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City of Greensboro

Field Operations Department
White Street Waste Disposal Facility

GREENSBORO

APPROVED
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION
Date 02/03/2015 **By** Patricia D. Backus
DIN 22297
Attachment 1 **Part** II **Document** 4
Permit 4103-COMPOST-2003 **Permit DIN** 22299

APPLICATION TO OPERATE A

LARGE TYPE 1 COMPOST FACILITY

OCTOBER 2014

P.O. BOX 3136, GREENSBORO, NC 27402-3136

City of Greensboro
North Carolina

Field Operations Department

October 31, 2014

Mr. Edward F. Mussler, III, P.E.
Permitting Branch Supervisor
Solid Waste Section
North Carolina Department of Environment and Natural Resources
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

Subject: Application for Continued Operation
City of Greensboro White Street Compost Facility
Guilford County
Permit No. 41-03-COMPOST

Dear Mr. Mussler:

The City of Greensboro is pleased to submit the enclosed permit amendment application for continued operation of the Large Type 1 Compost Facility located at the White Street Landfill. The Compost Facility is currently being operated under Permit No. 41-03-COMPOST. In accordance with 15A NCAC 13B .0201(e), this application requests the renewal of the five-year Permit to Operate.

If you should have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Gail Hay

Gail G. Hay, P.E.
Manager
Technical & Planning Support Division
(336) 373-4188

GGH

Enclosure (2 hard copies and 1 CD)

PO Box 3136 • Greensboro NC 27402-3136 • www.greensboro-nc.gov • 336-373-CITY (2489) • TTY # 333-6930

City of Greensboro

Field Operations Department
White Street Waste Disposal Facility

APPLICATION TO OPERATE A

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OCTOBER 2014

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1.0 INTRODUCTION

1.1 BACKGROUND

The City of Greensboro owns the White Street Landfill which encompasses an area of approximately 980 acres. The landfill consists of three distinct MSW landfill areas designated as Phase I, Phase II, and Phase III and a yard waste compost facility. Phase I is 85 acres in size and received municipal solid waste until 1978. The Phase II area consists of approximately 135 acres and received MSW from 1978 to 1997. In 1998, the City began depositing construction and demolition (C&D) debris on top of portion of MSW in Phase II and is currently continuing this disposal. Phase III, a Subtitle-D lined, 51-acre area began receiving waste in 1997.

The yard waste compost facility currently operates as a Large Type 1 Compost Facility under Permit No. 41-03-COMPOST. The facility consists of a 12.5-acre area (Plat 1), 6.8-acre area (Plat 2), and a 9.9-acre area (Plat 3). All three of these areas are located within the total 980 acres owned by the City of Greensboro. The Landfill also operates a 9-acre Emergency Debris Staging Site near Plat 2 (DSNUM DS41-002). If activated, the site can accept yard waste, land clearing and C&D debris. Exhibit 1 in Appendix A shows the relative location of each plat with regard to the City of Greensboro's waste management operations.

1.2 PURPOSE

In accordance with Solid Waste Permit No. 41-03-COMPOST Part IV, General Permit Condition 1, the City of Greensboro hereby submits this application to request a permit review. The enclosed information demonstrates that the composting facility operated by the City of Greensboro complies with the North Carolina Solid Waste Management Rules 15A NCAC 13B, Article 9 of Chapter 130A North Carolina General Statutes, the conditions contained in the permit, and the approved plan.

2.0 SITING/DESIGN REQUIREMENTS

2.1 FLOODPLAINS

.1404(a)(1)

A review of the flood insurance rate maps (375351 7885J and 7886J) prepared by the Federal Emergency Management Agency indicates a 100-year floodplain does exist on the City of Greensboro's White Street Sanitary Landfill property but not in the area of Plats 1, 2, and 3. Plats 1 and 3 are located greater than 1,000 feet from the floodplain area and Plat 2 is approximately 100 feet from floodplain area. Thus, the proposed operation will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human life, wildlife, or land or water resources.

2.2 PROPERTY LINE BUFFER
.1404(a)(2)

A 50-foot minimum buffer is required between all property lines and compost areas for Type 1 facilities. The nearest property line from Plats 1, 2, and 3 is 292 feet.

2.3 RESIDENTIAL BUFFER
.1404(a)(3)

A 200-foot minimum buffer is required between private residences and Type 1 facilities. The area within 500 feet of the yard waste compost facility boundary is predominately residential with no major industrial or commercial facilities. The homes closest to the facility are located along Rankin Mill Road. The nearest private dwelling from Plats 1, 2, and 3 is 433 feet.

2.4 WELL BUFFER
.1404(a)(4)

A 100-foot minimum buffer is required between the facility boundaries and wells. The nearest private well from Plats 1, 2, and 3 is 433 feet.

2.5 STREAM BUFFER
.1404(a)(5)

A 50-foot minimum buffer is required between streams and the facility boundary. The nearest point from Plats 1, 2, and 3 to a stream is 307 feet.

2.6 WATER QUALITY STANDARDS
.1404(a)(6)

The compost facility shall be located in accordance with 15A NCAC 2B .0200, Classification and Water Quality Standards Applicable to Surface Waters in North Carolina. The facility shall be managed in a manner that will not adversely affect groundwater or surface water quality.

Storm water control has been established for Plats 1, 2, and 3 through the use of perimeter berms, drainage ditches and sediment basins. The Plat 1 area was constructed with a center ridge that slopes at 1 percent to the perimeter berms. Surface water collected in the southern half of Plat 1 is drained under the berm in the southwestern corner through a culvert into a sediment basin adjacent to the site. Water discharged from the sediment basin flows over the landfill property through drainage channels and culverts into North Buffalo Creek just upstream of the City's closed Phase 1 MSW landfill. Storm water collected in the northern half of Plat 1 and from Plat 3 drain northwest into a sedimentation basin. The discharge from the sedimentation basin flows into a culvert on the northwest edge of the compost operation. The storm water from this area eventually drains to a sedimentation basin. The discharge from this basin goes into North Buffalo Creek.

North Buffalo Creek is located within the Cape Fear river basin with a NCDENR Division of Water Quality classification of WS-V;NSW. According to 15A NCAC 02B .0218, WS-V waters are defined as those protected as water supplies which are generally upstream and draining to Class WS-IV waters or waters used by industry to supply their employees with drinking water or as waters formerly used as water supply. North Buffalo Creek is also located within the Jordan Lake Watershed. According to 15A NCAC 02B .0267(7), there is a 50-foot protected riparian buffer for streams within the watershed. The nearest point from Plats 1, 2, and 3 to North Buffalo Creek is 615 feet.

2.7 CLOSED OUT DISPOSAL AREA

.1404(a)(7)

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

2.8 SWALE BUFFER

.1404(a)(8)

A 25-foot minimum distance is required between compost areas and swales or berms to allow for adequate access of fire fighting equipment. A 25-foot buffer is maintained at the facility.

2.9 SURFACE WATER REQUIREMENTS

.1404(a)(9)

The facility does not cause a discharge of materials or fill materials into waters of the state, in accordance with Section 404 of the Clean Water Act. Since the compost facility is co-located at the Landfill, Division of Water Quality established January 23, 2013 that coverage under the landfill COC #NCG120013 is sufficient. The determination and NPDES permit are included as Appendix B.

The site does not cause non-point source pollution of waters of the state that violate assigned water quality standards.

2.10 GROUNDWATER REQUIREMENTS

.1404(a)(10)

A groundwater program has been established at the site by the City of Greensboro to monitor the MSW disposal areas per 15A NCAC 13B. Exhibit 2 shows all monitoring wells in Phase I and II which are downgradient from the composting areas. Based on the current monitoring program, the compost area does not appear to be a source of 15A NCAC 2L exceedances.

The existing composting pad is composed of clayey silt material, classified as ML, to a depth of approximately seven feet. Seasonal high groundwater is located in excess of four feet below the composting surface.

2.11 ALTERNATIVE MINIMUM BUFFERS
.1404(b)

No alternative minimum buffers are requested.

2.12 DESIGN REQUIREMENTS
.1404(c)

The landfill does not allow uncontrolled public access. The entrance is monitored by scale house staff and the gates are locked when the facility is closed.

The landfill operates under an approved Erosion and Sediment Control Plan in order to meet the requirements of the Sedimentation Pollution Control Law (15A NCAC 4).

In order to minimize fugitive emissions and odors, adequate aeration for the aerobic decomposition will be maintained. Composting windrows containing only leaves and brush are turned at least once per year to maintain the composting process and to minimize odors. Windrows that contain materials that require more frequent aeration are turned more frequently. Nitrogen containing materials such as grass clippings will be promptly incorporated into windrows. The facility operations are also intended to minimize odors at the property boundary.

3.0 APPLICATION REQUIREMENTS

3.1 AERIAL PHOTO
.1405(a)(1)

A scaled site plan with topography and an aerial photograph of the site with a scale of one inch equal to 400 feet are provided as Exhibits 3 and 4, respectively.

3.2 ZONING APPROVAL
.1405(a)(2)

All property utilized for composting operations is located within the city limits of Greensboro and is zoned CU-HI – Condition Use-Heavy Industry. Within one-fourth mile of the compost facility boundary, land use consists of AG – Agricultural; CU-HI – Condition Use-Heavy Industry; and RS-30-MH – Residential Single Family Mobile Home District (1.3 units or less per acre). A letter from the City of Greensboro which states that the proposed use is allowed within the existing zoning is included as Appendix C.

3.3 SITING AND DESIGN STANDARDS
.1405(a)(3)

The site complies with siting and design standards in Rule .1404 as described in Section 2.0.

3.4 DETAILED WASTE REPORT

.1405(a)(4)

The yard waste facility accepts organic yard and garden waste, silvicultural waste, untreated and unpainted wood waste generated from within Guilford County and from municipalities whose boundaries cross into Guilford County. Yard waste means yard trash and land clearing debris as defined in GS 130A-290, including stumps, limbs, leaves, grass, and untreated wood. Currently, the White Street Landfill receives approximately 30,000 tons of yard waste per year that could be utilized in compost, mulch, or boiler fuel operations. The processes and finished product quantities will be based on market conditions. For example, when the operating costs and revenue from the sale of boiler fuel are favorable, a high percentage of incoming yard waste will be used to create boiler fuel than compost.

The facility utilizes natural soils as a pad. The existing composting pad is composed of clayey silt material, classified as ML, to a depth of approximately seven feet. Seasonal high water groundwater is located in excess of four feet below the composting surface.

3.5 SITE PLAN

.1405(a)(5)

The plans for Plats 1, 2, and 3 of the composting facility are provided in Appendix A. The site features of Plats 1 and 3 prior to development of the compost facility consisted of a soil borrow area, which provided the City of Greensboro with daily soil cover for operations of the MSW landfill. Prior to the landfill borrow operation, Plats 1 and 3 were part of the ridgeline along Rankin Mill Road which sloped toward the north and west to North Buffalo Creek.

Exhibits 5 and 6 provide a composite site plan of the facility at a scale of one inch equals 100 feet with topographic contours, locations of water control devices and structures, setbacks and property lines, buildings, and process locations (e.g. unloading, windrowing, etc.) to address the application requirements. Plats 1 and 3 are utilized for receiving, processing, windrow operations, and storage for yard waste and finished product stockpiles. Plat 2 is used for windrows operations and storage for yard waste and finished product stockpiles. Existing facilities include office, paved access roadway, receiving area, processing area, composting areas, and stockpile areas.

3.6 FACILITY OPERATION

.1405(a)(6)

3.6.1 Responsible Party

.1405(a)(6)(A),(B)

The composting facility is operated by the City of Greensboro. The Disposal Manager is responsible for the operation of the facility. The daily operations are managed by the Landfill Operations Supervisor and the Yard Waste Crew Supervisor. The facility is typically staffed with three operators and supplemented with temporary yard waste maintenance workers as needed.

Responsible for Operation of Facility	
Name	Jason Jernigan
Title	Disposal Manager
Address	2503 White Street Greensboro, North Carolina 27405
Phone Number	336.412.3959 – office 336.587.3445 – cellular

3.6.2 Operation Plan
.1405(a)(6)(C),(D),(E)

Operation and maintenance of this facility shall be in accordance with the Solid Waste Compost Rules (15A NCAC 13B.1400), the approved application including the Operation and Maintenance Plan (Appendix D), and the conditions of the permit.

Waste material received at the White Street Sanitary Landfill scale house is weighed and categorized (e.g. construction/demolition, yard waste). The operation of the scale house is performed by City of Greensboro employees who direct the waste to its designated disposal or management area. Yard waste is directed to the composting facility.

At the yard waste composting facility, City employees will manage all composting operations including receiving the waste at the unloading and processing area, grinding, mixing, composting, monitoring, stockpiling, and loading of the finished compost. The Operations and Maintenance Plan detailing special precautions and procedures; actions to minimize noise, vectors, air borne particulates, and odors; and contingency plan is provided in Appendix D. Exhibits 5 and 6 provide diagrams of the operations to be performed on Plats 1, 2, and 3.

3.6.3 Final Use
.1405(a)(6)(F)

The yard waste will be processed into finished, marketable products including compost, mulch, and boiler fuel. Finished products from the compost facility will be loaded into trucks for transfer of the material. The compost and mulch will be marketed and sold to local homeowners, landscapers, garden centers, sod farmers, or mulch supply companies and used by City Departments. The boiler fuel will be marketed and sold to industries that utilize wood fired boilers.

All compost produced at the facility will meet the requirements of Rule .1407. In the event finished product materials do not meet the required quality standards, they will be returned to the system where they are mixed with windrows undergoing the composting process. Any compost that needs to be disposed of due to poor quality or change in market conditions and was produced only from yard waste, does not contain supplemental nitrogen, and contains less than 6% foreign matter will be sent to a permitted LCID landfill.

3.7 FACILITY DESIGN REPORT

.1405(a)(7)

Based on the process flow diagram and operations described herein, the operating capacity of the facility is 51,450 tons per year (Appendix E). The raw materials are received in the yard waste drop-off areas as indicated on Exhibit 5; source separated leaves and mixed debris are unloaded at two separate areas. As the materials are dumped, each load is inspected to assure that only authorized materials are admitted. A process flow diagram is provided as Exhibit 7, and the following briefly describes the steps to be completed to transform the yard waste into a marketable compost material, boiler fuel or mulch.

- Processing –
  - Mixed Debris: Once deposited in the drop-off area, all non-compostable contaminants are removed and the waste is segregated by type depending on carbon and nitrogen levels.
  - Leaves: Since the leaves are source separated, they are unloaded at the stockpile.
- Material Size Reduction and Mixing –
  - Mixed Debris: The yard waste is mechanically processed into small (less than two inches), relative uniform particles. The various types of yard waste will be mixed going into the grinder to help prepare a uniform product and avoid large clumps of similar material. Grinding is the last step in the process for boiler fuel and mulch.
  - Leaves: The leaves do not require grinding but may be mixed into the boiler fuel after grinding.
- Placing the Yard Waste in a Windrow –
  - Mixed Debris: After grinding, the yard waste is placed in long, uniform piles called windrows. The windrows will typically be 8 feet high by 20 feet wide at the base (maximum of 12 feet high by 25 feet wide per permit operating conditions) and of varying lengths as material is generated and processed. Adequate height and width are important in order to sustain the optimum temperature and moisture levels for rapid decomposition. The windrows will be placed far enough apart to allow processing equipment easy access to turn the windrows over regularly.
  - Leaves: Leaves that are passively composted will be placed in windrows.
- Turning the Windrows –
  - Active Compost: The windrows will be turned or mixed regularly to rotate the material from the outside of the pile to the inside. This action replaces the oxygen depleted in the center of the pile, helps maintain the temperature in the windrow, and provides a control mechanism for moisture content. More frequent turning speeds the decomposition process and mitigates any potential odors.

  - Passive Compost: The leaves will be turned as needed to break up areas of anaerobic activity.

- Composting – Temperature of all compost produced shall be monitored sufficiently to ensure that the pathogen reduction criteria is met. Compost shall be maintained at or above 131°F for three days and aerated to maintain elevated temperatures.
- Finishing the Compost (Active) – The initial rapid decomposition of the yard waste into compost will slow as the material stabilizes. With regular turning, the material will be normally stable in three to four months but can be stabilized in four to six weeks. To improve quality and appearance (marketability) of the end product, it will be passed through a screen to remove oversize particles and transferred to curing piles. The curing process allows the materials to be stabilized and blended with material from different seasons. By placing the compost in the curing area in horizontal lifts and removing the material for sale or use in vertical cuts, seasonal difference in composition are minimized, resulting in the most uniform product.
- Material testing – Testing of the finished compost assures users of the quality and safety of compost.

3.8 LABEL DESCRIPTION

.1405(a)(8)

A label will be provided that meets the requirements of Rule .1407(g). The City of Greensboro plans to sell the finished product in bulk. Therefore, an information sheet will be provided to the users in lieu of a label on the finished product. An example information sheet is included as Appendix F.

Since the Greensboro Yard Waste Compost Facility is classified as a Type 1 and the finished compost contains minimal pathogenic organisms, is free from offensive odor, and contains no sharp particles, the distribution is unrestricted.

3.9 PLANS AND SPECIFICATIONS

.1405(a)(9)

The compost facility is located on Plats 1, 2, and 3. Plats 1 and 2 have not been modified since the initial permits were issued in 1992 and 1994. A minimal amount of grading has occurred on plat 3 to promote drainage. The equipment utilized in the compost operation is similar to the previously permitted equipment. Typical specifications for the types of equipment used are provided in Appendix G.

3.10 OPERATIONS AND MAINTENANCE

.1405(a)(10)

The Operation and Maintenance Plan is included as Appendix D. The following provides a summary of these requirements.

3.10.1 Quality Assurance
.1405(a)(10)(A)

All incoming materials are inspected as each load is received to prevent contamination.

3.10.2 Contingency Plan
.1405(a)(10)(B)

A contingency plan has been developed as part of the Operation and Maintenance Plan to provide site personnel directions regarding emergency situations. Personnel that are involved in the operation or that inspect the operation are provided training in the following areas:

- Familiarity with the Operation and Maintenance Plan
- Yard Waste Screening and Acceptance (including how to deal with unacceptable material)
- Safety and Standard Operating Procedures
- Fire Identification, Protection, and Emergency Response Procedures
- Federal, State and local Environmental Regulations
- Spill Response

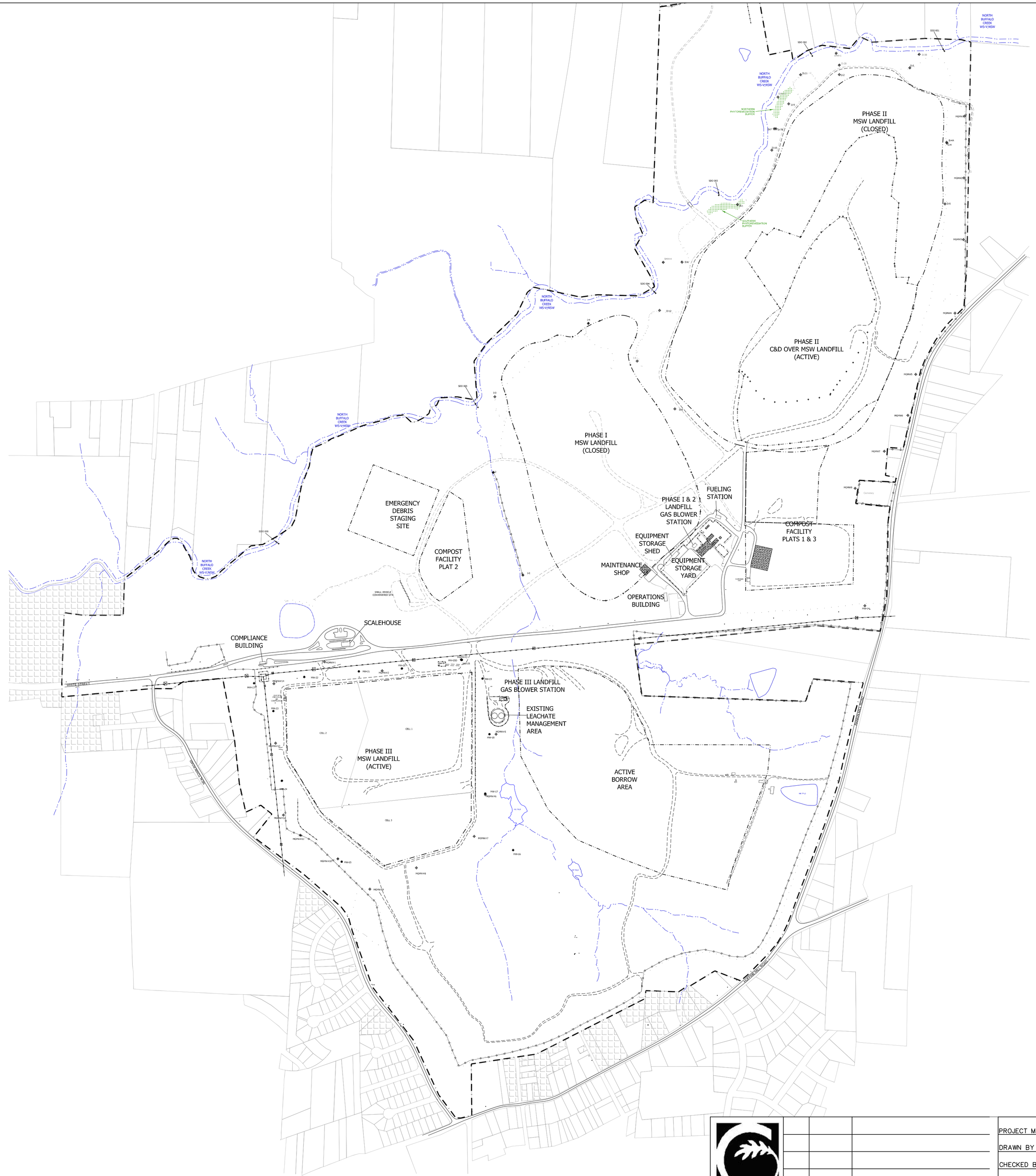
Significant down time for the major equipment utilized at the site is generally off-set through the use of rental equipment or contractors. The City of Greensboro operates a maintenance shop on the White Street Landfill premises.

3.10.3 Operational Compliance
.1405(a)(10)(C)

The yard waste compost facility is operated and maintained in accordance with the Solid Waste Compost Rules including 15A NCAC 13B.1406, the approved application including the Operations and Maintenance Plan, and conditions of the permit. The plans and permit conditions will be followed and a copy of all documents will be maintained on site. Surface water control measures are in place to prevent any contaminants from leaving the facility site. Access to the site is limited through the existing landfill facility scale and scale house operations with signage provided to direct traffic. The compost facility as part of the City's landfill property is secured through perimeter fencing and gates.

APPENDIX A

EXHIBITS



LEGEND

- LANDFILL BOUNDARY
- WASTE BOUNDARY (APPROXIMATE)
- PAVED ROAD
- STREAM/SURFACE WATER
- FENCE LINE
- UNPAVED ROAD
- MONITORING WELL
- PHYTOREMEDIATION BUFFER
- PROPERTY LINE - OUTSIDE LANDFILL BOUNDARY
- CITY-OWNED PROPERTY OUTSIDE LANDFILL BOUNDARY

0 500 1,000

GREENSBORO

ISSUE	DATE	DESCRIPTION
0	10/28/14	ISSUED FOR PERMIT RENEWAL

PROJECT MANAGER	GGH
DRAWN BY	GGH
CHECKED BY	

WHITE STREET LANDFILL

GREENSBORO NORTH CAROLINA

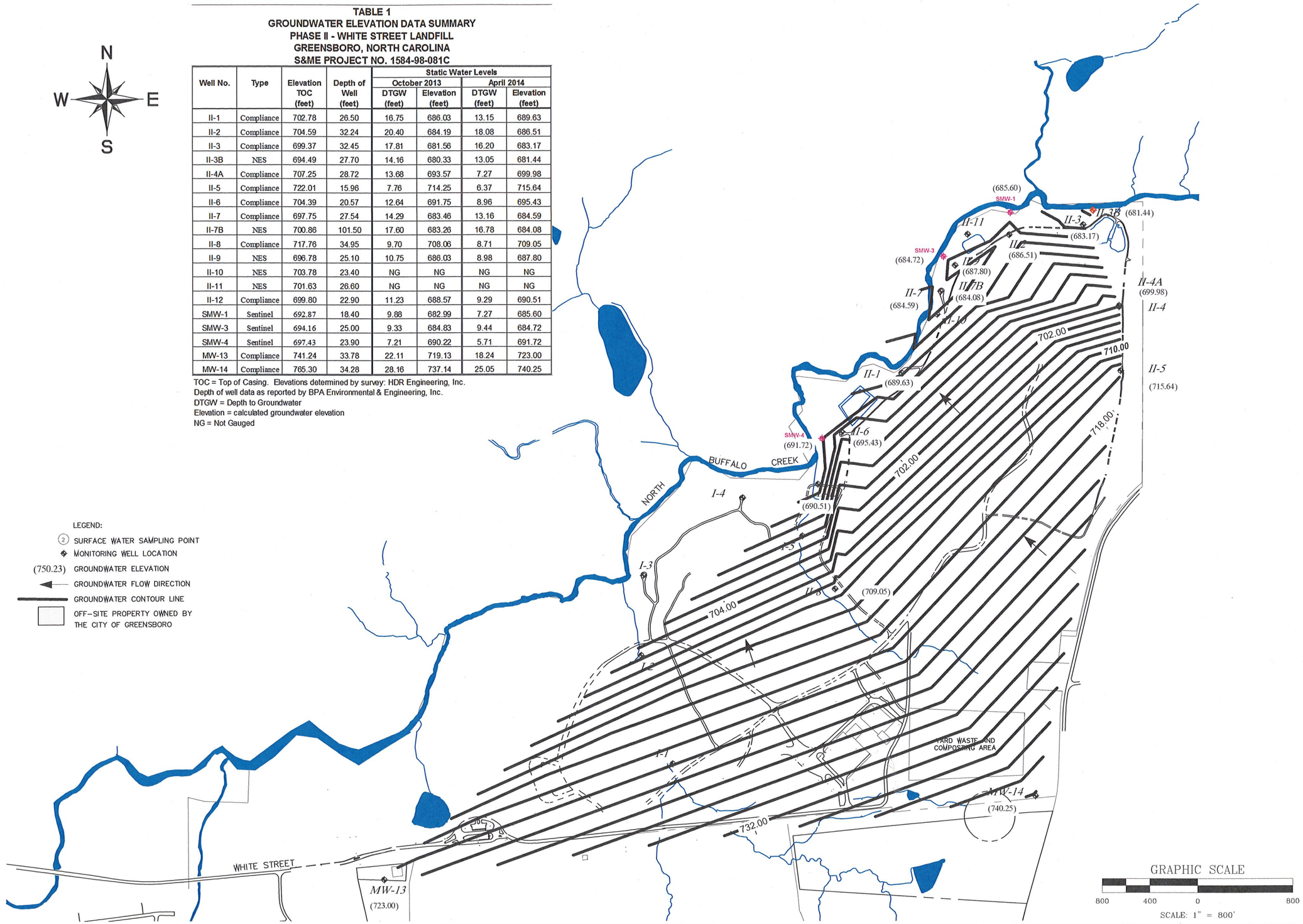
LANDFILL PROPERTY LIMITS

FILENAME LANDFILL.DWG
SCALE AS SHOWN
SHEET EXHIBIT 1

TABLE 1
GROUNDWATER ELEVATION DATA SUMMARY
PHASE II - WHITE STREET LANDFILL
GREENSBORO, NORTH CAROLINA
S&ME PROJECT NO. 1584-98-081C

Well No.	Type	Elevation TOC (feet)	Depth of Well (feet)	Static Water Levels			
				October 2013		April 2014	
				DTGW (feet)	Elevation (feet)	DTGW (feet)	Elevation (feet)
II-1	Compliance	702.78	26.50	16.75	686.03	13.15	689.63
II-2	Compliance	704.59	32.24	20.40	684.19	18.08	686.51
II-3	Compliance	699.37	32.45	17.81	681.56	16.20	683.17
II-3B	NES	694.49	27.70	14.16	680.33	13.05	681.44
II-4A	Compliance	707.25	28.72	13.68	693.57	7.27	699.98
II-5	Compliance	722.01	15.96	7.76	714.25	6.37	715.64
II-6	Compliance	704.39	20.57	12.64	691.75	8.96	695.43
II-7	Compliance	697.75	27.54	14.29	683.46	13.16	684.59
II-7B	NES	700.86	101.50	17.60	683.26	16.78	684.08
II-8	Compliance	717.76	34.95	9.70	708.06	8.71	709.05
II-9	NES	696.78	25.10	10.75	686.03	8.98	687.80
II-10	NES	703.78	23.40	NG	NG	NG	NG
II-11	NES	701.63	26.60	NG	NG	NG	NG
II-12	Compliance	699.80	22.90	11.23	688.57	9.29	690.51
SMW-1	Sentinel	692.87	18.40	9.88	682.99	7.27	685.60
SMW-3	Sentinel	694.16	25.00	9.33	684.83	9.44	684.72
SMW-4	Sentinel	697.43	23.90	7.21	690.22	5.71	691.72
MW-13	Compliance	741.24	33.78	22.11	719.13	18.24	723.00
MW-14	Compliance	765.30	34.28	28.16	737.14	25.05	740.25

TOC = Top of Casing. Elevations determined by survey: HDR Engineering, Inc.
Depth of well data as reported by BPA Environmental & Engineering, Inc.
DTGW = Depth to Groundwater
Elevation = calculated groundwater elevation
NG = Not Gauged



GROUNDWATER FLOW MAP
PHASE II
WHITE STREET LANDFILL
GREENSBORO, NORTH CAROLINA

SCALE: AS SHOWN
JOB NO. 1584-98-081B
DRAWN BY: DSB/RDM
DATE: OCTOBER 2013
CHECKED BY: SC
FIGURE NO. 3

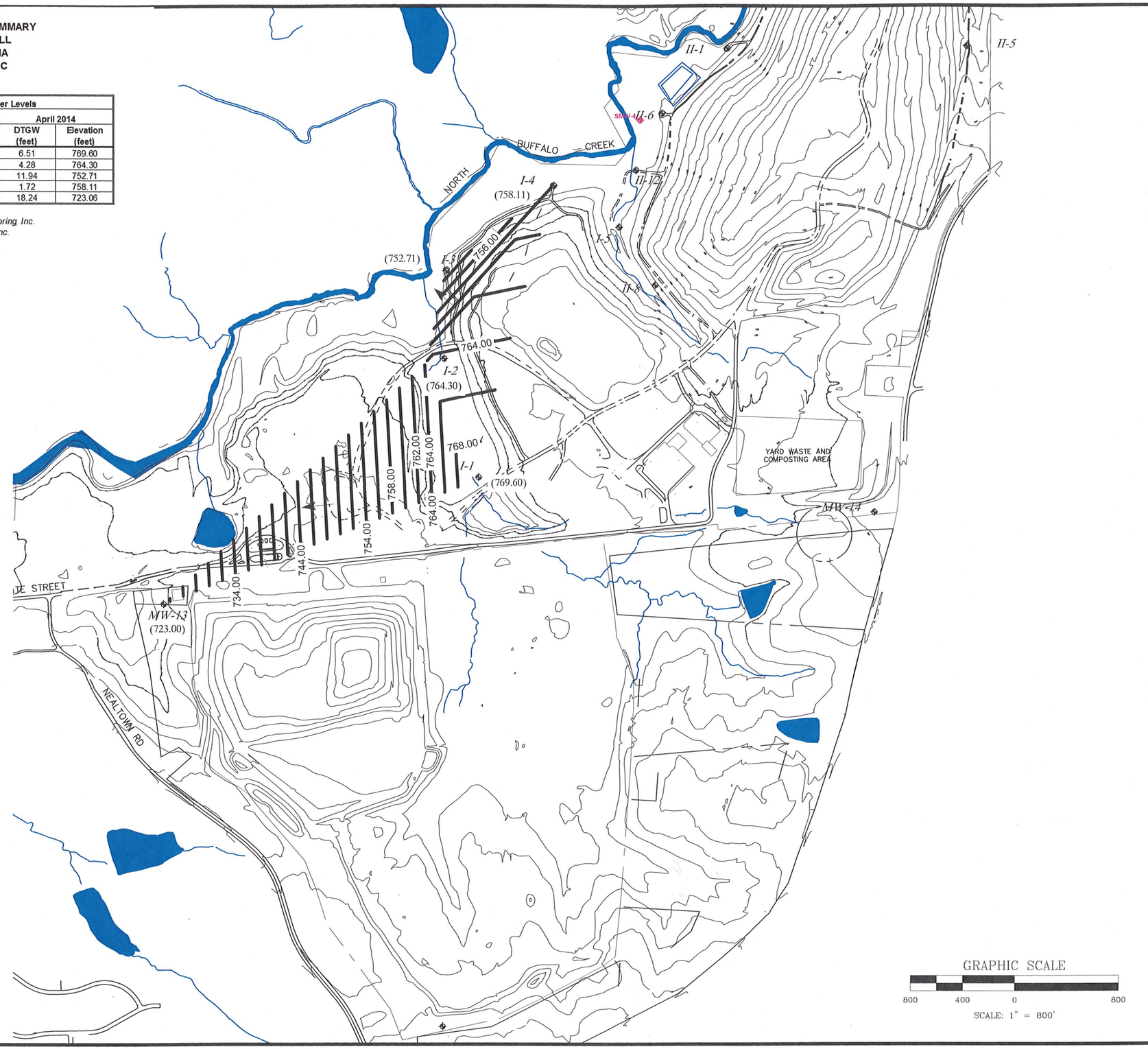
S&ME
ENVIRONMENTAL SERVICES
ENGINEERING • TESTING

EXHIBIT 2A

TABLE 1
GROUNDWATER ELEVATION DATA SUMMARY
PHASE I - WHITE STREET LANDFILL
GREENSBORO, NORTH CAROLINA
S&ME PROJECT NO. 1584-98-081C

Well No.	Elevation TOC (feet)	Depth of Well (feet)	Static Water Levels			
			September 2013		April 2014	
			DTGW (feet)	Elevation (feet)	DTGW (feet)	Elevation (feet)
I-1	776.11	23.36	8.54	767.57	6.51	769.60
I-2	768.58	23.13	5.15	763.43	4.28	764.30
I-3	764.65	24.22	14.14	750.51	11.94	752.71
I-4	759.83	14.57	3.09	756.74	1.72	758.11
MW-13	741.30	33.78	19.58	721.72	18.24	723.06

TOC = Top of Casing. Elevations determined by survey: HDR Engineering, Inc.
Depth of well data as reported by BPA Environmental & Engineering, Inc.
DTGW = Depth to Groundwater
Elevation = calculated groundwater elevation



GROUNDWATER FLOW MAP
PHASE I
WHITE STREET LANDFILL
GREENSBORO, NORTH CAROLINA

SCALE: AS SHOWN	DRAWN BY: RDM	CHECKED BY: EQBH	
JOB NO. 1584-98-081	DATE: JULY 2014	FIGURE NO. 1	

S&ME
ENVIRONMENTAL SERVICES
ENGINEERING • TESTING

EXHIBIT 2B

PHASE II
MSW LANDFILL
(CLOSED)

SEDIMENT BASIN

SOUTHERN PHYTOREMEDIATION BUFFER

SEDIMENT BASIN

NORTH BUFFALO CREEK MS-V-NS50

PHASE II
C&D OVER MSW LANDFILL
(ACTIVE)

NORTH BUFFALO CREEK MS-V-NS50

PHASE I
MSW LANDFILL
(CLOSED)

EMERGENCY DEBRIS STAGING SITE

COMPOST FACILITY PLAT 2

FUELING STATION

PHASE I & 2 LANDFILL GAS BLOWER STATION

COMPOST FACILITY PLATS 1 & 3

EQUIPMENT STORAGE SHED

MAINTENANCE SHOP

EQUIPMENT STORAGE YARD

OPERATIONS BUILDING

NORTH BUFFALO CREEK MS-V-NS50

SMALL VEHICLE DEMOLITION SITE

SCALEHOUSE

COMPLIANCE BUILDING

SEDIMENT BASIN

SEDIMENT BASIN

SEDIMENT BASIN

SEDIMENT BASIN

WHITE STREET

PHASE III LANDFILL GAS BLOWER STATION

EXISTING LEACHATE MANAGEMENT AREA

SEDIMENT BASIN

PHASE III
MSW LANDFILL
(ACTIVE)

ACTIVE BORROW AREA

LEGEND

- LANDFILL BOUNDARY
- WASTE BOUNDARY (APPROXIMATE)
- PAVED ROAD
- STREAM/SURFACE WATER
- FENCE LINE
- UNPAVED ROAD
- MW MONITORING WELL
- PHYTOREMEDIATION BUFFER
- PROPERTY LINE - OUTSIDE LANDFILL BOUNDARY
- CITY-OWNED PROPERTY OUTSIDE LANDFILL BOUNDARY
- 10' TOPOGRAPHIC CONTOUR
- 2' TOPOGRAPHIC CONTOUR

0 400 800

GREENSBORO

ISSUE	DATE	DESCRIPTION
0	10/28/14	ISSUED FOR PERMIT RENEWAL

PROJECT MANAGER	GGH
DRAWN BY	GGH
CHECKED BY	

WHITE STREET LANDFILL

GREENSBORO NORTH CAROLINA

LANDFILL TOPOGRAPHY

FILENAME LANDFILL.DWG
SCALE AS SHOWN

SHEET EXHIBIT 3

GREENSBORO

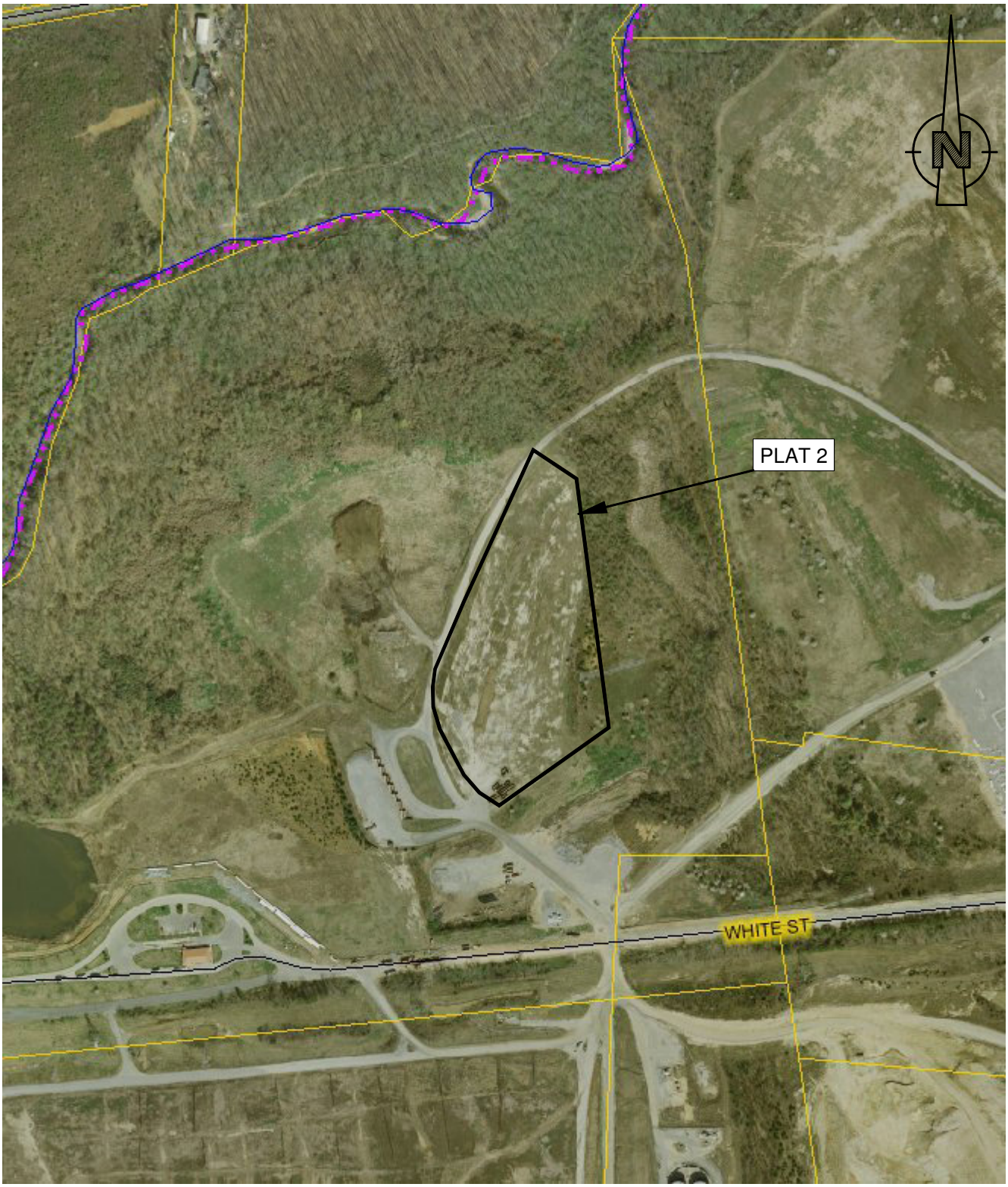
2007 AERIAL PHOTOGRAPH
PLATS 1 AND 3

CITY OF GREENSBORO
WHITE STREET LANDFILL

SOURCE: GUILFORD COUNTY GIS
DATE: MARCH 2011, REVISED NOVEMBER 2011

APPROXIMATE
SCALE: 1" = 400'

EXHIBIT 4A

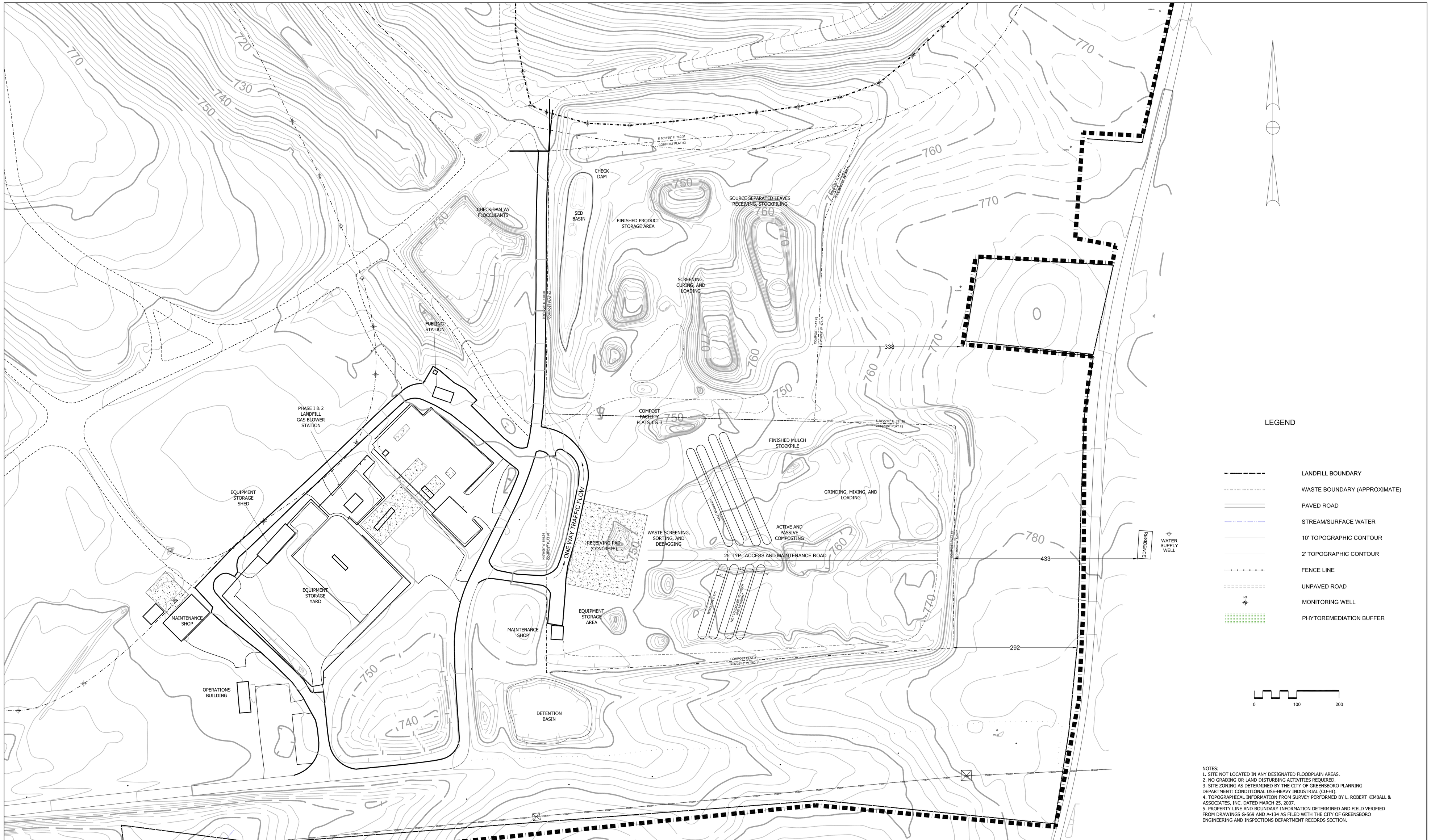


GREENSBORO

2007 AERIAL PHOTOGRAPH
PLAT 2

CITY OF GREENSBORO
WHITE STREET LANDFILL

SOURCE: GUILFORD COUNTY GIS DATE: MARCH 2011, REVISED SEPTEMBER 2011	APPROXIMATE SCALE: 1" = 400'	EXHIBIT 4B



NOTES:
1. SITE NOT LOCATED IN ANY DESIGNATED FLOODPLAIN AREAS.
2. NO GRADING OR LAND DISTURBING ACTIVITIES REQUIRED.
3. SITE ZONING AS DETERMINED BY THE CITY OF GREENSBORO PLANNING DEPARTMENT: CONDITIONAL USE-HEAVY INDUSTRIAL (CU-HI).
4. TOPOGRAPHICAL INFORMATION FROM SURVEY PERFORMED BY L. ROBERT KIMBALL & ASSOCIATES, INC. DATED MARCH 25, 2007.
5. PROPERTY LINE AND BOUNDARY INFORMATION DETERMINED AND FIELD VERIFIED FROM DRAWINGS G-569 AND A-134 AS FILED WITH THE CITY OF GREENSBORO ENGINEERING AND INSPECTIONS DEPARTMENT RECORDS SECTION.

GREENSBORO

ISSUE	DATE	DESCRIPTION
0	10/17/14	ISSUED FOR PERMIT RENEWAL

PROJECT MANAGER	GGH
DRAWN BY	GGH
CHECKED BY	

WHITE STREET LANDFILL

GREENSBORO NORTH CAROLINA

PLATS 1 AND 3 COMPOST OPERATIONS SITE PLAN

FILENAME LANDFILL.DWG
SCALE AS SHOWN

SHEET EXHIBIT 5

LEGEND

- LANDFILL BOUNDARY
- WASTE BOUNDARY (APPROXIMATE)
- PAVED ROAD
- STREAM/SURFACE WATER
- 10' TOPOGRAPHIC CONTOUR
- 2' TOPOGRAPHIC CONTOUR
- FENCE LINE
- UNPAVED ROAD
- MONITORING WELL
- PHYTOREMEDIATION BUFFER

0 100 200

SDO 006

EMERGENCY DEBRIS STAGING SITE

FINISHED PRODUCT STORAGE AREA

YARD WASATE AND FINISHED PRODUCT STOCKPILES

COMPOST FACILITY PLAT 2

WINDROW (TYP)

NOT TO EXCEED 50' WIDTH AND 10' HEIGHT

ACTIVE AND PASSIVE COMPOSTING

CHECK DAM 1

315

CHECK DAM

SEDIMENT BASIN

COMPOST PLAT #2

SCALEHOUSE

NOTES:
1. SITE NOT LOCATED IN ANY DESIGNATED FLOODPLAIN AREAS.
2. NO GRADING OR LAND DISTURBING ACTIVITIES REQUIRED.
3. SITE ZONING AS DETERMINED BY THE CITY OF GREENSBORO PLANNING DEPARTMENT: CONDITIONAL USE-HEAVY INDUSTRIAL (CU-HI).
4. TOPOGRAPHICAL INFORMATION FROM SURVEY PERFORMED BY L. ROBERT KIMBALL & ASSOCIATES, INC. DATED MARCH 25, 2007.
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GREENSBORO

ISSUE	DATE	DESCRIPTION
0	10/28/14	ISSUED FOR PERMIT RENEWAL

PROJECT MANAGER	GGH
DRAWN BY	GGH
CHECKED BY	

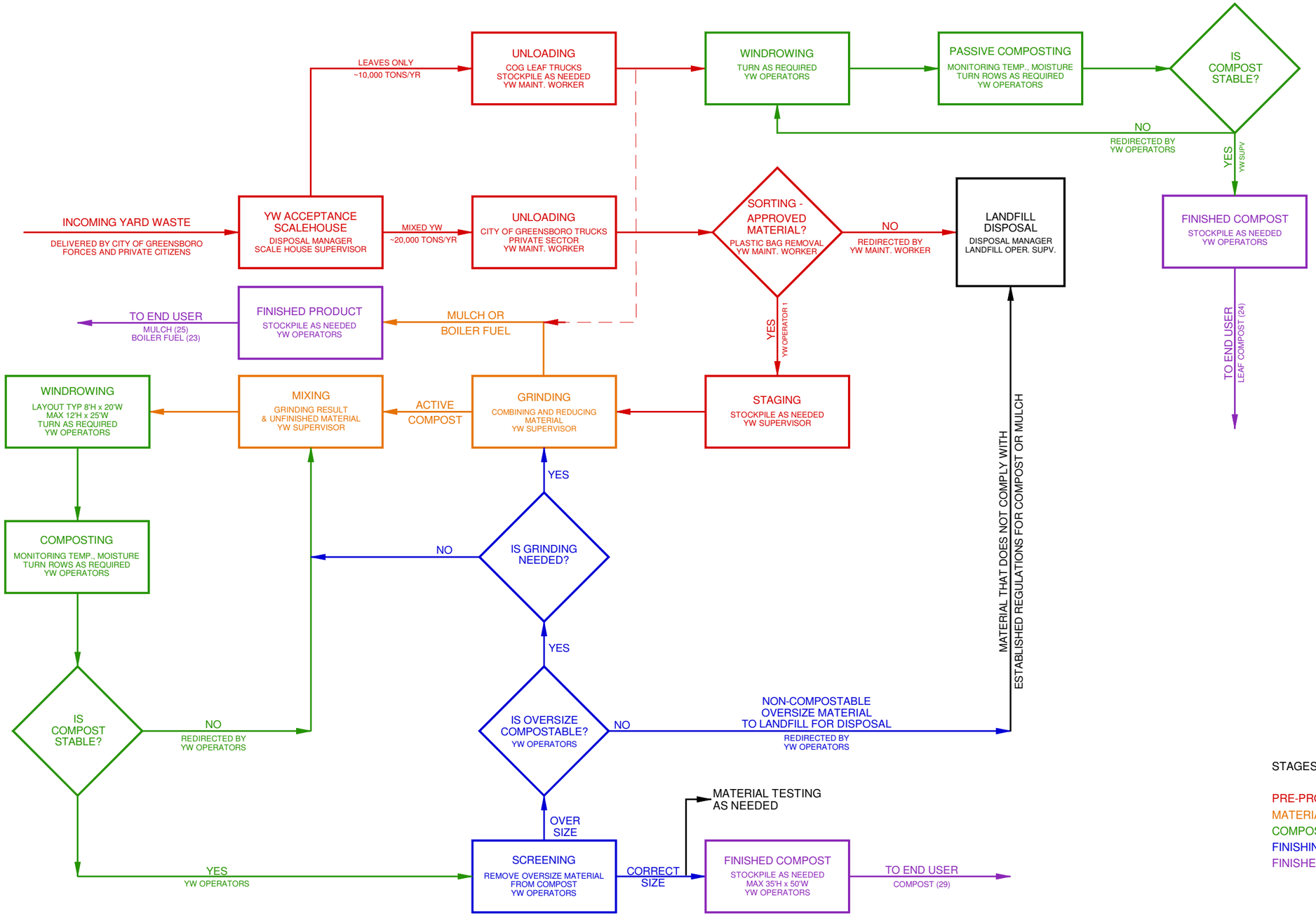
WHITE STREET LANDFILL

GREENSBORO NORTH CAROLINA

PLAT 2 COMPOST OPERATIONS SITE PLAN

FILENAME LANDFILL.DWG
SCALE AS SHOWN

SHEET EXHIBIT 6



STAGES

PRE-PROCESSING/PROCESSING
MATERIAL SIZE REDUCTION AND MIXING
COMPOSTING (WINDROW AND TURNING)
FINISHING THE COMPOST
FINISHED PRODUCT

GREENSBORO

PROCESS FLOW DIAGRAM

CITY OF GREENSBORO
FIELD OPERATIONS DEPARTMENT

DRAWN BY: GGH
DATE: OCTOBER 2014

NO SCALE

EXHIBIT 7

APPENDIX B

NPDES STORM WATER PERMIT

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

Pat McCrory
Governor

Charles Wakild, P. E.
Director

John E. Skvarla, III
Secretary

January 23, 2013

Ms. Gail Hay
Field Operations Department, City of Greensboro
POB 3136
Greensboro, NC 27402-3136

Subject: Permit Application Return #1287
Withdrawal of Application NCG240006
White Street Compost Facility
Guilford County

Per your request to withdraw your application for coverage under General Permit NCG240000 received on January 22, 2013, we are returning your application based on:

- ☐ Check for $100.00 made payable to NCDENR is missing.
- ☐ Application is incomplete.
- ☐ Application package is missing the supporting documents.
- ☐ Missing copy of county map or USGS quad sheet with facility clearly marked.
- ☑ Other DWQ WSRO & SPU site inspection, 1/16/2013, of the composting operation co-located with the White Street Landfill established that coverage under the landfill COC #NCG120013 is sufficient.

If you have any additional questions, please contact me at 919-807-6376, or at ken.pickle@ncdenr.gov.

Ken Pickle

Enclosures, applicant only: NCG24 NOI and attachments, 3 site drawings, topo map
Cc: Mike Mickey, WSRO
SPU file NCG120013 White Street Landfill

1617 Mail Service Center, Raleigh, North Carolina 27699-1617
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-807-6300 \ FAX: 919-807-6492
Internet: www.ncwaterquality.org

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NCDENR

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

Beverly Eaves Perdue
Governor

Charles Wakild, P. E.
Director

Dee Freeman
Secretary

December 4, 2012

Steve Drew
City of Greensboro
2602 S Elm -Eugene St
Greensboro, NC 27406-9787

Subject: NPDES Stormwater Permit Coverage Renewal
City of Greensboro - White Street Landfill
COC Number NCG120013
Guilford County

Dear Permittee:

In response to your renewal application for continued coverage under stormwater General Permit NCG120000 the Division of Water Quality (DWQ) is forwarding herewith the reissued General Permit. This permit is reissued pursuant to the requirements of North Carolina General Statute 143-215.1 and the Memorandum of Agreement between the state of North Carolina and the U.S. Environmental Protection Agency, dated October 15, 2007 (or as subsequently amended).

The following information is included with your permit package:

- A new Certificate of Coverage (COC)
- A copy of General Permit NCG120000
- A copy of the Technical Bulletin for the General Permit
- Two copies of the Discharge Monitoring Report (DMR) Form
- Two copies of the Qualitative Monitoring Report Form

The General Permit authorizes discharges of stormwater, and it specifies your obligations for discharge controls, management, monitoring, and record keeping. Please review the new permit to familiarize yourself with all the changes in the reissued permit. Your facility has six (6) months from the time of *receipt* of the permit to update your current SPPP to reflect all new permit requirements.

The first sample period of your permit begins **January 1, 2013**. Your facility must sample a "measureable storm event" beginning during the periods beginning January 1 and July 1 of every year (or, if applicable, report "No Flow," as outlined in Part III, Section E). Also, please note that Tier 3 Actions in Part II of your permit are triggered by benchmark exceedances on four occasions **beginning on the effective date of this permit** and do not count prior exceedances.

The more significant changes in the General Permit since your last COC was issued are noted either in the Draft Permit *Fact Sheet* that accompanied the public notice (http://portal.ncdenr.org/web/wq/ws/su/current-notices), or in the *Response to Comments / Summary of Changes* and Technical Bulletin documents that are posted on the Stormwater Permitting Unit's website with the new General Permit. Please visit http://portal.ncdenr.org/web/wq/ws/su/npdessw (click on 'General Permits' tab) to review that information for your specific General Permit carefully.

1617 Mail Service Center, Raleigh, North Carolina 27699-1617
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-80 -6300 \ FAX: 919-807-649
Internet: www.r waterquality.org

An Equal Opp y Affirmative Action Empl

One NorthCarolina Naturally

Some of the changes include:

- Part II:
  - *Section A*: The Stormwater Pollution Prevention Plan (SPPP) section, if applicable, has been updated to the most current language of our permits. Additional conditions for specific industry sectors have been added to the SPPP requirements in some cases.
  - *Sections B, C*: Failure to perform analytical stormwater monitoring may result in the Division requiring that the permittee begin a monthly sampling scheme.
  - *Sections B, C*: A lower TSS benchmark of 50 mg/l for HQW, ORW, PNA and Tr Waters applies to these more sensitive waters.
  - *Sections B, C:* The monitoring parameter Oil & Grease (O&G) has been replaced by the parameter Total Petroleum Hydrocarbons (TPH) for vehicle maintenance areas, and in some cases, other analytical monitoring requirements.
  - *Sections B, C, D:* Inability to sample due to adverse weather must be recorded in the SPPP, or in separate on-site records if your General Permit does not require an SPPP. Adverse weather is defined in the "Definitions" section of the permit.
  - *Sections B, C:* The term "Representative Storm Event" has been replaced by "Measurable Storm Event." A measurable storm event is defined in the permit.
  - *Section D:* If the permittee fails to respond effectively to problems identified by qualitative monitoring, DWQ may require the permittee to perform corrective action.

Please review Parts III and IV to understand the **Standard Conditions** of your new NPDES General Permit, including Compliance and Liability, Reporting, Monitoring and Records requirements; Operation and Maintenance obligations; and Definitions. Please note that all samples analyzed in accordance with the terms of this permit **must be submitted to the Division** on Discharge Monitoring Report (DMR) forms available on the Stormwater Permitting Unit's website above. DMR forms must be delivered to the Division **no later than 30 days from the date the facility receives the sampling results from the laboratory**. Also note that existing permittees do not need to submit a renewal request prior to expiration *unless directed* by the Division.

Your coverage under the General Permit is transferable only through the specific action of DWQ. This permit does not affect the legal requirements to obtain other permits which may be required by DENR, nor does it relieve the permittee from responsibility for compliance with any other applicable federal, state, or local law, rule, standard, ordinance, order, judgment, or decree. If you have any questions regarding this permit package, please contact the Division's Stormwater Permitting Unit at (919) 807-6300.

Sincerely,

Bradley Bennett

for Charles Wakild, P.E.

cc: DWQ Central Files
Stormwater Permitting Unit Files
Winston-Salem Regional Office

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

GENERAL PERMIT NO. NCG120000
CERTIFICATE OF COVERAGE No. NCG120013

STORMWATER
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,

City of Greensboro

is hereby authorized to discharge stormwater from a facility located at:

City of Greensboro - White Street Landfill
2503 White St
Greensboro
Guilford County

to receiving waters designated as North Buffalo Creek, a class WS-V;NSW waterbody in the Cape Fear River Basin in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, III, and IV of General Permit No. NCG120000 as attached.

This certificate of coverage shall become effective December 4, 2012.

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

Signed this 4th day of December, 2012.

Bradley Bennett

for Charles Wakild, P.E., Director
Division of Water Quality
By Authority of the Environmental Management Commission

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WATER QUALITY
GENERAL PERMIT NO. NCG120000

TO DISCHARGE STORMWATER UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

for

Landfills

In compliance with the provisions 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, this permit is hereby issued to all owners or operators, hereinafter permittees, which are covered by this permit as evidenced by receipt of a Certificate of Coverage by the Environmental Management Commission to allow the **discharge of stormwater to the surface waters** of North Carolina or to a separate storm sewer system conveying discharges to surface waters in accordance with the terms and conditions set forth herein.

Coverage under this General Permit is applicable to:

- All owners or operators of stormwater point source discharges associated with activities categorized as landfills, including construction and demolition debris landfills, which are permitted by the North Carolina Division of Waste Management under the provisions and requirements of North Carolina General Statute 130A-294.
- Stormwater point source discharges from like industrial activities deemed by the Division of Water Quality to be similar to these operations in the process, or the discharges, or the exposure of raw materials, intermediate products, by-products, products, or waste products.

Except upon DWQ determination of similarity as provided immediately above, the following activities and associated discharges are excluded from coverage under this General Permit:

- Stormwater point source discharges from open dumps, hazardous waste disposal sites, land clearing and inert debris landfills, or discharges of wastes (including discharges of leachate as defined in 15A NCAC 13B .0101(11)).

The General Permit shall become effective on November 1, 2012.

The General Permit shall expire at midnight on October 31, 2017.

Signed this day October 25, 2012.

Original signed by Matt Matthews
for Charles Wakild, P.E., Director
Division of Water Quality
By the Authority of the Environmental Management Commission

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PART I INTRODUCTION

SECTION A: GENERAL PERMIT COVERAGE

All persons desiring to be covered by this General Permit must register with the Division of Water Quality (DWQ) by the filing of a Notice of Intent (NOI) and applicable fees. The NOI shall be submitted and a certificate of coverage issued prior to any point source discharge of stormwater associated with industrial activity to the surface waters of the state.

Any owner or operator not wishing to be covered or limited by this General Permit may make application for an individual NPDES permit in accordance with NPDES procedures in 15A NCAC 2H .0100, stating the reasons supporting the request. Any application for an individual permit should be made at least 180 days prior to commencement of discharge.

This General Permit does not cover activities or discharges covered by an individual NPDES permit until the individual permit has expired or has been revoked. Any person conducting an activity covered by an individual permit but which could be covered by this General Permit may request that the individual permit be revoked and coverage under this General Permit be provided.

If industrial materials and activities are not exposed to precipitation or runoff as described in 40 CFR §122.26(g), the facility may qualify for a No Exposure Exclusion from NPDES stormwater discharge permit requirements. Any owner or operator wishing to obtain a No Exposure Exclusion must submit a No Exposure Certification Notice of Intent (NOI) form to the Division; must receive approval by the Division; must maintain no exposure conditions unless authorized to discharge under a valid NPDES stormwater permit; and must recertify the No Exposure Exclusion annually.

Any facility may apply for new or continued coverage under this permit until a Total Maximum Daily Load (TMDL) for pollutants for stormwater is established. A TMDL sets a pollutant-loading limit that affects a watershed, or portion of a watershed, draining to a specific impaired water. **For discharges to watersheds affected by a TMDL, coverage under this permit may depend on the facility demonstrating it does not have reasonable potential to violate applicable water quality standards for those pollutants as a result of discharges.** If DWQ determines that discharges have reasonable potential to cause water quality standard violations, the facility shall apply for an individual permit 180 days prior to the expiration date of this General Permit. Once that individual permit is effective, the facility will no longer have coverage under this General Permit.

During the period beginning on the effective date of the permit and lasting until expiration, the permittee is authorized to discharge stormwater associated with industrial activity. Such discharges shall be controlled, limited, and monitored as specified in this permit.

SECTION B: PERMITTED ACTIVITIES

Until coverage under this permit expires or is modified or revoked, the permittee is authorized to discharge stormwater, to the surface waters of North Carolina or to a separate storm sewer system, which has been adequately treated and managed in accordance with the terms and conditions of this General Permit.

Any other point source discharge to surface waters of the state is prohibited unless it is an allowable non-stormwater discharge or is covered by another permit, authorization, or approval. **The discharges authorized by this General Permit shall not cause or contribute to violations of Water Quality Standards.**

Where wetlands are located on or nearby landfilling operations, discharges authorized by this permit and site operations must meet applicable wetland standards, as recorded in 15A NCAC 2B .0230 and .0231, and water quality certification requirements as outlined in 15A NCAC 2H .0500.

This permit does not relieve the permittee from responsibility for compliance with any other applicable federal, state, or local law, rule, standard, ordinance, order, judgment, or decree.

PART II MONITORING, CONTROLS, AND LIMITATIONS FOR PERMITTED DISCHARGES

SECTION A: LIMITATIONS AND CONTROLS FOR STORMWATER DISCHARGES

During the period beginning on the effective date of the Certificate of Coverage and lasting until expiration of the General Permit, the permittee is authorized to discharge stormwater. Such discharges shall be controlled, limited, and monitored as specified below:

1. Prior to commencement of land disturbing activities, the permittee shall submit for approval a Sedimentation and Erosion Control Plan (plan) to the Department of Environment and Natural Resources, Division of Energy, Mineral, and Land Resources, or an approved local program, pursuant to the requirements of NC G.S. 113A-54.1 and in conformity with the rules adopted by the Sedimentation and Erosion Control Commission.

2. The permittee shall implement the approved plan. The approved plan is a requirement or condition of this General Permit. Deviation from the approved plan, or approved amendment to the plan, shall constitute a violation of the terms and conditions of this General Permit. A signed copy of the approved plan shall be maintained on the site at all times.

3. Prior to constructing or operating a landfill the permittee shall obtain a permit for a sanitary landfill from the N.C. Department of Environment and Natural Resources, Division of Waste Management, pursuant to the requirements of NC G.S. 130A - 294 and in conformity with the rules adopted in 15A North Carolina Administrative Code, Subchapter 13B Section .0500 or Section .1600. The landfill permit is a requirement or condition of this General Permit. Deviation from the landfill permit, or approved amendment or revision of the landfill permit, shall constitute a violation of the terms and conditions of this General Permit. A signed copy of the landfill permit shall be maintained on the site at all times.

4. Secondary Containment Requirements and Records. Secondary containment is required for: <u>bulk storage of liquid materials including petroleum products</u>; <u>storage in any amount of Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) water priority chemicals</u>; and <u>storage in any amount of hazardous substances</u>, in order to prevent leaks and spills from contaminating stormwater runoff. A table or summary of all such tanks and stored materials and their associated secondary containment areas shall be maintained. If the secondary containment devices are connected to stormwater conveyance systems, the connection shall be controlled by manually activated valves or other similar devices, which shall be secured closed with a locking mechanism. Any stormwater that accumulates in the containment area shall be at a minimum visually observed for color, foam, outfall staining, visible sheens and dry weather flow, prior to release of the accumulated stormwater. Accumulated stormwater shall be released if found to be uncontaminated by any material. Records documenting the individual making the observation, the description of the accumulated stormwater, and the date and time of the release shall be kept for a period of five (5) years. For facilities subject to a federal oil Spill Prevention, Control, and Countermeasure Plan, facility compliance with any portion of the SPCC plan fully consistent with the requirements of this permit may be used to demonstrate compliance with this permit.

5. Equipment utilized during the land disturbing or landfill operational activities on a site shall be operated and maintained in such a manner as to prevent potential or actual pollution of the surface or ground waters of the state. Fuels, lubricants, coolants, and hydraulic fluids, other petroleum products, and spent fluids shall be disposed of in a manner so as not to enter the waters, surface or ground, of the state and in accordance with applicable state and federal disposal regulations. Any

spilled fluids shall be cleaned up to the extent practicable and disposed of in a manner so as not to allow their entry into the waters, surface or ground, of the state.

SECTION B: ANALYTICAL MONITORING REQUIREMENTS

Analytical monitoring of stormwater discharges shall be performed as specified in **Table 1**. All analytical monitoring shall be performed during a measureable storm event at each stormwater discharge outfall (SDO). Only SDOs having *stormwater discharges associated with industrial activity* must be sampled. *See Definitions.*

A **measurable storm event** is a storm event that results in **an actual discharge** from the permitted site outfall. The previous measurable storm event must have been at least 72 hours prior. The 72-hour storm interval does not apply if the permittee is able to document that a shorter interval is representative for local storm events during the sampling period, and the permittee obtains approval from the local DWQ Regional Office. *See Definitions.*

Table 1 Analytical Monitoring Requirements

Discharge Characteristics	Units	Measurement Frequency[1]	Sample Type[2]	Sample Location[3]
Chemical Oxygen Demand	mg/l	semi-annual	Grab	SDO
Fecal Coliform	# per 100 ml	semi-annual	Grab	SDO
Total Suspended Solids	mg/l	semi-annual	Grab	SDO
Total Rainfall[4]	inches	semi-annual	Rain gauge	-

Footnotes:

1 Measurement Frequency: Twice per year during a measureable storm event.

2 Sample collection must begin within the first 30 minutes of discharge and continue to all outfalls until completed.

3 Sample Location: **Samples shall be collected at each stormwater discharge outfall** (SDO) unless representative outfall status (ROS) has been granted by DWQ. A copy of the DWQ letter granting ROS must be kept on site. DWQ's ROS letter remains in effect through the subsequent reissuance of this permit and as long as the pertinent site conditions and operations remain unchanged, unless the ROS letter provides for other conditions or duration.

4 For each sampled measureable storm event the total precipitation must be recorded from an on-site rain gauge. *(Where isolated sites are unmanned for extended periods, a local rain gauge reading may be substituted for an on-site gauge, upon prior DWQ written approval.)*

The permittee shall complete the analytical samplings in accordance with the schedule specified in **Table 2** below, unless *adverse weather* conditions prevent sample collection (*see Definitions.)* Inability to sample because of adverse weather conditions must be recorded on the Discharge Monitoring Report, along with a description of the adverse conditions and their duration. Sampling is not required outside of the facility's normal operating hours.

A **minimum of 60 days must separate Period 1 and Period 2 sample dates** unless monthly monitoring has been instituted via other requirements of this permit. The permittee must report the results of every discharge sample taken within the monitoring period (see Part III, Section E).

Failure to monitor semi-annually per permit terms may result in the Division requiring **monthly monitoring** for all parameters for a specified time period. "No discharge" from an outfall or inability to collect a sample because of adverse weather conditions during a monitoring period, for example, does not constitute failure to monitor, as long as it is properly reported.

Table 2 Monitoring Schedule

Monitoring Period[1,2]	Sample Number	Start	End
Year 1 – Period 1	1	January 1, 2013	June 30, 2013
Year 1 – Period 2	2	July 1, 2013	December 31, 2013
Year 2 – Period 1	3	January 1, 2014	June 30, 2014
Year 2 – Period 2	4	July 1, 2014	December 31, 2014
Year 3 – Period 1	5	January 1, 2015	June 30, 2015
Year 3 – Period 2	6	July 1, 2015	December 31, 2015
Year 4 – Period 1	7	January 1, 2016	June 30, 2016
Year 4 – Period 2	8	July 1, 2016	December 31, 2016
Year 5 – Period 1	9	January 1, 2017	June 30, 2017
Year 5 – Period 2	10	July 1, 2017	October 31, 2017

Footnotes:

1 Maintain semi-annual monitoring during permit renewal process (unless monthly monitoring has been triggered via other permit requirements.)

2 If no discharge occurs during the sampling period, the permittee must submit a monitoring report indicating "No Flow" within 30 days of the end of the sampling period.

The permittee shall compare monitoring results to the benchmark values in **Table 3**. The benchmark values are not permit limits but should be used as guidelines for the permittee's response actions to control the discharge of pollutants in site stormwater. Exceedances of benchmark values require the permittee to increase monitoring, increase management actions, increase record keeping, and/or install stormwater Best Management Practices (BMPs) in a tiered program.

Table 3 Benchmark Values for Analytical Monitoring Requirements

Discharge Characteristics	Benchmark Value
Chemical Oxygen Demand	120 mg/l
Fecal Coliform	1000 colonies per 100 ml
Total Suspended Solids (TSS)	100 mg/l
TSS (ORW, HQW, Trout, and PNA) waters	50 mg/L

Each separate parameter benchmark exceedance triggers a separate tiered response for that parameter at that outfall. See the descriptions of **Tier One**, **Tier Two**, and **Tier Three** response actions below. In the event that DWQ releases the permittee from continued monthly monitoring under Tier Three, DWQ's release letter remains in effect through the subsequent reissuance of this permit, unless the release letter provides for other conditions or duration.

Tier One
If: The first valid sampling results are above a benchmark value, or outside the benchmark range, for any parameter at any outfall;
Then: The permittee shall: 1. Conduct a stormwater management inspection of the facility **within two weeks of receiving sampling results.** 2. Identify and evaluate possible causes of the benchmark value exceedence. 3. Identify the potential, and select the specific: source controls, operational controls, or physical improvements to reduce concentrations of the parameters of concern. 4. Implement the selected actions **within two months of the inspection.** 5. Maintain an on-site record of each instance of a Tier One response. Include the date and value of the benchmark exceedence, the inspection date, the personnel conducting the inspection, the selected actions, and the date the selected actions were implemented.

Tier Two
If: During the term of this permit, the sampling results are above the benchmark values, or outside the benchmark range, for any specific parameter at a specific discharge outfall **two times in a row**;
Then: The permittee shall: 1. Repeat all the required actions outlined above in Tier One. 2. Immediately institute monthly monitoring for <u>all parameters</u>. Conduct monthly monitoring at every outfall where a sampling result exceeded the benchmark value for two consecutive samples. Monthly (analytical and qualitative) monitoring shall continue until three consecutive sample results are below the benchmark values, or within the benchmark range. 3. Submit a monthly monitoring report indicating "No Flow" if no discharge occurs during the sampling period. 4. Maintain a record of the Tier Two response and monitoring results on site.

Tier Three
During the term of this permit, if the valid sampling results required for the permit monitoring periods exceed the benchmark value for any specific parameter at any specific outfall on **four occasions**, the permittee shall notify the DWQ Regional Office Surface Water Supervisor in writing **within 30 days of receipt of the fourth analytical results**. DWQ may, but is not limited to: • require that the permittee revise, increase, or decrease the monitoring frequency for some or all parameters; • rescind coverage under the General Permit, and require that the permittee apply for an individual stormwater discharge permit; • require the permittee to install structural stormwater controls; • require the permittee to implement other stormwater control measures; • require the permittee to perform upstream and downstream monitoring to characterize impacts on receiving waters.

SECTION C: ON-SITE VEHICLE AND EQUIPMENT MAINTENANCE MONITORING REQUIREMENTS

Facilities which have any vehicle or equipment maintenance activity occurring on-site which in aggregate uses more than 55 gallons of new motor oil and hydraulic oil per month when averaged over the calendar year shall perform analytical monitoring as specified below in **Table 4**. All analytical monitoring shall be performed during a **measureable storm event** at all SDOs *which discharge stormwater runoff from the vehicle maintenance areas*, in accordance with the schedule presented in **Table 2** (Section B.)

Table 4 Analytical Monitoring Requirements for On-Site Vehicle Maintenance

Discharge Characteristics	Units	Measurement Frequency[1]	Sample Type[2]	Sample Location[3]
pH	standard	semi-annual	Grab	SDO
Non-Polar Oil & Grease/TPH [EPA Method 1664 (SGT-HEM)]	mg/l	semi-annual	Grab	SDO
Total Suspended Solids	mg/l	semi-annual	Grab	SDO
Total Rainfall[4]	inches	semi-annual	Rain gauge	-
New Motor Oil Usage	gal/month	semi-annual	Estimate	-

Footnotes:

1 Measurement Frequency: Twice per year during a measureable storm event.

2 Sample collection must begin within the first 30 minutes of discharge and continue to all outfalls until completed.

3 Sample Location: Samples shall be collected at each SDO receiving runoff from vehicle and equipment maintenance areas unless representative outfall status (ROS) has been granted by DWQ. A copy of the DWQ letter granting ROS must be kept on site. DWQ's ROS letter remains in effect through the subsequent reissuance of this permit and as long as the pertinent site conditions and operations remain unchanged, unless the ROS letter provides for other conditions or duration.

4 For each sampled measureable storm event the total precipitation must be recorded from an on-site rain gauge. *(Where isolated sites are unmanned for extended periods, a local rain gauge reading may be substituted for an on-site gauge, upon prior DWQ written approval.)*

Monitoring results shall be compared to the benchmark values in **Table 5**. Exceedences of benchmark values require the permittee to increase monitoring, increase management actions, increase record keeping, and/or install stormwater Best Management Practices (BMPs), in accordance with the tiered response provisions of Part II, Section B.

Table 5 Benchmark Values for On-Site Vehicle and Equipment Maintenance Activities

Discharge Characteristics	Benchmark Value
pH	Within the range 6.0 - 9.0[1]
Non-Polar Oil & Grease/TPH [EPA Method 1664 (SGT-HEM)]	15 mg/l
Total Suspended Solids (TSS)	100 mg/l
TSS (ORW, HQW, Trout, and PNA waters)	50 mg/L

Footnote 1: If pH values outside this range are recorded in sampled stormwater discharges, **but ambient precipitation pH levels are lower**, then the **lower threshold of this benchmark range is the pH of the precipitation** (within instrument accuracy) instead of 6 S.U. Readings from an on-site rain gauge must be documented to demonstrate that background concentrations were below the benchmark pH range of 6-9.

Failure to monitor semi-annually per permit terms may result in the Division requiring **monthly monitoring** for a specified time period. "No discharge" from an outfall or inability to collect a sample because of adverse weather conditions during a monitoring period, for example, does not constitute failure to monitor, as long as it is properly reported.

SECTION D: QUALITATIVE MONITORING AND VISUAL INSPECTION REQUIREMENTS

Qualitative monitoring shall be performed twice per year and concurrent with the analytical monitoring requirements in Part II Sections B and C for the characteristics listed in Table 6. Qualitative monitoring is for the purpose of quickly evaluating the effectiveness of the stormwater controls. No analytical tests are required. The permittee shall maintain a written record of the qualitative monitoring events on site.

Table 6 Qualitative Monitoring Requirements

Discharge Characteristics	Monitoring Location[1]
Color	SDO
Odor	SDO
Clarity	SDO
Floating Solids	SDO
Suspended Solids	SDO
Foam	SDO
Oil Sheen	SDO
Erosion or deposition at the outfall	SDO
Other obvious indicators of stormwater pollution	SDO

Footnote 1: Qualitative monitoring shall be performed at each stormwater discharge outfall (SDO) regardless of representative outfall status (ROS) *unless ROS has been granted specifically for qualitative monitoring.* A copy of DWQ's letter granting ROS must be kept on site. DWQ's ROS letter remains in effect through the subsequent reissuance of this permit and as long as the pertinent site conditions and operations remain unchanged, unless the ROS letter provides for other conditions or duration.

Visual inspections shall be conducted to ensure that all stormwater controls, including all sedimentation and erosion controls, are intact, in good repair, fully functional, and are otherwise being properly implemented. Inspections shall be conducted at least once every seven calendar days, and within 24 hours after any storm event of greater than 0.5 inches of rain per 24 hour period. The permittee shall maintain a written record of each visual inspection on site.

In the event an atypical condition is noted at a stormwater discharge outfall, the permittee shall maintain on-site records of both the suspected cause of the condition and the corrective actions taken.

If the permittee's qualitative monitoring or visual inspections indicate that existing stormwater controls are ineffective, or that significant stormwater contamination is a recurring condition, the permittee shall investigate potential causes, evaluate the feasibility of corrective actions, and implement feasible corrective actions within 60 days. A written record of the permittee's investigation, evaluation, and response actions shall be kept on site. Records related to qualitative monitoring and visual inspections need only be submitted to DWQ upon the Division's specific request for those records.

PART III STANDARD CONDITIONS FOR NPDES STORMWATER GENERAL PERMITS

SECTION A: COMPLIANCE AND LIABILITY

1. Compliance Schedule

The permittee shall comply with Limitations and Controls specified for stormwater discharges in accordance with the following schedule:

Existing facilities already operating, but applying for coverage under this general permit for the first time: Secondary containment, as specified in Part II, Section A, Paragraph 4 of this permit, shall be accomplished within 12 months of the effective date of the initial Certificate of Coverage. All other requirements, conditions, limitations, and controls contained in this permit become effective immediately upon issuance of the Certificate of Coverage.

New facilities applying for permit coverage for the first time and existing facilities previously permitted and applying for renewal under this general permit: All requirements, conditions, limitations, and controls contained in this permit become effective immediately upon issuance of the Certificate of Coverage.

2. Duty to Comply

The permittee must comply with all conditions of this general permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit upon renewal application [40 CFR 122.41].

a. The permittee shall comply with standards or prohibitions established under section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the general permit has not yet been modified to incorporate the requirement.

b. The CWA provides that any person who violates section[s] 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $37,500 per day for each violation. [33 USC 1319(d) and 40 CFR 122.41(a)(2)]

c. The CWA provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both. [33 USC 1319(c)(1) and 40 CFR 122.41(a)(2)]

d. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both. [33 USC 1319(c)(2) and 40 CFR 122.41(a)(2)]

e. Any person who *knowingly* violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a

knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions. [40 CFR 122.41(a)(2)]

f. Under state law, a civil penalty of not more than $25,000 per violation may be assessed against any person who violates or fails to act in accordance with the terms, conditions, or requirements of a permit. [North Carolina General Statutes § 143-215.6A]

g. Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $16,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $37,500. Penalties for Class II violations are not to exceed $16,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $177,500. [33 USC 1319(g)(2) and 40 CFR 122.41(a)(3)]

3. Duty to Mitigate
The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this general permit which has a reasonable likelihood of adversely affecting human health or the environment [40 CFR 122.41(d)].

4. Civil and Criminal Liability
Except as provided in Part III, Section C of this general permit regarding bypassing of stormwater control facilities, nothing in this permit shall be construed to relieve the permittee from any responsibilities, liabilities, or penalties for noncompliance pursuant to NCGS l43-2l5.3, l43-2l5.6, or Section 309 of the Federal Act, 33 USC 1319. Furthermore, the permittee is responsible for consequential damages, such as fish kills, even though the responsibility for effective compliance may be temporarily suspended.

5. Oil and Hazardous Substance Liability
Nothing in this general permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under NCGS l43-2l5.75 et seq. or Section 311 of the Federal Act, 33 USC 1321.

6. Property Rights
The issuance of this general permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations [40 CFR 122.41(g)].

7. Severability
The provisions of this general permit are severable, and if any provision of this general permit, or the application of any provision of this general permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this general permit, shall not be affected thereby [NCGS 150B-23].

8. Duty to Provide Information
The permittee shall furnish to the Permit Issuing Authority, within a reasonable time, any information which the Permit Issuing Authority may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the general permit issued pursuant to this general permit or to determine compliance with this general permit. The permittee shall also furnish to the Permit Issuing Authority upon request, copies of records required to be kept by this general permit [40 CFR 122.41(h)].

9. Penalties for Tampering
The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this general permit shall, upon conviction, be punished by a fine of not more than $l0,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both [40 CFR 122.41].

10. Penalties for Falsification of Reports
The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this general permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $l0,000 per violation, or by imprisonment for not more than two years per violation, or by both [40 CFR 122.41].

11. Onshore or Offshore Construction
This general permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

12. Duty to Reapply
Dischargers covered by this general permit need not submit a new Notice of Intent (NOI) or renewal request unless so directed by the Division. If the Division chooses not to renew this general permit, the permittee will be notified to submit an application for an individual permit [15A NCAC 02H .0127(e)].

SECTION B: GENERAL CONDITIONS

1. General Permit Expiration
General permits will be effective for a term not to exceed five years, at the end of which the Division may renew them after all public notice requirements have been satisfied. If a general permit is renewed, existing permittees do not need to submit a renewal request or pay a renewal fee unless directed by the Division. New applicants seeking coverage under a renewed general permit must submit a Notice of Intent to be covered and obtain a Certificate of Coverage under the renewed general permit [15A NCAC 02H .0127(e)].

2. Transfers
The certificate of coverage issued pursuant to this general permit is not transferable to any person without prior written notice to and approval from the Director in accordance with 40 CFR 122.61. The Director may condition approval in accordance with NCGS 143-215.1, in particular NCGS 143-215.1(b)(4)b.2., and may require modification or revocation and reissuance of the **Certificate of Coverage**, or a minor modification, to identify the new permittee and incorporate such other requirements as may be necessary under the CWA [40 CFR 122.41(l)(3), 122.61] or state statute. **The Permittee is required to notify the Division in writing in the event the permitted facility is sold or closed.**

3. When an Individual Permit May be Required

The Director may require any owner/operator authorized to discharge under a certificate of coverage issued pursuant to this general permit to apply for and obtain an individual permit or an alternative general permit. Any interested person may petition the Director to take action under this paragraph. Cases where an individual permit may be required include, but are not limited to, the following:

a. The discharger is a significant contributor of pollutants;
b. Conditions at the permitted site change, altering the constituents and/or characteristics of the discharge such that the discharge no longer qualifies for a general permit;
c. The discharge violates the terms or conditions of this general permit;

d. A change has occurred in the availability of demonstrated technology or practices for the control or abatement of pollutants applicable to the point source;
e. Effluent limitations are promulgated for the point sources covered by this general permit;
f. A water quality management plan containing requirements applicable to such point sources is approved after the issuance of this general permit;
g. The Director determines at his or her own discretion that an individual permit is required.

4. When an Individual Permit May be Requested

Any permittee operating under this general permit may request to be excluded from the coverage of this general permit by applying for an individual permit. When an individual permit is issued to an owner/operator the applicability of this general permit is automatically terminated on the effective date of the individual permit.

5. Signatory Requirements

All applications, reports, or information submitted to the Permitting Issuing Authority shall be signed and certified [40 CFR 122.41(k)].

a. All Notices of Intent to be covered under this general permit shall be signed as follows:
   (1) For a corporation: by a responsible corporate officer. For the purpose of this Section, a responsible corporate officer means: (a) a president, secretary, treasurer or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or (b) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures .
   (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
   (3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official [40 CFR 122.22].

b. All reports required by the general permit and other information requested by the Permit Issuing Authority shall be signed by a person described in paragraph a. above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
   (1) The authorization is made in writing by a person described above;
   (2) The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or well field, superintendent, a position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and
   (3) The written authorization is submitted to the Permit Issuing Authority [40 CFR 122.22]

c. Changes to authorization: If an authorization under paragraph (b) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative [40 CFR 122.22]

d. Certification. Any person signing a document under paragraphs a. or b. of this section shall make the following certification [40 CFR 122.22]. NO OTHER STATEMENTS OF CERTIFICATION WILL BE ACCEPTED:

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

6. General Permit Modification, Revocation and Reissuance, or Termination
The issuance of this general permit does not prohibit the Permit Issuing Authority from reopening and modifying the general permit, revoking and reissuing the general permit, or terminating the general permit as allowed by the laws, rules, and regulations contained in Title 40, Code of Federal Regulations, Parts 122 and 123; Title 15A of the North Carolina Administrative Code, Subchapter 2H .0100; and North Carolina General Statute 143-215.1 et al.

After public notice and opportunity for a hearing, the general permit may be terminated for cause. The filing of a request for a general permit modification, revocation and reissuance, or termination does not stay any general permit condition. The **Certificate of Coverage** shall expire when the general permit is terminated.

7. Certificate of Coverage Actions
The general permit may be modified, revoked and reissued, or terminated for cause. The notification of planned changes or anticipated noncompliance does not stay any general permit condition [40 CFR 122.41(f)].

8. Annual Administering and Compliance Monitoring Fee Requirements
The permittee must pay the administering and compliance monitoring fee within 30 (thirty) days after being billed by the Division. Failure to pay the fee in timely manner in accordance with 15A NCAC 2H .0105(b)(2) may cause this Division to initiate action to revoke coverage under the general permit.

SECTION C: OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance
The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of this permit [40 CFR 122.41(e)].

2. Need to Halt or Reduce Not a Defense
It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the condition of this general permit [40 CFR 122.41(c)].

3. Bypassing of Stormwater Control Facilities
Bypass is prohibited and the Director may take enforcement action against a permittee for bypass unless:
   a. Bypass was unavoidable to prevent loss of life, personal injury or severe property damage; and
   b. There were no feasible alternatives to the bypass, such as the use of auxiliary control facilities, retention of stormwater or maintenance during normal periods of equipment downtime or dry weather. This condition is not satisfied if adequate backup controls should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

c. The permittee submitted notices as required under, Part III, Section E of this general permit.

If the Director determines that it will meet the three conditions listed above, the Director may approve an anticipated bypass after considering its adverse effects.

SECTION D: MONITORING AND RECORDS

l. Representative Sampling
Samples collected and measurements taken, as required herein, shall be characteristic of the volume and nature of the permitted discharge. Analytical sampling shall be performed during a measureable storm event. Samples shall be taken on a day and time that is characteristic of the discharge. All samples shall be taken before the discharge joins or is diluted by any other waste stream, body of water, or substance. Monitoring points as specified in this general permit shall not be changed without notification to and approval of the Permit Issuing Authority [40 CFR 122.41(j)].

2. Recording Results
For each measurement or sample taken pursuant to the requirements of this general permit, the permittee shall record the following information [40 CFR 122.41]:

a. The date, exact place, and time of sampling or measurements;
b. The individual(s) who performed the sampling or measurements;
c. The date(s) analyses were performed;
d. The individual(s) who performed the analyses;
e. The analytical techniques or methods used; and
f. The results of such analyses.

3. Flow Measurements
Where required, appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges.

4. Test Procedures
Test procedures for the analysis of pollutants shall conform to the EMC regulations published pursuant to NCGS l43-2l5.63 et. seq, the Water and Air Quality Reporting Acts, and to regulations published pursuant to Section 304(g), 33 USC 1314, of the Federal Water Pollution Control Act, as Amended, and Regulation 40 CFR 136.

To meet the intent of the monitoring required by this general permit, all test procedures must produce minimum detection and reporting levels and all data generated must be reported down to the minimum detection or lower reporting level of the procedure. If no approved methods are determined capable of achieving minimum detection and reporting levels below general permit discharge requirements, then the most sensitive (method with the lowest possible detection and reporting level) approved method must be used.

5. Representative Outfall
If a facility has multiple discharge locations with substantially identical stormwater discharges that are required to be sampled, the permittee may petition the Director for representative outfall status. If it is established that the stormwater discharges are substantially identical and the permittee is granted representative outfall status, then sampling requirements may be performed at a reduced number of outfalls.

6. Records Retention

Qualitative monitoring shall be documented and records maintained at the facility. Copies of analytical monitoring results shall also be maintained on-site. The permittee shall retain records of all monitoring information, including

- all calibration and maintenance records,
- all original strip chart recordings for continuous monitoring instrumentation,
- copies of all reports required by this general permit,
- copies of all data used to complete the Notice of Intent to be covered by this general permit.

These records or copies shall be maintained for a period of at least 5 years from the date of the sample, measurement, report or Notice of Intent application. This period may be extended by request of the Director at any time [40 CFR 122.41]. If this volume of records cannot be maintained on-site, the documents must be made available to an inspector upon request as immediately as possible.

7. Inspection and Entry

The permittee shall allow the Director, or an authorized representative (including an authorized contractor acting as a representative of the Director), or in the case of a facility which discharges through a municipal separate storm sewer system, an authorized representative of a municipal operator or the separate storm sewer system receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this general permit;
b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this general permit;
c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this general permit; and
d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location [40 CFR 122.41(i)].

SECTION E: REPORTING REQUIREMENTS

1. Discharge Monitoring Reports

Samples analyzed in accordance with the terms of this general permit shall be submitted to the Division on Discharge Monitoring Report (DMR) forms provided by the Director. DMR forms are available on the Division's website (http://portal.ncdenr.org/web/wq/ws/su/npdessw). Submittals shall be delivered to the Division **no later than 30 days from the date the facility receives the sampling results from the laboratory**.

When no discharge has occurred from the facility during the report period, the permittee is required to submit a discharge monitoring report, within 30 days of the end of the specified sampling period, giving all required information and indicating "NO FLOW" as per NCAC T15A 02B .0506.

If the permittee monitors any pollutant more frequently than required by this general permit using test procedures approved under 40 CFR Part 136 and at a sampling location specified in this general permit or other appropriate instrument governing the discharge, the results of such monitoring shall be included in the data submitted on the DMR.

The permittee shall record the required qualitative monitoring observations on the SDO Qualitative Monitoring Report form provided by the Division and shall retain the completed forms on site. Qualitative monitoring results should not be submitted to the Division, except upon DWQ's specific requirement to do so. Qualitative Monitoring Report forms are available at the website above.

2. Submitting Reports
Two signed copies of Discharge Monitoring Reports (DMRs) shall be submitted to:

Central Files
Division of Water Quality
1617 Mail Service Center
Raleigh, North Carolina 27699-1617

3. Availability of Reports
Except for data determined to be confidential under NCGS 143-215.3(a)(2) or Section 308 of the Federal Act, 33 USC 1318, all reports prepared in accordance with the terms shall be available for public inspection at the offices of the Division. As required by the Act, analytical data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in NCGS 143-215.6B or in Section 309 of the Federal Act.

4. Non-Stormwater Discharges
If the storm event monitored in accordance with this general permit coincides with a non-stormwater discharge, the permittee shall separately monitor all parameters as required under all other applicable discharge permits and provide this information with the stormwater discharge monitoring report.

5. Planned Changes
The permittee shall give notice to the Director as soon as possible of any planned changes at the permitted facility which could significantly alter the nature or quantity of pollutants discharged [40 CFR 122.41(l)]. This notification requirement includes pollutants which are not specifically listed in the general permit or subject to notification requirements under 40 CFR Part 122.42 (a).

6. Anticipated Noncompliance
The permittee shall give advance notice to the Director of any planned changes at the permitted facility which may result in noncompliance with the general permit [40 CFR 122.41(l)(2)].

7. Spills
The permittee shall report to the local DWQ Regional Office, within 24 hours, all significant spills as defined in Part IV of this general permit. Additionally, the permittee shall report spills including: any oil spill of 25 gallons or more, any spill regardless of amount that causes a sheen on surface waters, any oil spill regardless of amount occurring within 100 feet of surface waters, and any oil spill less than 25 gallons that cannot be cleaned up within 24 hours.

8. Bypass
Notice [40 CFR 122.41(m)(3)]:
   a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass; including an evaluation of the anticipated quality and affect of the bypass.
   b. Unanticipated bypass. The permittee shall submit notice within 24 hours of becoming aware of an unanticipated bypass.

9. Twenty-four Hour Reporting
   a. The permittee shall report to the central office or the appropriate regional office any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee became aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances.

The written submission shall contain a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time compliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance [40 CFR 122.41(l)(6)].

b. The Director may waive the written report on a case-by-case basis for reports under this section if the oral report has been received within 24 hours.

c. Occurrences outside normal business hours may also be reported to the Division's Emergency Response personnel at (800) 662-7956, (800) 858-0368 or (919) 733-3300.

10. Other Noncompliance
The permittee shall report all instances of noncompliance not reported under 24 hour reporting at the time monitoring reports are submitted [40 CFR 122.41(l)(7)].

11. Other Information
Where the Permittee becomes aware that it failed to submit any relevant facts in a Notice of Intent to be covered under this general permit, or submitted incorrect information in that Notice of Intent application or in any report to the Director, it shall promptly submit such facts or information [40 CFR 122.41(l)(8)].

PART IV DEFINITIONS

1. Act
See Clean Water Act.

2. Adverse Weather
Adverse conditions are those that are dangerous or create inaccessibility for personnel, such as local flooding, high winds, or electrical storms, or situations that otherwise make sampling impractical. When adverse weather conditions prevent the collection of samples during the sample period, the permittee must take a substitute sample or perform a visual assessment during the next qualifying storm event. Documentation of an adverse event (with date, time and written narrative) and the rationale must be included with your records. Adverse weather does not exempt the permittee from having to file a monitoring report in accordance with the sampling schedule. Adverse events and failures to monitor must also be explained and reported on the relevant DMR.

3. Allowable Non-Stormwater Discharges
This general permit regulates stormwater discharges. Non-stormwater discharges which shall be allowed in the stormwater conveyance system are:
   a. All other discharges that are authorized by a non-stormwater NPDES permit.
   b. Uncontaminated groundwater, foundation drains, air-conditioner condensate without added chemicals, springs, discharges of uncontaminated potable water, waterline and fire hydrant flushings, water from footing drains, irrigation waters, flows from riparian habitats and wetlands.
   c. Discharges resulting from fire-fighting or fire-fighting training, or emergency shower or eye wash as a result of use in the event of an emergency.

4. Best Management Practices (BMPs)
Measures or practices used to reduce the amount of pollution entering surface waters. BMPs may take the form of a process, activity, or physical structure. More information on BMPs can be found at: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm.

5. Bypass
A bypass is the known diversion of stormwater from any portion of a stormwater control facility including the collection system, which is not a designed or established operating mode for the facility.

6. Bulk Storage of Liquid Products
Liquid raw materials, manufactured products, waste materials or by-products with a single above ground storage container having a capacity of greater than 660 gallons or with multiple above ground storage containers located in close proximity to each other having a total combined storage capacity of greater than 1,320 gallons.

7. Certificate of Coverage
The **Certificate of Coverage** (COC) is the cover sheet which accompanies a general permit upon issuance and lists the facility name, location, receiving stream, river basin, effective date of coverage under the general permit and is signed by the Director.

8. Clean Water Act
The Federal Water Pollution Control Act, also known as the Clean Water Act (CWA), as amended, 33 USC 1251, et. seq.

9. Division or DWQ
The Division of Water Quality, Department of Environment and Natural Resources.

10. Director
The Director of the Division of Water Quality, the permit issuing authority.

11. EMC
The North Carolina Environmental Management Commission.

12. Grab Sample
An individual sample collected instantaneously. Grab samples that will be analyzed (quantitatively or qualitatively) must be taken within the first 30 minutes of discharge.

13. Hazardous Substance
Any substance designated under 40 CFR Part 116 pursuant to Section 311 of the Clean Water Act.

14. Landfill
A disposal facility or part of a disposal facility where waste is placed in or on land and which is not a land treatment facility, a surface impoundment, an injection well, a hazardous waste long-term storage facility or a surface storage facility.

15. Measureable Storm Event
A storm event that results in an actual discharge from the permitted site outfall. The previous measurable storm event must have been at least 72 hours prior. The 72-hour storm interval may not apply if the permittee is able to document that a shorter interval is representative for local storm events during the sampling period, and obtains approval from the local DWQ Regional Office. Two copies of this information and a written request letter shall be sent to the local DWQ Regional Office. After authorization by the DWQ Regional Office, a written approval letter must be kept on site.

16. Municipal Separate Storm Sewer System (MS4)
A stormwater collection system within an incorporated area of local self-government such as a city or town.

17. No Exposure
A condition of no exposure means that all industrial materials and activities are protected by a storm resistant shelter or acceptable storage containers to prevent exposure to rain, snow, snowmelt, or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products. DWQ may grant a No Exposure Exclusion from NPDES stormwater permitting requirements only if a facility complies with the terms and conditions described in 40 CFR §122.26(g).

18. Notice of Intent
The state application form which, when submitted to the Division, officially indicates the facility's notice of intent to seek coverage under a general permit.

19. Permit Issuing Authority
The Director of the Division of Water Quality (see “Director” above).

20. Permittee
The owner or operator issued a Certificate of Coverage pursuant to this general permit.

21. Point Source Discharge of Stormwater
Any discernible, confined and discrete conveyance including, but not specifically limited to, any pipe, ditch, channel, tunnel, conduit, well, or discrete fissure from which stormwater is or may be discharged to waters of the state.

22. Representative Outfall Status
When it is established that the discharge of stormwater runoff from a single outfall is representative of the discharges at multiple outfalls, the DWQ may grant representative outfall status. Representative outfall status allows the permittee to perform analytical monitoring at a reduced number of outfalls.

23. Secondary Containment
Spill containment for the contents of the single largest tank within the containment structure plus sufficient freeboard to allow for the 25-year, 24-hour storm event.

24. Section 313 Water Priority Chemical
A chemical or chemical category which:
   b. Is listed in 40 CFR 372.65 pursuant to Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986, also titled the Emergency Planning and Community Right-to-Know Act of 1986;
   c. Is present at or above threshold levels at a facility subject to SARA title III, Section 313 reporting requirements; and
   d. Meets at least one of the following criteria:
      i. Is listed in appendix D of 40 CFR part 122 on Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols) or Table IV (certain toxic pollutants and hazardous substances);
      ii. Is listed as a hazardous substance pursuant to section 311(b)(2)(A) of the CWA at 40 CFR 116.4; or
      iii. Is a pollutant for which EPA has published acute or chronic water quality criteria.

25. Severe Property Damage
Substantial physical damage to property, damage to the control facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

26. Significant Materials
Includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the facility is required to report pursuant to section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.

27. Significant Spills
Includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under section 311 of the Clean Water Act (Ref: 40 CFR 110.3and 40 CFR 117.3) or section 102 of CERCLA (Ref: 40 CFR 302.4).

28. Stormwater Discharge Outfall (SDO)
The point of departure of stormwater from a discernible, confined, or discrete conveyance, including but not limited to, storm sewer pipes, drainage ditches, channels, spillways, or channelized collection areas, from which stormwater flows directly or indirectly into waters of the State of North Carolina.

29. Stormwater Runoff
The flow of water which results from precipitation and which occurs immediately following rainfall or as a result of snowmelt.

30. Stormwater Associated with Industrial Activity
The discharge from any point source which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing or raw material storage areas at an industrial site. Facilities considered to be engaged in "industrial activities" include those activities defined in 40 CFR 122.26(b)(14). The term does not include discharges from facilities or activities excluded from the NPDES program.

31. Stormwater Pollution Prevention Plan (SPPP)
A comprehensive site-specific plan which details measures and practices to reduce stormwater pollution and is based on an evaluation of the pollution potential of the site.

32. Total Maximum Daily Load (TMDL)
TMDLs are written plans for attaining and maintaining water quality standards, in all seasons, for a specific water body and pollutant. A list of approved TMDLs for the state of North Carolina can be found at **http://portal.ncdenr.org/web/wq/ps/mtu/tmdl**.

33. Toxic Pollutant
Any pollutant listed as toxic under Section 307(a)(l) of the Clean Water Act.

34. Vehicle Maintenance Activity
Vehicle rehabilitation, mechanical repairs, painting, fueling, lubrication, vehicle cleaning operations, or airport deicing operations.

35. Visible Sedimentation
Solid particulate matter, both mineral and organic, that has been or is being transported by water, air, gravity, or ice from its site of origin which can be seen with the unaided eye.

36. 25-year, 24 hour Storm Event
The maximum 24-hour precipitation event expected to be equaled or exceeded, on the average, once in 25 years.

APPENDIX C

CITY OF GREENSBORO
ZONING APPROVAL

City of Greensboro
North Carolina

Office of City Attorney

August 11, 2003

North Carolina Department of
Environmental and Natural Resources
Solid Waste Section
401 Oberlin Road, Suite 150
Raleigh, North Carolina 27605

Dear Sirs or Madams:

This is to certify that the City of Greensboro holds fee simple title to the property known as the White Street Landfill located at 2503 White Street.

If you have any further questions, please contact me.

Sincerely,

Linda A. Miles
City Attorney

LAM/sn

City of Greensboro
North Carolina

October 29, 2003

North Carolina DEHNR
Waste Management Division
401 Oberlin Road, Suite 150
Raleigh, NC 27611-7687

Re: Compost Permit Application - Local Consistency Determination for White Street Landfill

Gentlemen:

The City of Greensboro has received a request from the State of North Carolina concerning a Compost Permit Application. In accordance with North Carolina Waste Management Regulations, the City of Greensboro has been requested to submit a letter indicating that the proposed facility complies with zoning and subdivision regulations.

The property where the White Street Landfill is located 2503 White Street is currently zoned CU-HI (Conditional Use-Heavy Industrial) which permits the proposed use. This property currently complies with all zoning and subdivision regulations. The City of Greensboro Planning and Zoning Department currently does not have any compost control regulations within our zoning ordinance.

If you have any questions concerning this matter, please do not hesitate to contact me.

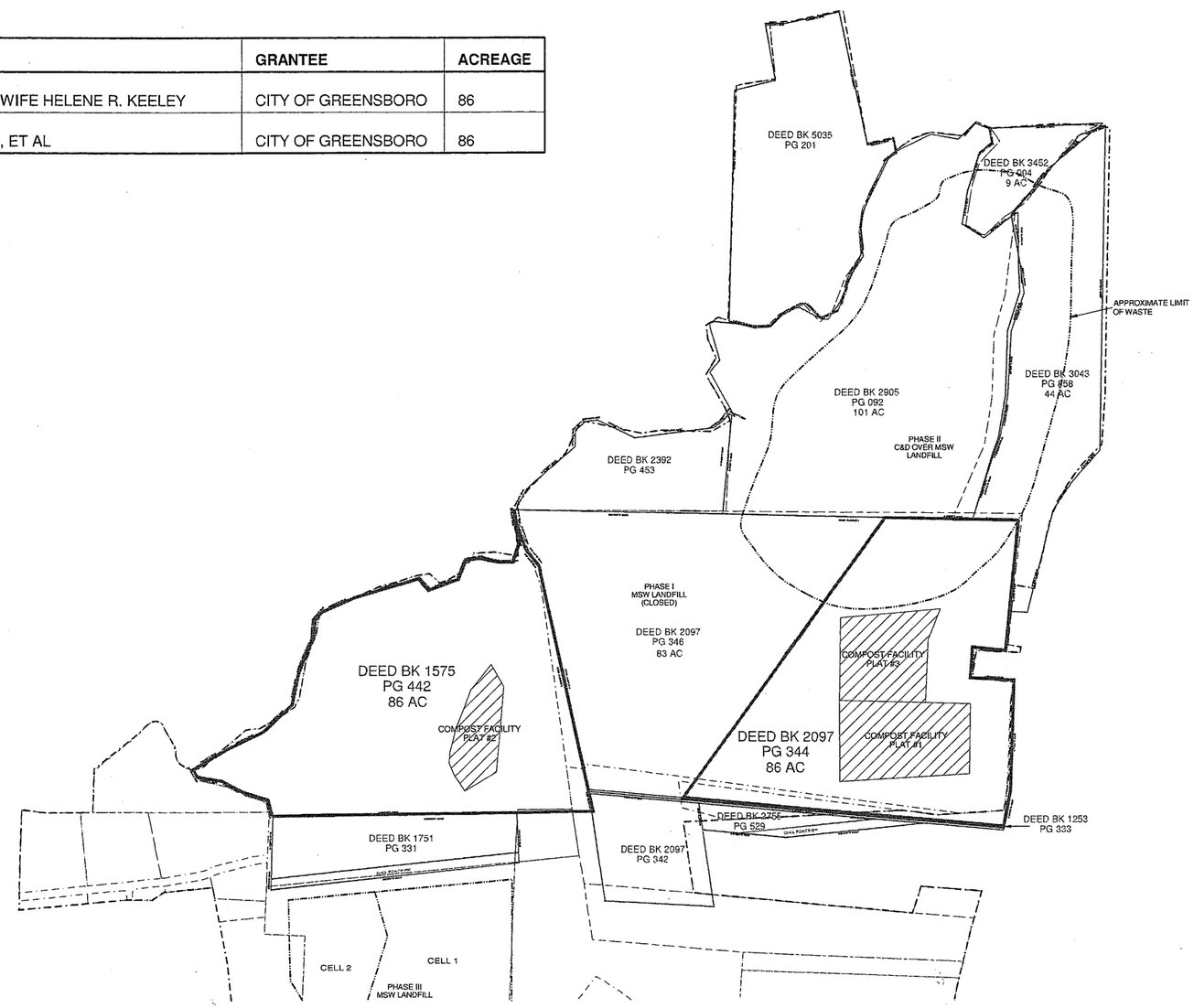
Sincerely,

Loray Averett

Loray Averett
Zoning Enforcement Officer
(336) 373-2630 (Voice)
(336) 333-6930 (TDD)
email: loray.averett@ci.greensboro.nc.us

cc: Jeri Covington
Environmental Services

DEED BOOK	DEED PAGE	GRANTOR	GRANTEE	ACREAGE
2097	344	C.A. KEELEY & WIFE HELENE R. KEELEY	CITY OF GREENSBORO	86
1575	442	RUTH WALKER, ET AL	CITY OF GREENSBORO	86



LEGEND

- DEED PROPERTY LINE
- GIS PROPERTY LINE
- WASTE BOUNDARY (APPROXIMATE)
- COMPOST PLAT

0 500 1,000 2,000 3,000

GRAPHIC SCALE

NOTES:
1. DEED PROPERTY LINES BASED ON DISTANCES AND BEARINGS IDENTIFIED IN THE DEEDS. THE DEEDS WERE ACCESSED FROM THE GUILFORD COUNTY REGISTER OF DEEDS ONLINE RESOURCES.
2. GIS PROPERTY LINES BASED ON THE APPROXIMATE PARCEL BOUNDARIES SHOWN ON THE GUILFORD COUNTY GIS.

GREENSBORO

COMPOST PARCELS

CITY OF GREENSBORO
FIELD OPERATIONS DEPARTMENT

DRAWN BY: GGH	DATE: 11-11-11	SCALE: AS SHOWN	PARCELS - 1

APPENDIX D

OPERATIONS AND MAINTENANCE PLAN

OPERATIONS AND MAINTENANCE PLAN

1.0 GENERAL

1.1 PURPOSE

The purpose of the City of Greensboro Yard Waste Composting Facility is to reduce the volume of waste while producing a marketable product such as organic compost, mulch, and boiler fuel. The operation shall be performed in accordance with the North Carolina Solid Waste Management rules, Article 9 of Chapter 130A of the North Carolina General Statutes, the conditions of the permit, and approved plan. This Operations and Maintenance Plan (O&M Plan) describes the operation of the facility.

Accomplishing the goal of producing a marketable product requires a carefully planned, well-operated facility that produces quality compost and mulch that consumers can confidently use safely and effectively. The three main ways of ensuring consumer confidence and material quality are:

- Incoming material inspection and quality control
- Process control to assure proper composting and a consistent product
- Material testing to demonstrate product quality

The composting operation must be properly managed and closely monitored in order to be successful. Problems with vectors, odor and incomplete decomposition can occur if the site supervisor and other employees do not have the necessary understanding of the composting process. Through effective management, supervision, and training the City of Greensboro operates a Compost Facility with minimal operational shortcomings.

1.2 ACCESS AND SECURITY

15A NCAC 13B.1406(5)

The City of Greensboro Yard Waste Composting Facility is co-located at the White Street Landfill. The facility will operate from 7:50 AM to 4:50 PM Monday through Friday and from 7:00 AM to 1:00 PM on Saturday. The facility is secured by fences, gates, and berms. A yard waste operator shall be on duty at all times yard waste is accepted, i.e. during operating hours. The access road through the landfill to the yard waste facility is of all-weather construction and maintained for ease of access.

Waste materials received at the White Street Landfill scale house are weighed and categorized (e.g., construction/demolition, yard waste). The operation of the scale house is performed by City of Greensboro employees who direct the waste to its designated disposal area. Yard waste, defined as yard trash and land clearing debris as defined in GS 130A-290, including stumps, limbs, leaves, grass, and untreated wood, generated from within Guilford County or from municipalities whose boundaries cross into Guilford County, is directed to the yard waste composting facility.

1.3 RESPONSIBILITIES

At the yard waste composting facility, City employees perform all composting operations including receiving, screening (for suitability), grinding, mixing, windrowing, turning, monitoring, curing, blending, loading and packaging of the finished product. The process flow diagram along with the responsibilities of each individual is attached to this O&M Plan. The compost facility will be operated by the City of Greensboro at the following address:

City of Greensboro
White Street Landfill
2503 White Street
Greensboro, NC 27406

Each of the below personnel are located at the above address. The personnel, phone numbers, and responsibilities are outlined below:

Name: **Jason Jernigan** Title: Disposal Manager	Office: (336) 412-3959 Cellular: (336) 587-3445
Responsibilities: Oversees disposal operations.	
Name: **Timothy Williams** Title: Landfill Operations Supervisor	Office: (336) 373-7616 Cellular: (336) 337-0571
Responsibilities: Manages and oversees compost facility. Will ensure that the facility complies with all aspects of the waste disposal rules, permit, and O&M Plan including compost processing, record keeping, monitoring, facility safety, and environmental regulations. **Will update the O&M Plan on an annual basis.**	
Name: **James Swaney** Title: Composting Crew Supervisor	Office: (336) 373-7659 Cellular: (336) 430-2359
Responsibilities: Supervises compost facility including yard waste operators and maintenance workers.	
Name: **YW Operator** Title: Operator 1	Office: NA Cellular: NA
Responsibilities: Will be responsible for operating grinder, front wheel loader, and minor maintenance issues.	
Name: **YW Operator** Title: Operator 2	Office: NA Cellular: NA
Responsibilities: Will be responsible for row layouts and operation of the windrow turner. When needed will assist with screening operation.	
Name: **YW Operator** Title: Operator 3	Office: NA Cellular: NA
Responsibilities: Will be responsible for overseeing the temporary staff which will sort incoming materials.	
Name: **YW Maintenance Worker** Title: 4-6 Temporary Workers	Office: NA Cellular: NA
Responsibilities: Will be responsible for removing contaminants from incoming materials.	

1.4 YARD WASTE ACCEPTED

15A NCAC 13B.1406(6)

To ensure a high quality and consistent compost, only organic yard and garden waste will be accepted at the composting facility. These materials generally include stumps; limbs; leaves; grass; and untreated, unpainted wood (e.g. pallets), sod, garden waste, and any vegetative waste.

The compost crew supervisor will be responsible for ensuring that only authorized materials are accepted at the site. Material contaminated with MSW, C&D, hazardous waste, asbestos containing materials, medical waste, liquids, rocks, or any other contaminant not compatible with composting will be refused and directed to other areas or facilities for proper disposal.

1.5 FACILITY RECORDS

15A NCAC 13B.1406(1)(B)

The City of Greensboro will maintain the following information at the White Street Landfill Scale House records room as part of the permanent operating record and will be available for inspection at any time during normal operating hours:

- Quantity, type and source of waste received at the Compost Facility
- Quantity and type of waste processed into compost, mulch, and boiler fuel
- Daily operating record which shall include temperature data, quantity of material processed
- Analytical results on compost testing
- The quantity and type of compost produced by product classification
- The quantity and type of compost removed for use or disposal, by product classification, and the market or permitted disposal facility.

1.6 REPORTING

An annual report for the period of July 1 to June 30 will be prepared and submitted to the Division of Waste Management by August 1. The report will include the following information:

- The facility name, address, and permit number;
- The total quantity in tons and type of waste received at the facility during the year covered by the report, including tons of waste received from local governments of origin;
- The total quantity in tons and type of waste processed into compost during the year covered by the report;
- The total quantity in tons and type of compost produced at the facility by product classification during the year covered by the report;
- 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;
- Monthly temperature monitoring to support Rule .1406; and
- Results of analytical testing required by regulation.

1.7 TRAFFIC CONTROL

15A NCAC 13B.1406(8)

The Disposal Manager will be responsible for scale house clerks directing trucks with yard waste to the appropriate receiving area. The Landfill Operations Supervisor will be responsible for posting signs, traffic cones, and barricades as necessary to direct vehicles to the appropriate location to deposit the yard waste. The entry route will be marked by signs and set up to allow additional vehicles to safely queue when access to the tipping area needs to be controlled or limited. Proper traffic control is important to prevent yard waste from being received in unauthorized areas and to move vehicles through the site safely and efficiently. Signs located at the facility include:

- Directional signs located along the landfill road between the scale house and the compost facility.
- Facility sign at the site entrance indicating the City of Greensboro Compost Facility hours of operation and after-hours emergency contact name and telephone number.
- Informational sign located just inside the compost entrance lists the materials accepted; the facility permit number; states no hazardous waste, asbestos containing waste, or medical waste can be received at the site.
- Informational sign near the tipping area with safety regulations.
- An exit sign located at the facility exit.

2.0 ACTIVE COMPOSTING OPERATIONS

2.1 GENERAL

The City of Greensboro will conduct operations necessary to transform yard waste into marketable material. Source separated leaves will be passively composted. The remaining woody debris and mixed debris will follow the process below. The compost will be produced using conventional windrow composting with yard waste maintained under predominantly aerobic conditions. Composting involves a number of sequential steps, each of which will be described in detail in the following sections. Briefly, these steps include:

- Overflow area – Plat 2 will be used as an overflow area for the composting area at Plat 1. Yard waste or compost may be stored either in piles or windrows in the overflow area. The yard waste will be transferred from Plat 2 to Plat 1 as soon as the City of Greensboro is ready to compost the material or sufficient space is available on Plat 1.

- Preprocessing – Removal of non-compostable contaminants such as plastic bags, cans, bottles, etc. and segregation of different types of yard waste depending on carbon and nitrogen levels (e.g., brush, leaves, grass clippings, conifer needles) as necessary to facilitate the composting process.

- Material Size Reduction and Mixing – The yard waste are mechanically processed into small (less than two inches), relatively uniform particles. The various types of yard waste will be mixed going into the grinder to help prepare a uniform product and

avoiding large "clumps" of similar types of yard waste. The small, uniform, mixed material will decompose more rapidly and uniformly, generating a higher quality product. When the market is favorable, this is the last step in producing mulch and/or boiler fuel.

- Placing the Yard Waste in Windrows – After grinding, the yard waste is placed in long, uniform piles called windrows. The windrows will typically be 8 feet high, 20 feet wide at the base and of varying lengths as material is generated and processed. Adequate height and width are important in order to sustain the optimum temperature and moisture levels for rapid decomposition. The windrows will be placed far enough apart to allow processing equipment easy access between them to turn the windrows over regularly.
- Turning the Windrows – The windrows will be turned or mixed regularly to rotate the material from the outside of the pile to the inside. This action replaces the oxygen depleted in the center of the pile, helps maintain the temperature in the windrow, and provides a control mechanism from moisture content. More frequent turning speeds the decomposition process and mitigates any potential odors.
- Finishing the Compost – The initial rapid decomposition of the yard waste into the compost will slow as the material stabilizes. With regular turning, the material will be normally stable in three to four months, but can be stabilized in four to six weeks. To improve quality and appearance (marketability) of the end product, it will be passed through a screen to remove oversize particles and transferred to curing piles. The curing process allows the material to be stabilized and blended with material from different seasons. By placing the compost in the curing area in horizontal lifts and removing the material for sale or use in vertical cuts, seasonal difference in composition are minimized, resulting in the most uniform product.
- Material Testing – Testing of the finished compost assures users of the quality and safety of compost.

2.2 MATERIALS PROCESSING AND SIZE REDUCTION

Material preprocessing and size reduction are important for successful composting. Non-compostable contaminants such as plastic bags, cans, bottles, etc., are removed from the raw material and placed in 40 cubic yard containers. These containers are removed from the site when full and disposed of in the sanitary landfill. Bulk materials rejected such as metals, plastics, rubber, etc., are placed in a reject pile and are removed to a sanitary landfill.

The smaller the size of the particles in the composting process, the faster and more easily the material will compost. Size reduction increases the relative surface area available for microbial communities to use as a nutrient source. However, the necessary fuel, time, and maintenance of equipment (and, therefore, processing costs) increase with the generation of smaller size particles. The optimum particle size has been identified as two inches and less. The preprocessing and size reduction procedure also includes proper mixing of different types of yard waste to achieve a suitable carbon/nitrogen (C/N) ratio. Since the microorganisms responsible for aerobic decomposition utilize 30 parts carbon (for growth) per one part nitrogen (for protein

synthesis), a C/N ratio of 30 is best for composting. Research has found that the optimum C/N ratio is between 25 and 35. If the C/N ratio is above 35, the composting process requires more time to produce quality compost. Conversely, if the C/N ratio goes below 25, the composting process can generate odors as the excess nitrogen is released as ammonia. Grass clippings typically have a C/N ratio of 20. The C/N ratio for leaves and weeds range from 40 to 90. Brush and woody material have C/N ratios as high as 700. A desirable C/N ratio can be achieved by mixing the various types of plant waste in the grinding and windrow stages.

By segregating the incoming yard waste into categories according to potential nitrogen content as much as possible, and then mixing these materials during grinding and windrowing in a manner that strives towards a C/N ratio between 25 and 35, the most rapid and higher quality compost can be produced. If sufficient quantities of high nitrogen content yard material is not available to delivered yard waste, some compost materials may be mixed with fresh yard trimming to reduce the C/N ratio.

If the market is favorable or large quantities of woody waste are received compared to other waste, excess portions of the wood and brush can be chipped and ground to produce fine and coarse grades of mulch and shredded wood, which may be sold directly as boiler fuel or landscaping mulch.

2.3 WINDROW FORMATION AND TURNING

After grinding and mixing, the yard waste is piled into windrows to begin the composting process. There are three primary functions of turning the windrow: 1) aeration 2) uniform composting and 3) pathogen kill.

The organisms involved in composting need oxygen for their growth and survival. As the oxygen in the center of the windrows is depleted by the metabolic activity of the composting organisms, the piles must be turned to replace the oxygen (aeration). The frequency of turning depends on the type of materials and the moisture content. If aeration is not provided for the compost windrows, anaerobic conditions (no oxygen) can result, producing odor problems (especially during the turning process) and halting the decomposition process (pile failure).

Turning the windrows promotes more uniform composting by ensuring that all portions of the pile are exposed to high temperatures and oxygen. If this is not done regularly, materials on the inside may get so hot that organism growth is inhibited, while in other portions of the pile, low temperatures may not produce conditions for stabilization. The end result would be low quality compost.

It is important in organic material composting to ensure that plant pathogens have been destroyed. If plant pathogens survive the composting process, there is the possibility that plant diseases may be passed to the end user of the compost, potentially infecting any plants on which the compost is used. In general, a significant reduction in the number of pathogens of concern occurs by exposing all elements of the composting material to temperatures greater than 135˚F for greater than five hours.

Windrows will be formed on the ground at the composting facility.

The actual windrows will be about 20 feet wide and 8 feet high, with about 15 feet between adjacent windrows to allow a windrow turner (or equivalent) to operate. As the composting process proceeds, the volume of each row will decrease. Rows will be combined to maintain the appropriate dimensions of the windrow. Cat bucket loaders (or equivalent) shall be used for many site operations including materials transfer.

Proper height and width of each windrow is important in order to maintain the correct moisture and temperature levels. Maintaining large windrows with low surface-to-volume ratios during the latter stage of composting can conserve heat and aid temperature degradation of the organic material.

The windrow turning process is designed to provide aeration and to result in the material on the outside of the pile forming the innermost layers of the reconstituted pile. During turning the material will be lifted in the loader bucket and allowed to cascade down to facilitate aeration.

After initial formation, the windrows will be allowed to process until the temperature reaches 140˚F. After this initial period, the windrows shall be turned when the temperature reaches 140˚F or when appropriate.

If a large percentage of grass is being composted in a particular batch, additional turning may be necessary to prevent odors during the first couple of weeks of the composting operation. The decision to turn the windrow early is to be made by the composting crew supervisor.

Approximate composting time will be three to four months and possibly longer when large quantities of woody materials are used. If necessary, composting can be completed in four to six weeks.

A stabilizing of the temperature at a low level will indicate the end of the composting process.

2.4 COMPOST MONITORING

15A NCAC 13B.1406(9)

Composting is the result of the actions of a microbial community, which converts easily degradable organic matter to more stable humidified forms and to inorganic products such as carbon dioxide, water, ammonia, nitrate, and methane giving off heat as a metabolic yard waste product. The physical and chemical environment surrounding the compost microbes is constantly changing, primarily as a result of the accumulation of their own metabolic by-product, including heat. In turn, the conditions of the environment in which the microbes are in contact can greatly affect their ability to grow, to metabolize, and to survive.

The purpose of the compost monitoring program is to ensure that optimum conditions are maintained for microbial growth within the compost. The site operator will regularly monitor the temperature and moisture content of the compost windrows.

2.5 TEMPERATURE MONITORING

15A NCAC 13B.1406(10)

Temperature monitoring at the facility is conducted using a thermometer with a 36-inch stainless steel probe and a range of 0°F to 200°F manufactured by REOTMP or similar. When not in use, the thermometer is placed in a PVC case to prevent damage and stored at the facility office.

The temperature of the composting piles will be monitored and recorded at least three days per week until the minimum time temperature standard of 131°F for three consecutive days has been met. After that time, temperatures will be monitored as necessary to determine when to turn windrows and when the process is complete. At the start of composting, organisms that are active in medium heat ranges (mesophilic organisms) begin breaking up materials; and as their activity increases, the temperature of the piles begins to rise. Above 110°F, the thermophilic organisms, or those adapted to living in high temperature ranges, become active and the temperature of the windrow increases even more. As the composting process nears completion, the temperature will drop gradually.

The internal temperature of the windrows should be kept in the temperature range of 110°F to 160˚F until breakdown is nearly complete. Temperatures over 135°F will assure that fly eggs and larvae, as well as any parasitic organisms, are killed. A minimum temperature of 131°F will be maintained for at least three days in accordance with state operational requirements. Monitoring of the windrow temperatures will be conducted as required to verify that the regulatory requirements are met. The procedures for addressing windrows which do not meet minimum temperature requirements are provided under paragraph 2.8 – Special Conditions of this section. A premature drop in temperature often indicates need for aeration and/or moisture.

Of all parameters, temperature has the most dramatic and consistent impact on microbial activity. The greatest microbial activity occurs from 95°F to 120°F. By turning the piles as soon as the center reaches a temperature of 140°F, a high rate of microbial activity is assured throughout the pile in that the center represents the hottest part of the windrow with temperature decreases occurring towards the outer edge of the windrow.

2.6 MOISTURE CONTENT MONITORING

Ideally, the compost moisture content should be 40 percent to 65 percent by wet weight. Significantly, lower moisture content will cause the organisms responsible for decomposition to die. Higher moisture content will prevent oxygen from reaching the organisms. Decreasing moisture content is an indicator of progress in the composting process.

The compost will be visually observed and manually handled to determine the extent of moisture content. Moisture content is monitored during the initial formation of the windrow and following periods of excessive rainfall. This allows for the proper moisture content to be reached at the beginning of the composting process and maintained through the process. When excessive moisture is noted, corrective action (windrow turning) will be initiated.

2.7 CURING AND DRYING

As the compost approaches stabilization (two or three months), the inner pile temperature will gradually decrease to a range of 95˚F to 105˚F and will not rise when turned. At this point, the compost is ready for finishing. To improve quality and appearance (marketability) of the end product, it may be passed through a screen to remove oversized particles and stockpiled to cure. The oversized material can be circulated through the composting process by mixing it with material loaded into the grinder or disposed of if it contains significant quantities of contaminants (plastic, glass, metal, etc.).

To be marketable, the final compost should generally have 50 percent to 60 percent total solids (40 percent to 50 percent moisture content) and a pH of 6.0 to 8.0. Moisture reduction can be accomplished through additional turning to aerate any overly moist material. At this time, amendments can be added as necessary to market an optimum product.

2.8 SPECIAL CONDITIONS

15A NCAC 13B.1405(6)(D)

This section describes the precautions and actions for potential problems which can occur during the composting process including:

- High moisture content.
- Low moisture content.
- Low heat generation.
- Cold weather operation.
- Control of noise, vector, airborne particulates and odor.

<u>High Moisture Content</u>

High moisture content is due to periods of heavy rainfall, very wet incoming material or by adding too much water when trying to raise the moisture content. Methods for mitigating high moisture content include:

Aerating the pile more frequently to expose more of the material to the air.
Adding dry biodegradable amendments.

<u>Low Moisture Content</u>

Low moisture content is corrected by adding water to the compost windrow. Water should be added to the compost windrow just before windrow turning operations.

The quantity (Q) of water needed per foot of windrow length is calculated using the following equations:

$Cy = (O.5 \times H \times W)/27$
$Q = Cy \times G$

Where:

H	=	height of windrow in feet
W	=	width at base of windrow in feet
Cy	=	cubic yards of compost/foot in windrow length
G	=	gallons of water required/cubic yard compost
Q	=	gallons of water needed per foot of windrow length

The gallons of water required will be calculated from the Moisture Content monitoring in Section 2.6. Water added to the compost windrows will be derived from storm water collection. This water will be contained in a collection basin and transferred to a water truck (or wagon) and used for process moisture control. A hose will be attached to the truck, and the flow throttled to a controllable level. The flow rate is measured by timing how long it takes to fill a one (1) gallon bucket (in seconds) and multiplied times 60 to obtain the approximate flow rate. Then the same flow rate is maintained to provide the required amount of water to the windrow.

Low Heat Generation

Low heat generation represents low biological activity or pile failure. The shortest period of time composting windrows can approach stabilization is in 21 days. With high carbon content material, the process will take substantially longer (90-150 days). If the temperature of the compost pile drops prematurely (in less than 30 days) or never rises above 100˚F to 130˚F, it indicates low biological activity and possibly failure of the compost. In this situation, the following procedure will be followed:

1. Based on temperature monitoring data, isolate the affected portion of the windrow.
2. Investigate this section for contaminants, such as oil or chemicals. If contaminants are identified, remove the entire section of the windrow and dispose of it.
3. If no contaminants are found, check the moisture content, turn windrow and dampen if necessary.
4. If, after five days, the temperature has not risen at least 5˚F, mix the affected portion of the windrow with raw material high in nitrogen (grass clippings, manure, fertilizer) and again attempt to initiate composting.
5. If this effort does not result in satisfactory performance, then the entire affected portion of the windrow has failed and should be disposed of.

Actions will be taken to minimize impacts to the surrounding area due to the facility operation. All equipment operated at the site will have mufflers to reduce noise during operation. Raw material delivered to the site will be processed daily with no waste remaining on the receiving pad at the end of the work day. This action, along with the turning of the windrows, should prevent vector and odor problems. Airborne particulates will be kept to a minimum through proper moisture control at the site and not turning during periods of high winds.

Odors are generally the most common problem at a composting facility. Odors can be generated primarily from regions of the windrow becoming anaerobic and from areas where the C:N ratio is too low. Frequent windrow turning to aerate the pile reduces the risk of odor generation from

anaerobic conditions. Blending the proper ratios of wastes to place in windrows will assure proper C:N ratio.

Odors are typically strongest during the windrow turning. Odors can be minimized by timing the windrow turning to periods of wet weather and low winds (early morning hours). Windrow turning operations will not be performed when the wind blows from the west. This will minimize odors in the east, which are the closest receptors. If moisture is needed, water can be sprayed on the pile while turning it to help suppress odors.

2.9 QUALITY CONTROL

15A NCAC 13B.1405(6)(F),(10)(A)

The incoming material will be inspected as each load is received to prevent contamination.

2.10 MARKETING PLAN

The composted material will be marketed and sold to local home owners, landscapers, garden centers, sod farmers, or mulch supply companies.

3.0 PASSIVE COMPOSTING OPERATIONS

3.1 GENERAL

The leaf collection program uses vacuum trucks to collect leaves from the curb. These source separated leaves are directed to an unloading area designated for leaves only. This stockpile may then be passively composted, mixed with boiler fuel, or incorporated into the active compost.

3.2 WINDROW FORMATION AND TURNING

The leaves will be placed in windrows and turned as needed to break up areas of anaerobic activity.

3.3 COMPOST MONITORING

Temperature monitoring at the facility is conducted using a thermometer with a 36-inch stainless steel probe and a range of 0°F to 200°F manufactured by REOTMP or similar. When not in use, the thermometer is placed in a PVC case to prevent damage and stored at the facility office.

The temperature of the composting piles will be monitored and recorded at least three days per week until the minimum time temperature standard of 131°F for three consecutive days has been met. After that time, temperatures will be monitored as necessary to determine when to turn windrows and when the process is complete.

4.0 MAINTENANCE

4.1 SITE MAINTENANCE PROCEDURE

General upkeep of the yard waste composting facility includes maintaining roads, windrow pads, receiving and storage area, site drainage, electrical, water, sewer, and other facilities. The City is also responsible for collecting litter and stray debris daily on the site.

Weekly maintenance inspections of the facility site include paved areas, facility structures, storm water diversion ditches, berms, and sediment basins will be made to assure proper operation of the facility. Equipment on the site shall be inspected and maintained in accordance with the manufacturers recommendations. In addition, a visual inspection of the site will be performed to evaluate general upkeep.

To minimize odors, the processing receiving area will be swept as necessary to maintain a clean surface. This cleaning shall be performed at least monthly and as necessary.

Each windrow composting area shall be cleaned after completion of a composting operation in that area.

4.2 SAFETY AND PERSONNEL TRAINING

15A NCAC 13B.1406(7)

The purpose of this plan is to provide a framework to protect personnel and property under various circumstances. Open burning of solid waste is prohibited.

Personnel Training – The most important element of a safety and contingency plan is to ensure that personnel are properly trained. To this end, City personnel that are involved in the operation or that inspect the operation are required to have training in the following areas:

- Familiarity with this plan.
- Yard waste screening acceptance (this includes how to deal with unacceptable material).
- First aid. One individual will have CPR certification.
- Safety and standard operating procedures from knowledgeable experienced personnel, including: equipment suppliers, engineers, technicians, and experienced employees.
- Fire identification, protection, and emergency response procedures.
- Environmental regulations.
- Spill response.
- Hazard Communication.

Periodic testing and refresher training will also be utilized to ensure training retention.

4.3 CONTINGENCY PLAN

15A NCAC 13B.1405(10)(B)

Emergency contact information will be posted inside the building at the site. Dialing 911 will provide off-site emergency response.

Fire Protection – Routine fire prevention measures will be employed in and around the site, including the buildings and equipment. These measures will include maintaining cleanliness and proper storage of flammable and oily rags. Portable fire extinguishing equipment will be available in the attendant booth and in the vicinity of all heavy equipment to allow for rapid response in the event of a fire. All fire prevention equipment shall be inspected to make sure it is in good working order.

Emergency Response – Should an accident occur, the Facility Operator will notify authorities and summon assistance as necessary. Examples of situations where emergency response is necessary include fire and personnel injury. The necessary emergency response directory will be posted in the on-site attendant's booth.

Severe Storms/Natural Disasters – Severe storms or climatic events may include high intensity rainfall, extreme winds, snow, freezing weather, electrical storms, or earthquakes. Such natural events cannot be prevented. During such events, operations would cease and personnel would take shelter. Given the geographical location of the Greensboro facility, extreme climatological conditions are not extensive in duration or frequency. During times of high winds, heavy rain, or snow, operations are curtailed or stopped until the weather conditions have improved. Freezing weather conditions are generally limited to overnight and have little to no impact on the composting process. Any snow or ice build-up on the access roads at the facility is removed prior to beginning operations.

After any severe storm or natural disaster, all equipment and facilities would be inspected for damage. Any damage will be repaired immediately. If the damage prevents proper operation of a system, that system would not be restarted until after repairs are made.

Medical and Personnel Emergency – Medical or personnel injury could occur from accidents, possibly involving heavy equipment or other motor vehicles, or due to a health condition of site personnel. In any event, first aid will be given on site (all employees will be trained in first aid) and an ambulance called immediately. Immediate medial care will be provided at a community hospital. If the emergency is the result of an accident, it may be necessary to temporarily close the site to all but emergency vehicles until safe operation of the facility can resume.

4.4 ENVIRONMENTAL ASSESSMENT IMPACT

The potential environmental impact issues are water quality. The addition of water to the composting windrows is required for efficient composting. A water truck and/or sprinklers will apply water. Minimal impact to groundwater and/or surface water quality is expected.

4.5 SURFACE WATER MANAGEMENT

15A NCAC 13B.1405(2),(3),(4)

The storm water collection system is part of the overall erosion control plan implemented and maintained by the City of Greensboro landfill staff. In general, surface water is diverted from waste management areas including operational, curing, and storage areas at the compost facility. Leachate is contained onsite and treated, as needed, with the landfill leachate management system.

During the operation of the composting facility, storm water collected from the composting areas drains into collection basins located onsite. Settling of solids occurs in the basins with the water recirculated, as needed, to the windrows for increasing moisture content.

4.6 EQUIPMENT MAINTENANCE AND OPERATING RELIABILITY

The City of Greensboro will utilize the following equipment:

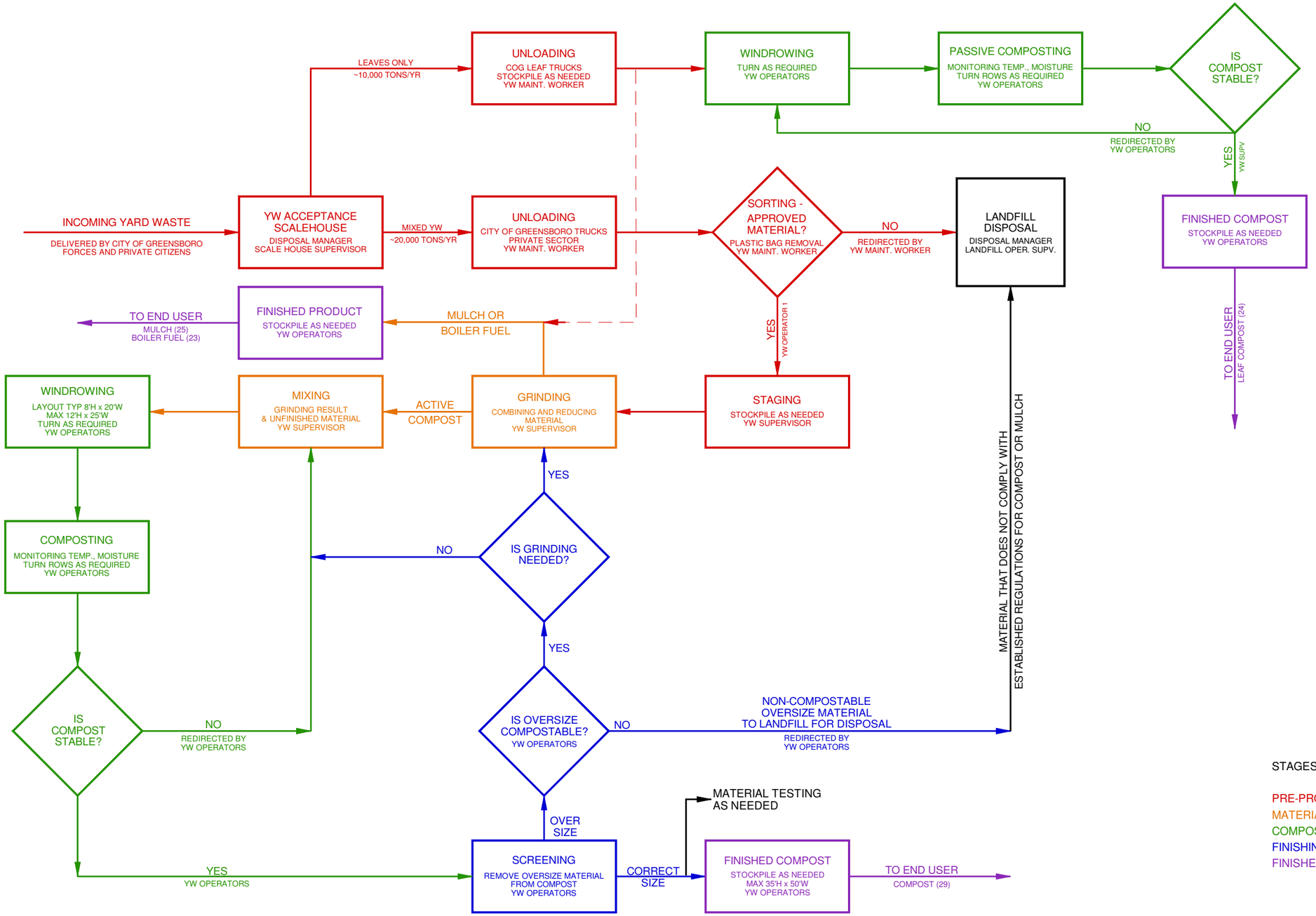
- One grinder,
- Two front end loaders,
- One dump truck,
- One screener (rented as needed), and
- One windrow turner.

Equipment maintenance includes preventative maintenance in accordance with manufacturer's guidelines and daily inspection. The manufacturer's guidelines are provided in the equipment's operation and maintenance manuals which will be maintained on site at the facility office. Daily inspection includes the following:

- Fuel level.
- Oil level.
- Battery.
- Tires (or tracks).
- Hydraulic system.
- Grease/lubricants.
- Lights/alarms.

In addition, operating personnel are trained to be alert for unusual noises and other sensory indications of impending problems. Such indications are checked out immediately upon detection to help prevent more serious equipment failures. The City of Greensboro operates a maintenance shop on the White Street Landfill premises.

If the windrow turner is down for a significant period of time and the front-end loaders are down, the City can relocate a loader or rent a loader for the time period required. If the grinder is down for a significant period of time, a subcontractor can be hired to perform the work.



STAGES

PRE-PROCESSING/PROCESSING
MATERIAL SIZE REDUCTION AND MIXING
COMPOSTING (WINDROW AND TURNING)
FINISHING THE COMPOST
FINISHED PRODUCT

GREENSBORO

PROCESS FLOW DIAGRAM

CITY OF GREENSBORO
FIELD OPERATIONS DEPARTMENT

DRAWN BY: GGH
DATE: OCTOBER 2014

NO SCALE

EXHIBIT 7

APPENDIX E

CAPACITY CALCULATIONS

The City of Greensboro
White Street Compost Facility
Permit No. 41-03-Compost

Plat	Total Area (acres)	Usable Area (acres)	Primary Use
Plat #1	12.5	8.4	Receiving, processing, and windrow operation
Plat #2	6.8	5.6	Storage area and leaf deliveries
Plat #3	9.9	6.2	Finished product, curing, storage, and loading

Assumptions

The use of the plats can be adjusted to accommodate composting, curing, and storage needs. Not all incoming yard waste is processed into compost (wood and leaf mulch are also produced). The capacity estimate uses the following assumptions:

Bulk density of processed yard waste is 600 lb/cy

Density= 600 lb/cu yd

Typical windrow dimensions are 8 feet high x 20 feet wide

Base= 20 feet

Height= 8 feet

Typical windrow spacing is 5 feet between pairs and 15 feet between sets of pairs (see drawing C-1)

Typical cross section is based on using bucket loader (Area = 2/3 x base x height)

A_{SEC}= 107 ft^2

Typical composting time of 4 months per cycle, 3 cycles per year

$Cycles_{TYP}$= 3 per year

Maximum composting time of 3 months per cycle, 4 cycles per year

$Cycles_{MAX}$= 4 per year

Total Volume

L_{SOUTH}= 3,650 feet (of windrows in southern portion of Plat #1)

L_{NORTH}= 7,203 feet (of windrows in northern portion of Plat #1)

Volume= 1,157,653 ft^3

= 42,876 cu yd per cycle

Total Weight

Weight= 25,725,630 lb per cycle

= 12,863 tons per cycle

Annual $weight_{TYP}$= 38,588 tons per year

Annual $weight_{MAX}$= 51,451 tons per year

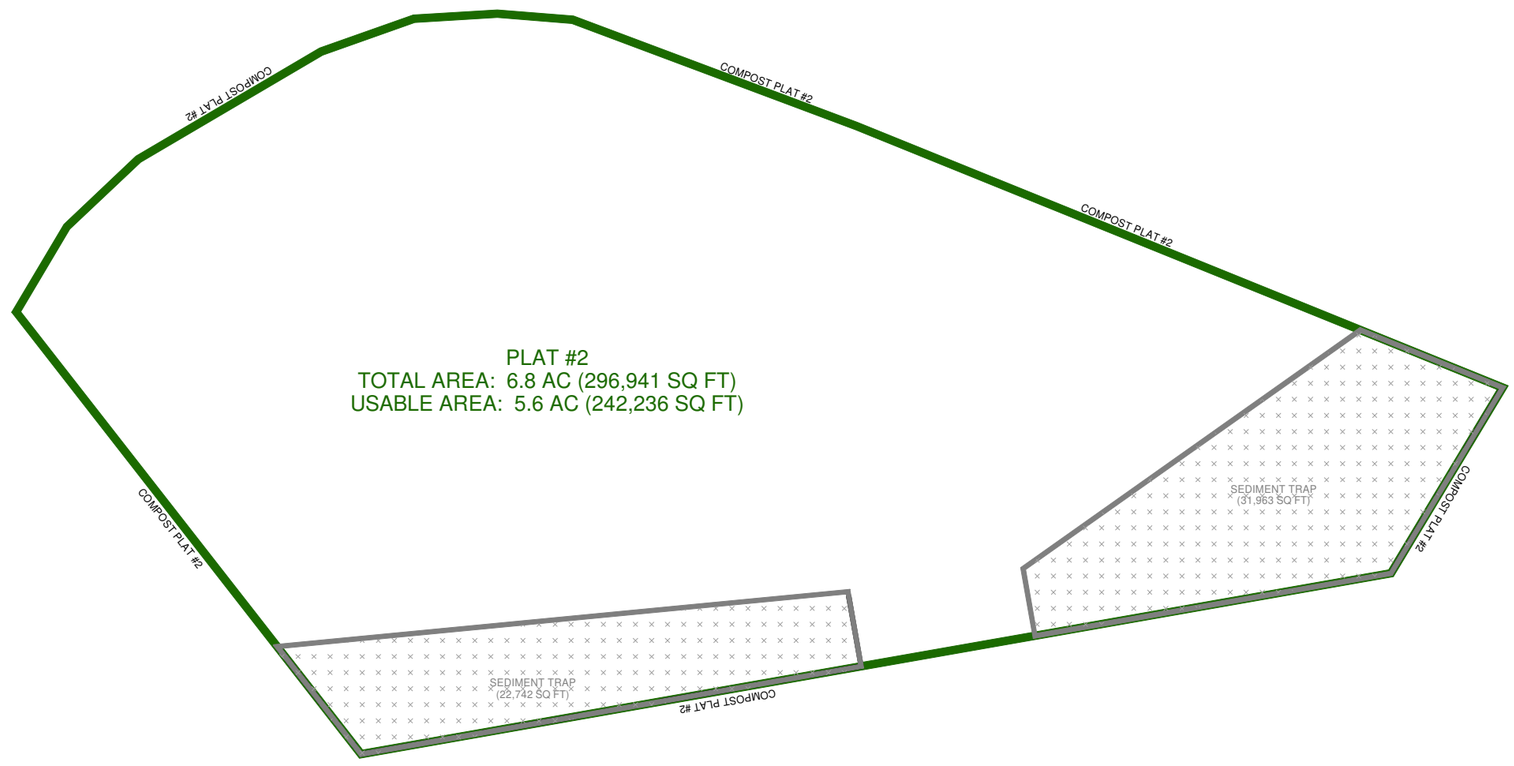
The information included on this exhibit has been compiled from a variety of sources. The City of Greensboro makes no representations or warranties as to accuracy, completeness, or rights to the use of such information. This exhibit is not intended for use as a land survey product nor is it designed or intended as a construction design document.

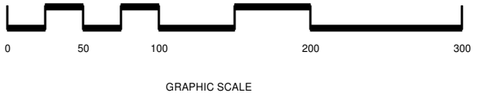
GREENSBORO

PLATS #1 AND #3 DESIGN CAPACITY

CITY OF GREENSBORO
FIELD OPERATIONS DEPARTMENT

DRAWN BY: GGH	DATE: 3/12/12	SCALE: AS SHOWN	DWG C-1





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GREENSBORO

PLAT #2 DESIGN CAPACITY

CITY OF GREENSBORO
FIELD OPERATIONS DEPARTMENT

DRAWN BY: GGH	DATE: 3/12/12	SCALE: AS SHOWN	DWG C-2

APPENDIX F

INFORMATION SHEET

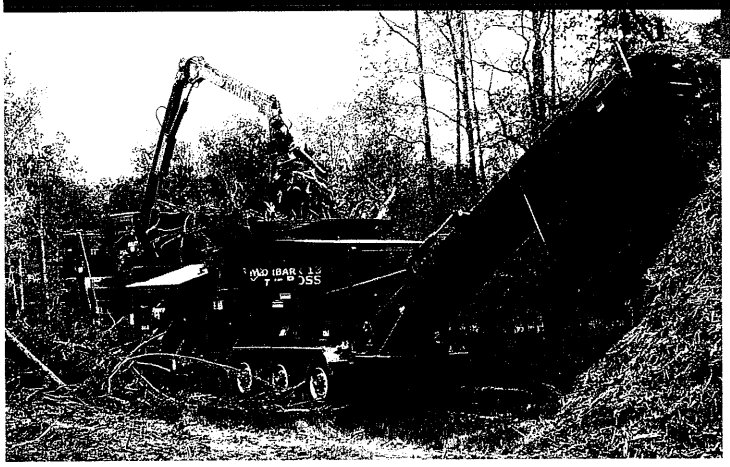
INFORMATION SHEET
CITY OF GREENSBORO COMPOST

The City of Greensboro compost is a Grade A compost and is a combination of leaves and yard waste from sources within Guilford County. Composting is a natural process that utilizes microorganisms to decompose organic matter. The material can be used as a mulch or as a soil amendment. The compost **cannot** be used as a stand alone fertilizer or a stand alone potting medium. This material should **not** be used in areas prone to flooding or to frozen ground.

APPENDIX G

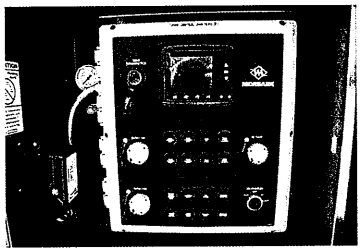
EQUIPMENT SPECIFICATIONS

MORBARK® 1300B TUB GRINDER



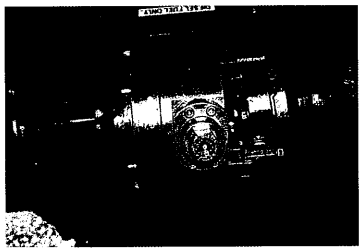
BENEFITS

- The Morbark 1300B Tub Grinder combines heavy-duty construction with the latest technology, including the Morbark Integrated Control System, which allows you to monitor critical machine parameters.
- Replaceable, one-piece anvil and tub floor wear plates make maintenance easy and reduce downtime.
- Full hydraulic tilt tub provides easy access to grates and anvil for routine maintenance
- Proven drive line protection system that protects against catastrophic damage from contaminants.
- Like all Morbark equipment, the 1300B Tub Grinder is a long-lasting, durable machine backed by a world-class parts and service support team.



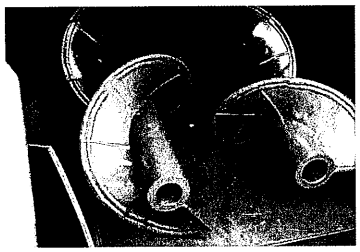
Morbark Integrated Control Systems (MICS)

Monitors pressures, temperatures, clutch systems, tub rotation and engine efficiency to maximize production and engine efficiency.



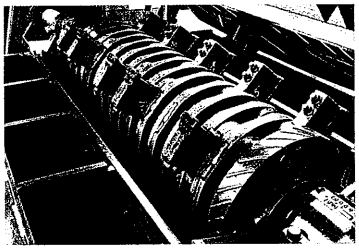
Torque Limiter

The full breakaway torque limiter system protects the engine and clutch against shock and overload without stalling the engine.



Hydraulic Augers

Quickly remove product from beneath the mill and during material surges, pressure sensors automatically slow tub rotation to prevent plugging.



Hammermill

Laser-cut, factory balanced hammermills with forged hammers offer unsurpassed durability and smooth operation.

SPECIFICATIONS

SPECIFICATIONS MAY VARY WITH EQUIPMENT OPTIONS 7/8/11

General

Length (transport)	43'8"
Length (operating)	60'10"
Height (transport)	13'6"
Width	11'11"
Gross weight NCL	74,580 lbs.
Axle weight NCL	50,520 lbs.
Tongue weight NCL	24,060lbs.
Gross weight WCL (optional)	86,520 lbs.
Axle weight WCL (optional)	56,000 lbs.
Tongue weight WCL (optional)	30,520 lbs.
Engine	CAT or Cummins
Horsepower	800 HP to 1,050 HP
Fuel capacity (tank)	505 gallons
Hydraulic oil capacity	205 gallons

Tub

Tub has 10' diameter at inside base, and 57" deep walls constructed of 3/8" structural steel plate, floor constructed of 1/2" thick T-1 wear-resistant steel, supported by (16) roller guides carried on 1-1/2" diameter shaft

Hydraulic full tilt tub for easy access to hammermill, with hydraulically powered variable RPM forward and reverse MICS (Morbark Integrated Control System) tub control

Tub cover for debris containment

Hammermill and Screen

31" x 64" Hammermill system constructed of heavy-duty 20" diameter rotor, (13) 1-7/8" thick 2-piece laser-cut rotor plates to ensure precision and enforce steel strength. The plates are keyed on a 7" diameter shaft with 4-7/16" bearings and (8) 2-1/4" hammer retaining rods

1" thick steel heavy duty split-screens

Discharge System

Two 16" diameter augers discharge onto a 40" x 31' heavy-duty belt conveyor

Discharge height of 17'

Hydraulic fold for transport

Front hydraulic stabilizers and manual outriggers

Options

Light package

Air compressor

Morbark automatic reversing fan

Remote control

Magnetized end pulley with collecting slide tray for ferrous metal extraction

Hydraulic rod pusher

Dust suppression system

14' tub flare

ESPAR heating system

Externally adjustable break-away torque limiter

Available with no cab and loader

MORBARK®
BUILDING EQUIPMENT THAT CREATES OPPORTUNITIES

800.831.0042
989.866.2381
www.morbark.com

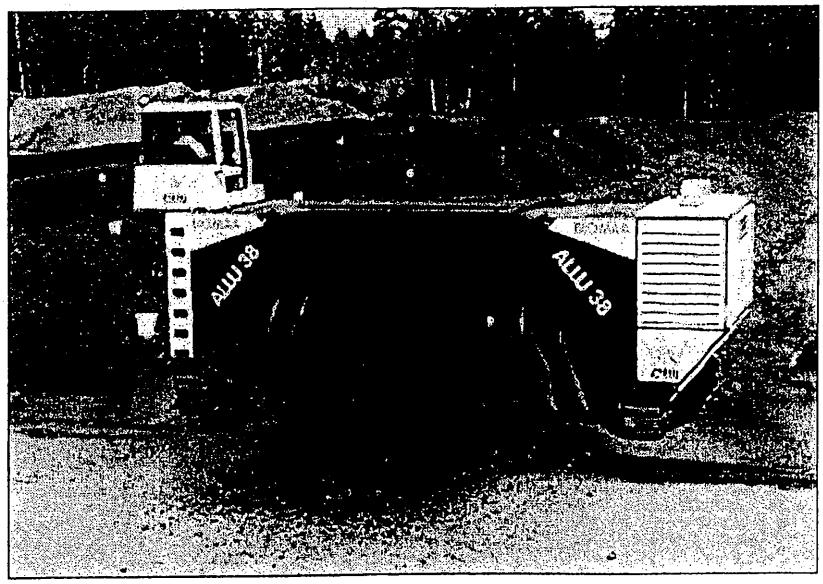
PO Box 1000
8507 S. Winn Rd.
Winn, MI 48896

ALLU AS 38

ALLU AS 38 Windrow Turner is designed for aeration, turning and mixing of compost windrows. It can be also used for processing of contaminated soils and mass stabilization.

ALLU AS 38 is a separate machine which can be used without any outside equipments or source of energy. The machine is operated by a diesel engine.

Picture of ALLU AS 38 turning sludge compost.



The turner consists of a steel frame onto which the mixing drum is attached. The mixing drum is 6.33 metres long and 2.2 metres in diameter. The drum can be shifted 110 mm vertically. Processing of contaminated soils on several locations has proved the effectiveness of the AS 38 frame and drum structure.

Robust frame and drum structure of ALLU AS 38.

Driving force is produced by hydraulic motors and gears installed inside the

	Scrapers can be shifted hydraulically. Can be turned for transportation.
TRACKS	A robust 0.5 m wide and 2.4 m long pair of steel tracks.
WORKING SPEED	50 - 500 m/h depending on the material.
MOVING SPEED	About 2 km/h.
TOTAL WEIGHT	About 22 tons.
DIMENSIONS	Working condition - width 9.5 m - length 4.3 m - height 4.9 m Transportation condition - width 10.2 m - length 2.6 m - height 3.45 m Min transportation platform area 2.6 x 8.3 m.
TEMPERATURE	Max continuous working temperature +45°C.

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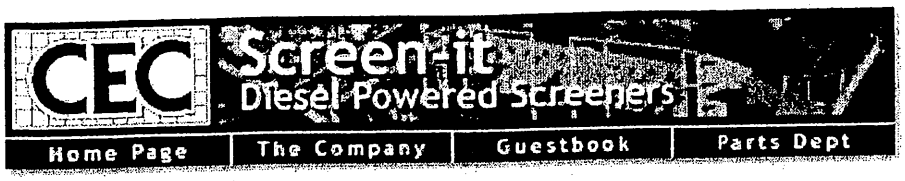
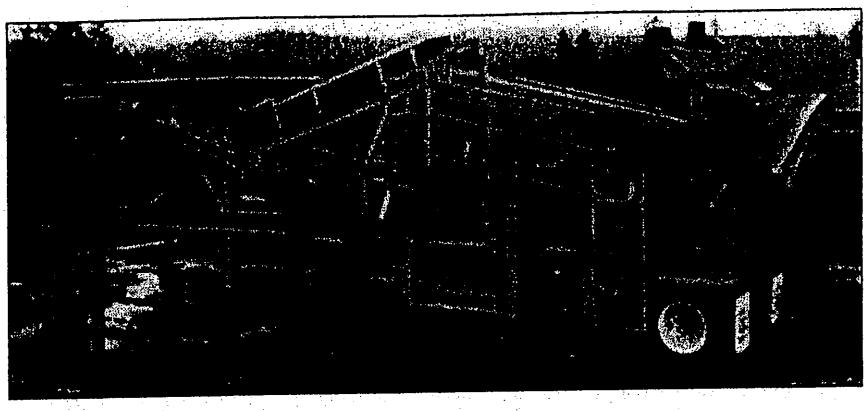
Street address: Ahertajantie 1, 15871 Hollola, FINLAND Postal address: P.O. Box 62, 15880 Hollola, FINLAND
Phone: +358 3 882 140 Fax: +358 3 882 1440 Email: info@allu.net



Screen It 4'x10'



The CEC 4' x 10' Screen-It is a very mobile screener, and has the same 5/8" screen stroke of it's Big Brothers (5' x 12' & 6' x 16'). Hydraulic, 15-minute setup; hydraulic-folding, high discharge conveyors; open throat feeder; and optional hydraulic-dump grizzly. Priced with conventional screens. Gives you CEC production.

Click here to ask for further information!