NADINE S. FUQUA  
 REGISTER OF DEEDS  
 ALAMANCE COUNTY, NC

ALAMANCE COUNTY  
OFFICE OF THE FIRE MARSHAL

D. Drew Sharpe

Fire Marshal

Emergency Management Coordinator

February 18, 2000

EcoLogic Associates, P. C.  
Mark A. Taylor, Project Manager  
2007 Yanceyville Street, Ste, 223  
Greensboro, NC 27405-5004

Dear Mr. Taylor:

Per your request, Scott Sand & Stone is located in the 54 East Fire District. Fire protection for this location is provided by the Swepsonville Fire Department.

A major issue/concern of land-clearing debris fires is that it takes a tremendous amount of water and heavy equipment to handle fires in the debris piles. You need to develop an emergency plan for this facility so that early notifications of a fire can be reported and handled in a most timely manner. Also, good accessibility to the piles for fire-fighting equipment is a must. Having a track-hoe, or this type of equipment, on the scene helps to break the pile up if you have a fire. You will also need to send the emergency contacts numbers to the Swepsonville Fire Department, as well as to our office. When you get ready to start the operations, you will need to have the Swepsonville Fire Department come to the site and pre-plan this facility.

If you have any other questions or if I can be of further assistance, please do not hesitate to call me.

Yours truly,

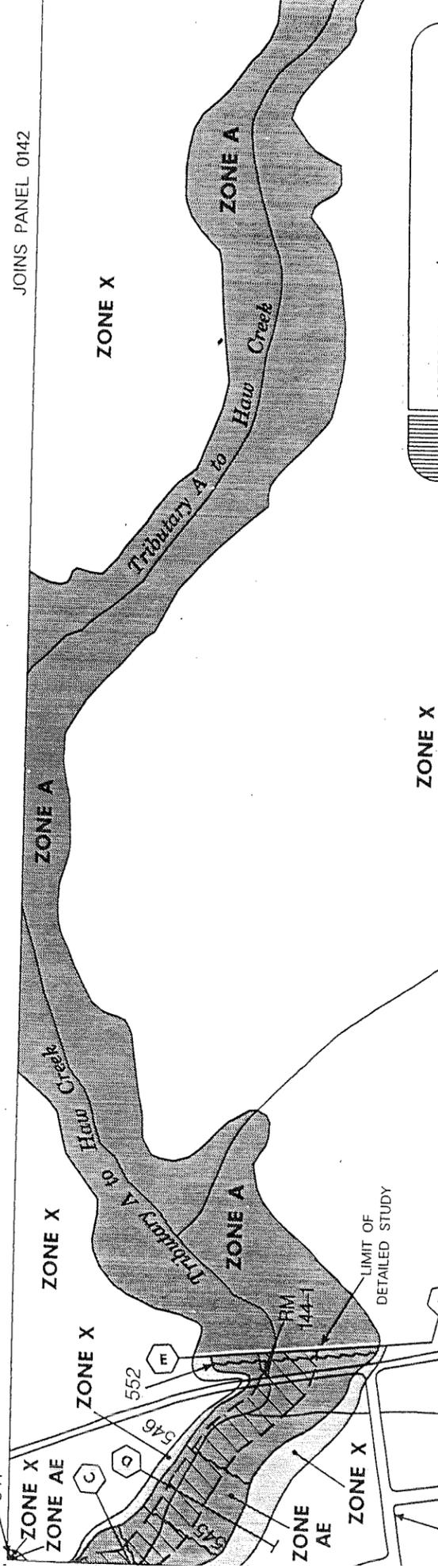


Jerry A. Beckom  
Asst. EM Coord./Chemical Planner

JAB:jr



52.5" 541



JOINS PANEL 0142

**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
 ALAMANCE COUNTY,  
 NORTH CAROLINA  
 AND INCORPORATED AREAS

**PANEL 144 OF 330**  
 (SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:  
COMMUNITY  
 ALAMANCE COUNTY

NUMBER 370001  
PANEL 0144  
SUFFIX E

Notice to User: The MAP NUMBER shown below should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
**37001C0144 E**

**EFFECTIVE DATE:**  
**DECEMBER 22, 1998**



Federal Emergency Management Agency

Alamance County  
 Unincorporated Areas  
 370001



NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
DIVISION OF PARKS AND RECREATION



August 12, 1999

JAMES B. HUNT JR.  
GOVERNOR

Mr. Mark A. Taylor PE  
EcoLogic Construction Inc.  
2007 Yanceyville Street, Ste 223  
Greensboro, NC 27405-5004

WAYNE McDEVITT  
SECRETARY

SUBJECT: Rare Species, High Quality Natural Communities, and Significant Natural Heritage Areas at the Proposed LCID Landfill Site at SR2131, Mebane, Alamance County, North Carolina

DR. PHILIP K. MCKNELLY  
DIRECTOR

Dear Mr. Taylor:

The NC Natural Heritage Program (NCNHP) does not have a record of rare species, high quality natural communities, state park and recreation areas, or Significant Natural Heritage Areas at or within a 1.0 mile radius of the proposed LCID landfill site on SR 2131 near Mebane, Alamance County, North Carolina. However, because Alamance County has not been systematically inventoried, this is not a definitive statement that rare species do not exist in the area.

Enclosed is a list of rare species known to exist in Alamance County. If habitat for any of these species exists at the site, they may be present there. Consultant acquired knowledge of the existing habitat should determine if a survey is necessary.

The new NHP web site provides county lists of rare species and high quality natural communities. Access to site records of element occurrences is not available. In the future it is hoped that quad lists of EO's will be available but that may be a while. The new web address: [ils.unc.edu/parkproject/nhp/index.html](http://ils.unc.edu/parkproject/nhp/index.html)

Please do not hesitate to contact me at the address below or call me at (919) 715-8703 if you have any questions or need further information.

Sincerely,

Susan Reece Giles  
Information Specialist  
Natural Heritage Program

Enclosure

27699-1615

GLOBAL		STATE	FED.	STATE	
SCIENTIFIC NAME	COMMON NAME	STATUS	STATUS	RANK	RANK
<b>Alamance-Current</b>					
<b>Invertebrate Animal</b>					
<i>Strophitus undulatus</i>	Squawfoot	T	-	S2S3	G5
<i>Villosa constricta</i>	Notched Rainbow	SR (PSC)	-	S3	G3G4
<i>Villosa delumbis</i>	Eastern Creekshell	SR	-	S3	G4
<b>Vascular Plant</b>					
<i>Phacelia covillei</i>	Buttercup Phacelia	C	-	S2	G2?Q
<b>Natural Community</b>					
Basic Mesic Forest (Piedmont Subtype)	-	-	-	S2	G5T3
Basic Oak--Hickory Forest	-	-	-	S3	G4
Upland Depression Swamp Forest	-	-	-	S2	G3
Xeric Hardpan Forest	-	-	-	S3	G3G4
<b>Alamance-Historic</b>					
<b>Invertebrate Animal</b>					
<i>Lampsilis cariosa</i>	Yellow Lampmussel	T (PE)	FSC	S1	G3G4
<b>Vascular Plant</b>					
<i>Aster laevis</i> var <i>concinus</i>	Narrow-leaved Aster	C	-	S2	G5T4
<i>Berberis canadensis</i>	American Barberry	SR	-	S2	G3
<i>Collinsonia tuberosa</i>	Piedmont Horsebalm	C	-	S1	G3G4
<b>Alamance-Obscure</b>					
<b>Vertebrate Animal</b>					
<i>Hemidactylium scutatum</i>	Four-toed Salamander	SC	-	S3	G5
<i>Lanius ludovicianus ludovicianus</i>	Loggerhead Shrike	SC	-	S3B, S3N	G5T5
<b>Vascular Plant</b>					
<i>Monotropsis odorata</i>	Sweet Pinesap	C	FSC	S3	G3

## NC NATURAL HERITAGE PROGRAM COUNTY STATUS LIST COVER SHEET

The county status list of the NC Natural Heritage Program is a listing of the elements of natural diversity (rare plant and animal species, exemplary natural communities, and special animal habitats) known to occur in all North Carolina counties. The information on which this list is based comes from a variety of sources, including field surveys, museums, herbaria, scientific literature, and personal communications. This list is dynamic, with new records continually being added and old records being revised as new information is received. As a result, the enclosed list cannot be considered a definitive record of natural heritage elements present in a given county and should not be used as a substitute for field surveys.

When this information is used in any document, we request that the date this list was compiled be given and that the NC Natural Heritage Program be credited.

### STATE STATUS

CODE	STATUS	CODE	STATUS
E	Endangered	SR	Significantly Rare
T	Threatened	EX	Extirpated
SC	Special Concern	D	De-listed
C	Candidate	P_	Proposed (E, T, SC, EX or D)

Plant statuses are determined by the Plant Conservation Program (NC Department of Agriculture) and the Natural Heritage Program (NC Department of Environment and Natural Resources). E, T, and SC species are protected by state law (Plant Protection and Conservation Act, 1979). C and SR designations indicate rarity and the need for population monitoring and conservation action. Note that some plants have a double status (e.g., E-SC, indicates that while the plant is endangered, it is collected or sold under regulation). See the *Natural Heritage Program List of the Rare Plant Species of North Carolina* for further explanation of these statuses.

Animal statuses that indicate state protection (E, T, and SC) are published in *Endangered Wildlife of North Carolina*, March 16, 1992, Nongame and Endangered Wildlife Program (NC Department of Environment and Natural Resources). SR and EX statuses are Natural Heritage Program designations. SR indicates rarity and the need for population monitoring and conservation action. See the *Natural Heritage Program List of the Rare Animal Species of North Carolina* for further explanation of these statuses.

### FEDERAL STATUS

These statuses are designated by the US Fish and Wildlife Service. Federally listed Endangered and Threatened species are protected under the provisions of the Endangered Species Act of 1973, as amended through the 100th Congress. Unless otherwise noted, definitions are taken from the *Federal Register*, Vol. 56, No. 225, November 21, 1991 (50 CFR Part 17).

CODE	STATUS	DEFINITION
LE	Endangered	A taxon "in danger of extinction throughout all of a significant portion of its range."
LT	Threatened	A taxon "likely to become an endangered species within the foreseeable future throughout all of a significant portion of its range."
C	Candidate	A taxon under consideration for which there is sufficient information to support listing. This category was formerly designated as a Candidate 1 (C1) species.
FSC		Federal "Species of Concern" (also called "Species at Risk"). Formerly defined as a taxon under consideration for which there is insufficient information to support listing; formerly designated as a Candidate 2 (C2) species. Currently, the US Fish and Wildlife Service does not recognize this as an official designation.
T(S/A)		Threatened due to Similarity of Appearance. The Endangered Species Act authorizes the treatment of a species (subspecies or population segment) as threatened even though it is not otherwise listed as threatened if: (a) The species so closely resembles in appearance a threatened species that enforcement personnel would have substantial difficulty in differentiating between the listed and unlisted species; (b) the effect of this substantial difficulty is an additional threat to a threatened species; and (c) such treatment of an unlisted species will substantially facilitate the enforcement and further the policy of the Act. The American Alligator has this designation due to similarity of appearance to other rare crocodylians. The Bog Turtle (southern population) has this designation due to similarity of appearance to Bog Turtles in the threatened northern population.
D		Species has been proposed for de-listing.

## GLOBAL AND STATE RANKS

These ranks are determined by The Nature Conservancy's system of measuring rarity and threat status. "Global" refers to worldwide ranks and "State" to statewide ranks.

### STATE RANK DEFINITIONS

- S1 Critically imperiled in North Carolina because of extreme rarity or otherwise very vulnerable to extirpation in the state.
- S2 Imperiled in North Carolina because of rarity or otherwise vulnerable to extirpation in the state.
- S3 Rare or uncommon in North Carolina.
- S4 Apparently secure in North Carolina, with many occurrences.
- S5 Demonstrably secure in North Carolina and essentially ineradicable under present conditions.
- SA Accidental or casual; one to several records for North Carolina, but the state is outside the normal range of the species.
- SH Of historical occurrence in North Carolina, perhaps not having been verified in the past 25 years, and suspected to be still extant in the state.
- SR Reported from North Carolina, but without persuasive documentation for either accepting or rejecting the report.
- SX Believed to be extirpated from North Carolina.
- SU Possibly in peril in North Carolina, but status uncertain; more information is needed.
- S? Unranked, or rank uncertain.
- S\_B Rank of breeding population in the state. Used for migratory species only.
- S\_N Rank of non-breeding population in the state. Used for migratory species only.
- SZ\_ Population is not of significant conservation concern; applies to transitory, migratory species.

### GLOBAL RANK DEFINITIONS

- G1 Critically imperiled globally because of extreme rarity or otherwise very vulnerable to extinction throughout its range.
- G2 Imperiled globally because of rarity or otherwise vulnerable to extinction throughout its range.
- G3 Either very rare and local throughout its range, or found locally in a restricted area.
- G4 Apparently secure globally, although it may be quite rare in parts of its range (especially at the periphery).
- G5 Demonstrably secure globally, although it may be quite rare in parts of its range (especially at the periphery).
- GH Of historical occurrence throughout its range.
- GX Believed to be extinct throughout its range.
- GU Possibly in peril, but status uncertain; more information is needed.
- G? Unranked, or rank uncertain.
- G\_Q Of questionable taxonomic status.
- G\_T\_ Status of subspecies or variety; the G rank refers to the species as a whole.

### ADDITIONAL DEFINITIONS

Elements within a county are subdivided into "Current", "Historic", or "Obscure" records.

Current record: the element was last observed in the county at most 20 years ago.

Historic record: the element was last observed in the county more than 20 years ago.

Obscure record: the date the element was last observed in the county is uncertain.

NOTE: Scientific and common names listed in parentheses are synonyms listed in US Fish and Wildlife Service, 1992, Endangered and Threatened Species of the Southeastern United States (The Red Book).



## North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor  
Betty Ray McCain, Secretary

Division of Archives and History  
Jeffrey J. Crow, Director

MAILING ADDRESS  
4617 Mail Service Center  
Raleigh, NC 27699-4617

LOCATION  
507 North Blount Street  
Raleigh, NC  
State Courier 53-31-31

August 18, 1999

Mark A. Taylor, PE  
Project Manager  
Ecologic Construction, Inc.  
2007 Yanceyville Street, Suite 223  
Greensboro NC 27405-5004

Re: Prospective LCID Landfill Site, SR 2131, Alamance  
County, ER 00-7250

Dear Mr. Taylor:

Thank you for your letter of July 27, 1999, concerning the above project.

We have conducted a review of the project and are aware of no properties of architectural, historic, or archaeological significance which would be affected by the project. Therefore, we have no comment on the project as currently proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

  
David Brook  
Deputy State Historic Preservation Officer

DB:slw

cc: Jim Coffey, Solid Waste Section, Division of Waste Management



# SPANGLER ENVIRONMENTAL, INC.

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224 Fayetteville Street Mall, Suite 400  
P.O. Box 387  
Raleigh, NC 27602-0387

Telephone 919-546-0754  
Fax 919-546-0757

October 4, 1999

Mr. Mark Taylor  
Ecologic Assoc., P.C.  
2007 Yanceyville St., Suite 223  
Greensboro, NC 27405-5004

Re: Steve Scott Property- Wetland Assessment

Dear Mark:

On Friday, October 1, 1999, Spangler Environmental, Inc. personnel conducted a primary wetland assessment on a property, approximately 60 acres in size, owned by Steve Scott, near the Alamance/Orange County line. The finding of this initial site investigation is that potential jurisdictional waters (including wetlands) of the United States do exist on the property. Approximations of the location of these features are sketched on the attached map.

Both creeks that run adjacent to the previously mined area of the property exhibit features that would characterize them as being at least intermittent in nature, and therefore under the jurisdiction of the Corps of Engineers. There are two other streams on the property that are likely to be considered jurisdictional, but probably not to the full extent of the draws that appear in the topographic map. The first of these originates from under the road approximately 300 feet north of the site entrance. This stream is potentially jurisdictional for 100 to 200 feet upstream of its confluence with the previously mentioned intermittent stream. The second flows into the pond located north of the property. This stream is potentially jurisdictional for 300 to 400 feet upstream of the property line.

There are potential wetlands located on this site. A small pocket of wetlands exist near the far southwestern property corner. Other wetlands may exist in close proximity to the stream that runs around the west side of the old mine. Finally, wetlands may exist in the area labeled "drainage cut" for the mine. A large amount of standing water existed in the bottom of the mined area when the site visit occurred. This is not likely wetland, but a result of near-record rainfall amounts for the month of September.

It should be noted that this is an assessment of potential wetlands/waters of the US. Only the US Army Corps of Engineers has regulatory jurisdiction to declare the presence/absence and location of wetlands and waters of the US on this particular property. If activities are planned that could affect the presence/absence and/or location of these features on the property, a formal wetland delineation and permits to impact wetland/waters of the US would be required, based on a site or grading plan. Spangler Environmental can provide these services, as well as consultation on minimizing these impacts while maintaining the greatest amount of net usable land.

Sincerely,  
Spangler Environmental, Inc.



Scott Linnenburger  
Project Manager

Attachment- site map with sketched potential wetlands/waters of the US

## TEST BORING/PIT LOG

### Near-surface Hydrogeologic Exploration Carolina Resource Recovery Mebane, NC

<u>Boring/TP</u>	<u>Depth (ft)</u>	<u>Soil Description</u>
B-1	2.7	Red-brown Fine Sandy SILT
B-2	2.8	Tan & Gray Fine Sandy SILT
B-3	2.7	Red-brown Fine Sandy SILT
B-4	3.2	Red-brown Fine Sandy SILT
B-5	3.0	Red & Light Gray Fine Sandy Clayey SILT
B-6	2.8	Red & Tan Fine Sandy Clayey SILT
B-7	2.7	Red & Tan Fine Sandy Clayey SILT
B-8	2.7	Red & Tan Fine Sandy Clayey SILT
B-9	2.8	Light Gray & Tan Fine Sandy SILT with gravel
TP-10	4.0	Tan & Gray Weathered Siltstone & Shale
B-11	2.3	Tan Fine Sandy SILT with gravel
B-12	2.9	Tan Fine Sandy SILT with gravel
TP-13	5.0	Tan & Gray Weathered Siltstone & Shale
TP-14	3.8	Tan & Gray Weathered Siltstone & Shale
TP-15	4.5	Tan & Gray Weathered Siltstone & Shale
TP-16	5.0	Red & Light Gray Fine Sandy Silty CLAY
TP-17	5.0	Red & Light Gray Fine Sandy Clayey SILT

NOTE: Borings were drilled with a tractor-mounted auger attachment. Test pits were excavated with a rubber-tired backhoe. Borings drilled at locations 10 and 13 through 15 prior to excavating the test pits produced silt and gravel cuttings; therefore, weathered rock is also believed to occur at locations 9, 11 and 12. Field work done on 10/25/99.

GROUNDWATER OBSERVATIONS					
Near-surface Hydrogeologic Exploration					
Carolina Resource Recovery					
Mebane, NC					
Depth to Groundwater (feet below ground surface)					
Boring/TP	GS Elev.*	10/25/99**	10/26/99	10/29/99	
B-1	621.3	Dry	Dry	Dry	
B-2	621.2	Dry	Dry	Dry	
B-3	618.0	Dry	Dry	Dry	
B-4	610.5	Dry	Dry	Dry	
B-5	606.7	Dry	Dry	Dry	
B-6	605.8	Dry	2.7	Damp	
B-7	612.2	Dry	Dry	Dry	
B-8	608.1	Dry	Dry	Dry	
B-9	585.2	Dry	Dry	Dry	
TP-10	585.0	Dry	Dry	Dry	
B-11	587.1	Dry	Dry	Dry	
B-12	577.1	Dry	Dry	Dry	
TP-13	595.7	Dry	Damp	4.8	
TP-14	596.0	3.8	1.5	1.7	
TP-15	590.1	Dry	3.3	3.5	
TP-16	601.8	Dry	Damp	Dry	
TP-17	613.3	Dry	Dry	Dry	
* From survey after drilling/excavating.					
** Measurement taken immediately after excavation/drilling.					

**ALAMANCE COUNTY**  
**Department of Administration**  
**COUNTY OFFICE BUILDING**  
124 West Elm Street  
Graham, North Carolina 27253

Administrative Services

Telephone 228-1312  
Area Code 336

November 1, 1999

Mr. Mark A. Taylor, PE  
Project Manager  
EcoLogic Associates, P.C.  
2007 Yanceyville Street  
Suite 223  
Greensboro, NC 27405-5004

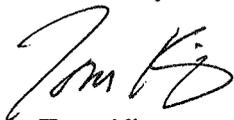
**RE: Statement of Zoning and Watershed Compliance for Prospective LCID  
Recycling/Landfill Site (Alamance County Tax Map #9-38, Parcel #44A)  
Alamance County, NC**

Dear Mr. Taylor:

This letter is to certify that the above referenced property (owned by Mr. Steven Scott of Mebane, NC) is located within the jurisdiction of Alamance County. Alamance County does not currently have any zoning regulations. Also, this property is not located within any designated water supply watersheds.

If you have any questions, please call me at (336) 228-1312, ext. 259. Thank you.

Sincerely,



Tom King  
Assistant Planning Director  
Alamance County

CC: Correspondence File