



October 18, 2010

Ms. Donna J. Wilson  
*Environmental Engineer*  
**Solid Waste Section – NCDENR**  
401 Oberlin Road  
Raleigh, North Carolina 27605

**Re: Construction Documentation and Certification  
Thornton Road Mixed Waste Transfer Station (NC Solid Waste Permit No. 92-27T)  
Raleigh, North Carolina**

Dear Ms. Wilson:

On behalf of Shotwell Transfer Station, Inc.(Shotwell), Richardson Smith Gardner & Associates, Inc. (RSG) has prepared this letter report to document the construction of the above-referenced facility located at 5565 Thornton Road in Raleigh, North Carolina. As you are aware, the permit (**copy attached**) was issued on September 4, 2008 and a subsequent request for extension was granted on February 26, 2010. In accordance with Permit Attachment 2, Part 1 Condition No. 5 the following shall be completed prior to operations of the facility:

- *A site inspection shall be made by a representative of the Section.*
- *Construction must be completed in accordance with the approved plan. A certification letter stating that the facility and related infrastructure was constructed in accordance with the approved plan shall be submitted to the Section by the Project Engineer who shall be a North Carolina registered professional engineer.*
- *Three (3) copies of the construction record (as-built) drawings, and one electronic copy, must be submitted to the Section for filing and records.*

### **Site Inspection**

A site inspection was performed on Friday, October 15, 2010 with the following in attendance:

- Mr. David King, Jr., Shotwell Transfer Station, Inc.
- Mr. John Brown, Shotwell Transfer Station, Inc.
- Ms. Pat Backus, NCDENR – Division of Waste Management
- Ms. Donna Wilson, NCDENR – Division of Waste Management
- Mr. Stacey Smith, P.E., Richardson Smith Gardner & Associates, Inc.

This site inspection included a tour of the facility, review of the operative conditions of the permit, and a summary of remaining items required for approval issuance for operations. At this meeting, Ms. Wilson requested pictures of a few aspects of the site which were not completed at

the time of the inspection. These pictures are provided as **Attachment A** of this letter report in addition to other photographic documentation obtained throughout the construction of the project.

### **Construction Documentation**

As the Division is aware, the construction of the Thornton Road transfer station was entirely performed over a closed LCID landfill. Once the Permit to Construct was obtained, local site and building permits were required by the City of Raleigh. As such, certain requirements by the City conflicted with the original plan approved by the Division. For example, the City's tree conservation ordinance did not allow a second driveway to be added. Therefore, the existing driveway was widened and revised to allow better flow through of waste vehicles. This and other modifications to the project are outlined below. Furthermore, the original plan included certain components<sup>1</sup> to further provide protect site personnel and to satisfy solid waste regulations as follows:

- *All structures shall be equipped with gas monitoring equipment to detect, at a minimum, the presence of H<sub>2</sub>S and CH<sub>4</sub>;*
- *All sediment basins shall be lined with a low permeability liner to minimize infiltration;*
- *All grading activities shall be conducted to replace a minimum of one (1) foot of soil cover and shall not allow standing water inside the limits of the closed landfill;*
- *Areas where LCID materials are encountered will be simply excavated and hauled to the Shotwell Landfill, Inc. C&D facility (NC Solid Waste Permit No. 92-26) for either grinding or disposal. All waste manifests shall be obtained and recorded;*
- *All tires encountered will be disposed at the North Wake Landfill (NC Solid Waste Permit No. 92-09); and*
- *All structures shall be designed by a licensed Professional Engineer.*

### **Gas Monitoring**

Shotwell has purchased an Industrial Scientific MX-4 gas meter for monitoring. RSG verified with the re-seller that H<sub>2</sub>S and CH<sub>4</sub> as well as O<sub>2</sub> and CO were included in the features of the unit. In lieu of permanent building monitors, Shotwell has agreed that frequent monitoring of the transfer station and the scalehouse will be performed at a minimum of weekly through the first quarter of operations and then quarterly from that period forward as long as operations are performed at the site. A copy of the meter literature is provided as **Attachment B**.

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<sup>1</sup> Permit to Construct Application entitled Thornton Road Mixed Waste Transfer Station dated November 2007 prepared by Richardson Smith Gardner & Associates, Inc. under Executive Summary "Existing Closed Neuse Demolition Landfill."

### *Sediment Basins*

Design Modification No. 1<sup>2</sup> addresses the alternate liner material from the originally proposed geomembrane liner to a geosynthetic clay liner (GCL). RSG reviewed manufacturer's documentation for the GCL material provided as **Attachment C** and verified that the material was installed in each basin. Please note that the review was limited to review of manufacturer's data and no specific testing was performed, nor, in the opinion of the RSG, was warranted as the low permeability requirement was satisfactorily achieved. Photographic documentation for this installation is also included in **Attachment A**.

### *Soil Cover*

Since the facility remains a closed LCID landfill, all disturbed areas as a result of construction were re-verified for 12 inches of soil cover. RSG verified cover thickness on a 100 foot random grid across the site as shown in **Figure 1** (attached). All locations inspected were satisfactory and met the minimum cover requirements. Additionally, all site grading promotes drainage to one of the two sediment basins on-site for discharge away from the site.

### *Waste Manifests*

In the area of the transfer station building, significant undercut into waste was required. It is RSG's understanding that all of these waste materials were either redistributed on site and covered with 12 inches of cover soil or transported to the Shotwell C&D landfill for grinding and screening. As the majority of the material was degraded and consisted of substantial soil quantities, an exact estimate of waste material was difficult to estimate. Shotwell estimates that approximately 27,000 CY of material was hauled from the site. Woodell Trucking performed the hauling of these materials and the load tickets as well as Shotwell's estimates are provided as **Attachment D**.

### *Tires*

Any tires encountered during construction were disposed at the North Wake Convenience Center facility. It is RSG's understanding that minimal tires were encountered during construction.

### *Structural Design Team*

The following companies performed design of the transfer station facility:

Geotechnical: Terratech Engineers  
Mr. Erwin Williams, P.E.  
4905 Professional Court

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<sup>2</sup> Design Modification No. 1 issued September 10, 2010 by Mr. Stacey A. Smith, P.E. addressing the alternative GCL installation in lieu of geomembrane.

Raleigh, North Carolina 27609  
(919) 876-9799

Structural: Ross-Linden Engineers  
Mr. Brian Ross, P.E.  
710 W. North Street  
Raleigh, North Carolina 27603  
(919) 832-5680

Building: Varco-Pruden Buildings  
Mr. Clifton Query, P.E.  
1140 West Mountain Street  
Kernersville, North Carolina 27284  
(336) 992-8465

Retaining Wall: Armor Engineering & Design, Inc.  
Mr. Carl Huntsberger, P.E.  
6135 Park South Drive, Suite 510  
Charlotte, North Carolina 28210  
(704) 578-9108

RSG has verified that the facility included design by a professional engineer. Furthermore, Mr. Erwin Williams, P.E. of Terratech performed construction quality assurance and field testing of the site during construction. Mr. Williams has provided a summary certification of the acceptance of the construction. His statement is provided as **Attachment E**. Furthermore, the City of Raleigh provided routine building inspections for the structure discussed below.

### City of Raleigh

The Thornton Road Transfer Station is located in the City of Raleigh's jurisdiction. Therefore, all site grading, building, and utility permits were approved through their department. It is RSG's understanding that the City of Raleigh has verbally issued initial acceptance of the building with the following outstanding conditions:

- Installation of a back flow prevention device on the fire hydrant line;
- Verification by the Project Engineer of impervious area and nitrogen offset payments;
- Verification by the Project Engineer of the acceptance of mulch as a ditch lining material;
- Submission of as-built drawings of the site and the installation of the water main required along Thornton Road;

It is RSG's opinion that these outstanding items are not materially significant to the Division's approval for operation and will be completed to the satisfaction of the City of Raleigh prior to issuance of the permanent Certificate of Occupancy (CO). Therefore, RSG bases this construction opinion on the acceptance of plan approvals, communication, and inspections by City staff with Shotwell in the form of the CO. RSG was neither present nor verified the

City staff with Shotwell in the form of the CO. RSG was neither present nor verified the installation of such features as the water and sewer lines or any other utilities or building related components.

### **As-Built Survey**

Krause Surveying performed as-built surveying for the project. A copy of the as-built drawing is provided as **Attachment F**. An electronic copy of this complete report, including the survey drawing, is also included with this report.

### **Modifications**

As noted above, various site challenges were presented during construction that required adjustments to the facility. Most notably, the loss of the second driveway entrance. Based on the as-built survey, the transfer station building and the scales and scalehouse facilities were shifted to provide better access through the single driveway entrance. The adjustment of the building and scalehouse did not violate any buffering requirements for the facility. Therefore, the adjustment was considered as an acceptable modification.

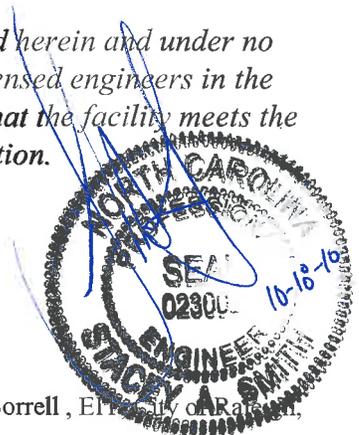
Furthermore, the original design included the utilization of HDPE piping materials for all leachate discharge piping. The City of Raleigh denied all requests<sup>3</sup> to accept HDPE piping materials and required the site to install PVC. Therefore, RSG has recommended that the discharge piping be periodically inspected by visual device technology ("sewer camera") to confirm long term integrity of this system.

### **Engineer's Certification**

Based on the observations and results of the information documented herein, it is our professional opinion that the construction of the Thornton Road Mixed Waste Transfer Station was completed in accordance with the following:

- i. The Permit Application;
- ii. The conditions of the Permit to Construct;

*This certification is limited to the specific knowledge by RSG presented herein and under no circumstance does it supercede the design responsibilities by other licensed engineers in the construction of the project and identified above. It is RSG's opinion that the facility meets the intent and operational functionality as presented in the permit application.*



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3 Correspondence dated May 22, 2009 from Mr. Stacey A. Smith, P.E. to Mr. John Sorrell, EIR, City of Raleigh, requesting approval of alternative material.

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Should you have any questions or require clarification, please contact me at (919) 828-0577 ext. 127 or by email at [stacey@rsgengineers.com](mailto:stacey@rsgengineers.com).

Sincerely,  
**Richardson Smith Gardner & Associates, Inc.**



Stacey A. Smith, P.E.  
Project Manager

SAS/sas  
Att.

cc: Mr. David King, Jr., Shotwell Transfer Station, Inc.  
Mr. John Brown, Shotwell Transfer Station, Inc.  
Mr. Jason Watkins, NCDENR  
File

BK013251PG00917

WAKE COUNTY, NC 291  
LAURA M RIDDICK  
REGISTER OF DEEDS  
PRESENTED & RECORDED ON  
09/23/2008 AT 15:21:48

BOOK:013251 PAGE:00917 - 00934

PERMIT

Hold 161

**NOTE: THE SPACE ABOVE IS FOR THE REGISTER OF DEEDS USE**  
THIS PAGE IS PROVIDED FOR RECORDATION PURPOSES. THE ENTIRE  
DOCUMENT, INCLUDING THIS PAGE, SHOULD BE RECORDED IN THE GRANTOR  
INDEX UNDER THE NAME OF THE LANDOWNER FOR THE PARCEL OF  
PROPERTY LOCATED IN WAKE COUNTY AND SAID PROPERTY BEING OWNED  
BY DYNASTY HOLDINGS, LLC AND FURTHER IDENTIFIED BY THE DEEDS  
RECORDED AS LISTED BELOW:

Wake County, N.C. Register of Deeds			
Book	Page	Grantee	Grantor
Book of Maps 2007	2838	Recombination Plat New Lot 3 Area	
13204	806-808	Dynasty Holdings, LLC	Dynasty Holdings, LLC
			Total Site Acreage: 9.849

THE PURPOSE OF THIS RECORDATION IS TO NOTIFY FUTURE BUYERS OF SAID  
PROPERTY THAT A SOLID WASTE MANAGEMENT ACTIVITY HAS OPERATED ON  
THE PROPERTY.



BK013251PG00919

I do hereby certify that the attached PERMIT TO CONSTRUCT AND OPERATE is an exact and true original of PERMIT NUMBER 92-27T for the Thornton Road Mixed Waste Transfer Station and Recycling Center.

Edward F. Mussler, III, P.E.  
Permitting Branch Supervisor  
Solid Waste Section  
Division of Waste Management

North Carolina

Wake County

I, Betty Jo Stanfield, Notary Public for Wake County,

North Carolina, do hereby certify that Edward F. Mussler, III, Supervisor of the Permitting Branch, Solid Waste Section, Division of Waste Management, NCDENR, personally appeared before me this day and acknowledge the due execution of the foregoing instrument.

Witness my hand and official seal,

This the 5 day of September, 2008.

OFFICIAL SEAL

Betty Jo Stanfield  
NOTARY PUBLIC



My commission expires December 29, 2009.

Note to Register of Deeds: This certified original permit shall be recorded by the Register of Deeds and indexed in the grantor index under the name of the land owner. The certified original affixed with the Register's seal and the date, book, and page number of recording shall be returned to the Permitting Branch Supervisor, Division of Waste Management, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

## ATTACHMENT 1

### PART I: PERMITTING HISTORY

1. Neuse Landfill operated on this property as a permitted Land-Clearing and Inert Debris landfill (LCID) from 1988 to 1999 with Lemuel H. Thornton, landowner, and Neuse Landfill, Inc., operator. A notification that the landfill closure was in compliance with all closure requirements was issued on February 8, 1999, by Wake County Solid Waste Management.
2. Permits to Construct (PTC) and to Operate (PTO) a Construction and Demolition Debris (C&D) transfer station on this property were issued to Lemuel H. Thornton, landowner, and PCM Construction, operator, as Permit No. 92-27T in 2001. The facility, PCM North Raleigh C&D Transfer Facility, was approved to receive new construction debris only.
3. A permit modification was approved in 2003 to add a sorting area for the management of clean lumber, metal, and cardboard and to designate areas for inert debris.
4. The property was sold from Lemuel H. Thornton to Dynasty Holdings, LLC and recorded on November 2, 2006, in Book 12249, Pages 225-227 in the Wake County Register of Deeds. PCM Construction continued as operator until December 31, 2007.
5. An application to construct and operate a new transfer facility was submitted on December 14, 2007, by Shotwell Transfer Station, Inc. The application requested approval of a new transfer facility building, including both a construction and demolition debris transfer facility, with sorting of recyclables, and a municipal solid waste transfer facility.
6. Subsequent to the purchase of the facility, Shotwell Transfer Station, Inc. has submitted information and documentation to the Solid Waste Section to apply for the permit to operate the facility to be re-issued to Dynasty Holdings, LLC and Shotwell Transfer Station, Inc. Both Dynasty Holdings, LLC and Shotwell Transfer Station, Inc. are owned by David King. During this period, Shotwell Transfer Station, Inc. has continued to operate the construction and demolition debris transfer station as previously permitted to PCM Construction.

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 Parts 1 & 2 - Permit to Construct and Operate  
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Permit Type	Date Issued
Original Permit to Construct (PTC)	February 12, 2001
Original Permit to Operate (PTO)	March 5, 2001
PTC Modification – Sorting area added	May 19, 2003
PTO Amendment – 5-yr renewal	September 16, 2005
PTC and PTO New Transfer Facility – Increase in property size; new transfer station construction; changes in facility name, owner, operator, approved waste, service area, disposal facilities, and operations plan	September 4, 2008

#### PART II: LIST OF DOCUMENTS FOR THE APPROVED PLAN

1. *Permit to Construct Application and Operations Plan, PCM North Raleigh Transfer, Raleigh, North Carolina.* Prepared by: Bass, Nixon and Kennedy, Inc., Raleigh, NC. Prepared for PCM Construction. Dated January 11, 2001.
2. Site plan for the PCM North Raleigh transfer station. Prepared by Bass, Nixon and Kennedy, Inc., Raleigh, NC. December 11, 2000. Revised February 13, 2001.
3. Site plan for PCM North Raleigh transfer station. Prepared by Bass, Nixon and Kennedy, Inc., Raleigh, NC. Dated December 11, 2000. Revised February 1, 2001 and March 26, 2003. Revision addressed the addition of a sorting area for the management of clean lumber, metal, cardboard and designated areas for inert debris.
4. *Permit Application for Thornton Road Mixed Waste Transfer and Recycling Center, Raleigh, North Carolina.* Prepared by: Richardson Smith Gardner and Associates, Raleigh, NC. Prepared for: Shotwell Transfer Station, Inc., Raleigh, NC. December 14, 2007. Revised June 3, 2008, July 18, 2008, and July 23, 2008.

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**PART III: PROPERTIES APPROVED FOR THE SOLID WASTE FACILITY**

<b>Wake County, N.C. Register of Deeds</b>					
Book	Page	Grantee	Grantor	Tract	Parcel No.
Book of Maps 2007	2838	Recombination Plat New Lot 3 Area			173 842 9684
13204	806-808	Dynasty Holdings, LLC	Dynasty Holdings, LLC	3	173 842 9684
					Total Site Acreage: 9.849

**PART IV: GENERAL CONDITIONS**

1. This permit shall expire September 5, 2014. Pursuant to 15A NCAC 13B .0201(e), no later than May 5, 2014, the owner or operator must submit a request to the North Carolina Department of Environment and Natural Resources, Division of Waste Management, Solid Waste Section ("Section") for permit review and must update pertinent facility plans including, but not limited to, the facility operation and waste screening plans.
2. The persons to whom this permit is issued ("permittee") are the owners and operators of the solid waste management facility.
3. This permit shall not be effective until the certified copy of this permit which references legal descriptions for all land within the solid waste management facility boundary is recorded in the Register of Deeds office and indexed in the grantor index under the name of the owner of the land in the county or counties in which the land is located. The certified copy of the permit affixed with the Register's seal and the date, book, and page number of recording must be returned to the Section within 30 calendar days of issuance of this permit. If the Section does not receive the certified copy of the recorded permit within 30 calendar days of issuance of the permit, then and in that event, the permit is suspended and of no effect until the date the Section receives the certified copy of the recorded permit.
4. (Intentionally blank)
5. By receiving waste at this facility the permittee shall be considered to have accepted the terms and conditions of this permit.
6. Operation of this solid waste management facility must be in accordance with the Solid Waste Management Rules, 15A NCAC 13B, Article 9 of the Chapter 130A of the North

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Carolina General Statutes (NCGS 130A-290, et seq.), the conditions contained in this permit; and the approved plan. Should the approved plan and the rules conflict, the Solid Waste Management Rules shall take precedence unless specifically addressed by permit condition.

7. This permit is issued based on the documents submitted in support of the application for permitting the facility including those identified in Attachment 1, "List of Documents for Approved Plan," and which constitute the approved plan for the facility. Where discrepancies exist, the most recent submittals and the Conditions of Permit shall govern.
8. This permit may be transferred only with the approval of the Section, through the issuance of a new or substantially amended permit in accordance with applicable statutes and rules. In accordance with NCGS 130A-295.2(g) the permittee shall notify the Section thirty (30) days prior to any significant change in the identity or business structure of either the owner or the operator, including but not limited to a proposed transfer of ownership of the facility or a change in the parent company of the owner or operator of the facility.
9. The permittee is responsible for obtaining all permits and approvals necessary for the development of this project including approval from appropriate agencies for a General or Individual NPDES Stormwater Discharge Permit. Issuance of this permit does not remove the permittee's responsibilities for compliance with any other local, state or federal rule, regulation or statute.

- End of Section -

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## ATTACHMENT 2 CONDITIONS OF PERMIT TO CONSTRUCT

### PART I: TRANSFER FACILITY CONSTRUCTION CONDITIONS

1. Construction of the transfer facility must be in accordance with the approved plans, Attachment 1, Part II, Document 4. Any revision or modification to these plans shall be submitted to the NC Solid Waste Section for review and approval prior to installation, construction or implementation of the change.
2. All sedimentation and erosion control activities must be conducted in accordance with the Sedimentation Control Act N.C.G.S. 113A-50, et seq., and rules promulgated under 15A NCAC 4.
3. The transfer facility construction conditions listed in this part of the permit, Attachment 2, Part I, are in effect for 18 months following the issuance date of this permit. If construction of the transfer facility and pre-operational approval is not completed within the 18 months, the permittee shall submit a request to reissue the Permit to Construct and Operate, and pay a Transfer Station Permit Modification Fee. The facility design and Operation Plan shall be subject to and shall comply with the rules in effect at that time.
4. Under 15A NCAC 13B .0201(b), solid waste permits are issued in two parts, (i) a Permit to Construct, and (ii) a Permit to Operate. This part of the permit, Attachment 2, Part I, authorizes the construction of the facility in accordance with the approved documents shown in Attachment 1, Part II, Document 4, and the NC Solid Waste Rules.
5. An approval to operate by the Section is required prior to commencement of operations at the referenced transfer facility. The following requirements shall be met prior to issuance of an approval to operate:
  - a. A site inspection shall be made by a representative of the Section.
  - b. Construction must be completed in accordance with the approved plan. A certification letter stating that the facility and related infrastructure was constructed in accordance with the approved plan shall be submitted to the Section by the Project Engineer who shall be a North Carolina registered professional engineer.

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- c. Three (3) copies of the construction record (As-built) drawings, and one electronic copy, must be submitted to the Section for filing and records.
6. A representative of the Section shall notify the Permitting Branch Supervisor in writing, either by letter or e-mail, that the conditions have been met. The owner and operator shall be copied on the correspondence. The notification shall suffice as permission to operate as of the date of the notification.
7. The permittee must comply with any driveway and road improvements, as required by the Department of Transportation, and in accordance with N.C.G.S. 13A 295.5.

*- End of Section-*

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### ATTACHMENT 3 CONDITIONS OF OPERATING PERMIT

#### PART I: OPERATING CONDITIONS

1. The facility is permitted to receive the following:
  - a. "Municipal solid waste" as defined in NCGS 130A -290(a)(18a).
  - b. "Construction or demolition debris" as defined in G.S. 130A-290 (a)(4) means solid waste resulting solely from construction, remodeling, repair or demolition operations on pavement, buildings, or other structures, but does not include inert debris, land-clearing debris or yard debris.
  - c. "Inert debris" as defined in G.S. 130A-290 (a)(14) means solid waste that consists solely of material such as concrete, brick, concrete block, uncontaminated soil, rock, and gravel.
  - d. "Land-clearing debris" as defined in G.S. 130A-290 (a)(15) means solid waste that is generated solely from land-clearing activities, such as stumps and tree trunks.
  - e. "Asphalt" in accordance with G.S. 130-294(m).
  
2. The following, at a minimum must not be accepted for disposal at the facility: hazardous waste, yard trash, liquid wastes, regulated medical waste, sharps not properly packaged, regulated-asbestos containing material as defined in 40 CFR 61, PCB waste as defined in 40 CFR 761, and wastes banned from disposal in North Carolina by G.S. 130A-309.10(f). The C&D transfer facility shall not accept those wastes prohibited from disposal in a C&D landfill, as listed in 15A NCAC 13B .0542(e). Barrels and drums shall not be accepted unless they are empty and perforated sufficiently to ensure that no liquid or hazardous waste is contained therein.
  
3. This facility is permitted to receive solid waste generated within Wake, Johnston, Durham, Granville, Franklin, Nash, Harnett, and Chatham counties. Municipal solid waste must be transported for disposal to the Upper Piedmont Regional Landfill located in Rougemont, Permit Number 73-04; the Sampson County Municipal Solid Waste (MSW) Landfill located in Roseboro, Permit Number 82-02; and the South Waste MSW Landfill, Permit Number 92-22 located in Holly Springs. Construction and demolition waste or debris (C&D) must be transported for disposal to Shotwell C&D Landfill located in Wendell, Permit Number 92-26; WCA Material Recovery C&D Landfill

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located in Raleigh, Permit Number 92-31; and Red Rock Disposal C&D Landfill located in Holly Springs, Permit Number 92-28. Waste must only be transported to facilities whose service area includes the generation source. Proposed changes to the service area and/or the disposal facility must be approved by the Section and are a modification to the permit and may be subject to a permitting fee.

4. The permittee must not knowingly dispose of, or accept for transfer for subsequent disposal, solid waste that is generated within the boundaries of a unit of local government that by ordinance:
  - a. Prohibits generators or collectors of solid waste from disposing of that type or form of solid waste.
  - b. Requires generators or collectors of solid waste to recycle that type or form of solid waste.
5. A responsible individual trained and certified in facility operations must be on-site at all times during all operating hours of the facility, in accordance with G.S. 130A-309.25. An attendant must be present to oversee the loading and unloading of waste.
6. The permittee must develop, and use, a training and screening program at the facility for detecting and preventing unauthorized wastes from being accepted at the facility. At a minimum, the program must include:
  - a. Random inspections of incoming loads or other comparable procedures.
  - b. Records of all inspections.
  - c. Training of personnel to recognize hazardous, liquid and other excluded waste types.
  - d. Development of a contingency plan to properly manage any identified hazardous, liquid, or other excluded or unauthorized wastes. The plan must address identification, removal, storage and final disposition of these wastes.
7. The facility must be adequately secured by means of gates, chains, berms, fences, or other security measures approved by the Solid Waste Section to prevent unauthorized entry.
8. Interior roadways must be of all-weather construction and maintained in good condition.

9. Signs must be posted at the entrance to the facility that state that no hazardous waste or liquid waste can be received at the facility; and provide information on dumping procedures, the hours of operation, the permit number, and other pertinent information. Traffic signs or markers must be provided as necessary to promote an orderly traffic pattern to and from the discharge area and to maintain efficient operating conditions. Signs must be placed on the tipping building and in the tipping area to differentiate the MSW and C&D tipping floor areas.
10. Open burning of solid waste is prohibited. Fires must be reported to the Regional Waste Management Specialist within 24 (twenty-four) hours of the occurrence with a written notification to be submitted within 15 (fifteen) calendar days of the occurrence. Fire lanes must be maintained and passable at all times. Dimensions of the fire lanes must be coordinated with the Fire Marshall having jurisdiction over the site.
11. The facility must not cause nuisance conditions.
  - a. The tipping floor and transfer trailer loading area must be maintained in a clean, sanitary condition at all times and must be cleaned at least daily in accordance with the approved Operation Plan.
  - b. Effective vector control measures must be applied at all times to control any potential vectors including flies, rodents, insects, and other vermin.
  - c. Control measures must be utilized to minimize and eliminate visible dust emissions and blowing litter.
    - i) Fugitive dust emissions are prohibited.
    - ii) Windblown materials must be collected by the end of the day and no windblown material may be allowed to leave the facility boundary.
12. MSW must only be deposited on the "tipping floor" designated for MSW or directly into a transfer container in accordance with the approved Operation Plan. Waste must not be stored on the "tipping floor" after operating hours.
13. C&D waste must only be deposited on the "tipping floor" designated for C&D waste, directly into a transfer container, or directly into a recycling container in accordance with the approved Operation Plan. C& D may not be stored on the tipping floor after operating hours.

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14. Waste may be stored on-site, in leak proof transfer trailers, with watertight covers, a maximum of 24 hours except that a minimal amount of waste may be stored for a maximum of 72 hours when the facility is closed during a weekend or holiday. Storage of the waste must not cause any nuisance, such as odor or attraction of vectors.
15. Only cardboard, clean wood debris, pallets, metals, clean brick and concrete blocks, and clean concrete are approved for recycling. Engineered or glued wood (such as particle board) and painted debris are not approved for recycling.
16. Demolition debris waste must not be sorted for recycling, unless an asbestos screening plan has been submitted to the Division of Epidemiology of the Department of Health and Human Services for approval and the approved plan forwarded to the Section for inclusion in the operations plan for the facility.
17. Except for inert debris, all recyclables must be sorted and stored in containers by the end of each operating day. Containers must be covered at the end of each operating day, and during rain events. All non-recyclables in the sorting area must be placed in transfer trailers for disposal by the end of each operating day.
18. Recycled materials placed in containers must be removed from the site once the container is full. Recyclable material may be stored in covered containers in the recycling area in accordance with the approved Operation Plan for up to one year. The approved maximum storage volume of recycled materials is approximately 500 cubic yards.
19. All water that comes in contact with solid waste, including vehicle wash-down water, is leachate and must be captured and properly treated before release to the environment.
  - a. The leachate control system, such as floor drains, leachate collection devices, sanitary sewer connections and leachate storage tanks, must be operational during facility operations.
  - b. The tipping floor must drain away from the building entrance and into the leachate collection system.
20. All sedimentation and erosion control activities must be conducted in accordance with the Sedimentation Control Act N.C.G.S. 113A-50, et seq., and rules promulgated under 15A NCAC 4.

BK013251PG00930

Facility Permit No: 92-27T-2008  
Parts 1 & 2 - Permit to Construct and Operate  
Thornton Road Mixed Waste Transfer Station  
September 4, 2008  
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21. Copies of this permit, the approved plans and all records required to be maintained by the permittee must be maintained at the facility, unless otherwise approved by the Section, and made available to the Section upon request during normal business hours.
22. The permittee must maintain a record of the amount of solid waste received at the facility, including daily records of waste received and origins of the loads. The permittee must identify MSW that is "commercial solid waste" or "industrial solid waste" as defined in 15A NCAC 13B .1602 in the records. Scales must be used to weigh the amount of waste received. The permittee must maintain a record of the amounts of waste transported out of the facility for disposal, amounts of materials transported out of the facility for recovery and recycling, and amounts of waste or material with any other final disposition, to be compiled on a monthly basis. The daily records are to be summarized into a monthly report for use in the required annual reports, to include a comparison of incoming versus outgoing amounts. Documentation of end-users/processors/recyclers must be maintained for recycled and recovered materials.
23. Waste source summaries for each outgoing truckload must be maintained, as described in Section 2.6.4 of the Operations Manual (Document 4, Attachment 1, Part II), and made available to the Section upon request during normal business hours.
24. On or before August 1 annually, the Permittee must submit an annual facility report to the Solid Waste Section, on forms prescribed by the Section.
  - a. The reporting period shall be for the previous year beginning July 1 and ending June 30.
  - b. The annual facility report must list the amount of waste received in tons and be compiled:
    - i) On a monthly basis.
    - ii) By county, city or transfer station of origin.
    - iii) By specific waste type.
    - iv) By receiving disposal facility.
    - v) By diversion to alternative management facilities.
  - c. The tons of C&D waste recycled, recovered or diverted from disposal including a description of how and where the material was ultimately managed must be included in the report.
  - d. The completed report must be forwarded to the Regional Environmental Specialist for the facility by the date due on the prescribed annual facility report form.

BK013251PG00931

Facility Permit No: 92-27T-2008  
Parts 1 & 2 - Permit to Construct and Operate  
Thornton Road Mixed Waste Transfer Station  
September 4, 2008  
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- e. A copy of the completed report must be forwarded to each county manager for each county from which waste was received the facility. Documentation that a copy of the report has been forwarded to the county managers must be sent to the Regional Environmental Specialist by the date due on the prescribed annual facility report form.
- 25. Processing of materials, shredding, or grinding must not take place at the facility unless approval has been granted under the special use permit and a revised operations plan has been submitted to the Solid Waste Section.
- 26. Financial assurance as required by state rules and statutes must be established with proof submitted to the Division within 30 calendar days of the issuance of this permit. The financial assurance must be continuously maintained for the duration of the facility in accordance with the applicable rules and statutes.

## PART II: MISCELLANEOUS SOLID WASTE MANAGEMENT CONDITIONS

### OPERATION DURING CONSTRUCTION

- 27. The permittee may operate the existing Construction Debris transfer station, as permitted to PCM Construction, during construction of the new facility. The facility must be operated in accordance with the approved plans listed in Attachment 1, Part II, Documents 1 through 3, and the conditions of this section Attachment 3, Part II.
- 28. Approval to operate the existing facility, as permitted to PCM Construction, expires March 3, 2010, or when construction of the new facility is completed and pre-operational approval of the new facility is granted, whichever is sooner. If construction of the new facility and pre-operational approval is not completed within 18 months, the permittee must submit a request for reissuance of the Permit to Construct and Operate, and pay a Transfer Station Permit Modification Fee. The facility design and Operation Plan shall be subject to and shall comply with the rules in effect at that time.
- 29. The facility is permitted to receive new construction waste only. Prohibited wastes include demolition waste, hazardous waste, household waste, commercial/industrial waste, liquid wastes and those wastes listed in the operations plan submitted by PCM.
- 30. This facility is permitted to receive construction debris waste generated within Wake, Johnston, Durham, Granville, Franklin, Nash, Harnett, and Chatham counties. Waste

must be transported for disposal to Shotwell C&D Landfill located in Wendell, Permit Number 92-26; WCA Material Recovery C&D Landfill located in Raleigh, Permit Number 92-31; and/or Red Rock Disposal C&D Landfill located in Holly Springs, Permit Number 92-28. Waste must only be transported to facilities whose service area includes the generation source. Proposed changes to the service area and/or the disposal facilities must be approved by the Section.

31. The permittee must not knowingly dispose of, or accept for transfer for subsequent disposal, solid waste that is generated within the boundaries of a unit of local government that by ordinance:
  - a. Prohibits generators or collectors of solid waste from disposing of that type or form of solid waste.
  - b. Requires generators or collectors of solid waste to recycle that type or form of solid waste.
32. Waste must not be stored on the "tipping area" after operating hours. Waste can be stored on-site, in leak proof transfer trailers, with watertight covers, a maximum of 24 hours except that a minimal amount of waste may be stored for a maximum of 72 hours when the facility is closed during a weekend or holiday. Storage of the waste must not cause any nuisance, such as odor or attraction of vectors.
33. The transfer facility must be maintained in a sanitary, clean condition after operating hours, in accordance with the approved plans.
34. New construction waste must not be placed on the tipping area during rainfall events. Leachate and contaminated run-off shall be collected and properly treated or disposed.
35. Waste must not be unloaded or stored in ponded water at the site.
36. On or before August 1 annually, the Permittee must submit an annual facility report to the Solid Waste Section, on forms prescribed by the Section.
  - c. The reporting period shall be for the previous year beginning July 1 and ending June 30.

BK013251PG00933

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Parts 1 & 2 - Permit to Construct and Operate  
Thornton Road Mixed Waste Transfer Station  
September 4, 2008  
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- d. The annual facility report must list the amount of waste received in tons and be compiled:
  - i. On a monthly basis.
  - ii. By county, city or transfer station of origin.
  - iii. By specific waste type.
  - iv. By receiving disposal facility.
  - v. By diversion to alternative management facilities.
  
- e. The completed report must be forwarded to the Regional Environmental Specialist for the facility by the date due on the prescribed annual facility report form.
  
- f. A copy of the completed report must be forwarded to each county manager for each county from which waste was received the facility. Documentation that a copy of the report has been forwarded to the county managers must be sent to the Regional Environmental Specialist by the date due on the prescribed annual facility report form.

- *End of Permit Conditions* -

BK013251PG00934



BOOK:013251 PAGE:00917 - 00934

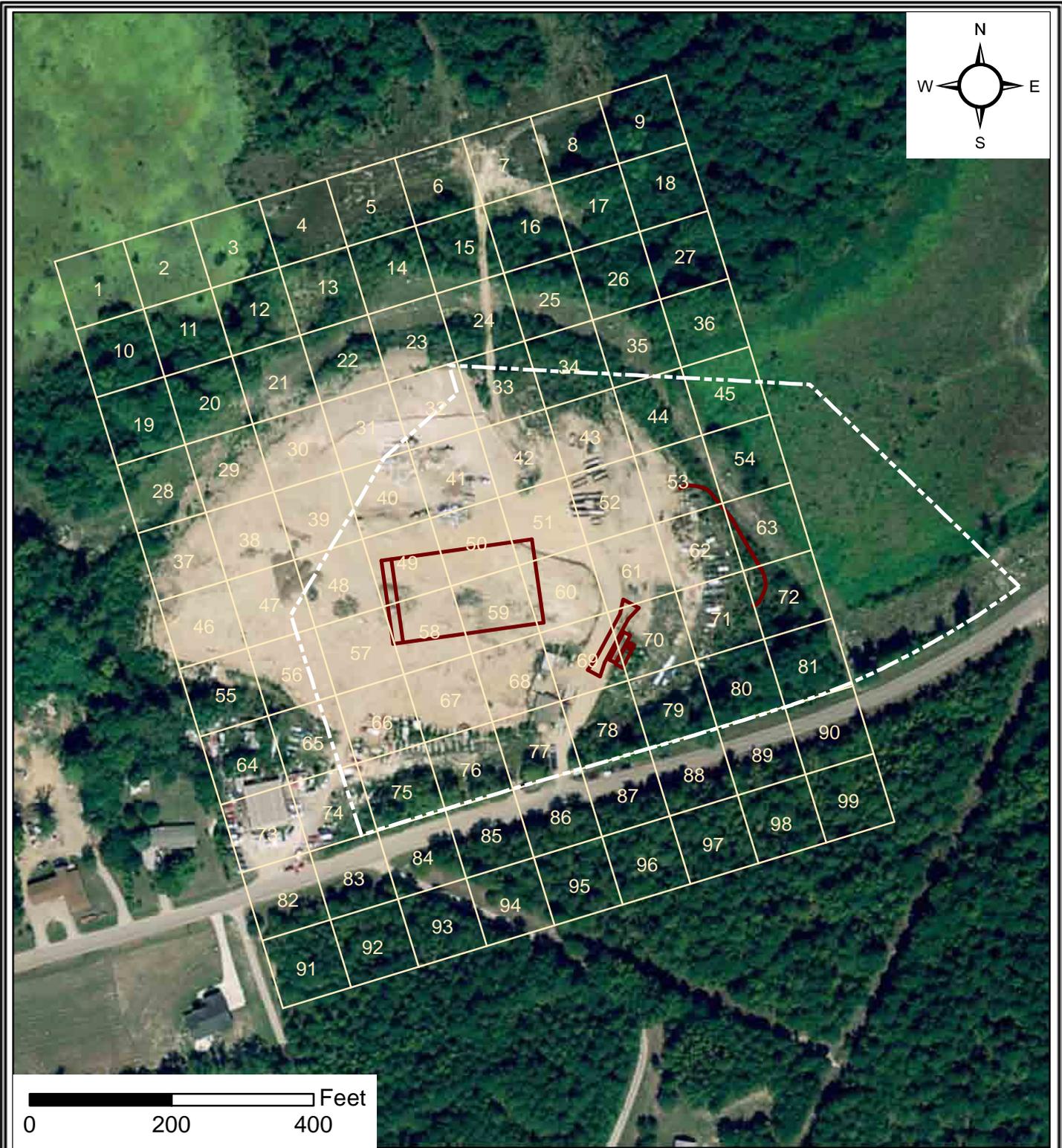
Yellow probate sheet is a vital part of your recorded document.  
Please retain with original document and submit for rerecording.



**Wake County Register of Deeds**  
**Laura M. Riddick**  
**Register of Deeds**

This Customer Group \_\_\_\_\_ # of Time Stamps Needed

This Document \_\_\_\_\_ New Time Stamp  
\_\_\_\_\_ # of Pages



VERIFICATION GRID



**RICHARDSON SMITH GARDNER  
& ASSOCIATES**  
 14 N. Boylan Ave.  
 Raleigh, N.C. 27603  
 NC LIC. NO. C-0026 (Engineering)  
 www.rsgengineers.com  
 ph: 919-828-0577  
 fax: 919-828-3899

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	PROJECT NO.	FIGURE NO.	FILE NAME
AS SHOWN	C.T.J.	P.K.S.	OCT. 2010	THORNTON 10-1	1	KING-A0045

**ATTACHMENT A**

**PHOTOGRAPHS**



**Photo 1 (Entrance Sign)**



**Photo 2 (Concrete Divider on Tipping Floor)**



**Photo 3 (Traffic Sign)**



**Photo 4 (GCL in Basin 2)**



**Photo 5 (GCL in Channel, Protective Cover Over GCL in Basin 1)**



**Photo 6 (Transfer Station Building – Under Construction)**

**ATTACHMENT B**

**MANUFACTURER'S LITERATURE: GAS METER**



# The first 4-gas detector you don't have to buy.

*There's a better way to do gas detection with iNet and MX4.*

# MX4 iQUAD™

Ultra-bright LED alarms

Monitors O<sub>2</sub>,  
combustible gas,  
and 2 toxic gases  
including CO, H<sub>2</sub>S,  
NO<sub>2</sub> or SO<sub>2</sub>



Choice of five  
field-replaceable sensors

Real-time  
display

Large LCD display

Lithium-ion or alkaline  
battery operation

Durable overmolded  
construction



Powerful 95 dB  
audible alarm

Shown actual size

**Using the MX4 with iNet is a better way to do gas detection.**

### It gives you help from The Gas Detection People.

Let us handle your gas detection program. Gas detection is probably not core to what you do. But, it's all that we do. It's what we love to do.

### It gives you a safer workplace.

On average, gas detectors go into high alarm once every ten days. How many high alarms did your facility have? iNet gives you information and tools to fix problems before they happen.

### It gives you cost savings.

The list price is only part of a gas detector's total cost. You have to maintain it. You have to wait for it to be serviced. iNet eliminates unnecessary ownership and maintenance costs.

*The Gas Detection People*

**INDUSTRIAL  
SCIENTIFIC**

[www.indsci.com](http://www.indsci.com)



## Using the MX4 with iNet is a better way to do gas detection.

The MX4 is small, rugged and simple to use. It's an ideal personal monitor to use in conjunction with the iNet program.

### Rugged and Reliable

This tough little unit has a high-impact polycarbonate housing and protective rubber overmold. The MX4 is also third-party certified IP66 and IP67. That means it is dust-tight to withstand the dirtiest environments. And, it is water resistant; passing both water jet and submersion tests.

### Powerful Alarms

To warn users in hazardous areas, the unit uses a combination of three alarms: ultra-bright LEDs; 95 dB audible alarm; and a powerful vibrating alarm.

### iNet Compatible for Increased Safety, Cost Savings and Productivity

iNet is a software-based service that manages your fleet of gas detectors. iNet solves the most common gas detection problems. For example, iNet keeps people safe by providing visibility into alarms, exposure and usage. It keeps gas detectors working without costly and time-consuming maintenance. And with iNet, you won't have to buy the MX4. So why do it?

## How Does iNet Work?



# ORDERING INFORMATION

BASE UNIT +	SENSORS XXXX +				BATTERY +	LANGUAGE
MX4-XXXXXX	X	X	X	X	X	X
	0 - none	0 - none	0 - none	0 - none	1 - Li-ion UL/CSA	1 - English
	K - LEL (pentane)	1 - CO	2 - H <sub>2</sub> S	3 - O <sub>2</sub>	2 - Alkaline UL/CSA	2 - French
	L - LEL (methane)	5 - SO <sub>2</sub>	4 - NO <sub>2</sub>		3 - Li-ion (ATEX)	3 - Spanish
	M - CH <sub>4</sub> (0-5%)				4 - Alkaline (ATEX)	4 - German
					5 - Li-ion (MSHA/AUS)	5 - Italian (NA)
					6 - Alkaline (MSHA/AUS)	6 - Dutch
						7 - Portuguese

PART NUMBER	DESCRIPTION
<b>COMMON CONFIGURATIONS</b>	
MX4-K12311	MX4 iQuad - LEL, CO, H <sub>2</sub> S, O <sub>2</sub> , Li-ion
MX4-K12321	MX4 iQuad - LEL, CO, H <sub>2</sub> S, O <sub>2</sub> , Alkaline
MX4-K14311	MX4 iQuad - LEL, CO, NO <sub>2</sub> , O <sub>2</sub> , Li-ion
MX4-K10311	MX4 iQuad - LEL, CO, O <sub>2</sub> , Li-ion
MX4-K02311	MX4 iQuad - LEL, H <sub>2</sub> S, O <sub>2</sub> , Li-ion
MX4-K00311	MX4 iQuad - LEL, O <sub>2</sub> , Li-ion
MX4-K00011	MX4 iQuad - LEL, Li-ion
MX4-L00011	MX4 iQuad - LEL (methane), Li-ion
<b>REPLACEMENT SENSORS</b>	
17134461	Oxygen (O <sub>2</sub> )
17134479	Hydrogen Sulfide (H <sub>2</sub> S)
17134487	Carbon Monoxide (CO)
17134495	Combustible Gas (LEL/CH <sub>4</sub> )
17134503	Nitrogen Dioxide (NO <sub>2</sub> )
17143595	Sulfur Dioxide (SO <sub>2</sub> )
<b>ACCESSORIES</b>	
18107151-ABC	DS2 Docking Station for MX4
Options	A = 0
	B = iGas® Reader (number included)
	1
	2
	3
	C = Power Cord: 0 - US, 1 - UK, 2 - EU, 3 - AUS, 4 - ITA, 5 - DEN, 6 - SWZ
18108100	Single-Unit Charger
18107037	Single-Unit Charger/Datalink
18108282	6-Unit Charger (N. American plug only)
18107680-0X	MX-Cal™ Calibration Station
	X = Power Cord: 0 - US, 1 - UK, 2 - EU, 3 - AUS, 4 - ITA, 5 - DEN, 6 - SWZ
18107763	Serial data dot matrix printer for MX-Cal™
18107904	MX4 Hand Pump (manual bulb)
18107888	Hard-sided Leather Carrying Case
18107813	Soft-sided Carrying Case
17134453-1	Replacement Battery Pack, Li-ion, UL/CSA/ATEX
17134446-1	Replacement Battery Kit, Alkaline, UL/CSA/ATEX (includes pack, cover, and three (3) AAA alkaline batteries)
17134453-2	Replacement Battery Pack, Li-ion, MSHA/AUS
17134446-2	Replacement Battery Kit, Alkaline, MSHA/AUS (includes pack, cover, and three (3) AAA alkaline batteries)



MX4 Sensors



MX4 Li-ion Battery



MX4 Alkaline Battery



MX4 Soft-sided Case



MX4 - 6 Unit Charger



MX4 Charger/Datalink



MX4 Charger



MX4 DS2 Docking Station shown with MX4 Monitor

Supplied with Monitor: charger, belt clip, calibration cup with tubing.

**Case Material:**

Polycarbonate w/ protective rubber overmold

**Dimensions:**

103 mm x 58 mm x 30 mm (4.1" x 2.3" x 1.2")  
with Li-ion Battery Pack

**Weight:**

Lithium-ion Battery version = 180 g (6.4 oz)  
Alkaline Battery version = 193 g (6.8 oz)

**Operating Temperature Range:**

-20°C to 50°C (-4°F to 122°F) typical

**Operating Humidity Range:**

15%-95% non-condensing (continuous) typical

**Display/Readout:**

Backlit Liquid Crystal Display (LCD)

**Power Source/Run Time:**

Li-ion – 12 hours typical @ 20°C  
Alkaline AAA – 8 hours typical @ 20°C

**Alarms:**

Ultra-bright LEDs, loud audible alarm (95 dB at 30 cm), and vibrating alarm

**Sensors:**

Combustible gases/methane – Catalytic Diffusion  
O<sub>2</sub>, CO, H<sub>2</sub>S, NO<sub>2</sub>, SO<sub>2</sub> – Electrochemical

**Measuring Ranges:**

Combustible Gases:	0-100% LEL in 1% increments
Methane (CH <sub>4</sub> ):	0-5% of vol. in 0.01% increments
Oxygen (O <sub>2</sub> ):	0-30% vol. in 0.1% increments
Carbon Monoxide (CO):	0-1,000 ppm in 1 ppm increments
Hydrogen Sulfide (H <sub>2</sub> S):	0-500 ppm in 0.1 ppm increments
Nitrogen Dioxide (NO <sub>2</sub> ):	0-150 ppm in 0.1 ppm increments
Sulfur Dioxide (SO <sub>2</sub> ):	0-150 ppm in 0.1 ppm increments

**Certifications:**
**UL**

Class I, Division 1, Groups A B C D, T4  
Class II, Groups F G (Carbonaceous & Grain Dust)  
AEx d ia IIC T4  
IP66  
IP67

**ATEX**

Ex d ia I/II C T4 ; Equipment Group and  
Category II 2G and I M2  
IP66  
IP67

**IECEX**

Ex d ia IIC T4  
IP66  
IP67

**INMETRO**

BR-Ex d ia IIC T4  
IP66  
IP67

**CSA**

Class I, Division 1, Groups A B C D, T4  
C22.2 No. 152 for %LEL reading only  
Ex d ia IIC T4

**MSHA**


## INDUSTRIAL SCIENTIFIC

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Fax: +1-412-788-8353  
info@indsci.com

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Fax: +65-6561-7787  
info@ap.indsci.com

**EUROPE**

Phone: +33-3-21-60-80-80  
Fax: +33-3-21-60-80-00  
info@eu.indsci.com

**ATTACHMENT C**

**MANUFACTURER'S DOCUMENTATION:  
GEOSYNTHETIC CLAY LINER**



Date: 12/22/2009

Purchase Order: 1034

ORDER NUMBERS: 025708909, 025708910, 025708911, 025708912

Kevin Allen  
Environmental Fabrics

Gaston, SC 29053  
kallen@environmentalfabrics.com cc. bblakeley@envirocon.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Environmental Fabrics.

The enclosed data package includes results of all the MQC tests required by ASTM D5889, with the exception of index flux/hydraulic conductivity. This test, which is run according to ASTM D5887, is normally performed once per production lot (once per week), unless a higher frequency is required by the project specifications. Because of the GCL's low permeability, this test can take several weeks to complete. The index flux/hydraulic conductivity results associated with this lot of material will be provided under separate cover as soon as they are available.

Although the index flux/hydraulic conductivity test results are not yet available, CETCO accepts responsibility for our GCL should the index flux/hydraulic conductivity tests produce unacceptable results. If, upon delivery and prior to installation, individual rolls of GCL are found to be nonconforming to accepted project specifications, CETCO will replace the nonconforming material at no charge.

Questions regarding this information should be directed to Chris Athanassopoulos, Technical Support Engineer, at (847) 851-1831.

Sincerely,

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King  
Quality Assurance Coordinator  
CETCO Cartersville Plant



**GEOSYNTHETIC CLAY LINER  
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE**

PROJECT NAME: Twelve Mile Creek Restoration

CUSTOMER P.O.: 1034

ORDER NUMBERS: 025708909, 025708910, 025708911, 025708912

PREPARED FOR: Environmental Fabrics

**CONTENTS:**

- Product Certifications
- GCL Order packing list and MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King  
Quality Assurance Coordinator  
CETCO  
218 Industrial Park

Cartersville, GA 30121  
Telephone: (770) 387-7773  
E-Mail: melanie.king@cetco.com



## PRODUCT CERTIFICATIONS

PROJECT NAME: Twelve Mile Creek Restoration  
CUSTOMER P.O.: 1034  
ORDER NUMBERS: 025708909, 025708910, 025708911, 025708912  
PREPARED FOR: Environmental Fabrics

The GCL manufactured for the above-referenced order number(s) is certified to meet the values listed in the tables below:

### GCL PROPERTY SPECIFICATIONS FOR BENTOMAT ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	30 lbs/in MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	500 psf typ @ 200 psf normal load
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5.0E-9 cm/s Max
ASTM D 5887	GCL Index Flux	Weekly	1.0E-8 m <sup>3</sup> /m <sup>2</sup> /s Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	3.5 lbs/in Min

### SPECIALLY REQUESTED CERTIFIED PROPERTIES FOR THIS ORDER OF BENTOMAT ST

Test Method	Test Method Property	Requested Frequency	Requested Value	Requested Conditions
ASTM D 4643	GCL Moisture	1/40,000sf	30%	Standard

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility. All tensile testing is in the machine direction using ASTM D 6768. All peel strength testing is performed using ASTM D 6496. Upon request tensile and peel results can be reported per modified ASTM D 4632 using 4 inch grips.

### NEEDLE DETECTION AND REMOVAL PROCEDURE

CETCO hereby affirms that all Bentomat<sup>®</sup> geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. CETCO certifies Bentomat<sup>®</sup> to be essentially free of broken needles and fragments of needles that would negatively effect the performance of the final product.

Melanie King  
Quality Assurance Coordinator



## GCL PACKING LIST AND MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 025708909

GCL								Geotextiles				Clay
CV-BENTOMAT ST								N/W-WHITE			WOVEN	CV-CG 50
Order	GCL Lot #	GCL Roll #	Length	Width	weight	sq ft	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
025708912	200951CV	11283	150	15	2516	2250	11282	200950CV	00004961	00004961	2020450115	937011B
025708912	200951CV	11284	150	15	2504	2250	11282	200950CV	00004961	00004961	2020450115	937011B
025708912	200951CV	11285	150	15	2506	2250	11282	200950CV	00004961	00004961	2020450115	937011B
025708912	200951CV	11286	150	15	2528	2250	11282	200950CV	00004993	00004986	2020450115	937011B
025708912	200951CV	11287	150	15	2500	2250	11282	200950CV	00004993	00004986	2020450115	937011B
025708912	200951CV	11288	150	15	2512	2250	11282	200950CV	00004993	00004986	2020450115	937011B
025708912	200951CV	11290	150	15	2506	2250	11282	200950CV	00004993	00004986	2020450115	937011B
025708909	200951CV	11312	150	15	2530	2250	11299	200950CV	00004975	00004969	2020405807	939075A
025708912	200951CV	11319	150	15	2520	2250	11316	200950CV	00004994	00004986	2020405807	939075A
025708909	200951CV	11321	150	15	2526	2250	11316	200950CV	00004986	00004986	2020405807	939075A
025708911	200951CV	11336	150	15	2518	2250	11333	200950CV	00004983	00004979	2020438105	939075A
025708911	200951CV	11337	150	15	2514	2250	11333	200950CV	00004983	00004979	2020438105	939075A
025708911	200951CV	11338	150	15	2526	2250	11333	200950CV	00004983	00004979	2020438105	939075A
025708911	200951CV	11339	150	15	2514	2250	11333	200950CV	00004983	00004979	2020438105	939075A
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025708911	200951CV	11346	150	15	2646	2250	11333	200950CV	00004948	00004943	2020438105	938902B
025708911	200951CV	11347	150	15	2622	2250	11333	200950CV	00004948	00004943	2020438105	938902B
025708909	200951CV	11354	150	15	2614	2250	11350	200949CV	00004796	00004795	2020485780	938902B
025708912	200951CV	11356	150	15	2598	2250	11350	200949CV	00004786	00004785	2020485780	938902B
025708911	200951CV	11359	150	15	2608	2250	11350	200949CV	00004786	00004785	2020485780	938902B
025708909	200951CV	11362	150	15	2608	2250	11350	200949CV	00004786	00004785	2020485780	938902B
025708909	200951CV	11363	150	15	2610	2250	11350	200949CV	00004786	00004785	2020485780	938902B
025708909	200951CV	11364	150	15	2644	2250	11350	200949CV	00004880	00004879	2020485780	938902B
025708912	200951CV	11365	150	15	2654	2250	11350	200949CV	00004880	00004879	2020485780	938902B
025708911	200951CV	11367	150	15	2638	2250	11350	200949CV	00004880	00004879	2020485780	938902B
025708911	200951CV	11374	150	15	2634	2250	11368	200950CV	00004947	00004943	2020485780	938902B
025708912	200951CV	11381	150	15	2634	2250	11368	200950CV	00004943	00004943	2020485780	938902B
025708909	200951CV	11398	150	15	2692	2250	11385	200950CV	00004945	00004943	2020363405	938729A
025708909	200951CV	11399	150	15	2674	2250	11385	200950CV	00004945	00004943	2020363405	938729A
025708912	200951CV	11402	150	15	2730	2250	11402	200951CV	00005080	00005080	2020363405	938729A

Order	GCL Lot #	GCL Roll #	Length	Width	weight	sq ft	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
025708909	200951CV	11403	150	15	2700	2250	11402	200951CV	00005080	00005080	2020363405	938729A
025708912	200951CV	11406	150	15	2694	2250	11402	200951CV	00005080	00005080	2020363405	938729A
025708911	200951CV	11407	150	15	2688	2250	11402	200951CV	00005070	00005063	2020363405	938729A
025708909	200951CV	11408	150	15	2688	2250	11402	200951CV	00005070	00005063	2020363405	938729A
025708911	200951CV	11409	150	15	2730	2250	11402	200951CV	00005070	00005063	2020363405	938729A
025708912	200951CV	11414	150	15	2708	2250	11402	200951CV	00005070	00005063	2020363405	938729A
025708912	200951CV	11419	150	15	2716	2250	11419	200951CV	00005081	00005080	2020481023	938729A
025708910	200951CV	11425	150	15	2696	2250	11419	200951CV	00005082	00005080	2020481023	938729A
025708912	200951CV	11426	150	15	2680	2250	11419	200951CV	00005082	00005080	2020481023	938729A
025708911	200951CV	11427	150	15	2684	2250	11419	200951CV	00005082	00005080	2020481023	938729A
025708911	200951CV	11428	150	15	2668	2250	11419	200951CV	00005082	00005080	2020481023	938729A
025708910	200951CV	11429	150	15	2670	2250	11419	200951CV	00005083	00005080	2020481023	938729A
025708909	200951CV	11430	150	15	2670	2250	11419	200951CV	00005083	00005080	2020481023	938729A
025708912	200951CV	11432	150	15	2664	2250	11419	200951CV	00005083	00005080	2020481023	938729A
025708909	200951CV	11435	150	15	2680	2250	11419	200951CV	00005083	00005080	2020481023	938729A
025708909	200951CV	11437	150	15	2656	2250	11436	200951CV	00005084	00005080	2020481023	938729A
025708911	200951CV	11439	150	15	2660	2250	11436	200951CV	00005084	00005080	2020481023	938729A
025708910	200951CV	11446	150	15	2652	2250	11436	200951CV	00005085	00005080	2020459371	938729B
025708910	200951CV	11449	150	15	2670	2250	11436	200951CV	00005085	00005080	2020459371	938729B
025708910	200951CV	11452	150	15	2656	2250	11436	200951CV	00005063	00005063	2020459371	938729B
025708910	200951CV	11453	150	15	2678	2250	11453	200951CV	00005063	00005063	2020459371	938729B
025708909	200951CV	11458	150	15	2638	2250	11453	200951CV	00005086	00005080	2020459371	938729B
025708909	200951CV	11459	150	15	2658	2250	11453	200951CV	00005086	00005080	2020459371	938729B
025708910	200951CV	11467	150	15	2644	2250	11453	200951CV	00005087	00005080	2020459371	938729B
025708910	200951CV	11483	150	15	2652	2250	11470	200949CV	00004898	00004896	2020511831	938729B
025708911	200951CV	11490	150	15	2650	2250	11487	200951CV	00005089	00005080	2020511831	938729B
025708910	200951CV	11493	150	15	2658	2250	11487	200951CV	00005090	00005090	2020511831	939079A
025708910	200951CV	11494	150	15	2654	2250	11487	200951CV	00005090	00005090	2020511831	939079A
025708910	200951CV	11498	150	15	2650	2250	11487	200951CV	00005091	00005090	2020511831	939079A
025708910	200951CV	11506	150	15	2674	2250	11503	200951CV	00005077	00005073	2020462506	939079A
025708910	200951CV	11507	150	15	2634	2250	11503	200951CV	00005077	00005073	2020462506	939079A
025708909	200951CV	11509	150	15	2608	2250	11503	200951CV	00005077	00005073	2020462506	939079A
025708910	200951CV	11510	150	15	2648	2250	11503	200951CV	00005077	00005073	2020462506	939079A
025708910	200951CV	11512	150	15	2624	2250	11503	200951CV	00005092	00005090	2020462506	939079A
025708910	200951CV	11518	150	15	2636	2250	11518	200951CV	00005092	00005090	2020462506	939079A
025708910	200951CV	11524	150	15	2638	2250	11518	200951CV	00005093	00005090	2020462506	939079A
025708911	200952CV	11536	150	15	2667	2250	11532	200951CV	00005076	00005073	2020462506	939079A

Total sq ft: **153000**

Total Number of Rolls Certified: **68**



**GCL MANUFACTURING QUALITY CONTROL TEST DATA**

The following rolls in GCL certification package number 025708909 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength 6496	Moisture
ASTM Test Method:			D 5993	D 6768	D 6496	D 4643
Required Value:			0.75 lb /sq ft Min	30 lbs/in MARV	3.5 lbs/in Min	30%
CV-BENTOMAT ST	200951CV	11282	0.81	56.2	5.9	29.8
CV-BENTOMAT ST	200951CV	11299	0.82	56.2	5.3	28.5
CV-BENTOMAT ST	200951CV	11316	0.81	56.2	5.6	25.2
CV-BENTOMAT ST	200951CV	11333	0.83	56.2	4.9	27.9
CV-BENTOMAT ST	200951CV	11350	0.84	56.2	4.3	28.0
CV-BENTOMAT ST	200951CV	11368	0.85	81.8	5.1	27.4
CV-BENTOMAT ST	200951CV	11385	0.90	81.8	3.6	27.2
CV-BENTOMAT ST	200951CV	11402	0.84	81.8	4.4	29.8
CV-BENTOMAT ST	200951CV	11419	0.86	81.8	5.2	28.5
CV-BENTOMAT ST	200951CV	11436	0.88	38.7	10.3	25.4
CV-BENTOMAT ST	200951CV	11453	0.87	38.7	8.9	25.8
CV-BENTOMAT ST	200951CV	11470	0.86	38.7	6.0	26.6
CV-BENTOMAT ST	200951CV	11487	0.86	38.7	5.8	26.5
CV-BENTOMAT ST	200951CV	11503	0.88	38.7	4.8	25.9
CV-BENTOMAT ST	200951CV	11518	0.81	63.9	4.1	25.6
CV-BENTOMAT ST	200952CV	11532	0.89	74.4	4.1	20.6



### BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce package 025708909 has been tested by American Colloid Company and yielded the following test results.

Clay Lot #	Moist	Swell	Fluid Loss
ASTM Test Method:	D 2216	D 5890	D 5891
Required Value:	12% Max	24 ml/2g Min	18 ml Max
937011B	10.20	30.00	16.40
939079A	10.40	26.00	15.80
938729A	10.40	25.00	14.40
938729B	10.80	26.00	13.80
938902B	10.40	25.00	14.00
939075A	10.00	25.00	15.40



**GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS**

The GCL in certification package number 025708909 was manufactured with geotextiles which were tested with the following results.

BASE GEOTEXTILE				COVER GEOTEXTILE			
Material	Roll Number	Mass Area oz/yd2	Grab Strength lbs	Material	Roll Number	Mass Area oz/yd2	Grab Strength lbs
PPX 82TEX	2020363405	3.5	175.9	CV-NON-WOVEN	00004785	6.7	52.4
PPX 82TEX	2020405807	3.4	204.4	CV-NON-WOVEN	00004795	6.7	48.1
PPX 82TEX	2020438105	3.4	153.9	CV-NON-WOVEN	00004879	6.6	31.8
PPX 82TEX	2020450115	3.5	171.8	CV-NON-WOVEN	00004896	6.6	31.5
PPX 82TEX	2020459371	3.5	171.4	CV-NON-WOVEN	00004943	6.6	40.5
PPX 82TEX	2020462506	3.6	151.7	CV-NON-WOVEN	00004961	7.5	42.0
PPX 82TEX	2020481023	3.4	191.4	CV-NON-WOVEN	00004969	6.8	35.1
PPX 82TEX	2020485780	3.5	185.0	CV-NON-WOVEN	00004979	6.9	40.4
PPX 82TEX	2020511831	3.5	161.6	CV-NON-WOVEN	00004986	6.5	34.0
				CV-NON-WOVEN	00005063	6.7	44.4
				CV-NON-WOVEN	00005073	6.8	40.1
				CV-NON-WOVEN	00005080	7.2	42.9
				CV-NON-WOVEN	00005090	6.7	39.3

Certifications from our suppliers are on file at our production facility.

An '\*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

**American Colloid Company**  
**692 U.S. Hwy 212**  
**Belle Fourche, SD 57717**  
**Phone (800) 343-8774**  
**Fax (307) 896-2028**

## *Certificate of Analysis*

10/21/2009

**CETCO**  
**218 Industrial Park Drive**  
**Cartersville, GA 30121**

**Attention: QA Coordinator**  
**melanie.king@cetco.com**

A Shipment of CG-50 left our Colony West Plant in DM&E 49189 on 10/19/2009 as requested on your Purchase Order # 25940.

	<b>Moisture</b>	<b>8 sieve</b>	<b>10 sieve</b>	<b>-200/Pan</b>	<b>Free Swell</b>	<b>Fluid Loss</b>
BR1	10.7	0.1	1.7	0.9	25	16.8
EN1	10.2	0.1	3.3	0.9	30	16.4
Spec	12 Max	0%	5%	1.0% Max	24 Min	18 Max

*We hereby certify that the test results shown above represent this shipment. Tests were conducted using American Colloid Company laboratory procedures.*

*Tests were conducted*    Darren Miles  
*Approved*                Greg Haak  
                                      Plant Foreman  
                                      American Colloid Company

*Any Correspondence regarding this shipment, please refer to our Order # 937011*

**American Colloid Company**  
**692 U.S. Hwy 212**  
**Belle Fourche, SD 57717**  
**Phone (800) 343-8774**  
**Fax (307) 896-2028**

## *Certificate of Analysis*

11/10/2009

**CETCO**  
**218 Industrial Park Drive**  
**Cartersville, GA 30121**

**Attention: QA Coordinator**  
**melanie.king@cetco.com**

A Shipment of CG-50 left our Colony West Plant in DM&E 49313 on 11/6/2009 as requested on your Purchase Order # 25940.

	<b>Moisture</b>	<b>8 sieve</b>	<b>10 sieve</b>	<b>-200/Pan</b>	<b>Free Swell</b>	<b>Fluid Loss</b>
BR1	10.0	0	3.0	0.5	25	15.4
EN1	9.80	0	3.5	0.4	29	16.2
Spec	12 Max	0%	5%	1.0% Max	24 Min	18 Max

*We hereby certify that the test results shown above represent this shipment. Tests were conducted using American Colloid Company laboratory procedures.*

*Tests were conducted*     Darren Miles  
*Approved*                 Greg Haak  
                                     Plant Foreman  
                                     American Colloid Company

*Any Correspondence regarding this shipment, please refer to our Order # 939075*

# BENTONITE CERTIFICATE OF ANALYSIS

AMERICAN COLLOID  
92 HWY 37  
LOVELL, WYO. 82431

DATE: 17-Dec-09

TO: **CETCO - CARTERSVILLE**  
  
**218 INDUSTRIAL PARK DRIVE**  
**CARTERSVILLE, GA 30121**

ATTN:

Dear Sirs:

A shipment of **CG 50**  
left our Lovell, WY plant on  
in **ATSF314438**  
as requested on your order no.

**28-Oct-09**

A sample from this shipment was tested, and gave the following results:

<b>TEST</b>	<b>METHOD</b>	<b>REQ. SPECIFICATION</b>	<b>ACTUAL RESULTS</b>
RET. 8 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.5
MOISTURE	ASTM D 2216	12.0% MAX.	10.4
FREE SWELL	ASTM D 5890	24 MIN.	25
FLUID LOSS	ASTM D 5891	18.0 MAX.	14
TOTAL HARDNESS		30-40 meq/100g	35

We hereby certify that the results shown above represent this shipment.  
Tests were conducted using American Colloid Test Methods and/or customer  
approved laboratory procedures.  
Product made in the U.S.A.

Tests Conducted By: **TE102809B**

Approved By: **NICK WAMBEKE**

**ACC**

In any correspondence regarding this shipment, please refer to our  
Order Number **938902B**

# BENTONITE CERTIFICATE OF ANALYSIS

AMERICAN COLLOID  
92 HWY 37  
LOVELL, WYO. 82431

DATE: 17-Dec-09

TO: **CETCO - CARTERSVILLE**  
  
**218 INDUSTRIAL PARK DRIVE**  
**CARTERSVILLE, GA 30121**

ATTN:

Dear Sirs:

A shipment of **CG 50**  
left our Lovell, WY plant on  
in **BNSF421913**  
as requested on your order no.

**29-Oct-09**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.7
MOISTURE	ASTM D 2216	12.0% MAX.	10.4
FREE SWELL	ASTM D 5890	24 MIN.	25
FLUID LOSS	ASTM D 5891	18.0 MAX.	14.4
TOTAL HARDNESS		30-40 meq/100g	35

We hereby certify that the results shown above represent this shipment.  
Tests were conducted using American Colloid Test Methods and/or customer  
approved laboratory procedures.  
Product made in the U.S.A.

Tests Conducted By: **TE102909A**

Approved By: **NICK WAMBEKE**

**ACC**

In any correspondence regarding this shipment, please refer to our  
Order Number **938729A**

# BENTONITE CERTIFICATE OF ANALYSIS

AMERICAN COLLOID  
92 HWY 37  
LOVELL, WYO. 82431

DATE: 17-Dec-09

TO: **CETCO - CARTERSVILLE**  
  
**218 INDUSTRIAL PARK DRIVE**  
**CARTERSVILLE, GA 30121**

ATTN:

Dear Sirs:

A shipment of **CG 50**  
left our Lovell, WY plant on  
in **BNSF421913**  
as requested on your order no.

**29-Oct-09**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.6
MOISTURE	ASTM D 2216	12.0% MAX.	10.8
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	13.8
TOTAL HARDNESS		30-40 meq/100g	35

We hereby certify that the results shown above represent this shipment.  
Tests were conducted using American Colloid Test Methods and/or customer  
approved laboratory procedures.  
Product made in the U.S.A.

Tests Conducted By: **TE102909B**

Approved By: **NICK WAMBEKE**

**ACC**

In any correspondence regarding this shipment, please refer to our  
Order Number **938729B**

# BENTONITE CERTIFICATE OF ANALYSIS

AMERICAN COLLOID  
92 HWY 37  
LOVELL, WYO. 82431

DATE: 18-Dec-09

TO: **CETCO - CARTERSVILLE**  
  
**218 INDUSTRIAL PARK DRIVE**  
**CARTERSVILLE, GA 30121**

ATTN:

Dear Sirs:

A shipment of **CG 50**  
left our Lovell, WY plant on  
in **ATSF314460**  
as requested on your order no.

**30-Oct-09**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.8
MOISTURE	ASTM D 2216	12.0% MAX.	10.4
FREE SWELL	ASTM D 5890	24 MIN.	26
FLUID LOSS	ASTM D 5891	18.0 MAX.	15.8
TOTAL HARDNESS		30-40 meq/100g	35

We hereby certify that the results shown above represent this shipment.  
Tests were conducted using American Colloid Test Methods and/or customer  
approved laboratory procedures.  
Product made in the U.S.A.

Tests Conducted By: **DB103009A**

Approved By: **NICK WAMBEKE**

**ACC**

In any correspondence regarding this shipment, please refer to our  
Order Number **939079A**



Date: 1/29/2010  
Purchase Order: 1034  
ORDER NUMBER: 025708916

Kevin Allen  
Environmental Fabrics

Gaston, SC 29053  
kallen@environmentalfabrics.com cc. bblakeley@envirocon.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to Environmental Fabrics.

The enclosed data package includes results of all the MQC tests required by ASTM D5889, with the exception of index flux/hydraulic conductivity. This test, which is run according to ASTM D5887, is normally performed once per production lot (once per week), unless a higher frequency is required by the project specifications. Because of the GCL's low permeability, this test can take several weeks to complete. The index flux/hydraulic conductivity results associated with this lot of material will be provided under separate cover as soon as they are available.

Although the index flux/hydraulic conductivity test results are not yet available, CETCO accepts responsibility for our GCL should the index flux/hydraulic conductivity tests produce unacceptable results. If, upon delivery and prior to installation, individual rolls of GCL are found to be nonconforming to accepted project specifications, CETCO will replace the nonconforming material at no charge.

Questions regarding this information should be directed to Chris Athanassopoulos, Technical Support Engineer, at (847) 851-1831.

Sincerely,

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King  
Quality Assurance Coordinator  
CETCO Cartersville Plant



**GEOSYNTHETIC CLAY LINER  
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE**

PROJECT NAME: Twelve Mile Creek Restoration

CUSTOMER P.O.: 1034

ORDER NUMBER: 025708916

PREPARED FOR: Environmental Fabrics

**CONTENTS:**

- Product Certifications
- GCL Order packing list and MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King  
Quality Assurance Coordinator  
CETCO  
218 Industrial Park

Cartersville, GA 30121  
Telephone: (770) 387-7773  
E-Mail: melanie.king@cetco.com



## PRODUCT CERTIFICATIONS

PROJECT NAME: Twelve Mile Creek Restoration  
CUSTOMER P.O.: 1034  
ORDER NUMBERS: 025708916  
PREPARED FOR: Environmental Fabrics

The GCL manufactured for the above-referenced order number(s) is certified to meet the values listed in the tables below:

### GCL PROPERTY SPECIFICATIONS FOR BENTOMAT ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	30 lbs/in MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	500 psf typ @ 200 psf normal load
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5.0E-9 cm/s Max
ASTM D 5887	GCL Index Flux	Weekly	1.0E-8 m <sup>3</sup> /m <sup>2</sup> /s Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	3.5 lbs/in Min

### SPECIALLY REQUESTED CERTIFIED PROPERTIES FOR THIS ORDER OF BENTOMAT ST

Test Method	Test Method Property	Requested Frequency	Requested Value	Requested Conditions
ASTM D 4643	GCL Moisture	1/40,000sf	30%	Standard

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility. All tensile testing is in the machine direction using ASTM D 6768. All peel strength testing is performed using ASTM D 6496. Upon request tensile and peel results can be reported per modified ASTM D 4632 using 4 inch grips.

## NEEDLE DETECTION AND REMOVAL PROCEDURE

CETCO hereby affirms that all Bentomat<sup>®</sup> geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. CETCO certifies Bentomat<sup>®</sup> to be essentially free of broken needles and fragments of needles that would negatively effect the performance of the final product.

Melanie King  
Quality Assurance Coordinator



**GCL PACKING LIST AND MQA TRACKING FORM**

Listing of finished and raw materials used to produce certification package number 025708916

GCL								Geotextiles				Clay
CV-BENTOMAT ST								N/W-WHITE		WOVEN	CV-CG 50	
Order	GCL Lot #	GCL Roll #	Length	Width	weight	sq ft	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
025708916	200944CV	10074	150	15	2748	2250	10061	200944CV	00004455	00004448	WEA011492-5	937000B
025708916	200944CV	10075	150	15	2740	2250	10061	200944CV	00004454	00004448	WEA011492-5	937000B
025708916	200944CV	10077	150	15	2766	2250	10061	200944CV	00004454	00004448	WEA011492-5	937000B
Total sq ft:							<b>6750</b>	Total Number of Rolls Certified: <b>3</b>				



**GCL MANUFACTURING QUALITY CONTROL TEST DATA**

The following rolls in GCL certification package number 025708916 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength 6496	Moisture
ASTM Test Method:			D 5993	D 6768	D 6496	D 4643
Required Value:			0.75 lb /sq ft Min	30 lbs/in MARV	3.5 lbs/in Min	30%
CV-BENTOMAT ST	200944CV	10061	0.86	95.3	6.1	27.9

**BENTONITE CLAY CERTIFICATION**

The Bentonite Clay used to produce package 025708916 has been tested by American Colloid Company and yielded the following test results.

Clay Lot #	Moist	Swell	Fluid Loss
ASTM Test Method:	D 2216	D 5890	D 5891
Required Value:	12% Max	24 ml/2g Min	18 ml Max
937000B	10.00	24.00	15.80



**GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS**

The GCL in certification package number 025708916 was manufactured with geotextiles which were tested with the following results.

BASE GEOTEXTILE				COVER GEOTEXTILE			
Material	Roll Number	Mass Area oz/yd2	Grab Strength lbs	Material	Roll Number	Mass Area oz/yd2	Grab Strength lbs
MTX 1213	WEA011492-5	3.6	188.0	CV-NON-WOVEN	00004448	6.4	48.3

Certifications from our suppliers are on file at our production facility.

An '\*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

# BENTONITE CERTIFICATE OF ANALYSIS

AMERICAN COLLOID  
92 HWY 37  
LOVELL, WYO. 82431

DATE: 29-Jan-10

TO: **CETCO - CARTERSVILLE**  
  
**218 INDUSTRIAL PARK DRIVE**  
**CARTERSVILLE, GA 30121**

ATTN:

Dear Sirs:

A shipment of **CG 50**  
left our Lovell, WY plant on  
in **BN458651**  
as requested on your order no.

**09-Oct-09**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0% .	0
PASSING 200 MESH	ASTM C 136	1.0 % MAX	0.8
MOISTURE	ASTM D 2216	12.0% MAX.	10
FREE SWELL	ASTM D 5890	24 MIN.	24
FLUID LOSS	ASTM D 5891	18.0 MAX.	15.8
TOTAL HARDNESS		30-40 meq/100g	35

We hereby certify that the results shown above represent this shipment.  
Tests were conducted using American Colloid Test Methods and/or customer  
approved laboratory procedures.  
Product made in the U.S.A.

Tests Conducted By: **TE100909B**

Approved By: **NICK WAMBEKE**

**ACC**

In any correspondence regarding this shipment, please refer to our  
Order Number **937000B**

**ATTACHMENT D**  
**WODELL TRUCKING LOAD TICKETS**

## Stacey Smith

---

**From:** John Brown [JBrown@debrisrp.com]

**Sent:** Monday, October 18, 2010 4:35 PM

**To:** stacey

Stacey,

We removed 26,670 cubic yards from the N. Raleigh Transfer Station to the Shotwell Landfill.

**John Brown, President**

***Shotwell Landfill***

***Shotwell Transfer Station***

***Shotwell Transfer Station II - Apex***

***Capital Waste Transfer***

***Capital Waste Systems***

***Shotwell Trucking***

***Debris Removal Partners***

(919) 556-9154 (office)

(919) 795-0599 (mobile)

(919) 556-0448 (fax)

**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

DATE	INVOICE #
1/31/2009	11972

**PAID**

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

PROJECT/JOB	TERMS
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W1	1/26/2009	(Rough/ per hour, QUAD-AXLE)	4.5	75.00	337.50
W2	1/26/2009	Rough/ QUAD-AXLE	4.5	75.00	337.50
W1	1/27/2009	Rough/ QUAD-AXLE	8.5	75.00	637.50
W2	1/27/2009	Rough/ QUAD-AXLE	8.5	75.00	637.50
W4	1/27/2009	Rough/ QUAD-AXLE	8.75	75.00	656.25
W1	1/28/2009	Rough/ QUAD-AXLE	6.25	75.00	468.75
W2	1/28/2009	Rough/ QUAD-AXLE	5.75	75.00	431.25
W3	1/28/2009	Rough/ QUAD-AXLE	6	75.00	450.00
W6	1/28/2009	Rough/ QUAD-AXLE	6.25	75.00	468.75
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		<b>\$4,425.00</b>

This invoice may not include all tons or loads hauled on these dates.

**Woodell Transport, Inc.**

**Invoice**

3105 Air Park Road

Fuquay NC 27526

919-577-0003

919-577-0047

DATE	INVOICE #
2/15/2009	11991

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	PROJECT/JOB		TERMS
			Transfer Station	Net 30	
			QUANTITY	RATE	AMOUNT
W1	2/3/2009	(Rough/ per hour, QUAD-AXLE)	8	75.00	600.00
W3	2/3/2009	Rough/ QUAD-AXLE	6.75	75.00	506.25
W4	2/3/2009	Rough/ QUAD-AXLE	8	75.00	600.00
W6	2/3/2009	Rough/ QUAD-AXLE	8.25	75.00	618.75
W7	2/3/2009	Rough/ QUAD-AXLE	8.5	75.00	637.50
W1	2/4/2009	Dir/ QUAD-AXLE	9.5	70.00	665.00
W3	2/4/2009	Dir/ QUAD-AXLE	8	70.00	560.00
W4	2/4/2009	Dir/ QUAD-AXLE	8	70.00	560.00
W6	2/4/2009	Dir/ QUAD-AXLE	8.25	70.00	577.50
W7	2/4/2009	Dir/ QUAD-AXLE	8.5	70.00	595.00
W11	2/4/2009	Dir/ QUAD-AXLE	5	70.00	350.00
W14	2/4/2009	Dir/ QUAD-AXLE	8.25	70.00	577.50
W4	2/5/2009	Dir/ QUAD-AXLE	9.5	70.00	665.00
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

This invoice may not include all tons or loads hauled on these dates.

**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003  
919-577-0047

**Invoice**

DATE	INVOICE #
2/15/2009	11991

BILL TO
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	PROJECT/JOB		TERMS
			QUANTITY	RATE	AMOUNT
			Transfer Station		Net 30
W6	2/5/2009	Dirt/ QUAD-AXLE	10	70.00	700.00
W7	2/5/2009	Dirt/ QUAD-AXLE	10	70.00	700.00
W9	2/5/2009	Dirt/ QUINT-AXLE	9.75	75.00	731.25
W10	2/5/2009	Dirt/ QUINT-AXLE	10	75.00	750.00
W11	2/5/2009	Dirt/ QUAD-AXLE	10	70.00	700.00
W15	2/5/2009	Dirt/ QUAD-AXLE	8.25	70.00	577.50
W16	2/5/2009	Dirt/ QUAD-AXLE	9.5	70.00	665.00
W2	2/6/2009	Dirt/ QUAD-AXLE	9.5	70.00	665.00
W4	2/6/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
W6	2/6/2009	Dirt/ QUAD-AXLE	9.75	70.00	682.50
W7	2/6/2009	Dirt/ QUAD-AXLE	8	70.00	560.00
W9	2/6/2009	Dirt/ QUINT-AXLE	9	75.00	675.00
W10	2/6/2009	Dirt/ QUINT-AXLE	2.5	75.00	187.50
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

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**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

DATE	INVOICE #
2/15/2009	11991

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

			PROJECT/JOB	TERMS	
			Transfer Station	Net 30	
TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W11	2/6/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
W12	2/6/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
W13	2/6/2009	Dirt/ QUAD-AXLE	10	70.00	700.00
W15	2/6/2009	Dirt/ QUAD-AXLE	6.5	70.00	455.00
W2	2/7/2009	Dirt/ QUAD-AXLE	8	70.00	560.00
W4	2/7/2009	Dirt/ QUAD-AXLE	8	70.00	560.00
W6	2/7/2009	Dirt/ QUAD-AXLE	7.75	70.00	542.50
W7	2/7/2009	Dirt/ QUAD-AXLE	8	70.00	560.00
W9	2/7/2009	Dirt/ QUINT-AXLE	8	75.00	600.00
W10	2/7/2009	Dirt/ QUINT-AXLE	7.75	75.00	581.25
W11	2/7/2009	Dirt/ QUAD-AXLE	8	70.00	560.00
W12	2/7/2009	Dirt/ QUAD-AXLE	8	70.00	560.00
W13	2/7/2009	Dirt/ QUAD-AXLE	8.25	70.00	577.50
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

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**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

DATE	INVOICE #
2/15/2009	11991

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

PROJECT/JOB	TERMS
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W16	2/7/2009	Dir/ QUAD-AXLE	8	70.00	560.00
W1	2/9/2009	Dir/ QUAD-AXLE	9.5	70.00	665.00
W2	2/9/2009	Dir/ QUAD-AXLE	10	70.00	700.00
W4	2/9/2009	Dir/ QUAD-AXLE	9.75	70.00	682.50
W6	2/9/2009	Dir/ QUAD-AXLE	9.25	70.00	647.50
W7	2/9/2009	Dir/ QUAD-AXLE	10	70.00	700.00
W9	2/9/2009	Dir/ QUINT-AXLE	9.75	75.00	731.25
W11	2/9/2009	Dir/ QUAD-AXLE	10.25	70.00	717.50
W12	2/9/2009	Dir/ QUAD-AXLE	9.25	70.00	647.50
W13	2/9/2009	Dir/ QUAD-AXLE	9.75	70.00	682.50
W16	2/9/2009	Dir/ QUAD-AXLE	10.25	70.00	717.50
W1	2/10/2009	Dir/ QUAD-AXLE	3.75	70.00	262.50
W2	2/10/2009	Dir/ QUAD-AXLE	10.5	70.00	735.00

*We really appreciate your business, and look forward to our long lasting working relationship !!!*

**Total**

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**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

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2/15/2009	11991

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

PROJECT/JOB	TERMS
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W3	2/10/2009	Dir/ QUAD-AXLE	1.5	70.00	105.00
W4	2/10/2009	Dir/ QUAD-AXLE	10	70.00	700.00
W6	2/10/2009	Dir/ QUAD-AXLE	9.75	70.00	682.50
W7	2/10/2009	Dir/ QUAD-AXLE	1	70.00	70.00
W9	2/10/2009	Dir/ QUINT-AXLE	9	75.00	675.00
W10	2/10/2009	Dir/ QUINT-AXLE	9.25	75.00	693.75
W11	2/10/2009	Dir/ QUAD-AXLE	10	70.00	700.00
W12	2/10/2009	Dir/ QUAD-AXLE	9.75	70.00	682.50
W13	2/10/2009	Dir/ QUAD-AXLE	10	70.00	700.00
W14	2/10/2009	Dir/ QUAD-AXLE	4	70.00	280.00
W16	2/10/2009	Dir/ QUAD-AXLE	9	70.00	630.00
W1	2/11/2009	Dir/ QUAD-AXLE	9.5	70.00	665.00
W2	2/11/2009	Dir/ QUAD-AXLE	10	70.00	700.00

<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>	<b>Total</b>
--	--------------

This invoice may not include all tons or loads hauled on these dates.

**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

DATE	INVOICE #
2/15/2009	11991

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

PROJECT/JOB	TERMS
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W4	2/11/2009	Dirt/ QUAD-AXLE	9.5	70.00	665.00
W6	2/11/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
W9	2/11/2009	Dirt/ QUINT-AXLE	10.25	75.00	768.75
W10	2/11/2009	Dirt/ QUINT-AXLE	9.25	75.00	693.75
W11	2/11/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
W13	2/11/2009	Dirt/ QUAD-AXLE	10.25	70.00	717.50
W14	2/11/2009	Dirt/ QUAD-AXLE	9.75	70.00	682.50
W15	2/11/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
W16	2/11/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
W1	2/12/2009	Dirt/ QUAD-AXLE	9.5	70.00	665.00
W2	2/12/2009	Dirt/ QUAD-AXLE	10	70.00	700.00
W4	2/12/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
W6	2/12/2009	Dirt/ QUAD-AXLE	10	70.00	700.00
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

This invoice may not include all tons or loads hauled on these dates.

**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

<b>DATE</b>	<b>INVOICE #</b>
2/15/2009	11991

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

<b>PROJECT/JOB</b>	<b>TERMS</b>
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W10	2/12/2009	Dir/ QUINT-AXLE	9.25	75.00	693.75
W11	2/12/2009	Dir/ QUAD-AXLE	9.75	70.00	682.50
W12	2/12/2009	Dir/ QUAD-AXLE	7.75	70.00	542.50
W13	2/12/2009	Dir/ QUAD-AXLE	6	70.00	420.00
W14	2/12/2009	Dir/ QUAD-AXLE	9.5	70.00	665.00
W15	2/12/2009	Dir/ QUAD-AXLE	10	70.00	700.00
W16	2/12/2009	Dir/ QUAD-AXLE	9.5	70.00	665.00
W1	2/13/2009	Dir/ QUAD-AXLE	8.5	70.00	595.00
W4	2/13/2009	Dir/ QUAD-AXLE	9.5	70.00	665.00
W6	2/13/2009	Dir/ QUAD-AXLE	9	70.00	630.00
W9	2/13/2009	Dir/ QUINT-AXLE	9	75.00	675.00
W10	2/13/2009	Dir/ QUINT-AXLE	9	75.00	675.00
W11	2/13/2009	Dir/ QUAD-AXLE	9.75	70.00	682.50

*We really appreciate your business, and look forward to our long lasting working relationship !!!*

**Total**

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**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

DATE	INVOICE #
2/15/2009	11991

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

PROJECT/JOB	TERMS
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W12	2/13/2009	Dir/ QUAD-AXLE	4.5	70.00	315.00
W13	2/13/2009	Dir/ QUAD-AXLE	10	70.00	700.00
W14	2/13/2009	Dir/ QUAD-AXLE	9	70.00	630.00
W15	2/13/2009	Dir/ QUAD-AXLE	8.5	70.00	595.00
W16	2/13/2009	Dir/ QUAD-AXLE	8.5	70.00	595.00
<p>Open balance of \$366.25 ck 14713 5-27-09 \$63,000.00</p>					

<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>	<b>Total</b>	<b>\$58,941.25</b>
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This invoice may not include all tons or loads hauled on these dates.

# Woodell Transport, Inc.

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

# Invoice

DATE	INVOICE #
3/31/2009	12056

## BILL TO

King's Grading  
Shotwell Transfer Station  
3209 Gresham Lake Road  
Suite 114-115  
Raleigh NC 27615

PROJECT/JOB	TERMS
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W1	3/16/2009	(Rough Haul/ per hour, QUAD-AXLE)	6.75	75.00	506.25
W2	3/16/2009	Rough/ QUAD-AXLE	5.25	75.00	393.75
W4	3/16/2009	Rough/ QUAD-AXLE	5	75.00	375.00
W1	3/17/2009	Rough/ QUAD-AXLE	9	75.00	675.00
W2	3/17/2009	Rough/ QUAD-AXLE	8.25	75.00	618.75
W4	3/17/2009	Rough/ QUAD-AXLE	8.75	75.00	656.25
KT-413	3/10/2009	(Dirt/ per hour, QUAD-AXLE)	9.5	70.00	665.00
DL04	3/11/2009	Dirt/ QUAD-AXLE	8.75	70.00	612.50
DL07	3/11/2009	Dirt/ QUINT-AXLE	8.75	75.00	656.25
KT-13	3/11/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
KT-130	3/11/2009	Dirt/ QUAD-AXLE	10	70.00	700.00
KT-413	3/11/2009	Dirt/ QUAD-AXLE	9.5	70.00	665.00
SW10	3/11/2009	Dirt/ QUINT-AXLE	9.5	75.00	712.50
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

This invoice may not include all tons or loads hauled on these dates.

# Woodell Transport, Inc.

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

# Invoice

DATE	INVOICE #
3/31/2009	12056

BILL TO
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

PROJECT/JOB	TERMS
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
TMM-01	3/11/2009	Dirt/ QUAD-AXLE	10.25	70.00	717.50
Z2	3/11/2009	Dirt/ QUINT-AXLE	9.5	75.00	712.50
JJ1	3/12/2009	Dirt/ QUAD-AXLE	10	70.00	700.00
KAP-1	3/12/2009	Dirt/ QUAD-AXLE	10	70.00	700.00
KT-13	3/12/2009	Dirt/ QUAD-AXLE	10.25	70.00	717.50
KT-130	3/12/2009	Dirt/ QUAD-AXLE	10	70.00	700.00
KT-413	3/12/2009	Dirt/ QUAD-AXLE	10	70.00	700.00
SW10	3/12/2009	Dirt/ QUINT-AXLE	9.25	75.00	693.75
TMM-01	3/12/2009	Dirt/ QUAD-AXLE	10.25	70.00	717.50
JFT-3	3/19/2009	Process Fill & Dirt/ QUAD-AXLE	6.75	70.00	472.50
W14	3/19/2009	PF & Dirt/ QUAD-AXLE	7	70.00	490.00
JBH2	3/23/2009	Dirt/ QUINT-AXLE	8	75.00	600.00
JFT-3	3/23/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

This invoice may not include all tons or loads hauled on these dates.

**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

<b>DATE</b>	<b>INVOICE #</b>
3/31/2009	12056

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

<b>PROJECT/JOB</b>	<b>TERMS</b>
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W1	3/23/2009	Dirt/ QUAD-AXLE	9.75	70.00	682.50
W3	3/23/2009	Dirt/ QUAD-AXLE	9.75	70.00	682.50
W4	3/23/2009	Dirt/ QUAD-AXLE	9.75	70.00	682.50
W6	3/23/2009	Dirt/ QUAD-AXLE	9.5	70.00	665.00
W9	3/23/2009	Dirt/ QUINT-AXLE	10	75.00	750.00
W10	3/23/2009	Dirt/ QUINT-AXLE	10	75.00	750.00
W11	3/23/2009	Dirt/ QUAD-AXLE	9.75	70.00	682.50
W12	3/23/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
W14	3/23/2009	Dirt/ QUAD-AXLE	9.75	70.00	682.50
W16	3/23/2009	Dirt/ QUAD-AXLE	10	70.00	700.00
DL07	3/24/2009	Dirt/ QUINT-AXLE	9.25	75.00	693.75
DL12	3/24/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
JFT-3	3/24/2009	Dirt/ QUAD-AXLE	9.75	70.00	682.50
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

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# Woodell Transport, Inc.

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

# Invoice

DATE	INVOICE #
3/31/2009	12056

### BILL TO

King's Grading  
Shotwell Transfer Station  
3209 Gresham Lake Road  
Suite 114-115  
Raleigh NC 27615

			PROJECT/JOB	TERMS	
			Transfer Station	Net 30	
TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
KT-130	3/24/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
KT-413	3/24/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
W1	3/24/2009	Dirt/ QUAD-AXLE	9.5	70.00	665.00
W2	3/24/2009	Dirt/ QUAD-AXLE	8.75	70.00	612.50
W3	3/24/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
W4	3/24/2009	Dirt/ QUAD-AXLE	9.75	70.00	682.50
W6	3/24/2009	Dirt/ QUAD-AXLE	9.5	70.00	665.00
W9	3/24/2009	Dirt/ QUINT-AXLE	9.25	75.00	693.75
W10	3/24/2009	Dirt/ QUINT-AXLE	9.75	75.00	731.25
W11	3/24/2009	Dirt/ QUAD-AXLE	7.5	70.00	525.00
W14	3/24/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
W16	3/24/2009	Dirt/ QUAD-AXLE	9.5	70.00	665.00
JBH2	3/25/2009	Dirt/ QUINT-AXLE	10	75.00	750.00
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

This invoice may not include all tons or loads hauled on these dates.

**Woodell Transport, Inc.**3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

<b>DATE</b>	<b>INVOICE #</b>
3/31/2009	12056

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

<b>PROJECT/JOB</b>	<b>TERMS</b>
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
JBH4	3/25/2009	Dir/ QUAD-AXLE	9.75	70.00	682.50
W2	3/25/2009	Dir/ QUAD-AXLE	9	70.00	630.00
W3	3/25/2009	Dir/ QUAD-AXLE	9	70.00	630.00
W4	3/25/2009	Dir/ QUAD-AXLE	10	70.00	700.00
W6	3/25/2009	Dir/ QUAD-AXLE	9	70.00	630.00
W9	3/25/2009	Dir/ QUAD-AXLE	9	70.00	630.00
W10	3/25/2009	Dir/ QUINT-AXLE	9.25	75.00	693.75
W11	3/25/2009	Dir/ QUAD-AXLE	9.25	70.00	647.50
W12	3/25/2009	Dir/ QUAD-AXLE	7.75	70.00	542.50
W14	3/25/2009	Dir/ QUAD-AXLE	9.25	70.00	647.50
W15	3/25/2009	Dir/ QUAD-AXLE	9.5	70.00	665.00
W16	3/25/2009	Dir/ QUAD-AXLE	10	70.00	700.00
W9	3/26/2009	PF/ QUINT-AXLE	7.25	75.00	543.75
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

This invoice may not include all tons or loads hauled on these dates.

**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

<b>DATE</b>	<b>INVOICE #</b>
3/31/2009	12056

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

<b>PROJECT/JOB</b>	<b>TERMS</b>
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W9	3/26/2009	PF/ QUINT-AXLE	4.5	75.00	337.50
W10	3/30/2009	PF/ QUINT-AXLE	6.5	75.00	487.50
W13	3/30/2009	PF/ QUAD-AXLE	6.25	70.00	437.50
W16	3/30/2009	PF/ QUAD-AXLE	6.5	70.00	455.00
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		<b>\$43,971.25</b>

This invoice may not include all tons or loads hauled on these dates.

**Woodell Transport, Inc.**

3105 Air Park Road

Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

<i>DATE</i>	<i>INVOICE #</i>
4/15/2009	12078

**BILL TO**

King's Grading  
 Shotwell Transfer Station  
 3209 Gresham Lake Road  
 Suite 114-115  
 Raleigh NC 27615

			<i>PROJECT/JOB</i>	<i>TERMS</i>	
			Transfer Station	Net 30	
<i>TRUCK</i>	<i>DATE</i>	<i>DESCRIPTION OF WORK PERFORMED</i>	<i>QUANTITY</i>	<i>RATE</i>	<i>AMOUNT</i>
B01	4/1/2009	(Dirt/ per hour, QUINT-AXLE)	8.5	75.00	637.50
B02	4/1/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
B05	4/1/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
B07	4/1/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
KAP-1	4/1/2009	Dirt/ QUAD-AXLE	7.5	70.00	525.00
KT-130	4/1/2009	Dirt/ QUAD-AXLE	5.25	70.00	367.50
MR37	4/1/2009	Dirt/ QUAD-AXLE	6.5	70.00	455.00
W1	4/1/2009	Dirt/ QUAD-AXLE	2.75	70.00	192.50
W4	4/1/2009	Dirt/ QUAD-AXLE	4	70.00	280.00
W6	4/1/2009	Dirt/ QUAD-AXLE	6	70.00	420.00
W10	4/1/2009	Dirt/ QUINT-AXLE	8.5	75.00	637.50
W11	4/1/2009	Dirt/ QUAD-AXLE	4.75	70.00	332.50
W12	4/1/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

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**Woodell Transport, Inc.**

3105 Air Park Road

Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

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4/15/2009	12078

**BILL TO**

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 Shotwell Transfer Station  
 3209 Gresham Lake Road  
 Suite 114-115  
 Raleigh NC 27615

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	PROJECT/JOB		TERMS
			Transfer Station		Net 30
			QUANTITY	RATE	AMOUNT
W13	4/1/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
W14	4/1/2009	Dirt/ QUAD-AXLE	3	70.00	210.00
W16	4/1/2009	Dirt/ QUAD-AXLE	5.5	70.00	385.00
W1	4/6/2009	Dirt/ QUAD-AXLE	1.25	70.00	87.50
W9	4/6/2009	Dirt/ QUINT-AXLE	1	75.00	75.00
W10	4/6/2009	Dirt/ QUINT-AXLE	1.25	75.00	93.75
W11	4/6/2009	Dirt/ QUAD-AXLE	0.5	70.00	35.00
W12	4/6/2009	Dirt/ QUAD-AXLE	1.25	70.00	87.50
W13	4/6/2009	Dirt/ QUAD-AXLE	0.75	70.00	52.50
W14	4/6/2009	Dirt/ QUAD-AXLE	1	70.00	70.00
W16	4/6/2009	Dirt/ QUAD-AXLE	0.5	70.00	35.00
JBH6	4/7/2009	Dirt/ QUAD-AXLE	8.75	70.00	612.50
CTI10	4/7/2009	Dirt/ QUAD-AXLE	2.25	70.00	157.50
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

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**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003  
919-577-0047

**Invoice**

<b>DATE</b>	<b>INVOICE #</b>
4/15/2009	12078

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

<b>PROJECT/JOB</b>	<b>TERMS</b>
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
KT-13	4/7/2009	Dirt/ QUAD-AXLE	8	70.00	560.00
KT-130	4/7/2009	Dirt/ QUAD-AXLE	8	70.00	560.00
KT-413	4/7/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
W1	4/7/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
W2	4/7/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
W4	4/7/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
W6	4/7/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
W9	4/7/2009	Dirt/ QUINT-AXLE	6.25	75.00	468.75
W14	4/7/2009	Dirt/ QUAD-AXLE	8.25	70.00	577.50
SW10	4/7/2009	Dirt/ QUINT-AXLE	8.25	75.00	618.75
Z2	4/7/2009	Dirt/ QUINT-AXLE	8.5	75.00	637.50
CTI10	4/8/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
LO5	4/8/2009	Dirt/ QUAD-AXLE	8.75	70.00	612.50
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

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**Woodell Transport, Inc.**

3105 Air Park Road

Fuquay NC 27526

919-577-0003

919-577-0047

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4/15/2009	12078

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

<b>PROJECT/JOB</b>	<b>TERMS</b>
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
MR37	4/8/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
MR44	4/8/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
SW10	4/8/2009	Dirt/ QUAD-AXLE	8.75	70.00	612.50
SW11	4/8/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
TST6	4/8/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
Z2	4/8/2009	Dirt/ QUINT-AXLE	8.25	75.00	618.75
Z3	4/8/2009	Dirt/ QUAD-AXLE	8	70.00	560.00
W1	4/8/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
W6	4/8/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
W9	4/8/2009	Dirt/ QUINT-AXLE	9	75.00	675.00
W11	4/8/2009	Dirt/ QUAD-AXLE	6.5	70.00	455.00
W12	4/8/2009	Dirt/ QUAD-AXLE	7	70.00	490.00
W13	4/8/2009	Dirt/ QUAD-AXLE	7	70.00	490.00
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		

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**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003  
919-577-0047

**Invoice**

<b>DATE</b>	<b>INVOICE #</b>
4/15/2009	12078

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

<b>PROJECT/JOB</b>	<b>TERMS</b>
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W14	4/8/2009	Dirt/ QUAD-AXLE	5.25	70.00	367.50
W16	4/8/2009	Dirt/ QUAD-AXLE	6.5	70.00	455.00
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		<b>\$24,832.50</b>

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**Woodell Transport, Inc.**3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

<b>DATE</b>	<b>INVOICE #</b>
4/30/2009	12097

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

			<b>PROJECT/JOB</b>	<b>TERMS</b>	
			Transfer Station	Net 30	
<b>TRUCK</b>	<b>DATE</b>	<b>DESCRIPTION OF WORK PERFORMED</b>	<b>QUANTITY</b>	<b>RATE</b>	<b>AMOUNT</b>
M-03	4/1/2009	(Dirt/ per hour, QUAD-AXLE)	8.5	70.00	595.00
M-04	4/1/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
S1	4/1/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
DL07	4/7/2009	Dirt/ QUINT-AXLE	8	75.00	600.00
DL12	4/7/2009	Dirt/ QUAD-AXLE	8	70.00	560.00
DL14	4/7/2009	Dirt/ QUAD-AXLE	8.25	70.00	577.50
M-03	4/7/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
M-04	4/7/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
DL07	4/8/2009	Dirt/ QUINT-AXLE	8.5	75.00	637.50
DL12	4/8/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
LM01	4/8/2009	Dirt/ QUINT-AXLE	6	75.00	450.00
W1	4/16/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
W3	4/16/2009	Dirt/ QUAD-AXLE	9.5	70.00	665.00
<b>We really appreciate your business, and look forward to our long lasting working relationship !!!</b>			<b>Total</b>		

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**Woodell Transport, Inc.**

3105 Air Park Road

Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

<b>DATE</b>	<b>INVOICE #</b>
4/30/2009	12097

**BILL TO**

King's Grading  
 Shotwell Transfer Station  
 3209 Gresham Lake Road  
 Suite 114-115  
 Raleigh NC 27615

**PROJECT/JOB****TERMS**

Transfer Station

Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W6	4/16/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
W9	4/16/2009	Dirt/ QUINT-AXLE	8.25	75.00	618.75
W13	4/16/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
B04	4/17/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
DL05	4/17/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
DL08	4/17/2009	Dirt/ QUAD-AXLE	2.5	70.00	175.00
DL09	4/17/2009	Dirt/ QUAD-AXLE	5.5	70.00	385.00
FNP-1	4/17/2009	Dirt/ QUAD-AXLE	9.5	70.00	665.00
M-03	4/17/2009	Dirt/ QUAD-AXLE	8.5	70.00	595.00
TST6	4/17/2009	Dirt/ QUAD-AXLE	9	70.00	630.00
W1	4/17/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
W3	4/17/2009	Dirt/ QUAD-AXLE	8.75	70.00	612.50
W6	4/17/2009	Dirt/ QUAD-AXLE	9.25	70.00	647.50
<b>We really appreciate your business, and look forward to our long lasting working relationship !!!</b>			<b>Total</b>		

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**Woodell Transport, Inc.**

3105 Air Park Road  
Fuquay NC 27526

919-577-0003

919-577-0047

**Invoice**

<b>DATE</b>	<b>INVOICE #</b>
4/30/2009	12097

<b>BILL TO</b>
King's Grading Shotwell Transfer Station 3209 Gresham Lake Road Suite 114-115 Raleigh NC 27615

<b>PROJECT/JOB</b>	<b>TERMS</b>
Transfer Station	Net 30

TRUCK	DATE	DESCRIPTION OF WORK PERFORMED	QUANTITY	RATE	AMOUNT
W9	4/17/2009	Dirt/ QUINT-AXLE	9	75.00	675.00
W10	4/17/2009	Dirt/ QUINT-AXLE	4.5	75.00	337.50
W11	4/17/2009	Dirt/ QUAD-AXLE	6	70.00	420.00
<i>We really appreciate your business, and look forward to our long lasting working relationship !!!</i>			<b>Total</b>		<b>\$16,583.75</b>

This invoice may not include all tons or loads hauled on these dates.

**ATTACHMENT E**

**CERTIFICATION FROM MR. ERWIN WILLIAMS, P.E.**

October 18, 2010

Mr. David King  
Shotwell Transfer Station, Inc.  
225 Weathers Street, Suite 111  
Youngsville, NC 27596

**Summary Report of Testing and Observations  
Thornton Road Transfer Station  
Raleigh, North Carolina  
Our Project Number 121-08-57361**

Gentlemen:

As you are aware, representatives of TerraTech Engineers, Inc. were periodically present at the above referenced site to perform construction materials testing services. Our summary reports and engineering letters for our testing, which were previously transmitted to you, include work performed at the site from October 2008 through October 2010. As of the date of this letter, we are still in the process of providing these services to you. This letter is intended to provide a general summary of our observations and testing services, and a brief summary of our evaluations and recommendations provided in the summary reports and engineering letters for the project. This summary letter should be used only in conjunction with the previous summary reports and engineering letters, and should not be considered a replacement for the detailed reports. This letter only addresses the transfer station building construction, and does not address the scale, scale house building, and retaining wall located to the east of the scale.

***Soil Density Testing and Proofrolling Observations***

Our representative was periodically present to perform evaluations and testing of the fill materials that were placed in the building area. At the time of our first arrival, portions of the existing organic debris had been removed from the building area, and a layer of fill soils placed. We performed density testing of the exposed fill soils. We subsequently visited the site to perform random soil density tests. We did not monitor fill placement and compaction operations. The results of our tests, which have previously been sent to you, indicated that the fill soils were generally compacted to at least 95% of their standard Proctor maximum dry density at the locations and elevations tested. However, three of our density tests did not meet this standard. These three tests were located within the building area at depths of 7 feet to 8 feet below the subgrade elevation that was provided to us at the time of fill placement. These tests showed compaction percentages of 91 to 94 percent of the standard Proctor maximum dry density. Since our representative was not present at the site to continually monitor the placement and compaction of the structural fill materials throughout the entire project, our density tests should be considered "spot" checks only at the elevations and locations tested, unless otherwise indicated on our Field Density Reports.

Prior to floor slab construction inside the building area, we observed proofrolling operations on the floor slab subgrade soils. After some remedial measures were performed to dry soils that had become wet from rain, the exposed subgrade soils generally exhibited no excessive deflection beneath the proofrolling loads prior to placement of the required layer of ABC stone. We also performed density testing of the ABC stone layer required beneath the floor slab in the building area prior to placement of concrete. These test results indicated that the ABC stone was compacted in accordance with the project

drawings and specifications at the locations and elevations tested. Our test results and proofrolling observations have previously been detailed in our letters.

### ***Foundation Testing Services***

Our representative was periodically present to evaluate the foundation subgrade conditions for the building area at the project site. As noted in our original geotechnical report, there is buried organic matter within the building area. This material is expected to consolidate over time, resulting in post-construction settlement of the building. This was noted in the project drawings prepared by Ross-Linden Engineers, the project structural engineers.

The foundation areas that we tested include the perimeter column and wall footings, including the retaining wall footings. As noted in our March 24, 2010 letter, buried organic matter was encountered along column line A at an elevation higher than anticipated. As approved by Mr. Brian Ross, P.E., the project structural engineer, the footings along column line A were raised approximately 3 feet to provide for additional separation between the footings and organic matter, and to reduce the potential for foundation settlement. In all other areas, the exposed materials that were encountered at the locations and elevations tested in the footing excavations were generally suitable for the design allowable soil bearing capacity of 1500 pounds per square foot (psf). However, soft soils were encountered in portions of the foundation excavations along column line A and from column line F-3 to F-5. In these areas, the upper 18 inches of soil was removed; the exposed soils were compacted; and the upper 18 inches of soil replaced with compacted fill materials. After these remedial measures were performed, dynamic cone penetrometer testing indicated that the soils in the upper 3 feet were suitable for a design bearing capacity of 1500 psf. Please refer to note 9 on sheet S-2 of the project drawings for information related to expected foundation settlement.

### ***Concrete Testing***

Our representative was periodically present to perform testing during the placement of concrete for the building area footings, retaining wall, and floor slabs. Our testing was limited to the areas detailed in our previously transmitted concrete compressive strength reports. Concrete was generally poured in continuous placement using chutes of revolving drum trucks and hydraulic pump trucks. Our testing was performed in accordance with ASTM C-31.

Based on the results of our testing, the 28 day compressive strength of the tested concrete generally met the required compressive strength specified in the project plans and specifications. However, there were several compressive strength tests that indicated that the concrete had an actual compressive strength less than the design compressive strength of 4,000 psi at 28 days. In each of these instances, the compressive strength of a concrete cylinder made from the same batch of concrete was found to exceed the required 4,000 psi at an age of 56 days. These test results have previously been transmitted to you.

### ***Structural Steel Testing***

Our representative was present at the project site to perform observations of the welded and bolted structural steel connections for the steel framing of the building. The majority of the steel connections were in compliance with the structural drawings provided to us, as modified in letters and conversations with Mr. Cliff Querry of Varco-Pruden, the building design and supply company. Specifics of the steel frame design and construction are provided in our October 14, 2010 letter. At the time of this letter,

Page 3

one item was present that still required clarification, and possibly changes, in the structural steel. This item consists of the cross-bracing along column line K at the right rear corner of the building. The bracing in this area has been modified due to the door panel. The project designer should verify that the altered cross-bracing is acceptable.

**Closing**

We appreciate being of service to you on this project. If you have any questions concerning this information, please contact us.

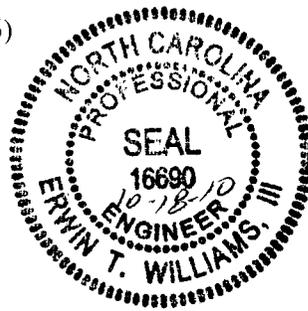
Sincerely,  
TerraTech Engineers, Inc. (C-1356)



Erwin T. Williams, III, P.E.  
Principal Engineer

ETW/sk

cc: Mr. Stacey Smith



**ATTACHMENT F**  
**AS-BUILT SURVEY**





