



April 4, 2016

Mr. Jason Kam, Hydrogeologist
North Carolina Department of Environmental Quality
Division of Waste Management, Pre-Regulatory Landfill Unit
1646 Mail Service Center
Raleigh, NC 27699-1646

Reference: **WORK PLAN FOR TASK ORDER 598SW-1
Remedial Investigation – Water Sampling
Waxhaw Dump**
8625 Richardson King Road
Waxhaw, Union County, North Carolina
ID # NONCD0000598
State Contract # N13001S
ESP Project No. E6-BN12.613.003

Dear Mr. Kam:

ESP Associates, P.A. (ESP) is pleased to provide the attached cost proposals for Task Order 598SW-1 for performing Remedial Investigation – Water Sampling activities at the Waxhaw Dump (State ID # NONCD0000598). This proposal was developed in accordance with the scope of work requested by the North Carolina Department of Environmental Quality (NCDEQ) Pre-Regulatory Landfill Unit via a letter dated March 31, 2016. All field activities will be performed in accordance with ESP's *Standard Operating Procedures and Quality Assurance Manual* dated April 18, 2013, and referencing NCDEQ's most recent version of *Guidelines for Addressing Pre-Regulatory Landfills and Dumps*.

Mr. Chris Ward will be ESP's project manager for these tasks while quality control (QC) oversight will be provided by ESP's senior engineer, Ms. Nora Zirps. Mr. Eddie Rogers will be ESP's staff scientist during the field effort. In addition to the staff scientist, a technician will also be on-site to assist in well development/purging, collection, labeling and shipping of laboratory samples, and performing equipment decontamination and calibration. All field personnel will be qualified to identify contaminated material and landfill waste and will comply with OSHA-required health and safety training.

ESP will take photographs of pertinent areas of the site before and after the field effort to document potential impact to the property as a result of the field effort. Photographs of locations where property is damaged during the field effort and/or not restored to its original condition will be provided to NCDEQ. Photographs will also be taken of noteworthy observations during the field effort for submittal to NCDEQ for review for possible inclusion in the report.

A cost detail of proposed laboratory analysis is attached to this work plan.

Task Order 598SW-1– Water Sampling

Subtask A: Work Plan Preparation

This letter presents ESP's work plan for conducting Remedial Investigation – Contaminant Delineation Phase activities at the Waxhaw Dump. Preparation of this work plan involved the following activities:

- Development of the work plan text.
- Securing a laboratory bid.
- Development of a proposed field schedule (see Figure 1).
- Preparation of the associated cost proposal.

Subtask B: Water Supply Well Sampling

ESP will collect potable water samples for laboratory analysis from the following residential water supply well (WSW) as depicted on the attached Supply Well Sampling Location Map (Figure 2):

- Well-1 – 8626 Richardson King Road, Waxhaw, NC.

When sampling the WSW, low flow will be used from the spigot to minimize sediment in the water. During purging, stabilization parameters (pH, temperature, conductivity, and turbidity) will be recorded at approximate 5-minute intervals. Purging will be continued until parameters stabilize and turbidity is below 10 nephelometric turbidity units (NTU) (minimum of 30 minutes). If all other water quality parameters have stabilized and turbidity is still above 10 NTU, then the sample will be decanted. If a sample is decanted, the turbidity after decanting will be recorded and must be below 10 NTU.

Sample analytical services will be provided by a North Carolina-certified laboratory. As per the scope of work, samples will be analyzed for the following parameter:

- Manganese by SW-846 Method 6010.

The following field QC sample will be collected:

- One duplicate potable water sample from Well-1 to be analyzed for the parameter noted above.

The following tables and figures will be prepared under this subtask:

- Table comparing sample analytical results to the higher of the North Carolina 15A NCAC 2L.0202 groundwater standards (a.k.a., 2L standards) and the Federal Maximum Contaminant Levels (MCLs). The table will include historical results from previous

sampling events as well as the current results, and will cross-reference previous sample IDs with current sample IDs.

- A groundwater sample concentration map showing detections above the higher of the 2L standards and the MCLs.

Subtask C: Project Management, Coordination, and Support

The following activities are included in this subtask:

- Scheduling and communication with subcontractors.
- Procurement of field equipment.
- Providing project management and technical support to the field team.
- Providing project management and communication with NCDEQ.
- Invoicing and administrative tasks.

Task Order 598SW-1– Report Compilation

ESP will compile the details of the task order activities into a report titled *Remedial Investigation – Water Sampling*, for electronic submittal in pdf format. The report will include text, tables, and maps including a text section noting any variations to the work plan or our SOPs. The report will include maps showing the location of water supply wells along with analytical results. All maps will include data referenced on a scaled drawing with a bar scale (in ft), legend, and a north arrow. Background (light grey) topographic contour lines obtained from readily available public sources will be included on maps detailing the Site and Site vicinity. The report will include a discussion of any variations to the approved work plan or our SOP.

If the attached Cost Proposal is satisfactory, please acknowledge with a written notice to proceed. All work will be performed in accordance with State Contract # N13001S. Should you have any questions or require additional information, please do not hesitate to contact Chris Ward at (803) 835-0915.

Sincerely,
ESP Associates, P.A.



Franklin D. Newsom
Staff Scientist

FDN/CJW



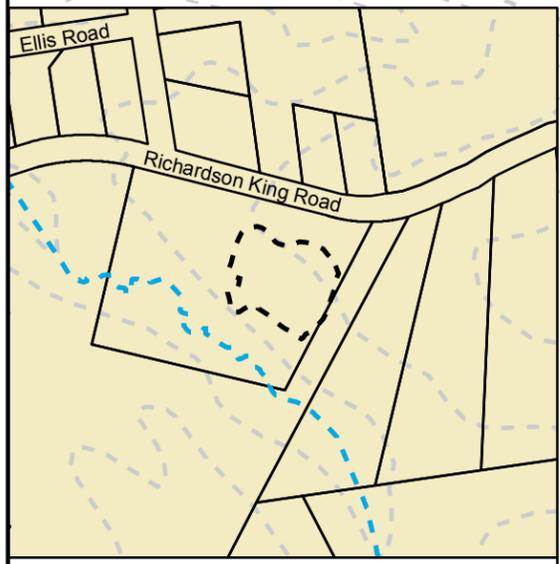
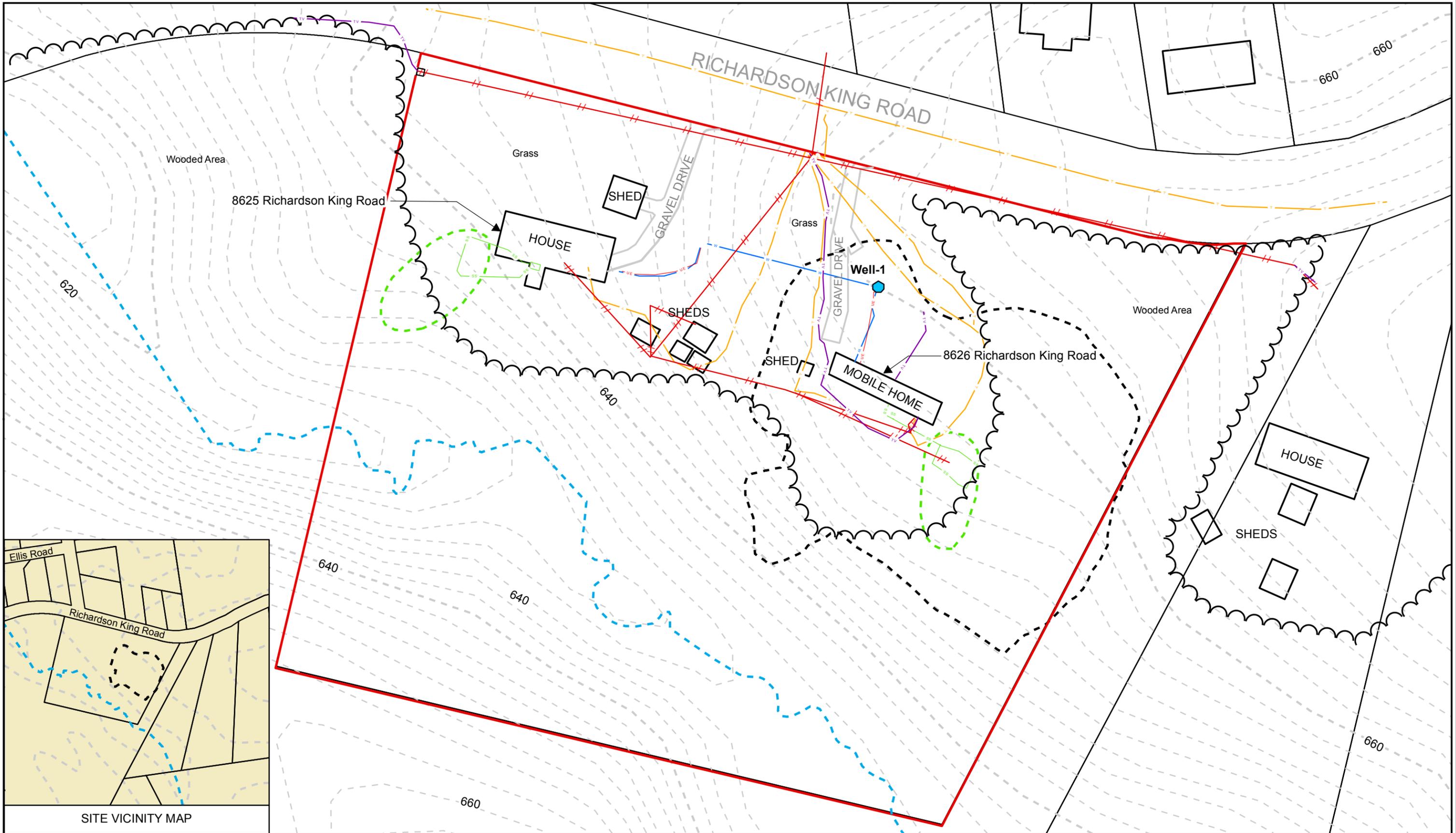
Christopher J. Ward, PG
Program Manager

Attachments:

- Figure 1 – Field Schedule
- Figure 2 – Well Sample Location Map
- Cost Proposal – Task Orders 598SW-1
- Laboratory Detail

Figure 1
Schedule of Field Services
Waxhaw Dump - ID # NONCD0000598
Task Order No. 598SW-1

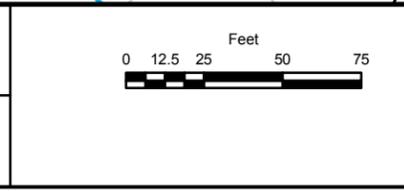
Field Schedule	Subtask	ESP On-site Staff		Others On-site
		Staff Level	Technician Level	
Day 1	Mobilize to site. Initiate and complete water supply well sampling. Ship samples to laboratory.	1	1	



Water Supply Well Sample Location	LIDAR 2 foot Contour Elevation Interval	U/G Electric Line
Property Parcels	Waste Disposal Boundary (per DP-2 Investigation)	Gravity Sewer
Property Line	Leach Field Location	U/G Cable TV
Stream	Overhead Utility Wires	U/G Water Line
	Tree Line	U/G Telephone

SHEET TITLE: **Figure 2**
Well Sampling Location Map

Waxhaw Dump
Waxhaw, Union County North Carolina
ID# NONCD000598



N

DATE: April 4, 2016

PROJECT NO.:	BN12.613
SCALE:	As Shown
DRAWN BY:	FN
CHECKED BY:	CW

ESP
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Waxhaw Dump - RI - Water Sampling (Task Order 598SW-1) - Laboratory Analysis Detail

SUBTASK B: WATER SUPPLY WELL SAMPLING

Water samples – 1 sample, plus 1 duplicate (see below)

Method	Analytes	No. of Samples	Unit Price	Total Cost
SW-846 Method 6010	Mn	2	\$8.00	\$16.00
			Total Subtask B	\$16.00