APPENDIX F

Work Plan for a Supplemental Limited Phase II ESA

Appendix F-1

Work Plan

Supplemental Limited Phase II

Environmental Site Assessment

Work Plan

Kensington Estates

Woodbury, New York

NP&V Job# 03469

June 21, 2010

Supplemental Limited Phase II

Environmental Site Assessment

Work Plan

Kensington Estates

Woodbury, New York

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Supplemental Limited Phase II

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1.0 PURPOSE AND SUMMARY

1.1 PURPOSE

This work plan for a Supplemental Limited Phase II Environmental Site Assessment (ESA) has been prepared in order to provide: further delineation of the presence of arsenic in the area of the former agricultural field; the removal of any above ground and/or underground fuel oil storage tanks; the sampling of the on-site sanitary system associated with the former Dougal Family residence; the proposed remedial activities for any arsenic contaminated soils and the removal of any petroleum contaminated soils in the southwestern portion of the subject property. The work plan outlines the methods, procedures and protocols proposed for conducting soil sampling at the subject property. The general scope of work will include the collection and analysis of soil samples at a certified laboratory in order to characterize soil conditions at the subject property.

1.2 PREVIOUS INVESTIGATION SUMMARIES

Nelson, Pope & Voorhis, LLC (NP&V) personnel completed a Pesticide Report and a Limited Phase II ESA in order to determine if any contamination was present on the subject property. A Phase I ESA completed by Freudenthal & Elkowitz Consulting Group, Inc. (F&E) dated August 2005 was intended to identify Recognized Environmental Conditions (as defined in ASTM Standards on Environmental Site Assessments for Commercial Real Estate) on the subject property based on four (4) components of a Phase I Environmental Site Assessment (ESA): records review, site reconnaissance, interviews and evaluation and reporting. The conclusions and recommendations are basis of the Nassau County Department of Health (NCDH) recommendation issued in the letter dated August 16, 2007.

A Phase II ESA completed by GZA GeoEnvironmental of New York (GZA), dated June 30, 2006 was completed to address the recognized environmental conditions issued in the F&E Phase I ESA which included the following:

- Surficial soil sampling to determine if any residual pesticides were in the former agricultural field.
- Investigation of the subsurface conditions surrounding the 550 gallon underground fuel oil storage tank.
- Investigation of the area of historic dumping in the southwestern portion of the property.

The field work completed as part of the GZA report included seven (7) soil borings advanced 12 to 16 feet below grade and six (6) test pits excavated to depths 6 to 8 feet below grade. All of the soil cores obtained from the soil borings were field screened using a Photo Ionization Detector (PID). None of the screened soil cores exhibited elevated concentrations. Numerous soil samples were collected during the excavation of each test pit. Each of these soil samples were field screened using a PID. Several of the samples collected from the southwestern of the property exhibited elevated PID readings and had a petroleum odor. As a result, it was recommended that the soil which exhibit a petroleum odor should be removed and properly disposed of.

1.3 ENVIRONMENTAL CONDITIONS

Currently, the 17.22 acre property is used as a horse farm and a wood carving business. The horse farm portion of the property is known as Indian Head Ranch. It specializes in horse sales, supplying horses to several police departments, riding lessons, horse boarding, clinics and private pony and petting zoo parties. Various corrals and stables are located throughout the northern portion of the property and sheds are used to store tools and supplies. The majority of the southern portion of the property is wooded, with small areas cleared for horse and motorcycle trails and a dirt road that leads from the northern portion of the property to the entrance on Plainview Avenue. The subject property contains eleven structures: a concrete building, metal barn, horse stable, framed structure, wood workshop, wood shed, two wood walls, two concrete platforms, and one mobile home. There is a small wetland feature located immediately adjoining the northeast corner of the subject property.

2.0 INVESTIGATION EQUIPMENT, METHODS AND PROTOCOLS

In order to conduct this Supplemental Limited Phase II ESA, appropriate investigative methodologies will be employed to assess the impact of the former use identified on the subject property. For the purpose of this investigation stainless steel hand augers and Power Probe direct push technology will be utilized to further delineate the vertical extent of subsurface soil contamination at the subject property. A discussion of the basic sampling equipment, is presented in the following sections. Section 3.0 provides additional information pertaining to the sampling and analysis plan.

2.1 HAND AUGER SAMPLING

A stainless steel hand auger will be utilized to collect surface samples from the former agricultural field located in the southwestern portion of the property. The auger consists of a three and half (3½) inch diameter bucket, a three (3) foot long extension rod and "T" handle. The auger is manually twisted in the ground to the desired depth allowing the soil to fill the bucket. Once the bucket is full or the desired depth is achieved, the auger is extracted from the ground and the soil sample is removed from the bucket and placed in a sample vessel for transportation to a certified laboratory.

2.2 POWER PROBE DIRECT PUSH TECHNOLOGY

The soil probes were installed using a Power Probe hydraulically powered soil probing tool. Mechanized, vehicle mounted soil probe systems apply both static force and hydraulically powered percussion hammers for tool placement. Recovery of large sample volumes was facilitated with a probe-driven sampler. The probe-driven sampler consisted of a dual tube sampling system that has an outer tube that remains in the ground while the inner tube is removed along with the non-reactive plastic tube in which the soil sample has been collected. This dual tube sampling system ensures that the soil sample collected is from the selected sampling depth as the probe was advanced. Discrete samples were secured at the desired depths and were contained within a non-reactive plastic sleeve that lined the hollow probe for subsequent inspection and analysis.

Soil samples are collected using a $2^{3}/_{8}$ inch diameter, four (4) foot long probe-driven sampler which is pushed to the desired depth in four (4) foot increments. Each time the probe is pushed a soil sample is collected within a disposal plastic sleeve inserted into the sampler. The plastic is then cut open in order to extract a soil sample for screening and/or analysis.

2.3 PROTOCOLS

The protocols used to direct this investigation are based upon the following documents: 1) the New York State Department of Environmental Conservation (NYSDEC), DER-10 Technical Guidance for Site Investigations and Remediation and 2) ASTM E1903-97 (2002) Environmental Site Assessments: Phase II Environmental Site Assessment Process.

3.0 SAMPLING AND ANALYSIS PROGRAM (SAP)

As part of this SAP, it is proposed that several hand auger samples will be collected and soil probes be installed to assess the environmental quality of the underlying soils of the subject property. The samples collected will be used to expand upon the previous Limited Phase II ESA performed at the subject property and further delineate the horizontal and vertical extent of soil contamination underlying the property. The details including location, sampling horizons and analytical methods will be described below.

3.1 HAND AUGER SAMPLING

A stainless steel hand auger will utilized to collect soil samples from the vicinity of the two (2) sample locations which exhibited elevated concentrations of arsenic in the Pesticide Report. These samples will be collected in twenty-five (25) foot increments radiating out from the original sample location in all four (4) directions. The samples will be collected at depths of 0-3, 3-6, 6-12 and 12-18 inches in order to determine the horizontal and vertical extent of the arsenic contamination. Once the extent of the contamination has been determine an accurate quantity of soil to be removed can be calculated.

A stainless steel hand auger will also be utilized to collect soil samples from the on-site sanitary system associated with the former Dougal Family Residence. The samples will be collected from the bottom sediments located inside the cesspools.

3.2 POWER PROBE SOIL SAMPLING

After obtaining a utility mark-out on the subject property, one (1) soil probe will be installed on all accessible sides of any underground storage tank. The soil probes were installed using a Power Probe hydraulic probing unit in order to collect soil samples which provided a representation of the subsurface soil at depths that ranged from zero to sixteen (0-16) feet below existing grade. The soil samples were collected in four (4) foot intervals using the Power Probe. A headspace analysis sample was taken for each of the twelve (12) soil samples collected. The sample with the highest headspace reading was sent to a laboratory for analysis.

3.3 ANALYTICAL TEST METHODS

The soil samples collected from the former agricultural field will be analyzed for the presence of arsenic only. The soil sample(s) collected from the on-site sanitary system will be analyzed based on USEPA Test Method 8260 for volatile organic compounds, USEPA Test Method 8270 for semi-volatile organic compounds and 8 RCRA metals. The samples collected from around any above or underground fuel oil storage tanks will be analyzed based on USEPA Test Method 8270 STARS.

4.0 QUALITY ASSURANCE/QUALITY CONTROL PLAN (QA/QC)

The sampling protocol will be conducted in accordance with USEPA accepted sampling procedures for hazardous waste streams (Municipal Research Laboratory, 1980, Sampling and Sampling Procedures for Hazardous Material Waste Streams, USEPA, Cincinnati, Ohio EPA-600\280-018) and ASTM Material Sampling Procedures. All samples will be collected by or under the auspices of USEPA trained personnel having completed the course Sampling of Hazardous Materials, offered by the Office of Emergency and Remedial Response. Separate QA/QC measures will be implemented for each of the instruments used in soil-gas and soil sampling.

Separate QA/QC measures will be implemented for each of the instruments used in the Sampling and Analysis Program. Sampling instruments will include a stainless steel hand auger, stainless steel Power Probe with probe sections lined with dedicated non-reactive plastic sleeves and sample vessels.

Prior to arrival on the site and between sample locations, the probes sections will be decontaminated by washing with a detergent (alconox/liquinox) and potable water solution with distilled water rinse. The PID will be calibrated prior to sampling using a span gas of known concentration. All sample vessels will be "level A" certified decontaminated containers. Samples will be placed into vessels consistent with the analytical parameters. After acquisition, samples will be preserved in the field. All containerized samples will be refrigerated to 4^{o} C during transport.

A sample represents physical evidence, therefore, an essential part of liability reduction is the proper control of gathered evidence. To establish proper control, the following sample identification and chain-of-custody procedures will be followed.

Sample Identification

Sample identification will be executed by use of a sample tag, log book and manifest. Documentation provides the following:

1. Project Code
2. Sample Laboratory Number
3. Sample Preservation
4. Instrument Used for Source Soil Grabs
5. Composite Medium Used for Source Soil Grabs
6. Date Sample was Secured from Source Soil
7. Time Sample was Secured from Source Soil
8. Person Who Secured Sample from Source Soil

Chain-of-Custody Procedures

Due to the evidential nature of samples, possession will be traceable from the time the samples were collected until they were received by the testing laboratory. A sample will be considered under custody if:

It was in a person's possession, or
It was in a person's view, after being in possession, or
It was in a person's possession and they were to lock it up, or
It is in a designated secure area.

When transferring custody, the individuals relinquishing and receiving will sign, dated and note the time on the Chain-of- Custody Form.

Laboratory Custody Procedures

A designated sample custodian will accept custody of the shipped samples and verify that the information on the sample tags match that on the Chain-of-Custody records. Pertinent information as to shipment, pick-up, courier, etc. will be entered in the "remarks" section. The custodian will then enter the sample tag data into a bound logbook which will be arranged by project code and station number.

The laboratory custodian will use a sample tag number or assigned a unique laboratory number to each sample tag and assure that all samples will be transferred to the proper analyst or stored in the appropriate source area.

The custodian will distribute samples to the appropriate analysts. Laboratory personnel will be responsible for the care and custody of samples from the time they are received until the sample is exhausted or returned to the custodian.

All identifying data sheets and laboratory records will be retained as part of the permanent site record. Samples received by the laboratory will be retained until after analysis and quality assurance checks are completed.

5.0 REMEDIAL ACTIVITIES

5.1 SOIL MANAGEMENT PLAN (SMP)

The first step of the SMP would be to collect additional soil samples in the vicinity of the two (2) samples which exhibited elevated arsenic concentrations in order define the area of excavation required to remove all of the arsenic laden soils. Once the area of concern has been defined, the SMP can be implemented. The best option for the SMP on this project would be to scrap the upper six to twelve (6-12) inches of soil from the affected areas and stockpile it on-site for future burial. Since this project is proposing a pond on the north end of the property, the bottom of the pond should be over excavated by approximately three (3) feet in order provide sufficient area for the stockpiled material to be buried. Once the stockpiled material has been buried, a layer of clay should be installed over the contaminated material in order to provide an impervious cap for the buried material, as well as, providing a stable base for the pond bottom liner. If material is required to re-establish the previous grade of the excavated area, the material removed from the over excavation of the pond could be utilized. In order to determine if the SMP has been implemented correctly, endpoint samples should be collected from several locations in the excavated area. These samples should be analyzed for the presence of arsenic only. During the SMP process, steps should be taken to minimize the generation of dust which migrate to adjacent properties.

5.2 SANITARY SYSTEM REMEDIATION

If elevated concentrations in excess of the NCDH guidance values set forth in NYSDEC TAGM 4046 are detected in any of the on-site sanitary system cesspools, those structures would require remedial activities. The following is summary of the work required to properly remediate the structures.

Prior to any remedial activities, the liquid in the cesspool would be sampled, if necessary, in order to determine it elevated concentrations are present. The on-site cesspools would be uncovered to allow access to the interior of the structure. The liquids would be pumped out and transported to an approved facility for disposal. Once the liquids were removed, a vacuum truck would be utilized to remove the sediment from the bottom of the cesspool(s). Each cesspool would have approximately four (4) feet of sediment removed so visibly clean soils are present. Once the County personnel has approved the remedial activities, an endpoint sample would be collected and analyzed. If no elevated concentrations are present, the County personnel would approve the cesspool for backfill. If elevated concentrations remain, additional sediment would be removed using either a vacuum truck, backhoe or crane depending on how much material would need to be removed.

5.3 TANK REMOVAL

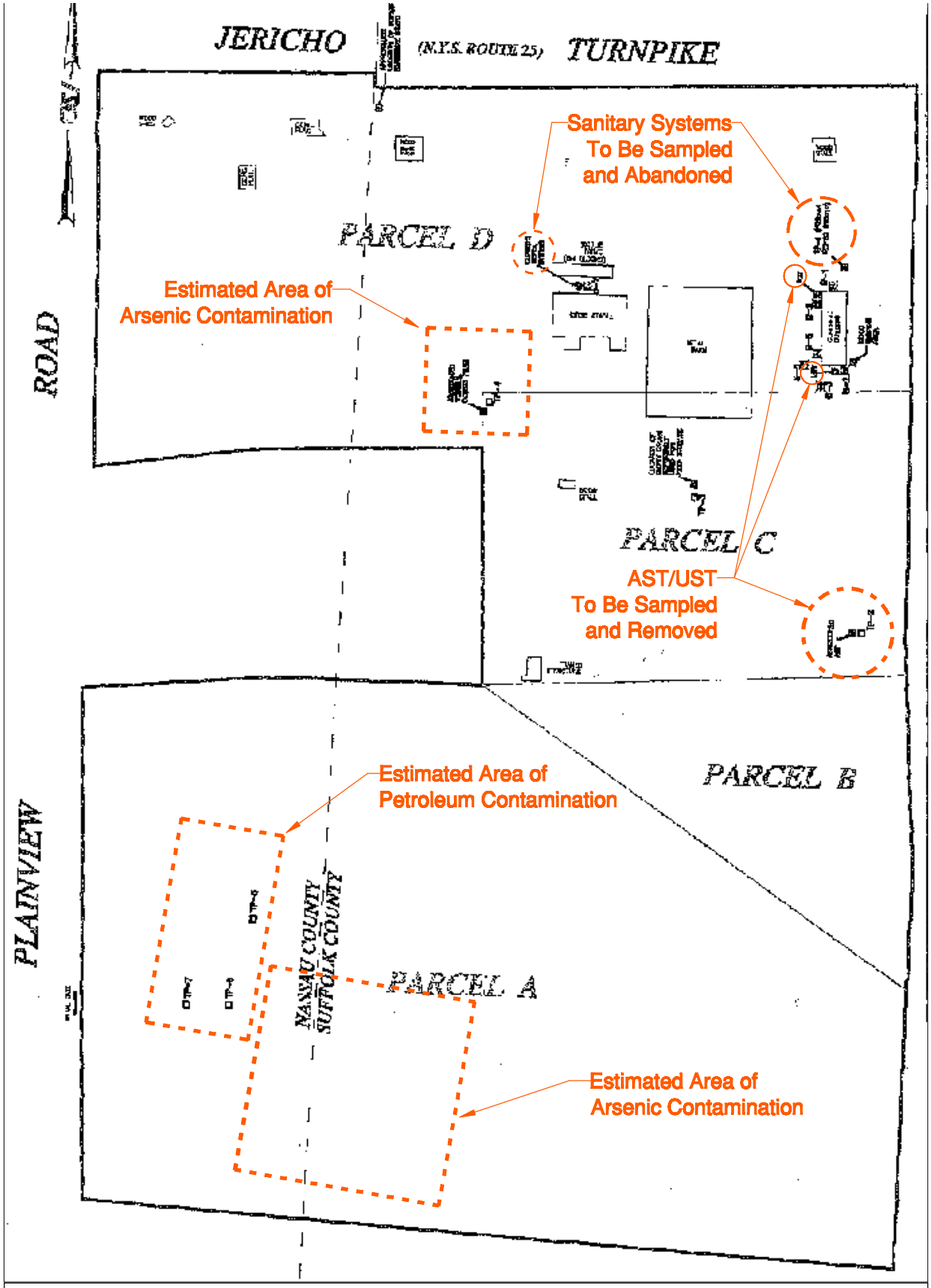
If an above ground storage tank would have to be removed, the tank would be pumped of any remaining product, cut open and cleaned. Once clean, the tank would be transported to an approved disposal facility.

An underground storage would require a backhoe to uncover the tank in order to expose the top of the tank. Once the top of the tank is exposed, an opening would be cut in the top to pump the remaining product prior to removing the tank from the ground. After the tank is pumped, the remaining soil from either side of the tank would be removed to allow the tank to be removed. Once removed, the tank would be cut open and cleaned of any remaining product and sludge. The exterior of the tank would be inspected by County or State personnel to determine if any holes were present and the tank grave would be inspected to determine any staining was present. An endpoint sample(s) may be required by the regulatory agency to ensure no soil contamination has occurred. The tank would then be transported to an approved facility for disposal.

5.4 PETROLEUM CONTAMINATED SOIL REMOVAL

According to the Site Investigation report completed GZA GeoEnvironmental of New York, petroleum contaminated soil is located in the southwestern portion of the property. This contaminated soil reportedly extents to a depth of six (6) feet below grade over a 20 by 80 foot area. A backhoe or excavator would be utilized to remove the petroleum contaminated soil and stockpile it on-site or place directly in trucks for transportation to an approved disposal facility.

FIGURES



LEGEND

GZA Site Investigation Report, June 30, 2006, Figure 1

NPV Work Plan Areas of Concern

FIGURE 1
Work Plan Areas of Concern

Source: NYSGIS Orthoimagery Program, 2007;
GZA GeoEnvironmental Site Investigation Report, June 30, 2006
Scale: 1" = 90'

NORTH

1130 West Jericho Turnpike, Huntington

Phase II ESA Work Plan