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DuPont Engineering

July 21, 2006

Mr. Ed Mussler
NCDENR
Hazardous Waste Section
401 Oberlin Road, Suite 150
Raleigh, North Carolina 27605

RE: Cape Fear Asbestos Landfill Closure Report
DuPont Cape Fear Plant – Leland, NC
EPA ID #NCD 047 369 046

Dear Mr. Mussler:

Enclosed please find the Cape Fear Asbestos Landfill Closure Report for your review. If you have any questions concerning the report, please do not hesitate to contact me at (704) 362-6635.

Sincerely,
DUPONT CORPORATE REMEDIATION GROUP

Kevin Garon
Project Director

cc: Mr. Larry Stanley
NCDENR-Raleigh

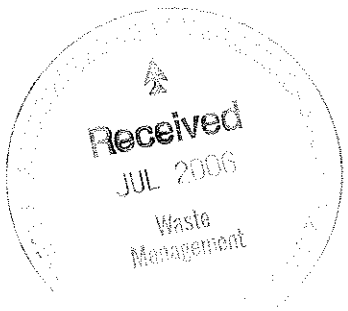
Mr. Geof Little
NCDENR-Raleigh

Mr. Ray Williams
NCDENR-Wilmington

Mr. Winston Price
DAK Americas-Leland

ASBESTOS LANDFILL AND INERT DEBRIS LANDFILL CLOSURE REPORT

DUPONT CAPE FEAR FACILITY LELAND, NORTH CAROLINA



Date: July 2006

CORPORATE REMEDIATION GROUP
An Alliance between
DuPont and URS Diamond

6324 Fairview Road
Charlotte, North Carolina 28210

I, A. Brett Berra, a Professional Engineer for URS Corporation – North Carolina, hereby certify that I had responsible charge in preparation of the *Asbestos Landfill and Inert Debris Landfill Closure Report*. Closure activities were conducted at the Asbestos and Inert Debris Landfills, located at the Dupont Cape Fear Facility in Leland, North Carolina, as specified in the *Asbestos Landfill and Inert Debris Landfill Soil Cover – Final Design Report* and the Erosion and Sediment Control Plan, approved in writing by Daniel Sams, NCDENR, Division of Land Resources, Land Quality Section on February 7, 2005. I certify that I am familiar with the rules and regulations of North Carolina solid waste landfill regulations 15A NCAC 13B.0505 and 13B.0510 pertaining to closure of such facility, and that I personally have made visual inspections of the aforementioned facility, and that the closure of the aforementioned facility has been performed in full and complete accordance with the facility's closure plan (*Final Design Report* and Erosion and Sediment Control Plan and revisions) and the rules and regulations of North Carolina solid waste landfill regulations 15A NCAC 13B.0505 and 13B.0510.

A. Brett Berra — 7-19-06

(Signature) (Date)

028303

(Professional Engineering License Number)

1600 Perimeter Park Drive, Suite 400

Morrisville, NC 27560

(Business Address)

919-461-1290

(Telephone Number)

Kevin P. Mason

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(Business Address)

704-362-6635

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FIGURES

APPENDICES

1.0 INTRODUCTION

This report outlines the technical approach and procedures used during the closure of the DuPont Cape Fear Asbestos Landfill and Inert Debris Landfill, both located on DuPont property near the former DuPont Cape Fear Plant in Leland. Closure is being performed under North Carolina solid waste landfill regulations 15A NCAC 13B.0505 and 13B.0510. These regulations specify a minimum of two feet of compacted soil cover stabilized with native grasses. No long-term monitoring of the closure is required. These closure requirements have been mutually agreed upon by the North Carolina Department of Environment and Natural Resources (NCDENR) Department of Solid Waste Management and the DuPont Corporate Remediation Group.

Applicable NCDENR and Erosion and Sedimentation (E&S) Control requirements have been incorporated into the design to ensure the long-term performance of the constructed remedy.

2.0 BACKGROUND

This section presents general information about the site, the Asbestos Landfill, and the Inert Debris Landfill.

2.1 Site Location/Description

The former DuPont Cape Fear Plant is located in the far northeastern portion of Brunswick County, on Secondary Road No. 1426, approximately six miles north of Leland, North Carolina, and approximately 15 miles northwest of Wilmington, North Carolina (**Figure G-1, Appendix B**). The Asbestos and Inert Debris Landfills are located northwest of the Cape Fear Plant production area and southeast of a major meander of the Cape Fear River.

The Asbestos Landfill covers an area of about 3.3 acres with an additional 0.7 acre Inert Debris Landfill directly south of the Asbestos Landfill. The area lies approximately 1,000 feet southeast from the Cape Fear River. Topography of the area is such that the land surface slopes gently towards the river.

Areas designated as wetlands exist to the north of the Asbestos Landfill waste extents. Wetlands areas have been fully delineated and confirmed by the Corps of Engineers.

2.2 Site History

The DuPont Cape Fear Plant began operations in 1968 producing *Dacron*® polyester and fiber. The first production line in the *Dacron*® manufacturing plant began operations in July 1968, with the second line operational in December 1968. A *Dacron*® Intermediates Plant was built in 1973 and subsequently modified for production of dimethylterephthalate (DMT) and terephthalic acid.

The Asbestos Landfill began receiving waste in 1970. All wastes were either applied to the surface or buried within two to three feet of the water table and periodically covered with onsite soils. In 1988, SWMU 59 had received waste in excess of 9,000,000 lbs, of which the Asbestos Landfill constitutes an unknown percentage.

3.0 CLOSURE ACTIVITIES

The proposed cap system for the Asbestos Landfill and Inert Debris Landfill consists of natural soil components and was designed to meet NCDENR requirements while serving to protect human health and the environment. **Figure 1** represents the Asbestos Landfill and Inert Debris Landfill prior to any construction activities associated with the closure. **Figure 2** is the as-built Asbestos Landfill and Inert Debris Landfill cover based upon a post cover construction survey of the site.

The following sections discuss steps that were taken to satisfy the closure requirements.

3.1 Closure Procedures

The following steps were taken to close the Asbestos Landfill and Inert Debris Landfill.

3.1.1 Existing Cover Assessment

Prior to completing the cover design, a series of test borings were completed with a hand auger across the surface of the Asbestos Landfill and Inert Debris Landfill to determine existing cover depths. Existing cover depths ranged from zero to 36 inches. In addition, a visual inspection was completed for uncovered asbestos sacks (Asbestos Landfill) or exposed waste debris (Inert Debris Landfill) within the waste extents of each respective landfill.

3.1.2 Cover Design

The cover was designed to meet closure requirements under North Carolina solid waste landfill regulations 15A NCAC 13B.0505 and 13B.0510. These regulations specify a minimum of two feet of compacted soil cover stabilized with native grasses. The proposed Asbestos Landfill and Inert Debris Landfill design was based on accepted geotechnical and environmental engineering principles and practices. The following support materials for the closure design were included in the design report prepared for this site:

- *Technical Specifications*
  Materials and construction procedures required to properly construct the design are documented in the Technical Specifications (See **Appendix A**).
- *Construction Drawings*
  Construction Drawings detail the cover design (See **Appendix B**).
- *Sedimentation and Erosion Control Plan*
  The Sedimentation and Erosion Control Plan describes measures for management of stormwater, mitigation of erosion, and control of sediment migration. This plan was submitted separately to the NCDENR, Land Quality Section (See **Appendix C** and **Figures E-1** through **E-3** in **Appendix B**).

- *Health and Safety Plan*
  The Health and Safety Plan describes measures for management of all aspects associated with maintaining a safe working environment during the life of the project.
- *Waste Management Plan*
  The Waste Management Plan describes project-specific requirements for waste characterization and handling, spill response and reporting, and waste storage.

3.1.3 Sedimentation and Erosion Control Plan Approval

The Sedimentation and Erosion Control Plan was approved in writing by Daniel Sams, NCDENR, Wilmington Regional Office, Division of Land Resources, Land Quality Section on February 7, 2005. Refer to **Appendix D** for a copy of the Letter of Approval.

Approved sedimentation and erosion control measures include four proposed temporary sediment basins and silt fence around the construction area perimeter. The design required erosion control measures around the Asbestos Landfill area to be located above ground with no excavation into the landfill material. Erosion control matting was utilized along side slopes with significant inclines to better establish stability and promote vegetative growth. One excavated temporary sediment basin was utilized to service the area between the Asbestos and Inert Debris Landfills. In order to avoid impact to the wetlands, which border the northern boundary of the Asbestos Landfill, a rock berm was proposed to act as a sediment basin until the fill material exceeded the height. At such time, a berm along the top was proposed to be constructed to control the runoff where it would flow down a riprap lined channel. No drainage structures or culverts were required.

3.1.4 Cover Construction

As seen in **Figure 2**, the final contours of the Asbestos Landfill and Inert Debris Landfill covers are higher in elevation but similar in pattern to the original site contours (**Figure 1**).

During construction, soil was placed, as directed in the Technical Specifications, above existing grade to achieve the required soil cover thickness of 24-inches. Based on thickness of cover data obtained from pre-construction test borings and the need to meet appropriate slope requirements, cover materials were placed at varying depths across the surface of the landfill. Slope requirements included minimum slopes of 3%, or 33 Horizontal to 1 Vertical [33H:1V], and maximum slopes of 33% [3H:1V]. Overall, the landfill was graded to conform to current conditions and direct stormwater to the perimeter. As discussed in **Section 3.1.3** and in the Sedimentation and Erosion Control Plan (**Appendix C**), rip rap areas were installed at key locations around the perimeter of the Asbestos Landfill towards which stormwater was directed. On the northern side of the Asbestos Landfill, in order to prevent impact to the wetlands, stormwater was directed to a rock berm acting as a sediment basin. A final construction survey (see **Figure 2**) was utilized to ensure the required 24-inch minimum thickness has been met.

Cover materials were obtained from a nearby off-site location. This material consists of appropriate (certified clean) cover soils as specified in the Technical Specifications. These cover soils met stringent requirements (see Technical Specifications, **Appendix A)** necessary to facilitate the establishment of an appropriate vegetative stand. In addition, appropriate temporal seeding requirements (see Technical Specifications, **Appendix A)** were utilized to establish the vegetative layer on the cover.

Initial construction of the Asbestos Landfill and Inert Debris Landfill covers began on July 11, 2005. The erosion and sediment control measures were constructed and in place on July 27, 2005, prior to initiating placement of the Asbestos Landfill and Inert Debris Landfill covers. Clearing and grubbing of the site was completed including the removal of all trees within the areas to be graded. Care was taken to avoid the exposure/release of asbestos material. The construction of the soil cover (including placement, grading, compaction, cover soil amendment, and vegetation establishment via seeding and mulching) began on August 3, 2005. Cover seeding activities were completed on September 10, 2005. Heavy storms, taking place between October and November, resulted in damage to the newly seeded covers. The soil cover and erosion control devices were inspected and repaired as needed on the week of November 7, 2005. A final stage of reseeding could not be accomplished that late in the growing season. Rather, an additional seeding was completed in June 2006.

During construction, additional waste materials were not encountered. Asbestos containing material (ACM) sacks were suspected in the northern portion of the Asbestos Landfill. However, these items were not disturbed and dust suppression techniques were employed prior to covering with soil.

To complete the cover construction, a total of 37,896 tons (27,069 cubic yards) of soil were utilized as landfill cover. This includes 4,204 tons (3,003 cubic yards) for landfill cover repairs following the previously mentioned storms. Approximately 595 tons of Class B rip rap and 132 tons of sediment control stone were used in the construction of sedimentation and erosion control measures. Construction of a haul road required an additional 141 tons of stone to be used. Approximately 985 linear feet of silt fence and 5,796 square yards of erosion control blanket were utilized in the construction of the Asbestos Landfill and Inert Debris Landfill covers. A photographic log of post-closure site conditions is included as **Appendix E**.

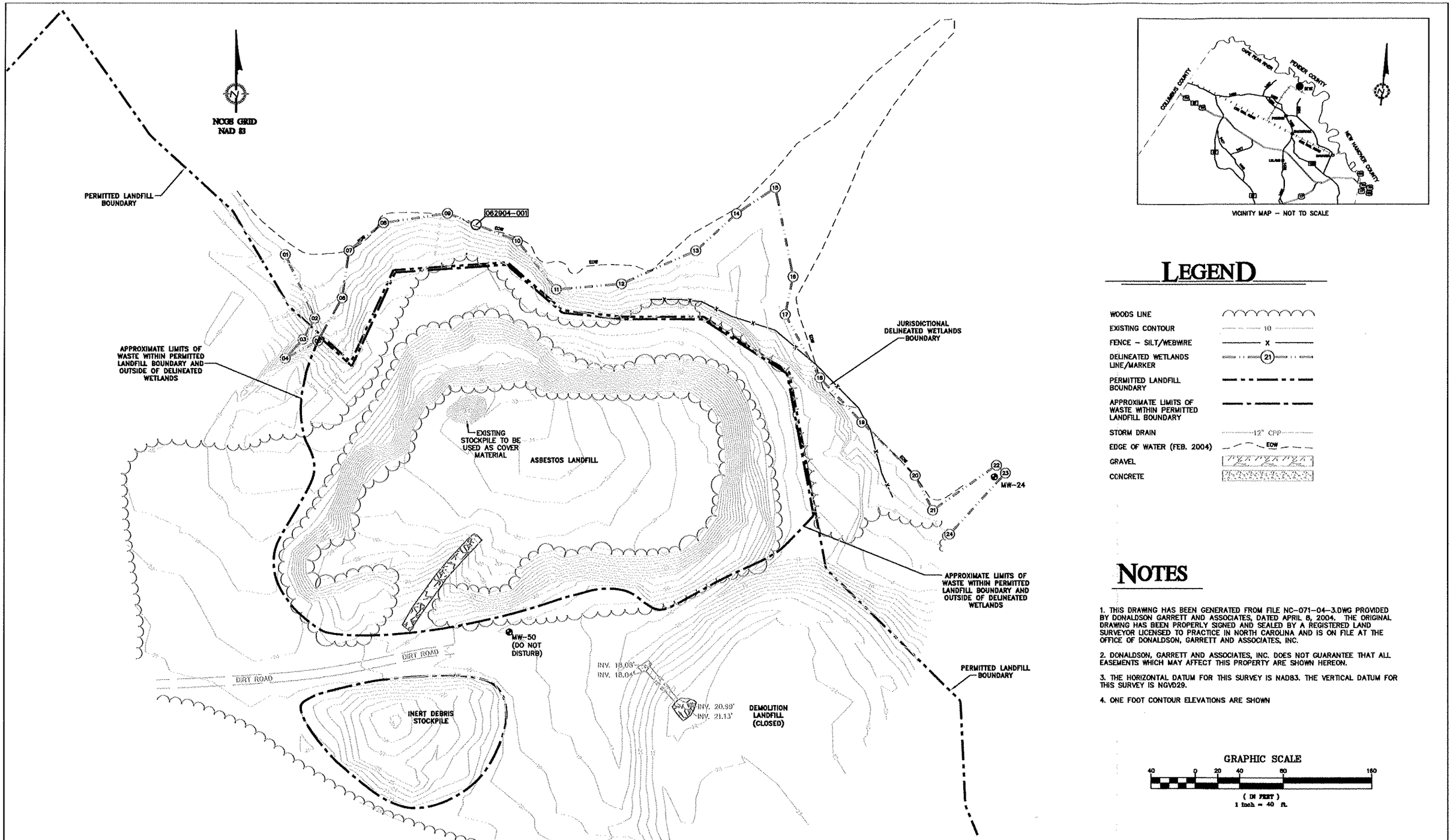
As of June 2006, a stand of native grasses was fully established over the Asbestos Landfill and Inert Debris Landfill. An additional seeding and fertilizing was completed on June 3, 2006 to further ensure complete coverage of the landfills' respective vegetative covers. Photographs 8-11 of the photographic log were taken in June 2006 and depict the condition of the vegetative covers at the time of reseeding. DuPont will continue to maintain and repair any erosion and sedimentation control measures to ensure the entire cover is stabilized.

4.0 REFERENCES

URS, *Asbestos Landfill and Inert Debris Landfill Soil Cover Final Design Report, DuPont Cape Fear Facility, Leland, North Carolina*, March 2005.

DuPont Engineering, Corporate Remediation Group. Drawing - *Topographic Survey*, December 15, 2003.

FIGURES



VICINITY MAP -- NOT TO SCALE

LEGEND

- WOODS LINE
- EXISTING CONTOUR — 10
- FENCE - SILT/WEBWIRE — X
- DELINEATED WETLANDS LINE/MARKER — 21
- PERMITTED LANDFILL BOUNDARY
- APPROXIMATE LIMITS OF WASTE WITHIN PERMITTED LANDFILL BOUNDARY
- STORM DRAIN — 12" CPP
- EDGE OF WATER (FEB. 2004) — EOW
- GRAVEL
- CONCRETE

NOTES

1. THIS DRAWING HAS BEEN GENERATED FROM FILE NC-071-04-3.DWG PROVIDED BY DONALDSON GARRETT AND ASSOCIATES, DATED APRIL 8, 2004. THE ORIGINAL DRAWING HAS BEEN PROPERLY SIGNED AND SEALED BY A REGISTERED LAND SURVEYOR LICENSED TO PRACTICE IN NORTH CAROLINA AND IS ON FILE AT THE OFFICE OF DONALDSON, GARRETT AND ASSOCIATES, INC.

2. DONALDSON, GARRETT AND ASSOCIATES, INC. DOES NOT GUARANTEE THAT ALL EASEMENTS WHICH MAY AFFECT THIS PROPERTY ARE SHOWN HEREON.

3. THE HORIZONTAL DATUM FOR THIS SURVEY IS NAD83. THE VERTICAL DATUM FOR THIS SURVEY IS NGVD29.

4. ONE FOOT CONTOUR ELEVATIONS ARE SHOWN

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PREPARED FOR
DuPONT-
CAPE FEAR PLANT
LELAND, NORTH CAROLINA

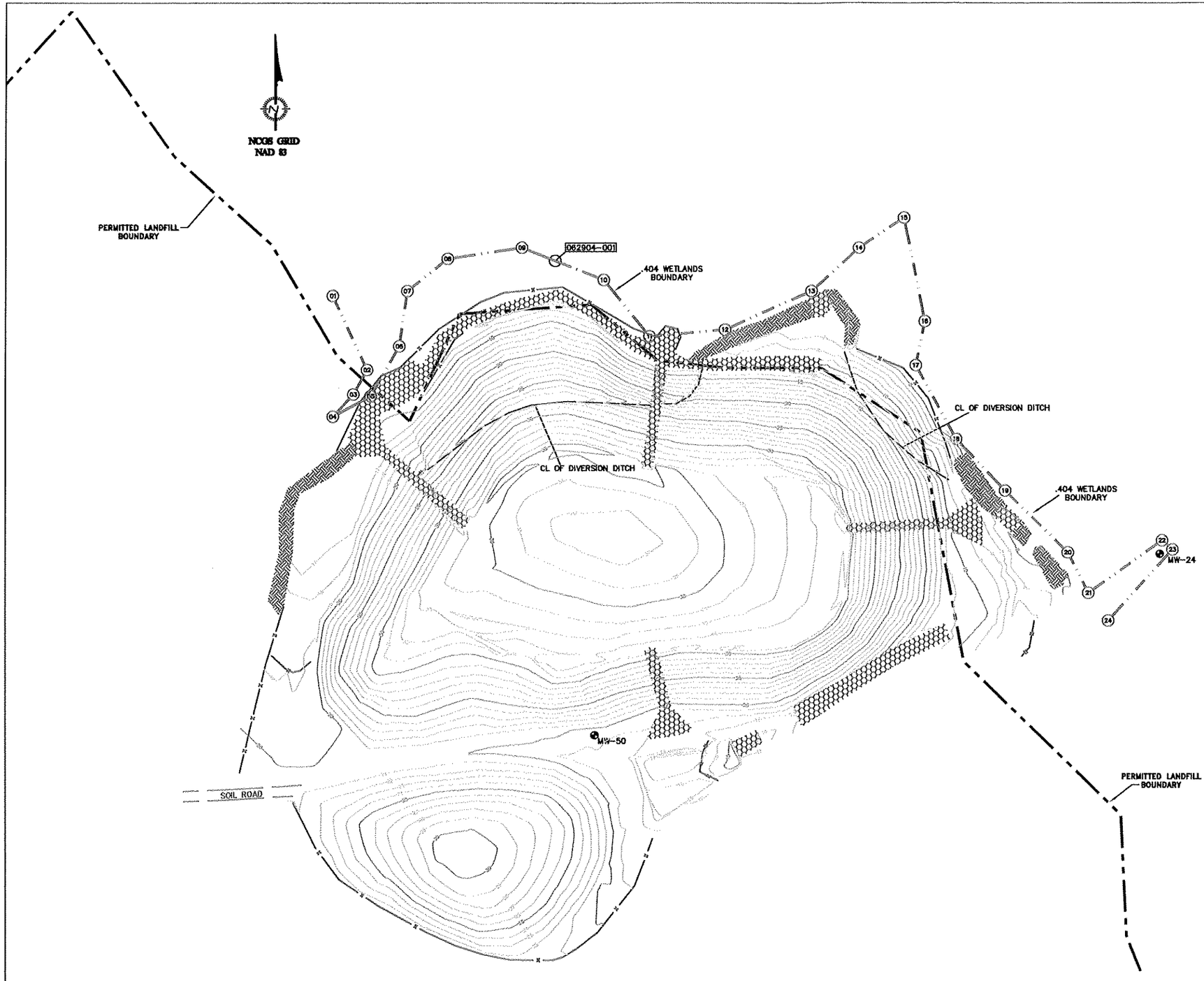
SCALE: AS SHOWN

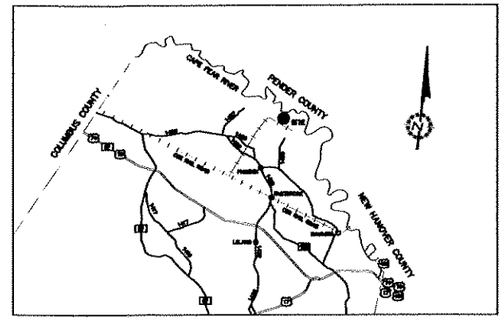
URS
RALEIGH, NORTH CAROLINA 27560

DESIGNED BY		DATE
DRAWN BY	TSH	DATE 21JUL04
CHECKED BY	JK	DATE 22JUL04
APPROVED BY	ABB	DATE 22JUL04

DRAWING TITLE: Figure 1. Pre-Construction Topography and Waste Area Asbestos Landfill-Dupont Leland, North Carolina

CONTRACT NO.	DRAWING NO.	REV.
18983997	CLOSURE-1	0





VICINITY MAP – NOT TO SCALE

LEGEND

- EXISTING CONTOUR
- DELINEATED WETLANDS LINE/MARKER (21)
- STORM DRAIN 12" CPP
- PERMITTED LANDFILL BOUNDARY
- SILT FENCE
- RIP RAP STONE
- EARTHEN BERM
- MONITORING WELL

NOTES

1. THIS DRAWING HAS BEEN GENERATED FROM FILE NC-071-04-3.DWG PROVIDED BY DONALDSON GARRETT AND ASSOCIATES, DATED APRIL 8, 2004. THE ORIGINAL DRAWING HAS BEEN PROPERLY SIGNED AND SEALED BY A REGISTERED LAND SURVEYOR LICENSED TO PRACTICE IN NORTH CAROLINA AND IS ON FILE AT THE OFFICE OF DONALDSON, GARRETT AND ASSOCIATES, INC.

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3. THE HORIZONTAL DATUM FOR THIS SURVEY IS NAD83. THE VERTICAL DATUM FOR THIS SURVEY IS NGVD29.

4. ONE FOOT CONTOUR ELEVATIONS ARE SHOWN

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

1 inch = 40 ft.

PREPARED FOR: DuPONT– CAPE FEAR PLANT, LELAND, NORTH CAROLINA

SCALE: AS SHOWN

DESIGNED BY		DATE
DRAWN BY	TSH	DATE 26OCT05
CHECKED BY	ABB	DATE 26OCT05
APPROVED BY	ABB	DATE 26OCT05

DRAWING TITLE: Figure 2. As–Built Landfill Cover Asbestos Landfill–Dupont Leland, North Carolina

CONTRACT NO.	DRAWING NO.	REV.
18983997	CLOSURE–2	0

APPENDIX A

TECHNICAL SPECIFICATIONS

Cape Fear Asbestos Landfill and Inert Debris Landfill
Soil Cover Construction
Final Design

List of Specifications

Division 1 – General Requirements

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 0101
SUMMARY OF WORK

PART 1 - GENERAL

1.1 SCOPE

This section includes a brief description of the major construction activities included under this contract. Individual activities are more thoroughly described in subsequent sections of the Specifications. The Contractor shall be responsible for ensuring that sufficient equipment, labor, and materials, including health and safety and quality control provisions, are supplied to execute all work activities for final acceptance.

A. Location of Work. The Work of this Contract is located near the former DuPont Cape Fear Plant located along State Road 1426 in Leland, North Carolina. A location map is provided with the Drawings (Figure G-1).

B. Glossary

Contractor – The construction contractor selected to implement the scope of work described herein.
Engineer – URS Corporation – North Carolina.
DuPont Site Representative – DuPont Corporate Remediation Group (DuPont).

1.2 GENERAL REQUIREMENTS

As minimum requirements, the Contractor shall observe and follow all appropriate and relevant procedures identified in applicable federal, state, and local rules and regulations in conducting the work. The DuPont Site Representative (DSR) has already obtained the required Erosion and Sedimentation Control Plan Approval from the Land Quality Section of NCDENR. In addition, the project is covered by the NPDES General Stormwater Permit NCGO10000 (Construction Activities). Other applicable regulations not explicitly included in these Specifications shall be adhered to in conducting the work. The Contractor shall be responsible for contacting and informing the proper federal, state, and local agencies of the nature and timing of work on-site (including, if necessary, transportation of materials off the site for off-site disposal as needed and schedule for hauling of clean fill to the site) and for securing all necessary (and otherwise not obtained by DuPont) and applicable permits required to construct the work covered by this contract.

A. Existing Features. The Contractor shall protect and maintain survey and grid stakes, monitoring wells, delineated wetlands, and any other items as directed in the field by the DuPont Site Representative against damage from equipment and vehicular traffic. Any damage shall be repaired by the Contractor at no expense to DuPont.

B. Utilities. The Contractor shall protect utility lines or appurtenances that are to remain. The DSR will ensure that all utilities are marked prior to implementing

work on the site. The DSR will coordinate with Cape Fear Plant Personnel and the Contractor to ensure utilities locations are complete and clearly defined. Any damage to previously located utilities shall be repaired by the Contractor at no expense to DuPont. The State of North Carolina provides a construction alert system (One-Call) for utilities at 1-800-632-4949.

1.3 MATERIALS AND EQUIPMENT

Materials and equipment shall be provided in sufficient quantities for required construction activities. Materials and equipment shall not be stored or used in such a manner as to create unsafe conditions, and shall meet requirements of applicable codes and the approval of the DuPont Site Representative and the Design Engineer.

1.4 DESCRIPTION OF WORK

The project generally includes construction of the following: an engineered soil cover for the Asbestos Landfill and Inert Debris Landfill; temporary and permanent erosion control measures during construction; and vegetative cover establishment.

The Contractor shall be responsible for providing all testing services, temporary facilities and related materials and equipment for the performance of the described work. The Contractor shall be responsible for the construction and installation of all temporary erosion and sediment control structures prior to full-scale earth disturbance or earth moving activities and maintenance of these controls throughout construction. The Contractor shall coordinate with Plant and local government transportation officials and be responsible for coordination of traffic flow resulting from site work and for road repairs as may be deemed necessary by these transportation officials.

The soil cover will be installed, tested, and ready for continuous service. Repairs, replacements, and restoration as a result of damages resulting from construction operations will be performed by the Contractor. All materials, equipment, and incidentals, which are reasonably and properly inferable and necessary for the proper completion of the work, whether specifically indicated in the contract documents or not, will be furnished.

1.5 WORK TO BE PERFORMED

The major construction activities included are summarized below.

A. Temporary Site Facilities

Maintenance of temporary site facilities (as required by the Contractor) including, staging areas, Contractor offices, security and communication operations, personnel and equipment decontamination facilities, project signs during the performance period of the Contract, and removal of same at the completion of construction activities.

B. Temporary Site Utilities

This provision includes the operation and maintenance of all temporary site utilities (as required by the Contractor) including telephone, electricity, water, and sanitation.

C. Contractor Quality Control Plan

The Contractor shall develop and implement a Contractor Quality Control Plan, as identified in subsequent sections of the specifications. Four (4) copies of this plan shall be submitted to the DSR within 10 days after Notice to Proceed.

The Contractor shall also develop and implement all other plans required under this Contract and under applicable federal, state, and local laws.

D. Establishment of Temporary and Permanent Erosion and Sediment Control Measures

This activity includes the installation of soil erosion and sedimentation control measures as identified in Appendix B, Sheet No. E-1 and E-2 (Erosion and Sedimentation Control Plan).

E. Site Preparation and Clearing and Grubbing

This includes activities associated with secondary roadway enhancement (e.g. addition of compacted gravel and grading) necessary to complete the project. Also, this includes activities associated with clearing and grubbing of the site, as required for project execution. Installation of high visibility fencing to act as a barrier to encroachment into the wetlands is included under this item.

F. Soil Cover Construction – Asbestos Landfill and Inert Debris Landfill Areas

This includes the construction of soil cover including placement, grading, compaction, cover soil amendment, and vegetation establishment via seeding and mulching.

G. Quality Control

Maintain a quality control program to ensure that all operations performed by the Contractor and all subcontractors are completed in accordance with the provisions of this Contract.

H. Safety

Provide required safety as specified in the Health and Safety Plan for both personnel and equipment. These requirements include a dedicated Site Safety Officer as described in the Health and Safety Plan.

I. Project Documentation

Document all work, including work associated with health and safety, quality control, and field engineering.

J. Project Closeout

Activities include, but are not limited to: decontamination and removal of all Contractor equipment, removal of all temporary construction facilities as directed by the DSR, disconnection and restoration of all temporary utilities, completion of an as-built survey to verify adequate soil coverage, and transfer of all records, drawings, and other project-related material to the DSR.

Verification borings and surveying will also be completed by the DSR to ensure adequate soil cover.

All other activities to satisfactorily complete all work covered by the Technical Specifications, any drawings not specifically discussed but necessary for the project construction and final acceptance.

All other work required by DuPont under the terms of this Contract.

1.6 CONSTRUCTION SEQUENCE

The major construction sequence (as detailed in the design drawings) shall be adhered to by the Contractor during project execution.

1.7 LIMITATIONS TO CONSTRUCTION SEQUENCE

Construction under this contract must be coordinated with the DSR and DuPont and accomplished in a logical order to allow construction to be completed within the schedule time allowed by the contract documents. The following limitations apply to the construction sequence for work under this contract:

A. Miscellaneous inert debris currently located at the Inert Debris Landfill shall be consolidated in the center of the Inert Debris Landfill for disposal beneath the constructed soil cover. At the Asbestos Landfill, miscellaneous materials excluding asbestos and/or materials that have been in contact with asbestos shall be consolidated in the center of the landfill for disposal beneath the constructed soil cover. All exposed or unexposed asbestos should be left in place and covered with appropriate soil to minimize a potential release of hazardous materials.

B. Access to and traffic flow through adjacent roadways shall be maintained throughout construction including Plant gravel and dirt roadways.

C. Site erosion and sediment control structures shall be constructed prior to initiation of full-scale site disturbance.

D. Construction activity shall be limited to 6 days a week and 12 hours a day during daylight hours. Work shall not be conducted overnight, unless written approval is provided by the DSR.

1.8 WORK BY OTHERS

Health and safety procedures to be adhered to during project execution have been prepared by DuPont and are included in attached documentation. The Contractor shall be responsible for compliance with these procedures.

Verification borings and surveying will be completed by the DSR to ensure adequate soil cover. In addition, a final survey will be completed by the DSR to ensure cover requirements and grading specifications have been met by the Contractor.

PART 2 – MATERIALS

NOT APPLICABLE.

PART 3 – EXECUTION

NOT APPLICABLE.

[END OF SECTION]

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 0102
MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.1 SCOPE

A. All contract prices included on the Bid Form will be full compensation for all labor, materials, tools, equipment and incidentals necessary to complete the Work as shown on the Drawings and specified in the Contract Documents to be performed under this Contract.

B. The items listed below refer to and are the same pay items listed in the Bid Form. They constitute all of the pay items necessary for the completion of the Work.

C. Each lump sum and unit bid price will be deemed to include an amount considered by the Contractor to be adequate to cover the Contractor's indirects, including, but not limited to, all applicable taxes, insurance fees, management and site supervision, overhead and profit for each separately identified item. In addition, each lump sum and unit bid price shall include costs for appurtenant work that is not included in the pay items but required for project execution. Such work shall include, but is not limited to, permits and associated work products; implementation and updating of any special procedures required by the Contractor to complete the work; photographs; Project Safety Analysis (PSA); appropriate medical surveillance program including all required physical examinations; health and safety including a dedicated health and safety site representative (can only serve a health and safety related oversight role); PPE; daily "tailgate meetings"; dust control; odor control; vector control; project meetings and progress reporting; construction scheduling and schedules; work plan/shop drawings/ certification/ test/sample submittals; maintaining and preparing project record documents and drawings; cleanup; and collection and disposal of sanitary sewage wastes.

D. Restoration of the project area is not a separate pay item, but is considered to be an integral part of the Work under the Contract, and all contract bid prices include the cost of restoration necessitated by the work related to that bid item. Restoration includes existing structures and property, drainage ditches, ground areas, bridges that are altered, removed, or damaged during construction. Cleanup is an integral part of restoration.

E. Measurement and Payment for work directed by the DSR to be performed beyond the limits specified herein or shown on the Contract Drawings shall be made at the unit bid prices identified in the Bid Form, as applicable.

F. Submit to DuPont a Schedule of Values allocated to the various portions of the Work as listed in the Bid Form, within 15 days after the effective date of the Agreement.

G. Upon request of DuPont, support the values with data, which will substantiate their correctness.

H. The accepted Schedule of Values shall be used only as the basis for the Contractor's Applications for Payment.

I. Measurement Devices:

1. Weigh Scales: Inspected, tested, and certified by the State of North Carolina Weights and Measures department within the past year.
2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle
3. Metering Devices: Inspected, tested, and certified by the applicable State of North Carolina department within the past year.

1.2 PAY ITEMS

A. Item 1 - Mobilization/Demobilization

Work Included: This work includes, but is not limited to; transportation and supply of equipment to and from the site; setup of construction operations; constructing staging areas and facilities; installing, equipping and maintaining all field office trailers (as utilized by the Contractor), site security, safety equipment and clothing, and utility services.

Measurement: Lump Sum.

Payment: The payment shall be based on the completion of the mobilization and demobilization as determined by the DSR with fifty (50) percent of the payment to follow completion and acceptance of the mobilization and fifty (50) percent to follow the completion and acceptance of the demobilization.

B. Item 2 – Site Preparation

Work Included: This work includes upgrading the secondary roads as necessary, clearing the site of all vegetation as necessary to construct the cover, and preparation of the site for Construction prior to earthwork operations including completing a construction layout grid/survey and installing high visibility fencing along wetlands border.

Measurement: Lump Sum.

Payment: The payment shall be made when the work is completed and accepted by the Dupont Site Representative.

C. Items 3 through 7– Erosion and Sediment Control and Maintenance

Work Included: Work includes, but is not limited to, all labor, equipment, and materials necessary for the construction of temporary and permanent erosion and sediment control measures as detailed in the Erosion and Sedimentation Control Plan and including the maintenance of these control measures through Final Acceptance of Work. Soil amendment, seeding and mulching of the Asbestos Landfill and Inert Debris Landfill covers and the temporary Sediment Basins are not included in this item, but are included under separate bid items elsewhere.

Item 3 – Class B Rip Rap

Work Included: The work includes all equipment, materials, and labor required for furnishing, hauling, staging, handling, and placing Class B riprap as required for the rock berm, storm water drainage channels, temporary sediment basins, and any other requirements as detailed and in accordance with the Specifications and Drawings.

Measurement: Lump Sum.

Payment: The payment shall be made when the work is completed and accepted by the Dupont Site Representative.

Item 4 – Temporary Filter Fabric

Work Included: The work includes all equipment, materials, and labor required for furnishing, shipping, staging, handling, and placing temporary filter fabric as required for the rock berm, storm water drainage channels, temporary sediment basins, and any other requirements as detailed and in accordance with the Specifications and Drawings.

Measurement: Lump Sum.

Payment: The payment shall be made when the work is completed and accepted by the Dupont Site Representative.

Item 5 – Sediment Control Stone

Work Included: The work includes all equipment, materials, and labor required for furnishing, hauling, staging, handling, and placing sediment control stone as

required for the storm water drainage channels and any other requirements as detailed and in accordance with the Specifications and Drawings.

Measurement: Lump Sum.

Payment: The payment shall be made when the work is completed and accepted by the Dupont Site Representative.

Item 6 – Silt Fence

Work Included: The work includes all equipment, materials, and labor required for furnishing, shipping, staging, handling, and placing silt fence along the Asbestos Landfill and Inert Debris Landfill boundaries as detailed and in accordance with the Specifications and Drawings.

Measurement: Unit price per linear foot.

Payment: The payment shall be on a linear foot basis as determined by the DSR through field measurements.

Item 7 – Erosion Control Blanket

Work Included: The work includes all equipment, materials, and labor required for furnishing, shipping, staging, handling, and placing erosion control blanket as required for cover and vegetation stabilization as detailed and in accordance with the Specifications and Drawings.

Measurement: Unit price per square yard.

Payment: The payment shall be on a square yard basis as determined by the DSR through field measurements.

D. Item 8 – Cover Soil

Work Included: The work includes all permits and associated work products, royalties, taxes, equipment, materials, and labor required for physical testing, accessing, clearing, grading, hauling, staging, handling, placing, moisture conditioning (if required), and compacting on-site cover soil in accordance with the Specifications and Drawings.

Measurement: Unit price per ton.

Payment: The payment shall be made on a weight basis according to shipment weight tickets provided by the Contractor. No payment shall be made for cover soil placed outside the lines and grades shown on the drawings.

E. Item 9 – Traffic Control and Haul Road Maintenance and Restoration

Work Included: This work includes all provisions (labor, equipment, and materials) necessary for traffic control and haul road maintenance and restoration including, but not limited to: plant haul road upgrade, maintenance, and restoration; management of all truck traffic on plant haul roads; dust suppression; and management of the unloading of trucks. All plant roads utilized shall be cleaned and restored to their pre-construction conditions. The Contractor shall provide adequate, stable, and safe unloading areas. The Contractor shall also provide adequate spotters to manage all truck traffic during transportation and unloading while on-site.

Measurement: Lump Sum.

Payment: The payment shall be made on a progress basis, based on the percentage of work completed as determined by the DSR.

F. Item 10 – Soil Amendment, Seeding and Mulching

Work Included: This work includes all labor, equipment, and material necessary to perform soil amendment, seed, and mulch the Asbestos Landfill and Inert Debris Landfill surfaces, and other disturbance areas and establish a stand of grass in accordance with the Specifications. This includes the required temporary seeding and mulching as appropriate for the control of sedimentation and erosion.

Measurement: Lump Sum.

Payment: The payment shall be made when the work is completed and accepted by the Dupont Site Representative.

G. Item 11 – Contractor Quality Control

Work Included: This work includes all labor, equipment, and materials required to prepare and implement the Contractor's quality control plan to monitor and control the quality of construction throughout the life of the project.

Measurement: Lump Sum.

Payment: The payment shall be made on a progress basis, based on the percentage of work completed as determined by the DSR.

H. Item 12 – Contractor Site Safety Officer

Work Included: This work includes the provision by the Contractor of a Site Safety Officer (SSO) for the duration of the project. The SSO will be responsible for health and safety related project oversight and will not be involved in operations activities except for those related directly to health and safety.

Measurement: Lump Sum.

Payment: The payment shall be made on a progress basis, based on the percentage of work completed as determined by the Dupont Site Representative.

1.3 FORM AND CONTENT OF SCHEDULE OF VALUES

A. Type schedule of values on an 8½" by 11" or 8½" by 14" white paper; Contractor's standard forms and automated printout will be considered for approval by DuPont upon Contractor's request. Identify the schedule with:

4. Title of Project and Location
5. Engineer and Project Number
6. Name and Address of Contractor
7. Contract Designation
8. Date of Submission

B. Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction. At a minimum, the component parts listed in the Bid Form shall be used.

C. Identify each line item with the number and title of the respective major section of the Specifications.

D. For each major line item, list sub-values of major products or operations under the item.

E. For the various portions of the Work:

1. Each item shall include a directly proportional amount of the Contractor's overhead and profit.
2. No payment shall be made for stored materials.
3. Sum of all values listed in the schedule shall equal the Total Contract Sum.

1.4 PAYMENT TO SUBCONTRACTORS AND SUPPLIERS

A. Evidence of payment to subcontractors and suppliers will be required from the Contractor prior to payment for this contract.

PART 2 - MATERIALS

NOT APPLICABLE.

PART 3 – EXECUTION

NOT APPLICABLE.

[END OF SECTION]

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 0103
FIELD ENGINEERING

PART 1 – GENERAL

1.1 SCOPE

A. The contractor shall provide certified survey work during execution of the project to ensure adequate cover, appropriate sloping, and erosion and sedimentation control measures placement.

B. The Contractor shall provide civil, structural, or other professional engineering services specified or required to execute the Contractor's construction methods.

C. The Contractor shall be responsible for providing certified survey work required to complete a final survey of the grade and areas disturbed.

D. The DSR shall complete verification borings and may complete surveying upon completion of final grade to ensure adequate (24-inches) soil cover.

1.2 RELATED WORK

The following work specified herein is, or may be, related to Field Engineering:

A. Section 0101: Summary of Work.
B. Section 0102: Measurement and Payment.

1.3 QUALIFICATIONS OF SURVEYOR

All surveyors utilized on this project shall be licensed in the State of North Carolina and meet the project specific health and safety requirements.

1.4 SUBMITTALS

A. The Contractor shall submit documentation to verify the accuracy of field engineering work during project Progress Meetings, and at any time per the request of the DSR or Engineer.

PART 2 – MATERIALS

NOT APPLICABLE

PART 3 – EXECUTION

3.1 SURVEY REFERENCE POINTS

A. References shall be set and measurements taken using standard accepted surveying methods and equipment.

B. The Contractor shall locate and protect control points prior to starting the work and preserve all permanent reference points during construction. The Contractor shall report to the DSR and Engineer when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or interference from construction activities. The Contractor shall not make changes or relocations without prior written notice to the Engineer. The Contractor shall immediately notify the DSR when a project control point(s) becomes lost or destroyed.

3.2 PROJECT SURVEY REQUIREMENTS

A. The Contractor shall make the following surveys of the site:

1. Construction areas prior to initiation of construction activities (including topography). The Contractor may utilize existing site survey information indicated in the Drawings rather than completing this initial survey.
2. Surveys, as necessary, during project progress to ensure cover material is being placed as specified herein.
3. Surveys, as necessary, to ensure erosion control measures are being constructed as specified in the Erosion and Sedimentation Control Plan.
4. A final survey of the grade and areas disturbed.

B. The Contractor shall lay out his/her work and shall make all measurements in connection with the project coordinate system indicated on the drawings. The Contractor shall furnish all stakes, templates, platforms, equipment, tools, and materials and labor as may be required in laying out any part of the work. The Contractor shall execute the work to the lines and grades established or indicated and shall maintain and preserve all stakes and other control points until authorized to remove them by the DSR.

C. The Contractor will utilize an appropriate subcontractor of his/her choosing to survey the Asbestos Landfill and Inert Debris Landfill construction areas following the installation of cover soil. The Contractor shall supply the certified survey (in electronic and hard copy) to the DSR.

1.3 VERIFICATION BORINGS

The DSR shall complete verification borings upon completion of final grade to ensure adequate (24-inches) soil cover. These borings will be completed with a hand auger across the extents of the landfill. The auger shall be lowered until landfill materials are encountered or a maximum of 2.5 feet bgs.

[END OF SECTION]

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 0104
CONTRACTOR QUALITY CONTROL

PART 1 – GENERAL

1.1 CODES, RULES, PERMITS AND FEES

A. General

1. All construction shall conform to the current editions of the codes, regulations, specifications and standards in Paragraph: **Standards**, as well as applicable federal, state and local laws, regulations, codes, and ordinances.
2. The Contractor shall give all necessary notices, obtain all permits (except as otherwise noted herein) and pay all governmental taxes, fees, and other costs in connection with the work, file all necessary plans, prepare all documents and obtain all necessary approvals of all governmental departments having jurisdiction, obtain all required Certificates of Inspection and Approval for the work and deliver same to the DSR, except as otherwise noted herein.
3. Contractor Quality Control (CQC). The Contractor shall establish and maintain an effective Quality Control Program. The Contractor shall develop a Contractor Quality Control (CQC) Plan. The Contractor shall submit the CQC Plan to the DSR within 10 working days of Notice of Award.
4. Sufficient inspections and tests of all items of work, including that of subcontractors, to ensure conformance to applicable Drawings and Specifications and with respect to the quality of materials, workmanship, construction, functional performance, and identification shall be performed as necessary. Contractors shall furnish qualified personnel, appropriate facilities, instruments, and testing devices necessary for the performance of the QC function. The controls shall be adequate to cover all construction operations both on and off site, shall be linked to the proposed construction sequence and shall be coordinated by the Contractor's QC personnel.

B. Included Items

The Contractors shall include in the work, without extra cost to the Owner, all labor, materials, services, apparatus, and drawings required to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on the Drawings, and/or specified.

1.2 RELATED WORK

The following work specified herein is, or may be, related to the performance of quality control (QC) by the Contractor:

A. Section 0101: Summary of Work.
B. Section 0202: Earthwork.
C. Section 0203: Seeding.

1.3 SUBMITTALS

The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

1.4 STANDARDS

A. All references to standards in the Contract Documents shall always imply the latest issue in effect, including all amendments and errata at the time bids are taken, of said standards unless otherwise stated.

B. Abbreviations for various organizations that may be used in these Specifications are as follows:

Abbreviation	Organization
AAN	American Association of Nurseries
AASHTO	American Association of State Highway and Transportation Officials
ACGIH	American Conference of Governmental Industrial Hygienists
ACI	American Concrete Institute
ACS	American Chemical Society
AGA	American Gas Association
AIChE	American Institute of Chemical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
BOCA	Building Officials Code Administration
CRSI	Concrete Reinforcing Steel Institute
DOT	Department of Transportation
FS	Federal Specification
IEEE	Institute of Electrical and Electronic Engineers
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry
NBFU	National Bureau of Fire Underwriters
NBS	National Bureau of Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NICET	National Institute of Certification of Engineering Technicians

NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Act of 1970
UL	Underwriters' Laboratories
USEPA	U.S. Environmental Protection Agency
USGS	United States Geological Survey

1.5 VERIFICATION OF DIMENSIONS

Contractors shall be responsible for field verification, as necessary, of all dimensions of existing facilities and other items that are shown on the Drawings.

1.6 TESTING OF MATERIALS

A. The DSR reserves the right to perform tests on materials and equipment.

B. The Contractor shall identify the source of cover materials upon submittal of the bid. These cover materials will be tested by the DSR at the source as described in **Section 0202: Earthwork** to ensure the materials are free of environmental contamination.

C. Contractors shall submit materials for testing, taking into consideration when the materials will be incorporated in the work and the capabilities and capacities of the testing laboratory.

PART 2 – MATERIALS

NOT APPLICABLE.

PART 3 – EXECUTION

3.1 GENERAL

The Contractor is responsible for QC and shall establish and maintain an effective QC system. The QC system shall consist of plans, procedures, and organization necessary to produce an end product that complies with the contract requirements. The system shall cover all construction operations, both on-site and off-site, and shall be keyed to the proposed construction sequence.

3.2 QUALITY CONTROL PLAN

A. General

The Contractor shall furnish for review by the DSR, not later than 10 working days after Notice of Award, the CQC Plan. The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. Construction will be permitted to begin only after acceptance of the CQC Plan.

B. Acceptance of Plan

Acceptance of the CQC Plan is required prior to the start of construction. Acceptance is conditional and will be based on satisfactory performance during the construction. The DSR reserves the right to require the Contractor to make changes in his CQC plan and operations including removal or addition of personnel, as necessary, to obtain the quality specified at no additional costs to the Owner.

C. Notification of Changes

After acceptance of the CQC plan, the Contractor shall notify the DSR in writing a minimum of 5 working days prior to any proposed change. Proposed changes are subject to acceptance by the DSR.

3.3 COORDINATION MEETING

The Contractor together with the Contractor's QC Contractor shall meet with the DSR and discuss the QC system after the Preconstruction Conference, before the start of construction, and prior to acceptance of the CQC Plan by the DSR. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both on-site and off-site work, and the interrelationship of the Contractor's management and QC Contractor with the DSR's Quality Assurance.

3.4 QUALITY CONTROL ORGANIZATION

A. QC Supervisor

The Contractor shall identify an individual within their organization at the site of the work who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. This QC Supervisor shall be on the site a minimum of 1 day per week and attend the pre-construction meeting and all construction progress meetings. The QC Supervisor shall have a minimum of 5 years construction experience on earthwork projects similar to this contract.

B. QC Staff

Following are the minimum requirements for the QC staff. The QC staff will be at the site of work at all times during construction activities and they will have complete authority to take any action necessary to ensure compliance with the contract. Any member of the QC staff shall have a minimum of 2 years construction experience on earthwork projects similar to this contract. These minimum requirements will not necessarily assure an adequate staff to meet the QC requirements at all times during construction. The actual strength of the QC staff may vary during any specific work period to cover the needs of the work period. When necessary for a proper QC organization, the Contractor will add additional staff. This listing of minimum staff in no way relieves the Contractor of meeting the basic requirements of quality construction in accordance with contract requirements. All QC staff members shall be subject to acceptance by the

DSR. A staff shall be maintained under the direction of the QC Supervisor to perform all QC activities. The staff must be of sufficient size to ensure adequate QC coverage of all work phases, work shifts, and work crews involved in the construction. These personnel may perform other duties, but must be fully qualified by experience and technical training to perform their assigned QC responsibilities and must be allowed sufficient time to carry out these responsibilities. The QC plan will clearly state the duties and responsibilities of each staff member.

C. Organizational Changes

The Contractor shall obtain DSR's written acceptance before replacing any member of the QC staff. Requests shall include the names, qualifications, duties, and responsibilities of each proposed replacement.

3.5 CONTROL

The CQC is the means by which the Contractor assures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. The controls shall be adequate to cover all construction operations, including both on-site and off-site fabrication, and will be linked to the proposed construction sequence.

3.6 TESTS

A. Testing Procedure

1. The Contractor shall perform tests specified or required to verify that control measures are adequate to provide a product that conforms to contract requirements. Table 1 (attached) provides a summary of the minimum QC testing requirements. Table 1 shall not supersede the requirements of each specification and is provided solely to assist the Contractor in preparing the CQC Plan and understanding the general scope of QC testing. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of an offsite industry-recognized testing laboratory. A list of tests to be performed shall be furnished as a part of the CQC plan. The list shall give the test name, frequency, specification paragraph containing the test requirements, the personnel and laboratory responsible for each type of test, and an estimate of the number of tests required.

B. Testing Laboratories

1. Capability Check. The DSR reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques.
2. Capability Recheck. If the selected laboratory fails the capability check, the Contractor will be assessed the actual cost for the recheck to reimburse the Owner for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7 COMPLETION INSPECTIONS

A. Pre-Final Inspection

The Contractor's superintendent and QC Supervisor, and other primary management person and the DSR will be in attendance at this inspection. The pre-final inspection will be formally scheduled by the DSR based upon written notice from the Contractor. This notice will be given to the DSR at least 3 working days prior to the pre-final inspection and must include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining contract work, will be complete and acceptable by the date scheduled for the pre-final inspection. Failure of the Contractor to have all contract work completed and accepted prior to this inspection will be cause for the DSR to bill the Contractor for the Owner's additional inspection costs. At this inspection the DSR will develop a specific list of incomplete and/or unacceptable work performed under the contract and will furnish this list to the Contractor. Failure of the DSR to detect and list all incomplete and/or unacceptable work during this inspection will not relieve the Contractor from performing all work required by and in accordance with the Contract Documents.

B. Final Acceptance Inspection

The Contractor's QC personnel, his superintendent and other primary management person and the DSR will be in attendance at this inspection. The final acceptance inspection will be formally scheduled by the DSR based upon written notice from the Contractor. This notice will be given to the DSR at least 3 working days prior to the final acceptance inspection and must include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the DSR to bill the Contractor for the Owner's additional inspection costs.

3.8 DOCUMENTATION

A. The Contractor shall maintain current records of QC operations, activities, and tests performed, including the work of subcontractors and suppliers. These records shall be on an acceptable form and shall include factual evidence that required QC activities and/or tests have been performed.

B. These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and 2 copies of these records in report form shall be furnished to the DSR on the first work day following the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, 2 reports shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the

contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the QC Supervisor. The report from the QC Supervisor shall include copies of test reports and copies of reports prepared by all QC personnel.

3.9 ENFORCEMENT

The Contractor shall stop work on any item or feature, pending satisfactory correction of any deficiency noted by his QC staff or by the DSR. Construction shall not proceed upon any feature of work containing incorrect work. Notations on QC reports will not be acceptable as a substitution for other written reports by the Contractor, if required.

3.10 NOTIFICATION OF NONCOMPLIANCE

The DSR will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor at the site of the work, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the DSR may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

[END OF SECTION]

TABLE 1
SUMMARY TABLE OF SOIL TESTING

COMPONENT	REQUIRED TEST	MINIMUM QC FREQUENCY	ACCEPTANCE CRITERIA
Amended Cover Soil	Organic Content (ASTM D 2974)	Constr Test: 1 every 3,000 cy	3%<org. content<20%
	pH	Constr Test: 1 every 3,000 cy	6<pH<7.5
	Visual Field Classification (ASTM D 2488)	Constr Test: 1 per 100 ft centers per lift	Maximum particle size of 3 inches
	Grade Verification	Vertical elevations on a 50-foot grid and at all slope changes	3%<slope<33%
Borrow Source Cover Soil (Tests completed by Dupont Site Representative)	VOCs – SW-846 Method 8260B	As deemed necessary by DSR	Free of Contaminants
	SVOCs – SW-846 Method 8270C	As deemed necessary by DSR	Free of Contaminants
	RCRA Metals – SW-846 Methods 6010B and 7471A	As deemed necessary by DSR	Free of Contaminants
	PCBs – SW-846 Method 8082	As deemed necessary by DSR	Free of Contaminants

Cape Fear Asbestos Landfill and Inert Debris Landfill
Soil Cover Construction
Final Design

List of Specifications (cont.)

Division 2 - Site Work

0201 - Site Preparation
0202 - Earthwork
0203 - Seeding

DIVISION 2 - SITE WORK
SECTION 0201
SITE PREPARATION

PART 1 – GENERAL

1.1 SCOPE

The work discussed in this section shall consist of all activities necessary to prepare the site for full-scale earthmoving operations including, but not limited to, clearing, grubbing, utility identification and location, and installation of erosion and sedimentation controls.

1.2 RELATED WORK

The following work specified herein is, or may be, related to site preparation:

A. Section 0101: Summary of Work.
B. Section 0102: Measurement and Payment.
C. Section 0202: Earthwork.
D. Section 0203: Seeding.
E. Erosion and Sedimentation Control Plan.

1.3 DEFINITIONS

A. Clearing

Clearing, where required to install all project features, shall consist of the felling, trimming, and cutting of trees into sections and the on-site disposal of trees, vegetation, downed timber, snags, brush and debris. Clearing shall also include the removal and disposal of structures that obtrude, encroach upon, or otherwise obstruct the work. Grubbing shall be performed where required to implement Asbestos Landfill and Inert Debris Landfill soil cover construction.

B. Grubbing

Grubbing shall consist of the removal and disposal of stumps, roots larger than 3 inches in diameter and matted roots. Grubbing shall be performed where required to implement Asbestos Landfill soil cover construction.

PART 2 - MATERIALS

NOT APPLICABLE.

PART 3 – EXECUTION

3.1 CLEARING

Trees, shrubs, vegetation, downed timber, snags, brush, and debris in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Trees and vegetation to be left standing shall be protected from damage due to clearing, grubbing, and construction operations by the erection of barriers or by such other means as required. Existing utilities must be identified, located, and protected by the Contractor. Areas indicated as delineated wetlands as show on Figure C-1 are off limits to any and all clearing or other intrusive activities.

3.2 GRUBBING

Material to be grubbed together with logs and other organic debris not suitable for foundation purposes shall be removed. Depressions made by grubbing shall be filled with suitable structural fill and compacted as defined in SECTION: EARTHWORK to make the surface conform with the original adjacent surface of the ground.

3.3 DISPOSAL OF CLEARED AND GRUBBED MATERIAL

All felled trees (less than 8-inch diameter), shrubs, downed timber, snags, brush, stumps, roots, logs, rotten wood, and other vegetative refuse shall be chipped or shredded. Chipped and shredded, cleared and grubbed material shall be stockpiled on-site in a location designated by the DuPont Site Representative (DSR). Chipped material may be used as mulch in areas approved by the DSR. Under no circumstances shall the Contractor or his subcontractors remove from the site or sell grubbed material or material taken from the clearing areas. Felled trees (greater than 8-inch diameter) shall be disposed of at an appropriate off-site location.

3.4 PREPARE EXISTING SURFACE FOR SOIL COVER PLACEMENT

The existing surface of the Asbestos Landfill and Inert Debris Landfill shall be properly prepared for placement of cover soils. The Asbestos Landfill shall be scarified and graded to an extent and in such a manner that doing such does not unearth preexisting landfill materials.

3.5 EROSION AND SEDIMENTATION CONTROLS

Prior to any earth disturbing activity, the Contractor shall install erosion and sedimentation control measures in accordance with the attached Erosion and Sedimentation Control Plan (Appendix B, Sheet No. E-1 and E-2). Erosion and sedimentation control measures shall include those described in the Erosion and Sedimentation Control Plan.

In addition to the measures described on Sheet No. E-1 and E-2, the following additional measures shall be implemented:

A. Any and all ditches on the site are to be left undisturbed unless otherwise noted. The removal of vegetation within any exiting ditch or channel is prohibited unless

the ditch or channel is regraded with side slopes of 2:1 or flatter. Bank slopes my be mowed, but stripping of vegetation is considered new earth work and is subject to the same erosion control requirements as new ditches.

B. The contractors shall not disturb areas that fall within the jurisdiction of Section 401 or 404 of the Clean Water Act (wetlands or streams, as shown on the plans).

C. Any borrow material brought onto the site must be from a legally operated mine or other approved sources. A single use borrow site is only permissible if it has been separately permitted.

D. No land disturbing activity shall occur within the area shown on the plans as "Available Contractor Staging Area". It is the contractor's responsibility to obtain a revised erosion and sedimentation control permit from NCDENR if vegetative cover is damaged in this area.

E. The North Carolina Sedimentation Pollution Control Act mandates a shortened time frame in which to re-establish vegetative groundcover. Slopes (including cuts, fills, and ditch banks) left exposed will, within 15 working days or 30 calendar days (whichever is shorter) after completion of any phase of grading, be planted or otherwise provided with groundcover sufficient to permanently restrain erosion.

[END OF SECTION]

DIVISION 2 - SITE WORK
SECTION 0202
EARTHWORK

PART 1 - GENERAL

1.1 SCOPE

A. General

The work covered by this section consists of furnishing all labor and equipment, and performing all earthwork necessary to place fill and construct the soil cover in accordance with the lines, grades, and dimensions shown on the Drawings and in accordance with these Specifications. The Contractor shall be aware that any excavation into the existing ground surface at the Asbestos Landfill Area could potentially result in uncovering previously disposed of asbestos and/or other landfilled material.

1.2 RELATED WORK

The following work specified herein is, or may be, related to earthwork:

A. Section 0101: Summary of Work.
B. Section 0102: Measurement and Payment.
C. Section 0103: Field Engineering.
D. Section 0104: Contractor Quality Control.
E. Section 0201: Site Preparation.
F. Section 0203: Seeding.
G. Erosion and Sedimentation Control Plan.

1.3 REFERENCES

The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only.

American Society for Testing and Materials (ASTM)

ASTM D 422	Method for Particle-Size Analysis of Soils.
ASTM D 2487	Classification of Soils for Engineering Purposes.
ASTM D 2488	Practice for Description and Identification of Soils (Visual-Manual Procedure).

1.4 SUBMITTALS

A. The Contractor shall submit the results of all testing performed in connection with quality control requirements of this Specification and those described in the

following sections to the DSR. The source and sufficient evidence of appropriateness of cover materials shall be identified and submitted with the bid.

PART 2 – MATERIALS

2.1 COVER SOIL

Final cover material will be obtained from an off-site location to be chosen by the construction contractor. This material will consist of suitable cover material that is reasonably free of rocks larger than 3 inch in diameter, toxic matter, trash, plants, weeds, and roots. Only natural earth materials may be used as borrow material. Soils shall be classified according to ASTM D 2487 and shall not be classified as the following: OL (organic clay or organic silt); CH (fat clay); MH (elastic silt); OH (organic clay or organic silt); PT (peat). Soil classifications including SW, SP, SC, SM, ML, and CL are generally considered acceptable. The Contractor will provide proof of soil classification to the DSR for approval within 10 days of award of this contract. It is estimated that 23,000 to 29,000 in-place cubic yards or 32,000 to 41,000 tons of compacted soil will be required.

The Contractor shall provide appropriate certification to the DSR that all materials are obtained from the identified borrow source and that these materials are free of environmental contaminants. This certification shall be provided to the DSR prior to mobilization of the cover materials to the site.

To ensure the cover materials are free of contaminants, the off-site borrow source identified by the Contractor shall be inspected by the DSR, and the materials shall be tested by the DSR for the following parameters:

- Volatile organic compounds by SW-846 Method 8260B
- Semivolatile organic compounds by SW-846 Method 8270C
- RCRA Metals (i.e., arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) by SW-846 Methods 6010B and 7471A
- Polychlorinated biphenyls (i.e., PCB 1016, 1221, 1232, 1242, 1254, and 1260) by SW-846 Method 8082

PART 3 - EXECUTION

3.1 GENERAL

The work to be performed under this Section shall be in accordance with the Drawings and as specified herein. The work under this Section shall include, but not limited to installation of earthwork related erosion control measures as detailed in the Erosion and Sedimentation Control Plan and grading of the Asbestos Landfill and Inert Debris Landfill.

A. Protection of Existing Utilities Structures

Existing utility lines that are to be retained, the locations of which are made known to the Contractor prior to excavation, shall be protected from damage during excavation and backfilling. If damaged during any construction activity, the existing utilities shall be repaired by the Contractor at no cost to DuPont. In the event that the Contractor damages any existing utility lines that are not shown, or the locations of which have not been made known, the Contractor shall immediately report the damage to the DSR. If determined that repairs are to be made by the Contractor, such repairs will be made and the contract modified. When utility lines that are to be removed or relocated are encountered within the area of operations, the Contractor shall coordinate removal or relocation with all affected parties and shall acquire all necessary permits.

B. Landfill Structures

Landfill structures including, but not limited to, existing monitoring wells shall be carefully maintained and protected during placement of fill. If these structures are damaged during the placement of fill, the Contractor shall repair any damaged structure to the approval of the DSR at no additional cost to DuPont.

C. A "Pass" Defined

A complete pass shall consist of the coverage of the entire lift to be compacted with the roller specified. The equipment shall be operated so that the strip being traversed by the roller shall overlap the rolled adjacent strip not less than 1 foot. Dumping, spreading, sprinkling, and compacting may be performed at the same time at different points along a section when there is sufficient area to permit these operations to proceed simultaneously.

D. Maintain Drainage

During construction, embankments and excavations shall be kept shaped and drained. Ditches along the cap shall be maintained in such a manner as to drain effectively at all times. Where ruts occur in the fill, the fill shall be brought to grade, reshaped if required, and recompacted prior to placing additional fill. The storage or stockpiling of materials on the cap will not be permitted.

E Finished Surface

All areas covered by the project, including excavated and filled sections and adjacent transition areas, shall be uniformly smooth graded. The finished surfaces shall be reasonably smooth, compacted, and free from irregular surface changes, vegetation (except topsoil), and debris. The degree of finish shall be ordinarily obtainable from either blade-grader or scraper operations, except as otherwise specified. The finished surface shall be not more than 0.20 foot above or below the established grade or approved cross section and shall be free of depressed areas where water would pond. All areas shall be finished so as to drain readily.

F. Haul Roads

Existing and new haul roads shall be enhanced or located, designed and constructed by the Contractor to maintain the intended traffic, to be free draining, and shall be maintained in good condition throughout their use. Haul roads shall not be constructed by cutting into the existing ground surface.

G. Protection of Existing Monitoring Wells

Existing monitoring wells are present throughout the site. Any monitoring wells or other structures not shown on the Drawings that are located during construction activities should be reported to the DSR for evaluation. The existing monitoring wells and any other monitoring wells encountered should not be disturbed in any manner.

3.2 COVER SOIL PLACEMENT – ASBESTOS LANDFILL AND INERT DEBRIS LANDFILL

A. General

All surface vegetation, such as brush, heavy growth of grass, and all decayed vegetative matter within the area upon which fill is to be placed shall be handled in accordance with SECTION: SITE PREPARATION, prior to fill placement.

B. Placement

The cover soil shall be placed at the location and to the lines and grades indicated on the Drawings. Cover soil shall be placed in single lift in order to produce a maximum compacted lift thickness of 12 inches (or less as required in the Drawings). Each lift shall be spread uniformly on the previously compacted surface; broken up; moistened or aerated as necessary.

C. Compaction

Each lift of cover soil fill shall be compacted with a minimum of 5 complete passes of a Caterpillar CS-563E vibratory soil compactor or approved equal. This applies for areas in which the installed cover soil will not exceed 1-foot as well as areas requiring installed cover soil in exceedance of 1-foot.

3.5 COVER SOIL AMENDMENT – ASBESTOS LANDFILL AND INERT DEBRIS LANDFILL

A. General

All ground areas disturbed by construction under this contract, unless otherwise specified, shall be amended to promote vegetative growth. Previously constructed grades shall be repaired, if necessary, so that the areas to be amended shall conform to the section indicated upon completion of the required amendment. The work shall be performed only during periods when beneficial results are likely to be obtained.

B. Amendment Procedures

The upper six inches of all disturbed areas within the Asbestos Landfill and Inert Debris Landfill construction area shall be amended, if necessary, with an approved organic material (i.e. topsoil, peat moss, manure, or other amendment) to provide a vegetative layer that can produce heavy growths of native grasses or other vegetation. All areas to be amended shall be reasonably free from underlying subsoil, clay lumps, objectionable weeds, rocks, litter, brush, matted roots, toxic substances or any material that might be harmful to plant growth or be a hindrance to grading, planting or maintenance operations. Soils from ditch bottoms, drained ponds, or eroded areas (handled when too wet or soggy) are not acceptable. Amended soil shall have a final pH value of between 6 and 7.5. If the pH is not within the 6 to 7.5 range, the Contractor shall add the material required to achieve that pH balance. Amended soil shall contain from 3 to 20 percent organic matter as determined by loss on ignition in accordance with ASTM D 2974. If the organic matter is not within the 3 to 20 range the Contractor shall add sufficient amendments to achieve the required organic content.

3.6 QUALITY CONTROL TESTING

A. General

1. Sampling and Testing: All quality control sampling and testing shall be performed by the Contractor at the Contractor's expense and as specified herein. Soil testing shall be provided by the Contractor's independent testing laboratory. The DSR shall have the option to select test locations; otherwise, test locations must be approved by the DSR. The DSR will require additional tests beyond the minimum required to be performed whenever materials or construction are questionable. The Contractor should note that quality assurance tests for acceptance may be made by and at the expense of DuPont. The Contractor, however, shall not depend on quality assurance tests for his/her control of operations. Discrepancies between test results obtained by the Contractor and the DSR will be resolved to the DSR's satisfaction prior to the Contractor performing any further work. Deficiencies in construction shall be corrected by the Contractor at no additional costs to DuPont.
2. As-Built Surveys: The Contractor shall complete and submit as-built surveys of the completed Asbestos Landfill and Inert Debris Landfill soil cover (amended cover soil) surfaces to the DSR for review.
3. Advanced Testing: The Contractor may choose to complete appropriate Advance testing in advance of delivery from the off-site location to establish borrow source properties and amendment requirements and to establish control parameters for compaction.
4. Construction Testing: Construction testing shall be performed during fill placement to verify that the representative cover material is meeting the requirements of this Specification.

B. Construction Testing Protocols

The following testing shall be performed for the in-place cover materials:

1. Construction Testing to be completed by the Contractor shall include Organic Content (ASTM D 2974), pH, and Visual Field Classification (ASTM D 2488). This testing shall be done at a rate specified in Table 1 of SECTION: CONTRACTOR QUALITY CONTROL. Samples shall be representative of the material placed and should be taken from the top 6-inches of in-place cover materials. Copies of all Construction Testing shall be furnished to the DSR upon completion.
2. Grade Verification: The Contractor shall monitor the depth of the compacted layers during placement and verify that the required grades are reached. Final Grade verification shall be performed by the DSR as indicated and at the rate specified in Table 1 of SECTION: CONTRACTOR QUALITY CONTROL.

[END OF SECTION]

DIVISION 2 - SITE WORK
SECTION 0203
SEEDING

PART 1 – GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all materials, labor and equipment, and performing all operations necessary to establish and, for a period of one year after written approval of the completed soil cover construction by DuPont, maintain a satisfactory stand of grass over all disturbed areas in accordance with these Technical Specifications.

A. Permanent seeding shall include the seedbed preparation, seeding, and the establishment of perennial vegetation used to permanently stabilize soil, minimize sediment pollution, reduce runoff by promoting infiltration, and provide stormwater quality benefits offered by dense vegetation.

1.2 RELATED WORK

The following work specified herein is, or may be, related to seeding:

A. Section 0101: Summary of Work.
B. Section 0102: Measurement and Payment.
C. Section 0202: Earthwork.
D. Erosion and Sedimentation Control Plan

1.3 REFERENCES

The publication listed below forms a part of this specification to the extent referenced. The publication is referred to in the text by the basic designation only.

State of North Carolina – Sedimentation Control Commission – *Erosion and Sediment Control Planning and Design Manual (Manual)*, September 1, 1988.

1.4 SUBMITTALS

The Contractor shall submit the following to the DSR as indicated.

A. Seed Certification
The Contractor shall submit for review certificates or certifying tags indicating seed mixture, seed purity percentage, seed germination percentage and weed seed content percentage to certify conformity with the specifications.

PART 2 – MATERIALS

2.1 SEEDING MATERIALS

All seeding related materials shall be as specified in Section 6.11 of the *Manual.* State certified seed of the latest season's crop shall be provided in the original sealed packages bearing the producers guaranteed analysis for percentages of germination, pure seed, inert matter, and weed seed. Labels shall be in accordance with the state's requirements. Bulk quantities of seed shall be labeled as described above. Weed seed shall not exceed 1 percent by weight of the total mixture. Wet, moldy or otherwise damaged seed shall be rejected.

The mixing of seed shall be performed by the seed supplier prior to delivery on site. All legume seed shall be inoculated with the required bacterial culture prior to delivery to the site.

A. Permanent Seed Mixture

The Contractor shall utilize seed mix in accordance with Table 6.11b (and the required seeding dates) of the *Manual.* Seeding mix No. 1CP or 5CP shall be utilized as appropriate to correspond with the off-site borrow material. All elements of the 1CP or 5CP that are specified in the *Manual* shall apply, with the following exceptions:

For 1CP – Replace "refertilize in the second year," with "refertilize before the end of 1 year,". Delete the next sentence.
For 5CP – Delete the "Maintenance" section

2.2 SOIL AMENDMENTS

Soil amendments shall be administered, if necessary, and as detailed in Section 6.11 of the *Manual.*

PART 3 - EXECUTION

3.1 GENERAL

All seeding shall be conducted in accordance with Section 6.11 of the *Manual.*

A. Soil Amendments

Soil amendments shall be delivered to the site in the original, unopened containers bearing the manufacturer's chemical analysis. In lieu of containers, soil amendments may be furnished in bulk.

B. Inspection

The Contractor shall inspect seed as it is delivered to the job site to verify conformity to type and quality of seed specified in accordance with Paragraph: Materials. The Contractor shall inspect soil amendments to verify conformance to specified requirements. Unacceptable materials shall be removed from the job site.

C. Storage

Seed, lime, and fertilizer shall be stored in cool, dry locations away from contaminants. Chemical treatment materials shall not be stored with other landscape materials.

D. Material Handling

Except for bulk deliveries, materials shall not be dropped or dumped from vehicles.

3.2 PREPARATION OF SEEDBED

The Contractor shall place cover soil and establish finish grades in accordance with the SECTION: EARTHWORK and Section 6.11 of the *Manual.*

3.3 PLANTING SEED

Prior to seeding, any previously prepared seedbed areas compacted or damaged by interim rains, traffic, or other cause shall be reworked to restore the ground condition previously specified. Seed shall be planted at the rate specified in Section 6.11 of the *Manual.*

3.4 MULCHING

Mulching shall be performed by the Contractor on the same day as planting seed and conform to Section 6.11 of the *Manual.*

3.5 MAINTENANCE

Maintenance operations shall begin immediately after seeding a given area and shall continue through construction. The Contractor shall keep seed continually moist for proper germination and water thereafter as necessary to prevent drying out or burning. The Contractor shall re-seed areas not showing a prompt catch of grass, correct depressions and irregularities and re-seed; repeat until complete (100%) coverage is obtained.

[END OF SECTION]

APPENDIX B

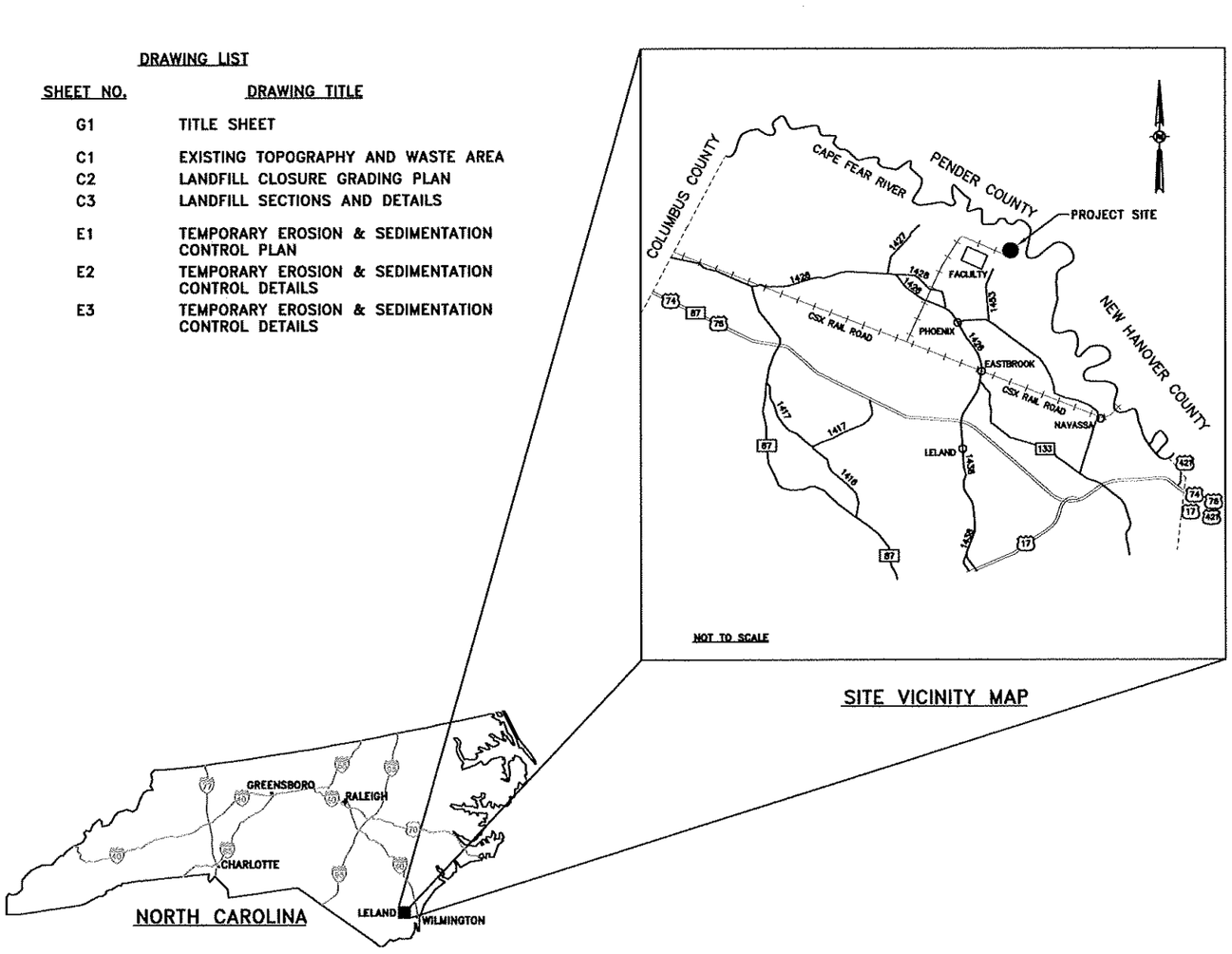
CONSTRUCTION DRAWINGS

APPENDIX B
ASBESTOS LANDFILL CLOSURE DESIGN

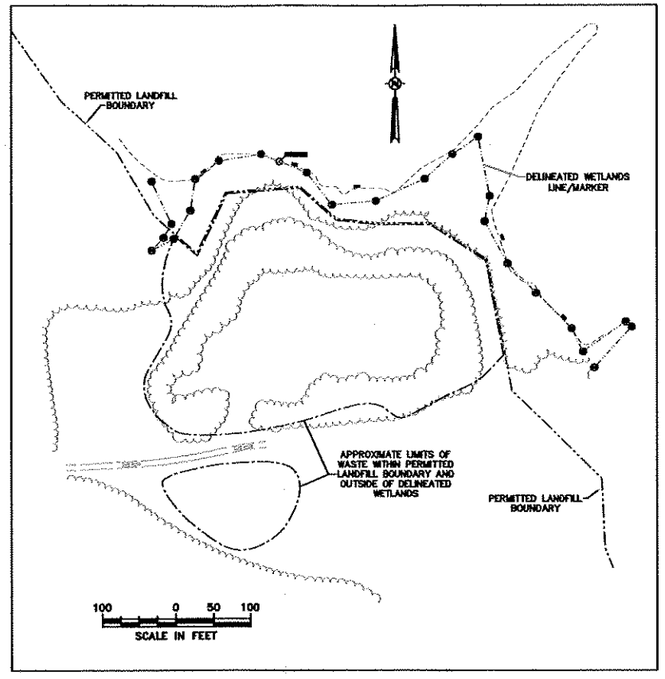
DuPONT, CAPE FEAR PLANT
LELAND, NORTH CAROLINA

DRAWING LIST

SHEET NO.	DRAWING TITLE
G1	TITLE SHEET
C1	EXISTING TOPOGRAPHY AND WASTE AREA
C2	LANDFILL CLOSURE GRADING PLAN
C3	LANDFILL SECTIONS AND DETAILS
E1	TEMPORARY EROSION & SEDIMENTATION CONTROL PLAN
E2	TEMPORARY EROSION & SEDIMENTATION CONTROL DETAILS
E3	TEMPORARY EROSION & SEDIMENTATION CONTROL DETAILS



SITE VICINITY MAP



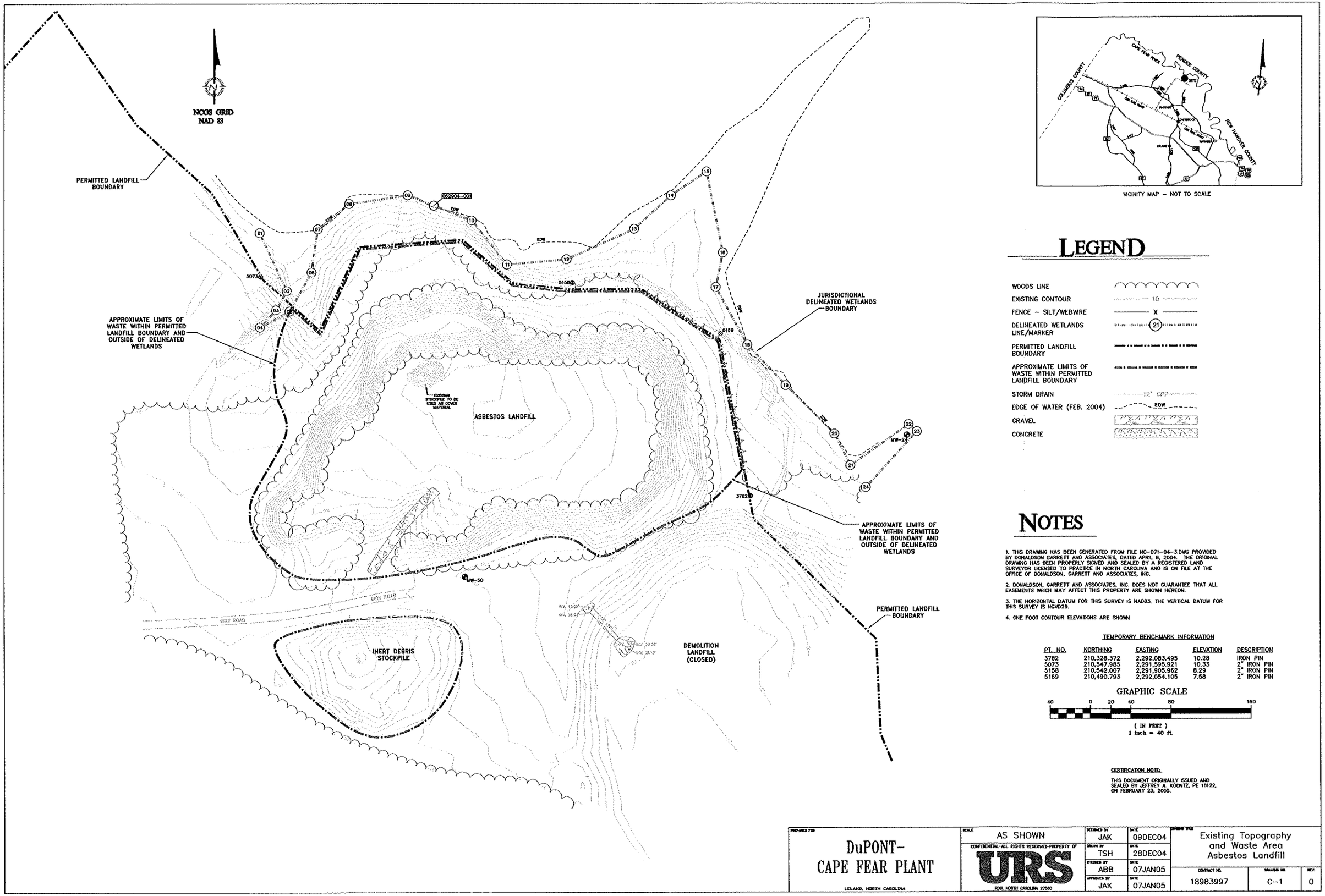
CAPE FEAR PLANT, ASBESTOS LANDFILL

CERTIFICATION NOTE:

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY JEFFREY A. KOONTZ, PE 18122, ON FEBRUARY 23, 2005.

PREPARED FOR: DuPONT- CAPE FEAR PLANT, LELAND, NORTH CAROLINA	SCALE: AS SHOWN	DESIGNED BY: JAK	DATE: 09DEC04	DRAWING TITLE: Asbestos Landfill Closure Plans Title Sheet	
	CONFIDENTIAL-ALL RIGHTS RESERVED-PROPERTY OF URS RALEIGH, NORTH CAROLINA 27560	DRAWN BY: TSH	DATE: 28DEC04		
		CHECKED BY: ABB	DATE: 07JAN04		
		APPROVED BY: JAK	DATE: 07JAN04	CONTRACT NO.: 18983997	DRAWING NO.: G-1 / REV.: 0

P:\DUPONT\CAPE FEAR\ASBESTOS LANDFILL CLOSURE\FIGURES\G-1.DWG



VICINITY MAP – NOT TO SCALE

LEGEND

- WOODS LINE
- EXISTING CONTOUR — 10
- FENCE – SILT/WEBWIRE — X
- DELINEATED WETLANDS LINE/MARKER — 21
- PERMITTED LANDFILL BOUNDARY
- APPROXIMATE LIMITS OF WASTE WITHIN PERMITTED LANDFILL BOUNDARY
- STORM DRAIN — 12" CPP
- EDGE OF WATER (FEB. 2004) — EOW
- GRAVEL
- CONCRETE

NOTES

1. THIS DRAWING HAS BEEN GENERATED FROM FILE NC-071-04-3.DWG PROVIDED BY DONALDSON GARRETT AND ASSOCIATES, DATED APRIL 8, 2004. THE ORIGINAL DRAWING HAS BEEN PROPERLY SIGNED AND SEALED BY A REGISTERED LAND SURVEYOR LICENSED TO PRACTICE IN NORTH CAROLINA AND IS ON FILE AT THE OFFICE OF DONALDSON, GARRETT AND ASSOCIATES, INC.

2. DONALDSON, GARRETT AND ASSOCIATES, INC. DOES NOT GUARANTEE THAT ALL EASEMENTS WHICH MAY AFFECT THIS PROPERTY ARE SHOWN HEREON.

3. THE HORIZONTAL DATUM FOR THIS SURVEY IS NAD83. THE VERTICAL DATUM FOR THIS SURVEY IS NGVD29.

4. ONE FOOT CONTOUR ELEVATIONS ARE SHOWN

TEMPORARY BENCHMARK INFORMATION

PT. NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
3782	210,328.372	2,292,083.495	10.28	IRON PIN
5073	210,547.985	2,291,595.921	10.33	2" IRON PIN
5158	210,542.007	2,291,905.962	8.29	2" IRON PIN
5169	210,490.793	2,292,054.105	7.58	2" IRON PIN

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

CERTIFICATION NOTE:

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY JEFFREY A. KOONTZ, PE 18122, ON FEBRUARY 23, 2005.

PREPARED FOR: DuPONT– CAPE FEAR PLANT, LELAND, NORTH CAROLINA

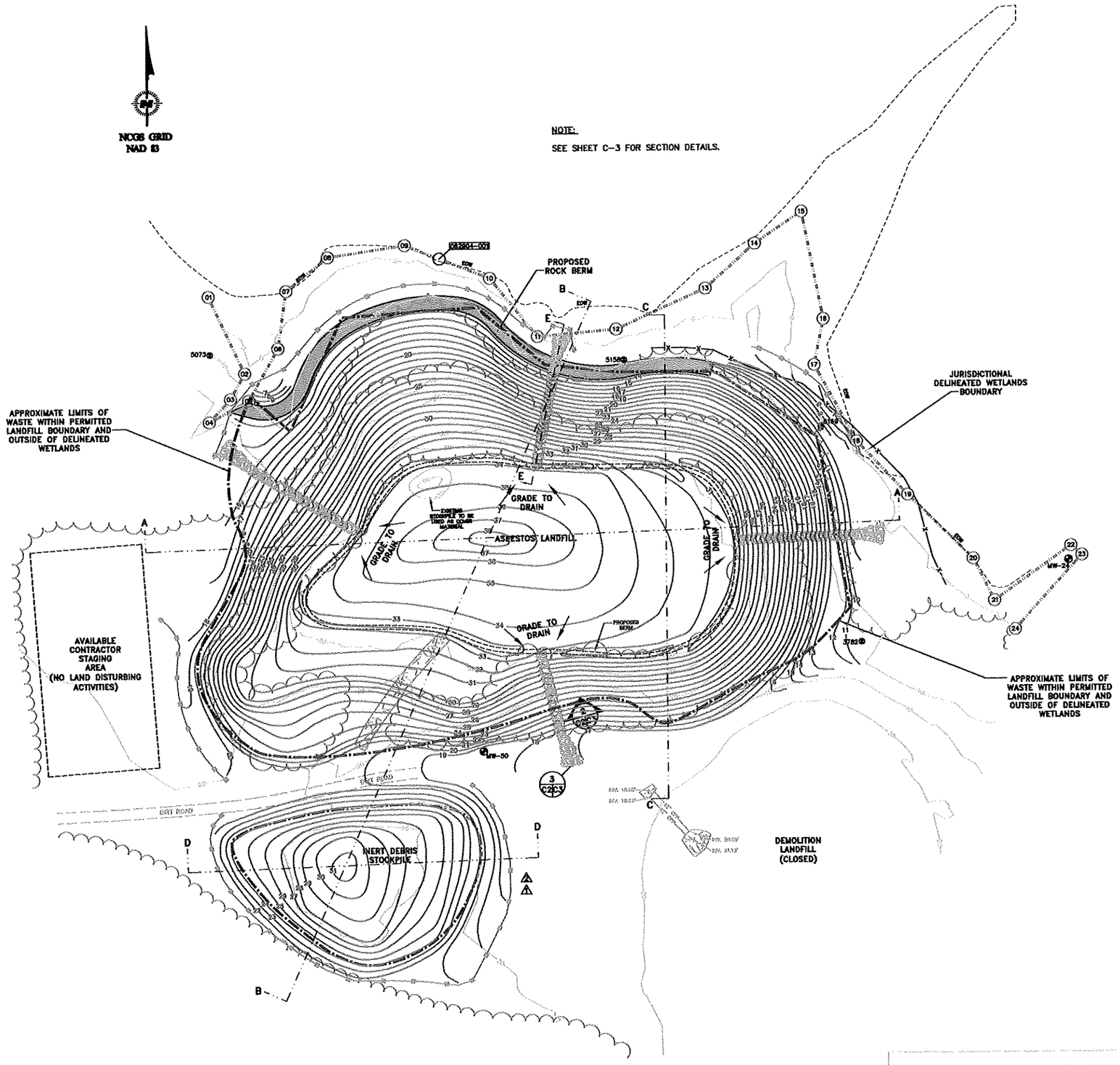
SCALE: AS SHOWN

CONFIDENTIAL–ALL RIGHTS RESERVED–PROPERTY OF URS, RDU, NORTH CAROLINA 27560

DESIGNED BY	JAK	DATE 09DEC04
DRAWN BY	TSH	DATE 28DEC04
CHECKED BY	ABB	DATE 07JAN05
APPROVED BY	JAK	DATE 07JAN05

DRAWING TITLE: Existing Topography and Waste Area Asbestos Landfill

CONTRACT NO.	DRAWING NO.	REV.
18983997	C-1	0



LEGEND

WOODS LINE	
EXISTING CONTOUR/ELEVATION	10
TEMPORARY BENCH MARK	5073
MONITORING WELL	MW-50
APPROXIMATE LIMITS OF WASTE WITHIN PERMITTED LANDFILL BOUNDARY AND OUTSIDE OF DELINEATED WETLANDS	
STORM DRAIN	12" CPP
EDGE OF WATER (FEB. 2004)	EOW
GRAVEL	
ROCK BERM	
PROPOSED CONTOUR/ELEVATION	34

NOTES:

1. THE BASELINE TOPOGRAPHY FOR THIS DRAWING HAS BEEN GENERATED FROM ELECTRONIC FILES. THE ORIGINAL DRAWINGS HAVE BEEN PROPERLY SIGNED AND SEALED BY REGISTERED LAND SURVEYORS LICENSED TO PRACTICE IN NORTH CAROLINA.
2. THE TOPOGRAPHY SHOWN IS A COMPOSITE OF TOPOGRAPHICAL SURVEYS DATED JANUARY, 2003 BY DONALDSON, GARRETT AND ASSOCIATES, INC. AND DECEMBER, 1995 BY McKIM AND CREED.
3. THE ENGINEER WHOSE SEAL IS AFFIXED HERETO DOES NOT GUARANTEE THAT ALL EASEMENTS WHICH MAY AFFECT THIS PROPERTY ARE SHOWN HEREON.
4. THE HORIZONTAL DATUM FOR THIS SURVEY IS NAD83. THE VERTICAL DATUM FOR THIS SURVEY IS NGVD29.
5. ONE FOOT CONTOUR ELEVATIONS ARE SHOWN.

CONSTRUCTION NOTES:

1. EXISTING DIRT AND GRAVEL ROADS SHALL BE IMPROVED AS NECESSARY TO COMPLETE THIS PROJECT INCLUDING BORROW HAULING.
2. ALL EXISTING TREES WITHIN THE GRADED AREAS SHALL BE REMOVED PRIOR TO GRADING.
3. FOR EROSION AND SEDIMENTATION CONTROL DETAILS SEE SHEETS E-1 THRU E-2.
4. PROPOSED GRADES SHOWN ARE THE FINISHED GRADE OR THE TOP OF THE COVER MATERIAL.
5. MINOR EXCAVATION AND GRADING SHALL BE PERFORMED AS REQUIRED TO ENSURE 2 FEET OF COVER AND APPROPRIATE SLOPES NEAR THE HORIZONTAL EDGES OF SOLID WASTE.
6. LIMITS OF PROPOSED GRADING ARE APPROXIMATE ONLY AND SHALL BE ADJUSTED DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE TO COVER ALL THE LIMITS OF WASTES ON THE SITE WITHIN THE PERMITTED BOUNDARY PER DETAIL "1", SHEET C-3. THIS COVERAGE WILL BE VERIFIED BY SOIL BORINGS PERFORMED BY THE DUPONT SITE REPRESENTATIVE (DSR).
7. ALL GRADED SURFACES SHALL BE SEEDED WITH NATIVE GRASSES.
8. A DETAILED CONSTRUCTION SEQUENCE IS PROVIDED ON SHEET NO. E-2 THAT INCLUDES ALL EROSION AND SEDIMENTATION CONTROL MEASURES.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

CERTIFICATION NOTE:

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY A. BRETT BERRA, PE 28301, ON JULYY 27, 2005.

SYMBOL	DESCRIPTION	DATE	APPROVED
	REVISIONS		
2	Silt Fence Location @ Debris Stockpile	07/27/05	ABB
1	Revised Inert Dibris Stockpile Grading Plan	07/27/05	ABB

PREPARED FOR: DuPONT-
CAPE FEAR PLANT
LELAND, NORTH CAROLINA

SCALE: AS SHOWN

URS
RALEIGH, NORTH CAROLINA 27580

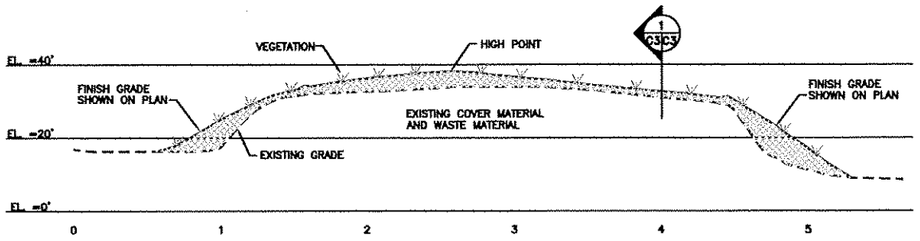
DESIGNED BY	TSH	DATE	27JUL05
DRAWN BY	TSH	DATE	27JUL05
CHECKED BY	ABB	DATE	27JUL05
APPROVED BY	ABB	DATE	27JUL05

DRAWING TITLE: Landfill Closure Grading Plan Asbestos Landfill

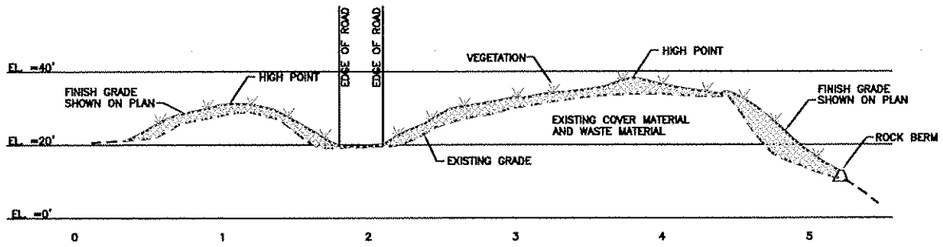
CAD DRAWING FILE:

CONTRACT NO.	DRAWING NO.	REV.
18983997	C-2	R1

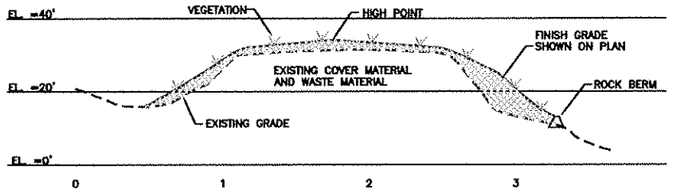
P:\DUPONT\CAPE FEAR\ASBESTOS LANDFILL CLOSURE\FIGURES\C-2.DWG



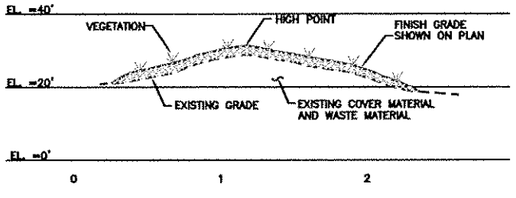
SECTION A-A'
SCALE:
SEE BAR SCALES



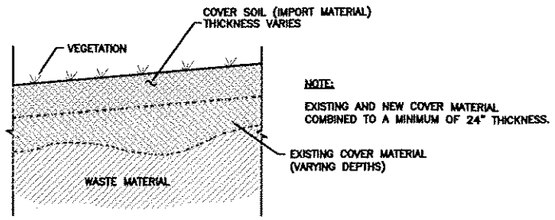
SECTION B-B'
SCALE:
SEE BAR SCALES



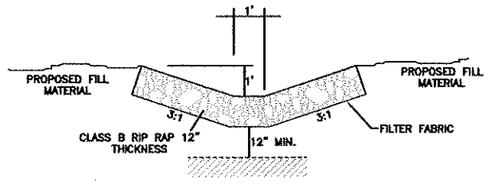
SECTION C-C'
SCALE:
SEE BAR SCALES



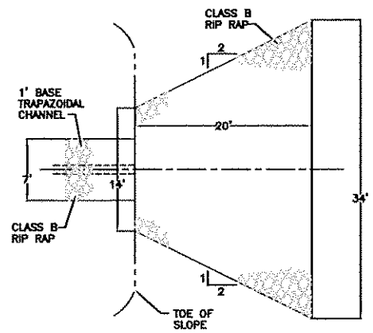
SECTION D-D'
SCALE:
SEE BAR SCALES

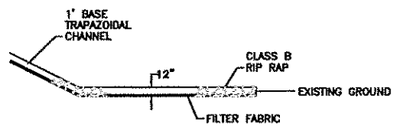


1 C3C3 COVER SECTION DETAIL
SCALE: N.T.S.

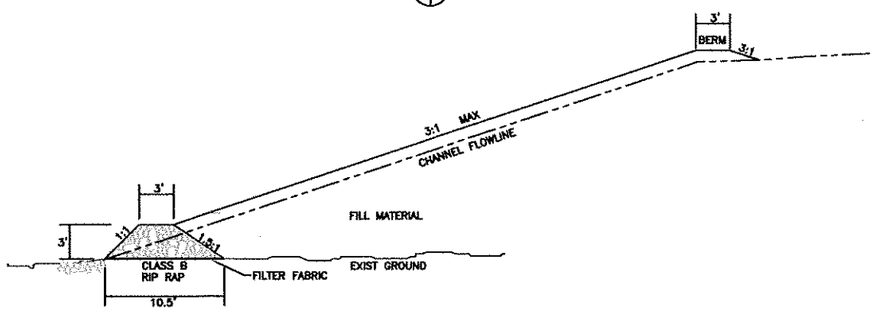


2 C2C3 PROPOSED DITCH SECTION DETAIL
SCALE: N.T.S.





3 C2C3 CHANNEL OUTLET ENERGY DISIPATOR DETAIL
SCALE: N.T.S.



SECTION E-E'
SCALE:
N.T.S.

LEGEND

- FINISH GRADE
- SEEDED NATIVE GRASSES
- COVER SOIL (IMPORT MATERIAL)
- EXISTING GRADE
- EXISTING COVER MATERIAL
- EXISTING WASTE MATERIAL

HORIZONTAL SCALE: 1"=50'-0"

VERTICAL SCALE: 1"=20'-0"

CERTIFICATION NOTE:

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY JEFFREY A. KOONTZ, PE 18122, ON FEBRUARY 23, 2005.

PREPARED FOR: DuPONT- CAPE FEAR PLANT, LELAND, NORTH CAROLINA

SCALE: AS SHOWN

URS, RALEIGH, NORTH CAROLINA 27560

DESIGNED BY	JAK	19DEC04
DRAWN BY	TSH	28DEC04
CHECKED BY	ABB	07JAN05
APPROVED BY	JAK	07JAN05

DRAWING TITLE: Landfill Sections and Details Asbestos Landfill

CAD DRAWING FILE:

CONTRACT NO. 18983997

DRAWING NO. C-3

REV. 0

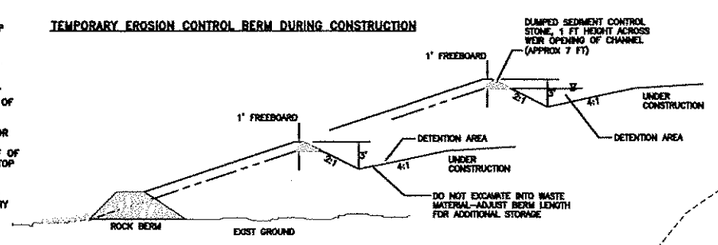
P:\DUPONT\CAPE FEAR\ASBESTOS LANDFILL CLOSURE\FIGURES\C-3.DWG

NOTES:

1. USE DETAIL AT THE FOUR RIP RAP LINED CHANNEL LOCATIONS SHOWN (ROCK BERM AT BASE ONLY USED FOR NORTH SLOPE).
2. MAINTAIN SEDIMENT CONTROL STONE ACROSS WEIR OF OUTLET CHANNEL OPENING AT THE TOP OF BERM.
3. AS FILL IS PLACED AND PRIOR TO A POTENTIAL STORM EVENT, MAINTAIN A MINIMUM OF 100 LF OF BERM AND DITCH ALONG THE TOP FOR DETENTION.
4. MAINTAIN OUTLET FLOW INTO SEDIMENT BASIN WITH TEMPORARY DIVERSION AS NECESSARY.

NCGS GRID
NAD 83

TEMPORARY EROSION CONTROL BERM DURING CONSTRUCTION



USE ROCK BERM AS SEDIMENT BASIN UNTIL FILL MATERIAL EXCEEDS HEIGHT, THEN USE DETAIL ABOVE.

ROCK BERM USED AS
TEMPORARY EROSION CONTROL MEASURE

LEGEND

- WOODS LINE
- EXISTING CONTOUR — 10
- TEMPORARY BENCH MARK — ⊙5073
- MONITORING WELL — ⊕ MW-50
- APPROXIMATE LIMITS OF WASTE WITHIN PERMITTED LANDFILL BOUNDARY AND OUTSIDE OF DELINEATED WETLANDS
- STORM DRAIN — 12" CPP
- EDGE OF WATER (FEB. 2004) — EOW
- GRAVEL
- ROCK BERM
- PROPOSED CONTOUR/ELEVATION — 34
- SILT FENCING
- TEMPORARY DIVERSION DITCH — TD
- LIMITS OF LAND DISTURBANCE
- TEMPORARY SEDIMENT BASIN — EXC. / EMB.
- EROSION CONTROL BLANKET
- GRAVEL CONSTRUCTION ENTRANCE

NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EROSION CONTROL MEASURES AT THE OFF-SITE BORROW SOURCE.
2. PROVIDE TEMPORARY DITCHES AS REQUIRED BY CONSTRUCTION PHASING TO ENSURE THAT SURFACE WATER RUNOFF OUTLETS TO THE TEMPORARY SEDIMENT BASINS.
3. DISTURBED AREAS SHALL BE TEMPORARILY SEEDED AND MULCHED IF LEFT EXPOSED FOR MORE THAN 15 WORKING DAYS OR 30 CALENDAR DAYS (WHICHEVER IS SHORTER).
4. FOR TEMPORARY SEDIMENT BASIN, CONTRACTOR IS TO ADJUST BASIN DIMENSIONS TO ACHIEVE REQUIRED STORAGE VOLUME BASED ON SITE CONDITIONS.
5. THE HORIZONTAL DATUM FOR THIS SURVEY IS NAD83. THE VERTICAL DATUM FOR THIS SURVEY IS NGVD29.
6. ONE FOOT CONTOUR ELEVATIONS ARE SHOWN.

TOTAL DISTURBED
AREA = 4.6 ACRES

GRAPHIC SCALE

0 20 40 60 80 100

(IN FEET)
1 inch = 40 ft.

CERTIFICATION NOTE:

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY JEFFREY A. KOONTZ, PE 18122, ON MAY 3, 2005.

PREPARED FOR: DuPONT-
CAPE FEAR PLANT
LELAND, NORTH CAROLINA

SCALE: AS SHOWN

URS
RALEIGH, NORTH CAROLINA 27560

DESIGNED BY: JAK	DATE: 19DEC04	
DRAWN BY: TSH	DATE: 28DEC04	
CHECKED BY: ABB	DATE: 07JAN05	
APPROVED BY: JAK	DATE: 07JAN05	

DRAWING TITLE: Temporary Erosion & Sedimentation Control Plan Asbestos Landfill

CONTRACT NO.	DRAWING NO.	REV.
18983997	E-1	2

P:\DUPONT\CAPE FEAR\ASBESTOS LANDFILL CLOSURE\FIGURES\E-1.DWG

CONSTRUCTION SEQUENCE

GENERAL CONSTRUCTION SEQUENCE OVERVIEW

1. Obtain grading permit as required by local authority.
2. Install silt fence as shown on plans.
3. Clear and grub enough to install the temporary diversions, temporary sediment basins and rock berm.
4. Call State Erosion Control Local office for on-site inspection. If approved, begin construction
5. Clear and grub remaining areas shown and bring landfill up to grade as shown.
6. Once fill is higher than rock berm, maintain temporary berm at top of slope for detention and temporary diversion ditches along slope to divert runoff to the temporary sediment basins.
7. Place erosion control blanket along finished slopes as final grade is reached.
8. When construction is complete and all areas are stabilized completely, call for inspection by State Erosion Control Local office.
9. If site is approved, removed temporary devices and stabilize any resulting bare areas.

SEEDING SPECIFICATIONS (No. SCP from Table 8.11p of NCDEHNR Erosion Ctrl Man'l)

Seeding Mixture

Species	Rate (lb/ac)
Pensacola Bahiagrass	50
Sericea lespedeza	30
Common Bermudagrass	10
German Millet	10

Seeding Notes

1. Where a neat appearance is desired, omit sericea.
2. Use common Bermudagrass only on isolated sites where it cannot become a pest. Bermudagrass may be reaplaced with 5 lb/acres centipedgrass.

Seeding Dates

April 1 – July 15

Soil Amendments

Apply lime and fertilizer according to soil tests, or apply 3,000 lb/acre ground agricultural limestone and 500 lb/acre 10-10-10 fertilizer.

Mulch

Apply 4,000 lb/acre grain straw or equivalent cover of another suitable mulch. Anchor straw by tacking with asphalt, netting or roving or by crimping with mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

Maintenance

Refertilize the following April with 50 lb/acre nitrogen. Repeat as grass requires. May be mowed only once a year. Where a neat appearance is desired omit sericea and mow as often as needed.

Note:
For dates beyond July 15, contractor is responsible for establishing vegetation with temporary seed mix and returning the following season for permanent seeding if necessary.

TEMPORARY SEEDING SPECIFICATIONS (Table 8.10b. of NCDEHNR Erosion Ctrl Man'l)

Seeding Mixture

Species	Rate (lb/ac)
German Millet	40

Seeding Dates

April 15 – August 15

Soil Amendments

Follow recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.

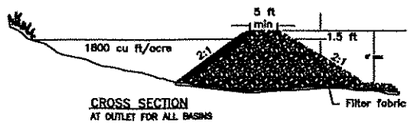
Mulch

Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

Maintenance

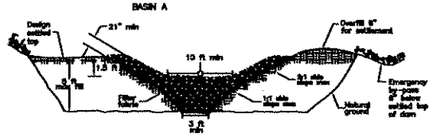
Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately after erosion or other damage.

Note:
See Tables 8-10a and 8-10c for seeding specifications for other times of the year.



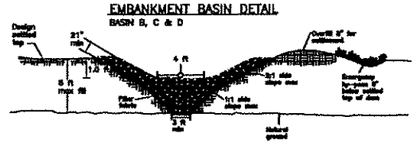
CROSS SECTION
AT OUTLET FOR ALL BASINS

EXCAVATED BASIN DETAIL
BASIN A



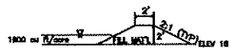
STONE SECTION

EMBANKMENT BASIN DETAIL
BASIN B, C & D



STONE SECTION

BERM TYPICAL SECTION FOR SEDIMENT BASINS C & D



BERM TYPICAL SECTION FOR SEDIMENT BASIN B

Construction Specifications

1. Clear, grub, and strip the area under the embankment of all vegetation and root mat. Remove all surface soil containing high amounts of organic matter and stockpile or dispose of it properly. Haul all objectionable material to the designated disposal area.

2. Ensure that fill material for the embankment is free of roots, woody vegetation, organic matter, and other objectionable material. Place the fill in lifts not to exceed 9 inches and machine compact it. Over fill the embankment 6 inches to allow for settlement. No on site material shall be used to construct the embankment for basins B, C, and D.

3. Construct the outlet section in the embankment. Protect the connection between the riprap and the soil from piping by using filter fabric or a keyway cutoff trench between the riprap structure and the soil.

- Place the filter fabric between the riprap and soil. Extend the fabric across the spillway foundation and sides to the top of the dam; or
- Excavate a keyway trench along the centerline of the spillway foundation extending up the sides to the height of the dam. The trench should be at least 2-ft deep and 2-ft wide with 1:1 side slopes.

4. Clear the pond area below the elevation of the crest of the spillway to facilitate sediment cleanout.

5. All cut and fill slopes should be 2:1 or flatter.

6. Ensure that the stone (drainage) section of the embankment has as minimum bottom width of 3 ft and maximum side slopes of 1:1 that extend to the bottom of the spillway section.

7. Construct the minimum finished stone spillway bottom width, as shown on the plans, with 2:1 side slopes extending to the top of the over filled embankment. Keep the thickness of the sides of the spillway outlet structure at a minimum of 21 inches. The weir must be level and constructed to grade to assure design capacity.

8. Material used in the stone section should be a well-graded mixture of stone with a d$_{50}$ size of 9 inches (class B erosion control stone is recommended) and a maximum stone size of 14 inches. The stone may be machine placed and the smaller stones worked into the voids of the larger stones. The stone should be hard, angular, and highly weather-resistant.

9. Ensure that the stone spillway outlet section extends downstream past the toe of the embankment until stable conditions are reached and outlet velocity is acceptable for the receiving stream. Keep the edges of the stone outlet section flush with the surrounding ground and shape the center to confine the outflow stream (References: Outlet Protection).

10. Direct emergency bypass to natural, stable areas. Locate bypass outlets so that flow will not damage the embankment.

11. Stabilize the embankment and all disturbed areas above the sediment pool and downstream from the trap immediately after construction (References: Surface Stabilization).

12. Show the distance from the top of the spillway to the sediment cleanout level (one-half the design depth) on the plans and mark it in the field.

Maintenance

Inspect temporary sediment traps after each period of significant rainfall. Remove sediment and restore the trap to its original dimensions when the sediment has accumulated to one-half the designated disposal area and replace the contaminated part of the gravel facing.

Check the structure for damage from erosion or piping. Periodically check the depth of the spillway to insure it is a minimum of 1.0 ft below the low point of the embankment. Immediately fill any settlement of the embankment to slightly above design grade. Any riprap displaced from the spillway must be replaced immediately.

After all sediment-producing areas have been permanently stabilized, remove the structure and all unstable sediment. Smooth the area to blend with the adjoining areas and stabilize properly. (References: Surface Stabilization).

TEMPORARY SEDIMENT BASIN DETAIL

CERTIFICATION NOTE:

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY JEFFREY A. KOONTZ, PE 18122, ON FEBRUARY 25, 2005.

PREPARED FOR: DuPONT-CAPE FEAR PLANT, LELAND, NORTH CAROLINA	SCALE: NTS	DESIGNED BY: JAK	DATE: 19DEC04	DRAWING TITLE: Temporary Erosion & Sedimentation Control Details Asbestos Landfill
	CONFIDENTIAL-ALL RIGHTS RESERVED-PROPERTY OF URS, RDU, NORTH CAROLINA 27560	DRAWN BY: TSH	DATE: 28DEC04	
		CHECKED BY: ABB	DATE: 28DEC04	CONTRACT NO.: 18983997 / DRAWING NO.: E-2 / REV.: 0
		APPROVED BY: JAK	DATE: 07JAN05	

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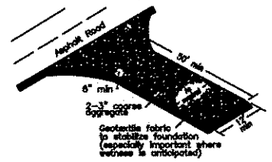


Figure 6.06b Plan of temporary construction entrance/exit.

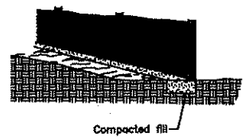
Figure 6.06a Temporary gravel construction entrance/exit with diversion ridge where grade exceeds 2%.

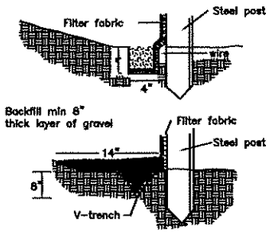
Construction Specifications

1. Avoid curves in roads and steep slopes. Remove all vegetation and other objectionable material from the foundation area. Grade and crown foundation for positive drainage.
2. If the slope toward the road exceeds 2%, construct a ridge, 6 to 8 inches high with 3:1 side slopes, across the foundation approximately 15 ft from the entrance to divert runoff away from the public road (Figure 6.06c).
3. Place geotextile fabric on graded foundation to improve stability, especially where wet conditions are anticipated.
4. Place stone to dimentions and grade shown on plans. Leave surface smooth and sloped for drainage.
5. Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.
6. Install pipe under pad if needed to maintain proper public road drainage.

Maintenance Maintain entrance and make repairs as necessary.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE





Extension of fabric and wire into the trench

Construction Specifications

MATERIALS

1. Use a synthetic filter fabric or a pervious sheet of polypropylene, nylon, polyester, or polyethylene yarn, which is certified by the manufacturer or supplier as conforming to the requirements shown in Table 6.62b.

Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 to 120° F.

2. Ensure that posts for sediment fences are 1.33 lb/linear ft steel with a minimum length of 4 ft. Make sure that steel posts have projections to facilitate fastening the fabric.

3. For reinforcement of standard strength filter fabric, use wire fence with a minimum 14 gauge and a maximum mesh spacing of 6 inches.

Table 6.62b Specifications for Sediment Fence Fabric

Physical Property	Requirements
Filtering Efficiency	85% (min)
Tensile Strength at 20% (max) Elongation	Standard Strength – 30 lb/lin in (min) Extra Strength 50 lb/lin in (min)
Slurry Flow Rate	0.3 gal/sq ft/min (min)

CONSTRUCTION

1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.

2. Ensure that the height of the sediment fence does not exceed 18 inches above the ground surface. (Higher fences may impound volumes of water sufficient to cause failure of the structure.)

3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with overlap to the next post.

4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts using heavy duty wire staples at least 1 inch long, or tie wires. Extend the wire mesh support to the bottom of the trench.

5. When a wire mesh support fence is used, space posts a maximum of 8 ft apart. Support posts should be driven securely into the ground to a minimum of 18 inches.

6. Extra strength filter fabric with 6-ft post spacing does not require wire mesh support fence. Staple or wire the filter fabric directly to posts.

7. Excavate a trench approximately 4 inches wide and 8 inches deep along the proposed line of posts and upslope from the barrier (Figure 6.62a).

8. Backfill the trench with compacted soil or gravel placed over the filter fabric.

9. Do not attach filter fabric to existing trees.

Maintenance Inspect sediment fences at least once a week and after each rainfall. Make any required repairs immediately.

Should the fabric of a sediment fence collapse, tear, decompose or become ineffective, replace it promptly. Replace fabric every 80 days.

Remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence. Take care to avoid undermining the fence during cleanout.

Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

SILT FENCE DETAIL

CERTIFICATION NOTE:

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY JEFFREY A. KOONTZ, PE 18122, ON FEBRUARY 23, 2005.

PREPARED FOR: DuPONT– CAPE FEAR PLANT, LELAND, NORTH CAROLINA	SCALE: NTS	DESIGNED BY: JAK	DATE: 19DEC04	DRAWING TITLE: Temporary Erosion & Sedimentation Control Details Asbestos Landfill	
URS, RDU, NORTH CAROLINA 27560		DRAWN BY: TSH	DATE: 28DEC04		
		CHECKED BY: ABB	DATE: 28DEC04		
		APPROVED BY: JAK	DATE: 07JAN05	CONTRACT NO.: 18983997	DRAWING NO.: E–3 / REV.: 0

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APPENDIX C

SEDIMENTATION AND EROSION CONTROL PLAN

DuPont, Cape Fear Plant, Leland, NC
Asbestos Landfill & Inert Material Landfill Closures
Erosion & Sediment Control Plan Narrative (Revised 1/31/05)

Site Description

The project location is on the DuPont Cape Fear Plant property in Leland, NC. The area includes three separate landfills - one with asbestos, one with inert material and one with demolition materials, which has been previously closed and will not be disturbed under this project. The remaining two landfill limits are approximately 4 acres and the total project disturbed area is 4.8 acres.

Drainage for the site runs primarily around each landfill through graded or existing ditches. The demolition and asbestos landfills have a berm around the perimeter of the top with a drain pipe system or lined ditch to convey runoff to the base. A delineated and verified jurisdictional wetland boundary surrounds the north side of the asbestos landfill and is not being disturbed.

Closure Design

The closure plan will cap the entire site with a total of 2 feet of cover material and revegetate the disturbed area. Borings were taken to determine existing cover depths, which range in depth from 0" to 36", and finished grades designed throughout the site to obtain a minimum of 2 feet of cover above the waste material within the permitted landfill boundary. No excavation will take place on the Asbestos Landfill site because of the potential exposure to hazardous materials.

No special earth material is required for the cap other than for the vegetation (grass) requirements. Soil amendments will be mixed in the top 6" of the cover material to provide a better condition for vegetation to be established.

The contract puts the responsibility of locating and using a suitable off-site borrow source with the contractor. Erosion control design measures at the borrow site will be the responsibility of the Contractor. Based on the previous landfill closure project on this site (TPA Landfill, Spring 2004), the most probable borrow source will again be the Leland Sandpit.

Erosion Control Design

Proposed contours are similar to the existing contours because the design is a cap over existing landfill, therefore drainage patterns are similar. Sediment and erosion control measures to be used on site include four proposed temporary sediment basins and silt fence around the perimeter. The design requires erosion control measures around the asbestos landfill area to be above ground so there is no excavation into the hazardous material. Erosion control matting is proposed along the side slopes 4:1 and steeper to better establish stability. One excavated temporary sediment basin is being proposed for the area between the landfills. The landfill boundary on the north side is adjacent to jurisdictional wetlands that cannot be filled or excavated, so this area will utilize the proposed rock berm to act as a sediment basin until the fill material exceeds the height. Once that occurs, a berm along the top will be constructed to control the runoff where it will flow down the riprap lined channel. No drainage structures or culverts are required.

The construction sequence is as follows:

1. Obtain grading permit as required by local authority.
2. Install silt fence as shown on plans.
3. Clear and grub enough to install the temporary diversions, temporary sediment basins and rock berm.
4. Call State Erosion Control Local office for on-site inspection. If approved, begin construction
5. Clear and grub remaining areas shown and bring landfill up to grade as shown.
6. Once fill is higher than rock berm, maintain temporary berm at top of slope for detention and temporary diversion ditches along slope to divert runoff to the temporary sediment basins.
7. Place erosion control blanket along finished slopes as final grade is reached.
8. When construction is complete and all areas are stabilized completely, call for inspection by State Erosion Control Local office.
9. If site is approved, removed temporary devices and stabilize any resulting bare areas.

Design computations attached include:

- Temporary Sediment Basins
- Silt Fence

Construction

Construction of the landfill closure is expected to take 6-8 weeks. The site will be overseen by a field engineer who will assure erosion control measures are maintained throughout the project duration and until vegetation has been established. The contractor will be required to make sure vegetation has been established for one year.

Materials

The erosion control components as shown on the Bid Form and specified in section 0102 – 1.2C of the Technical Specifications, are to be treated in a manner congruent with the NCDOT – Raleigh *Standard Specifications For Roads And Structures* manual (2002 edition). This includes application/ construction method, method of measurement, and basis of payment. At a minimum, the following sections of the Standard Specifications manual apply:

Material	**NCDOT Standard Specification**
Silt Fence	1605
Sediment Control Stone	1610
Erosion Control Blanket	1631
Class B Rip Rap	876
Temporary Filter Fabric	876

APPENDIX D

SEDIMENTATION AND EROSION CONTROL PLAN APPROVAL LETTER

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Land Resources
Land Quality Section

James D. Simons, PG, PE
Director and State Geologist

Michael F. Easley, Governor
William G. Ross Jr., Secretary

February 7, 2005

LETTER OF APPROVAL WITH MODIFICATIONS AND PERFORMANCE RESERVATIONS

Dupont Company
Mr. Andrew Alcazar, Project Director
6324 Fairview Road
Charlotte, NC 28273

RE: Project Name: Dupont Asbestos Landfill Closure Acres Approved: 4.2
Project ID: Bruns-2005-198
County: **Brunswick**
River Basin: **Cape Fear**
Submitted By: URS Corp
Date Received by LQS: January 12, 2005
Plan Type: NEW

Dear Mr. Alcazar:

This office has reviewed the subject erosion and sedimentation control plan and hereby issues this Letter of Approval with Modifications and Performance Reservations. A list of the modifications and reservations is attached. This plan approval shall expire three (3) years following the date of approval, if no land-disturbing activity has been undertaken, as is required by Title 15A NCAC 4B .0129. Should the plan not perform adequately, a revised plan will be required (G.S. 113A-54.1)(b).

Please be advised that Title 15A NCAC 4B.0118(a) requires that a copy of the approved erosion control plan be on file at the job site. Also, you should consider this letter to give the Notice required by G.S. 113A-61.1(a) of our right of periodic inspection to insure compliance with the approved plan.

North Carolina's Sedimentation Pollution Control Program is performance-oriented, requiring protection of existing natural resources and adjoining properties. If, following the commencement of this project, it is determined that the erosion and sedimentation control plan is inadequate to meet the requirements of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statute 113A-51 thru 66), this office may require revisions to the plan and implementation of the revisions to insure compliance with the Act.

Acceptance and approval of this plan is conditioned upon your compliance with Federal and State water quality laws, regulations, and rules. In addition, local city or county ordinances or rules may also apply to this land-disturbing activity. This approval does not supersede any other permit or approval.

Please be aware that your project will be covered by the enclosed NPDES General Stormwater Permit NCGO1000 (Construction Activities). You should first become familiar with all of the requirements for compliance with the enclosed general permit.

Please note that this approval is based in part on the accuracy of the information provided in the Financial Responsibility Form, which you have provided. You are requested to file an amended form if there is any change in the information included on the form. In addition, it would be helpful if you notify this office of the proposed starting date for this project. Please notify us if you plan to have a preconstruction conference.

Your cooperation is appreciated.

Sincerely,

Daniel Sams, PE, ME
Regional Engineer
Land Quality Section

Enclosures: Certificate of Approval
Modifications and Performance Reservations
NPDES Permit

cc: Brett Berra, URS Corp
LQS-WiRO

MODIFICATIONS AND PERFORMANCE RESERVATIONS

Project Name: **Dupont Asbestos Landfill Closure**
Project ID: **Bruns2005198**
County: **Brunswick**

1. This plan approval shall expire three (3) years following the date of approval, if no land disturbing activity has been undertaken, as is required by Title 15A NCAC 4B.0029.

2. The developer is responsible for the control of sediment on-site. If the approved erosion and sedimentation control measures prove insufficient, the developer must take those additional steps necessary to stop sediment from leaving this site. Each sediment storage device must be inspected after each storm event. Maintenance and/or clean out is necessary anytime the device is at 50% capacity.

3. Any and all existing ditches on this project site are assumed to be left undisturbed by the proposed development unless otherwise noted. The removal of vegetation within any existing ditch or channel is prohibited unless the ditch or channel is to be regarded with side slopes of 2 horizontal to 1 vertical or less steep. Bank slopes may be mowed, but stripping of vegetation is considered new earth work and is subject to the same erosion control requirements as new ditches.

4. The developer is responsible for obtaining any and all permits and approvals necessary for the development of this project prior to the commencement of this land disturbing activity. This could include agencies such as the Division of Water Quality's stormwater regulations, their enforcement requirements within Section 401 of the Clean Water Act, the U.S. Army Corps of Engineers' jurisdiction of Section 404 of the Clean Water Act, the Division of Coastal Management's CAMA requirements, the Division of Solid Waste Management's landfill regulations, the Environmental Protection Agency and/or The U.S. Army Corps of Engineers jurisdiction of the Clean Water Act, local County or Municipalities' ordinances, or others that may be required. This approval cannot supersede any other permit or approval; however, in the case of a Cease and Desist Order from the Corps of Engineers, that Order would only apply to wetland areas. All highland would still have to be in compliance with the N.C. Sedimentation Pollution Control Act.

5. If any area on site falls within the jurisdiction of Section 401 or 404 of the Clean Water Act, the developer is responsible for compliance with the requirements of the Division of Water Quality, the Corps of Engineers and the Environmental Protection Agency (EPA) respectively. Any erosion control measures that fall within jurisdictional wetland areas must be approved by the aforementioned agencies prior to installation. The Land Quality Section must be notified of a relocation of the measures in question to the transition point between the wetlands and the uplands to assure that the migration of sediment will not occur. If that relocation presents a problem or contradicts any requirements of either DWQ, the Corps, or the EPA, it is the responsibility of the developer to inform the Land Quality Section regional office so that an

adequate contingency plan can be made to assure sufficient erosion control remains on site. Failure to do so will be considered a violation of this approval.

6. Any borrow material brought onto this site must be from a legally operated mine or other approved source. A single use borrow site or an area to waste material is only permissible if it is operated under the total control of the Financially Responsible person or firm who is developing this site and has been separately permitted and incorporated as part of this plan meeting all the requirements of NC General Statue 74-49(7)f.

7. This permit allows for a land disturbance, as called for on the application plan, not to exceed 4.2 acres. Exceeding that acreage will be a violation of this permit and would require a revised plan and additional application fee. Any addition in impervious surface, over that already noted on the approved plan, would also require a revised plan to verify the appropriateness of the erosion control measures and stormwater retention measures.

8. The construction detail for the proposed silt fence requires reinforcing wire and posts a maximum of 8 feet apart. Omission of the reinforcing wire is a construction change that necessitates more posts for support, i.e., the spacing distance needs to be reduced to no greater than 6 feet apart.

9. Because the sediment retention ponds are shown on the plan as the primary sedimentation and erosion control devices on this project, it is necessary that the ponds and their collection systems be installed before any other grading takes place on site. If that proves to be impractical, a revised plan must be submitted and approved that addresses erosion and sediment control needs during the interim period until the ponds are fully functioning.

10. A graveled construction entrance must be located at each point of access and egress available to construction vehicles during the grading and construction phases of this project. Access and egress from the project site at a point without a graveled entrance will be considered a violation of this approval. Routine maintenance of the entrances is critical.

11. At most construction sites, the contractor's staging area becomes a land-disturbance due to the amount of activity of soil compaction involved. If vegetative cover is damaged as a result of staging, a revised plan that includes the staged area must be submitted.

12. The North Carolina Sedimentation Pollution Control Act mandates a shortened time frame in which to re-establish vegetative groundcover. Slopes (including cuts, fills, and ditch banks) left exposed will, within 15 working days or 30 calendar days (whichever is shorter) after completion of any phase of grading, be planted or otherwise provided with groundcover sufficient to permanently restrain erosion.

APPENDIX E

PHOTOGRAPHIC LOG

URS

Photographic Log

Site Location:	Page:
Dupont - Cape Fear Facility - Leland, North Carolina	1 of 5

Photo No.	Date:	Description:
1	11/18/2005	Asbestos Landfill - Post Closure

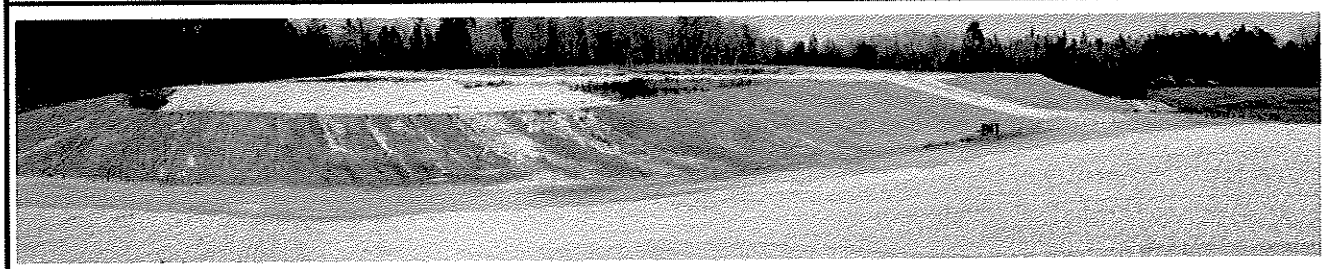

Photo No.	Date:	Description:
2	11/18/2005	Inert Debris Landfill - Post Closure

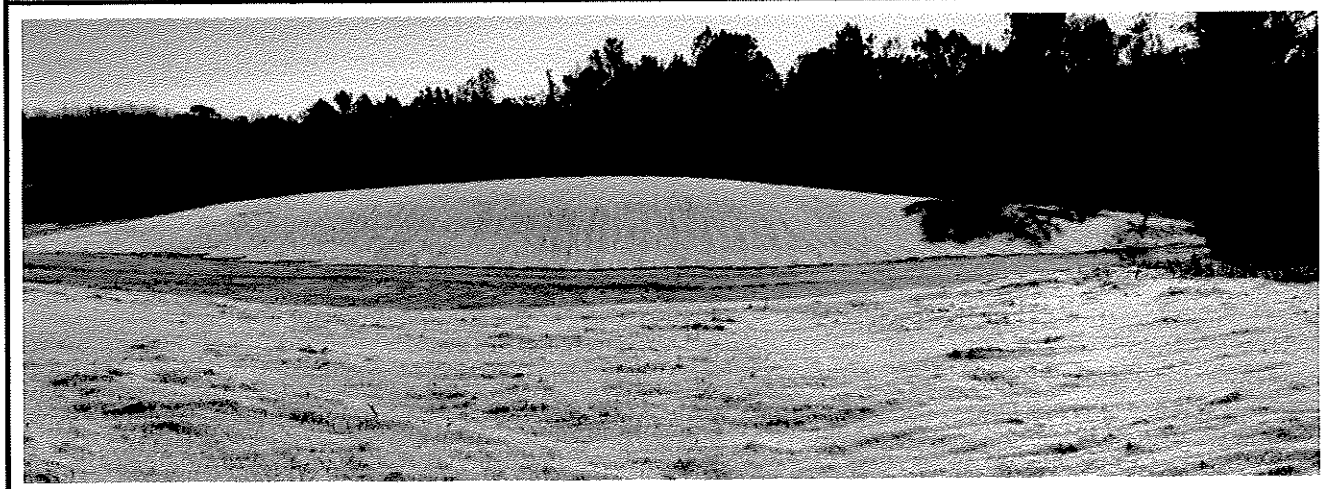

Photo No.	Date:	Description:
3	11/18/2005	Inert Debris Landfill - Post Closure #2

URS

Photographic Log

Site Location:	Page:
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Photo No.	Date:	Description:
4	11/18/2005	Asbestos Landfill Cap Drainage

Photo No.	Date:	Description:
5	11/18/2005	Asbestos Landfill Wetlands Sediment Control Measures

URS

Photographic Log

Site Location: Dupont - Cape Fear Facility - Leland, North Carolina

Photo No.	Date:	Description:
6	11/18/2005	Asbestos Landfill Perimeter Erosion and Sediment Control Measures

Photo No.	Date:	Description:
7	11/18/2005	Asbestos Landfill Vegetative Cover - Nov. 2005

URS

Photographic Log

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Photo No.	Date:	Description:
8	6/1/2006	Asbestos Landfill Vegetative Cover (Side Slopes) - June 2006

Photo No.	Date:	Description:
9	6/1/2006	Asbestos Landfill Vegetative Cover (Top) - June 2006

URS

Photographic Log

Site Location:	Page:
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Photo No.	Date:	Description:
10	6/1/2006	Asbestos Landfill Vegetative Cover (Side Slopes) - June 2006

Photo No.	Date:	Description:
11	6/1/2006	Inert Debris Landfill Vegetative Cover - June 2006