Aptus Management, PLLC

Environmental Management Solutions

December 17, 2014

Sharon Eckard
Project Manager
North Carolina Brownfields Program
Division of Waste Management
217 West Jones Street
Raleigh, North Carolina 27603

Subject: **LIMITED PHASE II ASSESSMENT WORK PLAN**
BROWNFIELDS PROJECT NO. 18006-14-092
119 S. BLOODWORTH STREET
RALEIGH, NC 27601

Dear Ms. Eckard:

I appreciate the opportunity to submit this work plan for a Limited Phase II Assessment for the Bloodworth Street property. The scope is consistent with what we discussed at our scoping meeting in November.

1.0 PROJECT INFORMATION

The site is located at 119 S. Bloodworth Street in Raleigh and is 0.88 acres in size. It is a brownfields site and planned redevelopment includes seven single-family homes.

TerraTech Engineers Inc. completed a Phase I Environmental Site Assessment and a limited Phase II assessment of soil. The Phase II indicated the presence of some, but limited, petroleum contamination in subsurface soil. As we discussed, while there was no other evidence of on-site historical spills, leaking tanks or other types of releases at the property, the work competed by TerraTech was fairly limited.

Consequently, you indicated that additional assessment of the property would be needed, especially given the plan to develop single-family homes at the site. Provided below is a proposed scope of services that reflects what we discussed at our planning meeting – the overall objectives are to obtain further baseline environmental information for the Brownfields Agreement and Environmental Management Plan (EMP), and to provide the information we need to ensure the safe reuse of the site.

2.0 PROPOSED SCOPE OF SERVICES

2.1 Pre-Assessment Activities

- Review the Phase I and Phase II assessment data.
- Contact the North Carolina One-Call Center (NC One-Call) to mark underground utility main lines and contract a private utility locating service to further assist site utilities.
- Develop a GIS overlay map, which is attached, to include the following:
    - Sample locations from the previous Phase II assessment.
    - Lot lines for the seven single-family lots.

- Location of 21 proposed soil borings and 4 temporary monitoring wells. (We had discussed 4 borings and sample locations per lot, but we believe 3 per lot are more than adequate to give a good representation of the environmental conditions.)

2.2 Phase II Assessment Activities

2.2.1 Soil and Groundwater Assessment

- Prepare a site specific Health and Safety (H&S) Plan.
- Mobilize a Geoprobe® (direct push technology) to the site to advance 3 soil borings on each of the 7 lots for a total of 21 soil borings. The proposed boring locations are shown in the attached Drawing 1.
- Utilize a macro-core sampler to collect soil samples continuously from land surface to a depth of approximately 4 feet below land surface (bls) at each of the 21 boring locations. Note that 4 feet is the estimated depth of soil disturbance during site redevelopment activities and after the site has been developed for residential use.
- Evaluate soil samples from each boring to characterize site geology.
- Scan soils from each boring at approximate one-foot intervals with a toxic vapor analyzer (TVA) for health and safety purposes and to document subsurface conditions. For each boring, the soil sample with the highest TVA reading will be identified.
- Selected one soil sample from each of the seven lots for laboratory analysis for VOCs by EPA Method 8260. This will include the soil sample from each lot that has the highest field screening readings and is considered to have the greatest potential for contamination.
- Prepare a composite sample from each of the three borings per lot for laboratory analysis for SVOCs using EPA Method 8270 and RCRA metals.
- Install four temporary Type II monitoring wells. The proposed well locations are shown in Drawing 1. Two of the proposed wells will be located on Lots 3 and 4 where petroleum was previously detected in soils. The other two temporary wells will be located on Lots 1 and 6. Note that the locations of the wells may be modified based on our field observations, but generally we expect to provide good coverage across the site.
- Each well will be installed to an estimated depth of 35 feet below land surface (bls) and will be constructed of one-inch diameter Schedule 40 PVC with ten feet of 0.010-inch slotted screen. Each well would be developed/purged and sampled.
- Analyze the four groundwater samples for VOCs using EPA Method 6200B, SVOCs using EPA Method 625 (base neutrals/acid extractables). Metals analysis will not be conducted since the water table will not be encountered during site redevelopment and exposure risk to metals, if any, would be associated with direct contact to impacted soils.

2.2.2 Final Site Preparation

- Place investigation derived soil and groundwater wastes into labeled 55-gallon drums. Laboratory test results will determine if disposal is required, and if so what disposal options are available. This could include spreading the IDW on-site or off-site disposal.
- Soil borings and temporary monitoring wells will be abandoned in accordance with State guidance and regulatory requirements. Holes at the surface will be patched with concrete or asphalt.

2.3 Reporting

- We will prepare a written report summarizing our field activities, observations, laboratory results, conclusions and recommendations. We will include a comparison to soil, groundwater, and vapor intrusion screening levels utilized by the NCBP.

I appreciate the opportunity to present this scope of work. If you have any questions or need additional information, please contact me at 919.522.7289.

Sincerely,

John Gallagher, PE