

Wilson, Donna

From: Hannu Kemppinen [hkemppin@joyceengineering.com]
Sent: Tuesday, November 22, 2011 3:50 PM
To: Wilson, Donna
Cc: Nick Marotta (nmarotta@wcamerica.com); Dennis Gehle (dgehle@wcamerica.com); Evan Andrews
Subject: WCA Cell 1 of Phase 2A RTC 1
Attachments: Figure B Modified Facility Plan.pdf; RTC 1 Permit No 92-31 CQA Report.pdf; WCA Brownfield Rd Cell 1 of Phase 2A CQA Report.pdf; WCA Certification Letter.pdf; Cover 11-22-11.pdf; Figure A Facility Layout.pdf

Dear Donna,

On behalf of WCA of North Carolina, Joyce Engineering has prepared the responses to your comments regarding the CQA report for Cell 1 of Phase 2A of the Brownfield Road Material Recovery C&D Landfill. Attached you will find the responses letter (RTC1) to your comments, engineer's certification letter, revised report cover and CQA report with Figures A and B. Appendices were included with the original CQA report submittal.

If you need further assistance regarding the CQA report please feel free to contact by phone or email.

Hannu Kemppinen, P.G.
Senior Project Consultant

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Prepared for:
WCA Waste Corporation, Inc. of North Carolina
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CONSTRUCTION QUALITY ASSURANCE CERTIFICATION REPORT

CELL 1 of PHASE 2A CONSTRUCTION
BROWNFIELD ROAD C&D LANDFILL
NCDENR PERMIT # 92-31

September 2011
Revised November 2011

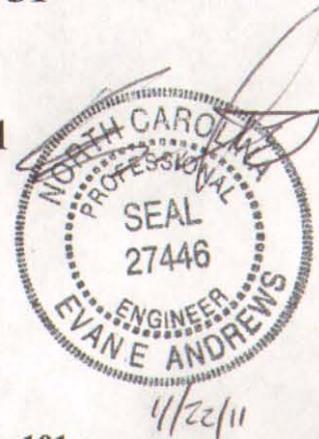
Prepared by:

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JEI PROJECT NO. 824.1102.21, TASK 01

NC Corporate License: C-0782



November 18, 2011

Donna J. Wilson, Environmental Engineer
Solid Waste Section/Division of Waste Management/NC DENR
1646 Mail Service Center
Raleigh NC 27699-1646

On behalf of WCA of North Carolina, Joyce Engineering has prepared the below responses to your comments regarding the CQA report for Cell 1 of Phase 2A of the Brownfield Road Material Recovery C&D Landfill. Your comments are below as they appeared in your letter dated October 19, 2011. Our responses are in **bold font**.

1. Cover letter, report cover, and report text – specify that this report is for Cell 1 of Phase 2A, not the entire Phase 2A area.

The requested corrections are made in the cover letter, report cover and report text.

2. Since only a portion of Phase 2A was constructed, provide a drawing showing the boundaries of Cell 1 and the other planned cells in Phase 2A, making up the total boundary of Phase 2A. Also provide the acreage of the cells and the approximate volume of each cell.

Figure A- Facility Layout; from the permit application and Figure B - Modified Facility Plan for Cell 1 Phase 2A; are included to address requested information. Joyce Engineering does not have permit drawings in our possession, thus the Figures A and B are included to clarify the Phase 1 and 2 boundaries, and the constructed Cell 1 of Phase 2A.

3. Text should address compliance with the soil requirements of Rule .0540 (2)(b).

The requested reference to the Rule has been made in the text.

4. Provide CQA test results in accordance with the CQA plan.

Section 3.0 Construction Quality Assurance Program, subsection 3.3 - Earthwork has been expanded to discuss compliance with the CQA Plan. Laboratory test results of the upper two feet of the subgrade soil testing are included in Appendix 3

5. Address compliance and provide documentation for the pre-operative conditions in the Permit to Construct.

Section 5 has been added to the report to address preoperative conditions in the Permit to Construct, Doc ID 12346, January 28, 2011, Attachment 2 – Conditions of Permit to Construct, items 6 a through h.

6. Certification should state that Cell 1 of Phase 2A was constructed in accordance with the construction requirements of Rule .0540, the construction quality assurance requirements of Rule .0541, the approved CQA plan (stamped approved 1-28-11), conditions of the Permit to Construct and acceptable engineering practices.

The certification letter has been revised to address the requested references.

We hope the above responses and revisions to the CQA report clarify adequately your comments. If you have further comments or questions concerning this letter, please call me at your convenience.

Sincerely,
JOYCE ENGINEERING, INC.



Hannu Kempainen, P.G.
Senior Project Consultant

Attachments

C: Dennis Gehle, General manager WCA
Nick Marotta, Regional Engineer WCA



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November 22, 2011

Ms. Donna Wilson, Environmental Engineer
North Carolina Department of Environmental and Natural Resources
Permitting Branch, Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699

RE: Construction Quality Assurance Certification Report
WCA Waste Corporation Brownfield Road Landfill, Cell 1 of Phase 2 A Expansion
NC DENR Permit #92-31
Wake County, North Carolina
JEI Project 824.1102.21, Task 01

Dear Donna:

This letter is to certify that to the best of my knowledge and belief, the Cell 1 of Phase 2A expansion of the WCA Waste Corporation Brownfield Road C&D Landfill has been constructed in conformance with the WCA Material Recovery, LLC, Permit #92-31, CDLF Cell 1 of Phase 2A Permit to Construct Application.

The enclosed Certification Report presents an accumulation of field, laboratory, and other quality assurance data for the Cell 1 of Phase 2A construction. It is our understanding that the enclosed construction quality assurance documentation was compiled in accordance with North Carolina Solid Waste Regulations, 15A NCAC 13B .0540 for C&D landfills construction requirements, .0541 for construction quality assurance requirements, the approved CQA Plan dated January 28, 2011, conditions of the Permit to Construct Application of Permit 92-31, and acceptable engineering practices.

On behalf of WCA Waste Corporation of North Carolina, we would like to thank you in advance for your assistance in reviewing this Construction Quality Assurance Certification Report.

Sincerely,
JOYCE ENGINEERING, INC.

Evan Andrews, P.E.
Regional Manager

Enclosure

Cc: Mr, Dennis Gehle, General Manager WCA
Nick Marotta, Regional Engineer WCA
Hannu Kemppinen, P.G. JEI

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Figure: A Facility Layout

Figure: B Modified Facility Plan for Cell 1 Phase 2A

Appendix I: Site Visit Reports and Photographic Record

Appendix II: Meeting Minutes

Appendix III: CQA Record Test Results

Appendix IV: Basegrade Inspection

Appendix V: Record Survey Drawing

1.0 INTRODUCTION

This report, prepared by Joyce Engineering, Inc. (JEI) on behalf of WCA Waste Corporation, Inc. of North Carolina (WCA), addresses the quality assurance procedures and activities performed during construction of Cell 1 of the Phase 2A expansion at the Brownfield Road, Wake County, North Carolina Material Recovery facility. The documents comprising this report were compiled for the C&D landfill construction with North Carolina Solid Waste Management Regulations, 15A NCAC 13B .0540 and .0541 and the Cell 1 of Phase 2A Permit Modifications # 92-31.

Bentley Development Company, Inc. of Bentleyville, Pennsylvania was selected as the General Contractor and performed earthwork in the summer 2011 for the proposed Cell 1 of Phase 2A excavation.

JEI provided third party construction quality assurance observations, basegrade soil materials laboratory testing and basegrade inspection. The soil testing was conducted at Geotechnics, Inc. laboratory in Raleigh, NC.

At the completion of the excavation and grading the constructed basegrade was surveyed to two-foot contour intervals.

2.0 PROJECT DESCRIPTION

WCA retained Bentley Development to construct the proposed 6.1 acre Cell 1 of the Phase 2A C&D landfill expansion. The earthwork included clearing and grubbing the work area, excavating and hauling the material to a stockpile. Approximately 140,000 cubic yards (CY) of material was cut in the cell which included nearly 30,000 CY of rock.

Joyce Engineering, Inc. conducted periodic site visits to observe construction progress and keep WCA informed of the work. The CQA site visit reports and photographic record are included in Appendix I; preconstruction meeting minutes are in Appendix II. At the end of the construction, a soil sample of the basegrade material was collected for laboratory analyses to classify and characterize the soil properties. The basegrade CQA record test results are included in Appendix III; and the Basegrade Inspection letter is in Appendix IV.

At the completion of the construction, Boundary Zone, Inc. of Apex North Carolina conducted a final basegrade survey. The survey record drawing is included in Appendix V.

3.0 CONSTRUCTION QUALITY ASSURANCE PROGRAM

3.1 Scope of Work

JEI's role as the CQA Engineer was to attend preconstruction meeting, provide periodic site visits to observe progress and document the construction activities. Basegrade soil sampling and laboratory testing of the soils for classification was conducted at the completion of the basegrade construction to meet the Rule .0540 (2)(b) construction requirements for C&D landfills.

3.2 Personnel

WCA retained Joyce Engineering, Inc. to provide construction quality assurance during the Cell 1 of Phase 2A expansion. A senior project consultant (Hannu Kempainen) attended the preconstruction meeting, and visited the site in two week intervals to observe and document the work progress. A construction field representative (David Wright) of Geotechnics, Inc. collected the basegrade soil sample for laboratory testing for classification.

3.3 Earthwork

Bentley Development began the construction in early May, 2011 by first clearing the nearly 5 acre Cell 1 Phase 2A expansion area and then grubbed the roots and stumps from the site. Bentley mobilized a Volvo 460 excavator, two Volvo 40 articulated dump trucks and a CAT D8 dozer for the work. Rocks and boulders were excavated and hauled to a separate stockpile from the excavated soil. Resistant rocky material was drilled and blasted and the fragmented material stockpiled with the rest of the boulders. Bentley spent approximately 12 weeks excavating and grading the majority of the Cell 1 of Phase 2A area until only resistant rock remained in the middle of Cell 1 of Phase 2A. WCA evaluated the cost of drilling and blasting the remaining rocky material and decided to leave this portion of rocky material in place. Soil from the stockpile was returned back to the excavated cell to cover the remaining rock. The soil was placed, compacted, and graded to form a modified floor and provide the required separation from bedrock.

The Cell 1 of Phase 2A construction plan was for excavation with no fill anticipated. The areas where rock was encountered and removed were backfilled with the excavated site soil. The soil was placed in lifts and compacted. Proofrolling of the constructed cell floor was conducted to demonstrate the adequacy of compaction. A representative sample of the landfill foundation soil was collected from the upper two feet below the basegrades in late July for laboratory index testing as required by Rule .0540 (2)(b) construction requirements for C&D landfills. The laboratory soil testing included: sieving analysis for grain size distribution and classification of the material; Atterberg Limits to analyze plasticity of the soil; specific gravity and standard Proctor to determine compaction characteristics of the soil. The sieving analysis of the bulk sample determined soil classification of silty sand (SM). Silty Sand (SM) meets the classification requirement of the Rule .0540 (2)(b) and the CQA plan. The CQA record test results are included in Appendix III.

Control testing of the site soils was not conducted prior to its use in construction since the planned work consisted only of excavation. Record testing was conducted by collecting the subgrade soil and determining its properties. The results of the record testing are included in Appendix III. Proofrolling of the subgrade was conducted after the actual placement of the material to demonstrate that its in-place properties meet or exceed the requirements of the project specifications. The proofrolling was utilized as an alternative compaction testing method to satisfy the performance criteria for the placement of the limited amount of material.

Since only Cell 1 of the Phase 2A was constructed at this time, Figure A - Facility Layout Drawing from the CDLF Phase 2A PTC Application is included with this report to illustrate boundaries of Cell 1 within Phase 2A. Figure B, a modified Facility Plan shows the Cell 1 limits and constructed grades. Facility Permit No. 92-31 dated 1-28-2011 lists the acreage and capacities of each phase for the landfill from basegrades through the top of the final cover. Subcell capacities from Phase 2A were calculated based on an acre/ volume ratio as depicted below:

The Northern Disposal Area:

<u>Phase</u>	<u>Acres</u>	<u>Gross Capacity</u>	<u>Status</u>
1	20	1,636,000	Partially filled
2A Cell 1	6.1	366,000	Approved for construction
2A Cell 2	10.6	636,000	Approved for construction
2A Cell 3	(Note 1)	398,000	Approved for construction
2B	8.2	1,400,000	Future
2C	(Note 2)	1,400,000	Future

Note: 1- Phase 2A, Cell 3 will be a vertical expansion over Cells 1 and 2
 2- Phase 2C will be vertical expansion over Phases 1, 2A and 2B

4.0 DEVIATIONS FROM THE CONTRACT DOCUMENTS

4.1 General

The purpose of this section is to identify any deviation from the contract documents, which occurred during construction.

4.2 Adjustments to Basegrade Elevations

Bentley Development excavated and removed loose rocks and boulders during the landfill cell expansion construction. Resistant bedrock was drilled and blasted, and the fragmented rock hauled to a stockpile. By late July all of the Cell 1 of Phase 2A area was cut and graded with the exception of some bedrock remaining in the middle of the cell. The rock was resistant to ripping and required drilling and blasting. WCA evaluated the cost benefits of removing the remaining rock against loss of landfill airspace, and a decision was made to leave

to rock in place. Bentley hauled soil from the stockpile of excavated material back to the Cell 1 of Phase 2A and covered the rock with soil. Soil was placed over the rock to provide the required four foot separation between rock and basegrade. Bentley Development further explored the mid-cell area for limits of the bedrock with the use of their drill rig. The exploration was conducted to verify depth to rock so that the final basegrade elevations would provide the required separation to bedrock. For the majority of the constructed Cell 1 of Phase 2A the grades follow the original design elevations with the exception of the rock remaining above design basegrade elevations in the center of the cell. Grades that vary slightly on the east and west side slopes deviate from the design from a fraction of a foot but comply with the rules requiring a separation to bedrock and groundwater.

The final survey record drawing included in Appendix V shows the modification to the basegrade.

5.0 Compliance and Pre-Operative Conditions

The current Permit to Operate 92-31 will expire in January 28, 2016. The permit approves the continued operation of Phase 1, Cells A, B, and C of the landfill. Operation of future phases or cells requires written approval of the Section after documentation has been submitted that the area has been constructed in accordance with applicable statutes and rules. Permit to Construct Phase 2A, Attachment 2 - Conditions of Permit to Construct, items 6a through 6h list required documentation for the pre-operative conditions. This CQA report with engineer's certification letter addresses the Item 6(a). The remaining items b through h are outside of the CQA reporting requirements and will be provided by the WCA Corporation and coordinated with the Solid Waste Section.

END



FIGURE A - Facility Layout
(Waste Boundaries are Approximate)

Wake County GIS aerial photography, 2005

0  866 ft

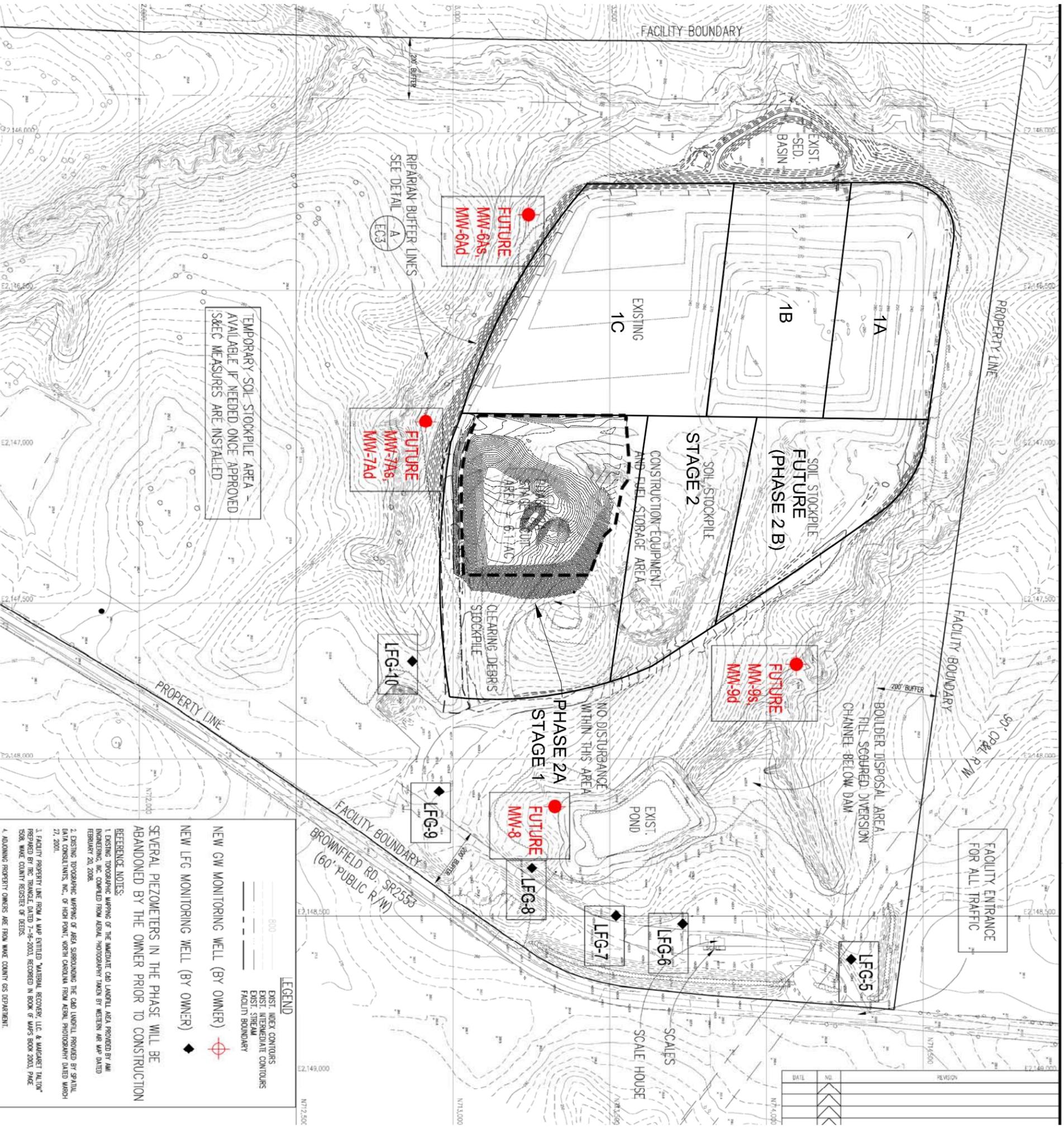


FIGURE B: MODIFIED FACILITY PLAN FOR CELL 1 AND PHASE 2A

TEMPORARY SOIL STOCKPILE AREA - AVAILABLE IF NEEDED ONCE APPROVED S&EC MEASURES ARE INSTALLED

FACILITY ENTRANCE FOR ALL TRAFFIC

LEGEND

- 800' — EXIST. INDEX CONTOURS
- — — EXIST. INTERMEDIATE CONTOURS
- — — EXIST. STREAM
- — — FACILITY BOUNDARY

- ⊕ NEW GW MONITORING WELL (BY OWNER)
- ◆ NEW LFG MONITORING WELL (BY OWNER)

SEVERAL PIEZOMETERS IN THE PHASE WILL BE ABANDONED BY THE OWNER PRIOR TO CONSTRUCTION

REFERENCE NOTES:

1. EXISTING TOPOGRAPHIC MAPPING OF THE IMMEDIATE CAD LANDFILL AREA PROVIDED BY A/E ENGINEERING, INC. COMPILED FROM AERIAL PHOTOGRAPHY TAKEN BY WESTERN AIR MAP DATED FEBRUARY 20, 2008.
2. EXISTING TOPOGRAPHIC MAPPING OF AREA SURROUNDING THE CAD LANDFILL PROVIDED BY SPATIAL DATA CONSULTANTS, INC. OF HIGH POINT, NORTH CAROLINA FROM AERIAL PHOTOGRAPHY DATED MARCH 27, 2001.
3. FACILITY PROPERTY LINE FROM A MAP ENTITLED "MATERIAL RECOVERY, LLC & MANAGER TAYLOR" PREPARED BY THE ENGINEER DATED 7-16-2003, RECORDED IN BOOK OF MAPS BOOK 2003, PAGE 588, WAKE COUNTY REGISTER OF DEEDS.
4. ADJACENT PROPERTY OWNERS ARE FROM WAKE COUNTY OS DEPARTMENT.

NO.	DATE	REVISION
1		
2		
3		
4		