May 2016 Assessment Work Plan
Beta Fueling Systems
1209 Freeway Drive
Reidsville, North Carolina 27320
May 10, 2016

Prepared for

Mr. Marcel Haar
Beta Fueling Systems
1209 Freeway Drive
Reidsville, North Carolina 27320

Prepared By

Mr. Phillip Rahn, P.G. RSM
Waters Edge Environmental LLC
4901 Waters Edge Drive, Suite 201
Raleigh, North Carolina 27606

WATERS EDGE ENVIRONMENTAL, LLC
4901 WATERS EDGE DRIVE, SUITE 201 • RALEIGH, NC 27606 • PHONE 919.859.9987 • FAX 919.859.9930

May 4, 2016

Mr. Marcel Haar
Beta Fueling Systems
1209 Freeway Drive
Reidsville, North Carolina 27320

Reference: May 2016 Assessment Work Plan
Beta Fueling Systems
1209 Freeway Drive
Reidsville, North Carolina 27320
Waters Edge Job No. R13-35

Dear Mr. Haar:

Waters Edge Environmental, LLC (Waters Edge) has completed an May 10, 2016 *First Quarter 2016 Groundwater Monitoring Well Installation and Sampling Report* for the Beta Fueling Systems facility located in Reidsville, North Carolina. Based on this report, NCDEQ issued an April 19, 2016 response which requested the development and submittal of a Work Plan within 30 days.

Waters Edge appreciates the opportunity to provide environmental consulting services to Beta Fueling Systems. If you have any questions or require any additional information, please contact me at prahn@watersedgeenv.com or 919.219.5820.

Sincerely,

WATERS EDGE ENVIRONMENTAL, LLC

Phillip L. Rahn, PG
President
16-040/PLR

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A April 19, 2016 NCDEQ Correspondence

Acronym List

AOC	area of concern
BGS	below ground surface
COCs	Constituents of Concern
DNAPL	Dense Non-Aqueous Phase Liquid
DWM	Division of Waste Management
EPA	Environmental Protection Agency
Ft/ft	Foot per foot
IHSB	Inactive Hazardous Sites Branch
mg/kg	milligrams per kilograms or parts per million
NCDEQ	North Carolina Department of Environmental Quality
NCGS	North Carolina Groundwater Standards
ND	Non-Detect
REC	Registered Environmental Consultant
TCE	Trichloroethene
USEPA	United States Environmental Protection Agency
VI	Vapor Intrusion
VOCs	volatile organic compounds
Waters Edge	Waters Edge Environmental, LLC

May 2016 Assessment Work Plan
Beta Fueling Systems
1209 Freeway Drive
Reidsville, NC
May 4, 2016

1 Introduction

Waters Edge has completed an May 10, 2016 *First Quarter 2016 Groundwater Monitoring Well Installation and Sampling Report* for the Beta Fueling Systems (BFS) facility located in Reidsville, North Carolina (see Figure 1-2). Based on this report, NCDEQ issued an April 19, 2016 response (see Appendix A) which requested the development and submittal of a Work Plan within 30 days. Herein, is contained our proposed Work Plan tasks to comply with the NCDEQ recommendations.

2 Field Investigative Activities

2.1 Item 1- Determination of Lateral and Vertical Extent of Groundwater Contaminant Plume

On April 25th, 2016, Waters Edge met with Mr. Adam Ulishney and Mr. Qu Qi representing the NCDEQ. We discussed potential groundwater plume delineation options and ultimately decided to emplace one nest of groundwater monitoring wells west-southwest of MW-9 and one additional shallow well along Winterberry Drive northwest of the MW-9 nest as shown in Figure 3. The well nest would be comprised of a shallow and deep well in that the transitional well installed at the MW-9 and MW-10 nests had not really demonstrated that there was a confining layer exhibiting DNAPL conditions or anomalous increases in VOC concentrations. All wells would be of similar construction as the monitoring wells previously installed during the First Quarter 2016 Report and sampled for the following parameters:

- VOCs according to SW-846 Method 8260
- Chromium according to Method 200.7

Since both of these monitoring well locations are not on the BFS parcel, this will involve acceptance by the off-site landowner to perform these investigation activities. It also must be understood that the lead time for the air rotary drilling rig during the summer months can be in excess of 8 weeks.

2.2 Item 2- Incorporate Groundwater Analysis for Hexavalent Chromium in the Next Quarterly Sampling Event

We would agree that on the next quarterly sampling event, we would re-sample the most critical existing monitoring wells and newly installed monitoring wells for chromium and VOCs. We would also analyze for hexavalent chromium according to IHSB Guidelines

for Assessment and Cleanup Guidelines (Appendix A12, footnotes #6 & #7). Based on an email request to Mr. Adam Ulishney, he explained that he would accept this hexavalent sampling be conducted on only our most highly impacted well which is MW-4s and we would base our conclusions on the results from this monitoring well. The previous sampling event was conducted on March 4, 2016; therefore, we will attempt to conduct the next quarterly sampling event in July 2016 which is delayed one-month contingent on receiving permission to install and sample the new wells described in Item #1 and due to the lead time required to secure an air rotary drilling rig.

Per IHSB Guidance, we would also conduct two additional quarters of sampling subsequent to the July 2016 sampling event to complete four quarters in the first calendar year.

2.3 Item 3- Develop a Surface Water and Sediment Sampling Scheme

Historically, we have conducted surface water and sediment sampling in four locations (SW-1 to SW-4- see Figure 4) which had been previously analyzed for aluminum and chromium during in initial assessment activities since TCE had not been detected at that point in time. Based on the results of the subsequent groundwater assessment activities and an off-site landowner collecting a sample in northern discharge feature (SW-5- see Figure 4) which detected 6.75 ug/L TCE, we would recommend that the surface water sediment sampling scheme be expanded as follows:

- SW-1 to SW-5 and we would add SW-6 which is further downgradient of SW-5 since it had detected TCE (see Figure 4)

We would collect sufficient additional samples during the next quarterly sampling effort such that we would have at least one sample from each location which would be analyzed for chromium (this would be total chromium unless the sample results from Item #1 at MW-4 detected hexavalent chromium) and TCE. All sample locations would be staked in the field with a wooden stake such that we can conduct ongoing sampling if it is necessary.

2.4 Item 4- Evaluate Potential Vapor Intrusion at 1308 and 1310 Winterberry Drive

We would agree to conduct sub-slab soil gas sampling at the residences located at 1308 and 1310 Winterberry Drive (see Figure 5 and resident identifications in Table 1). At each location, we would utilize a Geoprobe to install one boring which would be a minimum of 5’ bgs and within a foot of the capillary fringe which is estimated at 15’ bgs. However, we would specify that if shallow bedrock is encountered, the boring depth would have to be adjusted. A 1”-PVC vapor well with a screen would be installed in the boring which would have a sand pack and bentonite seal outside the PVC and would also be sealed at the surface to allow for accumulation of vapors in the well environmental. We would return the

following day and insert Tygon tubing into the vapor well which would be hooked at the surface with to a 1.4L SUMMA canister. A sample aliquot would be drawn into the SUMMA canister which would be shipped via EPA-accepted chain-of-custody protocol to a certified laboratory (EMSL) located in Cinnaminson, New Jersey. This sample would be analyzed for TCE via EPA Method TO-15. We will share the results of the soil gas sampling with the residents prior to submitting the entire report to the NCDEQ.

3 Report Preparation

Upon receipt of the laboratory analytical results for the above mentioned work tasks, we would prepare a summary report detailing the field investigation efforts, analytical results, and our conclusions and recommendations for the investigation.

4 Schedule

Upon acceptance of this Work Plan, we would anticipate the following schedule:

Task	Time-Date of Completion
• Task 1- Additional Groundwater Assessment	3 Weeks- (July 2016)[1]
• Task 2- Hexavalent Cr Sampling	1 Day- (July 2016)
• Task 3- Surface Water/Sediment Sampling	1 Day- (July 2016)[2]
• Task 4- Sub-Slab Soil Vapor Investigation	2 Days- May 2016)[3]

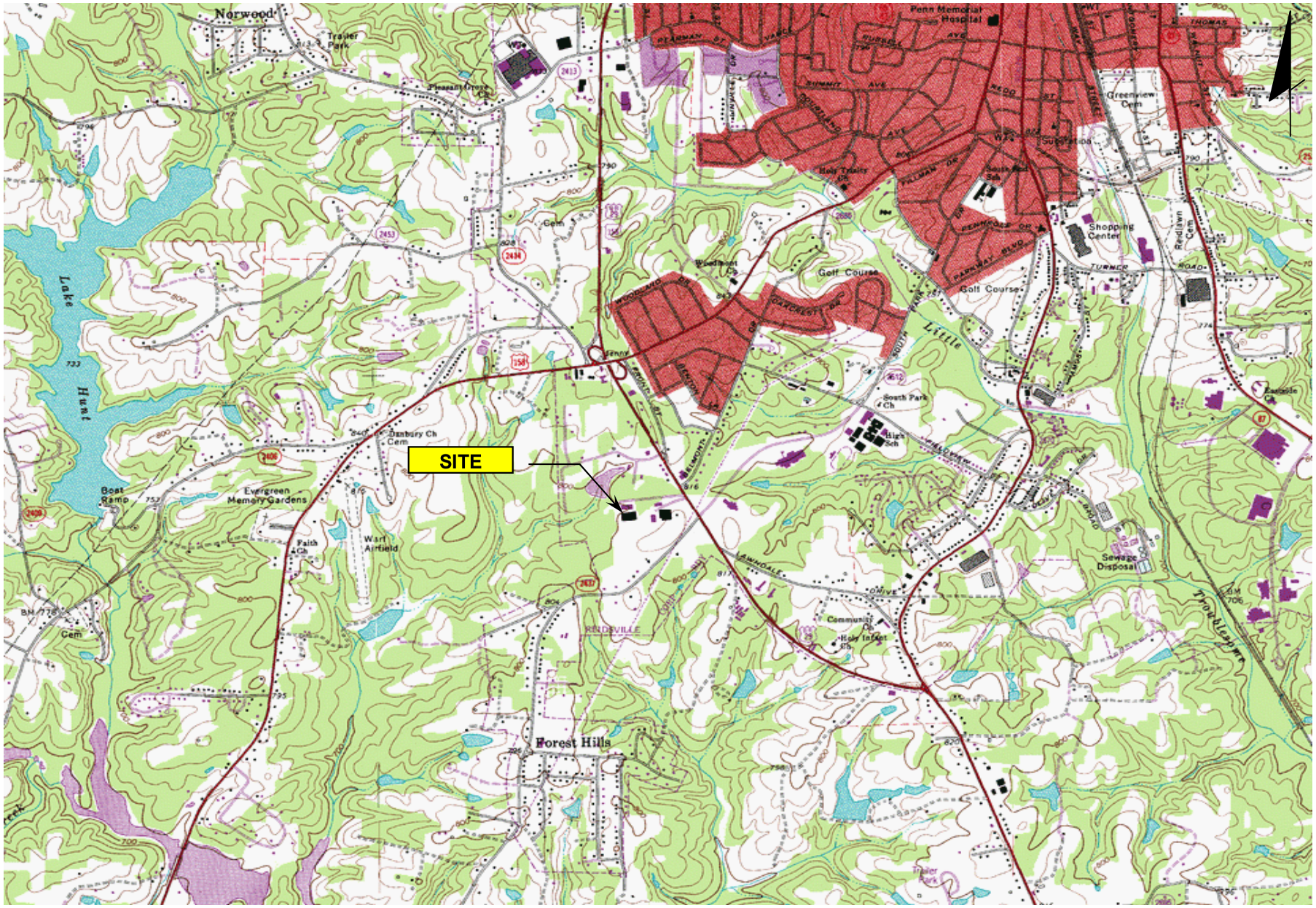
Footnotes:

1- This work task is contingent on availability of air drilling rig which can have over 8 week lead time.

2- A portion of the surface water/sediment sampling has been completed.

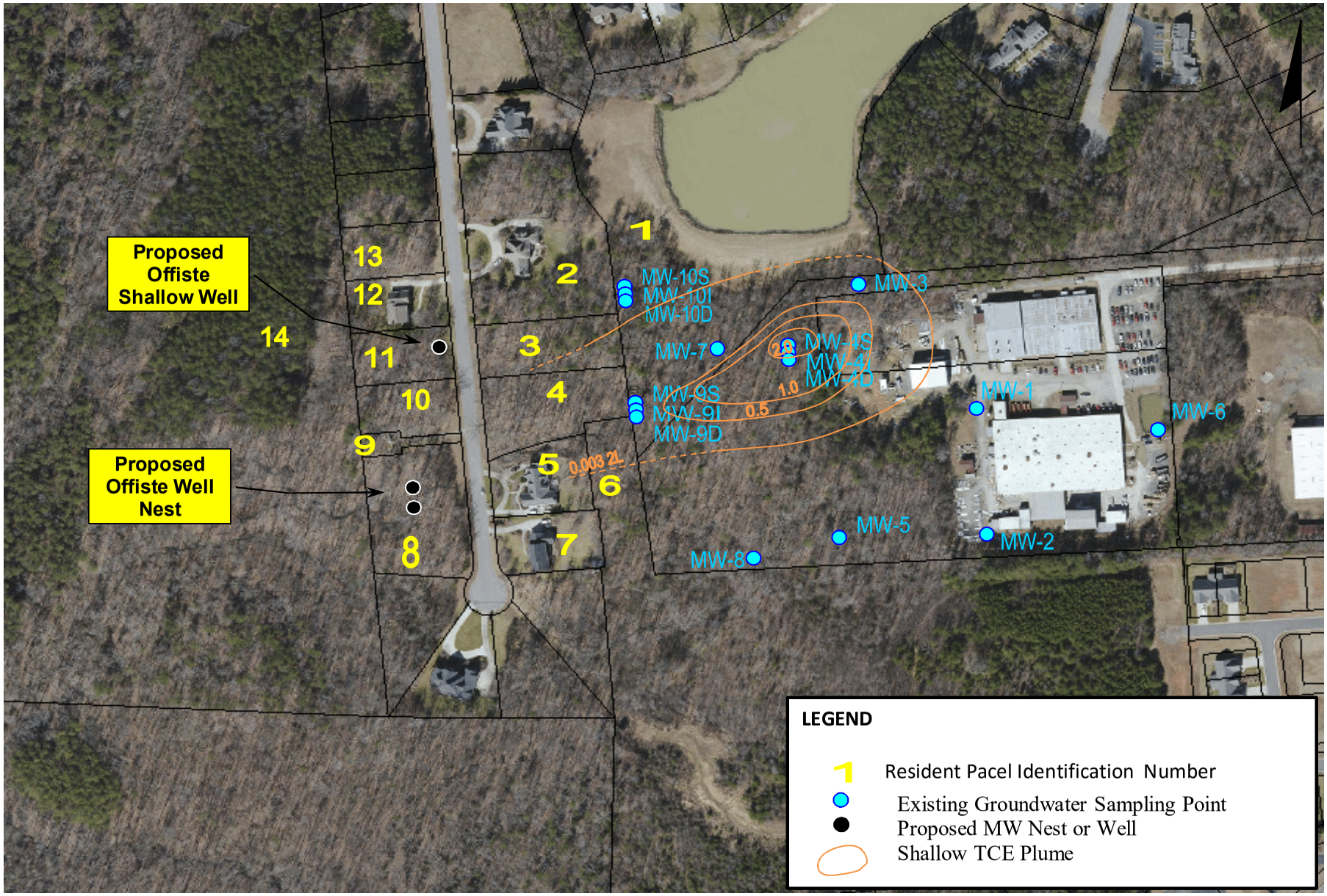
3- Assumes acceptance by off-site landowners.

Figures



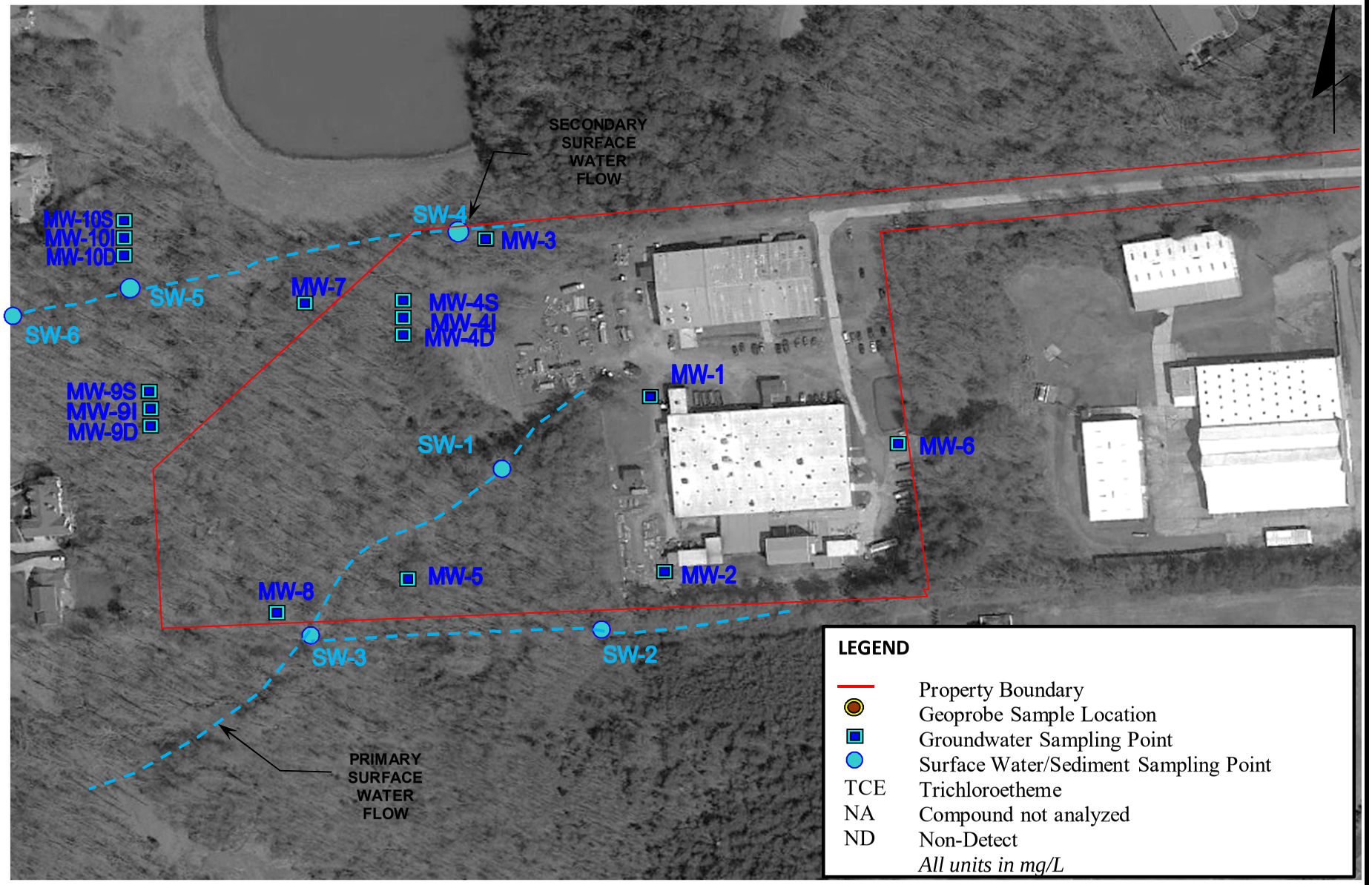
WATERS EDGE ENVIRONMENTAL, LLC	Job No. R14-35	Topo Quad Reidsville	Date 8/14/2014	Title Project Location Map
	File Name R16-040.xls	Figure 1	Scale unknown	Project Beta Fueling Systems Reidsville, North Carolina

WATERS EDGE ENVIRONMENTAL, LLC	*Job No.* R14-35	*Image/Photo* Google Earth	*Date* 9.26.14	*Title* Site Location Map
	File Name R16-040.xls	*Figure* 2	*Scale* 1"=200'	*Project* Beta Fueling Systems Reidsville, North Carolina



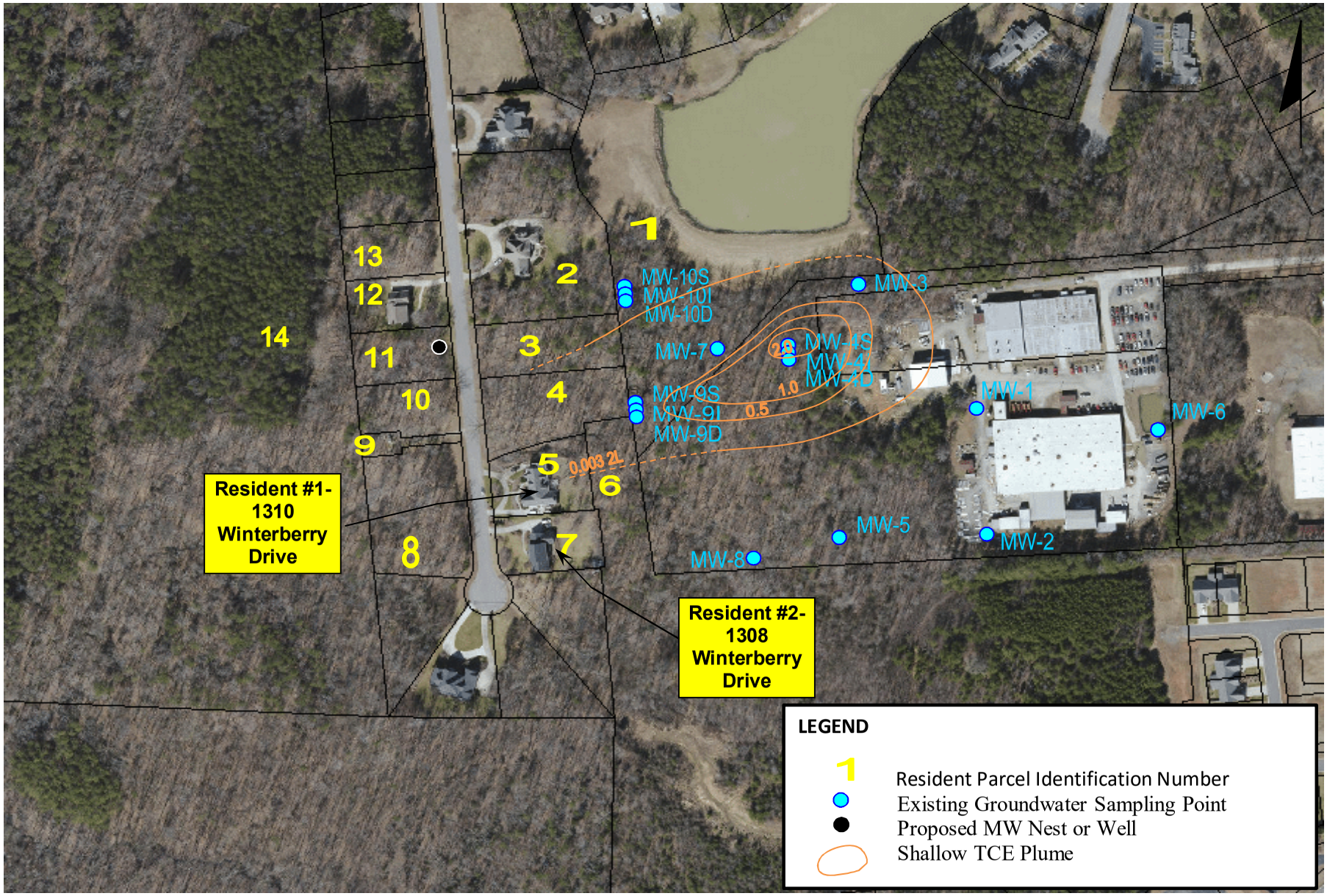
WATERS EDGE ENVIRONMENTAL, LLC

Job No.	Image/Photo	Date	Title
R14-35	Rockingham Co GIS	4.6.2016	Proposed Monitoring Well Location Map
File Name	**Figure**	**Scale**	**Project**
R15-040	3	1"=200'	Beta Fueling Systems Reidsville, North Carolina



WATERS EDGE ENVIRONMENTAL, LLC

Job No.	Image/Photo	Date	Title
R14-35	Google Earth	3.18.16	Surface Water Sampling Well Location Map (May 2016)
File Name	**Figure**	**Scale**	**Project**
R15-008	6	1"=200'	Beta Fueling Systems Reidsville, North Carolina



WATERS EDGE ENVIRONMENTAL, LLC

Job No.	Image/Photo	Date	Title
R14-35	Rockingham Co GIS	4.6.2016	Proposed Vapor Intrusion Resident Identification Map
File Name	**Figure**	**Scale**	**Project**
R15-040	5	1"=200'	Beta Fueling Systems Reidsville, North Carolina

Tables

Table 1
Surrounding Property Owners
Beta Fueling Systems
Reidsville, North Carolina

Map ID	Owner Name	Owner Address	Owner City	Owner State	Owner Zip	PIN	Parcel Address
1	Ashcroft Lake Association	129 E Morehead St	Reidsville	NC	27323	799307586585	Ashcroft Drive
2	Marc L Cobb	1318 Winterberry Drive	Reidsville	NC	27320	799307583402	1318 Winterberry Drive
3	Patricia P Gibson	830 Racetrack Road	Benton	AR	72019	799307583119	Winterberry Drive
4	Katherine Lemons Merritt	1001 Benton Court	Reidsville	NC	27320	799307583027	Winterberry Drive
5	Thomas R Schoolfield	1310 Winterberry Drive	Reidsville	NC	27320	799307573900	1310 Winterberry Drive
6	Ashcroft Businecc Park	401 N Greene Street	Greensboro	NC	27401	799311673394	McCoy Road
7	James T Haigler, Jr.	1308 Winterberry Drive	Reidsville	NC	27320	799307573727	1308 Winterberry Drive
8	Joseph B King, Jr.	715 Country Club Drive	Reidsville	NC	27320	799307570844	1311 Winterberry Drive
9	City Of Reidsville	230 W Morehead St	Reidsville	NC	27320	799307479986	Winterberry Drive
10	Edwards V Wilkins	PO Box 2387	Raleigh	NC	27602	799307580035	Winterberry Drive
11	William D Lindsey	1317 Winterberry Drive	Reidsville	NC	27320	799307580125	Winterberry Drive
12	William D Lindsey	1317 Winterberry Drive	Reidsville	NC	27320	799307580217	1317 Winterberry Drive
13	William D Lindsey	1317 Winterberry Drive	Reidsville	NC	27320	799306489388	Winterberry Drive
14	Najeeb Rehman	PO Box 2899	Reidsville	NC	27323	799306387884	7410 US 158

Appendix A

Waste Management
ENVIRONMENTAL QUALITY

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

MICHAEL SCOTT
Acting Director

April 19, 2016

Mr. Marcel Haar
Beta Fueling Systems
1209 Freeway Drive
Reidsville, NC 27320

RE: Groundwater Monitoring Well Installation and Monitoring Report (dated 4/6/2016)
Beta Fluid Systems, Inc. (NONCD0001862)
1209 Freeway Drive
Reidsville, NC 27320

Dear Mr. Haar:

This acknowledges receipt on April 13, 2016 of the above referenced report. Based on a review of the information detailed in the report, the North Carolina Superfund Section, Inactive Hazardous Sites Branch (IHSB) requests the development and submittal of a work plan within thirty (30) days upon receipt of this letter to address the items below.

1. Determine the lateral and vertical extent of the groundwater contamination plume through the installation of additional monitoring wells.

2. Incorporate groundwater analysis for hexavalent chromium during the next quarterly groundwater monitoring sampling event. The IHSB's Guidelines for Assessment and Cleanup (https://ncdenr.s3.amazonaws.com/s3fs-public/Waste%20Management/DWM/SF/IHS/guidance/IHSB%20GUIDANCE%20Assessment%20and%20Remediation%20saved%202-9-2016.pdf) detail analytical and field procedures (page A12 and footnotes 6 &7) for hexavalent chromium sampling.

3. Develop a surface water and sediment sampling scheme as part of quarterly site activities.

4. Evaluate the vapor intrusion pathway at the downgradient residences located at 1310 and 1308 Winterberry Drive. Vapor intrusion activities shall comply with the current Division of Waste Management's Vapor Intrusion Guidance Document (http://deq.nc.gov/about/divisions/waste-management/waste-management-permit-guidance/dwm-vapor-intrusion-guidance).

If you have any questions, concerning this investigation request, please contact me at (919) 707-8210 or via email at adam.ulishney@ncdenr.gov.

Sincerely,

Adam Ulishney

Adam Ulishney, Hydrogeologist
Inactive Hazardous Sites Branch
Superfund Section
Division of Waste Management
North Carolina Department of Environmental Quality

ec: Qu Qi-NCDEQ
Phil Rahn-Waters Edge Environmental, LLC