

September 23, 2014

Matthew Aufman  
NCDENR - Division of Waste Management  
217 West Jones Street  
Raleigh, North Carolina 27603

**Subject: Remedial Investigation Work Plan Addendum**  
Engineered Controls International, LLC (ECI)  
100 Rego Drive  
Elon, Alamance County, North Carolina  
Docket No. 13-SF-367  
NONCD0002904

**ERM NC, Inc.**  
15720 Brixham Hill Avenue  
Suite 120  
Charlotte, NC 28277  
(704) 541-8345  
(704) 541-8416 (fax)



Dear Mr. Aufman:

On behalf of ECI, ERM NC, Inc. (ERM) is transmitting this Remedial Investigation Workplan Addendum for the referenced ECI facility located in Elon, North Carolina ([Figure 1](#)). The addendum describes the planned additional groundwater assessment activities at the site.

### ***Background and Rationale for Work***

Upon being retained by ECI as the Registered Environmental Consultant (REC) for the Elon project, ERM developed a *Remedial Investigation Workplan* (ERM April 17, 2014) to assess potential residual soil and groundwater impact in six areas of concern (AOCs) at the site and groundwater downgradient of the AOCs. From May through June 2014, ERM implemented the workplan and conducted a Phase I RI at the site.

Results of the Phase I RI confirmed that a residual volatile organic compound (VOC) source mass is present in shallow soils at the Former Vapor Degreaser Area (AOC 1). As required, the extent of the VOC-affected soils has been delineated to the unrestricted/residential Preliminary Soil Remediation Goal (PSRG) of 880 micrograms per kilogram (ug/kg) for TCE, the main constituent of concern for the site. Two soil samples, both located beneath the concrete floor of the facility contain VOC concentrations above the industrial PSRG.

The extent of VOC-affected groundwater from the former source areas has been laterally delineated in the shallow saprolite aquifer zone. The VOC-affected groundwater has not been fully delineated in the shallow and intermediate and bedrock aquifer zone in the downgradient direction, and based on the results of Phase I RI activities, vertical delineation of VOCs in groundwater near the source area is also not complete. This RI Workplan addendum is being submitted to cover

assessment activities designed to define the lateral and vertical extent of groundwater impacts at the site.

To define the vertical extent of groundwater impact, one deep, bedrock well will be installed in the vicinity of existing well DW-2 (DW-2D). To define the lateral extent of groundwater impact in the shallow and intermediate bedrock aquifer zones, two additional bedrock wells (DW-5 and DW-5I) will be installed downgradient of the site and north of Haggard Avenue. The exact location of the downgradient off-site wells has not been determined, but for planning purposes, a vacant Elon University property is being considered, subject to gaining access and permission from the university to conduct assessment activities. Property access agreements and the required monitor well installation application will be provided under separate cover to the NCDENR, once access is granted. Details of the planned activities are provided below.

### *Planned Well Installation Activities*

The lateral extent, off-site monitor wells and the new deep bedrock monitor well will be installed as Type III, double cased wells. To install each well, ERM will contract with a licensed North Carolina driller to mobilize to the Elon site. Bedrock monitor well installation will be accomplished by first using hollow-stem auger (HSA) drilling methods in saprolite and partially weathered rock aquifer zones until auger refusal is encountered. Once bedrock or auger refusal is encountered, air rotary or rotary core drilling methods will then be used to advance each borehole through bedrock to the target completion depths. A nominal 4-inch diameter schedule 40 polyvinyl chloride (PVC) surface casing will be installed and grouted with cement at each well location to isolate the saprolite and PWR aquifer zone from the intermediate and/or deep bedrock aquifer zones. The grout will then be allowed to cure for approximately 24 hours before the boring is completed to depth to allow installation of the Type III wells in accordance the North Carolina well installation rules.

The off-site lateral extent wells (DW-5 and DW-5I) are planned for installation approximately 175 feet northeast of existing monitor well DW-4 and to target depths of 85 and 100 feet below land surface (ft bls), respectively. The deep bedrock well (DW-2D) will be paired with existing on-site monitor well DW-2 with a target depth of approximately 200 ft bls. Proposed well locations are shown on [Figure 2](#).

Each new monitor well will be constructed of 10 feet of 0.010-inch slotted 2" PVC well screen and the appropriate amount of 2-inch PVC riser to bring the well to land surface. The monitor wells will be completed at land surface with a locking, below-grade manhole within a 2-foot square concrete pad. The actual surface casing and total well depths will be determined in the field based on observed site conditions during drilling.

Upon completion, the monitor wells will be developed by bailing or pumping until turbidity is significantly reduced. Once developed, the wells will be sampled using low-flow methods and the samples will be analyzed for VOCs via EPA method 8260B.

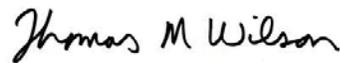
The new wells will be surveyed and their locations and well construction information will be updated in the existing site figures and tables. Upon receipt of analytical results, ERM will review the data and finalize the RI report.

It is anticipated that on-site well installation activities at the Elon site will begin on October 1, 2014. If you have any questions or comments regarding this workplan addendum, please contact ERM at 704-541-8345.

Sincerely,



Edward Hollifield, P.G.  
Project Manager



Thomas Wilson, P.G., RSM  
Principal

cc: Jimmy McCandies - ECI

***Attachments:***

- REC Certification Forms
- Figure 1 - Site Location Map
- Figure 2 - Proposed Monitor Well Location Map

## **REC Certification Forms**

IHSB SITE NAME Engineered Controls International - Elon - Docket No. 13-SF-367

DATE & NAME OF DOCUMENT Remedial Investigation Work Plan Addendum

TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

**REGISTERED SITE MANAGER CERTIFICATION OF SIGNATURES**

As the Registered Environmental Consultant for the Site for which this filing is made, I certify that the signatures included herewith are genuine and authentic original handwritten signatures and/or true, accurate, and complete copies of the genuine and authentic original handwritten signatures of the persons who purport to sign for this filing. I further certify that I have collected through reliable means the originals and/or copies of said signatures from the persons authorized to sign for this filing who, in fact, signed the originals thereof. Those persons and I understand and agree that any copies of signatures have the same legally binding effect as original handwritten signatures, and I certify that any person for whom I am submitting a copy of their signature has provided me with their express consent to submit said copy. Additionally, I certify that I am authorized to attest to the genuineness and authenticity of the signatures, both originals and any copies, being submitted herewith and that by signing below, I do in fact attest to the genuineness and authenticity of all the signatures, both originals and copies, being submitted for this filing.

Thomas M. Wilson, P.G., RSM

Name of Registered Site Manager

Thomas M Wilson  
Signature of Registered Site Manager

9-23-2014  
Date

**REGISTERED SITE MANAGER DOCUMENT CERTIFICATION STATEMENT (.0306(b)(1))**

"I certify under penalty of law that I am personally familiar with the information contained in this submittal, including any and all supporting documents accompanying this certification, and that the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete and complies with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq, and the remedial action program Rules 15A NCAC 13C .0300. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

Thomas M. Wilson, P.G., RSM

Name of Registered Site Manager

Thomas M Wilson  
Signature of Registered Site Manager

9-23-2014  
Date

**NOTARIZATION**

North Carolina (Enter State)

Mecklenburg COUNTY

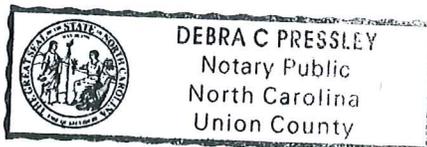
I, Debra C Pressley, a Notary Public of said County and State, do hereby certify that Thomas M Wilson did personally appear and sign before me this day, produced proper identification in the form of NCDL, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certifications is true and accurate, and he or she then signed these Certifications in my presence.

WITNESS my hand and official seal this 23 day of September, 2014.

Debra C Pressley  
Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: 10/14/2017



REC PROGRAM DOCUMENT CERTIFICATION FORM - PAGE 1 OF 2

IHSB SITE NAME Engineered Controls International - Elon

DATE & NAME OF DOCUMENT Remedial Investigation Work Plan Addendum

TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

**REMEDIATING PARTY DOCUMENT CERTIFICATION STATEMENT (.0306(B)(2))**

"I certify under penalty of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

Tim Crater

Name of Remediating Party

[Handwritten Signature]  
Signature of Remediating Party

9/23/14  
Date

**NOTARIZATION**

North Carolina (Enter State)  
Alamance COUNTY

I, Patricia T. Hill, a Notary Public of said County and State, do hereby certify that Timothy G. Crater did personally appear and sign before me this day, produced proper identification in the form of personally known, was duly sworn or affirmed, and declared that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this 23 day of September, 2014

Patricia T. Hill  
Notary Public (signature)

(OFFICIAL SEAL)

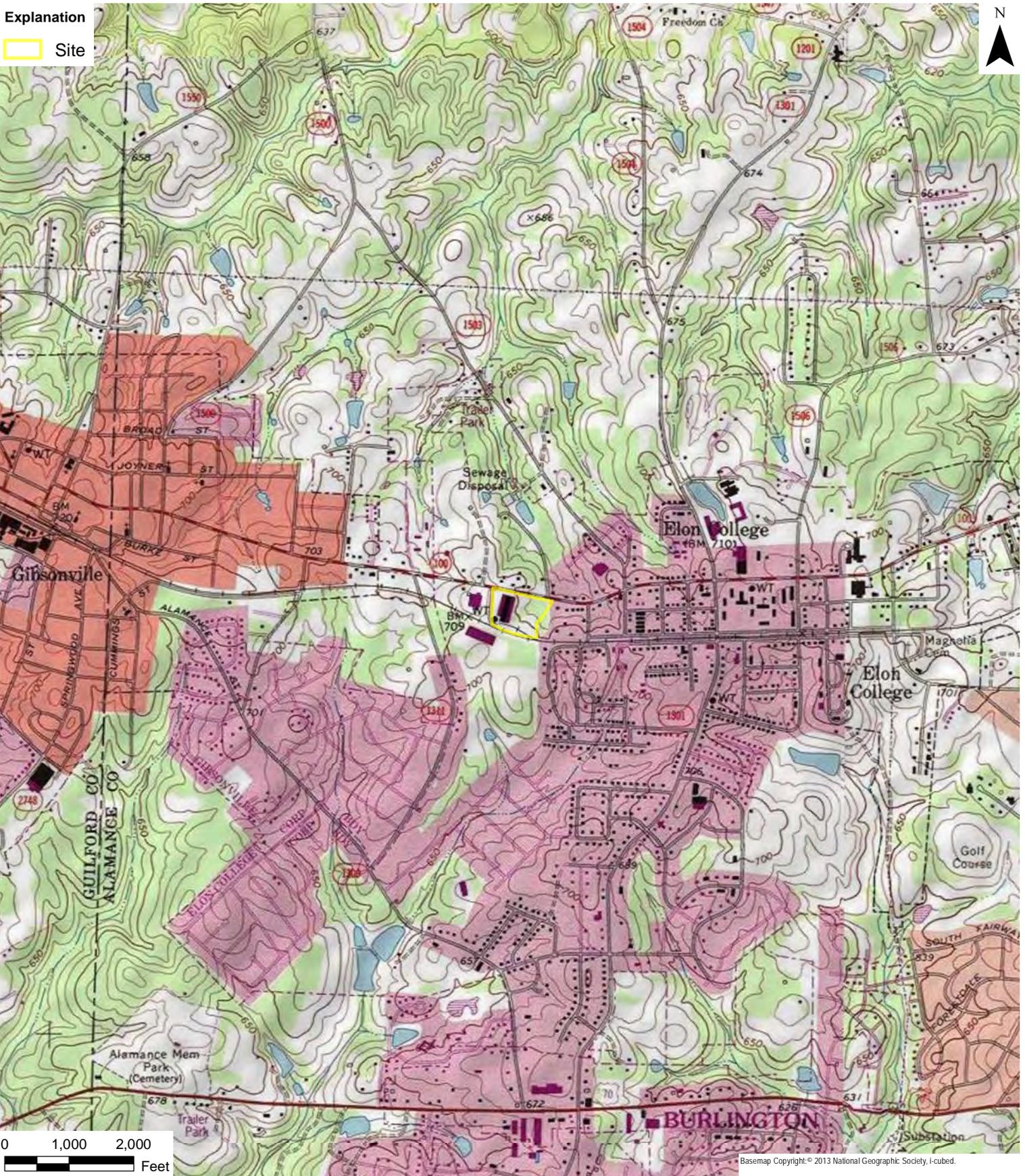
My commission expires: 2-7-17



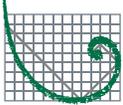
## Figures

Explanation

Site



Basemap Copyright © 2013 National Geographic Society, I-cubed.



ERM NC, Inc.

ERM

DATE: 8/19/2014 SCALE: AS SHOWN DRAWN: A Freeman

FILE: T:\Projects A to MEC\01 - Elon\6. Maps, Figures, Photographs\ElonGIS\MXD\Figure 1\_SLM.mxd

FIGURE 1

Site Location Map

Engineered Controls International, LLC.

100 Rego Drive

Elon, Alamance County, North Carolina

- Explanation**
- Site
  - Parcels
  - RailroadROW
  - Areas of Concern
- Existing Groundwater Sample Locations**
- Saprolite Monitor Well
  - Upper Bedrock Monitor Well
  - Intermediate Bedrock Monitor Well
  - Temporary Well
- Proposed Monitor Well Locations**
- Proposed Intermediate Bedrock Monitor Well
  - Proposed Deep Bedrock Monitor Well



Basemap NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board.



**ERM NC, Inc.**

SCALE: AS SHOWN    DRAWN: A Freeman    DATE: 9/15/2014

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**FIGURE 1**  
**Current & Proposed Monitor Well Locations**  
 Engineered Controls International, LLC.  
 100 Rego Drive  
 Elon, Alamance County, North Carolina