



May 29, 2008

Ms. Donna Wilson
Environmental Engineer II
NC DENR - Division of Waste Management
401 Oberlin Road, Suite 150
Raleigh, NC 27605

**Re: Transition Application - Phase 1
Red Rock Disposal C&D Landfill
(Solid Waste Permit No. 92-28)
Holly Springs, North Carolina**

Dear Ms. Wilson:

On Behalf of Red Rock Disposal C&D Landfill, Richardson Smith Gardner & Associates (RSGA) would like to submit for your review information required for continued operations of Phase 1 of the Red Rock C&D Landfill (Red Rock) in accordance with 15A NCAC 13B .0547 for existing landfills as of January 1, 2007. As outlined in the aforementioned rule, the following must be submitted to the department by July 1, 2008:

1. Closure and Post-Closure Plan {.0547 (2)(a)}
2. Financial Responsibility {.0547 (2)(b)}

Each of these requirements are further described below:

Closure and Post-Closure Plan

Red Rock intends to apply the prescriptive closure criteria in accordance with .0543(c)(1)(A), a closure cap system consisting of an 18 inch thick low permeability (no greater than 1×10^{-5} cm/sec) layer with an overlying 18 inch thick layer of vegetative support soil as shown in revised permit drawings (attached).

A Closure and Post-Closure Plan has been prepared in accordance with .0543(d) and is provided as **Attachment A**. The current Permit Drawings make reference to the final cover section and details which are affected by this rule. Therefore, revisions have been made to the set as necessary to conform to the new closure requirements. Additionally, an additional sheet has been added to the set to establish a landfill gas management plan for the site. The revised set is included as **Attachment B**.

Ms. Donna Wilson
May 29, 2008
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Financial Responsibility

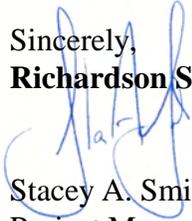
A Closure and Post-Closure Estimate has been prepared and is included in the Plan (above) and is as follows:

Closure Cost	\$2,581,390
Post-Closure Cost	\$1,224,960 (for 30 year period)
Total (Phase 1 - 44.2 AC)	\$3,806,350 (2008\$)

It is noted that Phase 1C-2 construction recently concluded which completes the entire footprint of Phase 1 (44.2 AC) of the landfill. Therefore, Red Rock intends to provide a financial assurance bond in the total amount for the Phase 1 operations upon approval by the Division.

Should you have any questions or require clarification, please contact me at (919) 828-0577 ext. 127 or by email below.

Sincerely,
Richardson Smith Gardner & Associates, Inc.


Stacey A. Smith, P.E.
Project Manager
stacey@rsgengineers.com

Att.

Cc: Don Plessinger, Red Rock Disposal
David Pepper, Waste Industries USA
Rachel Kirkman, P.G., Golder
Jim Poole, INSURE
Bradley Bailey, NCDENR (cover letter)
File

ATTACHMENT A

Closure/Post-Closure Plan

Closure And Post-Closure Plan

**Red Rock Disposal, LLC
C&D Landfill - Phase 1
NC Solid Waste Permit No. 92-28**

Prepared for:



Red Rock Disposal, LLC
7130 New Landfill Drive
Holly Springs, North Carolina 27540

April 2008

PERMIT ISSUE DOCUMENTS

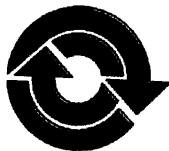
Prepared for:



Closure and Post-Closure Plan

**Red Rock Disposal, LLC
C&D Landfill - Phase 1
(NC Solid Waste Permit No. 92-28)
Holly Springs, North Carolina**

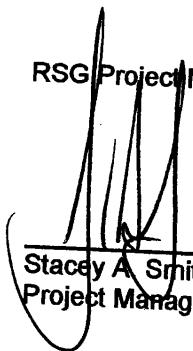
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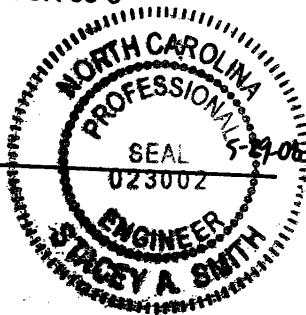


**Red Rock Disposal, LLC
7130 New Landfill Drive
Holly Springs, North Carolina 27540**

To the Attention of:
**Mr. David Pepper
Waste Industries USA, Inc.**

RSG Project No. RED ROCK-08-3


Stacey A. Smith, P.E.
Project Manager



April 2008

Closure and Post-Closure Plan

Red Rock Disposal, LLC
C&D Landfill - Phase 1
(NC Solid Waste Permit No. 92-28)
Holly Springs, North Carolina

Prepared for:



Red Rock Disposal, LLC
7130 New Landfill Drive
Holly Springs, North Carolina 27540

To the Attention of:

Mr. David Pepper
Waste Industries USA, Inc.

RSG Project No. RED ROCK-08-3

Stacey A. Smith, P.E.
Project Manager

April 2008



**RED ROCK DISPOSAL, LLC
C&D LANDFILL - PHASE 1**

CLOSURE AND POST-CLOSURE PLAN

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SECTION 1.0 CLOSURE PLAN

1.1 OVERVIEW

This plan is intended to serve as a guide for the proposed closure of the Red Rock Disposal C&D Landfill. A formalized Closure Plan for Phase 1 (or incremental portion thereof) will be submitted to the Solid Waste Section of the North Carolina Department of Environment and Natural Resources Division of Waste Management (DWM) for approval prior to beginning closure construction.

1.2 MAXIMUM CLOSURE AREA AND WASTE CAPACITY

A Final Cover Grading Plan (**Drawing No. E5**) is provided as **Appendix A** of this Plan as modified from the permit¹ drawings in accordance with 15A NCAC 13B .0543. for Phase 1 of the Red Rock Disposal C&D Landfill. Based on this drawing, the following are the estimated areas and capacity for each landfill unit to be closed under this plan.

Phase	Area (Ac.)	Operating Capacity (CY)		Life Expectancy ³
		Gross ¹	Net ²	
1 (Active)	30.8	2,546,488	2,279,064	3.3 Years
1C-2 (Future)	13.4	1,212,326	1,085,011	1.2 Years
Total:	44.2	3,758,814	3,364,076	4.5 Years

Notes:

1. Gross capacity is based on final cover grades provided on **Drawing No. E5** and assumes subgrades as shown on **Drawing No. E4** as presented in current permit drawings¹.
2. The net capacity is determined by pro-rated deductions for final cover soils from the gross capacity.
3. The existing life expectancy assumes two hundred sixty (286) operating days a year accepting 2,000 tons per day with a unit weight of 0.625 tons per cubic yard.

1.3 FINAL COVER SYSTEM

The final cover system will consist of the following components (top-down):

¹ Red Rock Disposal, LLC Construction & Demolition Debris (C&D) Landfill Phase 1 Engineering Drawings dated May 2001 with revisions through April 2004 prepared by G.N. Richardson & Associates, Inc.

- a 18-inch thick vegetative soil layer (including 6 inches of topsoil)
- a 18-inch thick layer of low permeability material (1×10^{-5} cm/sec); and
- a 12-inch thick intermediate cover layer.

The final cover system will be placed on prepared intermediate cover at a maximum slope of 3H:1V. A landfill gas (LFG) control (venting) system and surface water control devices will also be incorporated into the final cover. The final cover surface will be vegetated upon completion of the final cover installation according to the project seeding specifications.

Technical specifications and construction quality assurance requirements for final cover system components can be found in **Appendices B and C**, respectively. Final cover system details are shown on **Drawings No. G1 and No. EC2** (Details) as modified from the original permit drawings.

Placement of the low permeability soil layer shall be closely monitored for moisture and density to achieve the minimum requirements set forth in the specifications. The vegetative soil layer should receive no compaction other than that provided by the dozer tracks. Pans or other heavy equipment should not operate on the vegetative soil layer.

1.4 LANDFILL GAS SYSTEM

A landfill gas control (venting) system is provided in the final cover system. This system includes a system of collection wells or trenches placed within the waste immediately below the cover to capture the gas passively. The collection wells should be placed before any low permeability soils are placed. The location of gas system components are shown on **Drawing No. LFG1** (Landfill Gas Management Plan).

1.5 SURFACE WATER SYSTEMS

Precipitation falling on the cover will infiltrate into the cover or run off the cover. Short-term the run-off runs down the surface of the intermediate cover. Long-term the run-off is collected in a series of drainage breaks built into the areas covered by final cover. These drainage breaks are in the form of “tack-on” berms provided along side slopes and near the upper edge of the side slopes (cap diversion berms). The “tack-on” berms are designed with a maximum slope length of approximately 150 feet (horizontally projected) such that side slope erosion potential is minimized. Water captured by the “tack-on” berms routed toward one of the down pipes. Flow in the down pipes is routed to the base of the landfill and to one of the site sediment basins.

The locations of berms, and down pipes are shown on **Drawing No. E5** (Phase 1 Final Grading and Drainage Plan).

1.5.1 Incremental Operation

During much of the life of the landfill, surface run-off will be handled by the intermediate

cover system. Operations must strive to provide operational grading that encourages run-off from the intermediate cover to drain to the perimeter channels along the perimeter berms or to areas covered by final cover. Corrugated polyethylene (CPE) piping and temporary soil berms must be installed if required to accomplish this run-off routing.

1.5.2 Required Maintenance

The surface water systems must be inspected annually and immediately after every major storm. Sediment build-up in the drainage features/devices must be cleaned out on a regular basis to promote run-off. Sediments removed can be used as daily or intermediate cover.

1.6 CLOSURE SCHEDULE

Closure activities must begin on the following schedule:

- No later than 30 days after the date on which the landfill (complete facility) last receives waste and completes day to day operations;
- No later than 30 days after the date that a ten (10) acre or greater area of waste, is within in 15 feet of final design grades (as measured by the final vertical (peak) height of the landfill presented in the facility Site Study Application); and
- No later than one (1) year after the most recent receipt of wastes on final outside slopes. Interim and interior slopes based on the approved facility plan included in the Site Study Application are not required for closure and shall be maintained to maintain intermediate cover and control erosion and sediment.

All closure activities shall be completed within 180 days. Exemptions and extensions may be approved by the DWM.

1.7 CLOSURE VERIFICATION

The following procedures will be implemented following closure:

- A Construction Quality Assurance (CQA) report will be submitted to the DWM. This report will describe the observations and tests used before, during, and upon completion of construction to ensure that the construction materials meet the final cover design specifications and the construction and certification requirements. The CQA report will contain as-built drawings.
- A signed certification from a registered Professional Engineer verifying that closure has been completed in accordance with the closure plan will be submitted to the DWM.

- Following final receipt of waste and full facility closure, at least one sign notifying all persons of the closing of the landfill (or incremental portions thereof) and that wastes are no longer accepted will be posted. Suitable barriers will be installed as necessary at former access points to prevent new waste from being deposited.
- Within 90 days, a survey plat, prepared by a registered Professional Land Surveyor, indicating the location and dimensions of landfill disposal areas, will be prepared.
- A notation will be recorded on the deed notifying any potential purchaser of the property that the land has been used as a landfill facility and that future use is restricted under the approved closure plan. A copy of the deed notation as recorded will be filed with the operating record.

SECTION 2.0 POST-CLOSURE PLAN

2.1 OVERVIEW

This Post-Closure Plan has been developed to outline steps to be taken to ensure the integrity of the landfill during its post-closure care period. The post-closure care period will last at least 30 years after final closure and, at a minimum, will consist of the following:

- Maintaining the integrity and effectiveness of final cover system;
- Performing groundwater and surface water monitoring;
- Maintaining and operating a gas monitoring system; and
- Maintaining run-on/run-off controls.

No wastes will remain exposed after closure of the landfill. Access to the closed site by the public will not pose a health hazard.

2.2 POST-CLOSURE CONTACT

All correspondence and questions concerning the post-closure care of the unit should be directed to:

Mr. Don Plessinger
Red Rock Disposal, LLC
7130 New Landfill Drive
Holly Springs, NC 27540
Phone: (919) 557-9583
Fax: (919) 557-9523.

2.3 POST-CLOSURE USE

After filling operations cease at the landfill and the it is officially closed in accordance with the Closure Plan, the landfill will be maintained as a grassy hill. Red Rock Disposal will maintain control of the property and prevent public access to it during the post-closure period.

There may be (an) access road(s) on the final cover to allow proper maintenance during post-closure. Precise location of the access road(s) will be determined as a part of operations. Low ground pressure and rubber tire vehicles will be used for maintenance.

2.4 MAINTENANCE

2.4.1 Repair of Security Control Devices

All security control devices will be inspected and maintained as necessary to ensure access to the site is controlled. Locks, vehicular gates, and fencing will be replaced if functioning improperly. Warning signs will be kept legible at all times and will be replaced if damaged by inclement weather or vandalism.

2.4.2 Erosion Damage Repair

If erosion of the final cover occurs during post-closure, the affected area will be repaired and re-seeded as necessary. If necessary, rolled erosion control products (RECPs) will be used to expedite rapid revegetation of slopes and to secure topsoil in place.

2.4.3 Correction of Settlement, Subsidence, and Displacement

Minimum slopes of 5 percent will be maintained after settlement in order to prevent ponding and allow for proper drainage without infiltration. If vertical or horizontal displacement occurs due to differential settlement, cracks will be filled with appropriate material and final cover will be reestablished. Excessive vertical displacement is not anticipated.

2.4.4 Repair of Run-On/Run-Off Control Structures

All drainage swales, ditches, and perimeter channels will be repaired, cleaned, or realigned in order to maintain their original condition. Any culverts that are damaged will be repaired or replaced.

2.4.5 Landfill Gas Control System

The landfill gas control (venting) system will be maintained by Red Rock Disposal. Proper operation of the system is verified through periodic testing of the subsurface monitoring wells around the perimeter of the landfill.

If landfill gas wells/vents do not function as a result of irregular settlement, accumulation of liquids (condensate, leachate, water), binding or corrosion, additional and/or replacement wells/vents can be installed if necessary as shown on the Landfill Gas Management Plan (**Drawing No. LFG1**).

Monitoring shall be performed to identify (if any) subsurface migration of landfill gas at explosive levels are present in on-site structures and/or at the property boundary in accordance with **Table 2.1**. Methane or other explosive gas concentrations shall not exceed 25 percent of the lower explosive limit (LEL) (1.25% of CH₄) in on-site structures, such as scale houses, or 100% of the LEL (5% of CH₄) at the facility property

boundary. Subsurface methane monitoring wells are installed between the landfill perimeter and the property line, and are spaced approximately 500 feet apart. Additional wells will be installed as necessary and consistent with landfill expansion.

If landfill gas levels exceed these limits, the following must be performed:

- Immediately take all steps necessary for the protection of personnel, staff, or neighboring properties and notify the DWM;
- Within seven (7) days, place in the operating record a description of events taken following the detection event; and
- Within 60 days, implement a remediation plan for the explosive gas releases, place a copy in the operating record, and notify the DWM that the plan has been implemented.

2.4.6 Groundwater Monitoring Wells

Procedures outlined in the current Water Quality Monitoring (WQM) Plan or subsequent revision will take precedence; however, a brief description follows. All groundwater monitoring wells have been installed with concrete pads and protective casings to prevent accidental damage by vehicles and equipment. The wells are also equipped with a locking cap to discourage vandalism. Groundwater wells will be inspected regularly (at the time of sampling) to ensure integrity. Persons inspecting a well should look at the overall condition of the well, for signs of well tampering, and cracking or degradation of the concrete pad. Should a well require replacement, the defective well should be abandoned in accordance with specifications provided in the WQM Plan and a new well installed at a location that is approved by the DWM.

2.5 MONITORING PLAN

The closed unit will be monitored for a minimum of 30 years. A series of inspections will be scheduled to ensure the integrity and effectiveness of the final cover system, surface water systems, groundwater monitoring system, landfill gas system, and to protect human health and the environment.

2.5.1 Inspection Frequencies

Inspections to be conducted during the post-closure care period will occur regularly as shown in **Table 2.1**.

2.5.2 Quarterly Inspections

Quarterly inspections of the closed site will be conducted by Red Rock Disposal. These inspections will include examination of the security control devices for signs of

deterioration or vandalism to ensure access to the site is limited to authorized persons. Each disposal area will be checked to ensure the integrity of the final cover system is maintained, erosion damage is repaired, vegetative cover persists, and that cover settlement, subsidence, and displacement are minimal. Drainage swales and channels will be cleared of litter and debris and benchmark integrity will be noted and maintained.

2.5.3 Semi-Annual Inspections

Semi-annual inspections of the site during the post-closure period will be conducted by Red Rock Disposal with attention paid to integrity and drainage of the final cover system and condition of the groundwater and gas monitoring systems.

A report of findings will be made to the responsible party, including recommendations for actions deemed necessary to ensure the site continues to meet the closure performance standard.

2.6 ENGINEERING CERTIFICATION

Based on Red Rock Disposal's monitoring reports, annual certifications by a registered engineer will be placed in the operating record. They will certify that the closure plan has been followed, noting discrepancies along with the corrective actions undertaken. At the end of the post closure period, the individual certifications will be compiled into a final document and forwarded to the DWM.

TABLE 2.1: POST-CLOSURE INSPECTION FREQUENCIES

INSPECTION ACTIVITY	YEAR 1	YEARS 2-30
Security Control Devices	Quarterly	Quarterly
Vegetative Cover Condition	Quarterly ¹	Quarterly
Surface Water Systems	Quarterly ¹	Quarterly
Erosion Damage	Quarterly ¹	Quarterly
Cover Drainage System	Quarterly ¹	Semi-Annually
Cover Settlement, Subsidence, and Displacement	Quarterly ¹	Semi-Annually
Landfill Gas Control System	Quarterly ³	Semi-Annually ³
Groundwater Monitoring System	Semi-Annually	Semi-Annually ²
Benchmark Integrity	Annually	Annually

Notes:

1. These items will be inspected after each large storm event (i.e. ≥ 1 inch in any 24 hours).
2. Or in accordance with groundwater monitoring schedule described in the current Water Quality Monitoring Plan.
3. Or in accordance with the current Landfill Gas Management Plan.

SECTION 3.0 CLOSURE/POST-CLOSURE COST ANALYSIS

3.1 OVERVIEW

The purpose of this section is to provide a written estimate in current dollars of all activities and costs associated with all activities specified in the written closure and post-closure plans which have been developed for Phase 1 of the Red Rock Disposal C&D Landfill.

3.2 ESTIMATED CLOSURE COSTS

Table 3.1 summarizes the estimated costs for complete closure of Phase 1 (the current maximum area to be closed). This cost estimate is based on a third party providing the necessary services and includes labor in the unit prices given. The estimated closure costs will be reviewed and updated as required to reflect adjustments for inflation, rising costs of anticipated closure care, increased costs in construction or materials, or any other adjustments to the Closure Plan.

3.3 ESTIMATED POST-CLOSURE COSTS

Table 3.2 summarizes the estimated costs for the post-closure care maintenance activities. This cost estimate is based on a third party providing the necessary services and includes labor in the unit prices given. The estimated post-closure costs will be reviewed and updated as required to reflect adjustments for inflation, rising costs of anticipated post-closure care, or any other adjustments to the Post-Closure Plan.

TABLE 3.1
Red Rock Disposal C&D Landfill (NC SW Permit No. 92-28)
Engineer's Closure Construction Cost Estimate

Item No.	Item Description	Unit	Contractor			Comments
			Quantity	Unit Price	Total Price	
Closure Area (Horizontal Plan) ---->		AC	44.2			
1.0	Pre-Construction			Subtotal	\$37,100.00	
1.1	Construction Documents & Bidding	AC	44	\$15k + \$500/AC	\$37,100.00	RSG Estimate
2.0	Construction				\$2,225,470.00	References 1 and 2.
2.1	Surveys and Layout	AC	44	\$1,000.00	\$44,200.00	RSG Historical Estimate
2.2	Mobilization	AC	44	\$5,000.00	\$221,000.00	~4% of Construction Cost
2.3	Site Preparation (repairs to intermediate cover layer)	AC	44	\$500.00	\$22,100.00	Assumed estimate for repair of erosion rills.
2.4	18" On-site Low Permeability Soil	CY	106,964	\$8.00	\$855,712.00	RSG Estimate
2.5	18" Vegetative Support Layer	CY	106,964	\$4.50	\$481,338.00	Site Historical Estimate for On-Site Materials.
2.6	Landfill Gas Venting System	AC	44	\$3,500.00	\$154,700.00	RSG Estimate
2.7	Cap Drainage Structures (berms, piping, etc.)	AC	44	\$7,500.00	\$331,500.00	RSG Historical Estimate
2.8	Erosion & Sediment Control (grading, silt fence, maintenance, etc.)	AC	44	\$800.00	\$35,360.00	RSG Historical Estimate
2.9	Revegetation	AC	44	\$1,800.00	\$79,560.00	Site Historical Estimate
3.0	Quality Assurance, Certification, & Deed Notation				\$263,570.00	
3.1	Field Monitoring	AC	44	\$3,000.00	\$132,600.00	RSG Estimate
3.2	Laboratory Testing	AC	44	\$2,500.00	\$110,500.00	RSG Estimate
3.3	Engineering Certification	AC	44	\$5k + \$250/AC	\$16,050.00	RSG Estimate
3.4	Surveying and Deed Notation	AC	44	\$100.00	\$4,420.00	RSG Historical Estimate
4.0	Miscellaneous Costs to Close				\$55,250.00	
4.1	Erosion and Stormwater Control (outside landfill footprint)	AC	44	\$1,000.00	\$44,200.00	RSG Historical Estimate
4.2	Engineering and Reporting	AC	44	\$250.00	\$11,050.00	RSG Historical Estimate
5.0	Total Closure Costs					
Construction Estimate ---->					\$2,581,390	
Cost per Acre ---->					\$58,402	
Total Estimate ---->					\$2,581,390 (2008\$) (See Note 1)	

Notes:

- All costs are presented in current dollars and should be increased at an inflation rate of 1.5% if additional review is not performed annually.
- This ESTIMATE has been prepared for financial assurance purposes only and shall not be considered a replacement for an actual bid from a licensed contractor and is considered acceptable within a +/- 10% of the Total Estimate value.

References:

- Red Rock Disposal, LLC - C&D Landfill - Phase 1 - Permit to Construct Application by G.N. Richardson & Associates, Inc. dated June 2001 with revisions through April 2004.
- Red Rock Disposal, LLC - C&D Landfill - Phase 1 - Revised Permit to Construct Application by G.N. Richardson & Associates, Inc. dated October 2003.

Denotes values calculated in spreadsheet.

TABLE 3.2
Red Rock Disposal C&D Landfill (NC SW Permit No. 92-28)
Engineer's Post Closure Estimate

Item	Quantity	Unit	Comments
Groundwater Monitoring			
Monitoring wells	15	wells	Reference 1
Surface water point	2	points	Reference 1
Sampling frequency	2	events	Reference 1
Field sampling, collection, and shipping	\$1,500	per event	Golden Proposal
Laboratory Analysis	\$200	per well	Golden Proposal
Data review, statistics, and reporting	\$1,500	per event	RSG estimate
Maintenance and repair	\$100	per well	RSG historical estimate
Subtotal Cost	\$14,300	per year	
Landfill Gas Management			
Control System Vents	22	vents	Assume one (1) well per two (2) acres.
Sub-Surface Monitoring Probes	12	probes	Assume one (1) per 500 LF along perimeter.
Control system monitoring, maintenance and repair	\$50	per vent per year	RSG estimate
Semi-Annual Perimeter Monitoring	\$50	per probe per year	RSG estimate
Subtotal Cost	\$1,700	per year	Averaged over post-closure period
Final Cover Management			
Area of maintenance	44.2	acres	Extends to area immediately around landfill for Phase 1.
Mowing	\$100	per acre	Site historical estimate
Erosion and sediment control maintenance	\$200	per acre	Site historical estimate
Topdressing (seed & fertilizer)	\$150	per acre	Site historical estimate
Vector and rodent control	\$10	per acre	Site historical estimate
Maintenance mobilization	\$1,000	per year	Site historical estimate
Subtotal Cost	\$21,332	per year	
Administration, Inspections, and Reporting			
Administration and record keeping	\$1,000	per year	Site historical estimate
Inspection	\$1,000	per year	Site historical estimate
Miscellaneous engineering	\$1,500	per year	Site historical estimate
Subtotal Cost	\$3,500	per year	
Total Post-Closure Costs			
Estimated Average Annual Costs	\$40,832	per year (2008\$)	
Number of Years for Post-Closure	30	years (see Note 1)	
Total Post Closure Costs	\$1,224,960	(2008\$) (See Note 2)	

Notes:

- All costs are presented in current dollars and should be increased at an inflation rate of 1.5% if additional review is not performed annually.
- This ESTIMATE has been prepared for financial assurance purposes only and shall not be considered a replacement for an actual bid from a licensed contractor and is considered acceptable within a +/- 10% of the Total Estimate value.

References:

- Red Rock Disposal, LLC - Phase 1 Permit to Construct Application by G.N. Richardson & Associates, Inc. dated October 2003.

Denotes values calculated in spreadsheet.

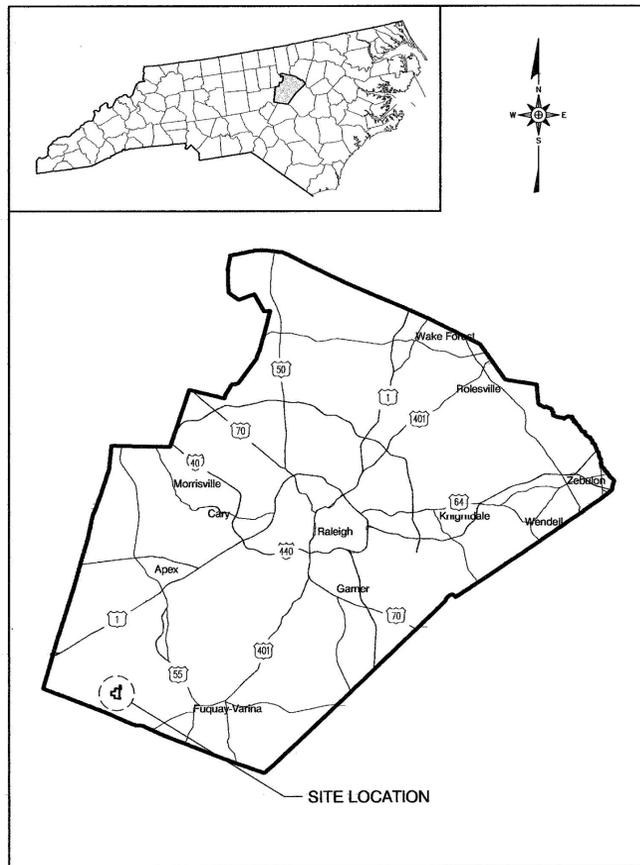
ATTACHMENT B

Revised Permit Drawings

RED ROCK DISPOSAL, LLC
WAKE COUNTY, NORTH CAROLINA

**CONSTRUCTION & DEMOLITION LANDFILL
PHASE 1
ENGINEERING DRAWINGS**

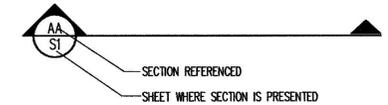
MAY 2001
REVISED MAY 2008



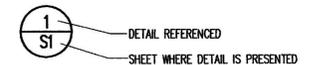
SITE LOCATION MAP
NOT TO SCALE

SHEET NO.	DRAWING NO.	TITLE	REVISION
1	1	TITLE/COVER SHEET	△ △ △ △
2	E1	EXISTING SITE CONDITIONS (NOT INCLUDED IN REVISED DRAWING SET)	△ △
3	E2	FACILITY PLAN - BASE GRADES	△ △ △
4	E3	FACILITY PLAN - FINAL COVER GRADES	△ △
5	E4	PHASE 1 - SUBGRADE (NOT INCLUDED IN REVISED DRAWING SET. REFER TO DRAWING EC8 FOR PHASE 1C SUBGRADE)	△ △
6	E5	PHASE 1 - FINAL GRADING AND DRAINAGE PLAN	△ △
7	G1	PHASE 1 - DETAILS (NO REVISIONS)	△ △ △ △
8	X1	PHASE 1 - ENGINEERING CROSS SECTIONS (SHEET 1 OF 2)	△ △ △ △
9	X2	PHASE 1 - ENGINEERING CROSS SECTIONS (SHEET 2 OF 2)	△ △ △ △
10	EC1	PHASE 1 - EROSION AND SEDIMENTATION CONTROL DETAILS (SHEET 1 OF 5)	△ △ △ △
11	EC2	PHASE 1 - EROSION AND SEDIMENTATION CONTROL DETAILS (SHEET 2 OF 5)	△ △ △ △
12	EC3	PHASE 1 - EROSION AND SEDIMENTATION CONTROL DETAILS (SHEET 3 OF 5)	△ △ △ △
13	EC4	PHASE 1 - EROSION AND SEDIMENTATION CONTROL DETAILS (SHEET 4 OF 5)	△ △ △ △
14	EC5	PHASE 1 - EROSION AND SEDIMENTATION CONTROL DETAILS (SHEET 5 OF 5)	△ △ △ △
15	EC6	PHASE 1C - INITIAL GRADING AND DRAINAGE PLAN	△ △ △ △
16	EC7	PHASE 1C-1 SUBGRADE AND DRAINAGE PLAN	△ △ △ △
17	EC8	PHASE 1C-2 SUBGRADE AND DRAINAGE PLAN	△ △ △ △
18	P1	PHASE 1 - FILLING SEQUENCE (NOT INCLUDED IN REVISED DRAWING SET.)	△ △ △ △
	LFG1	GAS MANAGEMENT PLAN	△ △ △ △

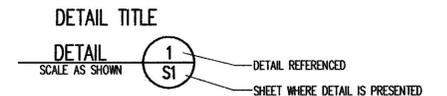
STANDARD SECTION LOCATION CALLOUT (SHEET AND DETAIL)



STANDARD DETAIL CALLOUT



STANDARD DETAIL LABEL AND CALLOUT



STANDARD REVISION CALLOUT (SHEET AND DETAIL)

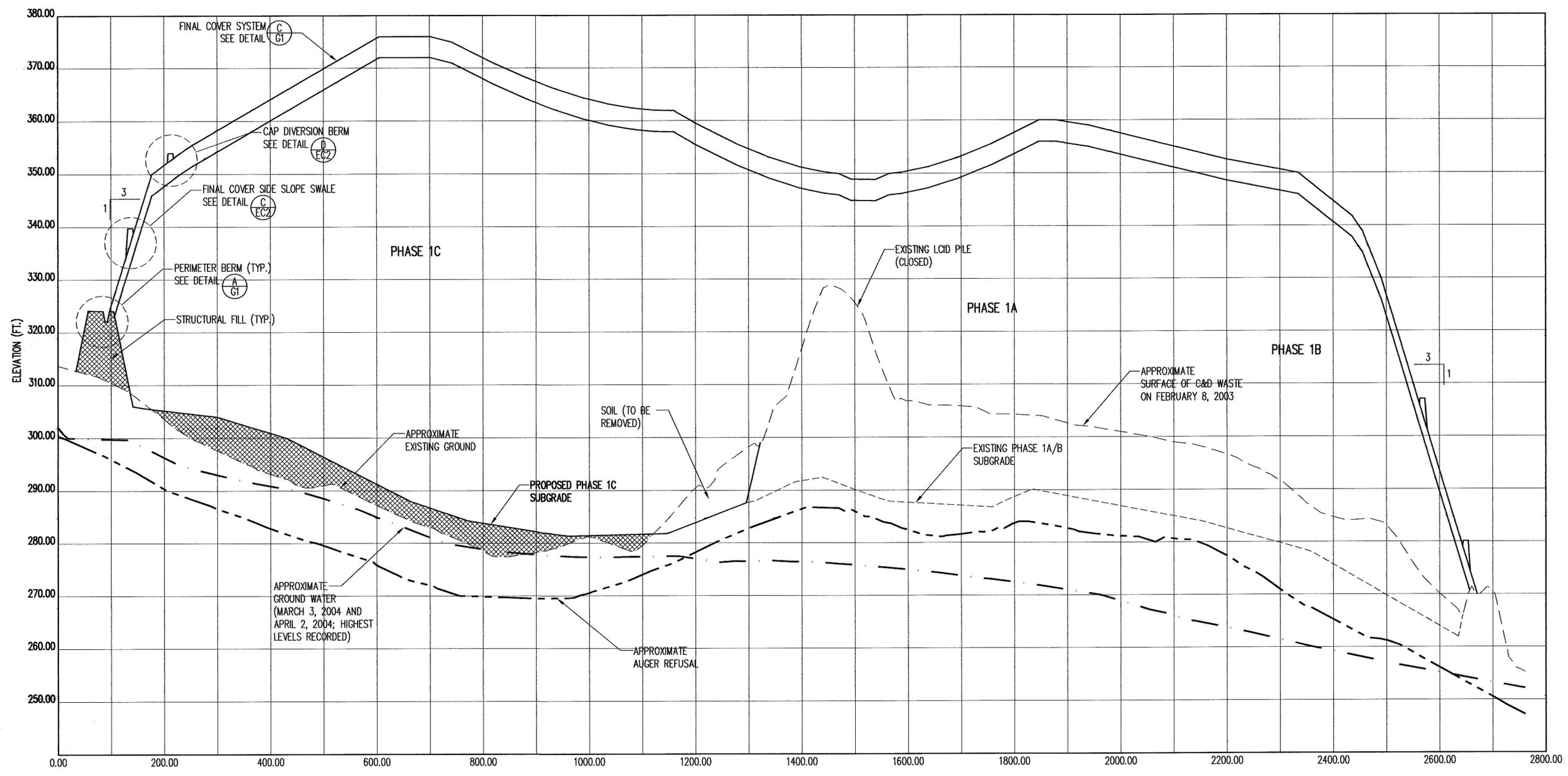


DATE	NO.	REVISION DESCRIPTION	REVISION

SAFETY NOTE:
THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SITE SAFETY ASSOCIATED WITH THE WORK UNDER THIS CONTRACT AND FOR COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL HEALTH AND SAFETY LAWS, CODES, REGULATIONS, AND ORDINANCES INCLUDING BUT NOT LIMITED TO THOSE CURRENTLY MANDATED BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

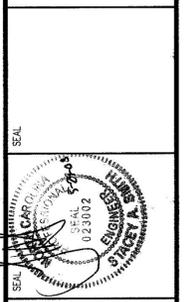
**RICHARDSON SMITH GARDNER
& ASSOCIATES**
14 N. Boylan Ave.
Raleigh, N.C. 27603
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fax: 919-828-3899

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NO.	DATE	REVISION
4	5/06	REVISED FINAL COVER GRADING
3	4/04	GRADING REVISIONS; REVISED GROUND WATER LEVELS
2	10/03	PHASE 1C REVISIONS

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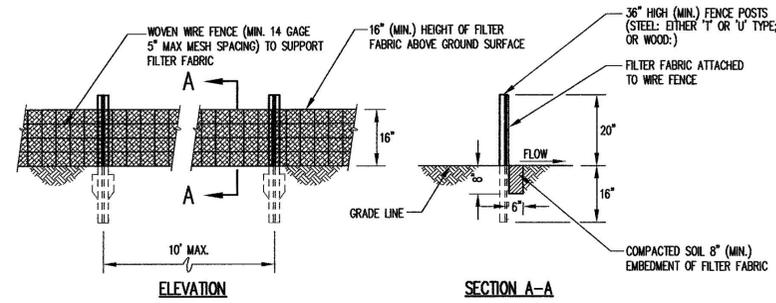


PROJECT TITLE:
**RED ROCK DISPOSAL, LLC
 CONSTRUCTION/DEMOLITION
 LANDFILL PHASE 1
 WAKE COUNTY, NC**

DRAWING TITLE:
**PHASE 1
 ENGINEERING CROSS SECTIONS
 (SHEET 1 OF 2)**

DESIGNED BY: T.B.M.	DRAWN BY: C.T.J.
CHECKED BY: JH	PROJECT NO.: RED ROCK-2
SCALE: AS SHOWN	DATE: OCT. 2003
FILE NAME: REDROCK-000190	
SHEET NO. 8	DRAWING NO. X1

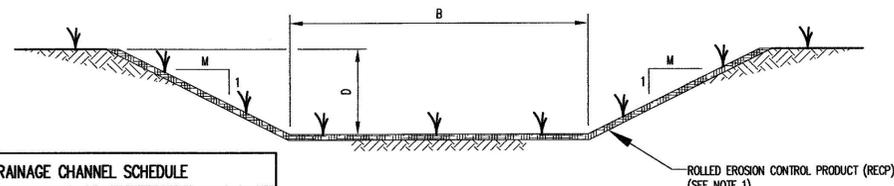
REFERENCES:
 1. OVERALL SITE TOPOGRAPHY PREPARED BY SPATIAL DATA CONSULTANTS, INC., BASED ON AERIAL PHOTOGRAPHY DATED FEBRUARY 8, 2003.



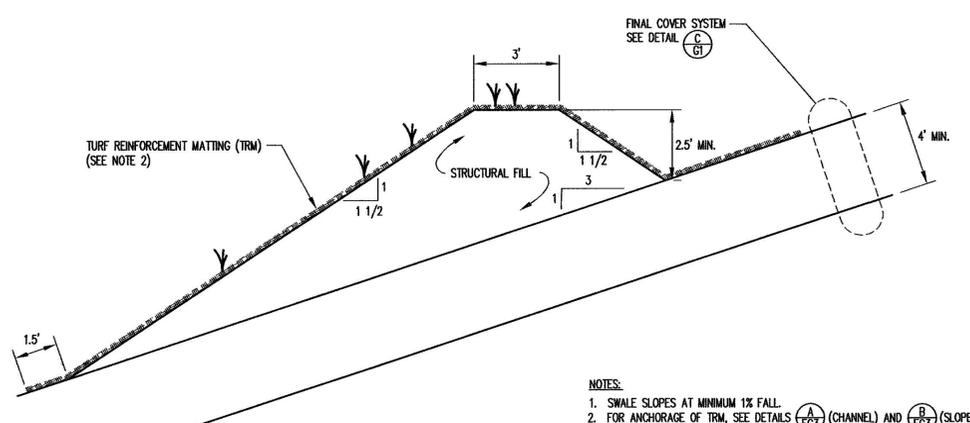
DRAINAGE CHANNEL SCHEDULE

DRAINAGE CHANNEL NO.	LINING	B	D	M
D-1	TRM*	4.0'	2.0'	2
D-2	TRM	0'	1.5'	2
D-3	TRM	4.0'	2.0'	2
D-T1	TRM	4.0'	2.0' MIN	2
D-T2	GRASS	3.0'	1.0' - 2.0'	2
D-T3	GRASS	0'	1.5'	2
SED. BASIN T1 OUTLET	TRM	4.0'	2.0'	2
SED. BASIN T2 OUTLET	TRM	4.0'	2.0'	2

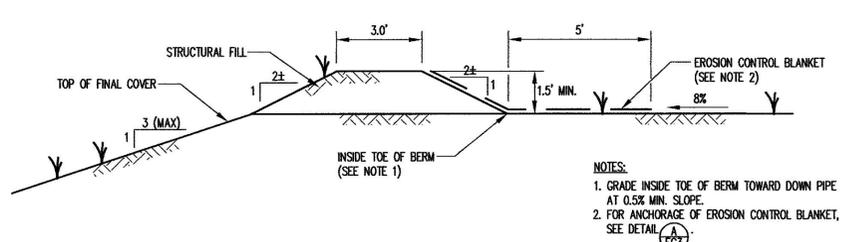
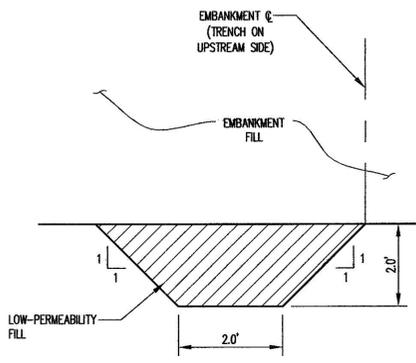
*TRM = TURF REINFORCEMENT MATTING



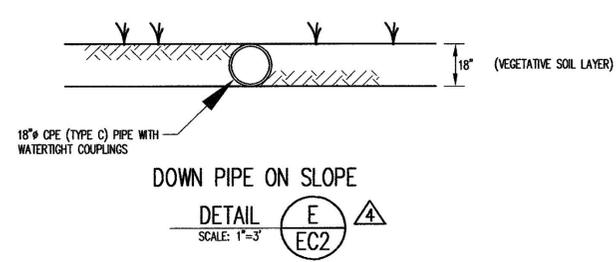
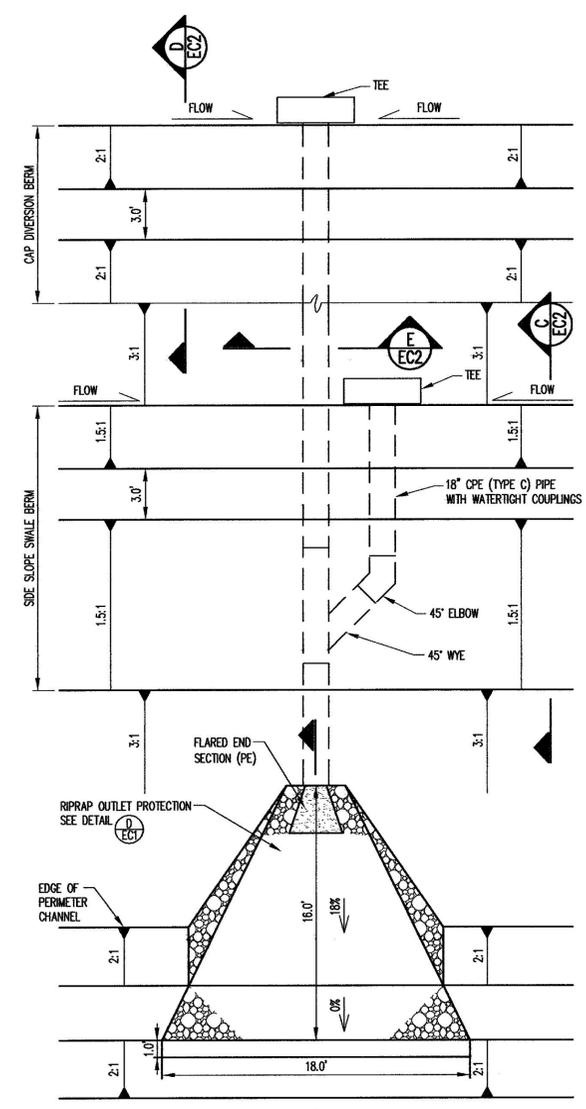
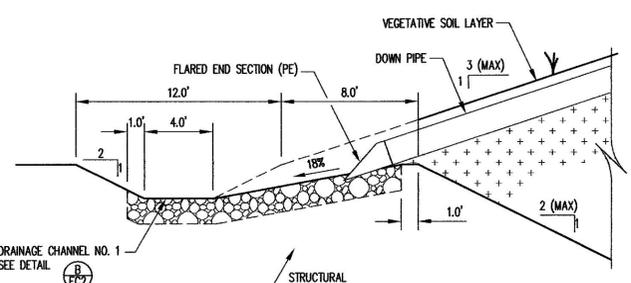
NOTES:
 1. FOR ANCHORAGE OF RECP, SEE DETAIL A.
 2. WHERE DEPTH OF CUT TO CHANNEL BOTTOM EXCEEDS 'D', INSTALL TRM TO HEIGHT 'D' ABOVE CHANNEL BOTTOM.



NOTES:
 1. SWALE SLOPES AT MINIMUM 1% FALL.
 2. FOR ANCHORAGE OF TRM, SEE DETAILS A (CHANNEL) AND B (SLOPE).

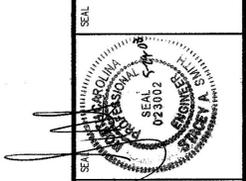


NOTES:
 1. GRADE INSIDE TOE OF BERM TOWARD DOWN PIPE AT 0.5% MIN. SLOPE.
 2. FOR ANCHORAGE OF EROSION CONTROL BLANKET, SEE DETAIL A.



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NO.	DATE	REVISION
1	5/08	REVISED FINAL COVER GRADING
2	10/03	PHASE 1C REVISIONS

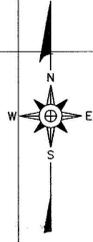


RED ROCK DISPOSAL, LLC
CONSTRUCTION/DEMOLITION
LANDFILL PHASE 1
WAKE COUNTY, NC

PHASE 1 - EROSION & SEDIMENTATION CONTROL DETAILS (SHEET 2 OF 5)

DESIGNED BY: T.B.M.	DRAWN BY: C.T.J.
CHECKED BY: SM	PROJECT NO.: RED ROCK-2
SCALE: AS SHOWN	DATE: OCT. 2003
FILE NAME: REDROCK-00011D	SHEET NO.: 11
DRAWING NO.: EC2	

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100 FOOT BUFFER

PROPERTY LINE

50-FOOT UNDISTURBED BUFFER

SEDIMENT BASIN NO. 7

SEDIMENT BASIN NO. 6

SEDIMENT BASIN NO. 8

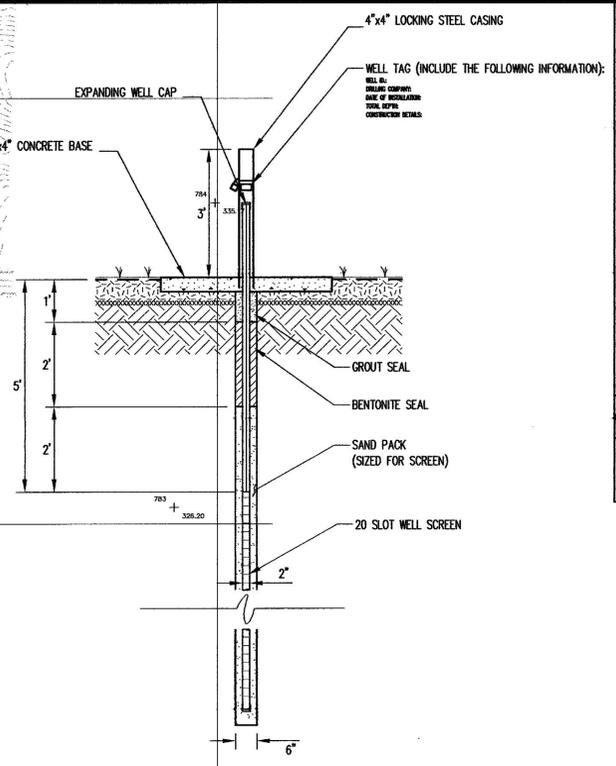
SEDIMENT BASIN NO. 1

SEDIMENT BASIN NO. 5

SEDIMENT BASIN NO. 2

SEDIMENT BASIN NO. 3

SEDIMENT BASIN NO. 4



NOTE:
1. DEPTH OF PROBE IS TO BE 5' BELOW LANDFILL OR TO GROUNDWATER OR TO BEDROCK, WHICHEVER IS FIRST.

GAS PROBE
DETAIL 1
NOT TO SCALE (LFG1)

LEGEND

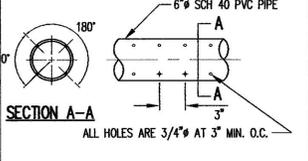
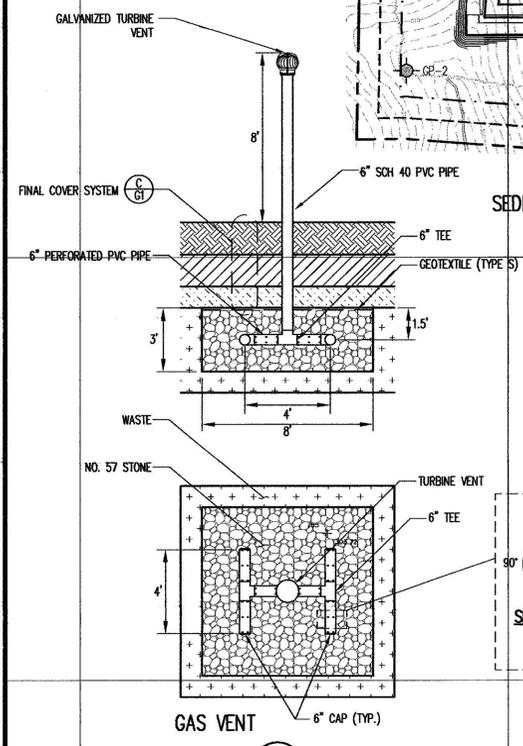
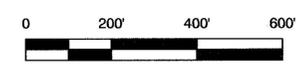
- 500 --- EXISTING 10' CONTOUR
- 400 --- EXISTING 2' CONTOUR
- 280 --- PROPOSED SUBGRADE CONTOUR
- --- CONSTRUCTION LIMITS
- --- PHASE/CELL LIMITS
- --- PROPERTY LINE (SEE REFERENCE 2)
- --- 50' UNDISTURBED BUFFER (SEE NOTE 1)
- --- 100' BUFFER (SEE NOTE 1)
- --- DELINEATED WETLAND AREAS (SEE REFERENCE 3)
- ⊕ MW-6T MONITORING WELL (SEE NOTE 7)
- ⊕ PZ-2 PIEZOMETER
- ⊗ PZ-2 ABANDONED WELLS
- ⊕ GP-4 GAS PROBE
- ⊕ GV-7 METHANE GAS VENT

NOTES

1. THIS BUFFER REPRESENTS A TYPE A BUFFER YARD AND A TRANSITIONAL BUFFER IN ACCORDANCE WITH WAKE COUNTY ZONING REQUIREMENTS. THIS 100-FOOT BUFFER ALSO INCLUDES, BUT DOES NOT SHOW, A 50-FOOT UNDISTURBED BUFFER ALSO PER WAKE COUNTY ZONING REQUIREMENTS.
2. ELEVATIONS REFERENCE U.S.G.S. VERTICAL DATUM (MSL).
3. GRID COORDINATES REFERENCE NC STATE PLANE SYSTEM (NAD 1983).
4. CP&L APPROVAL WILL BE RECEIVED PRIOR TO PLACEMENT OF ANY SOIL OR WASTE MATERIAL WITHIN THE 100' UTILITY EASEMENT.
5. MONITORING WELL MW-9 TO BE ABANDONED.

REFERENCES

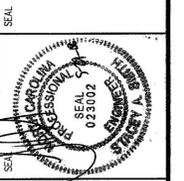
1. OVERALL SITE TOPOGRAPHY PREPARED BY GEODATA DATA CORPORATION, BASED ON AERIAL PHOTOGRAPHY DATED FEBRUARY 15, 2007.
2. THE PROPERTY LINE SHOWN REFERENCES DRAWING ENTITLED "BOUNDARY SURVEY FOR WASTE INDUSTRIES, INC.", PREPARED BY SURVEY SOLUTIONS, P.C. DATED 12/27/00.
3. DELINEATION PERFORMED BY SOIL & ENVIRONMENTAL CONSULTANTS; SURVEYED BY SURVEYING SOLUTIONS, P.C. DATED APRIL 2001.



GAS VENT
DETAIL 2
NOT TO SCALE (LFG1)

NO.	DATE	REVISION
4	5/08	NEW SHEET

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PROJECT TITLE:
**RED ROCK DISPOSAL, LLC
CONSTRUCTION/DEMOLITION
LANDFILL PHASE 1
WAKE COUNTY, NC**

DRAWING TITLE:
**LANDFILL GAS
MANAGEMENT PLAN**

DESIGNED BY: B.D.J.	DRAWN BY: J.A.L.
CHECKED BY: SJA	PROJECT NO.: RED ROCK-2
SCALE: AS SHOWN	DATE: MAY 2008
FILE NAME: REDROCK-DO083	SHEET NO.: 18
DRAWING NO.: LFG1	

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