From:	David Garrett, P.G., P.E.
To:	Mike Gurley; Murray, John; Wootton, Brian;
cc:	Fred Brown; Glenn Albert;
Subject:	CMS Landfill V, Phase 3, Cell 2I
Date:	Tuesday, November 30, 2010 3:52:37 PM
Attachments:	subgrade inspection report Cell 2I.pdf

Please see the attached letter with the geologiost's certification of the subgrade conditions, with repect to vertical separation and soil conditions beneath the structural fill. There were no issues with stability, rock, or groubndwater. Grades shown are issued for construction. As-built drawings will be forthcoming in a separate CQA document, along with a report on the structural fill, prepared by others. Piezometer abandonment and monitoring well installation resports are forthcoming, as well. Please contact me with any questions. Thank you.
David Garrett 9190418-4375

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David Garrett & Associates
Engineering and Geology

November 30, 2010

Messrs. Brian Wootton and John Murray
NC DENR Division of Waste Management
Solid Waste Section
401 Oberlin Road
Raleigh, North Carolina, 27611

RE: **Geologist's Subgrade Inspection Report**
CMS Landfill-V (MSWLF) – Cell 2I
Permit #13-04 (Cabarrus County)

Dear Sirs:

On behalf of BFI Waste Systems of North America (a division of Republic Services), I am pleased to present this report pertaining to a subgrade inspection for the referenced landfill construction. Cell 2I is located in Phase 3 (the first cell in that phase), within a previously approved footprint. This report is based on first-hand inspection of subgrade conditions, prior involvement with previous cells, and revised subgrade contours prepared by others. I visited the site in September 2010 in conjunction with piezometer abandonment activities and observed the grading in progress. Based on the grading plan, the base grades occur mostly in fill sections that vary to approximately 10 feet; the sump at the west side of Cell 2I has fills of 3 to 4 feet and the sump at the east side were constructed near original grades (see attached figure).

The subgrade inspection was made per North Carolina Solid Waste regulations, 15A NCAC 13B .1600 and/or subsequent regulatory protocols. The inspection requires that the owner's geologist or engineer examine the cell excavation and note any pertinent geologic features exposed during the construction process. The Owner shall notify the NC DENR Solid Waste Section Hydrogeologist of these findings prior to placement of any waste material. In recent experience, a certification has been required stating that the subgrade soils and other conditions are consistent with the approved plans, or noting any differences. This letter completes the required notification and certification.

Observed subgrade soils generally consist of tan-orange variably sandy and silty clay, as expected based on site history. The west side of the cell has two diabase dikes mapped, but only dark red clayey soil and occasional small boulders were exposed. Other quartz gravel and small cobbles were exposed, but no bedrock or large boulders were encountered. Soil conditions in Cell 2I were consistent with that in Phase 2, except that no large boulders or zones of partially weathered rock (exposed in those cells) were observed this time.

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The Phase 3 permit documents showed bedrock and ground water to be several feet below finished grades – vertical separation within Cell 2I was not a concern during permitting. No ground water, seeps, or perched water were observed along the exposed subgrade. No wet or soft soils requiring undercutting were observed within Cell 2I. All piezometers within Cell 2I were abandoned (see separate correspondence).

As such, the exposed subgrade conditions appear consistent with the expectations determined in the original permitting and conditions observed in previous cells. Based on these findings, I recommend no modifications to the Ground Water Monitoring Plan or base grades. No further geologic evaluations of Cell 2I are warranted.

Please contact me if I can provide any additional data.

Sincerely,

G. David Garrett, P.G., P.E.
Consulting Engineer

cc: Mr. Mike Gurley – Environmental Manager, BFI
Fred Brown – Superintendent, Earnhardt Grading

Attachment: Excerpt of base grading plan

300-FOOT BUFFER

FORMER FURR TRACT BOUNDARY FENCE (FOR REFERENCE)

SEDIMENT POND NO. 1

PROPOSED SILT FENCE (667 LF) SEE DETAIL

PROPOSED ACCESS ROAD NO. 1 SEE DETAIL

TWO - 60 LF 36" DIA. HDPE PIPE, INV. IN 565.5 OUT 562' (NEED 2' MIN. OVER PIPE)

EXISTING SEDIMENT BASIN

WETLANDS

REMOVE ESITING FENCING WITHIN CONSTRUCTION AREA

FUTURE SEDIMENT POND

SURVEYED LIMIT OF 2H HDPE LINER

CELL NO. 2I UNDER CONSTRUCTION

TRACE OF SEYENITE UNIT FOUND IN CELLS 2F AND 2G (NO OUTCROP)

40 LF 66" DIA. CMP OR HDPE (NEED 2' MIN. OVER PIPE)

ORIGINAL TOPO PROVIDED BY EARNHARDT GRADING

PROPOSED GRADES PROVIDED BY SCS ENGINEERS

FUTURE CELL NO. 2J

CLEARED BUT NOT GRADED

FUTURE CELL NO. 2K

CLEARED BUT NOT GRADED

FUTURE CELL NO. 2M

CLEARED BUT NOT GRADED

EXISTING CELL NO. 2H PHASE I

G CELL NO. 2G

PREPARE EDGE OF CELL 2H FOR PROPOSED CELL 2I LINER SYSTEM TIE-IN SEE DETAIL

TYPICAL INTERIM BERM SEE DETAIL

TRACE OF DIABASE DIKES IDENTIFIED IN SITE STUDY (NO OUTCROP)

PROPOSED SEDIMENT BASIN NO. 3 SEE DETAIL

SEDIMENT POND NO. 2J

RISER PIPE

BARREL PIPE

PROPERTY LINE

N

0 200 400

WF