

DIN 25068

Overdale Yard Waste Facility

Permit Application

SCANNED
10/21/50/7



Winston-Salem, North Carolina

November 1998

REVISED MARCH 1999

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DIN 25068

OVERDALE YARD WASTE FACILITY

PERMIT RENEWAL APPLICATION

CITY/COUNTY UTILITY COMMISSION
WINSTON-SALEM, NORTH CAROLINA

SCANNED
10/2/15

PREPARED BY:

HDR ENGINEERING, INC. OF THE CAROLINAS
128 S. TRYON STREET, SUITE 1400
CHARLOTTE, NORTH CAROLINA 28202

APPROVED
DIVISION OF SOLID WASTE MANAGEMENT
DATE 3-4-99 BY *[Signature]*

HDR

NORTH CAROLINA
PROFESSIONAL
SEAL
16395
ENGINEER
JOSEPH C. READLING
3-11-99

NOVEMBER 1998

REVISED March 1999

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Background

This Permit Application was prepared by HDR Engineering, Inc. of the Carolinas (HDR) on behalf of the City/County Utility Commission of Winston-Salem, North Carolina, (City) for the Overdale Yard Waste Facility located on Old Milwaukee Lane in Winston-Salem, NC.

The Overdale Facility was originally permitted in 1992 and holds Permit No. 34-09-YW with the North Carolina Division of Waste Management. This Application is filed for a permit renewal for the facility.

This permit application was prepared in accordance with North Carolina Solid Waste Rule 15A NCAC 13B Section .1400.

In accordance with Rule .1402 (f) (i), this facility receives only yard and garden waste, silvicultural waste, untreated and unpainted wood waste, or any combination thereof. Therefore, the facility is designated as a Type 1 Facility.

General

The City of Winston-Salem owns the Overdale Yard Waste Facility located on Old Milwaukee Lane in Winston-Salem, NC. The facility is operated and managed by Wrico Equipment Corporation of Greensboro, NC. The 8.17-acre site opened in 1992 to serve the disposal needs of the City of Winston-Salem and Forsyth County.

The waste stream is primarily from the City of Winston-Salem curbside pickup, landscaping companies, and local industry. Other surrounding county residents may contribute to the waste stream; however, records are not maintained.

During fiscal year 1997-1998, approximately 26,000 tons of waste was received at the site. The yard waste facility is open from 7:00 a.m. to 5:00 p.m. Monday through Friday, and 8:00 a.m. to 4:00 p.m. on Saturday. The site accepts yard waste, limbs, brush, leaves, grass clippings, and other similar debris. Tree stumps are not accepted due to the contamination that the soil within the stump would cause to the final product. Untreated and unpainted wood, such as shipping pallets, is also accepted.

Finished products include mulch and compost, soil amendment (composted leaves and grass clippings), and boiler fuel (pallets and woody waste). The public can purchase the mulch and compost products during hours of operation on a per cubic yard basis. The untreated, unpainted product is processed and delivered to several industrial plants to be used as fuel.

Process Narrative

This narrative is provided to give additional operational details of the Overdale Yard Waste Facility. Refer to the Site Map and Process Flow Diagram on the following pages.

Incoming waste managed at the facility includes curbside collected yard waste from the City of Winston-Salem, materials dropped off by the general public; of yard waste, pallets, and materials such as untreated, unpainted wood waste from processing plants disposed by private companies; and storm debris. A city staff person manages the scale area where the material is weighed. The scale attendant confirms the material make-up of the load and directs the customer to one of three locations. Yard waste and other woody waste are dumped in the upper receiving area. Pallets and other untreated, unpainted wood is maintained in a separate pile in the upper receiving area. Leaves and grass clippings are received in the lower receiving area near the tub grinder.

The yard waste, pallets, woody waste, and other untreated, unpainted wood are processed through the hammermill. Yard waste is generally processed separately from the other materials. As the yard waste is processed through the hammermill, a radial stacker (conveyor) is operated to create a stockpile area for the mulch. The mulch product is managed in bulk piles and then offered for sale to the general public (who pick up the material on site) or is delivered by Wrico Equipment Corporation (Wrico) staff to private customers.

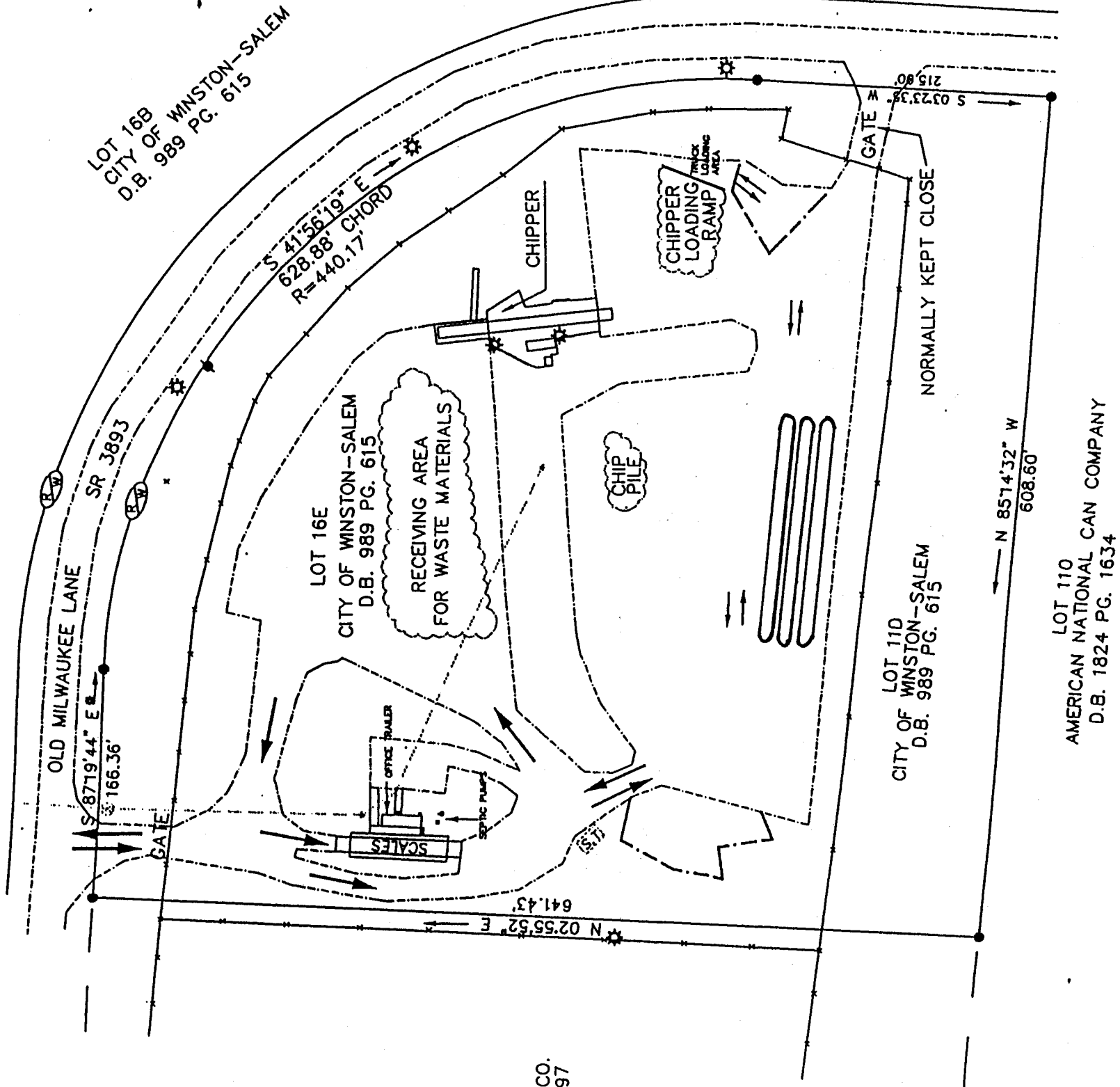
The pallets, woody waste (such as tree trunks and large tree limbs), and unpainted, untreated wood is processed separately through the hammermill. Again, the radial stacker is used to develop a stockpile of processed material. The "pallet mulch" is hauled by Wrico staff to area businesses for use as a boiler fuel.

When the hammermill is being operated, the loader operators visually screen the material for contaminants. Contaminants include materials which are not accepted at the facility but were not discovered by the scale attendant, or materials which would harm the equipment. Unacceptable waste includes material such as construction demolition waste, painted wood, metal, and large stumps from land-clearing operations. The "reject" material is stockpiled in the upper receiving area and is back-hauled by City staff to the City's construction and demolition debris landfill.

Leaves and grass clippings which arrive on site are processed through a tub grinder located in the lower receiving area. Sometimes a small quantity of yard waste is mixed with the leaves and grass clippings to avoid jamming the tub grinder with the finer materials. Processed material from the tub grinder has two potential end uses. It may be taken from the tub grinder and sold as a soil amendment to a local business (hauled by Wrico staff), or it is composted. If composted, the compost windrows are turned with an on-site windrow turner. After the compost process has been completed (usually a period of one to four months), the material is screened through a trommel screen where the fines are stockpiled as compost and the "overs" are reused in the composting process. The finished compost product is available for sale to the public or delivered by Wrico staff to area customers.

REFERENCE NORTH P-604-2
CITY RECORDS NORTH P-604-2

LOT 16D
HFCS TRANSPORT CO.
D.B. 1331 PG. 1097



NOTES

1. THE PURPOSE OF THIS MAP IS TO SHOW LOCATION OF CHIPPER/COMPOST PILES AT DATE OF SITE LOCATION. ALSO, LOCATION OF VISIBLE UTILITIES, BUILDINGS, STRUCTURES, PAVEMENT, AND TRAFFIC FLOW.
2. BEARINGS & DISTANCES OF SUBJECT PROPERTY WERE TAKEN FROM CITY RECORDS MAP P-604-2. SEE THE ABOVE MENTIONED MAP FOR PROPERTY SURVEY.
3. SUBJECT PROPERTY AND SURROUNDING PROPERTIES ARE ZONED G1-GENERAL INDUSTRIAL.

LEGEND

- EXISTING PROPERTY CORNER
- ⬮ POWER POLE
- ⬮ LIGHT POLE
- ⬮ WATER VALVE
- ⊕ WATER METER
- ⬮ WATER SPIGOT
- ⊠ APPROXIMATE LOCATION OF SEPTIC TANK
- APPROXIMATE LOCATION OF WATER LINE
- CHIP PILES AND RECEIVING AREA PILE
- EDGE OF PAVEMENT
- TRAFFIC FLOW
- GRAVEL AREA
- ▭ COMPOST WINDROWS



Scale 1" = 100'

PROJECT

REVISIONS

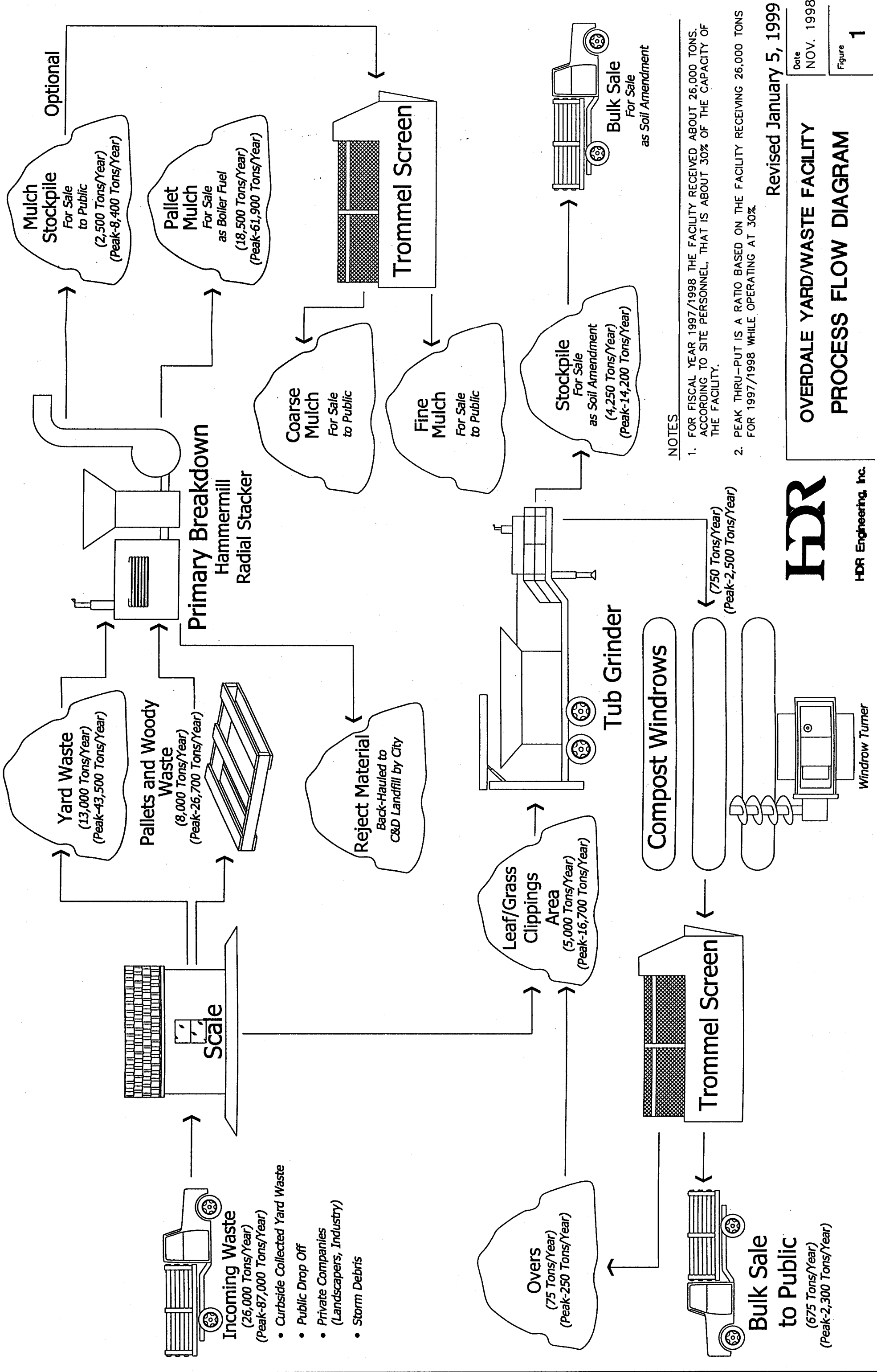
DRAWN BY: E.W. J.N. R.W. APPROVED BY:
DATE: 10-15-98 PROJ. NO. 98026
DWG. NO. DWG.

OVERDALE YARD
WASTE FACILITY

SURVEYED BY:
CREW 504

SHT. NO.

1 OF 1



NOTES

1. FOR FISCAL YEAR 1997/1998 THE FACILITY RECEIVED ABOUT 26,000 TONS. ACCORDING TO SITE PERSONNEL, THAT IS ABOUT 30% OF THE CAPACITY OF THE FACILITY.
2. PEAK THRU-PUT IS A RATIO BASED ON THE FACILITY RECEIVING 26,000 TONS FOR 1997/1998 WHILE OPERATING AT 30%.

Revised January 5, 1999

Date NOV. 1998

Figure 1

HDR
HDR Engineering, Inc.

**OVERDALE YARD/WASTE FACILITY
PROCESS FLOW DIAGRAM**

Application Format

This application has been prepared in accordance with Section .1400 of the North Carolina Solid Waste Management Rules. In order to facilitate review of this application, the format precisely follows the structure of the Section .1400 Rules. The following subsections of Section .1400 are restated in their entirety:

- .1404 Siting/Design Requirements for Solid Waste Compost Facilities.
- .1405 Application Requirements for Solid Waste Compost Facilities.
- .1406 Operational Requirements for Solid Waste Compost Facilities.

Responses to each item are shown in *Italics*.

.1404 SITING/DESIGN REQUIREMENTS FOR SOLID WASTE COMPOST FACILITIES

- (a) A site shall meet the following requirements at the time of initial permitting and shall continue to meet these requirements throughout the life of the permit only on the property owned or controlled by the applicant or by the landowner(s) at the time of permitting:

- (1) A site located in a floodplain shall not restrict the flow of the 100-year flood; reduce the temporary storage capacity of the floodplain; or result in washout of solid waste so as to pose a hazard to human life, wildlife, land or water resources;

The site is not located within the 100-year floodplain. This was determined by looking at FEMA map No. 37067CO286H February 29, 1996, for Forsyth County, North Carolina.

- (2) A 100-foot minimum buffer is required between all property lines and compost areas for Type 3 and 4 facilities, 50-foot for Type 1 or 2 facilities;

The Overdale Facility maintains more than the 50-foot buffer between all property lines and compost areas as required for Type 1 Facilities. The only part of the operation within 50 feet of a property boundary is the scale. Please refer to the site map in Appendix B.

- (3) A 500-foot minimum buffer is required between compost areas and residences or dwellings not owned and occupied by the permittee, except that Type 1 and Small Type 2 and 3 facilities shall have a 200-foot minimum buffer;

There are no dwellings or residences within 200 feet of the facility. Please refer to the aerial photograph in Appendix C.

- (4) A 100-foot minimum is required between all wells and compost areas, except monitoring wells;

There are no known wells within 100 feet of the facility. Please refer to the topographic map in Appendix C.

- (5) A 50-foot minimum buffer is required between perennial streams/rivers and compost areas;

There are no streams within 50 feet of the facility. Please refer to the topographic map in Appendix C.

- (6) A compost facility shall be located in accordance with 15A NCAC 2B .0200, Classification and Water Quality Standards Applicable to Surface Waters in North Carolina;

According to the NCDENR Water Quality Division in Winston-Salem, NC, the facility is located within a class C watershed, which is a non-critical watershed. This satisfies this Rule.

- (7) All portions of any compost facility located over a closed-out disposal area shall be designed with a pad adequate to protect the disposal area cap from being disturbed, as defined in Part (a)(10)(E) of this Rule, and there shall be no runoff from the pad onto the cap or side slopes of the closed out area;

The compost area is not located over a closed-out disposal area.

- (8) A 25-foot minimum distance is required between compost areas and swales or berms to allow for adequate access of fire fighting equipment;

It is apparent that there is adequate access for fire fighting equipment. The southernmost windrow is located near the edge of the pavement, but access between windrows is maintained.

- (9) A site shall meet the following surface water requirements:

- (A) A site shall not cause a discharge of materials or fill materials into waters or wetlands of the state that is in violation of Section 404 of the Clean Water Act;

A National Wetlands Inventory (NWI) map was used to determine the location of the nearest mapped wetlands. The nearest wetlands are 1,000 feet west of the property boundary. From the topographic map, the nearest USGS stream is approximately 2,400 feet from the property boundary. Based on the zoning map in Appendix C, the site is not located within the 100-year floodplain or flood prone area. Please refer to Appendix C for the topographic map by Benatec Associates and the USGS topographic map with mapped wetlands.

The facility consists of dense upland vegetation and hardwood trees around the perimeter of the site. Refer to .1404(a)(9)(c) for site drainage. The balance of the site is previously graded area comprised of pavement, gravel, grass, or dense weed vegetation. Based on field inspection, no known waters or wetlands of the state exist on or adjacent to the site.

- (B) A site shall not cause a discharge of pollutants into waters of the state that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES), under Section 402 of the Clean Water Act; and

The facility does not directly discharge runoff by pipes, ditches, or channels, nor is the site generating additional water for the processing of the waste. According to the NCDENR Division of Water Quality in Winston-Salem, NC, NPDES permits are required for manufacturing operations and operations that have a conveyance to waters of the state. Since the operation is not defined as a manufacturing operation nor does it have conveyance to waters of the state, the site does not meet the definitions required to obtain an NPDES permit. Therefore, the site does not violate any NPDES requirement.

Please refer to Appendix A for correspondence with NCDENR Division of Water Quality dated December 9, 1998.

- (C) A site shall not cause non-point source pollution of waters of the state that violates assigned water quality standards;

The facility generally drains to the southeast corner of the site into a densely vegetated buffer consisting of grass and weeds then breaking into forest area. According to the NCDENR Water Quality Division in Winston-Salem, NC, since the facility drains into a vegetative buffer, which is considered a Best Management Practice, the Facility should not cause non-point pollution. From the topographic map of the site, water flowing off the site travels a long distance to the nearest stream. Please refer to the topographic map in Appendix C for the location of the nearest stream.

Please refer to Appendix A for correspondence with NCDENR Division of Water Quality dated December 9, 1998.

- (10) A site shall meet the following groundwater requirements:

- (A) A site shall not contravene groundwater standards as established under 15A NCAC 2L;

No specific information regarding groundwater quality exists for the site (there are no groundwater monitoring wells). However, based on the materials managed at the site, no groundwater impacts are expected. Additionally, all processing areas are paved.

- (B) Portions of a site used for waste receipt and storage, active composting, and curing shall have a soil texture finer than loamy sand and the depth to the seasonal high water table shall be maintained at least 12 inches for a Type 1 or 2 facility and 24 inches for a Type 3 facility, unless pad is provided;

The site area is paved and, based on site topography, depth to seasonal high groundwater exceeds 12 inches.

- (C) A pad shall be provided for portions of a Type 4 facility used for waste receiving and storage, active composting, and curing;

While not required for a Type 1 Facility, the site is paved.

- (D) A pad is not required for storage of finished product that is dried so as to pass the Paint Filter Liquids Test (EPA Method 9095), and for which the storage area is prepared in such a manner that water does not collect around the base of the stored material, and where the depth to the seasonal high watertable is maintained at least 12 inches; and

The site area is paved.

- (E) The liner coefficient of permeability of pads required in accordance with this Rule shall not be greater than 1×10^{-7} centimeters per second. If natural soils are used, the liner must be at least 18 inches thick.

The site area is paved.

- (b) For Subparagraphs (a)(2) through (a)(4) and Part (a)(10)(B) of this Rule, (dependent upon waste type, facility design, and regional topography) alternative minimum buffers or requirements may be increased if deemed necessary by the Division in order to protect public health and the environment or to prevent the creation of a nuisance.

- (c) A site shall meet the following design requirements;

- (1) A site shall not allow uncontrolled public access;

There is a chain-link fence around the perimeter of the site. There are two (2) gates into the site, each of which is locked when the facility is closed each day.

- (2) A site shall meet the requirements of the Sedimentation Pollution Control Law (15A NCAC 4);

According to NCDENR, Division of Solid Waste, the facility was inspected on 8-25-98. There were no violations reported. Please see Appendix A for the inspection report.

- (3) A site shall meet the requirements of the Air Pollution Control Requirements (15A NCAC 2D) to minimize fugitive emissions and odors; and

When processing dry waste, water is added at the Hammermill processing area to reduce fugitive dust.

- (4) A site shall be designed to minimize odors at the property boundary.

No adverse odors were experienced at the time of site inspection. Static piles and windrows are turned in an effort to minimize odors.

.1405 APPLICATION REQUIREMENTS FOR SOLID WASTE COMPOST FACILITIES

- (a) The following information is required for an application for a permit to construct and operate a proposed Type 1, or a Small Type 2 or 3 solid waste compost facility; unless the permitting requirements are exempted by Paragraph (g) of Rule. 1402 of this Section;

This facility receives yard and untreated and unpainted wood waste and any combination thereof. Therefore this application addresses a Type 1 Solid Waste Compost facility.

- (1) An aerial photograph or scaled drawing, where one inch is less than or equal to 400 feet, accurately showing the area within one-fourth mile of the proposed site's boundaries with the following specifically identified:

Refer to the aerial photograph in Appendix C.

- (A) Entire property owned or leased by the person proposing the facility;

Refer to the map of the entire property owned by the City of Winston-Salem in Appendix C.

- (B) Location of all homes, wells, industrial buildings, public or private utilities, roads, watercourses, dry runs, and other applicable information regarding the general topography within 500 feet of the proposed facility; and

Refer to the topographic map in Appendix C.

- (C) Land use zoning of the proposed site.

Refer to the zoning map in Appendix C.

- (2) A letter from the unit of government having zoning jurisdiction over the site which states that the proposed use is allowed within the existing zoning, if any, and that any necessary zoning approval or permit has been obtained.

Refer to the letter (located in Appendix A) from the City of Winston-Salem Inspections Division stating that the property is zoned General Industrial (GI), and that the land use is consistent with the zoning.

- (3) An explanation of how the site complies with siting and design standards in Rule .1404 of this Section.

Refer to Section .1404 responses above.

- (4) A detail report indicating the following:

- (A) Waste type(s), source and estimated quantity of the solid waste to be composted, including the source and expected quantity of any bulking agent or amendment (if applicable), any expected recycle of bulking agent or compost, and any seasonal variations in the solid waste type or quantity; and

The types of waste that enter the facility include yard waste, leaves, grass clippings, tree parts, shipping pallets, and some unpainted, untreated wood such as scraps from building truss fabrications.

The amount of waste brought to the site during fiscal year 1997/1998 was about 26,000 tons.

This total is broken up into the following categories:

13,000 tons-tree parts/yard waste

8,000 tons-shipping pallets and unpainted/untreated wood

5,000 tons-leaves/grass clippings

The yard wastes come to the site primarily from curb side pickup, landscape companies, and residents within the City of Winston-Salem and Forsyth County. Unpainted, untreated wood wastes (such as pallets) come from local industry. Other waste may arrive to the site from the surrounding counties; however, the quantity is not recorded on a county basis.

No specific trucking agents are used.

Typical seasonal variations are experienced at the site for leaves, grass, clippings etc.

- (B) For facilities that utilize natural soils as a pad, a soil evaluation of the site conducted by a soil scientist down to a depth of four feet, or to bedrock or evidence of a seasonal high water table, to evaluate all chemical and physical soil properties and depth of the seasonal high water table.

This facility is paved. Therefore, no soil surveys had to be conducted.

- (5) Site plan at a scale where one inch is less than or equal to 100 feet to the inch that delineates the following:

- (A) Existing and proposed contours, at intervals appropriate to the topography;

Please refer to the topographic map found in Appendix C. Note that the date of photography, which yielded the topographic map, is 1990, which is prior to construction of the facility. Therefore, site topography is not depicted.

Please refer to .1405 (a)(5)(B) for site drainage patterns.

- (B) Location and elevations of dikes, trenches and other water control devices and structures for the diversion and controlled removal of surface water;

Please refer to the Drainage Patterns Map found in Appendix C. Site drainage is generally from northwest to southeast, as depicted on the 1990 topographic drawing.

- (C) Designated setbacks and property lines;

Please refer to the site map found in Appendix C.

- (D) Proposed utilities and structures; and

Please refer to the site map found in Appendix C.

- (E) Areas for unloading, processing, active composting, curing, and storing of material.

Please refer to the site map found in Appendix C.

- (6) A description of the operation of the facility, which must include at a minimum:

- (A) Name, address and phone number for the person responsible for the operation of the facility;

Physical address of the site:

*40001 Old Milwaukee Lane
Winston-Salem, NC 27107
(336) 784-1615*

Property Owner and City Contact:

*Mr. Edward Gibson
Solid Waste Administrator
City of Winston-Salem
Public Works Department
P.O. Box 2511
Winston-Salem, NC 27102
(336)727-8418*

Facility Operator

*Mr. Charlie Wright, Vice President
Wrico Equipment Corp.
307 Regional Road South
Greensboro, NC 27409
(336) 668-7621*

(B) List of personnel required and the responsibilities of each position;

The following is a list of required personnel and their responsibilities:

<u>Personnel</u>	<u>Responsibility</u>
<i>Operations Manager</i>	<i>Day-to-day operation of the facility (Wrico employee)</i>
<i>Scale House Attendant</i>	<i>Inspect incoming waste, record incoming waste weight (City employee)</i>
<i>Loader Operators (2)</i>	<i>Oversee waste processing, load shredded waste in public vehicles (Wrico employee)</i>
<i>Truck Driver (1)</i>	<i>Deliver shredded waste to industry. (Wrico employee)</i>

(C) Operation plan for the facility;

The Operations Plan for the facility can be found in Appendix B.

(D) Special precautions or procedures for operating during wind, heavy rain, snow, freezing or other adverse conditions;

Refer to the Operations Plan in Appendix B.

- (E) A description of actions to be taken to minimize noise, vectors, air borne particulates, and odors; and

According to Wrico staff, noise, odor, and airborne particulate have not been a problem at the facility in the past.

The site is located within a lightly developed industrial area. The noise generated at the site from equipment engines and electric motors is typical of other neighboring industries. No residential communities adjoin the property. The facility operates during daylight hours, which further minimizes noise complaints.

In order to prevent odor from becoming a problem with the compost, proper carbon to nitrogen ratios (C:N), oxygen and moisture levels should be maintained. To control proper C:N, refer to .1405(a)(7)(c). To control proper oxygen, the compost material should be turned at least once per week. The windrows should be placed with the slope to allow free drainage between the windrows and to maintain proper moisture content. Please refer to the site map on page 5 for an approxiamte layout of the windrows. In the event odor becomes a problem with the compost, several measures could be taken to minimize the odor. The windrows could be turned or ground leaves could be incorporated into the windrows. The windrows would be turned using the onsite windrow turner. Another method to control odor would be to cover the compost with more mature compost which would act as a biofilter.

There is little, if any, odor associated with mulch. In the event odor does become a problem with the mulch, the mulch should be turned using the front-end loader.

In order to minimize airborne particulates of either the compost or mulch, the material can be sprayed with water at the Tub Grinder or at the Hammermill.

- (F) A description of the ultimate use for the finished compost, method for removal from the site, and a contingency plan for disposal or alternative usage of residues or finished compost that cannot be used in the expected manner due to poor quality or change in market conditions.

The material has two (2) ultimate uses. The shredded wooden pallets and other untreated, unpainted wood is hauled to industrial facilities where it is used as fuel. The shredded brush and trees are made available to the public as mulch or compost. Both the mulch and compost leaving the site are sold on a cubic yard basis.

According to Wrico staff, in the event of a change in market, the price of the product will be dropped to alleviate the stockpile. Wrico does not feel that this will be a problem, since historically they are not able to keep up with the demand.

(7) A report on the design of the facility, including:

(A) Design capacity of the facility;

According to Wrico staff, the facility normally operates at 30% of its capacity. From this information as well as the information found in .1405(a)(4)(a), the design processing capacity is approximately 87,000 tons per year. This total can be broken down into the following categories:

43,500 tons/year-tree parts/yard waste

26,700 tons/year-shipping pallets and unpainted/untreated wood

16,700 tons/year-leaves/grass clippings.

In addition, the facility operates the electrical machines on off-peak power usage time. There has only been one event in which the facility was operating at or near capacity. To accommodate this increase in waste and product, operating hours were extended until the level of waste and product were back to normal. The capacities of the major equipment used are listed below:

Hammermill – 50-70 tons/hr

Trommel Screen – 40 tons/hr

Windrow Turner – 1,800 ton/hr

Tub grinder – 40 tons/hr

(B) A process flow diagram of the entire facility, including the type, size, and location of all major equipment, and feedstock flow streams. The flow streams shall indicate the quantity of materials on a wet weight and volumetric basis;

Incoming material is separated into three categories, grass/leaves, tree parts and pallets. Each category is recorded on a tonnage basis while outgoing material is sold on a volume basis. In order to determine the weight of the outgoing material for each year, the total volume of each material sold (compost, mulch, and boiler fuel) in a specific year is to be divided by the total volume of all the materials sold in that year to yield a percentage. The individual percentages for each material type can then be multiplied by the total incoming tonnage for that year to obtain an outgoing annual tonnage of each material type. The annual outgoing tonnage for each material type is to be reported to the NCDENR.

Refer to the process flow diagram found previously in this application.

- (C) The means for measuring, shredding, mixing, and proportioning input materials;

The material to be composted, leaves and grass, should be ground together at a ratio of approximately 2 lbs. of leaves to 1 lb. of grass with each material at a moisture content of approximately 50%-60% which is necessary to achieve an optimum C:N ratio of approximately 25:1 to 30:1.

A high nitrogen fertilizer could be added to the leaves, as they are low in nitrogen. The fertilizer should be purchased in bag form and manually distributed across the top of the windrows. The windrow turner should then be run through the windrow several times blending the fertilizer. The fertilizer to be used is ammonium nitrate, 34-0-0.

The material for mulch and boiler fuel is not proportioned due to the nature of the final product.

- (D) Anticipated process duration, including receiving, preparation, composting, curing, and distribution;

From the time the material arrives on site to the time it leaves is generally short, except for the compost material. Typically, the mulch and boiler fuel remain on site for as little as one day up to two days. In the event of an ice or windstorm, unprocessed material may remain for up to two months.

When composting is initially performed at this facility, the compost material should be turned so that the internal temperature remains at or above 55 degrees Celsius (131 degrees Fahrenheit) for three (3) to fifteen (15) days. The compost material should be monitored each day throughout the composting process in order to ensure that the temperature requirement is being fulfilled and to establish a timeline for the process. After the temperature requirement is met, the temperature of the material does not need to be monitored. Once the timeline is determined, the monitoring can be performed less frequently. If after three (3) days and the temperature drops below 46 degrees Celsius (115 degrees Fahrenheit), the compost could then be screened to remove any nonconforming waste (overs). The compost material could then be placed in a curing pile for approximately one month or for immediate distribution. The overs from the rescreening process can be sold as mulch or boiler fuel.

If the compost material does not meet the temperature requirement, the material can then be screened. The material passing the screen could be placed in the Soil Amendment stockpile and the overs could be placed in the mulch stockpile. If material is no longer being stockpiled as Soil

Amendment, the material does not need to be screened. The material could be incorporated into the mulch stockpile.

- (E) A description of the location of all temperature, air and any other type of monitoring points, and the frequency of monitoring;

When composting is initially performed at this site, monitoring should be performed as stated in .1405(a)(7)(d). Temperature should be checked at every 25'-30' of compost windrow. Once it is determined that the temperature requirement is being met, the temperature can be monitored less frequently. Monitoring should be recorded using the form (or similar) found in Appendix A.

Temperature of the mulch and boiler fuel is not currently monitored or recorded at this facility. Typically, by the end of each day this material is completely removed from the facility. However, if the material is not completely removed by the end of the day, a Staff member will visually inspect and estimate the temperature of the material. If the mulch is hot or steam is coming from the pile, the mulch will be turned using the on-site front-end loader. If the mulch or boiler fuel is not heating up, there is no need for it to be turned.

- (F) A description of how the temperature control and monitoring equipment will demonstrate that the facility meets the requirements in Rule .1406 Items (10), (11), or (12) of this Section, as appropriate for the feedstock;

Please refer to .1405(7)(E).

- (G) The method of aeration provided and the capacity of aeration equipment; and

When composting is performed at this facility, the windrows should be turned using the Wildcat 750 windrow turner or similar. For the capacity of the equipment please refer to .1405(a)(7)(a).

- (H) A description of the method to control surface water run-on and run-off; and the method to control, collect, treat, and dispose of leachate generated.

The surface water flows generally from the north side of the site to the south, and then east towards the east gate. The water flows into a highly vegetated area along the southern edge of the property. Currently, no run-on or run-off problems are experienced.

- (8) A description of the label or other information source that meets the requirements of Rule .1407(k) of this Section.

This is a Type I facility and we expect it to produce a Grade A product. A Grade A product may be distributed to the public in a unlimited and unrestricted manner to the public provided the product is free from offensive odor and it does not contain sharp particles that would cause injury to those handling the product. A handout will be made available to the public at the scale house. The handout will be distributed to those receiving compost. The handout will contain the information as required in .1407(g). Please refer to Appendix B for the handout .

- (9) Plans and specifications for the facility, including manufacturer's performance data for all equipment selected.

The following is a list of the equipment used at the facility:

*7' x 36' Chain Conveyor
20' x 7' Vibrating Feeder
Arasmith 50" x 86" horizontal Salvage Hog
West-Salem 40" x 64" Hammer Mill
Radial Stacker Conveyor
84" x 36" stacking belt conveyor
CAT 950B Wheel Loader with brush forks
Husky Brute XL 235 Knuckle Boom Loader
JD 644G Wheel Loader with 10 cy bucket
Ken Worth Truck-Tractor
(2) 44' Open Top Trailers
(2) 45' Walking Floor Trailers
International Dump Truck, 24 cy body
Duratech 12' Portable Tub Grinder
Ford 445C Wheel Loader
Innovator 7221 Trommel Screen
Wildcat 750 Windrow Turner*

- (10) A detailed operation and maintenance manual outlining:

- (A) A quality assurance plan for the process and final product which lists the procedures used in inspecting incoming material, monitoring, sampling and analyzing the compost process and final product, test schedule, and record keeping requirements;
- (B) Contingency plans detailing corrective or remedial action to be taken in the event of equipment breakdown; non-conforming waste delivered to the facility; spills, and undesirable conditions such as fires, vectors and odors; and

- (C) An explanation of how the facility will comply with operational requirements as outlined in Rule .1406 of this Section, detailed operational information and instruction, an outlined of reports to be submitted in compliance with this Section, and safety instructions.

Please refer to Appendix B for the Operations Plan.

- (11) As built drawings where applicable.

An As-Built drawing was prepared by the City of Winston-Salem and can be found in Appendix C.

.1406 OPERATIONAL REQUIREMENTS FOR SOLID WASTE COMPOST FACILITIES

Any person who maintains or operates a solid waste compost facility shall maintain and operate the site to conform with the following practices:

(1) Plan and Permit Requirements:

- (A) Construction plans and conditions of permit shall be followed; and

The construction plans and the conditions of the permit shall be followed.

- (B) A copy of the permit, plans, and operational reports shall be maintained on site at all times.

A copy of this approved permit, plans and operational reports will be maintained on site at all times.

- (2) Adequate erosion control measures shall be practiced to prevent on-site erosion and to control the movement of soil or contaminants from the site.

The majority of the site is paved, and areas of drainage are well vegetated. There are currently no problems regarding erosion control.

- (3) Surface water shall be diverted from the operational, compost curing, and storage areas.

The site slopes in a southeast direction toward to the southeast gate. A speed bump acts as a diversion to channel the water off the pavement into dense vegetation. Generally, the site is well drained.

- (4) Leachate shall be contained on site treated to meet the standards of the off-site disposal method.

There is no leachate produced by the waste.

(5) Access and Security Requirements:

- (A) Large sites shall be secured by means of gates, chains, berms, fences, or other security measures demonstrated to provide equivalent protection approved by the Division, to prevent unauthorized entry.

The facility is completely fenced and is only accessible by two (2) gates that are locked when the facility is closed.

- (B) An operator shall be on duty at the site at all times while the facility is open for public use to ensure compliance with operational requirements and access to such facilities shall be controlled.

When the facility is open, there are typically four (4) employees on site, including a scale house attendant.

- (C) The access road to the site shall be of all-weather construction and maintained in good condition.

The access road into the facility is paved.

- (6) A site shall only accept those solid wastes that it is permitted to receive.

The site only accepts those materials within this permit. The waste is visually inspected at the scale house by the scale house attendant. Any waste that does not meet acceptable criteria is rejected. Further visual screening is performed by the operators.

- (7) Safety Requirements:

- (A) Open burning of solid waste is prohibited.

No open burning has, or will, occur on site.

- (B) Equipment shall be provided to control accidental fires and arrangements made with the local fire protection agency to immediately provide fire-fighting services when needed.

Fire control is managed by Wrico Equipment Corporation. A fire station is located within 1/4 mile of the site.

- (C) Personnel training shall be provided to insure that all employees are trained in site specific safety, remedial, and corrective action procedures.

Personnel training is managed by Wrico Equipment Corporation.

- (8) Sign Requirements:

- (A) Signs providing information on waste that can be received, dumping procedures, the hours during which the site is open for public use, the permit number and other pertinent information shall be posted at the site entrance.

Signs designating the types of waste that can be received, hours of operation, and permit number are displayed at the site entrance and at the scale house.

- (B) Traffic signs/markers shall be provided as necessary to promote an orderly traffic pattern to and from the discharge area and to maintain efficient operating conditions.

The site is signed as necessary.

- (C) Signs shall be posted stating that no hazardous waste, asbestos containing waste, or medical waste can be received at the site.

This requirement is acknowledged. Signs with these statements will be prepared and installed by the City.

(9) Monitoring Requirements:

- (A) Specified monitoring and reporting requirements shall be met.
- (B) The temperature of all compost produced shall be monitored sufficiently to ensure that the pathogen reduction criteria is met.

Please refer to .1405(a)(7)(d).

- (10) Compost process at Type 1 facilities shall be maintained at or above 55 degrees Celsius (131 degrees F) 3 days and aerated to maintain elevated temperatures.

Please refer to .1406(9) above.

- (11) Types 2, 3 and 4 facilities shall maintain the compost process at a temperature above 40 degrees Celsius (104 degrees F) for 14 days or longer and the average temperature for that time shall be higher than 45 degrees Celsius (13 degrees F) or, Types 2, 3 and 4 facilities shall meet the vector attraction reduction requirements in 40 CFR 503.33(b)(4) or (7). Requirements of 40 CFR 503.33(b)(4) and (7) are hereby incorporated by reference, including any subsequent amendments or additions.

This is a Type 1 facility. Therefore this rule do not apply

- (12) The composting process shall qualify as a process to further reduce pathogens for all Type 3 and Type 4 facilities. The following are acceptable methods:

- (A) The windrow composting method, in which the following requirements apply: Aerobic conditions shall be maintained during the compost process. A temperature of 131 degrees F (55 degrees Celsius) or greater shall be maintained in the windrow for at least 15 days. During the high temperature period, the windrow shall be turned at least five times.

Does not apply to this site.

- (B) The static aerated pile composting method, in which the following requirements apply: Aerobic conditions shall be maintained during the compost process. The temperature of the compost pile shall be maintained at 131 degrees F (55 degrees Celsius) or greater for at least three days.

Does not apply to this site

- (C) The within-vessel composting method, in which the temperature in the compost piles shall be maintained at a minimal temperature of 131 degrees F (55 degrees Celsius) for at least three days.

Does not apply to this site

- (13) Nitrogen bearing wastes shall be incorporated as necessary to minimize odor and the migration of nutrients.

Does not apply to this site.

- (14) Miscellaneous Requirements:

- (A) The finished compost shall meet the classification and distribution requirements outlined in Rule .1407 of this Section.

The compost and mulch provided at the Overdale Facility, based on the materials processed, meets the criteria outlined in .1407 (d) (3) (minimal pathogenic organisms, free of defensive odor, and no known sharp particles). Therefore, the mulch and compost is managed with "unrestricted application and distribution." Please refer to .1405(a)(8).

- (B) The quality of the final product shall determine the allowable uses as outlined in Rule .1407 of this Section.

See (14) (A) above.

- (C) The final product shall be approved by the Solid Waste Section as outlined in Rule .1407 Subparagraph (6)(b) of this Section.

- (i) Non-compostable solid waste and unacceptable compost shall be disposed in a solid waste management facility permitted to receive the particular type of waste under 15A NCAC 1B.

Unacceptable waste and process reject waste is disposed of at the City's construction and demolition debris landfill.

- (ii) The amount of compost stored at the facility shall not exceed the designed storage capacity.

The stored compost does not exceed the site capacity.

Site Photographs



Scales and Scalehouse, looking north.



Yardwaste Stockpile, looking east.



Pallet Stockpile, looking northwest.



Yardwaste and Pallet Processing Unit, looking northwest (Horizontal Salvage Hog and Hammer Mill).



Radial Stacker from Processing Unit to Stock Piles, looking north.



Portable Tub Grinder used for processing grass and leaves.



Wind Rows of Compost, looking west.



Loadout Area, looking northeast.

Appendix A



CITY OF WINSTON-SALEM

INSPECTIONS DIVISION

100 LIBERTY WALK • WINSTON-SALEM, NORTH CAROLINA 27101

FAX 336-727-2792

September 14, 1998

*Mr. Barry Shearin
Utilities Division*

*Re: Tax Lots 16B, 16E & 11D
Tax Block 2719
Forsyth County Tax Maps
Overdale Road*

Dear Barry:

The above described property is zoned General Industrial (GI) and the use for a yard waste composting and processing site is permitted.

If you have any additional questions, please give me a call at (336) 727-8016.

Sincerely,

A handwritten signature in cursive script that reads "Bill Petree".

*Bill Petree
Zoning Code Enforcement Supervisor*

BP/vmp



NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
WINSTON-SALEM REGIONAL OFFICE
DIVISION OF WATER QUALITY
December 9, 1998

DEC 10 1998



JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

Mr. Philip Westmoreland, E.I.T.
HDR Engineering, Inc. of the Carolinas
Suite 1400
128 S. Tryon Street
Charlotte, NC 28202-5001

**Subject: Overdale Yard Waste Facility
Winston-Salem, NC
HDR Project No. 00162-000-018**

Dear Mr. Westmoreland:

This letter is in response to your request to comment on the compliance status of the subject facility. You specifically questioned that I comment on whether the site is in compliance with NPDES permitting and if the site is causing non-point source pollution in violation of the assigned water quality standards.

From your information submitted, I determined that the site drainage is into an unnamed tributary to South Fork Muddy Creek, which is classified as "C" waters of the state. Attached are the assigned water quality standards for these waters.

NPDES permits for stormwater runoff are required by the U.S. E.P.A. for listed industrial operations which manufacturer products and have a conveyance to waters of the state. North Carolina has the delegation to issue these Stormwater NPDES Permits. Since this operation is not defined as "manufacturing" and has no conveyance, the site does not meet the definitions to require it to obtain a NPDES permit from North Carolina. Thus, the site does not violate any NPDES requirement.

To answer the question regarding whether non-point source pollution is occurring from the site which violates the water quality standards we would need the applicant to provide sampling data from the receiving waters for each of the parameters attached. Our office does not monitor this particular unnamed tributary as part of our monitoring program. You may want to check with Crystal Couch with the City of Winston-Salem Stormwater Department to see if the receiving waters are sampled

December 9, 1998

Page 2

by the City as part of the requirements of the City of Winston-Salem's NPDES Stormwater Permit issued by the state.

It appears from the map that adequate best management practices are in place to address non-point source stormwater pollution from the site. The densely vegetated buffer in the direction of the majority of the stormwater drainage should be adequate to control non-point source pollution. One would not expect the site to violate the attached water quality standards since good management practices are employed.

Should you have any questions regarding these comments, please contact Beth Morton at (336)771-4600.

Sincerely,



Beth Morton
Environmental Engineer

cc: WSRO File
Central File

December 8, 1998



Ms. Beth Morton
North Carolina Department of
Environment and Natural Resources
Division of Water Quality
585 Waughtown Street
Winston-Salem, NC 27107-2241

Re: Overdale Yard Waste Facility
Winston-Salem, North Carolina
HDR Project No. 00162-000-018

Dear Ms. Morton:

As discussed in our telephone conversation on December 7, we are in the process of preparing a permit renewal application for the existing Overdale Yard Waste Facility located in Winston-Salem, NC. However in order to obtain this permit renewal, there are two (2) rules regarding water quality that must be satisfied. Below are the two (2) rules taken from the North Carolina Solid Waste Management Rules and Law (Administrative Code 15A, Chapter 13, Subchapter 13B).

.1404(a)(9)(b)

"A site shall not cause a discharge of pollutants into waters of the state that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES), under Section 402 of the Clean Water Act."

.1404(a)(9)(c)

"A site shall not cause non-point source pollution of waters of the state that violates assigned water quality standards."

We would like your help in determining if these rules are being met. Please reply with a written response that would state whether the site is in compliance with these rules. To help you with this, I have enclosed a topographic map of the site, prior to construction, as well as a site map. The site map shows the general drainage patterns of the site. The site is a paved pad that generally drains to the southeast corner into a densely vegetated buffer consisting of grass and weeds then breaking into forest area. The site is not directly discharging runoff by pipes, ditches or channels nor is the site generating additional water for the processing of the waste. Minimal water is used during processing the waste to control the dust.

If you have any questions or need additional information, please do not hesitate to contact me at (704) 338-6743.

Sincerely,

HDR Engineering, Inc. of the Carolinas

A handwritten signature in black ink that reads "Philip A. Westmoreland". The signature is written in a cursive style and is positioned above the typed name.

Philip A. Westmoreland, E.I.T.
Staff Engineer

PAW/jvw

Enclosures

**HDR Engineering, Inc.
of the Carolinas**

Employee-owned

Suite 1400
128 S. Tryon Street
Charlotte, North Carolina
28202-5001

Telephone
704 338-6700
Fax
704 338-6760

NC DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES

Division of Solid Waste Management

Solid Waste Section

SOLID WASTE MANAGEMENT FACILITY EVALUATION REPORT

Type of Facility Yard Waste Permit # 34-09-YW County Forsyth

Name of Facility Winston-Salem Yard Waste Facility Location Overdale Rd

Date of Last Evaluation 6-30-97

I. Permit Conditions Followed Yes No N/A

A. Specific Condition(s) Violated

(4) Permit expired February 6, 1997 (five years from date of issuance)
Submit completed permit application per letter from Ted Lyon dated August 17, 1998

II. Operational Requirements Followed Yes No

15A N.C. Admin. Code 13B Section _____

A. Specific Violation(s) by number and letter.

III. Other Violations of Rule or Law _____

IV. Evaluator's Comments Measures have been taken to prevent run-off from site; Small stockpile of wood waste at this time due to increase to Corn Products; Average grinding 100 tons/day

V. Continuation Page Required? Yes No Receiving Signature David C. Fu

Evaluation Date 8-25-98 Solid Waste Section Shirley S. Roberts

Appendix B

OVERDALE YARD WASTE FACILITY
Permit No. 34-09-YW
Winston-Salem, NC

OPERATIONS PLAN

I. INTRODUCTION

The purpose of this document is to identify protocols for the overall operation and maintenance of the Overdale Yard Waste Facility, Permit No. 34-09-YW, which is owned by the City of Winston-Salem and operated under contract with Wrico Equipment Corporation, Greensboro, NC. The plan provides details of the procedures and policies which shall be implemented throughout operation of the facility.

II. STANDARD OPERATING PROCEDURES

Hours and Days of Operation

The facility is open for operation between the hours of 7:00 a.m. and 5:00 p.m., Monday through Friday, and from 8:00 a.m. to 4:00 p.m. on Saturday. The observed holidays are New Year's Day, Martin Luther King Jr. Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and the day after, and Christmas Day.

Special notices are to be posted at the scalehouse advising users of observed holidays. Such notices are posted at least one week in advance of the proposed holiday.

III. QUALITY ASSURANCE PLAN

A. Weighing Procedures

1. Incoming Material

All vehicles entering the facility are required to stop at the scalehouse which, is located at the entrance to the facility. All visitors to the facility are required to sign in. All refuse transportation vehicles are weighed on ground scales and the content of the load is assessed. The weighmaster requests from the driver of the vehicle a description of the waste it is carrying to ensure that unacceptable waste is not being brought into the facility. The weighmaster then collects payment and visually checks the vehicle as it crosses the scale. Please refer to Section VI of the Operations Plan for record keeping instructions of incoming material.

2. Outgoing Material

Outgoing material is currently sold on a cubic yard basis. Please refer to Section VI of the Operations Plan for record keeping instructions of outgoing material.

B. Wastes Accepted

This facility is approved to receive only the following waste: Yard trash (as defined in G.S. 130 A-290), pallets, and other untreated, unpainted wood, leaves, and grass clippings.

C. Unacceptable Waste

The following wastes are prohibited by the yard waste facility:

- *Whole scrap tires
- *Used oil
- *Sanitary waste
- *Land clearing debris (stumps, etc.)
- *Construction and demolition waste (C&D)
- *White goods
- *Lead acid batteries
- *Hazardous waste
- *Asbestos containing waste
- *Medical wastes

D. Mulching Process

After final inspection, the waste is loaded into the yard waste and pallet processing unit (horizontal salvage hog and hammermill). The radial stacker is used to stockpile the processed material. Please refer to the Monitoring and Testing Section for instructions on monitoring and testing of the mulch.

E. Composting Process

1. Material Preparation

- a. After inspection, the material is ground in the tub grinders using a screen for sizing.
- b. The grass and leaves are ground together at a ratio of approximately 1 lbs of grass to 2 lbs of leaves with each having a moisture content of approximately 50-60%.
- c. The ground material is then removed from the processing area and placed into windrows.
- d. Upon placement of material into windrows, moisture requirements are determined.
- e. Moisture is added by using a water truck or turning the windrows in the rain. The optimum moisture content is 50-60% moisture. Once this range of moisture is obtained, additional moisture is rarely needed during the rest of the process.
- f. A high nitrogen fertilizer could be added to the leaves, as they are low in nitrogen. The fertilizer should be purchased in bag form and manually distributed across the top of the windrows. The windrow turner should then be

run through the windrow several times blending the fertilizer. The fertilizer to be used is ammonium nitrate, 34-0-0.

2. Composting Process

- a. Refer to the Monitoring and Testing section for instructions on monitoring and testing of the compost.
- b. In order to prevent odor from becoming a problem, proper carbon to nitrogen ratios (C:N), oxygen and moisture levels should be maintained. To control proper C:N ratios, the grass and leaves should be mixed as stated in the Material Preparation section. The windrows should be placed with the slope to allow free drainage between the windrows and to maintain proper moisture content. Please refer to page 7 for an approximate layout of the windrows. If odor becomes a problem, the windrows should be turned or ground leaves could be incorporated into the windrows. The windrows would be turned using the onsite windrow turner at least once per week. Another method to control odor would be to cover the compost with more mature compost which would act as a biofilter.

3. Final Product

- a. If the temperature requirement has been met as stated in the Monitoring and Testing section of the Operations Plan, the material can be screened to remove any nonconforming waste (overs) that may have been missed during the original screening.
- b. The material passing the screen can be placed in a curing pile for approximately one month or for immediate distribution.
- c. The material not passing the screen (overs) may be sold as mulch or boiler fuel.
- d. Monitoring and testing records are maintained until the product is ready for distribution.

F. Contingency Plan

1. Equipment Breakdown

In the event of equipment downtime, other equipment can be brought to the site. In addition to managing the site, Wrico also owns and operates an equipment company which has supplied the site with the current equipment.

2. Non-Conforming Waste

All waste is screened both at the scalehouse and in the receiving area. If nonconforming waste is discovered at the scalehouse, it is rejected immediately.

If nonconforming waste is found in the receiving area, it is sent to a separate area which has been dedicated for such material. The nonconforming waste is hauled to the C&D landfill by Wrico staff as needed.

3. *Fire Contingency*

The local fire department, located ¼ miles from the facility, is aware of the operation of the facility. The threat of fire is minimized by the short life span of the material on site. Typically, the mulch made each day is removed from the facility (sold as boiler fuel or to the public).

4. *Vectors and Odors*

Vectors and odors have not been a problem at this site. To minimize the threat of vectors, the yard waste is ground almost on a daily basis. To minimize potential odors, particularly odors from the compost, grass clippings are incorporated into the windrows or turning of the windrows. In the event the windrow turner is inoperable, other equipment will be brought to the site.

G. Monitoring and Testing

Compost

Initially the compost material should be monitored on a daily to basis to ensure that the temperature requirement is met and to establish a timeline for the process. The internal temperature should remain at or above 55 degrees Celsius (131 degree Fahrenheit) for three (3) to fifteen (15) days. The temperatures should be checked at every 25'-30' of compost windrow. If after three (3) days and the temperature drops below 46 degrees Celsius (115 degrees Fahrenheit), then continue the processing of the compost. If the compost material does not meet the temperature requirement, the material can then be screened. The material passing the screen could be placed in the Soil Amendment stockpile and the overs could be placed in the mulch stockpile. If material is no longer being stockpiled as Soil Amendment, the material would not need to be screened. The material could be incorporated into the mulch stockpile.

Once it is determined that the temperature requirement is being met, the temperature of the material does not need to be monitored. After the timeline for the process is determined, monitoring can be preformed less frequently.

The Compost Monitoring Form to be used is located on page 7.

Mulch & Boiler Fuel

Temperature monitoring of the woody mulch is necessary in the event all of the mulch is not removed by the end of each day. To monitor this, a Staff member will visually inspect and estimate the temperature of the mulch. If the mulch is hot or steam is coming from the pile, the mulch will be turned using the site front-end loader.

IV. PROCESS NARRATIVE

This narrative is provided to give additional operational details of the Overdale Yard Waste Facility. Refer to the Site Map and Process Flow Diagram on the following pages.

Incoming waste managed at the facility includes curbside collected yard waste from the City of Winston-Salem; materials dropped off by the general public; private companies disposing of, yard waste; pallets and materials such as untreated, unpainted wood waste from processing plants, and storm debris. A city staff person manages the scale area where the material is weighed. The scale attendant confirms the material make-up of the load and directs the customer to one of three locations. Yard waste and other woody waste are dumped in the upper receiving area. Pallets and other untreated, unpainted wood is maintained in a separate pile in the upper receiving area. Leaves and grass clippings are received in the lower receiving area near the tub grinder.

The yard waste, pallets, woody waste, and other untreated, unpainted wood are processed through the hammermill. Yard waste is generally processed separately from the other materials. As the yard waste is processed through the hammermill, a radial stacker (conveyor) is operated to create a stockpile area for the mulch. The mulch product is managed in bulk piles and then offered for sale to the general public (who picks up the material on site) or is delivered by Wrico staff to private customers.

The pallets, woody waste (such as tree trunks and large tree limbs), and unpainted, untreated wood is processed separately through the hammermill. Again, the radial stacker is used to develop a stockpile of processed material. The "pallet mulch" is hauled by Wrico staff to area businesses for use as a boiler fuel.

When the hammermill is being operated, the loader operators visually screen the material for contaminants. Contaminants include materials which are not accepted at the facility but were not discovered by the scale attendant, or materials which would harm the equipment. Unacceptable waste includes material such as construction demolition waste, painted wood, metal, and large stumps from land-clearing operations. The "reject" material is stockpiled in the upper receiving area and is back-hauled by City staff to the City's construction and demolition debris landfill.

Leaves and grass clippings which arrive on site are processed through a tub grinder located in the lower receiving area. Sometimes a small quantity of yard waste is mixed with the leaves and grass clippings to avoid jamming the tub grinder with the finer materials. Processed material from the tub grinder has two potential end uses. It may be taken from the tub grinder and sold as a soil amendment to a local business (hauled by Wrico staff), or it is composted. If composted, the compost windrows are turned with an on-site windrow turner. After the compost process has been completed (usually a period of one to four months), the material is screened through a trommel screen where the fines are stockpiled as compost and the "overs" are reused in the composting process. The finished compost product is available for sale to the public or delivered by Wrico staff to area customers.

V. WORKER SAFETY AND TRAINING

All operating personnel shall receive training, safety equipment, and supervision necessary to carry out their assigned duties. Required training for Wrico Equipment staff is performed by Wrico. Refer to the Emergency Action Plan regarding emergency protocols.

VI. RECORD KEEPING

All facility owners or operators shall record and maintain records for a minimum of five (5) years. Records shall be available for inspection by Division personnel during normal business hours and shall be sent to the Division upon request:

- (1) Daily operational records must be maintained, which include, at a minimum, temperature data (length of the composting period) and quantity of material processed;
- (2) Analytical results on compost testing;
- (3) The quantity, type, and source of waste received;
- (4) The quantity and type of waste processed into compost;
- (5) The quantity and type of compost produced by product classification; and
- (6) The quantity and type of compost removed for use or disposal, by product classification, and the market or permitted disposal facility.

Annual Reporting: An annual report for the period July 1 to June 30 shall be submitted by all facility owners or operators to the Division by August 1 and shall contain:

- (1) The facility name, address, and permit number;
- (2) The total quantity in tons, of waste received at the facility during the year;
- (3) The total quantity in tons and type of compost produced at the facility, by product classification, during the year covered by the report;
- (4) The total quantity in tons and type of compost removed for use or disposal from the facility, by product classification, along with a general description of the market if for use during the year covered by the report;
- (5) Monthly temperature monitoring.

Yearly totals of solid waste received and composted shall be reported back to the local government of origin for annual recycling reporting.

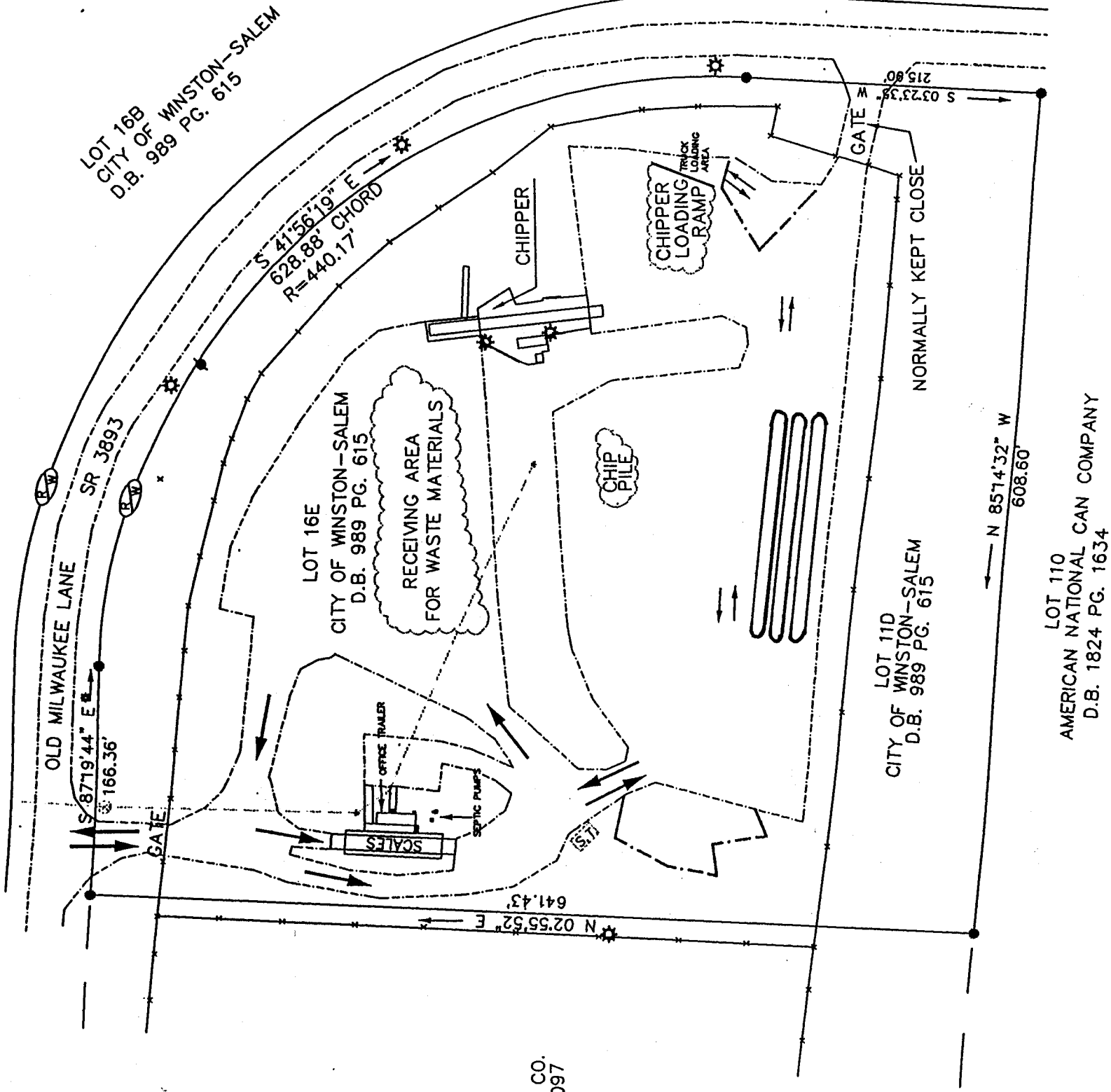
To determine the weight of the outgoing material for each year, the total volume of each material sold (compost, mulch, and boiler fuel) in a specific year is to be divided by the total volume of all the materials sold in that year to yield a percentage. The individual percentages can then be multiplied by the total incoming tonnage for that year to obtain an outgoing annual tonnage of each material type.

VII. Emergencies

Please refer to the Emergency Action Plan.

REFERENCE NORTH
CITY RECORDS MAP P-604-2

LOT 16D
HFCS TRANSPORT CO.
D.B. 1331 PG. 1097

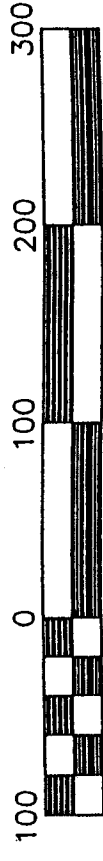


NOTES

1. THE PURPOSE OF THIS MAP IS TO SHOW LOCATION OF CHIPPER/COMPOST PILES AT DATE OF SITE LOCATION. ALSO, LOCATION OF VISIBLE UTILITIES, BUILDINGS, STRUCTURES, PAVEMENT, AND TRAFFIC FLOW.
2. BEARINGS & DISTANCES OF SUBJECT PROPERTY WERE TAKEN FROM CITY RECORDS MAP P-604-2.
3. SUBJECT PROPERTY AND SURROUNDING PROPERTIES ARE ZONED G1-GENERAL INDUSTRIAL.

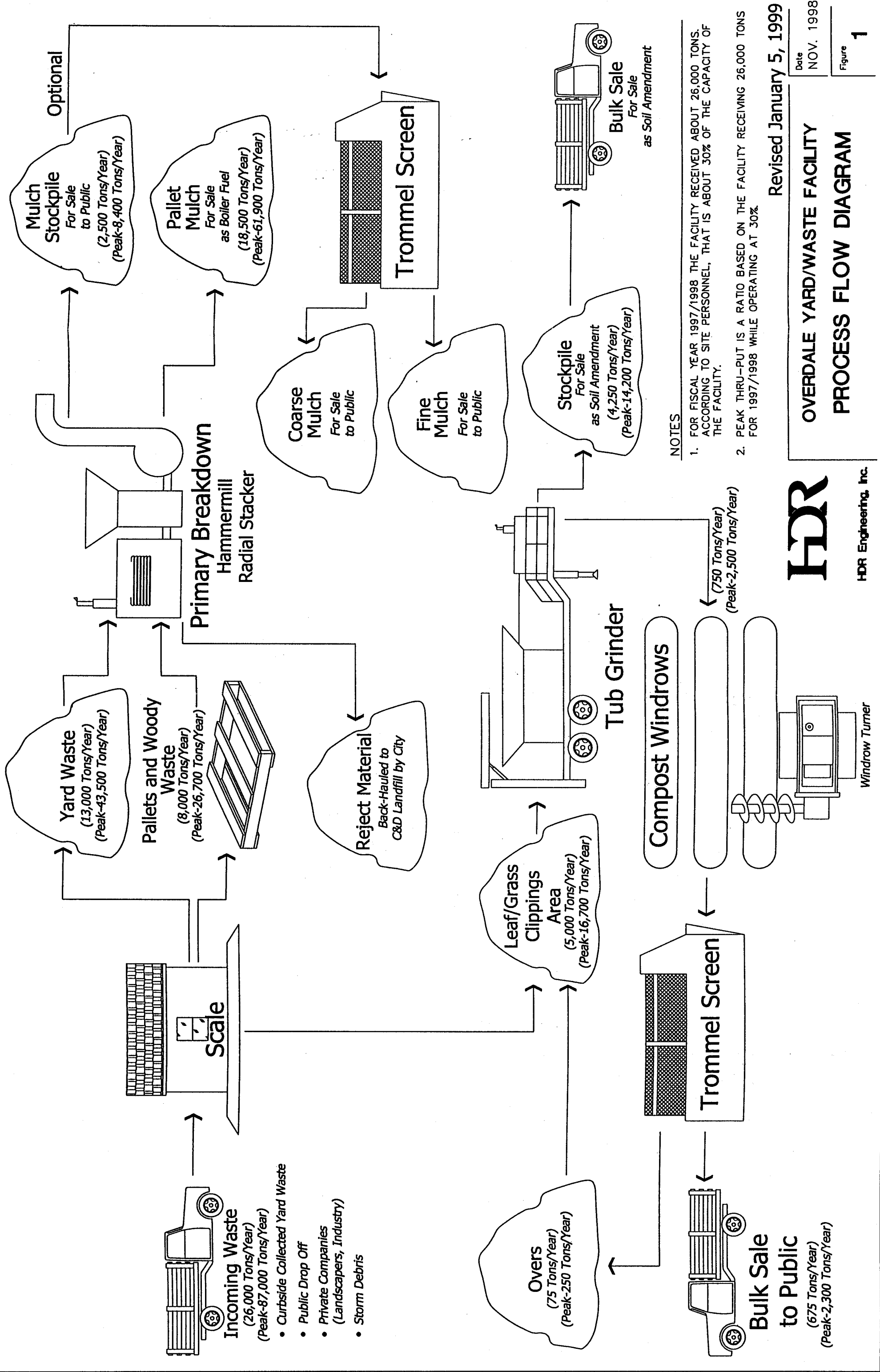
LEGEND

- EXISTING PROPERTY CORNER
- ⊙ POWER POLE
- ⊙ LIGHT POLE
- ⊙ WATER VALVE
- ⊙ WATER METER
- ⊙ WATER SPIGOT
- ⊙ APPROXIMATE LOCATION OF SEPTIC TANK
- APPROXIMATE LOCATION OF WATER LINE
- CHIP PILES AND RECEIVING AREA PILE
- EDGE OF PAVEMENT
- TRAFFIC FLOW
- GRAVEL AREA
- ▭ COMPOST WINDROWS



Scale 1" = 100'

DRAWN BY: E.W. J.N. R.W.	APPROVED BY:	PROJECT	SHT. NO.
DATE: 10-15-98	PROJ. NO. 98026	OVERDALE YARD WASTE FACILITY	1 OF 1
DWG. NO.:			SURVEYED BY: CREW 504



NOTES

1. FOR FISCAL YEAR 1997/1998 THE FACILITY RECEIVED ABOUT 26,000 TONS. ACCORDING TO SITE PERSONNEL, THAT IS ABOUT 30% OF THE CAPACITY OF THE FACILITY.
2. PEAK THRU-PUT IS A RATIO BASED ON THE FACILITY RECEIVING 26,000 TONS FOR 1997/1998 WHILE OPERATING AT 30%.

Revised January 5, 1999

Date NOV. 1998

Figure 1

HDR

HDR Engineering, Inc.

OVERDALE YARD/WASTE FACILITY

PROCESS FLOW DIAGRAM

OVERDALE YARD WASTE FACILITY
Permit No. 34-09-YW
Winston-Salem, NC

EMERGENCY ACTION PLAN

OVERDALE YARD WASTE FACILITY EMERGENCY ACTION PLAN

A. Purpose:

The Overdale Yard Waste Facility Emergency Action Plan is to provide all employees with the proper information to protect themselves, co-workers, and the public in the event of an emergency. This plan is designed to meet the requirements of OSHA 1910.38(a) and 1910.120.

B. Definitions:

1. Emergencies shall include such events as fire and explosion, tornado and hurricane, bomb threat, or chemical spills. This plan will detail the appropriate emergency action for each.
2. Severe fires shall be any fire which is not extinguishable by a portable fire extinguisher, or a fire within a confined space which would require entering the space to extinguish it, or a fire involving explosive or toxic materials.
3. Assembly Point shall be the area in which all employees gather in the event of an emergency.

C. Responsible Persons and Emergency Phone Numbers:

The following people are responsible for implementing and training employees on the Emergency Action Plan. If employees have questions, they should contact the supervisor for their section listed below.

Facility Manager – David Smith
(336) 413-0540 (W)
(336) 769-0970 (H)
(336) 208-2053 (P)

Utility Department – Edward Gibson
(336) 727-8418

See Appendix A at the end of this section for other emergency numbers.

In the case of emergency evacuation, each section supervisor is responsible for accountability of his/her employees and all visitors. Every employee is responsible for his/her safety and for preventing job-related accidents or injuries by complying with all work place safety policies and related procedures.

D. Types of Emergencies:

1. Fire and Explosion

- a) In the event of a fire or explosion, all personnel shall evacuate the area with caution. There are no specific escape route assignments during the initial evacuation. Listed below are the assembly areas for each potential area in question:
- 1) front gate at facility entrance
 - 2) scalehouse

2. Tornado and Hurricane

- a) In the event of a tornado or hurricane with sufficient warning, all landfill personnel shall move with caution to Fire Station #5 located at 771 Palmer Lane. In the event of a tornado without warning, personnel should temporarily retreat to the scalehouse.

3. Bomb Threat

- a) In the event of a bomb threat, the highest ranking supervisor shall be responsible for making sure the site has been evacuated and the site secured (doors locked, access to site/or building prohibited, contractors notified, and proper warning signs posted.) The signs should read:

"Building (or site) evacuated, leave premises immediately. No admittance."

To alert other personnel away from the main building the highest-ranking person shall use the two-way radio system to instruct them not to return to the office, plants, or shop. They should be instructed to meet at the appointed safe area.

- b) The procedures listed in the policy should be followed with the exception of the safe area and method of notifying employees. The location listed below is a safe area in case of a bomb threat:

Overdale Yard Waste Facility - Evacuate to Fire Station #5
on Palmer Lane

4. Chemical Spills

- a) In the event of a spill, the highest ranking supervisor shall use the two-way radio system to instruct employees and staff members to meet at the appointed safe area. Under no circumstances shall an employee or staff member remain in a hazardous area to operate

equipment. The highest ranking supervisor shall promptly notify proper authorities.

E. Emergency Procedures:

1. Under no circumstances shall an employee remain in a hazardous area to operate equipment. Evacuation is mandatory.

2. Employee Accounting:

In the event of an emergency the site supervisor(s) or, in his/her absence, the senior person will take charge at the Assembly Point and account for all persons at the landfill.

The highest ranking supervisor(s) at the Assembly Point will be responsible for accounting for all persons on site. Once everyone has been accounted for, no one may leave the Assembly Point without the Assembly Point supervisor's permission.

All persons should reach the Assembly Point within 10 minutes of the alarm. All persons unaccounted for after this time will be assumed to be down and their names and last known location will be provided to the fire/rescue personnel by the Assembly Point supervisor.

3. Assigned Responsibilities:

In the event of an emergency evacuation the following personnel shall have these responsibilities:

Person discovering the emergency condition:

- report the situation to 911 or radio 902
- take first aid kit to the Assembly Point Site supervisor(s) or senior person
- report to the Assembly Point and begin accounting for persons on site
- coordinate actions with emergency response personnel; report all missing persons

5. Employees are not required to administer medical attention but may offer first aid normally given to any accident victim. Only properly trained personnel shall attempt rescue of an employee in a hazardous atmosphere.
6. The preferred means of reporting an emergency is by telephone (i.e., call 911). The next preferred method of reporting is by radio (i.e., call 902). The least preferred method of reporting is by word of mouth. In all cases

be sure to give emergency personnel an address, phone number, injuries, if any are known, and type of emergency.

F. Training:

The supervisory employees shall be responsible to make sure all employees receive initial training on this policy. They also shall ensure that employees are retrained whenever sections of this policy are changed or updated.

APPENDIX A

Emergency Response Telephone Numbers

EMERGENCY (FIRE/POLICE)	911
WS/FC Hazmat	(336) 727-8053
Emergency Management (Local)	(336) 727-2200
Emergency Management (State)	(800) 858-0368
Risk Management (Local)	(336) 727-2296
Emergency Medical Service (Local)	(336) 727-2404
Division of Environmental Management Winston-Salem Regional Office	(336) 771-4600
EPA National Response Center	(800) 424-8802
N.C. Emergency Management	(919) 733-3867
Chemtrac	(800) 424-9300
State Emergency Number (After Hours)	(800) 662-7956
Poison Control Center	(800) 848-6946
(Chlorine) PB&S Chemical	(800) 777-9281
(Caustic) Holtra Chemical	(800) 343-6470
Winston-Salem City Yard Emergency	(336) 727-2345
Winston-Salem City Yard Emergency "Radio"	902
NC Pesticide Control	(919) 733-3556

*If possible, consult your supervisor before using the number list

OVERDALE YARD WASTE FACILITY

40001 Old Milwaukee Lane

Winston-Salem, NC 27107

(336) 784-1615

Owned by: City of Winston-Salem

Operated by: Wrico Equipment Company
387 Regional Road South
Greensboro, NC 27409
(336) 668-7621

MULCH

Description of Mulch Material: This coarse material consists of chipped tree branches and tree trunks.

Recommended Uses: This material may be used in landscaping applications.

Application Rates: Unrestricted. (Please read the planting instructions that accompany the plant before applying.)

COMPOST

Description of Compost Material: This fine material consists of chipped tree branches, tree trunks, leaves, and grass clippings.

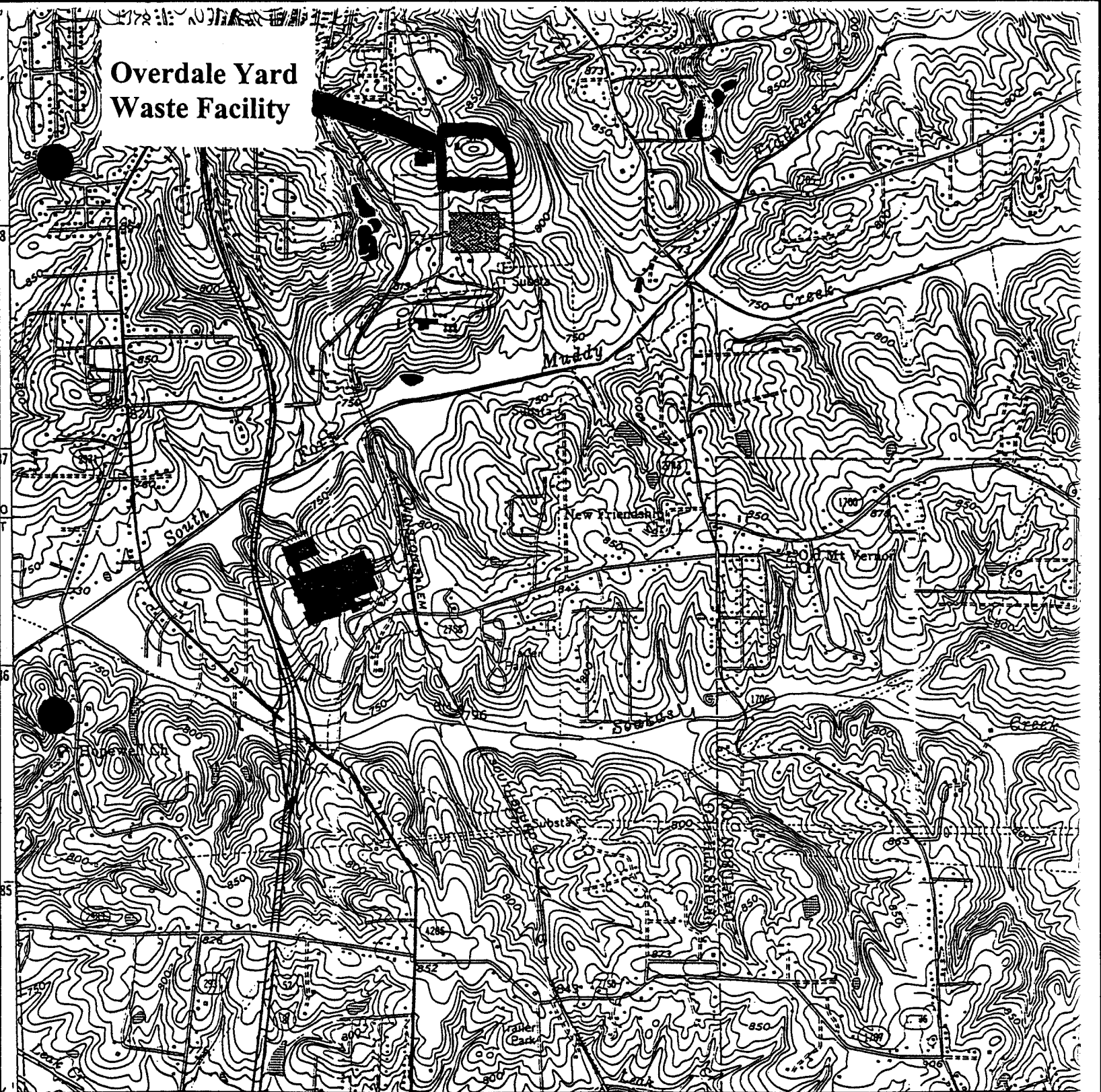
Material Class: Grade A, unlimited and unrestricted distribution as defined by North Carolina Solid Waste Management Rules and Law, Administrative Code Title 15A, Chapter 13, Subchapter 13B, Section .1407(d)(3).

Recommended Uses: This material may be used in landscaping or gardening applications.

Application Rates: Unrestricted. (Please read the planting instructions that accompany the plant before applying.)

Appendix C

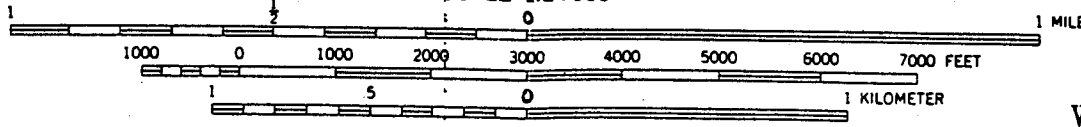
Overdale Yard Waste Facility



0°15' 168 170 172 174 176 178 180 182 184 186 188 190 192 194 196 198 200 202 204 206 208 210 212 214 216 218 220 222 224 226 228 230 232 234 236 238 240 242 244 246 248 250 252 254 256 258 260 262 264 266 268 270 272 274 276 278 280 282 284 286 288 290 292 294 296 298 300 302 304 306 308 310 312 314 316 318 320 322 324 326 328 330 332 334 336 338 340 342 344 346 348 350 352 354 356 358 360 362 364 366 368 370 372 374 376 378 380 382 384 386 388 390 392 394 396 398 400 402 404 406 408 410 412 414 416 418 420 422 424 426 428 430 432 434 436 438 440 442 444 446 448 450 452 454 456 458 460 462 464 466 468 470 472 474 476 478 480 482 484 486 488 490 492 494 496 498 500 502 504 506 508 510 512 514 516 518 520 522 524 526 528 530 532 534 536 538 540 542 544 546 548 550 552 554 556 558 560 562 564 566 568 570 572 574 576 578 580 582 584 586 588 590 592 594 596 598 600 602 604 606 608 610 612 614 616 618 620 622 624 626 628 630 632 634 636 638 640 642 644 646 648 650 652 654 656 658 660 662 664 666 668 670 672 674 676 678 680 682 684 686 688 690 692 694 696 698 700 702 704 706 708 710 712 714 716 718 720 722 724 726 728 730 732 734 736 738 740 742 744 746 748 750 752 754 756 758 760 762 764 766 768 770 772 774 776 778 780 782 784 786 788 790 792 794 796 798 800 802 804 806 808 810 812 814 816 818 820 822 824 826 828 830 832 834 836 838 840 842 844 846 848 850 852 854 856 858 860 862 864 866 868 870 872 874 876 878 880 882 884 886 888 890 892 894 896 898 900 902 904 906 908 910 912 914 916 918 920 922 924 926 928 930 932 934 936 938 940 942 944 946 948 950 952 954 956 958 960 962 964 966 968 970 972 974 976 978 980 982 984 986 988 990 992 994 996 998 1000

ELLER 3.3 MI. LEXINGTON 14 MI. 1 640 000 FEET 12'30" GUM TREE 0.3 MI.

SCALE 1:24 000



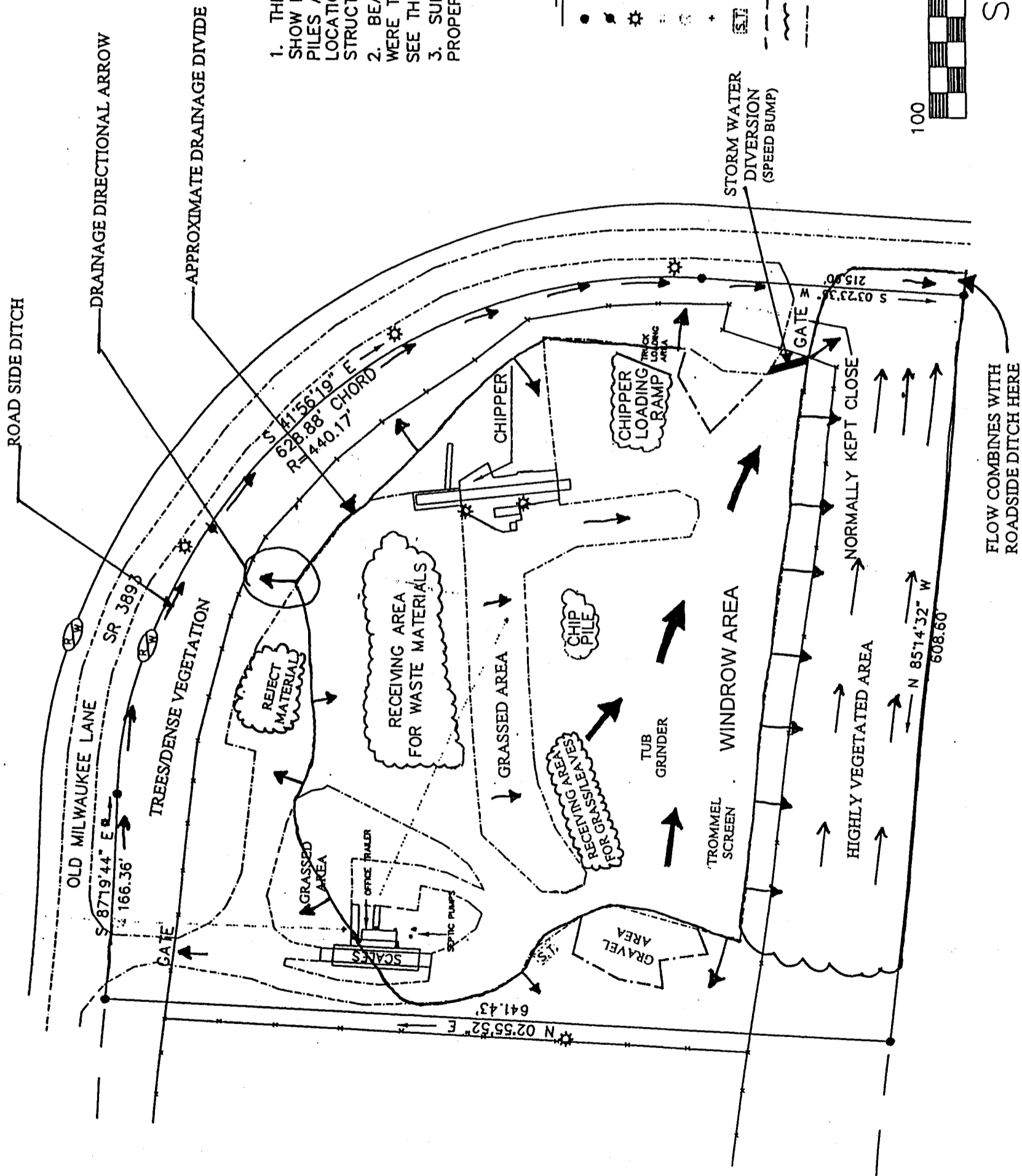
WINSTON-SALEM EAST, N. C
36080-A2-TF-024

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

1950
PHOTOREVISED 1987
DMA 4956 II SW-SERIES V842

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

REFERENCE NORTH
CITY RECORDS MAP P-604-2



NOTES

1. THE PURPOSE OF THIS MAP IS TO SHOW LOCATION OF CHIPPER/COMPOST PILES AT DATE OF SITE LOCATION. ALSO, LOCATION OF VISIBLE UTILITIES, BUILDINGS, STRUCTURES, PAVEMENT, AND TRAFFIC FLOW.
2. BEARINGS & DISTANCES OF SUBJECT PROPERTY WERE TAKEN FROM CITY RECORDS MAP P-604-2. SEE THE ABOVE MENTIONED MAP FOR PROPERTY SURVEY.
3. SUBJECT PROPERTY AND SURROUNDING PROPERTIES ARE ZONED G1-GENERAL INDUSTRIAL.

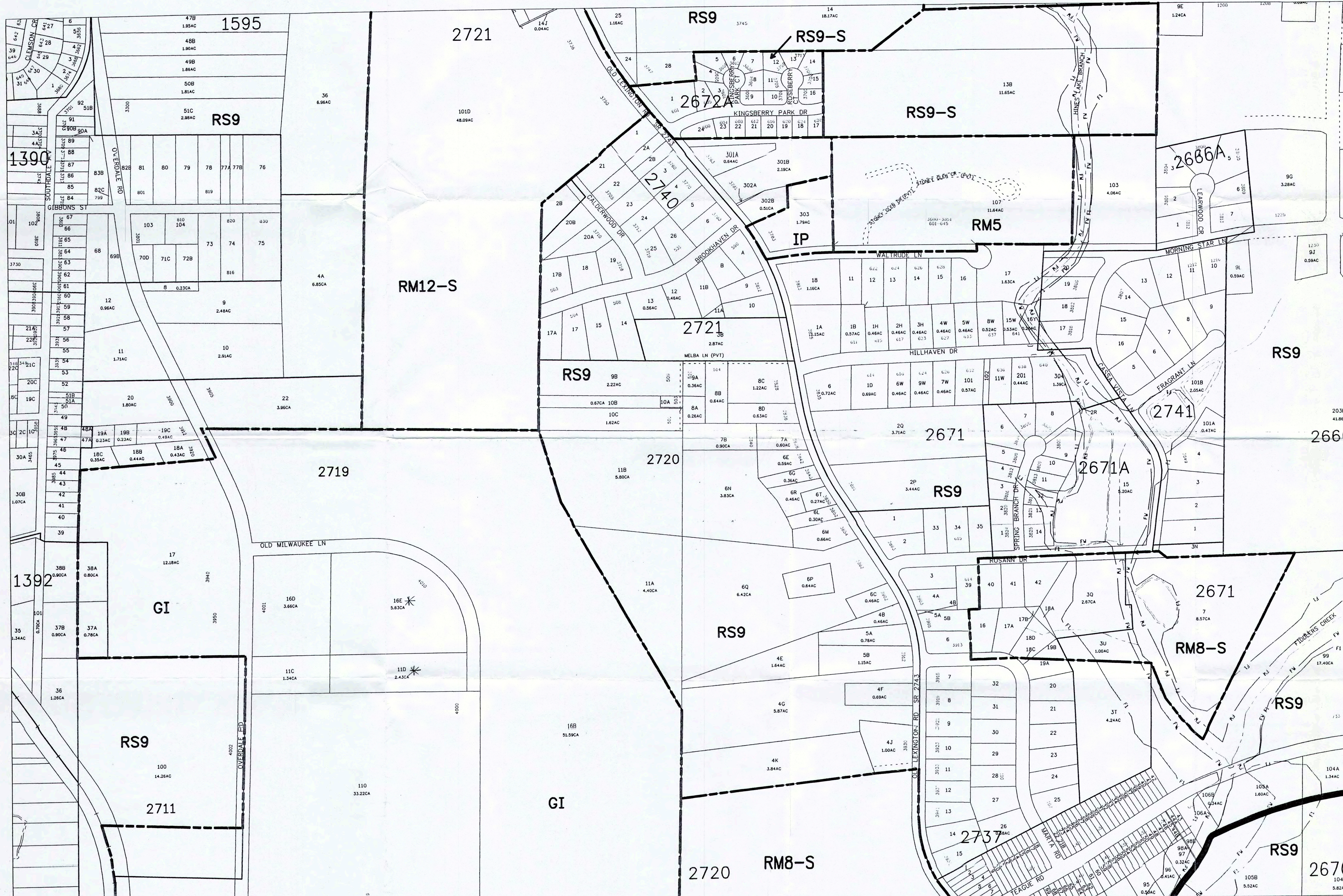
LEGEND

- EXISTING PROPERTY CORNER
- ⊙ POWER POLE
- ⊙ LIGHT POLE
- ⊙ WATER VALVE
- ⊙ WATER METER
- ⊙ WATER SPIGOT
- ⊙ APPROXIMATE LOCATION OF SEPTIC TANK
- ⊙ APPROXIMATE LOCATION OF WATER LINE
- ⊙ CHIP PILES AND RECEIVING AREA PILE
- ⊙ EDGE OF PAVEMENT



Scale 1" = 100'

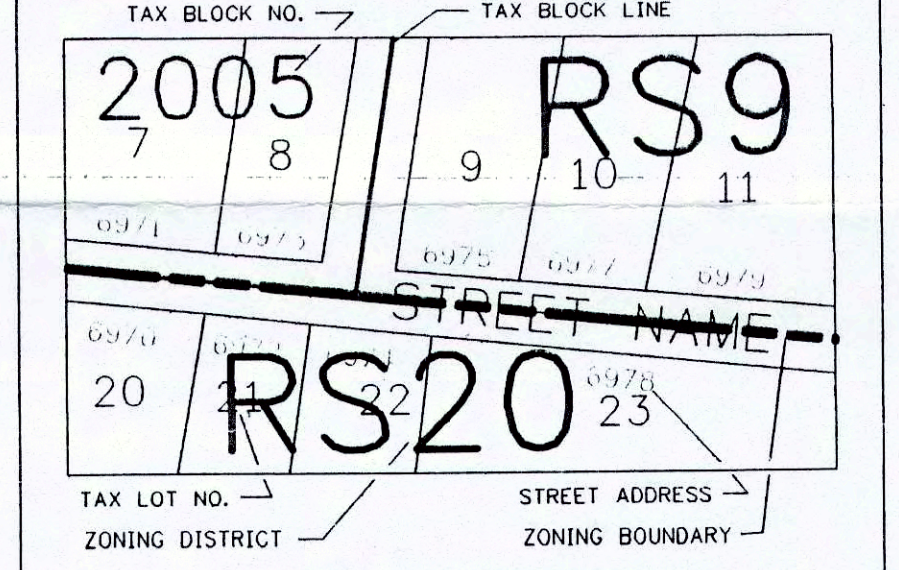
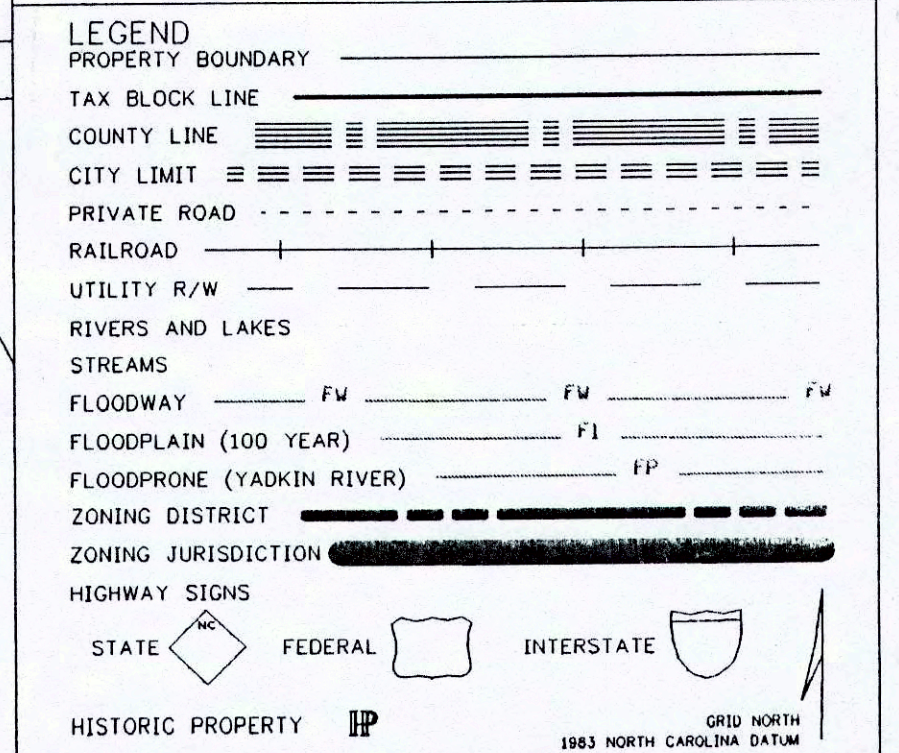
DRAWN BY: E.W. J.N. R.W.	APPROVED BY:	PROJECT	SHT. NO.
DATE: 10-15-98	PROJ. NO. 98026	OVERDALE YARD	1 OF 1
DWG. NO.:	DWG.	WASTE FACILITY	
REVISIONS		SURVEYED BY: CREW 504	
Edited by HDR to show approximate Drainage Patterns (12-8-98)			



THIS MAP IS A COPY OF ONE SHEET OF THE OFFICIAL ZONING MAP FOR FORSYTH COUNTY, BETHANIA, CLEMMONS, KERNERSVILLE, LEWISVILLE, RURAL HALL, TOBACCOVILLE, WALKERTOWN, AND WINSTON-SALEM, NORTH CAROLINA, AS PREPARED AND MAINTAINED BY THE CITY-COUNTY PLANNING BOARD OF FORSYTH COUNTY AND WINSTON-SALEM, N.C. (101 NORTH MAIN STREET), P.O. BOX 2511, WINSTON-SALEM, N.C. 27102, PHONE (336) 727-2087.

ANY AND ALL INFORMATION, AND/OR NOTATIONS SET FORTH HEREON, OTHER THAN THE ZONING INFORMATION APPLICABLE TO THE ADOPTING ZONING JURISDICTION, IS FOR INFORMATIONAL PURPOSES ONLY.

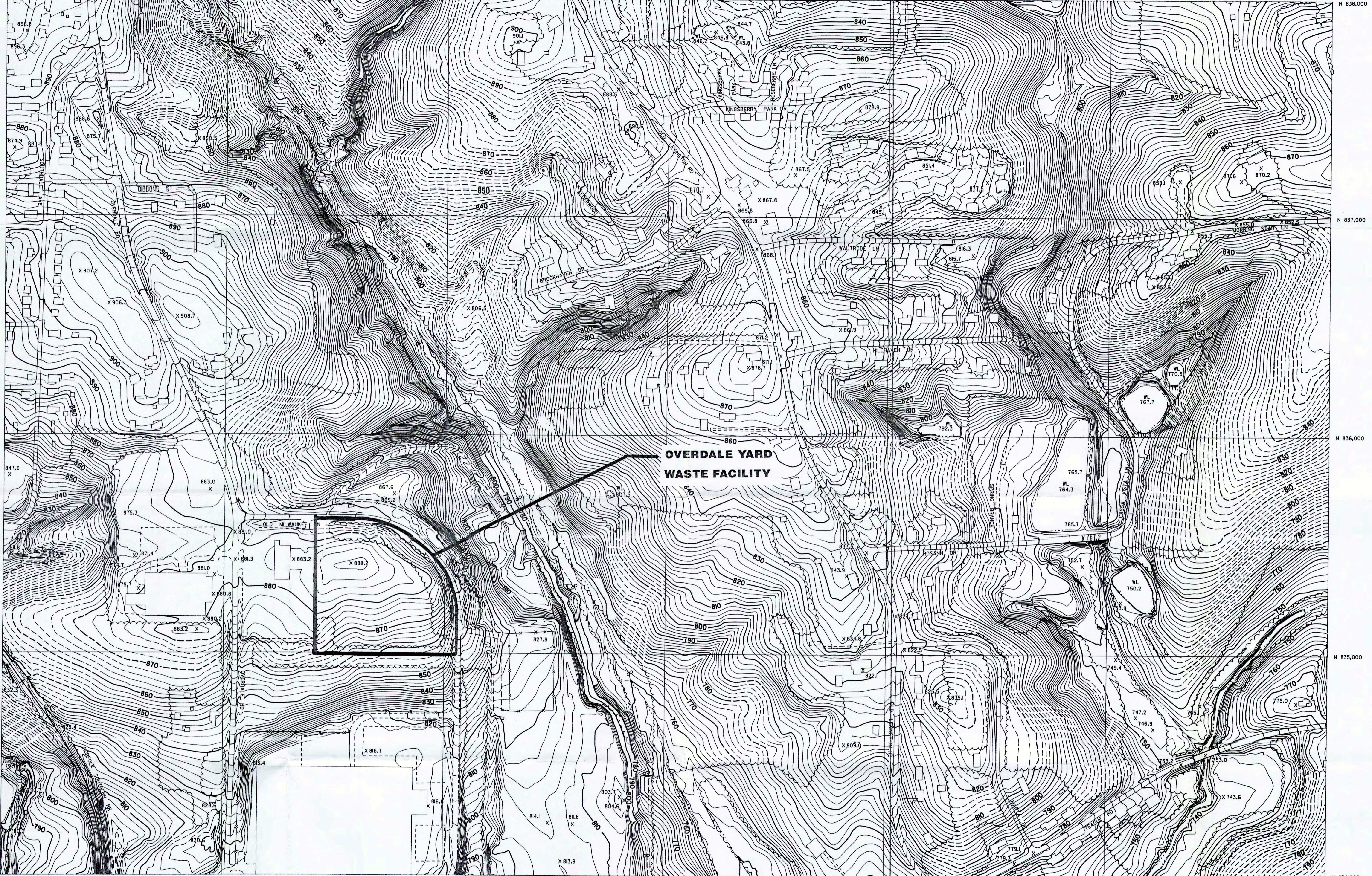
MAP SOURCES FOR INFORMATION OTHER THAN ZONING:
 BASE MAP, PARCEL BOUNDARIES, BLOCK AND LOT - FORSYTH COUNTY TAX ASSESSOR'S OFFICE
 STREET ADDRESSES - CITY-COUNTY INSPECTIONS AND KERNERSVILLE
 STREET NAMES - FORSYTH COUNTY, CLEMMONS, KERNERSVILLE, LEWISVILLE, RURAL HALL, TOBACCOVILLE, WALKERTOWN AND WINSTON-SALEM
 FLOODPLAIN - FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
 FLOODPRONE - FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
 FLOODPRONE - USGS MAPS



OFFICIAL ZONING MAP

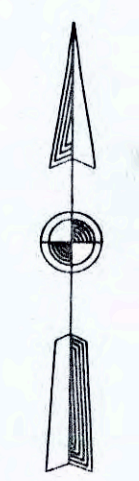
for FORSYTH COUNTY, BETHANIA, CLEMMONS, KERNERSVILLE, LEWISVILLE, RURAL HALL, TOBACCOVILLE, WALKERTOWN, and WINSTON-SALEM, NORTH CAROLINA
 1" REPRESENTS 200' PLOTTED 25-MAR-1998 TIME 12:58:39

630834 636838 636834 542834 636830 H11a



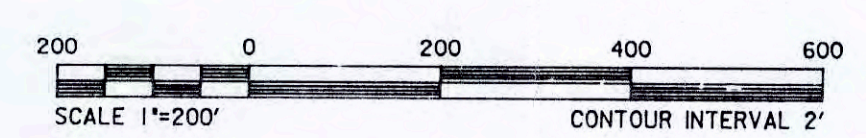
**OVERDALE YARD
 WASTE FACILITY**

- | | | | |
|-----------|--|--------------------|--|
| ROADS | | WATER | |
| DRIVES | | DAM | |
| BRIDGE | | FENCE | |
| CULVERT | | WALL | |
| RAILROAD | | TRANS.LINE & TOWER | |
| BUILDINGS | | HORIZONTAL CONTROL | |
| TREES | | VERTICAL CONTROL | |
| SWAMP | | CONTOURS | |



INDEX TO SHEETS

061	060	059
096	095	094
139	138	137



GRIDS BASED ON NORTH CAROLINA
 STATE COORDINATE SYSTEM
 1983 DATUM

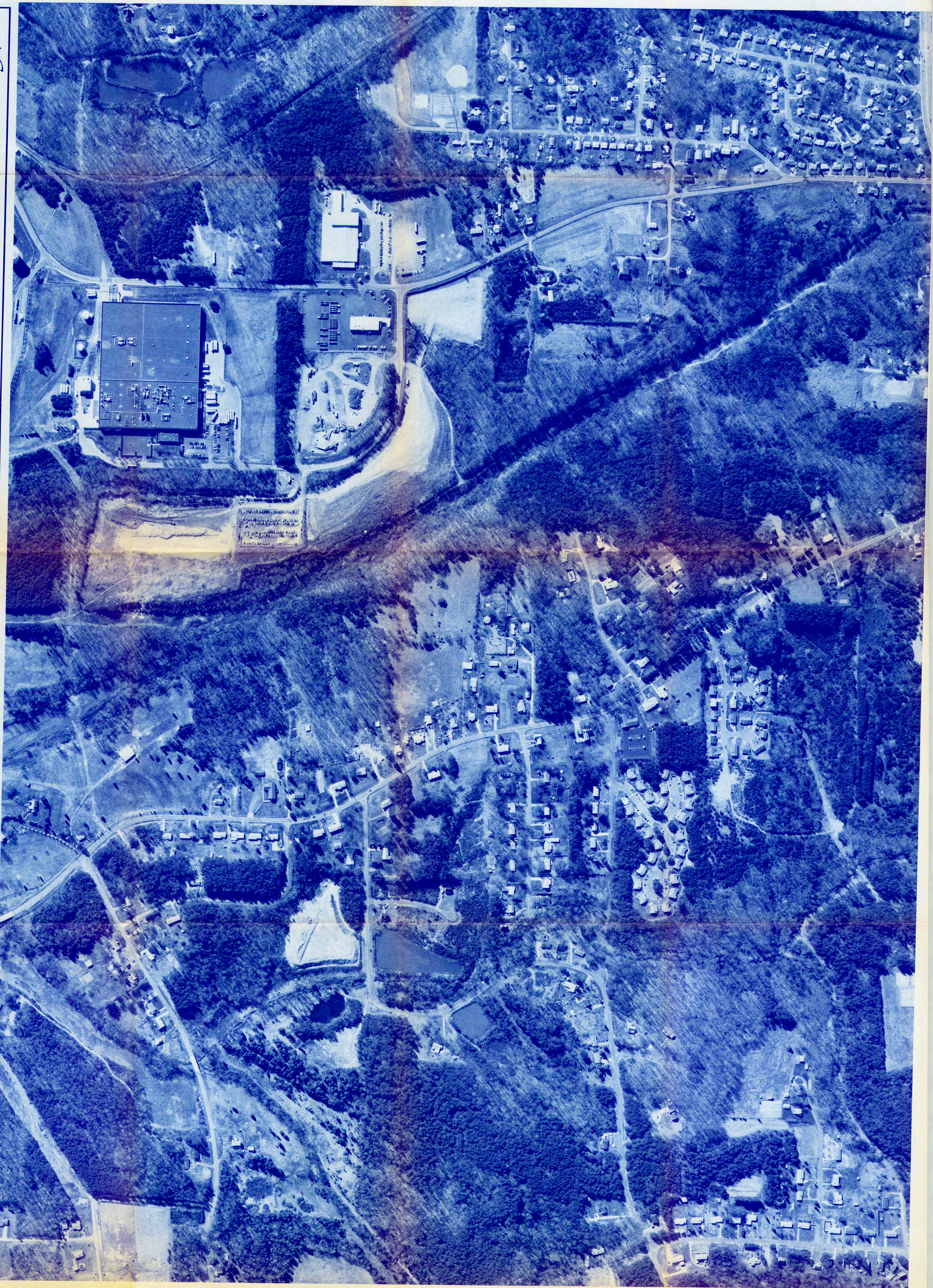
WINSTON-SALEM, N.C.
CITY OF WINSTON-SALEM

DATE OF PHOTOGRAPHY FEBRUARY, 1990

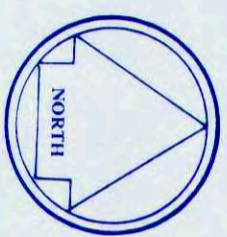
636834

ba benatec associates
 ENGINEERS-ARCHITECTS-PHOTOGRAMMETRISTS
 COLUMBUS, OHIO

636834
 SHEET NO. 095



ASI Landmark
1703 N. HARRISON AVE. CARY, NC
PROJECT NO. 95007



FORSYTH COUNTY, N.C.



CITY-COUNTY PLANNING BOARD
OF FORSYTH COUNTY AND WAKE COUNTY, NORTH CAROLINA

63630	63638	63638	63638
63634	63634	63634	63634
63630	63630	63630	63630

APPROXIMATE MAP SCALE: 1"=200'
DATE OF PHOTOGRAPHY: MARCH 11, 1997
SHEET NO. 636834

