

0106Permit2001 - Box No. ___

Alamance County
2001

01-06

0106 2001



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May 15, 2001

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

**RE: Revised Application for Permit to Construct and Operate an LCID Landfill
Carolina Resource Recovery, Mebane, North Carolina
Compost Permit # 01-06**

Dear Tim:

On behalf of Steven S. Scott of Mebane, NC, EcoLogic Associates, P.C. offers this revised application for a permit to construct and operate an LCID landfill at Carolina Resource Recovery. We understand that the referenced compost permit will be modified to include the LCIDLF rather than issuing a separate permit. The remainder of the facility will begin operation soon.

Inserts to the original ring binder(s) are enclosed along with instructions for making the necessary additions. Your expeditious review of the revised application would be greatly appreciated. If there are any questions regarding this letter or the enclosures, please contact the undersigned at (336) 855-8108.

Respectfully,

A handwritten signature in black ink that reads 'Mark A. Taylor' with a long, sweeping horizontal line extending to the right.

Mark A. Taylor, PE, CPESC
Project Manager

C: Steven S. Scott (with enclosures)
Ted Lyon, Supervisor of Composting and Land Application Branch (with enclosures)

Enclosures

INSTRUCTIONS FOR UPDATING NOTEBOOK

REVISION 2 TO APPLICATION FOR PERMIT TO CONSTRUCT AND OPERATE

CAROLINA RESOURCE RECOVERY
MEBANE, NC

MAY, 2001

NOTE: Yellow separator sheets are provided to separate sections for insertion into the ring binders holding the approved application documents (June, 2000). DISCARD the separator sheets and retain the original dividers.

Revisions and additions are underscored.

1. Add Revision 2 "Application for Permit to Construct and Operate" (Table of Contents and 12 pages). DO NOT REMOVE the June, 2000 application (Rev. 1); it should be retained as it is the basis of the original permit.
2. Insert new Figure 5 after Figure 4.
3. Add Revision 2 Appendix Table of Contents immediately following "Appendix" tab. Retain the Revision 1 Appendix Table of Contents.
4. Add the August 18 letter from Heritage Lands Associates to the sections containing the original endangered species letter and wetlands assessment report (2 copies provided).
5. Replace the Groundwater Observations table (Rev.1, 6/00) with the revised and new versions (2 pages).
6. Insert the stormwater permit in front of the Notice of Intent dated May 19, 2000.

Please call (336) 855-8108 if enclosures are not as described or if instructions are unclear.

APPLICATION FOR PERMIT TO CONSTRUCT AND OPERATE

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

Mebane, NC

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Appendix

FACILITY PURPOSE AND OVERVIEW

Name of Facility: Carolina Resource Recovery
Address: 3291 (Est.) 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.

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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. At the Solid Waste Section's request, EcoLogic contracted a biologist to survey the Carolina Resource Recovery site for rare species habitat. A letter dated August 18, 2000 from Ken Bridle, PhD of Heritage Lands Associates is included in the Appendix, which summarizes the findings. Dr. Bridle concludes that no rare species nor habitat for same occur on the site.

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 possible jurisdictional wetlands were noted. Refer to the attached letter from Spangler Environmental, Inc. dated October 4, 1999 included in the Appendix. During a subsequent site visit by Ken Bridle, PhD of Heritage Lands Associates, he concluded that the "probable jurisdictional wetlands" previously identified on the site are not wetlands, with the exception of one Upland Depression Swamp Forest in the southwest corner. A letter from Dr. Bridle dated August 18, 2000 is included in the Appendix.

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 below and Figure 4 in Appendix). 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. The initial exploration was performed in October, 1999 following several weeks of near-record rainfall. In no case was the groundwater table observed within 12 inches of the ground surface in areas outside the proposed landfill. Additional test pits were excavated in the southwest quadrant of the landfill area in May, 2000 and checked over a period of weeks for groundwater occurrence and fluctuation. Some apparent occurrences of groundwater within 4 feet of the ground surface were observed in the landfill area; however, the results were erratic, surface water impacts were uncertain, and the site topography was too uneven to design a base grade from the resultant measurements.

✓ Further attempts to define seasonal high groundwater occurrence in the landfill area were postponed through the summer and fall of 2000 (when seasonal low levels normally prevail). It was decided to clear and rough grade the landfill area in the winter of 2001 to remove the undulations and irregularities remaining from former clay mining on site. This not only provided better access and a more even grade for groundwater characterization, it vastly improved surface drainage, reducing the potential for "perched" groundwater. Perched groundwater, a condition not unlike water in a bathtub where impermeable soils create an artificial water table, is a condition that was probable when the site was trapping surface water in depressions left at the clay mine. The site grading was completed in February 2001, and six sealed piezometers (2-inch PVC) were installed in the landfill area in early March (see Design Plan).

Groundwater observations were made in the piezometers on six occasions between March 27 and May 11, 2001. With the exception of an anomalous rise in early April associated with heavy rains, a relatively rapid decline in groundwater levels was observed over the observation period. The temporary rise was most pronounced in an area with the poorest drainage and is not believed indicative of the true water table because water levels in one area rose above the ground surface, a condition that was not previously observed when the site was heavily vegetated and poorly drained. These observations suggest that perched groundwater has occurred, but that groundwater is seeking a more normal, stable level. A piezometric surface map was interpreted from all the groundwater data collected and is attached as Figure 5. It is believed to represent a conservative (shallow) estimate of the seasonal high groundwater surface because of previous perching as described above.

Outcroppings and/or areas of exposed weathered rock are evident in some previously excavated areas of the site, but a subsurface exploration

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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" (two) 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 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.

Stormwater

NCDENR's Division of Water Quality issued NPDES General Permit No. NCG120000 to Carolina Resource Recovery on July 14, 2000. The Certificate of Coverage number is NCG120063A and a copy is included in the Appendix. Stormwater leaving the site in existing intermittent streams discharges into an unnamed tributary to Haw Creek (WS-V NSW classification).

Erosion and Sediment Control An erosion and sediment control plan for the facility has been approved by the Land Quality Section of the NC Division of Land Resources. A copy has been provided to the Solid Waste Section, Winston-Salem regional office. A copy of the approval letter is included in the Appendix.

*check w/ Ted as
to status of T&P
in relation to
compost permit.*

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 grinding, 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 6.2 acres when fully developed (see Design Plan). It will be developed in two phases, with Phase 1 utilizing about 4.5 acres of the old clay mine. 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 some local topographic highs will be lowered and filling will occur to raise the base grade above the regulatory limit relative to groundwater. Proposed base grades for Phase 1 are shown on the Design Plan, Drawing No. 4 and on Figure 5 – Piezometric Surface Map. Phase 2 base grades will be developed in the future (when the hydrogeologic monitoring system is expanded) and submitted for approval.

The landfill will be constructed in increments, with no more than one (1) acre of active fill area open at one time. No specific areal filling plan is proposed, though filling will likely commence in the southern portion of the site and progress northward. The first 5-year increment will likely consume the entire Phase 1 area, with subsequent increments being built vertically. Exterior fill slopes are designed to be constructed at a 4(H):1(V) or 25 percent slope. The proposed base and final grades shown on the Design Plan for Phase 1 provide a total airspace volume (waste disposal plus cover soil volume) of about 160,000 cubic yards. Assuming that operational cover soil will consume 2 percent of the post-settlement volume, the amount of operational cover needed is about 3,200 cubic yards. Final cover volume would be about 11,000 cubic yards if the landfill area were fully developed.

Assuming that 20 percent of the waste entering the facility will end up in the landfill, the initial disposal rate is estimated at 120 cubic yards per week (the equivalent of 10 tandem axle dump trucks). Assuming a 25 percent volume reduction due to compaction and a 10 percent annual increase in disposal rate, the estimated life of Phase 1 of the landfill as currently configured is about 15.5 years. The proposed post-closure uses envisioned at this time are open, dormant meadowland or passive recreation.

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 (Dwg. 4) and Figure 2). A process flow diagram of the facility is provided as Figure 3.

Access to the composting facility will be provided via an all-weather road through the interior of Carolina Resource Recovery, which has a secure, gated entrance at Jones Drive. 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).

Buffers have been provided as follows: 50 feet from the property line (.1404(a)(2)), 1000 feet from the nearest residence (200 feet required by .1404(a)(3)), 1000 feet from the nearest well (100 feet required by .1404(a)(4)), 250 feet from the nearest stream (50 feet required by .1404(a)(5)), and 30 feet from the nearest diversion berm (25 feet required by .1404(a)(8)).

Input material sorting and preparation will occur in the greater facility's Treatment and Processing Area (see Design Plan (Dwg. 4) and Figure 1). 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. The area will be constructed and maintained to allow good access and use in various weather conditions to facilitate the uninterrupted use of the facility.

The entire area shown in Figure 2 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 and recorded at least 3 times per week, 48 hours apart to confirm the achievement and duration of elevated temperature (at least 55 degrees C (131 degrees F) for 72 hours). Temperature will be measured manually by

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inserting a long-stem thermometer 18 to 36 inches into the piles at various locations no more than 50 feet apart. Percent moisture and pH in the windrows will be monitored at least bi-weekly to assess the need for moisture and/or lime addition. Moisture and pH monitoring will utilize oven-drying (moisture content on percent total weight basis) and slurry testing (pH) of samples taken from the windrows no more than 200 feet apart. These tests will provide data to compare with the target limits (45 to 60 percent moisture and $6 < \text{pH} < 8$).

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.

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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.

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.

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. They will be spaced at 25 feet on center to provide a 15-foot corridor between windrows for placement and turning operations. The composting area provides enough room to store approximately 7,000 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. In the event of changed market conditions resulting in declining demand for the product, on-site storage can 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.

Site personnel will consist of the following:

- 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.

Design plans (Drawings 1 through 5) accompany this report and illustrate the overall facility layout of Carolina Resource Recovery. Approved erosion and sediment control plan drawings (Drawings 6 and 7) also accompany this report.

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 letters

Archaeological/historic sites letter

Wetlands assessment reports

Test boring/pit log and Groundwater observations

Zoning/watershed letter

Stormwater permit

Erosion and Sediment Control Plan approval letter



Heritage Lands Associates
Landscape Resource Consultants

Mark Taylor
EcoLogic Associates, P.C.
218-4 Swing Rd
Greensboro, NC 27409

August 18, 2000

Dear Mark

I have completed a biological inventory of the Carolina Resource Recovery site in Mebane, NC. I visited the site Friday August 18, from 11am until about 2:30pm.

This 60-acre parcel in Alamance County had been the site of a clay/soil mining operation. The majority of the site shows signs of earth moving, grading and dumping. The current use includes some soil removal that has left areas of bare mineral soil or covered with a sparse herb mixture. There are only a few wooded areas with occasional mature trees indicating these sites were not disturbed during the mining period. These sites occur at the western edge of the property and along the southern boarder, contiguous with forests on adjoining properties.

The main focus of my visit was to check for the presence of listed plant and animal species known or suspected to occur in Alamance or nearby Orange Counties as listed in the NC Natural Heritage Program database. Several rare plant and animal species are listed as current or historic for this region.

This listing includes several mussel species, none of which could be supported by the small and intermittent creeks on the site. The water quality did not look very good in the one flowing creek, possibly as a result of the past disturbance of the site. There is evidence of high sediment and clay loads during periods of high flow, which would be adverse to most mussel populations.

Two vertebrate animals were also listed the Loggerhead Shrike and Four-toed Salamander. The Shrike is a conspicuous bird that does not frequent forested habitats in general and was not seen during my visit. It has not been noted in this area of the Piedmont for many years. The Four-toed Salamander requires shallow water ponds or seeps that support moss covered logs or grass clumps that remain wet all season. A habitat of this type was not identified on the site. The only wetland noted was in the southwest corner of the property, outside the project boundary. It is a small example of a Upland Depression Swamp Forest. This site was dry at the time of my visit. While this site might support the spring breeding of amphibians it is not a year round home to

species like the Four-toed Salamander. The surrounding forest is a dry mixture of oak and hickory, no amphibians were noted in this area with the exception of frogs in the small creek that runs north into the adjoining property, and in some pools and ditches which held water scattered around the property.

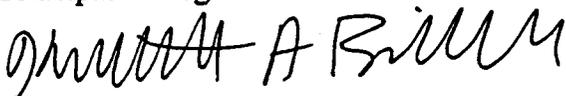
The potential rare plant species for the area includes Buttercup Phacelia, Narrow-leaved Aster, American Barberry, Piedmont Horsebalm from the Alamance County list and Prairie Blue Wild Indigo, Smooth Coneflower, Small Whorled Pogonia, Sweet Pinesap and Michaux's Sumac from the Orange County list. The survey included the potential of habitat for all these species as well as searches for the plants themselves.

None of these plant species could be found in the wooded, riparian or wetland habitats located within the site and the project boundary. None of the wooded areas were open enough, rich or mature enough for those species that require these conditions. There are no wetlands of a type that would support the listed wetland species. There are no open areas that had conditions suitable for those that require those habitat types. Major mining activity seems to have stopped just 10-15 years ago and much of the site is now covered thickly with early successional species like Virginia pines, red maples and tulip trees. Other open parts of the site like the old road had been seeded with lespedeza, which forms a thick covering in most places where non-mineral soils occur in open areas.

In addition to looking for these rare species I visited all the sites on the map you provided that were marked "probable jurisdictional wetlands". The most likely wetland is the one previously mentioned in the southwest corner of the property. The others marked along the intermittent creek are not as obvious and I did not find evidence that would lead me to call these wetlands. There are several places where water might collect along the course of the intermittent stream floodplain, but I am not sure these should be labeled wetlands. I did not notice a distinct change in vegetation to facultative and obligate wetland species as I did in the wetland in the upland area noted above.

It is my observation that none of the listed species in the NC NHP database occurs on this site and especially within the project boundary. Also, the project boundaries as mapped, including the stream buffers should be sufficient to protect the watershed and the wetland features of the site.

Regards,
Kenneth A. Bridle, Ph.D.
Principal Biologist



Heritage Lands Associates
1160 Ralph Tuttle Road, Walnut Cove, NC 27052
Phone & Fax 36-591-5882 e-mail bridle@netunlimited.net



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Landscape Resource Consultants

Mark Taylor
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218-4 Swing Rd
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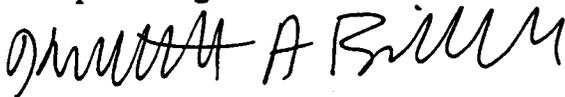
The potential rare plant species for the area includes Buttercup Phacelia, Narrow-leaved Aster, American Barberry, Piedmont Horsebalm from the Alamance County list and Prairie Blue Wild Indigo, Smooth Coneflower, Small Whorled Pogonia, Sweet Pinesap and Michaux's Sumac from the Orange County list. The survey included the potential of habitat for all these species as well as searches for the plants themselves.

None of these plant species could be found in the wooded, riparian or wetland habitats located within the site and the project boundary. None of the wooded areas were open enough, rich or mature enough for those species that require these conditions. There are no wetlands of a type that would support the listed wetland species. There are no open areas that had conditions suitable for those that require those habitat types. Major mining activity seems to have stopped just 10-15 years ago and much of the site is now covered thickly with early successional species like Virginia pines, red maples and tulip trees. Other open parts of the site like the old road had been seeded with lespedeza, which forms a thick covering in most places where non-mineral soils occur in open areas.

In addition to looking for these rare species I visited all the sites on the map you provided that were marked "probable jurisdictional wetlands". The most likely wetland is the one previously mentioned in the southwest corner of the property. The others marked along the intermittent creek are not as obvious and I did not find evidence that would lead me to call these wetlands. There are several places where water might collect along the course of the intermittent stream floodplain, but I am not sure these should be labeled wetlands. I did not notice a distinct change in vegetation to facultative and obligate wetland species as I did in the wetland in the upland area noted above.

It is my observation that none of the listed species in the NC NHP database occurs on this site and especially within the project boundary. Also, the project boundaries as mapped, including the stream buffers should be sufficient to protect the watershed and the wetland features of the site.

Regards,
Kenneth A. Bridle, Ph.D.
Principal Biologist



Heritage Lands Associates
1160 Ralph Tuttle Road, Walnut Cove, NC 27052
Phone & Fax 36-591-5882 e-mail bridle@netunlimited.net

GROUNDWATER OBSERVATIONS												
Near-surface Hydrogeologic Exploration Carolina Resource Recovery, Mebane, NC												
Piez. #	Current		Depth to Groundwater (feet below ground surface)							Former		
	GS Elev.*	TOC Elev.*	3/27/01	4/4/01	4/18/01	4/23/01	5/4/01	5/11/01	SHGE ¹	Stick-up	GS Elev.**	
P-1	595.0	597.23	1.2	-0.3	1.6	2.4	3.3	4.0	593.4	2.2	593.9	
P-2	591.8	594.30	3.1	1.5	3.2	3.4	4.0	5.0	588.6	2.5	589.9	
P-3	589.3	591.64	3.9	3.2	3.3		3.7	4.1	585.6	2.3	587.3	
P-4	597.7	599.55	4.0	3.0	3.5		5.2	5.7	592.9	1.8	596.0	
P-5	596.1	597.93	5.9	5.6	5.7	5.7	5.7	5.7	590.4	1.8	594.2	
P-6	591.4	592.87	6.3	5.7	6.0	6.0	6.0	6.0	585.4	1.5	588.7	
						denotes reading 24 hours after bailing down						
* From survey after grading						denotes reading 120 hours after bailing down						
** Before grading site in Feb., 2001						denotes reading used to determine SHGE						
1 Seasonal High Groundwater Elevation interpreted from data												
NOTE: Piezometers were drilled on March 2 and 3, 2001												

GROUNDWATER OBSERVATIONS									
Near-surface Hydrogeologic Exploration									
Carolina Resource Recovery, Mebane, NC									
Depth to Groundwater (feet below ground surface)									
Boring/TP	GS Elev.*	Depth (Ft.)	10/25/99**	10/26/99	10/29/99	5/19/00**	5/26/00***	6/5/00	SHGE ¹
B-1	621.3	2.7	Dry	Dry	Dry				
B-2	621.2	2.8	Dry	Dry	Dry				
B-3	618.0	2.7	Dry	Dry	Dry				
B-4	610.5	3.2	Dry	Dry	Dry				
B-5	606.7	3.0	Dry	Dry	Dry				
B-6	605.8	2.8	Dry	2.7	Damp				
B-7	612.2	2.7	Dry	Dry	Dry				
B-8	608.1	2.7	Dry	Dry	Dry				
B-9	585.2	2.8	Dry	Dry	Dry				
TP-10	585.0	4.0	Dry	Dry	Dry				
B-11	587.1	2.3	Dry	Dry	Dry				
B-12	577.1	2.9	Dry	Dry	Dry				
TP-13	595.7	5.0	Dry	Damp	4.8	Dry	3.3	3.0	592.7
TP-14	596.0	3.8	3.8	1.5	1.7	Dry	1.7	Dry	594.3
TP-15	590.1	4.5	Dry	3.3	3.5	Dry	1.4	Dry	588.7
TP-16	601.8	5.0	Dry	Damp	Dry				
TP-17	613.3	5.0	Dry	Dry	Dry				
TP-18	591.2	4.5				Dry	2.6	3.5	587.7
TP-19	590.4	5.0				Dry	0.7	0.5	589.9
TP-20	598.7	4.5				Dry	3.3	3.0	595.7
* From survey after drilling/excavating.									
** Measurement taken immediately after excavation/drilling.									
*** After heavy rains, influence of surface runoff uncertain.									
1 Seasonal High Groundwater Elevation interpreted from available data									
denotes reading used to determine SHGE									

State of North Carolina
Department of Environment
and Natural Resources
Division of Water Quality

James B. Hunt, Jr., Governor
Bill Holman, Secretary
Kerr T. Stevens, Director



July 14,2000

CAROLINA RESOURCE RECOVERY
ATTN: Steven Scott
3285 Jones Drive
Mebane, NC 27302

Subject: General Permit No. NCG120000
CAROLINA RESOURCE RECOVERY
COC NCG120063
Alamance County

Dear Mr. Scott:

In accordance with your application for discharge permit received on May 24, 2000 we are forwarding herewith the subject certificate of coverage to discharge under the subject state - NPDES general permit. This permit is issued pursuant to the requirements of North Carolina General Statute 143-215 .1 and the Memorandum of Agreement between North Carolina and the US Environmental Protection agency dated December 6, 1983.

If any parts, measurement frequencies or sampling requirements contained in this permit are unacceptable to you, you have the right to request an individual permit by submitting an individual permit application. Unless such demand is made, this certificate of coverage shall be final and binding.

Please take notice that this certificate of coverage is not transferable except after notice to the Division of Water Quality. The Division of Water Quality may require modification or revocation and reissuance of the certificate of coverage.

This permit does not affect the legal requirements to obtain other permits which may be required by the Division of Water Quality or permits required by the Division of Land Resources, Coastal Area Management Act or any other Federal or Local governmental permit that may be required.

If you have any questions concerning this permit, please contact Bill Mills at telephone number 919/733-5083 ext. 548.

ORIGINAL SIGNED BY
WILLIAM C. MILLS
ORIGINAL SIGNED BY
WILLIAM C. MILLS
For Kerr T. Stevens

cc: Winston Salem Regional Office
Central Files
Stormwater and General Permits Unit Files

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WATER QUALITY

GENERAL PERMIT NO. NCG120000
CERTIFICATE OF COVERAGE No. NCG120063

STORMWATER DISCHARGES

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provision of North Carolina General Statute 143-215.1, other lawful standards and regulations promulgated and adopted by the North Carolina Environmental Management Commission, and the Federal Water Pollution Control Act, as amended,

Carolina Resource Recovery

is hereby authorized to discharge stormwater from a facility located at

Carolina Resource Recovery
3287 Jones Drive
south of Hawfields
Alamance County

to receiving waters designated as an unnamed tributary to Haw Creek in the Cape Fear River Basin in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, III, IV, V, and VI of General Permit No. NCG120000 as attached.

This certificate of coverage shall become effective July 14, 2000

This Certificate of Coverage shall remain in effect for the duration of the General Permit.

Signed this day July 14, 2000

ORIGINAL SIGNED BY
WILLIAM C. MILLS

for _____
Kerr T. Stevens, Director
Division of Water Quality
By Authority of the Environmental Management Commission

