Memo

Date:	October 6, 2016
Project:	BCP Site # C360143
To:	David Burke (Village Administrator) Bill Williams (Building Inspector)
From:	Michael Musso, HDR
Subject:	Final Scope of Work for Pre-Characterization Sampling, Monitoring Well Installation, and Soil Vapor Extraction (SVE) Pilot Testing 109-125 Marbledale Road

Attached is the final scope of work for the above-referenced site activities that are currently taking place, and that are anticipated to continue through the next several weeks. This scope is based on conversations during an August 24, 2016 site meeting, and subsequent conversations between HES, NYSDEC and HDR. Comments from NYSDEC and HDR were integrated into this final scope document, prior to the September 27, 2016 work start.

The work included in the scope pertains to three elements:

- ***Monitoring Well Installation and Sampling;***
- ***Soil Vapor Extraction (SVE) Pilot Testing; and***
- ***Pre-Characterization Soil Testing***

These work elements do not include excavation or grading of the site. Rather, test borings (4" – 8" diameter) and wells are installed via augering or direct push probing. Work at each hole is continually monitored, and community air monitoring stations are active around each work area, in accordance with the RAWP. Small amounts of soils ("cuttings") are generated by the testing work. These soils are submitted for laboratory analysis, put back in the hole, or staged in a dedicated area for future off-site disposal. The on-site staging areas are lined, bermed (silt fencing, hay bales), and covered when not receiving excess materials generated from the testing. After a given hole (soil boring, SVE point, monitoring well) is completed, it is grouted closed; no holes are left open / uncovered overnight or when the environmental contractor is not working.

HDR and NYSDEC will continue to coordinate third party monitoring on-site during this phase of work. Importantly, to date there have been no "alerts" triggered by the community air monitoring stations, and no odor / dust conditions observed at the ground surface. Dust / VOC suppression measures are currently available on-site should the need occur to use them.

This work will result in a Technical Memorandum to be submitted to NYSDEC and the Village for review, prior to the start of any remediation, or excavation / grading for site development.

HydroEnvironmental SOLUTIONS, INC.

September 23, 2016

Mr. Kevin Carpenter, P.E.
Senior Environmental Engineer, Remedial Bureau C,
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7014

RE: NYSDEC-BCP Investigation and Remedial Design
109-125 Marbledale Road
Tuckahoe, New York

BCP Site No. C360143

Dear Mr. Carpenter:

As requested by the Village of Tuckahoe (the Village) and the New York State Department of Environmental Conservation (NYSDEC), and to be responsive to the numerous public comments received in relation to this project, HydroEnvironmental Solutions, Inc. (HES) has compiled the following scope detailing the methods of required environmental pre-characterization soil testing, monitoring well installation, and soil vapor extraction system (SVE) pilot testing that will be implemented shortly at the subject site (**Figure 1**). Based on the approved RAWP, the following environmental work will be completed at the site in order to comply with the RAWP pre-characterization sampling, monitoring well and Soil Vapor Extraction (SVE) well installations, and pilot test requirements. This scope letter is submitted for review and approval of NYSDEC and the Village of Tuckahoe, and incorporates feedback received by NYSDEC and HDR at the August 24, 2016 site walk and during subsequent discussions. It is understood that a permit(s) from the Village Building Inspector will be required prior to the start of the work described herein.

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Proposed Additional Environmental Work in Support of the Approved Remedy

The environmental work proposed in this scope letter will comply with NYSDEC-BCP Technical Guidance document DER-10, Part 375-6.8 regulations for conducting investigations and New York State Department of Health (NYSDOH) October 2006 Soil Vapor guidance documents, as currently amended. The proposed site work includes NYSDEC-required work in accordance with the final approved RAWP for the BCP site and as outlined in NYSDEC's July 18, 2016 RAWP review letter and the Decision Document.

The Health and Safety Plan (HASP), Quality Assurance Project Plan (QAPP) and Community Air Monitoring Plan (CAMP) contained in the RAWP will all be implemented during this supplemental work. Therefore, in accordance with the approved RAWP, the CAMP will be implemented to monitor air quality during all on-site drilling activities (monitor well installation, SVE well installation and soil pre-characterization test borings) and the work area around the drill rig and at the top of the borehole will be monitored continuously during drilling by the HES on-site geologist / environmental scientist using a calibrated four gas meter (%LEL, $\%O_2$, H_2S and Methane) and photoionization detector (PID). Water and a spray foam (RusFoam® OC [AC645] [see attached specifications sheet] or equivalent) will be available on-site should dust and/or VOC/odor control become necessary during this work.

To address public concern and comment, site activities will also be screened for radioactivity by the NYSDEC radioactivity technical group. NYSDEC Department of Environmental Remediation's (DER's) Radiation Section has advised:

- ***"Regarding the local companies that could have potentially disposed radiological materials at the quarry, any Mo-Tc generators they handled would have been essentially non-radioactive before they dismantled them. Their license required a hold-for-decay of a minimum of 10 weeks. Mo-99 has a 2.75 day half-life. Tc-99m has a 6 hour half-life."***

- ***"Even if some of the associated pieces of the generators were disposed of at the dumpsite without the license-required 10 week decay time, they would not be radioactive now even if they were when disposed of."***

- ***"Based on the above, there is no reason to suspect radiological contamination, however, if monitoring is to occur, utilizing a qualified health physics or radiation consultant is recommended."***

If no radiation is identified during the work described in this letter, no further radiation monitoring will be conducted during the remainder of the RAWP implementation unless site conditions indicate otherwise. In that case, the need for additional radiation screening will be re-assessed with NYSDEC and the Village.

All field work will be conducted in accordance with the requirements of the HASP and all data will be validated by an independent laboratory in accordance with the requirements of the QAPP. Additionally, prior to starting this on-site work, HES has conducted particulate and VOC monitoring at and in the vicinity of the site, including at the Waverly School, along the Marbledale Road corridor, and west of the site in order to establish "pre-remediation" baseline readings for these parameters.

Prior to or at the start of this work, soil erosion and sediment controls and site fencing / signage will be installed at the site perimeter. Temporary construction fencing will be installed behind the adjacent buildings along Marbledale Road. Staging areas for investigation-derived wastes (IDW, such as soil cuttings and well development waters) will be constructed prior to the start of drilling activities.

Task 1: Implement Groundwater Monitoring Plan (GMP)

Monitor Well Installation

In accordance with the NYSDEC-BCP RAWP, HES will implement a Groundwater Monitoring Plan (GMP). The GMP will include the installation of three (3) nested pairs of monitor wells (overburden and bedrock wells). The monitoring wells will be installed at three locations across the site, and will be installed near the northern property boundary (upgradient), the south central portion of the site where the deepest part of the landfill is located, and the southern property boundary (downgradient). These monitoring wells have been situated so they can be maintained at the site during remediation and post site development in order to serve as part of the long-term groundwater monitoring well network. The proposed monitoring well locations are shown on **Figure 2** and **Figure 2A**. Existing on-site wells shall be preserved to the extent feasible during on-site remediation and development work. However, if wells are impacted by these activities, the Volunteer's technical team in conjunction with NYSDEC will determine if any additional long-term groundwater monitoring wells need to be installed pursuant to the RAWP. Depending on results of early rounds of groundwater monitoring, it is also understood that additional wells may be required by NYSDEC to supplement the long-term GMP. Existing on-site wells that are to be abandoned will be abandoned in accordance with NYSDEC guidance.

The three wells that will be constructed and screened in the overburden landfill material will be located near the northern and southern property boundary and in the central deepest portion of the former quarry landfill. The three wells that will be screened in the marble bedrock will be located adjacent to these overburden wells (i.e., in a nested pair). The wells will be constructed of 4-inch (shallow wells) and 2-inch (deep wells) Schedule 40 20-slot well screen and riser pipe as per the NYSDEC requirements outlined in the RAWP. The well screens will be set straddling the observed water table, with a minimum of three feet of screen set above the water table. The annular space around each well screen will be backfilled with No. 2 filter sand to at least two feet above the well screen. A two-foot bentonite seal will then be placed atop the

sand pack and the borehole will be grouted with a bentonite and Portland cement mixture or backfilled with clean imported fill. No borings or monitoring wells shall be left open or uncovered overnight or during times when the environmental contractor or professional is not present on-site.

Overburden monitoring well construction details are included on **Figure 3**. The overburden wells will be drilled using the hollow stem auger (HSA) drilling method to their completion depths and will be surged with a bailer and developed using either a peristaltic pump with dedicated polyethylene tubing or a clean submersible pump with dedicated tubing. Continuous logging will be implemented during the installation of the three new bedrock wells (from surface to a depth of 5 feet into bedrock). PID and other down-hole monitoring (FID; turbidity and other water chemistry) shall be performed at each new bedrock well location, taken at 2 foot intervals using a 2-inch diameter stainless steel split spoon sampler. The collected samples will be logged and screened in the field by the on-site HES geologist using a calibrated PID, and a percentage of the soil samples will be screened for radionuclides as per NYSDEC guidance and using instrumentation recommended by the NYSDEC DER's Radiation Section during this phase of work. A qualified geologist shall also note any odors and visual indications of debris and contamination that are encountered during this work, and record those and other observations on boring logs.

The bedrock wells will be completed using a combination of the hollow-stem auger (HSA) and the air rotary drilling methods to their completion depths. The overburden material will be drilled using the HSA drilling method to the top of bedrock. A 6-inch steel casing will be installed and grouted to competent bedrock to ensure separation from the overlying unconsolidated landfill material. After the casing is installed and the grout allowed to set, the first 15 feet of bedrock will be cored and the cores analyzed for Total Core Recovery (TCR) and Rock Quality Designation (RQD) to determine the relationship of the bedrock aquifer to the overburden material. Following coring, a 6-inch borehole will be drilled into the bedrock using the air rotary drilling method to the well completion depth. The bedrock wells will be drilled a minimum of 10 feet into the observed groundwater table. When the groundwater table is encountered in the bedrock aquifer, the borehole will sit overnight (well location to be covered) and a submersible pump will be set in the borehole the following day. Groundwater in the borehole will be evacuated using the submersible pump, and groundwater drawdown and recovery will be monitored using a sonic water level indicator to ensure that the well is being set into the water table. Following water table confirmation, a 2-inch Schedule 40 PVC well screen will be set in the water bearing fractured zone and riser pipe will be set in the borehole inside the steel casing. The well screen will be set straddling the observed water table with a minimum of three feet of screen above the water table, if possible. The annular space around each well screen will be backfilled with No. 2 filter sand to at least two feet above the well screen. A two-foot bentonite seal will then be placed atop the sand pack. The borehole will then be grouted with a bentonite Portland cement mixture placed using a tremie pipe and grout pump. Bedrock monitor well construction details are included on **Figure 3**.

The data, logs, and observations generated from the installation of the overburden and bedrock monitoring wells will be furnished to the project's geotechnical engineer / foundation designer.

Groundwater Monitoring and Sampling

After the wells are installed, developed, and allowed to equilibrate (typically a 2-week period following development), the wells will be purged and sampled three times: before, during and after site remediation, foundation work, and site development activities are completed. The groundwater sampling schedule and the need for additional rounds of monitoring well sampling will be based on NYSDEC feedback. Based on the sampling results, NYSDEC will determine if there will be a need for additional monitoring after the site is fully redeveloped.

The collected groundwater samples will be sent to a New York State certified laboratory where they will be analyzed for the following parameters:

- Volatile organic compounds (VOCs) using EPA Method 8260
- Semi-VOCs using EPA Method 8270
- Polychlorinated Biphenyls (PCBs) using EPA Method 8080
- TAL Metals; and
- Herbicides and Pesticides.

NYSDEC may be on-site during the monitoring well installation activities to observe site conditions, and may collect split samples.

HES will collect depth to water (DTW) readings from all of the on-site wells using an interface probe prior to each sampling round. The standing volume of water in each of the well couplets will be calculated and a minimum of three standing volumes of water will be evacuated from the wells using a peristaltic pump with dedicated polyethylene tubing or a clean submersible pump and dedicated tubing. Standard groundwater sampling field parameters will also be collected during evacuation activities at each well including pH, specific conductance, turbidity and temperature. Following well evacuation, a groundwater sample will be collected from each well using the low flow sampling method. Where turbidity remains above the 50 NTU guideline, both a filtered and an unfiltered sample will be analyzed for TAL Metals and SVOCs. The samples will be collected in the appropriate laboratory provided glassware and placed in a cooler on ice for shipment. During each groundwater sampling round, field blanks will be collected and trip blanks will be provided by the laboratory during shipping. Strict chain of custody and field and laboratory Quality Assurance/Quality Control (QA/QC) and NYSDEC approved QAPP protocols will be adhered to during all sampling events. This will include Category B deliverables and data validation for all samples collected.

The soil spoils (investigation-derived wastes; IDW) from the well installation will be staged on-site in containers or on a designated stockpile location that includes plastic liner with berm on all four sides, and surrounded by haybales and siltfencing. The spoils will be covered with a secured plastic liner or foam (or within secure containers) and safely maintained prior to waste classification sampling that is necessary for appropriate off-site disposal. The groundwater purge and development waters generated from the well installations, development, and sampling will be containerized in a fractionation tank and then sampled for waste characterization parameters for later proper off-site disposal. Once characterized, the groundwater will be collected for off-site disposal by a licensed carrier and disposed of in accordance with all applicable NYSDEC Regulations.

HES anticipates that the monitoring well installation will require ten to twelve (10 to 12) field days, and the subsequent groundwater sampling will require one field day per round of sampling. As required, HES will notify the NYSDEC and the Village of Tuckahoe a minimum of two weeks in advance of conducting this field work. Daily and monthly updates will be provided to the NYSDEC and the Village. Additionally, overburden and bedrock top of well casings and locations will be surveyed by a NYS licensed surveyor and included in the site plan.

Task 2: Soil Vapor Extraction (SVE) Well Installation and System Pilot Testing and Design

In accordance with the RAWP, a soil vapor extraction (SVE) system will be designed and installed. Based on the levels of Freon and other VOCs in soil vapor and groundwater at the site, particularly near the eastern property boundary, and the vapor levels documented off-site by the NYSDEC, SVE will be implemented to remediate impacted vapor. A pilot study is needed for the design of the SVE system.

The proposed SVE pilot test that is part of this work scope includes installation of vacuum extraction points (well points) at four locations on the subject site. The four proposed SVE pilot test areas are shown on **Figure 2** and **Figure 2A**. This will require installation of four (4) 4-inch SVE vacuum wells and three (3) 1-inch vapor monitoring wells around each SVE well at distances of 8, 15 and 25 feet from the SVE. Existing overburden monitoring wells in the vicinity of the SVE wells may also be gauged for vacuum and radius of influence. The 1-inch monitor wells will be orientated in different directions around the SVE wells. The SVE wells will be installed using the hollow stem auger drilling method. The SVE wells will be constructed of 4-inch Schedule 40 PVC 20 slot well screen and solid riser pipe. Each SVE well will be constructed using 10 feet of screen that will be set in the unsaturated zone above the water table to a completion depth of 15 ftbg (feet below grade). The annular space around each well screen will be backfilled with No. 2 filter sand to at least two feet above the well screen. A two-foot bentonite seal will then be placed atop the sand pack and the borehole will be grouted to grade using a bentonite Portland cement mixture. The vapor monitoring points will be installed using a track mounted Geoprobe® 54 DT drill rig and the direct push drilling method. The SVE

monitoring points will be constructed of 1-inch Schedule 40 PVC 10-slot well screen and solid riser pipe to a completion depth of 15 ftbg. The vapor point wells will be constructed in a similar manner to the SVE wells. SVE vacuum well and vapor monitoring point construction details are included on **Figure 4**.

Following the installation of the SVE vacuum wells and vapor monitoring points, HES will conduct a SVE pilot test for each of the four SVE locations. Vacuum will be applied to each of the SVE wells using a regenerative blower. The proposed blower will be a GAST Manufacturing, Inc. Model Number R6125-2, 2.5HP blower (see attached specifications sheet) or equivalent, which will be attached to each of the four SVE vacuum well heads. Given the anticipated soil permeability, a 2.5HP blower should be sufficient to induce vacuum at varying distances from the SVE well. A well cap with a threaded brass barbed fitting will be fitted to each SVE monitor point and ¼ inch polyethylene tubing will be attached to each well head to allow for measurement of vacuum in the soil at each vapor monitoring point during the pilot test. Incremental vacuum rates from 10 in/H_2O to 60 in/H_2O will be applied to each SVE well for a period of two hours or longer if necessary. Applied vacuum rates will be regulated through the use of a dilution valve. The vacuum at the SVE well can be decreased by opening the dilution valve and to increase the applied vacuum at the SVE well, the valve can be closed. During testing, if short circuiting is encountered at an SVE well, or in the SVE testing area, provisions will be made to seal the ground using a geotextile membrane or 6 ml polyethylene sheeting (existing concrete or asphalt may be utilized, as well, to decrease the influence of ambient air that could be pulled downward to the subsurface during the pilot test. Field monitoring during testing will ensure that no short circuiting will occur. The surrounding vapor monitoring points and the SVE vacuum well will then be measured for vacuum using a magnehelilc gage capable of measuring to 0.1 inch of water (in/H_2O) to determine what the radius of influence is around each SVE well. A vacuum reading of 0.1 in/H_2O induced in outlying vapor points will be considered an acceptable value indicating that vacuum is being induced in the monitoring point.

During pilot testing, the SVE effluent streams will be monitored for VOCs using a PID and a Flame Ionization Detector (FID), and the air flow will be measured using a manometer. The proposed SVE pilot testing locations are shown on **Figure 2** and **Figure 2A**. In order to confirm short-circuiting is not occurring, HES may consider running a pilot test at an additional location at an on-site paved area to compare pilot testing results to unpaved areas.

During pilot testing, vapor samples will be collected from each of the SVE wells using 6-Liter Summa Canisters in accordance with NYSDOH Soil Vapor Sampling Guidelines. The vapor samples will be sent to a New York State certified laboratory where they will be analyzed for the presence of VOCs using EPA Method TO-15, including Freons and the soil vapor analytes tested during the RI. The results of vapor sampling will assist HES in designing the SVE effluent treatment system.

HES will treat all SVE pilot testing effluent streams using two CARBTROL© Activated Carbon Canisters, Model G-2S, in series (see attached specifications sheets). HES has

confirmed that this carbon specification can effectively treat all site-specific soil gas contaminants, including Freons. Sample ports will be installed at the influent, midfluent and effluent streams so that air samples can be collected during testing. Influent, midfluent and effluent samples will be collected using Summa canisters and sent for laboratory analysis via EPA Method TO-15 (including various Freons). Several of the "worst case" Summa canisters will be submitted for laboratory analysis based on PID and FID field readings of the influent stream. The collected field and laboratory data from the pilot test will be analyzed and used in the SVE system design. The goals of the permanent SVE system for the site are to remove Freon and other VOC vapors from the soil, and prevent further migration of soil vapors. The permanent system will be operated and maintained into the future under a future Site Management Plan. Any plan to suspend or terminate SVE operations will require NYSDEC approval.

HES anticipates completing the SVE and monitoring point installation and pilot testing and vapor sampling within five to seven field days and may be conducted simultaneously to some of the proposed work outlined herein. As required, HES will notify the NYSDEC and the Village of Tuckahoe a minimum of 7 to 10 days in advance of conducting any field work. Daily and monthly updates will be provided to the NYSDEC and the Village. Additionally, locations of the SVE pilot test components will be documented by survey or GPS and included in the site plan.

Task 3: Soil Pre-Characterization Investigation

HES will conduct test boring drilling using a track mounted Geoprobe® 54 DT drill rig and the direct push drilling method as required to (a) characterize the subsurface soils for off-site disposal or reuse; (b) refine the proposed Cut and Fill program outlined in the RAWP; and (c) to collect information for planning of Community Air Monitoring and dust / VOC suppression during future excavation and grading work. A HSA drill rig may be necessary to supplement the Geoprobe work, for deeper soil sample collection (see below). The data, logs, and observations generated from this work will be furnished to the project's geotechnical engineer / foundation designer.

Test borings (probes) will be installed across the proposed excavation areas to a depth of 15 ftbg or the lowest foundation elevation for the proposed buildings / the deepest excavation for the proposed stormwater detention systems. To supplement the data set for deeper soils, continuous logging (surface to bedrock) will be conducted at a subset of the proposed borings:

- Three borings at the area proposed for the hotel structure and adjacent subsurface stormwater detention systems (southern portion of site);
- One boring from the proposed restaurant area / adjacent subsurface stormwater detention system;
- 1 boring from the northern-most subsurface stormwater detention location.

The locations of the proposed deeper borings are shown on **Figures 2** and **2A**.

Soil samples will be collected continuously using a 2-inch macro core sampler. Soil samples will be screened in the field by the on-site hydrogeologist using a calibrated PID and the headspace method. A FID will be used to supplement the PID in the areas of known elevated Freon concentrations. The soil samples with the highest PID readings or visual indications of contamination will be sent to a New York State certified laboratory for analysis. An appropriate number of soil samples will also be sent to the laboratory for waste classification analysis based on volume slated for disposal from each area of the site. At least one sample from the top 15 ft of each of the forty-nine (49) site-wide soil samples (**Figure 2** and **Figure 2A**) will be analyzed for the following parameters:

a. Contaminant Source Areas

- Volatile organic compounds (VOCs) using EPA Method 8260 modified to include methyl tertiary butyl ether (MTBE);
- Semi-VOCs using EPA Method 8270;
- TAL Metals;
- Poly chlorinated biphenyls (PCBs), and
- Herbicides and Pesticides.

b. Cut and Fill and Stormwater Detention / Building Footprint Areas

- Volatile organic compounds (VOCs) using EPA Method 8260 modified to include methyl tertiary butyl ether (MTBE);
- Semi-VOCs using EPA Method 8270;
- TAL Metals;
- Poly chlorinated biphenyls (PCBs), and
- Herbicides and Pesticides.

For each of the five deeper soil borings noted above, two (2) soil samples will be collected and submitted for laboratory analysis of the above-listed parameters. The samples will be collected from depths of the most-elevated PID or FID readings, odors, or other indications of contamination.

The proposed Soil Pre-Characterization borings in the contaminant source areas, will be analyzed for the purposes noted above, and may refine the dimensions of the contaminated

source areas that have been identified based on RI data (refer to Figures 2 and 2A for locations of these areas). It is understood that during the future remediation of these contaminant source areas, endpoint samples will be collected to define the final lateral and vertical extents of the excavations (with a maximum remedial depth of 15 ftbg).

The test borings outside of the contaminant source areas were sighted based on the proposed Cut and Fill Plan and future development for the site. For example, multiple test borings are proposed inside the footprint of the subsurface stormwater systems as well as the building footprints for the proposed hotel and restaurant structures. Test borings will also be drilled and soil samples collected from other areas across the site where soil cuts are proposed. These borings were located based on the Cut and Fill Cross Sections provided by the site design engineer as outlined in the NYSDEC approved RAWP. The soil pre-characterization test boring locations are shown on **Figure 2** and **Figure 2A**.

NYSDEC will be on-site during the soil pre-characterization activities to observe site conditions and collect a subset of split samples for the above-noted parameters. It is understood that NYSDEC will also analyze soil samples for dioxin precursors and possibly dioxins.

At the request of the Village's environmental consultant, a subset of samples will also be analyzed for dioxin (method 8290A). The locations for dioxin testing will be based on the logs generated from the RI (e.g., indications of burnt or plastic debris), and biased towards similar observations made during this pre-characterization soil investigation work. A total of 2 shallow (0-15-foot interval) and 2 deeper locations (4 samples in total) are anticipated to be analyzed for dioxin.

The soil spoils (investigation-derived wastes; IDW) from the pre-characterization soil investigation will be staged on-site in containers or at designated stockpile locations that include plastic liners with berms on all four sides, and surrounded by hay bales and silt fencing. The spoils will be covered with a secured plastic liner or foam (or within secure containers) and safely maintained prior to waste classification sampling that is necessary for appropriate off-site disposal. No borings shall be left open or uncovered overnight or during times when the environmental contractor or professional is not present on-site.

HES anticipates completing the soil pre-characterization investigation within 12-14 field days. As required, HES will notify the NYSDEC and the Village of Tuckahoe a minimum of 7 to 10 days in advance of conducting any field work. Daily and monthly updates will be provided to the NYSDEC and the Village. HES will also provide boring logs and data summary tables for review, prior to the start of any soil remediation, excavation, or grading activities at the site. Locations of all pre-characterization soil points will be documented by survey or GPS and included in the site plan.

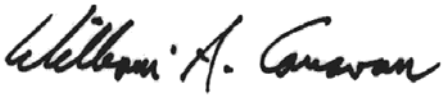
Task 4: Prepare Summary Letter Report and SVE Design Report

Following completion of the above outlined environmental work (monitor well installation and sampling, pre-characterization soil sampling, and SVE testing and vapor sampling activities); HES will compile one or more Technical Memoranda for submittal to the NYSDEC and the Village. The memos will summarize the environmental activities and sampling results. Additionally, HES will also provide the NYSDEC and the Village with a detailed SVE Design Report. The deliverables in the SVE Report will include pressure and vacuum readings (and radius of influence information) corresponding to different flow rates; the actual pilot test information on equipment and SVE well locations and vapor monitoring points; and specifications of the blower and treatment system.

The above outlined Scope of Work will include preparation of the Technical Memoranda and SVE Design Report certified by a licensed New York State Professional Engineer. In this regard, HES will be continuing to work with Mr. Jonathan B. Ashley, P.E. of D&K Consulting Engineers, P.C., a New York State licensed engineering firm, to achieve BCP compliance for the subject property throughout the project. In accordance with the BCP requirements and the QAPP, all soil, groundwater and soil vapor data will be validated by an independent data validation firm.

If you have any questions regarding the additional environmental investigation, please contact me at (914) 276-2560. We look forward to continuing to work with you on this project.

Very truly yours,
HydroEnvironmental Solutions, Inc.



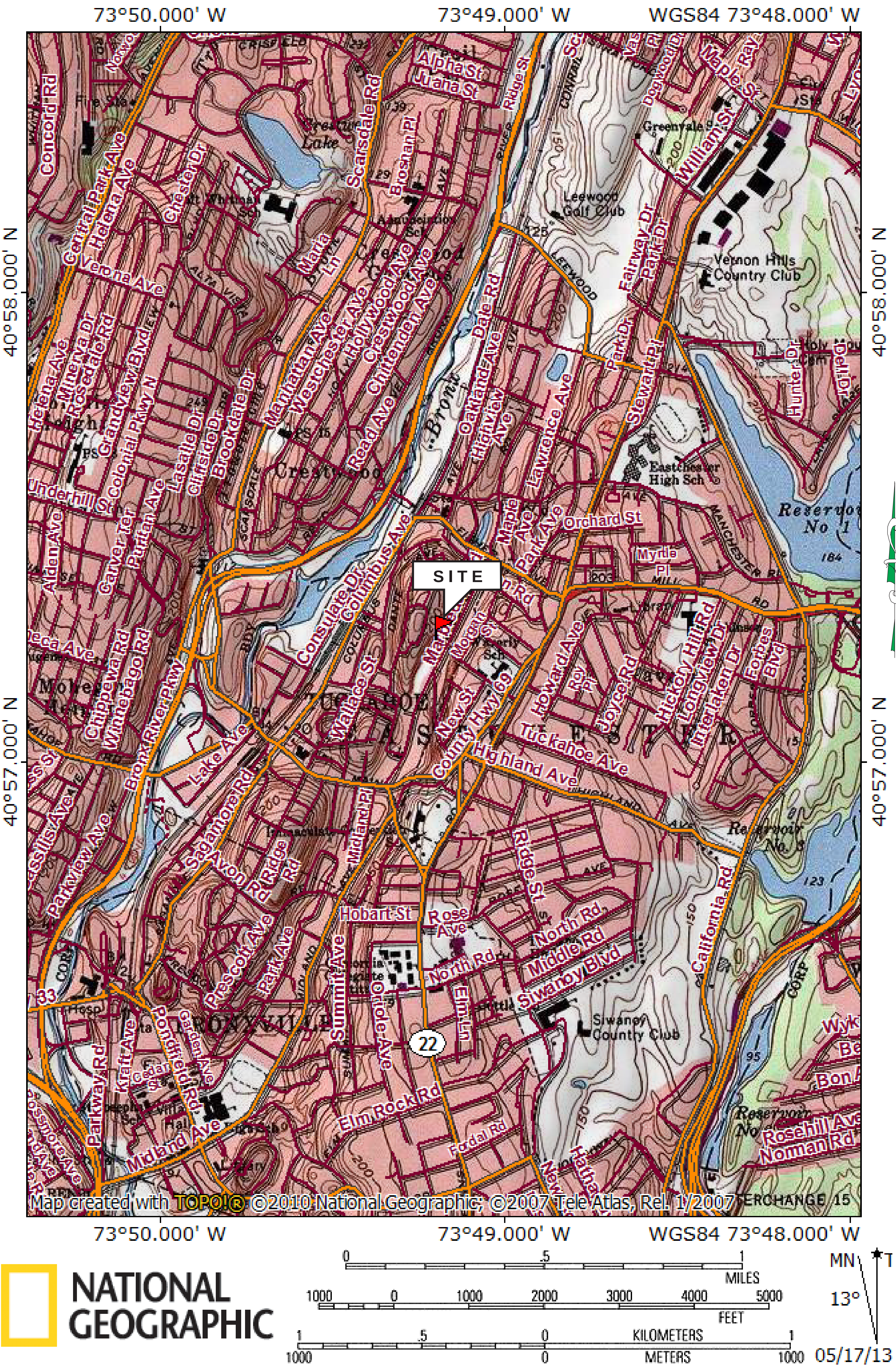
William A. Canavan, PG, LSRP
President

Enclosures

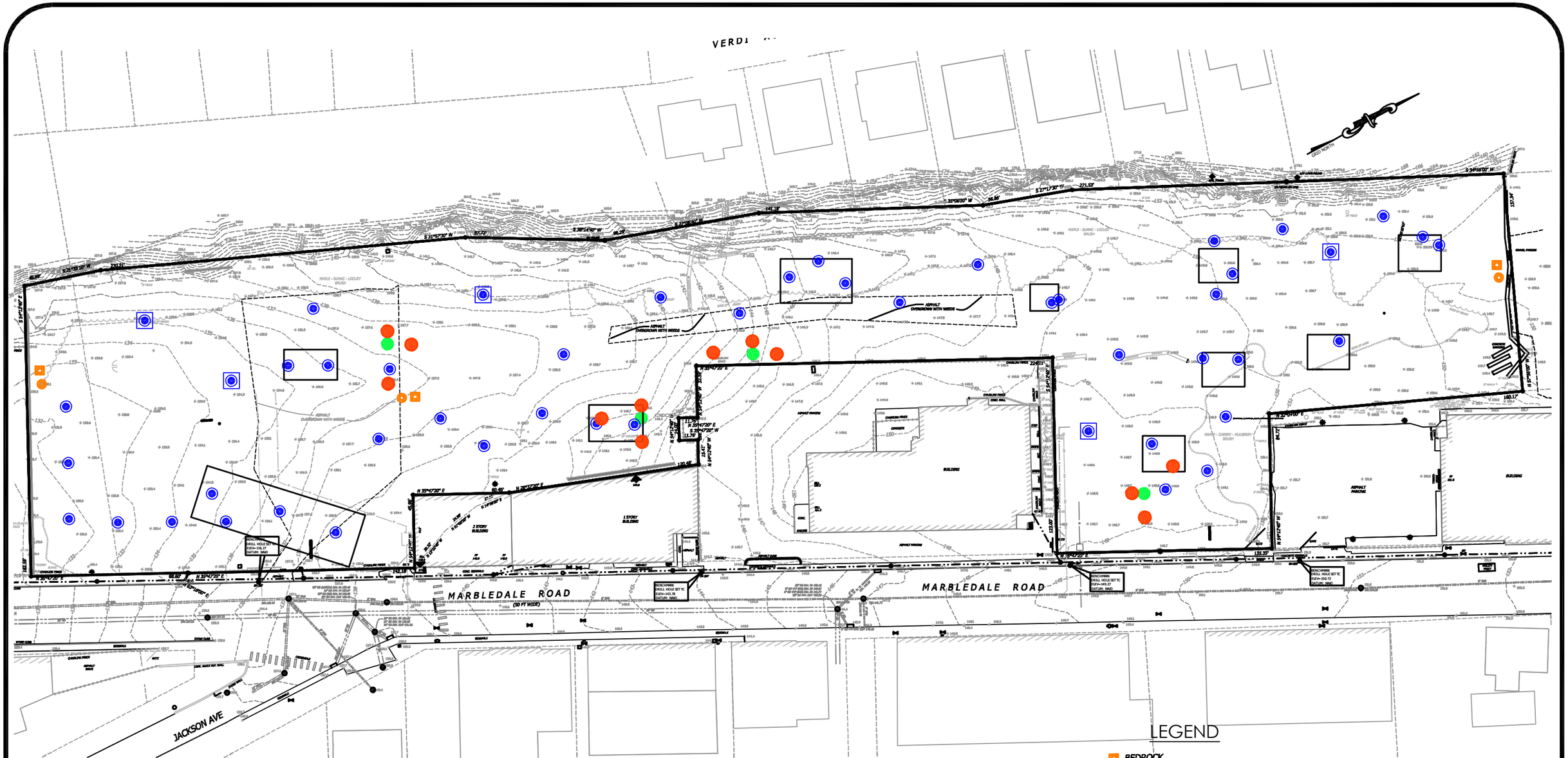
cc: Mr. Bill Weinberg – Bilwin Development
Linda Shaw, Esq. – Knauf Shaw LLP
Mr. Mike Musso, PE, HDR – Village Consultant

FIGURE 1
SITE LOCATION MAP

109-125 MARBLEDALE ROAD
TUCKAHOE, NEW YORK



NATIONAL GEOGRAPHIC



LEGEND

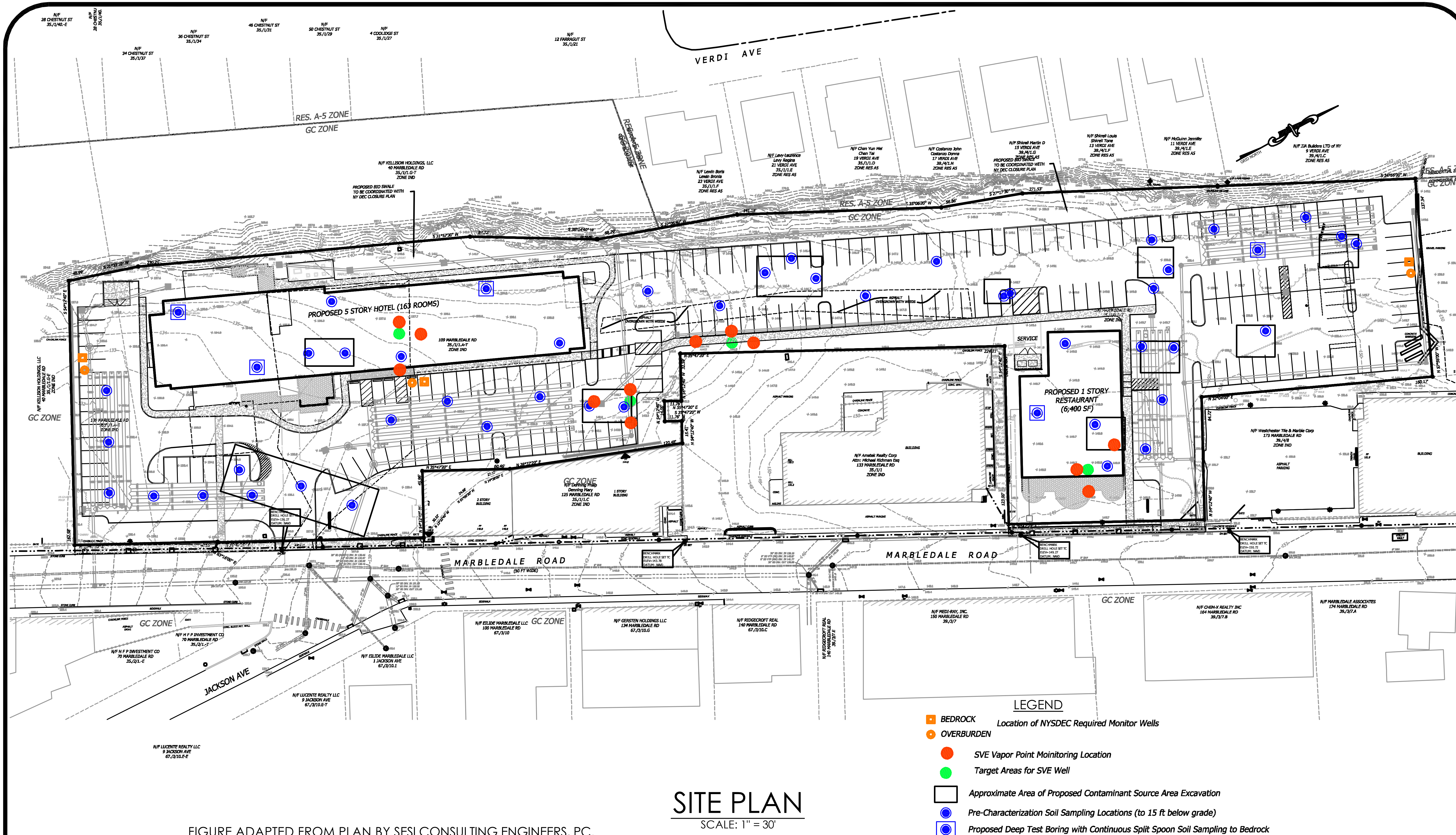
- BEDROCK
- Location of NYSDEC Required Monitor Wells
- SVE Vapor Point Monitoring Location
- SVE Well
- Pre-Characterization Soil Sampling Location (to 15 ft below grade)
- Proposed Deep Test Boring with Continuous Split Spoon Soil Sampling to Bedrock
- Approximate Area of Proposed Contaminant Source Area Excavation

SITE PLAN

SCALE: 1" - 20'

FIGURE 2

109-125 MARBLEDALE ROAD TUCKAHOE, NEW YORK	ADDITIONAL SAMPLING REQUIRED BY NYSDEC	ADDITIONAL RAWP DETAILED WORK PLAN	HydroEnvironmental SOLUTIONS, INC. One Deans Bridge Road Somers, New York 10589

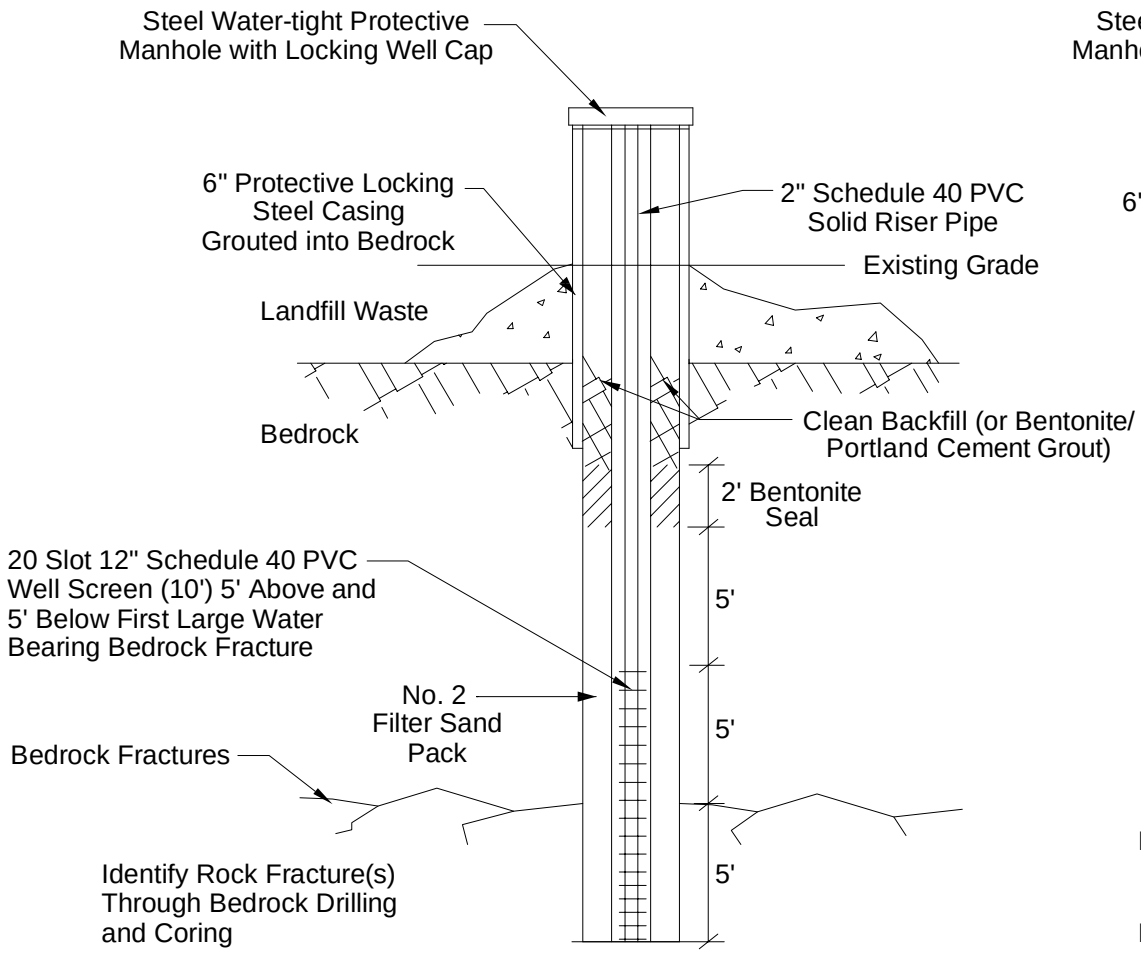


109-125 MARBLEDALE ROAD
TUCKAHOE, NEW YORK

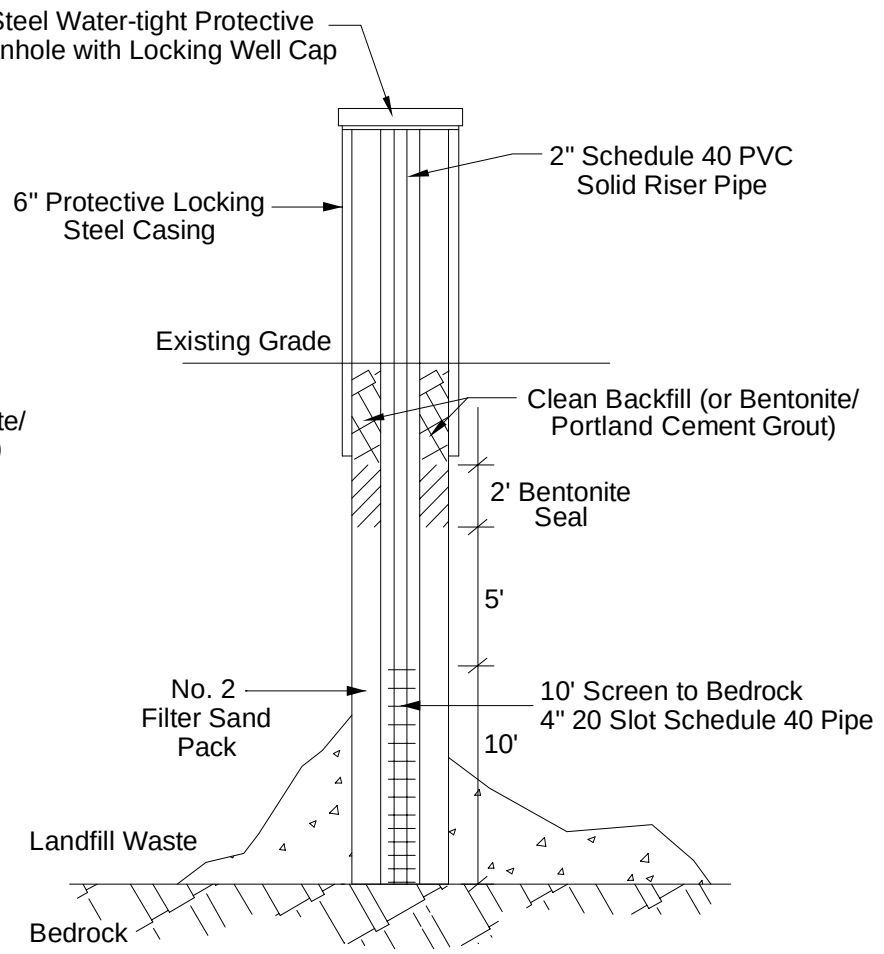
SITE PLAN SHOWING ADDITIONAL SAMPLING REQUIRED BY NYSDEC

FIGURE 2A
ENVIRONMENTAL INVESTIGATION & REMEDIAL DESIGN PLAN

HydroEnvironmental SOLUTIONS, INC
One Deans Bridge Road
Somers, New York 10589



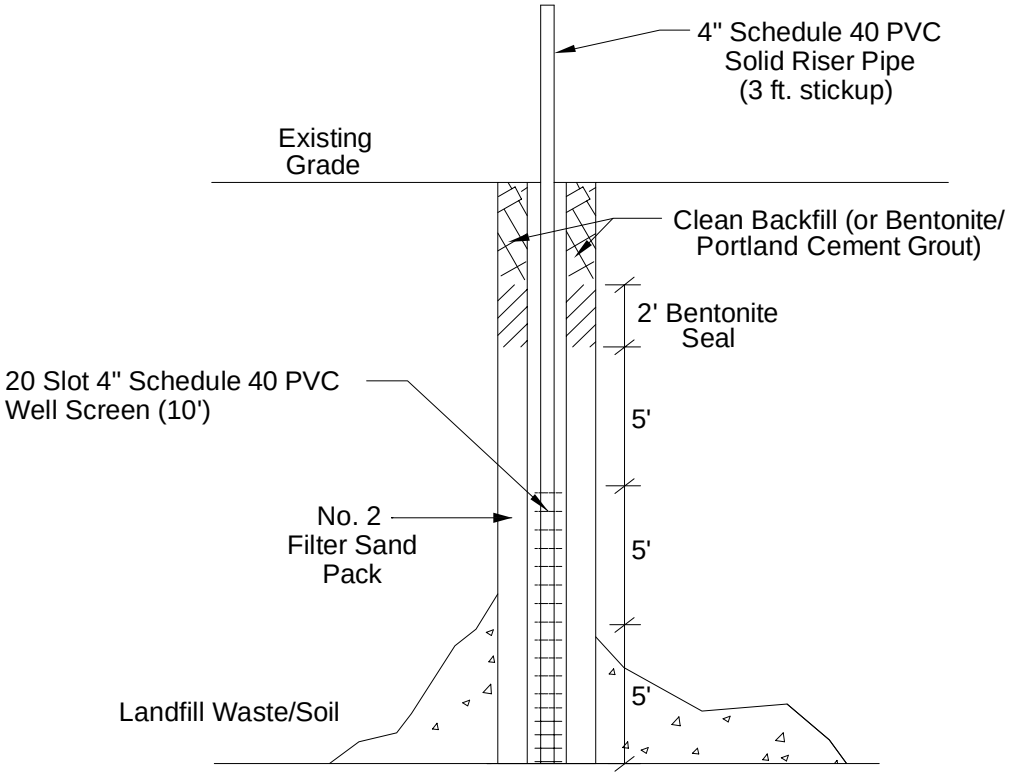
FORMER MARBLE QUARRY BEDROCK
WELL DESIGN (DEEP WELL)



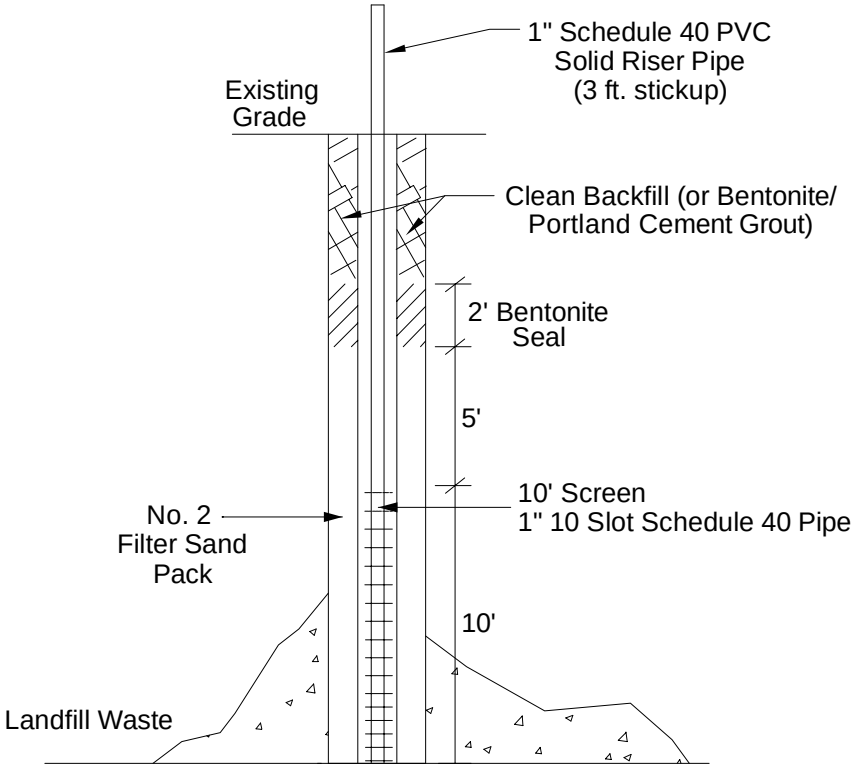
FORMER MARBLE QUARRY OVERBURDEN
WELL DESIGN (SHALLOW WELL)

FIGURE 3

109-125 MARBLEDALE ROAD TUCKAHOE, NEW YORK	MONITORING WELL DETAIL	Not to Scale	JUNE 2016	HydroEnvironmental SOLUTIONS, INC. One Deans Bridge Road Somers, New York 10589
		MONITOR WELL DETAILS		



FORMER MARBLE QUARRY SOIL
VAPOR EXTRACTION (SVE) WELL DESIGN



FORMER MARBLE QUARRY SVE MONITORING
WELL POINT DESIGN

FIGURE 4

109-125 MARBLEDALE ROAD TUCKAHOE, NEW YORK	SOIL VAPOR EXTRACTION WELL DETAIL	Not to Scale / AUGUST 2016 SVE WELL DETAILS	HydroEnvironmental SOLUTIONS, INC. One Deans Bridge Road Somers, New York 10589

GAST MANUFACTURING, INC.
A Unit of IDEX Corporation
Post Office Box 97
Benton Harbor, Michigan
Ph: 269/926-6171
Fax: 269/925-8288

Product Specifications

PART NUMBER: LTD148

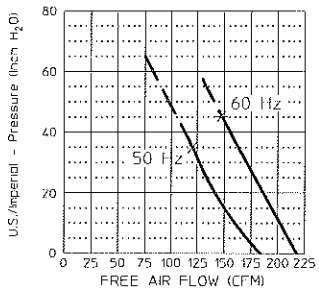
REV. G

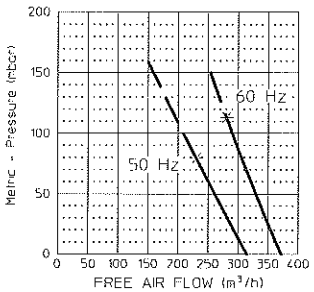
MODEL NUMBER	MOTOR SPECIFICATIONS	RPM	MAX VAC		MAX PRESS		HP	kW	NET WT.	
			"H_2O	mbar	"H_2O	mbar			lbs.	kg
R6125-2	110/220-240-50-1	2850	45	112	35	87	1.5	1.1	87	39.5
	115/208-230-60-1	3450	55	137	45	112	2.5	1.9		

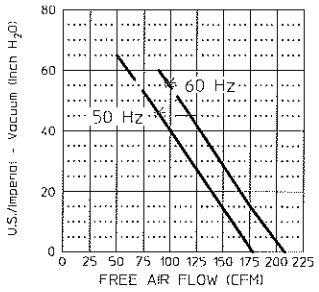
SOUND LEVEL 72/69 dB(A) MAX. @ 60/50 Hz
NORMAL AMBIENT -29°C TO 40°C
RELATIVE HUMIDITY 0% - 100% NON CONDENSING
ENVIRONMENT CLEAN DUST FREE

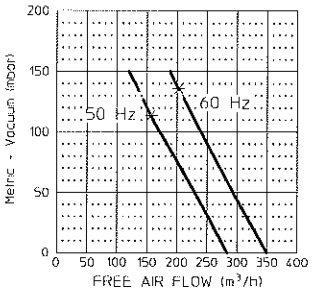
TECHNICAL DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Product Performance (Metric U.S. Imperial)









PERFORMANCE DATA
THE PERFORMANCE DATA SHOWN WAS DETERMINED UNDER THE FOLLOWING CONDITIONS:

LINE VOLTAGE @ 60 Hz. 230V OR 460V FOR 3 PHASE UNITS. 115V OR 230V FOR 1 PHASE UNITS.

LINE VOLTAGE @ 50 Hz. 220V FOR 3 PHASE OR 1 PHASE UNITS.

UNITS IN A TEMPERATURE STABLE CONDITION.

DELIVERY MEASUREMENTS MADE WITH OUTPUT PORT THROTTLED.

SUCTION MEASUREMENTS MADE WITH INPUT PORT THROTTLED.

TEST CONDITIONS: INLET AIR DENSITY @ 0.075 lbs. per cu. ft. [20°C (68°F), 29.92" Hg (14.7 PSIA)].

NORMAL PERFORMANCE VARIATIONS ON THE RISISTANCE CURVE WITHIN ±10% OF SUPPLIED DATA CAN BE EXPECTED.

* DENOTES RECOMMENDED MAXIMUM DUTY
---- INTERMITTENT DUTY ONLY

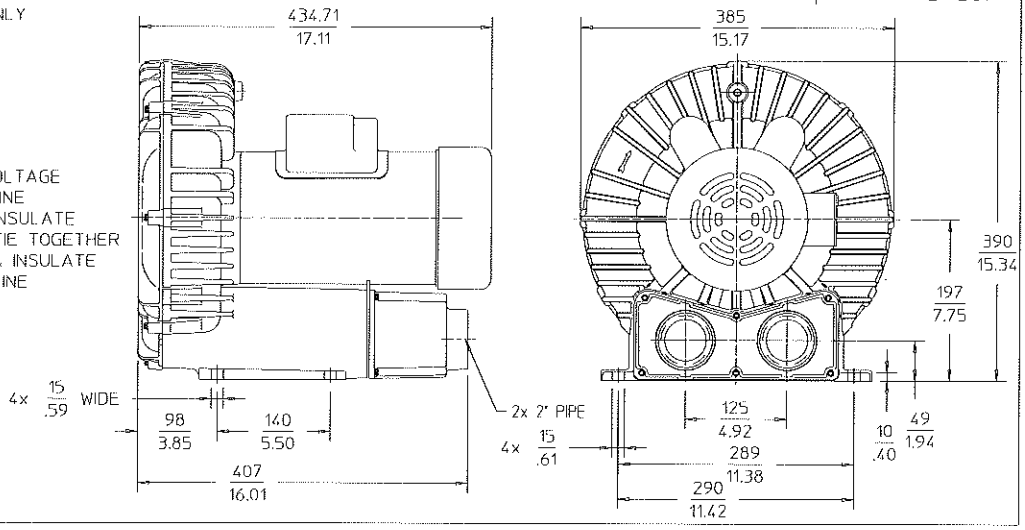
WIRING DIAGRAM

LOW VOLTAGE
P1 — LINE
P2 — TIE TOGETHER & INSULATE
T3 — TIE TOGETHER & INSULATE
T2 — LINE
T4 — LINE

HIGH VOLTAGE
P1 — LINE
P2 — INSULATE
T3 — TIE TOGETHER & INSULATE
T2 — TIE TOGETHER & INSULATE
T4 — LINE

Product Dimensions

Metric (mm) / U.S. Imperial (inches)



RUSMAR FOAM TECHNOLOGIES™

Recognized Globally
For Superior Odor And Emissions Control

RusFoam® OC
(AC645)

The Odor-Control Foam

RusFoam® OC long duration foam produces a thick, long-lasting, viscous foam barrier for immediate control of dust, odors and volatile organic compounds (VOCs).

RusFoam® OC is recognized by the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers, state agencies and major corporations as providing superior emission control for a period up to 17 hours. It has been specified for use at Superfund and other hazardous waste sites across the United States and Canada, and elsewhere in the world. RusFoam® OC is designed for use with all Rusmar Pneumatic Foam Units.

FEATURES

- Biodegradable
- Non-hazardous
- Non-combustible
- Non-reactive
- No ambient temperature limits
- Requires only water dilution
- Covers any contamination source
- Duration can be varied by dilution

BENEFITS

- Easy to use
- Safe for workers and environment
- No clean up necessary
- Will not add to soil volume
- Will not add to treatment costs
- More effective than the competition

APPLICATIONS

The primary application for RusFoam® OC is control of odors, VOCs and dust during active excavation and for overnight coverage of contaminated soils at hazardous waste sites. RusFoam® OC can also be applied on liquid surfaces, such as lagoons and retention ponds.

ODOR CONTROL FOR CHALLENGING PROBLEMS

The remediation of hazardous waste sites often includes excavation of soil contaminated with odorous compounds. RusFoam® OC has no odor itself, although a pleasant wintergreen or vanilla scent can be added. It forms a barrier between contaminants and the atmosphere and can be applied during active excavation to provide an immediate and effective barrier to minimize odors. It is completely biodegradable and poses no threat to workers, neighboring residents or ground water.

(continued)

RUSMAR FOAM TECHNOLOGIES™

Recognized Globally
For Superior Odor And Emissions Control

RusFoam® OC
(AC645)

SOLVES TRANSPORTATION PROBLEMS

RusFoam® OC can also be applied on top of trucks, railcars and barges for odor and emission control during transport of materials such as contaminated soils or sewage sludge. Ammonia tests performed on trucks containing sewage sludge resulted in a drop of concentration levels from 170 ppm prior to foaming down to 6 ppm after coverage with RusFoam® OC.

- Minimizes worker exposure
- Maintains fence-line odor and VOC emission limits
- Effective on lagoon and pond closures
- Can be applied to near vertical or liquid surfaces

CONTROLS FUGITIVE DUST

At hazardous waste sites, fugitive dust can present a health hazard. RusFoam® OC can be applied on top of the dusty material to prevent any wind-borne emissions. There is no need to mobilize equipment to immediately cover with soil or tarps. The Pneumatic Foam Unit can be filled and placed at the site to be used at a moment's notice.

CLEANS UP EMERGENCY SPILLS

In emergency spills, odor and VOC control is often difficult because of the terrain and accident conditions. RusFoam® OC can be applied to any shaped object, as well as steep slopes, water, mud, snow and ice. It is non-flammable and non-reactive. Difficult spill problems can be accommodated.

METHOD OF APPLICATION

RusFoam® OC is supplied in either 450 pound (200L) drums or in bulk. Bulk shipments can be stored outside in a Rusmar Bulk Storage-Dilution System. The Bulk Storage and Dilution system is comprised of a 7000 gallon (26,500L) heated and stirred chemical storage tank with a microprocessor to accurately dilute and transfer the chemical.

RusFoam® OC is designed to be applied with a Rusmar Pneumatic Foam Unit. The Pneumatic Foam Units are available in a variety of sizes to accommodate a range of site conditions and application needs.

Rusmar Incorporated
216 Garfield Avenue, West Chester, PA 19380
1-800-733-3626, 610-436-4314 office, 610-436-8436 fax
rusmarinc.com

SAFETY DATA SHEET

LONG DURATION FOAM AC-645

Section 1. Identification

GHS product identifier : LONG DURATION FOAM AC-645

Chemical name : Proprietary Surfactant.

Other means of identification : Aqueous anionic surfactant mixture.

Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Product use : Aqueous Surfactant. Spray application for VOC and Odor control.

Area of application : Industrial applications.

Supplier/Manufacturer : Rusmar, Inc.
216 Garfield Avenue
West Chester, PA 19380
Phone: 610-436-4314
Fax: 610-436-8436

e-mail address of person responsible for this SDS : info@rusmarinc.com
Website: www.rusmarinc.com

Emergency telephone number (with hours of operation) : 888 488 8044 or 212 682 1200
CHEMTREC 800 424 9300

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : Proprietary Surfactant.

Other means of identification : Aqueous anionic surfactant mixture.

CAS number/other identifiers

CAS number : Not available.

Product code : Not available.

Ingredient name	Other names	%	CAS number
Proprietary Surfactant.	-	100	-

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
sulfur oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

Large spill : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [Clear viscous liquid.]

Color : Translucent. White.

Odor : Odorless.

Odor threshold : Not available.

pH : Not available.

Melting point : Not available.

Boiling point : 99°C (210.2°F)

Flash point : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not applicable.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : 3.3 kPa (25 mm Hg) [room temperature]

Vapor density : Not available.

Relative density : 1.01 to 1.06

Solubility : Easily soluble in the following materials: cold water and hot water.

Solubility in water : Easily soluble.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid : Keep away from heat.

Incompatible materials : No specific data.

Hazardous decomposition products : Low levels of sulfur oxides on exposure to high temperatures (concentrate).

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Conclusion/Summary : Not expected.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Section 11. Toxicological information

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Section 12. Ecological information

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **United States inventory (TSCA 8b)**: Not determined.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No products were found.

SARA 313

Not applicable.

State regulations

Massachusetts : This material is not listed.

New York : This material is not listed.

New Jersey : This material is not listed.

Pennsylvania : This material is not listed.

California Prop. 65

None of the components are listed.

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

United States

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	0
Flammability	0
Physical hazards	0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
Not classified.	

History

Date of issue/Date of revision : 05/28/2015

Date of previous issue : No previous validation

Version : 1

Prepared by : IHS

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Section 16. Other information

References : HCS (U.S.A.)- Hazard Communication Standard
International transport regulations

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

PRODUCT DESCRIPTION

ACTIVATED CARBON CANISTER
VAPOR PHASE FOR VOC REMOVAL

Model:	**G-1S**	**G-2S**	**G-3S**
Design Flow (CFM):	100	300	500
Design Features:			
Pressure Drop at Design Flow (in. w.c.):	3.5	4.25	5.0
Carbon Weight (lbs.):	200	170	140
Carbon	Vapor phase activated carbon, high activity.		
Canister:	24"Ø X 34" high epoxy lined carbon steel drum. PVC internal piping. Acceptable for transport of hazardous spent carbon.		
Maximum Operating Pressure	10 psi	10 psi	10 psi
Connections:	Inlet and outlet couplings located in lid. 3/4" side bung drain.		
Inlet & Outlet Size:	2" FPT	4" FPT	4" FPT
Shipping Weight (lbs.):	250	220	190
Availability:	2 days		
Drawing Number:	S-1113	S-1114	S-1115

9/6/13
*SP-101