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Solid Waste Section
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PERMIT APPLICATION FOR CONTINUED OPERATION

Alexander County Construction and Demolition Landfill Facility

Owner:
Alexander County
Taylorsville, North Carolina

Project Number
G07060

June 2008

Submitted By:
Municipal Engineering Services Company, P.A.
Garner • Boone • Morehead City
North Carolina

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SECTION 1.0

OPERATION PLAN

1.1 Introduction

Alexander County will continue to operate a Construction and Demolition Landfill (C&DLF) within the permitted boundaries and upon closed sections of the present municipal solid waste landfill. The section are limited to areas that stopped receiving waste in 1998 and have two feet of final cover.

The C&D Landfill will receive the following solid waste:

1. Land clearing debris as defined in G.S. 130A-290, specifically, solid waste which is generated solely from land clearing activities, such as stumps, trees, etc.;

2. Inert debris from any source that is defined as solid waste which consists solely of material that is virtually inert, such as brick, concrete, rock and clean soil;

3. Asphalt in accordance with G.S. 130-294(m);

4. Construction and demolition debris defined as solid waste resulting solely from construction, remodeling, repair or demolition operations on pavement, buildings or other structures (includes glass, vinyl, plastic, laminates, plumbing fixtures, etc.);

5. Construction materials, that could or would be part of any construction, remodeling, repair or demolition of pavement, buildings or other structures, from industrial and/or commercial sources within the County such as, but not limited to, shingles from shingle manufacturers, mobile home debris from mobile home manufacturers, lumber from lumber yards, scrap materials from cabinet manufacturing facilities and furniture, pre-fabricated building structure components such as joists and any other scrap materials; and,

6. Pallets from any source.

Yard Waste as defined in G.S. 130A-290, shall not be disposed in the landfill area. However, yard trash, along with land-clearing debris, may be accepted for processing in a permitted Yard Waste Composting Area.

Soil cover will be placed at least once a week. (See cover requirements under operational requirements).

The County will implement a program at the landfill for detecting and preventing the disposal of hazardous and liquid wastes. The program consists of random inspection of incoming loads at a minimum of 1% of the weekly traffic. Landfill personnel will be trained to recognize hazardous and liquid wastes. Records will be kept on the training and the inspections.

The County will monitor for explosive gases at landfill structures and the perimeter of the landfill. The concentration of methane gases generated by the landfill cannot exceed 25 percent of the lower explosive limit for methane in the structures, and it cannot exceed 100 percent of the lower explosive limit for methane of the landfill property boundary. If methane gas is found to exceed the acceptable limits at either the property boundary or landfill structures, it is the County's responsibility to do the following:

1. Immediately take all necessary steps to ensure protection of human health, i.e. no smoking, temporarily abandon the structure and notify the Division of Solid Waste Management.

2. Within seven days of detection, place in the operating record the methane gas levels detected and a description of the steps taken to protect human health; and

3. Within 60 days of detection, implement a remediation plan for the methane gas releases, place a copy of the plan in the operating record, and notify the Division of Solid Waste management that the plan has been implemented. The plan will describe the nature and extent of the problem and the proposed remedy.

Off and on site erosion will be controlled through erosion control structures and devices. Provisions for a vegetative ground cover sufficient to restrain erosion will be accomplished within 30 working days or 120 calendar days upon completion of any phase of landfill development.

The County will record and retain at the landfill an operating record of the following information:

(1) Inspection records, waste determination records, and training procedures;

(2) Amounts by weight of solid waste received at the landfill;

(3) Gas monitoring results and any remediation plans;

(4) Any demonstration, certification, findings, monitoring, testing or analytical data required for surface and groundwater monitoring;

(5) Any monitoring, testing or analytical data required for closure or post-closure;

(6) Any cost estimates and financial assurance documentation.

All information contained in the operating record will be furnished upon request to the Division of Solid Waste Management or be made available at all reasonable times for inspection by the Division.

Ground and surface water will be sampled and analyzed according to Subtitle D Appendix I detection monitoring requirements. The monitoring frequency for all Appendix I detection monitoring constituents will be at least semiannual during the life of the facility (including closure) and the post-closure period. A minimum of four independent samples from each well (background and downgradient) will be collected and analyzed for the Appendix I constituents during the first semiannual sampling event. At least one sample from each well (background and downgradient) will be collected and analyzed during subsequent semiannual sampling events.

If the County determines that there is a statistically significant increase over background for one or more of the constituents listed in Appendix I at any monitoring well at the relevant point of compliance, the County will, within 14 days of the finding, report to the Division of Solid Waste and place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels. The County will establish an assessment monitoring program within 90 days. The County may demonstrate that a source other than the landfill caused the contamination or that the statistically significant increase resulted from an error in sampling, analysis, statistical evaluation, or natural variation in ground-water quality. A report documenting these demonstrations will be certified by a Licensed Geologist or Professional Engineer and approved by the Division of Solid Waste. A copy of this report will be placed in the operating record. If a successful demonstration is made, documented, and approved by the Division, the County may continue detection monitoring. If after 90 days, a successful demonstration is not made, the County will initiate an assessment monitoring program.

1.2 <u>Operational Requirements</u>

1. Waste Acceptance and Disposal Requirements

   a. The Construction and Demolition Landfill (C&DLF) will only accept those solid wastes which it is permitted to receive. The County will notify the Division within 24 hours of attempted disposal of any waste the landfill is not permitted to receive.

   b. Asbestos waste will be managed in accordance with 40 CFR 61. The regulated asbestos waste will be covered immediately with soil in a manner that will not cause airborne conditions and will be disposed of separate and apart from other solid waste, as:

      i. in a defined isolated area within the foot print of the landfill, or

      ii. in an area not contiguous with other disposal areas. Separate areas will be designated so that asbestos will not be exposed by future land-disturbing activities.

   c. Wastewater treatment sludges may be accepted, with the approval of the Division, either as a soil conditioner incorporated into or applied onto vegetative growth layer. The wastewater treatment sludge will neither be applied at greater than agronomic rates nor to a depth greater than six inches.

   d. The following wastes are prohibited from disposal at the C&DLF:

      i. Containers such as tubes, drums, barrels, tanks, cans, and bottles unless they are empty and perforated to ensure that no liquid, hazardous or municipal solid waste is contained therein.

      ii. Garbage as defined in G.S. 130A-290(a)(7).

      iii. Hazardous waste as defined in G.S. 130A-290(a)(8), to also include hazardous waste from conditionally exempt small quantity generators.

      iv. Industrial solid waste unless a demonstration has been made and approved by the Division that the landfill meets the requirements of Rule .0503(2)(d)(ii)(A).

      v. Liquid wastes.

      vi. Medical waste as defined in G.S. 130A-290(a)(18)

      vii. Municipal solid waste as defined in G.S. 130A-290(a)(18a)

      viii. Polychlorinated biphenyls (PCB) wastes as defined in 40 CFR 761

      ix. Radioactive waste as defined in G.S. 104E-5(14)

      x. Septage as defined in G.S. 130A-290(a)(32)

      xi. Sludge as defined in G.S. 130A-290(a)(34)

      xii. Special waste as defined in G.S. 130A-290(a)(40)

xiii. White goods as defined in G.S. 130A-290(a)(44)

xiv. Yard trash as defined in G.S. 130A-290(a)(45)

e. The following waste will not be received if separate from C&DLF waste: lamps or light bulbs including but not limited to halogen, incandescent, neon or fluorescent; lighting ballast or fixtures: thermostats and light switches; batteries including but not limited to those from exit and emergency lights and smoke detectors; lead pipes; lead roof flashing; transformers; capacitors; and copper chrome arsenate (CCA) and creosote treated woods.

f. Waste accepted for disposal in the C&DLF unit shall be readily identifiable as C&D waste and must not have been shredded, pulverized, or processed to such an extent that the composition of the original waste cannot be readily ascertained except in the case where the waste has come from a permitted recycling and reuse facility.

g. The County will not knowingly dispose any type or form of C&D waste that is generated within the boundaries of a unit of local government that by ordinance:

i. Prohibits generators or collectors of C&D waste from disposing that type or form of C&D waste.

ii. Requires generators or collectors of C&D waste to recycle that type or form of C&D waste.

2. Cover material requirements.

a. Except as in Subparagraph (c), the County must cover the solid waste with six inches of earthen material when the waste disposal area exceeds one-half acre and at least once weekly. Cover must be placed at more frequent intervals if necessary to control disease vectors, fires, odors, blowing litter and scavenging. A notation of the date and time of the cover placement must be recorded in the operating record, as specified in Paragraph 10 in this section.

b. Except as in Subparagraph (c), areas which will not have additional wastes placed on them for three months or more, but where final termination of disposal operations has not occurred, will be covered and stabilized with vegetative ground cover or other stabilizing material.

c. Alternative material or an alternative thickness of cover may be used, if the County demonstrates that the alternative material or thickness controls disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment, and is approved by the Division.

3. Spreading and compacting requirements.

a. C&DLF units will restrict solid waste to the smallest area feasible.

b. Solid waste will be compacted as densely as practical into cells.

c. Fencing and/or diking will be provided within the area to confine solid waste which is subject to be blown by the wind. At the conclusion of each operating day, all windblown material resulting from the operation will be collected and disposed of by the County.

4. Disease vector control

   a. The County will prevent or control on-site populations of disease vectors using techniques appropriate for protection of human health and the environment.

   b. "Disease vectors" means any rodents, flies, mosquitoes, or other animals, including insects, capable of transmitting disease to humans.

5. Air Criteria and Fire Control

   a. The County will ensure that the units do not violate any applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the U.S. EPA Administrator pursuant to Section 110 of the Clean Air Act, as amended.

   b. Open burning of solid waste, except for the approved burning of land clearing debris generated on-site or debris from emergency clean-up operations, is prohibited at all C&DLF facilities. Prior to any burning a request will be sent to the Division for review. The Division will determine the burning to be approved if it is one of two types of burning previously referenced. A notation of the date of approval and the name of the Division personnel who approved the burning must be included in the operating record.

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

   d. Fires and explosions that occur at the C&DLF require verbal notice to the Division within 24 hours and written notification within 15 days. Written notification must include the suspected cause of fire or explosion, the response taken to manage the incident, and the action(s) to be taken to prevent the future occurrence of fire or explosion.

6. Access and safety requirements

   a. The C&DLF will be adequately secured by means of gates, chains, beams, fences and other security measures approved by the Division of Solid Waste Management to prevent unauthorized entry.

   b. An attendant will be on duty at the site at all times while it is open for public use to ensure compliance with operational requirements.

   c. The access road to the site will be of all-weather construction and maintained in good condition.

   d. Dust control measures will be implemented when necessary. If dust problems should arise, the County will use any reasonable means necessary to reduce it. At a minimum the County will spray water on necessary areas.

   e. Signs providing information on tipping or disposal procedures, the hours during which the site is open for pubic use, the permit number and other pertinent information will be posted at the site entrance.

   f. Signs will be posted stating that no hazardous or liquid waste can be received.

g. Traffic signs or markers will be provided as necessary to promote an orderly traffic pattern to and from the discharge area and to maintain efficient operating conditions.

h. The removal of solid waste from the C&DLF will be prohibited unless the County has included in it's operational plan a recycling program which has been approved by the Division. The general public is prohibited from removal activities on the working face.

7. Erosion and Sedimentation Control Requirements

a. Adequate sediment control measures (structures or devices), will be utilized to prevent silt from leaving the landfill.

b. Adequate sediment control measures (structures or devices), will be utilized to prevent excessive on-site erosion.

c. Provisions for a vegetative ground cover sufficient to restrain erosion will be accomplished within **30 working days** or **120 calendar days** upon completion of any phase of landfill development.

8. Drainage Control and Water Protection Requirements

a. Surface water will be diverted from the operational area and will not be impounded over waste.

b. Solid waste will not be disposed of in water.

c. Leachate will be contained on site and properly treated prior to discharge.

d. The landfill will not:

(i) Cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements pursuant to Section 402.

(ii) Cause the discharge of a nonpoint source of pollution to waters of the United States, including wetlands, that violates any requirements of an area-wide or state-wide water quality management plan that has been approved under Section 208 or 319 of the Clean Water Act, as amended.

9. Survey for Compliance

Within 60 days of a permittee's receipt of the Division's written request, the permittee will have a survey conducted of active and/or closed portions of the unit(s) at the facility in order to determine whether operations are being conducted in accordance with the approved design and operation plans. The permittee must report the results of the survey, including a map produced by the survey, to the Division within 90 days of receipt of the Division's request.

a. A survey shall be required by the division:

(i) If there is reason to believe that the operations are being conducted in a manner that deviates from the plan listed in the effective permit, or

(ii) As verification that operations are being conducted in accordance with the plan listed in the effective permit.

b. Any survey pursuant to this Paragraph must be performed by a professional land surveyor duly authorized under North Carolina law to conduct such activities.

10. Record keeping Requirements

a. The County will record and retain at the facility, or an alternative location near the facility approved by the Division of Solid Waste Management, in an operating record the following information as it becomes available.

(i) Inspection records, waste determination records, and training procedures;

(ii) Amounts by weight of solid waste received at the landfill to include source of generation.

(iii) Any demonstration, certification, findings, monitoring, testing or analytical data required for surface, groundwater and gas monitoring;

(iv) Any monitoring, testing, or analytical data required for closure or post-closure;

(v) Any cost estimates and financial assurance documentation;

(vi) Notation of date and time of placement of cover material; and,

(vii) All audit records, compliance records and inspection reports.

b. All information contained in the operating record will be furnished to the Division of Solid Waste Management according to the permit or upon request, or be made available for inspection by the Division.

c. The operating record will also include a copy of the approved operation plan and all required permits.

SECTION 2.0

CLOSURE PLAN

2.1 Introduction

The County will cap their landfill within 180 days after the final receipt of solid waste. The cap system will consist of 12 inches of intermediate cover, 18 inches of cohesive soil with a permeability no greater than 1.0×10^{-5} cm/sec, 18 inches of erosive layer. The cap contains gas venting system consisting of a series of washed stone trenches below the soil liner that will be vented through 10" diameter PVC pipes that penetrate the cap. The cap system will also include the proper seeding and mulching of the erosive layer and other erosion control devices. The largest area ever needing closure will be 4.26 acres.

Prior to beginning closure, the County shall notify the Division of Solid Waste that a notice of the intent to close the unit has been placed in the operating record. The County shall begin closure activities no later than thirty (30) days after the date on which the landfill receives the final wastes or if the landfill has remaining capacity and there is a reasonable likelihood that the landfill will receive additional wastes, no later than one year after the most recent receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the Division of Solid Waste if the County demonstrates that the landfill has the capacity to receive additional waste and the County has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the closed landfill.

The County shall complete closure activities in accordance with the closure plan within 180 days following the final receipt of waste. Extensions of the closure period may be granted by the Division of Solid Waste if the County demonstrates that closure will, of necessity, take longer than one hundred eighty (180) days and the County has taken and will continue to take all steps to prevent threats of human health and environment from the enclosed landfill.

Following closure of the landfill, the County shall notify the Division that a certification, signed by the project engineer verifying that closure has been completed in accordance with the closure plan, and has been placed in the operating record. The County shall record a notation on the deed to the landfill property and notify the Division of Solid Waste that the notation has been recorded and a copy has been placed in the operating record. The notation on the deed shall in perpetuity notify any potential purchaser of the property that the land has been used as a landfill and its use is restricted under the closure plan approved by the Division of Solid Waste. The County may request permission from the Division to remove the notation from the deed if all waste is removed from the landfill.

2.2 Cap System

All materials and equipment shall be furnished by an established and reputable manufacturer or supplier. All materials and equipment shall be new and shall be of first class ingredients and construction, designed and guaranteed to perform the service required and shall conform with the following standard specifications or shall be the product of the listed manufacturers or similar and equal thereto as approved by the Engineer.

2.3 Cohesive Soil Cap

All materials and equipment shall be furnished by an established and reputable manufacturer or supplier. All materials and equipment shall be new and shall be of first class ingredients and construction, designed and guaranteed to perform the service required and shall conform with the following standard specifications or shall be the product of the listed manufacturers or similar and equal thereto as approved by the Engineer.

Cohesive Soil Cap Borrow Material

Test Name	Test Method	Contractor/Engineer Frequency
Moisture/Density	ASTM D698/D1557	1 per 5000 c.y.
Remolded Permeability	ASTM D5084	1 per 5000 c.y.
Atterberg Limits	ASTM D4318	1 per 5000 c.y.
Visual Classification	ASTM D2488	1 per 5000 c.y.
Grain Size Distribution	ASTM D422	1 per 5000 c.y.

Cohesive Soil Cap Test Pad

Test Name	Test Method	Contractor/Engineer Frequency
Field Moisture/Density	ASTM D1556 (sand cone) ASTM D2922/D3017 (nuclear gauge) ASTM D2937 (drive cylinder)	3 per lift
Permeability	ASTM D5084	1 per lift
Remolded Permeability	ASTM D5084	1 per lift
Atterberg Limits	ASTM D4318	1 per lift
Visual Classification	ASTM D2488	1 per lift
Grain Size Distribution	ASTM D422	1 per lift

In-Place Cohesive Soil Cap

Test Name	Test Method	Contractor/Engineer Frequency
Field Moisture/Density	ASTM D1556 (sand cone) ASTM D2922/D3017 (nuclear gauge) ASTM D2937 (drive cylinder)	1 per lift per acre
Permeability	ASTM D5084	1 per lift per acre
Atterberg Limits	ASTM D4318	1 per lift per acre
Visual Classification	ASTM D2488	1 per lift per acre
Grain Size Distribution	ASTM D422	1 per lift per acre

(a) Suitable on-site and/or off-site soils may be used as cohesive soil cap if it can achieve an in-place permeability of 1.0×10^{-5} cm/sec or less and meets all testing requirements indicated in the material testing paragraph in this section. Wyoming bentonite or an approved equivalent may be blended with the soil to lower the soil's permeability.

(b) A permeability “window” shall be developed for each type of soil from the borrow material that will be used for construction of the cohesive soil cap. The window shall be plotted on a semi-log plot with moisture content versus density. Laboratory testing to develop the window shall include a series of remolded samples compacted to various dry densities and moisture contents utilizing the same compactive effort (ASTM D 698 or D 1557). The remolded samples shall be tested for permeability to determine whether or not the particular soil type will provide the maximum permeability (1.0×10^{-5} cm/sec) at various dry densities and moisture contents. The window is then developed from the accepted remolded samples and moisture contents from the semi-log plot. A straight line is typically drawn between the acceptable points on the moisture-density curve to indicate a range of probable acceptable permeability results. The window will be used in the construction of the test strip to verify the laboratory remolded permeability results.

(c) Atterberg limits and grain size distribution shall also be conducted on the bulk samples used to prepare the permeability window ASTM D2488, D4318, D422. These tests can be used as indices on random samples collected from the borrow site during construction to verify the soil

type is the same as was used to develop the "window". As a minimum, sufficient visual classifications and Atterberg limits shall be conducted in association with each permeability test to verify that the construction materials meet specifications.

(d) A test strip of compacted cohesive soil cap shall be prepared to verify the permeability "window" prior to general installation of the cohesive soil cap. The test strip will be used to verify the results from the remolded permeabilities from the borrow site utilizing the permeability window(s) for each soil type that is going to be used for construction of the cohesive soil cap. At a minimum, the verification will consist of three moisture density tests, one Atterberg limits test, one grain size distribution test (ASTM D2488, D4318, and D422), and one Shelby Tube sample for each lift constructed in the test pad. Laboratory permeability tests shall be performed on tube (Shelby or drive tubes) samples of the cohesive soil cap after placement and compaction. The permeability must be a maximum of 1.0 $x10^{-5}$cm/sec. Tests shall be performed in accordance with the ASTM D5084. The test strip shall be approximately 2,500 sq. ft. in surface area and constructed to conform geometrically to the site topography with a minimum lateral dimension in any direction of 25 ft. The test strip shall consist of at least three compacted 6 inch lifts of cohesive soil cap. Placement and testing of the test strip shall be in conformance with the construction specifications and requirements for general installation of the cohesive soil cap. Test results from the test strip shall be used to guide placement and achievement of the required maximum permeability of 1.0 x 10^{-5} cm/sec of the cohesive soil cap. The test strip may be used as an integral part of the overall cohesive soil cap if it meets the required specification for the cap. All results shall be given to the Construction Observer.

(e) The soils shall be placed to the total thickness shown on the plans in maximum 8-inch thick loose lifts with a maximum 6" compacted lift compacted preferably at a moisture content between 0 to 3% above optimum moisture content to 95% standard Proctor maximum dry density (ASTM Test Designation D698). A sheepsfoot roller or approved alternative may be used to compact the soil cap provided the compaction and permeability requirements can be achieved. Each lift shall be tested for permeability, moisture content, particle size distribution analysis, Atterberg limits, moisture-density-permeability relation, and if needed percent bentonite admixed with soil, prior to the placement of the succeeding lift and visually inspected to confirm that all soil clods have been broken and that the surface is sufficiently scarified so that adequate bonding can be achieved. Soils for cohesive soil cap shall be screened, disked, or prepared using any other approved method as necessary to obtain a homogeneous cohesive soil with clod sizes in a soil matrix no larger than about 1.5 inches in maximum diameter. After each lift, the surface shall be scarified prior to the placement of the next lift to provide good bonding from one lift to the next.

(f) The cohesive soil cap shall be tested to evaluate the coefficient of permeability. The coefficient of permeability of the soil cap shall be equal to or less than 1.0 x 10^{-5} cm/sec after placement and compaction. The soil cap must be a minimum of 1.5 feet thick.

(g) Laboratory permeability tests shall be performed on tube (Shelby or drive tubes) samples of the cohesive soil cap after placement and compaction. The permeability must be a maximum of 1.0 x 10^{-5}cm/sec. Tests shall be performed in accordance with ASTM D5084.

(h) The soil cap shall be tested a minimum of one soil sample per lift per acre for laboratory permeability. All permeability testing will be on random samples judged by the Engineer to be representative of the most permeable soil conditions for the area being tested. The project engineer shall certify that the materials used in construction were tested according to the Division approved plans. If after placement of the soil cap it fails the required tests, the material will either be reworked or replaced. The soil cap must remain moist at all times, if any section becomes dry, rework the dry area and moisten.

(i) A minimum of two (2) inches of soil shall be removed prior to securing each sample for permeability testing. The sampling tube shall be advanced vertically into the soil with as little soil disturbance as possible and should be pushed using a uniform pressure. The sampling tube (Shelby tube), when extracted, shall be free of dents, and the ends shall not be distorted. A backhoe or approved alternative should be used to advance the sampling tube (Shelby tube) as long as disturbance is minimized. Drive tube samples of the cap may be obtained for permeability testings. If the Engineer judges the sample to be too disturbed, another sample shall be taken. Once an acceptable sample has been secured and properly prepared, all sample excavations shall be backfilled to grade with a 50% mixture of bentonite and similar soils in maximum 3-inch loose lifts and hand tamped with a blunt tool to achieve a tight seal equivalent to the original density.

(j) No additional construction shall proceed on the soil layers at the area being tested until the Engineer has reviewed the results of the tests and judged the desired permeability is being achieved.

(k) As a minimum, sufficient visual classifications (ASTM Test Designation D2488) , analyses (ASTM Test Designation D422) and Atterberg limits (ASTM Test Designation D4318) shall be conducted in association with each permeability test to verify that the construction materials meet specifications. The minimum number of tests will be 1 per lift per acre.

(l) If the soil for the cohesive soil cap is incapable of achieving the required permeability when compacted, bentonite or approved alternative may be mixed with the soils to decrease the permeability. The amount of additive required must be determined in the laboratory. Where additives are required, the soil shall be placed in maximum 8-inch thick loose lifts and compacted preferably between 0 to +3% optimum moisture content to 95% standard Proctor maximum dry density (ASTM Test Designation D698) for the soil-additive mixture. All other compaction procedures for the soil apply.

(m) The Contractor shall protect the cohesive soil cap from desiccation, flooding and freezing. Protection, if required, may consists of a thin plastic protective cover, (or other material as approved by the engineer) installed over the completed cohesive soil cap until such time as the placement of flexible membrane liner begins. Areas found to have any desiccation cracks or which exhibit swelling, heaving or other similar conditions shall be replaced or reworked by the contractor to remove these defects.

(n) The thickness and grade of the soil cap will be verified by the surveyor. The soil cap will be surveyed at 100' grid points where the elevations of the top of landfill will be checked with the top of soil cap to verify 1.5 feet of soil cap. The grade will then be verified with the surveyed information. The survey will be performed by NC licensed surveyors.

2.4 <u>Erosive Layer</u>

The soil for the erosive layer shall consist of any soils suitable of supporting vegetative growth.

(a) Native vegetation will be used as approved by the Erosion Control Plan.

2.5 Methane Venting System

Gas Venting System

NC.D.O.T. No.5 stone, Geotextile fabric, and 8" and 10” plastic pipes will be used in the construction of the Gas venting system.

(1) Stone in Trenches and Surrounding Perforated Collection Piping

Stone for methane collection system shall meet the requirements of NC DOT aggregate, standard size No. 5 and shall contain no fines. Stone must pass the sieve analysis test for No. 5 stone performed at the quarry.

(2) Geotextile Fabric

Geotextile fabric surrounding the stone/piping shall be non-woven needle punched fabric with the following minimum properties:

1)	Weight	8.0 oz/yd^2	ASTM D-3776
2)	Grab Strength	205 lbs.	ASTM D-4632
3)	Grab Elongation	50%	ASTM D-4632
4)	Trapezoidal Tear Strength	85 lbs.	ASTM D-4533
5)	Puncture Strength	100 lbs.	ASTM D-4833
6)	Mullen Burst Strength	320 psi	ASTM D-3786
7)	Permittivity	1.4 sec^{-1}	ASTM D-4491

Geotextile fabric shall be manufactured by Polyfelt , TNS Advanced Technologies, or approved equal.

(3) Plastic Pipe

Plastic gravity sewer pipe and fittings used for methane vent shall be unplasticized polyvinyl chloride (PVC) and conform to the requirements of ASTM Designation D-3034 on ASTM F679, Type PSM, Class 12454-B, SDR-35 with elastomeric gasket joints. PVC pipe and fittings shall be as manufactured by J-M Pipe, Certainteed, H&W Industries or equal. The methane riser pipe shall be a 10 inch solid wall PVC pipe.

The methane gas venting system on top of the landfill will be constructed after all phases of filling have been completed.

2.6 Closure Costs

The largest area to be closed within the permitted life will be 4.26 Ac. Post Closure will be 30 years after closure.

Closure Costs:

Closure will consist of the following which costs are estimated as being done by a third party.

1. 18" of $1x10^{-5}$ cm/sec. soil cover;
2. Erosion Control Devices;
3. 18" Erosive layer;
4. Seeding and Mulching;
5. Mobilization/Demobilization;
6. Labor Costs; and
7. Stone for methane gas collection.
8. Geotextile for methane gas collection.
9. Vent pipes for methane gas collection.
10. Engineering Costs and QA/QC of the Composite liner and certification of closure.

Estimate of Probable Costs:

1. 18" of $1x10^{-5}$ cm/sec. soil cover for 4.26 acres:

   Total yardage + 15% = 11,856 yd^3 @ a cost of \$9.00/yd^3
   ∴ Cost = \$106,704

2. Erosion Control devices

   Estimated costs @ \$75,000
   ∴ Cost = \$75,000

3. 18" Erosive soil layer for 4.26 acres.

   Total yardage + 15% = 11,856 yd^3 @ a cost of \$4.00/yd^3
   ∴ Cost = \$47,424

4. Seeding and Mulching for 4.26 acres.

   Estimated cost of \$2,000/acre
   ∴ Cost = \$8,520

5. Mobilization/Demobilization.

   Estimated cost of \$175,000

6. Labor Costs.

   Estimated cost of \$200,000
   ∴ Cost = \$200,000

7. Stone for methane gas collection.

   Total estimated linear feet =905 ft.
   Total estimated volume for a 2'x1' trench = 1,810 ft^3
   with a density of 120 lbs/ft^3 total weight =109 tons @ a cost of $25.00/ton
   $\therefore$ Cost = $2,725

8. Geotextile for methane gas collection.

   Total estimated linear feet = 905 ft.
   Total estimated perimeter for a 2'x1' trench =
   (905 ft $\times$ 6 ft)=5,430 ft^2 @ a cost of $0.20/ ft^2
   $\therefore$ Cost = $1,086

9. Vent pipes for methane gas collection.

   Estimated cost @ $600.00 each (2 vents).
   $\therefore$ Cost = $1,200

10. Engineering Costs and QA/QC of the Composite liner and certification of closure.

    Estimated cost = $200,000
    $\therefore$ Cost = $200,000

Total of Estimated Closure Costs:

1.	$	106,704
2.	$	75,000
3.	$	47,424
4.	$	8,520
5.	$	175,000
6.	$	200,000
7.	$	2,725
8.	$	1,086
9.	$	1,200
10.	$	200,000
Total:	$	817,659

SECTION 3.0

POST-CLOSURE PLAN

3.1 Introduction

CONTACTS:

Name:	Josh Mitchell
Title:	Solid Waste Director
Phone No.:	(828) 632-9467
Address:	621 Liledoun Rd., Box #12 Taylorsville, NC 28681

DESCRIPTION OF USE:

The County has no future use planned for their landfill at this time.

DESCRIPTION OF MAINTENANCE ACTIVITIES:

The County Landfill will be monitored quarterly for evidence of settlement, subsidence and ponding in the cap system. The entire site will be monitored quarterly for evidence and effects of erosion. The erosion control plan will be preserved. Annually in the Spring, the vegetative cover will be monitored to assure a good stand of vegetation, and where needed, it will be reseeded. These maintenance activities will take place over the entire post closure period of thirty years.

DESCRIPTION OF MONITORING ACTIVITIES:

The County Landfill will monitor and analyze ground and surface water semi-annually for (Subtitle D Appendix I) constituents for a period of thirty years. The County will also monitor methane gas at landfill structures and the boundary quarterly for the thirty-year period.

COMPLETION OF POST-CLOSURE CARE

Following completion of the post-closure care period for each unit, the owner or operator will notify the Division of Solid Waste that a certification, signed by a registered professional engineer, verifying that post-closure care has been completed in accordance with the post-closure plan, has been placed in the operating record.

3.2 Post Closure Costs

The largest closed area to be monitored within the post closure life will 4.26 acres.

Post Closure Costs:

Methane gas, ground water and surface water will be monitored for 30 years after closure. The cap will also have to be monitored for the 30 year period. All costs include reports, data analysis, and certifications.

1. Ground and Surface Water monitoring semiannually for 30 years for appendix I constituents and statistical analysis.
   Estimated cost/sample = $840.00/sample
   Total annual samples = 2(15 wells + 3 surface) = 36 samples/year
   Estimated cost = 30 years x 36 samples/year x $840.00/sample =

   ∴ Cost = $907,200

2. Methane Gas monitoring quarterly for 30 years.
   Estimate $600.00/quarter = $2,400.00/year
   Estimated cost = 30 year x $2,400.00 = $72,000.00

   ∴ Cost = $72,000.00

3. Cap Monitoring and repairing any problems.
   Estimate $100,000 for the 30 years.

   ∴ Cost = $100,000

4. Closure of sedimentation and erosion control devices.
   Estimate $24,000.00 for closure

   ∴ Cost = $24,000

5. Maintenance of gas vents, monitoring wells, etc.
   Estimate $60,000

Total of Estimated Post Closure Costs:

1.	$ 907,200
2.	$ 72,000
3.	$ 100,000
4.	$ 24,000
5.	$ 60,000
Total:	$1,163,200

SECTION 4.0

FINANCIAL RESPONSIBILITIES

Alexander County Finance Office

June 30, 2008

Ms. Amy Kadrie
Solid Waste Section
DENR - Division of Waste Management
1646 Mail Service Center
Raleigh, NC 27699-1646

Dear Ms. Kadrie,

I am the chief financial officer of Alexander County, North Carolina, 621 Liledoun Road Box 1, Taylorsville, NC 28681. This letter is in support of this unit of local government's use of the financial test to demonstrate financial assurance, as specified in 15A NCAC 13B.1628 (e)(1)(F).

This letter is an update of the letter sent on December 26, 2007. The C&D costs for closure and post-closure have been added.

This unit of local government is the owner and operator of the following facility for which financial assurance for closure, post-closure, or corrective action is demonstrated through the financial test specified in 15A NCAC 13B.1628 (e)(1)(F). The current closure, post-closure, or corrective action cost estimates covered by the test are shown for the facility:

Facility Name: Alexander County Landfill
Facility Address: Payne Dairy Farm Road, Taylorsville, NC
Permit Number: 02-01
Closure Cost Estimate: $817,659
Post-Closure Cost Estimate: $1,163,200
Corrective Action Cost Estimate: None

Total Costs to be Assured: $1,980,859

The fiscal year of this unit of local government ends on June 30th. The figures for the following items marked with an asterisk are derived from this unit of local government's Annual Financial Information Report (AFIR) for the latest completed fiscal year, ended June 30, 2007.

621 Liledoun Road Box 1 Taylorsville, NC 28681
Phone (828) 632-4591 Fax (828) 632-1361

RATIO INDICATORS OF FINANCIAL STRENGTH – ALEXANDER COUNTY

1. Sum of current closure, post-closure and corrective action cost estimates	$1,980,859
*2. Sum of cash and investments (AFIR Part 7)	$5,851,071
*3. Total expenditures (AFIR Part 4 Columns a & b and Part 5 for municipalities or Part 5 excluding educational capital outlays for counties)	$28,899,171
*4 Annual debt service (AFIR Part 4 Section I)	$2,193,156
5. Assured environmental costs to demonstrate financial responsibility in the following amounts under Division rules:	
MSWLF under 15A NCAC 13B.1600	$1,980,859
Hazardous waste treatment, storage and disposal facilities under 15A NCAC 13A .0009 and .0010	$-0-
Petroleum underground storage tanks under 15A NCAC 2N.0100 - .0800	$-0-
Underground Injection Control System facilities under 15A NCAC 2D.0400 and 15A NCAC 2C.0200	$-0-
PCB commercial storage facilities under 15A NCAC 2O .0100 and 15A NCAC 2N .0100	$-0-
Total assured environmental costs	$1,980,859
*6. Total Annual Revenue (AFIR Part 2)	$31,719,269

Circle either "yes" or "no" to the following questions.

7. Is line 5 divided by line 6 less than or equal to 0.43?	(yes)/no
8. Is line 2 divided by line 3 greater than or equal to 0.05?	(yes)/no
9. Is line 4 divided by line 3 less than or equal to 0.20?	(yes)/no

I hereby certify that the wording of this letter is identical to the wording specified in 15A NCAC 13B.1628 (e)(2)(G) as such rules were constituted on the date shown immediately below. I further certify the following: (1) that the unit of local government has not operated at a total operating fund deficit equal to five percent or more of total annual revenue in either of the past two fiscal years, (2) that the unit of local government is not in default on any outstanding general obligations bonds or long-term obligations, and (3) does not have any outstanding general obligation bonds rated lower than Baa as issued by Moody's, BBB as issued by Standard & Poor's, BBB as issued by Fitch's, or 75 as issued by the Municipal Council.

Jennifer M. Herman

Jennifer M. Herman
Finance Director, Alexander County
June 30, 2008

APPENDIX A

OPERATION DRAWINGS AND CLOSURE DRAWINGS

ALEXANDER COUNTY
CONSTRUCTION AND DEMOLITION
LANDFILL FACILITY

OPERATION PLAN

TAYLORSVILLE, NORTH CAROLINA
PROJECT NO. G07060

BOARD OF COMMISSIONERS

Larry Yoder - Chairman
Wesley E. Bolick
William L. Hammer
Harold Odom
W. Darrell Robertson

COUNTY MANAGER

Rick French

SOLID WASTE DIRECTOR

Josh Mitchell

Engineer
Municipal Engineering Services Company, P.A.
Garner, NC - Morehead City, NC - Boone, NC

by _____ 12/24/2008
Professional Engineer

Municipal Engineering Services Company, P.A.
P.O. BOX 97 GARNER, N.C. 27529 (919) 772-5393
P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767
P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-9481

SCALE:	1:1
DATE:	11/21/07
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G07060
DRAWING NO.	T1
SHEET NO.	1 OF 8

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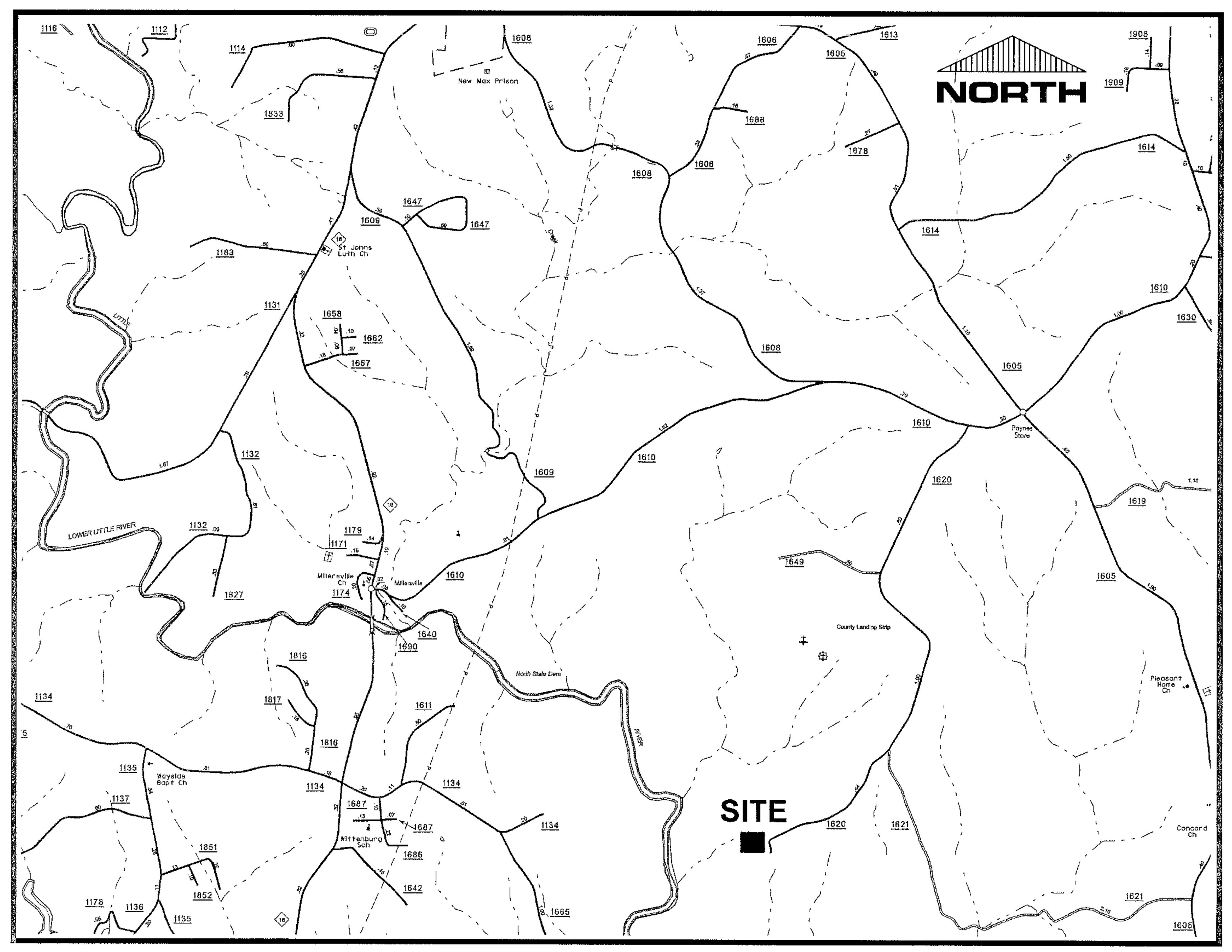
INDEX

SHEET NO.	DRAWING NO.	DESCRIPTION
1	T1	TITLE SHEET
2	T2	INDEX AND VICINITY MAP
3	CD1	EXISTING CONDITIONS AS OF 10/30/07
4	CD2	1st YEAR FILL PLAN
5	CD3	2nd YEAR FILL PLAN
6	CD4	3rd YEAR FILL PLAN
7	CD5	4th YEAR FILL PLAN
8	CD6	5th YEAR FILL PLAN



VICINITY MAP

Municipal Engineering Services Company, P.A.
P.O. BOX 97 GARNER, N.C. 27529 (919) 772-5393
P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767
P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-9481

CONSTRUCTION & DEMOLITION LANDFILL FACILITY
ALEXANDER COUNTY NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION

INDEX AND VICINITY MAP

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER JIMMY D. WOODIE 6/24/2008

SCALE:	1:1
DATE:	11/21/07
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G07060
DRAWING NO.	SHEET NO.
T2	2 OF 8

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LEGEND

- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPERTY LINE
- EXISITING ROAD
- WATER
- CLOSED MSWLF SANITARY UNIT

BORROW SITE

MUNICIPAL SOLID WASTE TRANSFER STATION

CONSTRUCTION AND DEMOLITION LANDFILL FACILITY PHASE 1

SCALE HOUSE

OFFICE

WHITE GOODS

TIRES

PK-NAIL

EIP

OLD M.W.#1

M.W.#1A

M.W.#1

M.W.#2

OLD M.W.#2

M.W.#3

OLD M.W.#3

M.W.#4R

OLD M.W.#4

M.W.#5

M.W.#6

M.W.#7

M.W.#8

M.W.#10

M.W.#12

M.W.#13

M.W.#14

M.W.#15

EXIST. BASIN

GRAVEL PARKING FOR TRANSFER TRAILERS

DENSE TREES

E 1,364,000

E 1,363,500

E 1,363,000

E 1,362,500

E 1,362,000

E 1,361,500

N 765,500

N 766,000

N 766,500

N 767,000

Municipal Engineering Services Company, P.A.

P.O. BOX 97 GARNER, N.C. 27529 (919) 772-5393

P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767

P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-9481

CONSTRUCTION & DEMOLITION LANDFILL FACILITY ALEXANDER COUNTY NORTH CAROLINA

DESCRIPTION	REV.	BY	DATE
OPERATION PLAN FACILITY PLAN AND EXISTING CONDITIONS AS OF 10/30/07			

SCALE:	1" = 100'
DATE:	11/21/07
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G07060
DRAWING NO.	CD1
SHEET NO.	3 OF 8

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL JIMMY D. WOODIE

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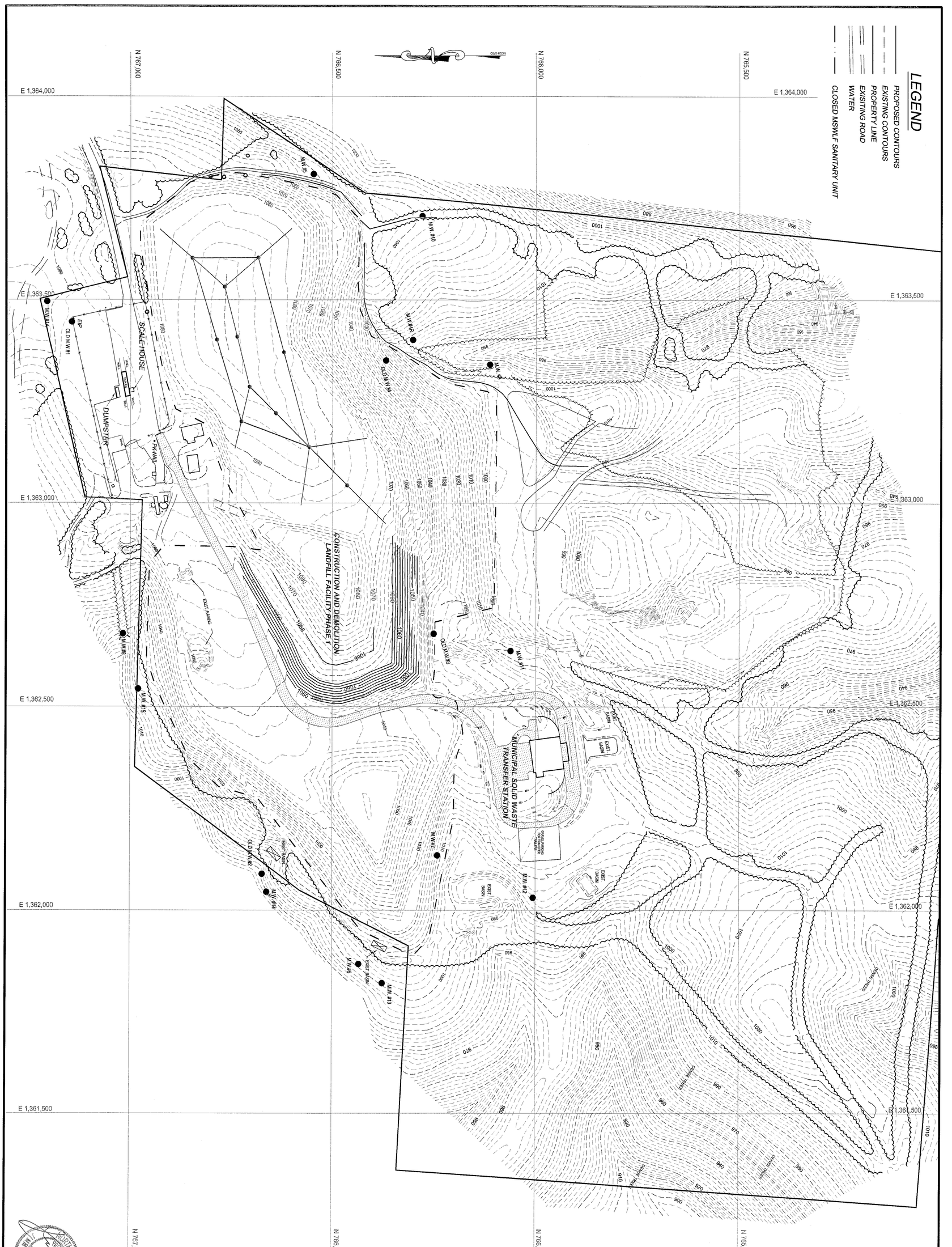

SCALE: 1" = 100'				
DATE: 10/2/07				
DRWN. BY: T. HAMPTON				
CHKD. BY: T. HOOVER				
PROJECT NUMBER: G07060				
DRAWING NO.: CD2	DATE	BY	REV.	DESCRIPTION
SHEET NO.: 4 OF 8				

OPERATION PLAN
1st YEAR FILL PLAN

CONSTRUCTION & DEMOLITION LANDFILL FACILITY
ALEXANDER COUNTY
NORTH CAROLINA

Municipal Engineering Services Company, P.A.
P.O. BOX 97 GARNER, N.C. 27529 (919) 772-5393
P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767
P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-9481

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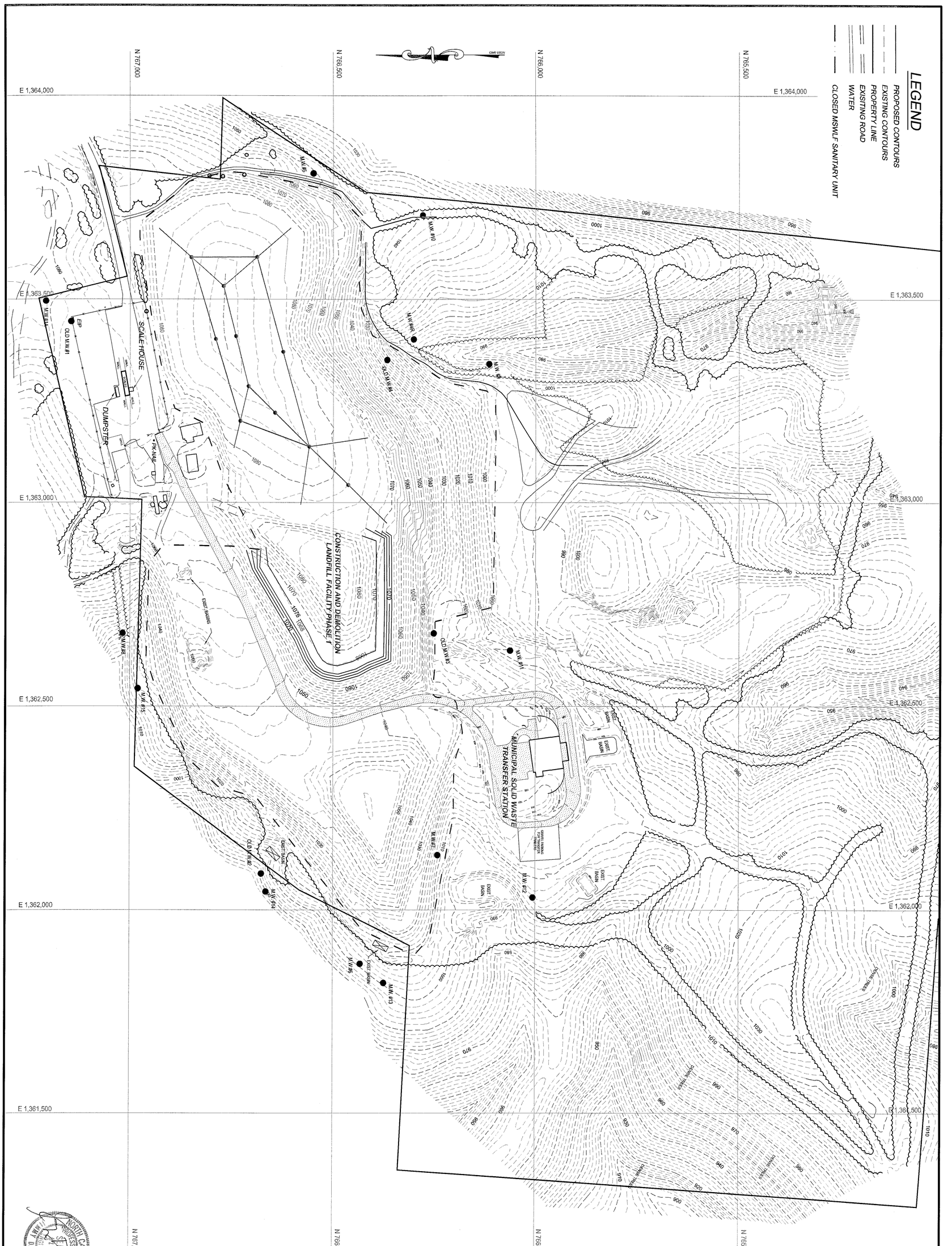

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DATE:	11/27/07				
DRWN. BY:	J. HAMPTON				
CHKD. BY:	J. HAGGE				
PROJECT NUMBER:	G07060	DATE	BY	REV.	DESCRIPTION
DRAWING NO.:	CD3				
SHEET NO.:	5 OF 8				

OPERATION PLAN
2nd YEAR FILL PLAN

CONSTRUCTION & DEMOLITION LANDFILL FACILITY
ALEXANDER COUNTY
NORTH CAROLINA

Municipal Services
P.O. BOX 97 GARNER, N.C. 27529
(919) 772-5393

ME Engineering Company, P.A.
P.O. BOX 349 BOONE, N.C. 28607
(828) 262-1767
P.O. BOX 828 MOREHEAD CITY, N.C. 28557
(252) 726-9481

LEGEND

- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPERTY LINE
- EXISITING ROAD
- WATER
- CLOSED MSWLF SANITARY UNIT

E 1,364,000 | E 1,363,500 | E 1,363,000 | E 1,362,500 | E 1,362,000 | E 1,361,500

N 765,500 | N 766,000 | N 766,500 | N 767,000

MUNICIPAL SOLID WASTE TRANSFER STATION

GRAVEL PARKING FOR TRANSFER TRAILERS

EXIST. BASIN

DENSE TREES

M.W. #1 | M.W. #2 | M.W. #3 | M.W. #4R | M.W. #5 | M.W. #6 | M.W. #7 | M.W. #8 | M.W. #10 | M.W. #11 | M.W. #12 | M.W. #13 | M.W. #14 | M.W. #15 | M.W. #16

OLD M.W. #1 | OLD M.W. #2 | OLD M.W. #3 | OLD M.W. #4

EXIST. BASINS

SCALE HOUSE

PK-NAIL

DUMPSTER

EIP

1600

Municipal Services Engineering Company, P.A.

P.O. BOX 97 GARNER, N.C. 27529 (919) 772-5393

P.O. BOX 340 BOONE, N.C. 28607 (828) 262-1767

P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-9481

CONSTRUCTION & DEMOLITION LANDFILL FACILITY ALEXANDER COUNTY NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION

OPERATION PLAN
3rd YEAR FILL PLAN

SCALE:	1" = 100'
DATE:	11/21/07
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G07060
DRAWING NO.	CD4
SHEET NO.	6 OF 8

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027621 JAMES D. WOODIE 11/21/07

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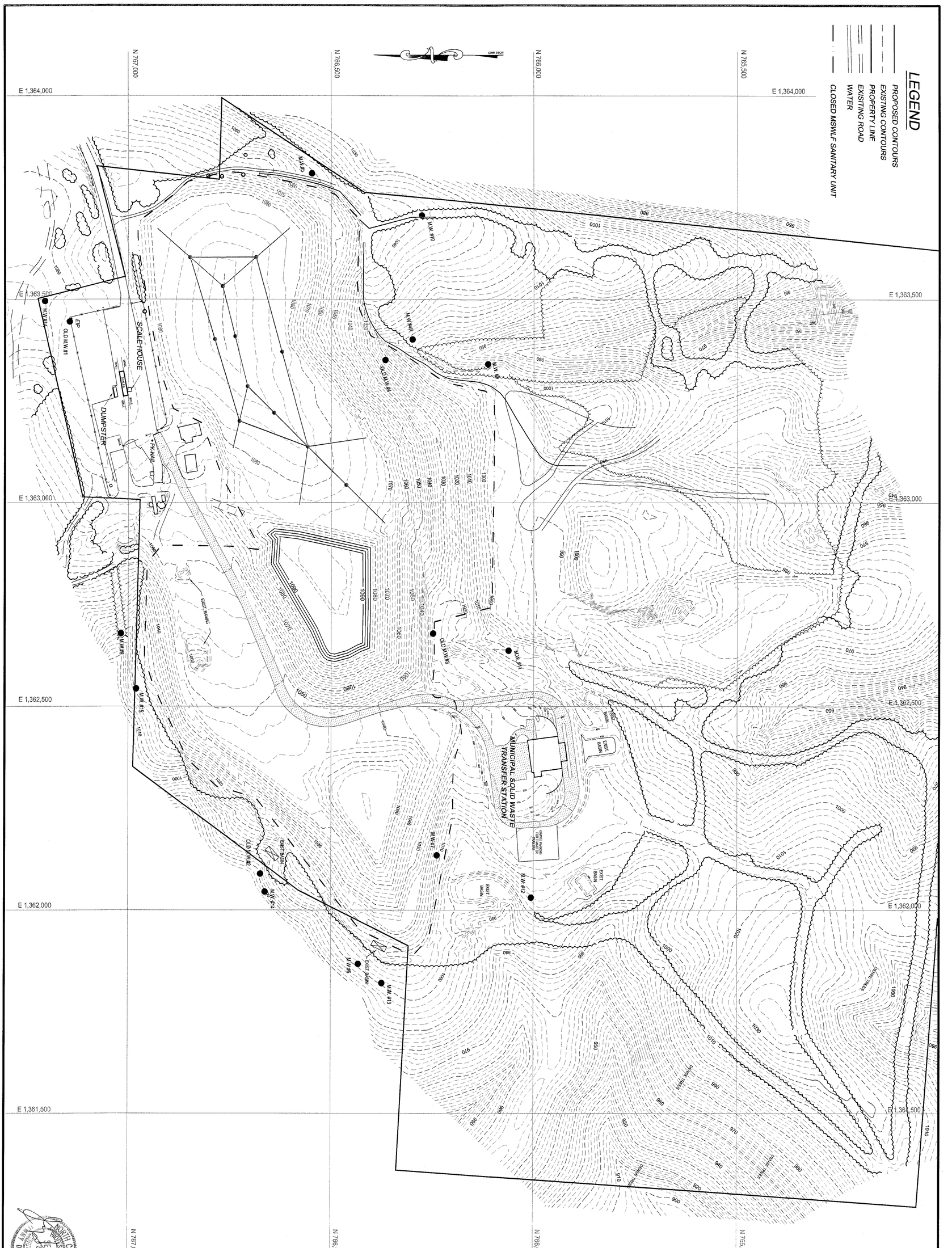

SCALE					
DATE	11/21/07				
DRWN. BY	L. HAMPTON				
CHKD. BY	J. WOOZE				
PROJECT NUMBER	G07060	DATE	BY	REV.	DESCRIPTION
DRAWING NO.	CD5				
SHEET NO.	7 OF 8				

OPERATION PLAN
4th YEAR FILL PLAN

CONSTRUCTION & DEMOLITION LANDFILL FACILITY
ALEXANDER COUNTY
NORTH CAROLINA

Municipal Services
P.O. BOX 97 GARNER, N.C. 27529
(919) 772-5393

Engineering Company, P.A.
P.O. BOX 349 BOONE, N.C. 28607
(828) 262-1767
P.O. BOX 828 MOREHEAD CITY, N.C. 28557
(252) 726-9481

LEGEND

- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPERTY LINE
- EXISITING ROAD
- WATER
- CLOSED MSWLF SANITARY UNIT

E 1,364,000 | E 1,363,500 | E 1,363,000 | E 1,362,500 | E 1,362,000 | E 1,361,500

N 765,500 | N 766,000 | N 766,500 | N 767,000

DENSE TREES

EXIST. BASIN

GRAVEL PAVING FOR TRANSFER TRAILERS

MUNICIPAL SOLID WASTE TRANSFER STATION

M.W. #11 | M.W. #12 | M.W. #13 | M.W. #14 | M.W. #15 | M.W. #8 | M.W. #7 | M.W. #6 | M.W. #10 | M.W. #4R | M.W. #5 | M.W. #1A

OLD M.W. #3 | OLD M.W. #4 | OLD M.W. #2 | OLD M.W. #1

EXIST. BASINS

SCALE HOUSE

WALL | SCALES | WALL | WALL | WALL

PK-NAIL

DUMPSTER

EIP

Municipal Services Engineering Company, P.A.

P.O. BOX 97 GARNER, N.C. 27529 (919) 772-5393

P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767

P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-5481

CONSTRUCTION & DEMOLITION LANDFILL FACILITY ALEXANDER COUNTY NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION

OPERATION PLAN 5th YEAR FILL PLAN

SCALE:	1" = 100'
DATE:	11/21/07
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G07060
DRAWING NO.	CD6
SHEET NO.	8 OF 8

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032 JOHN D. WOODIE

11/21/2008

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ALEXANDER COUNTY
CONSTRUCTION AND DEMOLITION
LANDFILL FACILITY

CLOSURE PLAN

TAYLORSVILLE, NORTH CAROLINA
PROJECT NO. G07060

BOARD OF COMMISSIONERS

Larry Yoder - Chairman
Wesley E. Bolick
William L. Hammer
Harold Odom
W. Darrell Robertson

COUNTY MANAGER

Rick French

SOLID WASTE DIRECTOR

Josh Mitchell

Engineer

Municipal Engineering Services Company, P.A.
Garner, NC - Morehead City, NC - Boone, NC

NORTH CAROLINA PROFESSIONAL SEAL 16201 ENGINEER JIMMY D. WOODIE 5/24/2008

by _____
Professional Engineer

Municipal Engineering Services Company, P.A.
P.O. BOX 97 GARNER, N.C. 27529 (919) 772-5393
P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767
P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-9481

SCALE:	1:1
DATE:	11/21/07
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G07060
DRAWING NO.	SHEET NO.
T1	1 OF 5

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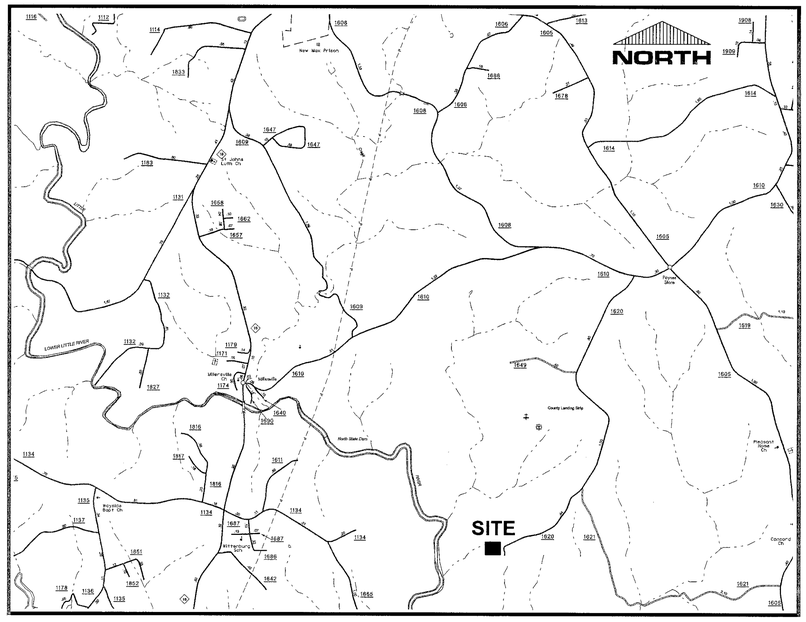
INDEX

SHEET NO.	DRAWING NO.	DESCRIPTION
1	T1	TITLE SHEET
2	T2	INDEX AND VICINITY MAP
3	CL1	EXISTING CONDITION AND FINAL FILL PLAN
4	CL2	METHANE VENTING PLAN
5	CL3	MISCELLANEOUS DETAILS



VICINITY MAP

Municipal Engineering Services Company, P.A.

P.O. BOX 97 GARNER, N.C. 27529
(919) 772-5393

P.O. BOX 349 BOONE, N.C. 28607
(828) 262-1767

P.O. BOX 828 MOREHEAD CITY, N.C. 28557
(252) 726-3481

CONSTRUCTION & DEMOLITION
LANDFILL FACILITY
ALEXANDER COUNTY
NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION

CLOSURE PLAN
INDEX AND VICINITY PLAN

NORTH CAROLINA PROFESSIONAL SEAL 27282 ENGINEER JIMMY D. WOOD 11/24/2008

SCALE:	1:1
DATE:	11/21/07
DRWN. BY:	L. HAMPTON
CHKD. BY:	W. WOOD
PROJECT NUMBER	G07060
DRAWING NO.	T2
SHEET NO.	2 OF 5

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LEGEND

- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPERTY LINE
- EXISITING ROAD
- WATER
- CLOSED MSWLF SANITARY UNIT

E 1,364,000 · E 1,363,500 · E 1,363,000 · E 1,362,500 · E 1,362,000 · E 1,361,500

N 765,500 · N 766,000 · N 766,500 · N 767,000

M.W. #1 · M.W. #2 · M.W. #3 · M.W. #4R · M.W. #5 · M.W. #6 · M.W. #7 · M.W. #8 · M.W. #10 · M.W. #11 · M.W. #12 · M.W. #13 · M.W. #14 · M.W. #15 · OLD M.W.#1 · OLD M.W.#2 · OLD M.W.#3 · OLD M.W.#4 · M.W.#1A

EXIST. BASIN · EXIST. BASINS · GRAVEL PARKING FOR TRANSFER TRAILERS · SCALE HOUSE · SCALES · WALL · DUMPSTER · EIP · PK-NAIL · DENSE TREES

NORTH

Municipal Services Engineering Company, P.A.

P.O. BOX 97 GARNER, N.C. 27529 (919) 772-5393

P.O. BOX 348 BOONE, N.C. 28607 (828) 262-1767

P.O. BOX 278 MOREHEAD CITY, N.C. 28557 (252) 726-9481

CONSTRUCTION & DEMOLITION LANDFILL FACILITY ALEXANDER COUNTY NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION

CLOSURE PLAN
EXISTING CONDITIONS AND FINAL FILL PLAN

SCALE:	1" = 100'
DATE:	5/15/08
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G07060
DRAWING NO.	CL1
SHEET NO.	3 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 022462 ENGINEER JIMMY D. WOODIE 5/15/2008

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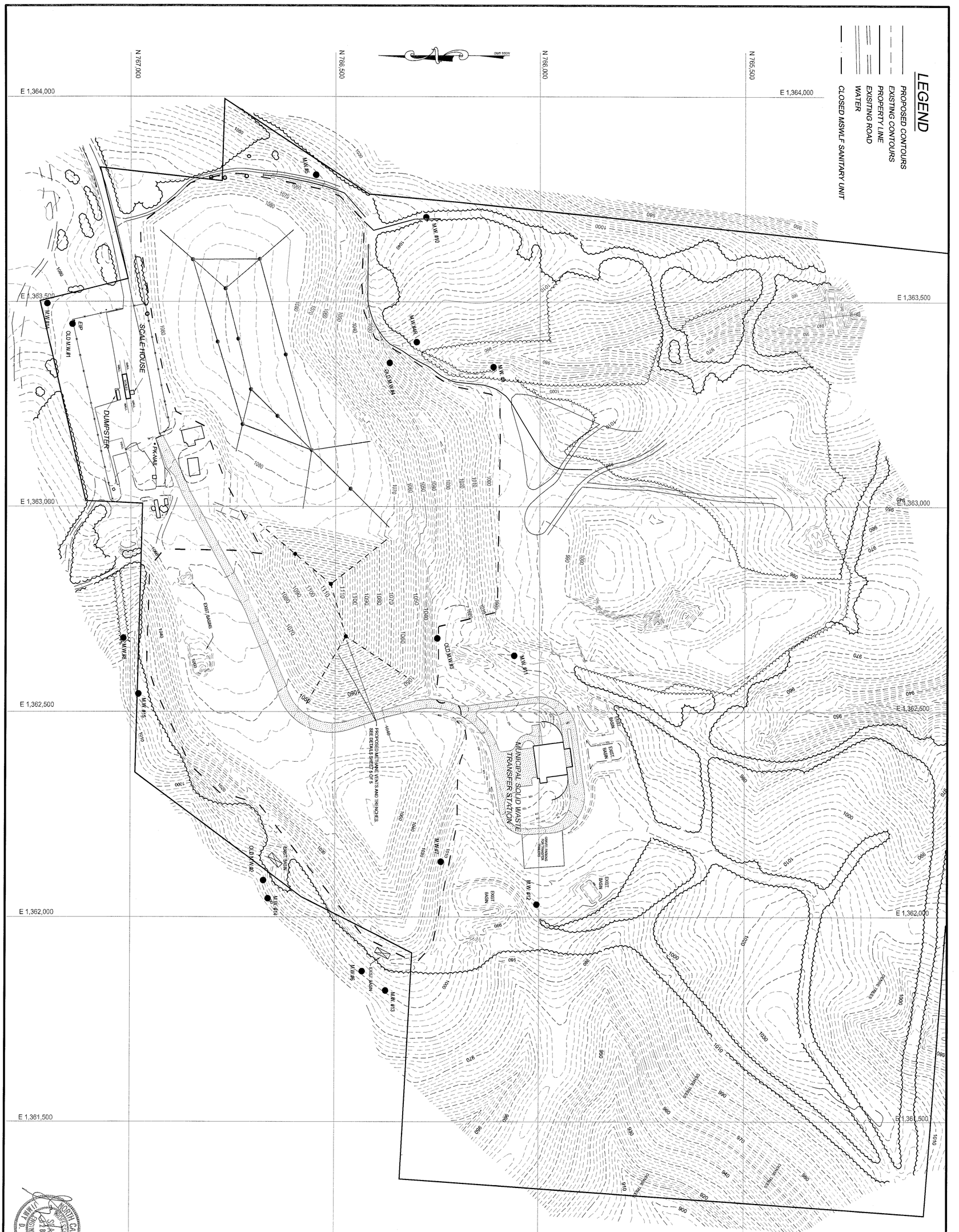


NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032482 JOHN D. WOODALL

DATE	BY	REV.	DESCRIPTION	

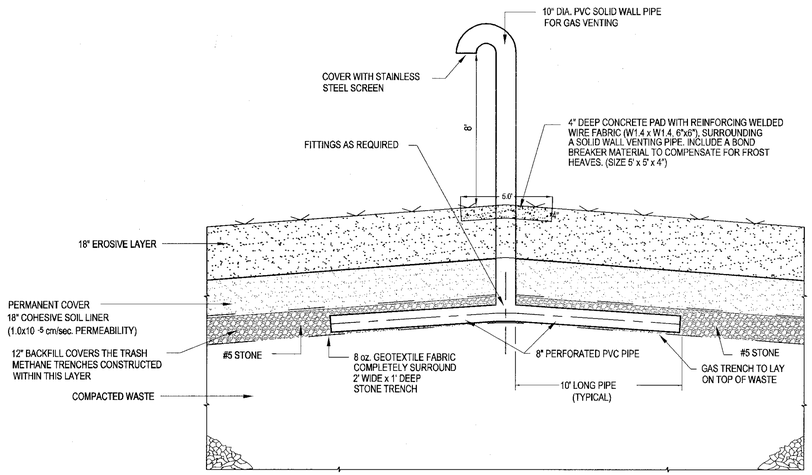
SCALE: 1" = 100'
DATE: 5/14/08
DRAWN BY: L HAMPTON
CHKD. BY: L HAMPTON
PROJECT NUMBER: G07060
DRAWING NO.: CL2
SHEET NO.: 4 OF 5

CLOSURE PLAN
METHANE VENTING PLAN

CONSTRUCTION & DEMOLITION
LANDFILL FACILITY
ALEXANDER COUNTY
NORTH CAROLINA

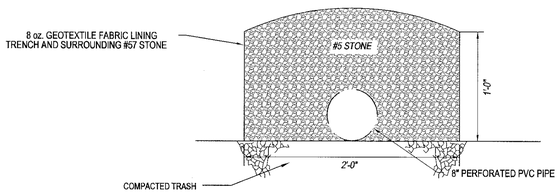
Municipal Services
P.O. BOX 97 GARNER, N.C. 27529
(919) 772-5393

Engineering Company, P.A.
P.O. BOX 349 BOONE, N.C. 28607
(828) 262-1767
P.O. BOX 828 MOREHEAD CITY, N.C. 28557
(252) 726-9481



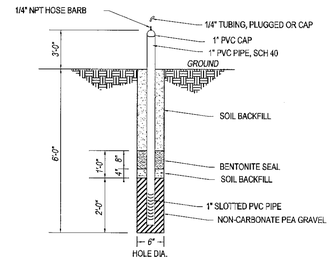
TYPICAL METHANE VENTING AND CAP CLOSURE DETAIL

N.T.S.



PERMANENT METHANE TRENCH DETAIL

N.T.S.



METHANE GAS MONITORING PROBE

N.T.S.

Municipal Engineering Services Company, P.A.
P.O. BOX 97 GARNER, N.C. 27529 (919) 772-5393
P.O. BOX 348 BOONE, N.C. 28607 (828) 262-1767
P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-5451

CONSTRUCTION & DEMOLITION LANDFILL FACILITY
ALEXANDER COUNTY NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION

CLOSURE PLAN
MISCELLANEOUS DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 14982 ENGINEER JIMMY D. WOODIE
5/24/2008

SCALE:	1:1
DATE:	5/15/08
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G07060
DRAWING NO.	CL3
SHEET NO.	5 OF 5

P:\SolidWaste\G07060-Alexander C&D Transition\dwg\closure\G7060-CL05.dwg, 5/15/2008 3:47:58 PM, lch

APPENDIX B

LOCAL GOVERNMENT APPROVALS

7003 1680 0001 9719 4608

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
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Return Reciept Fee (Endorsement Required)	$2.15	
Restricted Delivery Fee (Endorsement Required)	$0.00	
Total Postage & Fees	$ $5.21	05/09/2008

Postmark: USPS 2 GARNER NC MAY 9 2008 27529-9998

Sent To: Earl Sipe

Street, Apt. No.; or PO Box No.: 2652 US HWY 64-90W

City, State, ZIP+4: Taylorsville, NC 28681

PS Form 3800, June 2002 — See Reverse for Instructions

7003 1680 0001 9719 4592

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Certified Fee	$2.65	Postmark Here
Return Reciept Fee (Endorsement Required)	$2.15	
Restricted Delivery Fee (Endorsement Required)	$0.00	
Total Postage & Fees	$ $5.21	05/09/2008

Postmark: MAY 9 2008

Sent To: Gray Area Land

Street, Apt. No.; or PO Box No.: 180 Grayhouse Road

City, State, ZIP+4: Stony Point, NC 28678

PS Form 3800, June 2002 — See Reverse for Instructions

7003 1680 0001 9719 4622

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
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Certified Fee	$2.65	Postmark Here
Return Reciept Fee (Endorsement Required)	$2.15	
Restricted Delivery Fee (Endorsement Required)	$0.00	
Total Postage & Fees	$ $5.21	05/09/2008

Postmark: GARNER NC MAY 9 2008

Sent To: Tony Correll

Street, Apt. No.; or PO Box No.: 222 Carl Fox Road

City, State, ZIP+4: Taylorsville, NC 28681

PS Form 3800, June 2002 — See Reverse for Instructions

7003 1680 0001 9719 4615

U.S. Postal Service™
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OFFICIAL USE

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Certified Fee	
Return Reciept Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Postmark: USPS GARNER MAY 9 2008

Sent To: Crescent Resources

Street, Apt. No.; or PO Box No.: 400 South Tryon St.

City, State, ZIP+4: Charlotte, NC 28285-0107

PS Form 3800, June 2002 — See Reverse for Instructions

Publisher's Certificate

North Carolina
Alexander County:

I, Walter Lee Sharpe, Publisher of ***The Taylorsville Times***, a weekly newspaper published at Taylorsville, Alexander County, North Carolina, being duly sworn says, that the attached notice was duly published in said paper for 1 weeks, beginning with the issue dated the 30 day of April, 2008.

Signed Walter Lee Sharpe, Publisher

Date May 7, 2008.

Fee $ 42.00

Subscribed and sworn before me this 7th day of May, 2008.

Brenda S Wike

My Commission Expires 10/25/09.

BRENDA S. WIKE
NOTARY PUBLIC
ALEXANDER COUNTY, N.C.

• LEGAL NOTICES •

NOTICE OF PUBLIC MEETING

In compliance with the North Carolina Department of Environment and Natural Resources (NCDENR) New Construction and Demolition Landfill Rules 15A NCAC 13B.0531-.0547, the County of Alexander has scheduled a public meeting for Friday, the 6th of June at 10:00 a.m. It is the intent of the County to continue operating a Construction and Demolition Landfill (C&DLF). This meeting is to inform the public of the proposed waste management activities as described in the proposed facility plan. All interested parties should attend. The public meeting will be held at the County's landfill located at 2500 Payne Dairy Road, Taylorsville, NC 28681. Application documents may be viewed at the County Landfill offices located at 2500 Payne Dairy Road, Taylorsville, NC 28681 between the hours of 8:00 m.-4:00 p.m. Monday through Friday. For further information concerning this meeting, contact the County Solid Waste Department at (828) 632-1101.

County of Alexander
2500 Payne Dairy Road
Taylorsville, NC 28681
apr30-08

Publisher's Certificate

orth Carolina
Alexander County:

I, Walter Lee Sharpe, Publisher of ***The Taylorsville Times***, a weekly newspaper published at Taylorsville, Alexander County, North Carolina, being duly sworn says, that the attached notice was duly published in said paper for 1 weeks, beginning with the issue dated the 28 day of May, 2008.

Signed Walter Lee Sharpe, Publisher

Date 6-4, 2008.

...e $ 36.00

Subscribed and sworn before me this 4th day of June, 2008.

Brenda S Wike

My Commission Expires 10/25/09.

Public Meeting Notice

In compliance with North Carolina Solid Waste Management Rule §.1635 (d) Alexander County will hold a public meeting to discuss the results of the Assessment of Corrective Measures (ACM) completed for the Alexander County Landfill. This meeting will take place on Thursday, the 26th of June at 3:30 p.m. The public meeting will be held at the Alexander County Administration Office located at 621 Liledoun Road in Taylorsville, North Carolina. This meeting will be used as an open forum to inform and discuss any concerns associated with the proposed remediation/corrective measures at the Alexander County Landfill. All interested parties should attend. The ACM report is available for review at the Landfill Scale house between the hours of 8:00 a.m. to 4:00 p.m. Monday through Friday from May 28, 2008 through June 25, 2008 at 2500 Payne Dairy Rd. in Taylorsville, North Carolina. may28-08c

NOTICE OF PUBLIC MEETING

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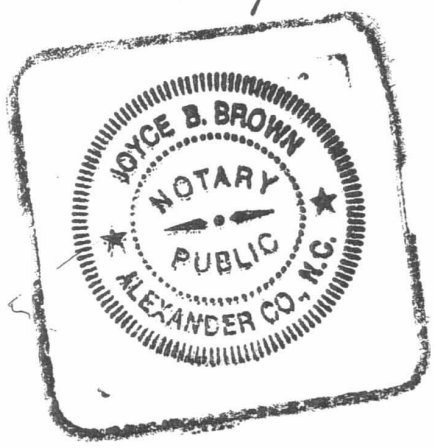
County of Alexander
2500 Payne Dairy Road
Taylorsville, NC 28681

Publish One Time:

This Ad ran at 7:18 AM

On April 24th 2008



Joyce B Brown

My Commission Expires

10/24/09

Public Meeting Notice

In compliance with North Carolina Solid Waste Management Rule § .1635 (d) Alexander County will hold a public meeting to discuss the results of the Assessment of Corrective Measures (ACM) completed for the Alexander County Landfill. This meeting will take place on Thursday, the 26th of June at 3:30 pm. The public meeting will be held at the Alexander County Administration Office located at 621 Liledoun Road in Taylorsville, North Carolina. This meeting will be used as an open forum to inform and discuss any concerns associated with the proposed remediation/corrective measures at the Alexander County Landfill. All interested parties should attend. The ACM report is available for review at the Landfill Scale house between the hours of 8:00 am to 4:00 pm Monday through Friday from May 28 2008 through June 25 2008 at 2500 Payne Dairy Rd. in Taylorsville, North Carolina.

This aired on WACB at
9:30 AM. May 27-2008

Joyce B Brown

My Comm expires 10/24/09

CONSTRUCTION DEMOLITION LANDFILL PUBLIC MEETING
for
COUNTY of Alexander, NORTH CAROLINA
Sign in Sheet

June 6, 2008 – 11:00 AM

Name	Address		Phone Number	Fax Number
JERRY KEY	P.O. Box 824	Morganton NC 28655	828 437-2184	828 437-2981
Josh Mitchell	621 Lilodown Rd. Box 12	Taylorsville NC 28681	828-632-1101	828-132-0059
Troy Correll	444 Carl Fox Rd	Taylorsville NC 28681	828-635-0228	
Linda R Correll	222 Carl Fox Rd	Taylorsville NC 28681	828632-7059	
Wayne Sullivan	P.O. Box 97	Gamion, NC 27529	(919) 772-5393	(919) 772-1174

Minutes from Public Meeting
for the Continuing Operation of the
Alexander County Construction and Demolition Landfill

The meeting was held in the Alexander County Landfill on June 6, 2008 at 11:00 AM. The meeting was advertised 30 days prior to having it and three people representing two adjoining landowners were present along with Alexander County and Municipal Engineering Representatives. The attendance sheet is attached.

The meeting was moderated by Wayne Sullivan with Municipal Engineering Services. The attendees were informed that the purpose of the meeting was to obtain local government approval. They were also informed as to the type and approximate quantity of waste that will be accepted at the construction and demolition landfill. They were also informed of the other activities that were taking place on the site such as the transfer station for the municipal solid waste. Questions were answered about any present or past operations at the landfill site. No one in attendance had any objection of the construction and demolition landfill continuing operations. The attendees were then informed of the time and place of the upcoming public meeting concerning the groundwater and the meeting was adjourned.

RESOLUTION

Resolution Approving the
Continuing Use of the
Construction and Demolition Landfill

WHEREAS, the Construction and Demolition Landfill (C&DLF) is part of the Alexander County Solid Waste Facility, and

WHEREAS, the Construction and Demolition Landfill accepts construction and demolition waste or inert material; and

WHEREAS, the Alexander County Solid Waste Facility also consists of the White Goods Recovery and Recycling site, Tire Disposal area and Yard Waste disposal area, and

WHEREAS, the Alexander County Solid Waste Facility operates on top of the closed MSWLF, and

WHEREAS, the Alexander County Solid Waste Facility is within Alexander County and will only accept waste from Alexander County, and

WHEREAS, the Alexander County Solid Waste Facility does not lie within any incorporated city or town or within the extra-territorial zoning jurisdiction of any city or town,

NOW THEREFORE BE IT RESOLVED THAT ALEXANDER COUNTY BOARD OF COMMISSIONERS, hereby grants approval for the continuing operation of the existing construction and demolition landfill (C&DLF) at the current Solid Waste Facility.

Adopted this 16th day of June, 2008

ATTEST:

Jamie M. Starnes

Larry D Yoder