Werner, Elizabeth

From: Werner, Elizabeth
Sent: Wednesday, April 27, 2011 4:15 PM
To: 'Nick Marotta'
Cc: Mussler, Ed; Wilson, Donna; Dennis Gehle; Patrone, John; Watkins, Jason
Subject: RE: Brownfield Rd Blasting Plan
Attachments: ExampleBlastingPlan.pdf

Dear Nick,

Thank you for resubmitting the blasting plan, but it is still incomplete. The map showing the blasting area, the liability insurance form and the explosives permit are a good start. The Section requests actual locations of the blasting points to be indicated on the map. The TBD listed under blast location is insufficient information. A small workplan needs to be written that includes, but not limited to, 1) a summary of the blasting area, 2) how much rock needs to be blasted, 3) what steps are being taken to ensure area structures will not be affected, 4) what steps are being taken to ensure the integrity of the existing landfill, 5) what steps are being taken to ensure the integrity of the surrounding monitoring wells 6) contingency plan, 7) indication that a post-blast report will be submitted and 8) certification from a licensed geologist.

Again, please reference the example blasting plans I sent you in my previous email as well as the one in the link below and in the attachment.

http://www.wastenotnc.org/sw/Scan_Docs/2566.pdf

In addition, reference Mr. David Garrett's blasting plan for Phase 1, Cell B at the WCA Brownfield C&D facility. I apologize I could not find this report in our files, but it should be in your files. It was submitted in April 2006.

I will be on vacation starting tomorrow, April 28th and returning to the office Tuesday, May 10th. If you have any questions or concerns during that time, please contact Donna Wilson.

Thank you for your time and cooperation.

Sincerely,
Elizabeth Werner

-----Original Message-----
From: Nick Marotta [mailto:nmarotta@wcamerica.com]
Sent: Wednesday, April 27, 2011 8:33 AM
To: Werner, Elizabeth
Cc: Dennis Gehle
Subject: FW: Brownfield Rd Blasting Plan
Importance: High

Elizabeth

I am forwarding the latest blasting plan from my contractor for the Raleigh Brownfield Road Landfill

Thank you for you consideration
Nick

NICK MAROTTA
WCA WASTE CORPORATION
Regional Engineer
954 415-7230

From: Phil Shumaker [bentleyps@comcast.net]
Sent: Tuesday, April 26, 2011 1:29 PM
To: Nick Marotta
Cc: Dennis Gehle
Subject: Re: Brownfield Rd Blasting Plan

Hello Nick

I have attached to this email a number of files that make up the revised Blast Plan. Please review and forward along to the state at your convenience. I assume you will provide the cover letter, but if you need me to do one, please let me know.

Regards,
Philip Shumaker, P.E.
Vice President
Bentley Development Co., Inc.
PH: 724-459-5775 Ext. 20
FX: 724-459-5550

David Garrett & Associates
Engineering and Geology

May 30, 2007

Mr. Bobby Lutfy, Hydrogeologist
NC DENR Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646

RE: Blasting Plan for Lake Norman CDLF Phase 2B
NC DENR Permit #55-04 (Lincoln County)

Dear Mr. Lutfy:

This letter presents a plan to blast an estimated 6,000 cubic yards of unanticipated rock exposed in a single area within the center of Phase 2A, now under construction. The original site studies and base grades were developed ca. 1998 by S&ME, Inc. (refer to attached site plan). Recent excavation activities have exposed a relatively small area of variably weathered grano-diorite (based on preliminary identification), which I observed during a site visit on May 18, 2007. This plan was prepared at the request of BFI/Allied Waste Industries to obtain authorization from NC DENR to remove the rock to within 12 inches above planned finished grades and cover the remainder with a minimum of 4 feet of compacted soil to provide vertical separation. This work is necessary to avoid problems with drainage and operations that would result from leaving this material in place.

The 15-foot high exposure of rock-like materials appears to be a "cap" or "pinnacle" of nested boulders of variable size, embedded in a matrix of soil and/or partially weathered rock. The deeper levels of the exposure contain abundant soil seams that would have resulted in a low recovery and/or low rock quality determination (RQD) value, had the rock been cored at this location, likely qualifying it as "partially weathered rock." However, some of the larger particles observed in the upper reaches of the exposure have proven difficult to excavate by conventional means. It is my opinion that the exposure does not represent true bedrock and that controlled blasting will not result in undue subgrade damage beneath existing or future phases, nor will the blasting jeopardize the ground water monitoring program.

5105 Harbour Towne Drive • Raleigh • North Carolina • 27604
919-418-4375 (Mobile) • 919-231-1818 (Office fax) • E-mail: david@davidgarrettpe.com

An exploratory drilling program will be conducted in the area of the rock exposure to provide the data necessary to finalize an estimate of the volume. This data will be furnished to NC DENR, along with surveys of the rock exposure before and after the blasting/excavation work, followed by a final survey that demonstrates the required 4 feet of vertical separation. The rock blasting will be conducted in accordance with the North Carolina Department of Environment and Natural Resources (NCDENR), Division of Waste Management (DWM), Solid Waste Section (SWS) guidelines for rock blasting at lined landfill units. The blasting shots will be loaded light, and delays will be used to control the blast energy, so as to avoid opening fractures in the subgrade. Records of the blasting activities will be provided in the subgrade certification report that will be certified by a North Carolina (NC) Licensed Professional Geologist and a NC Licensed Professional Engineer.

All blasting will be monitored with surface vibration monitors. Locations for monitoring will focus at the closest edge of the active landfill cell (Phase 2A), along with the nearest existing monitoring wells, which will be located and shown on the site map (these are anticipated to be in excess of 500 feet from the blast site). Every effort will be made to limit the peak particle velocity to 1 inch per second at the blast monitoring locations. Prior to the blasting, these objectives will be reviewed with the Contractor. We have had successful results with this Contractor on a recent similar project for BFI/Allied Waste (CMS Phase 2). The blasting activities will be observed by a NC licensed geologist and, immediately following the blast, an inspection will be conducted to verify the condition of the subgrade.

A rock blast observation summary report will be prepared for submittal to the SWS within 30 days of the completion of rock removal from the blasting area. The report will provide details of the blasting activities; a certification from the blasting contractor that the drill hole pattern, charge weights and delays were selected in such a manner as to minimize the amount of energy impacting the underlying rock; a certification from a NC Licensed Professional Engineer that rock blasting was kept to a minimum and that controlled blasting techniques were used to minimize the effects of blasting to the underlying bedrock; a discussion by a NC Licensed Professional Geologist on the effects (if any) of blasting on the groundwater flow regime at the site; and an evaluation by a NC Licensed Professional Geologist of the excavated area with respect to any evidence of structural features that could influence groundwater flow and recommendations of any modifications that may be needed to the groundwater monitoring system based on this evaluation.

If you have any questions or require further assistance regarding this matter, please do not hesitate to call.

Sincerely,

G. David Garrett, P.G., P.E.
Project Consultant

cc: Mike Gurley – BFI/Allied Waste

NOTES:

EXISTING LANDFILL CONTOURS TAKEN FROM TOPOGRAPHIC SURVEY PERFORMED BY ESP ASSOCIATES, P.A. DATED APRIL 4, 2004.

ALL OTHER EXISTING CONDITIONS TAKEN FROM "PROPOSED GRADING PLAN" – S&ME, INC. DATED 2/18/1998.

PROPOSED CONTOURS FOR LANDFILL BASE GRADES TAKEN FROM "PROPOSED GRADING PLAN" – S&ME, INC., DATED 2/18/1998.

CUT AMOUNT – 82,300 CYDS
FILL AMOUNT – 0 CYDS

AVAILABLE AIRSPACE – 451,500 CYDS
(CELL 2A)

CLIENT

BFI
P.O. BOX 219
PINEVILLE, NC 28134

SHEET TITLE

GRADING / CLOSURE PLAN
CELL 2B

PROJECT

LAKE NORMAN C&D LANDFILL
LINCOLN COUNTY, NORTH CAROLINA

NO.	DATE	REVISION	BY

PROJECT NO. SC05
SCALE 1"= 60'
DATE 12/08/2004
DRAWN BY MAG
CHECKED BY DWW
SHT 1 OF 1 SHT

ROCK BLASTING
AT LINED LANDFILL UNITS

The Solid Waste Section allows blasting for rock removal only after all other options have been explored, including the viability of adjusting base grades.

Generally, the base grades must be designed to maintain four foot of vertical separation from the top of rock as established by the Design Hydrogeologic Study. This study requires a boring density of about one boring per acre for the area of investigation, which includes the footprint for the planned landfill phase of development and the area around the footprint that will be subject to ground-water monitoring. For the purposes of the Design Study the top of rock is defined by auger refusal or a Standard Penetration Resistance blow count of about 50/.2'. The base grades are then designed to maintain four foot of vertical separation from the top of bedrock datum plane as established in the Design Hydrogeologic Study.

If during excavation of the disposal cell, rock pinnacles are found that are above the top of rock datum plane established in the Design Hydrogeologic Study, then the Solid Waste Section will consider authorizing some rock removal. If blasting is necessary the landfill owner/operator or their consultants should submit a blasting plan. This blasting plan should show the location and size of the rock pinnacles, the elevations of the rock, and an estimate of the volume of rock that needs to be removed. The blasting plan must be designed so as to minimize the impact to underlying rock and nearby structures.

If rock removal is determined to be necessary, the Solid Waste Section may authorize blasting with the following conditions:

- Effort shall be made to minimize the amount of blasting necessary, and to minimize the effects of the blasting that is required.

- Blast monitoring shall be conducted at appropriate locations. Monitoring may be required at the edge of the proposed cell, at the location of monitoring wells, at the edge of clay liner of nearby landfill cells, at the edge of nearby structures, etc. Every effort shall be made to limit the peak particle velocity to 1 inch per second at the blast monitoring locations.

- A full, detailed report of the rock blasting activities shall be submitted to the Solid Waste Section within 30 days of the completion of the rock removal. The Licensed Blaster shall certify that the drill hole pattern, charge weights, and delays were selected in such a manner as to minimize the amount of energy which may impact underlying rock.

- A Professional Engineer shall certify that rock blasting was kept to a minimum and that controlled blasting techniques were used to minimize the effects of blasting to the underlying bedrock.

- The report of blasting activities shall also include a discussion by a Licensed Professional Geologist on the effect of heavy ripping and/or blasting on the ground-water flow regime at the site. Additional subsurface investigation may be required to determine the effect of heavy ripping and/or blasting on the hydrogeology of the area.

- During and after excavation of the area and prior to backfilling with soil, the Licensed Professional Geologist shall evaluate the excavation for any evidence of structural features that could influence ground-water flow (fractures, dikes, pegmatites, etc.) The Solid Waste Section shall be informed of when the excavation will be completed, so a Section Hydrogeologist may schedule a site visit to inspect the area. The report of blasting activities shall include a report by the Licensed Professional Geologist on the evaluation of the excavated area and recommendations of any modifications that may be needed to the ground-water monitoring system based on this evaluation.

- If modifications to the water quality monitoring plan are necessary, based upon the evaluation of the excavation area or additional subsurface investigation, a revised monitoring plan shall be submitted by the Licensed Professional Geologist to the Solid Waste Section for review.

- The Professional Engineer shall include a discussion in the CQA Report of the location and nature of the rock blasting and the backfill of the over-excavation. This shall be included as part of the certification of the subgrade.