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February 6, 2007

Mr. Matthew W. Duffany
New York State Department of Environmental Conservation
Division of Environmental Remediation
615 Erie Boulevard West
Syracuse, New York 13204

Re: Mathews Avenue Supplemental PSA Work Plan
Consent Order # D-7-0007-01-09

Dear Mr. Duffany,

This letter is a work plan describing the scope and proposed procedures for the Supplemental Preliminary Site Assessment (PSA) at the Mathews Avenue Site (Site) in Solvay, New York. The scope of work has been developed based on discussions during the November 7, 2006 meeting between O'Brien & Gere and the New York State Department of Environmental Conservation (NYSDEC). This work plan has been modified based on your December 13, 2006 and January 11, 2007 calls with Chris Calkins of O'Brien & Gere and the January 30, 2007 NYSDEC comment letter. A Site location plan is provided as **Figure 1**.

This work is being performed under the PSA/RI/FS Consent Order #D7-0007-01-09 between the NYSDEC and Honeywell dated September 20, 2002.

This letter work plan is divided into the six sections listed below:

- Field Investigation and Sampling Plan
- Sample Analysis
- Data Validation/Data Management
- PSA Report
- Schedule
- Investigation Derived Waste (IDW) Characterization and Disposal.

Quality Assurance/Quality Control (QA/QC) and health and safety procedures for this program are specified in the NYSDEC approved *RI/FS Wastebeds 1-8 Quality Assurance Project Plan* (QAPP) (O'Brien & Gere, 2006) and the *RI/FS Harbor Brook and Ballfield Sites Health and Safety Plan* (O'Brien & Gere, 2002), respectively. The *RI/FS Wastebeds 1-8 QAPP* is being utilized for this project because it is the most up to date NYSDEC approved QAPP. The community air monitoring program (CAMP) for the Site is presented in the *RI/FS Harbor Brook and Ballfield Sites Health and Safety Plan* (2002). The procedures presented in this CAMP will be utilized during the completion of this work. Analytic methods and IDW procedures for this program will remain consistent with the NYSDEC approved Montgomery Watson Harza (MWH) PSA Work Plan (2002). Columbia Analytic Services, Inc. will be performing the analyses unless otherwise noted.

Previous investigations have been performed at adjacent sites, including:

- Pass & Seymour
- LCP Chemicals
- Frazier and Jones
- Village of Solvay Landfill
- Geddes Brook

The results of these investigations will be included within the PSA report to be submitted subsequent to the work presented below.

Field Investigation and Sampling Plan

The proposed tasks for the Supplemental PSA are presented below. A summary of field work is presented on the attached **Table 1A**.

Marking of subsurface utilities

Dig Safely New York will be contacted prior to the initiation of intrusive work at the Site. A date and time will be established for the various utility companies to meet an O'Brien & Gere representative to mark the locations of subsurface utilities in the areas of proposed work.

Marking of final sampling locations in the field

Subsequent to the marking of subsurface utilities, a meeting will be held in the field with the NYSDEC to agree on the placement of the final boring locations. Proposed investigation locations are presented on **Figure 2** for the Site.

Soil Borings

Objective: A total of 12 soil borings will be advanced to evaluate subsurface geologic strata, quantify subsurface soil chemical concentrations, and facilitate the installation of monitoring wells. Six shallow borings and two deep borings were selected to facilitate monitoring well installation. The four additional shallow boring locations were selected to fill data gaps within the western portion of the Site.

Approach: Drilling will be overseen by a geologist, who will complete a boring log to document encountered subsurface strata and other pertinent observations. In addition, each split spoon sample will be screened using a PID and a MVA. The PID and MVA screening results will be included on the boring logs. All drill cuttings will be containerized for subsequent characterization and disposal.

The geologist will also coordinate with the appropriate utilities during the drilling so that the utilities can have a representative on-site, if necessary.

Borings advanced at the site will be advanced using the following methodologies.

Shallow Borings.
Shallow borings will be installed at 10 locations; six of these locations will be converted to shallow monitoring wells. These locations will be selected to provide adequate coverage across the Site and also based on review of historical aerial photographs, previous locations examined during the Site PSA, and a Site reconnaissance. The final boring locations will be selected in concurrence with the NYSDEC. The proposed locations are presented on **Figure 2**.

Soil borings that do not penetrate the silt and clay layer will be installed using conventional hollow stem auger drilling techniques. Samples will be collected continuously throughout the boring(s) in accordance with ASTM Method D1586-84 using a 140-lb hammer and 2-ft split barrel samplers. When the terminal depth for the borehole is reached, the borehole will be filled with a Portland cement/bentonite grout through a tremie pipe to grade.

Soil samples will be collected from a depth greater than 1-ft. The sample intervals will be selected on the basis of field observation, field screening results, or randomly if detectable screening measurements and visible contamination are absent. Soil boring samples will be submitted to a New York State certified laboratory for analyses using USEPA SW-846 Methods (USEPA, 2004). These samples will be submitted to the laboratory for TCL/TAL parameters using methods 8260B, 8270C, 8081A, 8082, 6010B, 7471A, and 9010C/9014 for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide, respectively.

Deep Borings.
Two deep borings will be installed at the Site; both these borings will be converted to monitoring wells. The proposed deep boring locations are on the north-central portion and southwestern corner of the Site. The proposed locations are presented on **Figure 2.**

Borings that penetrate below the silt and clay layer will be installed using double-cased methods. Borings will be conducted by advancing 6¼ -inch inside diameter augers from the ground surface to a minimum depth of 5 ft below the top of the silt and clay layer. During advancement of the 6¼-inch augers, soil samples will be collected at 2-ft intervals using 2-inch diameter split spoon samplers in accordance with ASTM Method D1586-84. Upon completion of advancement of the 6¼-inch augers, 4-inch diameter steel casing fitted with a plastic end cap will be lowered through the auger string. The annular space between the borehole wall and the 4-inch casing will be filled with Portland cement/bentonite grout using a tremie pipe as the auger is removed. A head of grout will be maintained in the auger string until all of the augers have been removed from the borehole. The grout will be allowed to cure for a minimum of 12 hours prior to further borehole advancement.

Subsequent to curing of the grout, fluid-rotary drilling methods will be used to deepen the boreholes to the terminal depth. A nominal 3.875-inch diameter roller bit will be used to advance the boreholes. Potable water will be re-circulated through the drill stem to carry soil cuttings to the ground surface. Cuttings that are carried to the ground surface will be initially contained in the re-circulation tub and transferred to a lined roll-off box or 55-gallon drums as needed. During the fluid-rotary drilling, soil samples will be collected at 2-ft intervals in accordance with ASTM Method D1586-84. When the terminal depth for the borehole is reached, the borehole will be filled with a Portland cement/bentonite grout through a tremie pipe to grade.

Soil samples will be collected from a depth greater than 1-ft. The sample intervals will be selected on the basis of field observation, field screening results, or randomly if detectable screening measurements and visible contamination are absent. Soil boring samples will be submitted to a New York State certified laboratory for analyses using USEPA SW-846 Methods (USEPA, 2004). These samples will be submitted to the laboratory for TCL/TAL parameters using methods 8260B, 8270C, 8081A, 8082, 6010B, 7471A, and 9010C/9014 for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide, respectively.

Boring Summary.
The borings have been separated by location and type below for discussion purposes. A boring summary is provided below in **Table 1**. The proposed locations are presented on **Figure 2**.

Table 1. *Boring Summary.*

Boring location and type	Number of Locations	Approximate Termination Depth	Analytical Samples per boring	Analytic Summary
Shallow Borings	4	Borings 5 ft into silt/clay (approx. 20 ft bgs)	2	TCL/TAL
Shallow Borings to be converted to monitoring wells	6	Borings 5 ft into silt/clay (approx. 20 ft bgs)	1	TCL/TAL
Deep Borings to be converted to monitoring wells	2	Borings to till (approx. 50 ft bgs)	1	TCL/TAL

Soil boring samples will be submitted to a New York State certified laboratory for analyses using USEPA SW-846 Methods (USEPA, 2004). These samples will be submitted to the laboratory for TCL/TAL parameters using methods 8260B, 8270C, 8081A, 8082, 6010B, 7471A, and 9010C/9014 for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide, respectively. Additional samples may be collected based on field observations.

Monitoring Well Installation

Objective: Monitoring wells will be installed and sampled to further evaluate ground water flow patterns and chemical concentrations in ground water. Locations MW-15, MW-16, MW-17, and MW-06S2 were selected to evaluate off-site migration from the former Mathews Avenue landfill. Location MW-13 was selected to provide greater control along the western Site boundary and location MW-12 was selected as an upgradient/background location.

Approach: Six shallow monitoring wells and two deep monitoring well will be installed at the Site to further evaluate ground water flow patterns and chemical characteristics. The proposed locations are presented on **Figure 2**. The shallow wells will likely be situated to screen the water table. The actual screen intervals for the shallow wells will be based on screening results and in the field, in concurrence with the NYSDEC.

Subsequent to the terminal depth of the borehole, a 2-inch diameter PVC well consisting of a 10-ft length of 0.010- or 0.020-inch slot screen flush-threaded to riser casing will be installed in the borehole. The screen size will be selected based on the nature of the subsurface material. The riser casing will be extended approximately 2-ft above ground surface. A sandpack suitable for use with the screen slot size will be installed within the annular space between the borehole and the well. The sandpack will extend from the bottom of the well to 2 to 5 ft above the top of the well screen. The remaining annular space will be filled with Portland cement/bentonite grout through a tremie pipe to a maximum depth of 5-ft below grade. To protect the well and prevent unauthorized access, a steel guard pipe with a cover and pad lock will be installed around each well. A concrete pad will be installed around the guard pipe to direct precipitation away from the borehole. A vented cap will be added to the well.

Following installation of the new wells and prior to collection of ground water samples, each of the 29 Site wells, new and existing, will be developed to remove material which may settle in and around the well screen. Development will consist of the removal of ten well volumes using either a bailer or centrifugal pump. A 50 Ntu goal has been established. If this cannot be achieved, O'Brien & Gere will coordinate with the NYSDEC to establish a mutually agreeable development volume. Development water will be contained in a 500 gallon polyethylene tank located on-site for subsequent disposal. The method of disposal will be determined based on ground water analytical results. Ground water sampling will be conducted a minimum of seven days after development, which is described below.

Hydraulic Conductivity Testing

Hydraulic conductivity tests will be performed for each of the 29 wells on-site including the 8 newly installed wells, 20 existing Site monitoring wells, and 1 existing Village of Solvay wells to estimate the horizontal hydraulic conductivity of materials surrounding the well screen as per the PSA Work Plan (MWH, 2002). Rising and falling head measurements will be obtained following both insertion and removal of a PVC slug into the well. The ground water measurements will be recorded using an electronic data logger.

Ground Water Sampling

One round of 32 ground water samples will be collected from the 20 existing Site monitoring wells, the 1 existing Village of Solvay well between the Village of Solvay landfill and the Mathews Avenue landfill, 3 piezometers (LCP-PZ-07B triplet) located downgradient at the LCP Site, and the 8 newly installed wells.

Samples will be collected using low flow purging techniques. If the hydrogeologic unit will not produce sufficient water to allow for low flow purging, a bailer will be used to purge the well and collect a sample once a sufficient amount of water enters the well. Low flow purging involves inserting a stainless steel Grundfos pump (Rediflow) and dedicated polyethylene tubing within the screened interval of the well and purging at a maximum rate of 0.5 L/min. During purging, ground water levels will be monitored to ensure drawdown is not occurring; ground water quality parameters including pH, conductivity, temperature, eH, turbidity, and dissolved oxygen will be monitored continuously using an in-line water quality meter. Once ground water quality parameters have stabilized or after the removal of three well volumes, samples will be collected directly from the tubing. Samples collected for organic analyses will not be preserved or adjusted for pH. Ground water parameters will be considered stable when three successive readings are within:

± 10% for temperature
± 0.1 pH unit
± 3% for conductivity
± 10 mv for ORP
± 10% for turbidity
± 10% for DO.

The ground water samples will be submitted to a New York State certified laboratory for analyses using USEPA SW-846 Methods (USEPA, 2004). These samples will be submitted to the laboratory for TCL/TAL parameters using methods 8260B, 8270C, 8081A, 8082, 6010B, 7470A, and

9010C/9014 for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide, respectively. The ground water will also be analyzed for alkalinity and major cations and anions (Ca, Mg, Na, K, Cl, SO_4, CO_3, HCO_3) using methods 310.1/2320B and 6010B/E300/2320B, respectively. Density will also be measured in the field using a hydrometer. The three LCP piezometers will be submitted to the laboratory for VOCs only using method 8260B.

The pump will be decontaminated between wells in accordance with the procedures set forth in the QAPP. Purge water will be contained in a 500-gallon polyethylene tank located on-site for subsequent disposal.

Ground Water Elevation Monitoring

Synoptic ground water elevation monitoring will be once per month for a period of two months starting with the first round of ground water sampling. Ground water elevation monitoring will be conducted on all the existing Site wells and the new wells installed as part of this Supplemental PSA. As part of the ground water elevation monitoring density measurements will be collected in the field using a hydrometer. A depth gauge will be installed within the old Erie Canal and surveyed by a NYS licensed surveyor. Surface water elevations will be measured concurrently with the ground water elevations. If the depth gauge is not installed at the time when ground water elevations are measured, the waters edge within the Old Erie Canal will be staked in three spots and these points will be surveyed by a licensed NYS surveyor.

Historic ground water elevation data will be used to create seasonal water level maps, if appropriate.

Surface Soil Sampling

Objective: Surface soils will be collected to evaluate conditions, quantify chemical concentrations, and assess exposure levels in the area containing diaphragm cells.

Approach: Surface soil samples will be collected from two locations using a hand auger. Proposed sample locations are north of the Mathews Avenue Landfill in the area containing diaphragm cells. Samples will be collected from 0-6 inch and 6-12 inch depth intervals. Proposed surface soil sample locations are presented on **Figure 2**. Exact sampling locations will be selected in the field, in concurrence with the NYSDEC. Additional samples may be collected based on field observations and sample results.

Prior to homogenization of soils, a sample for VOCs analysis will be selected and containerized. Subsequent to homogenization, soils will be transferred to the appropriate laboratory containers for the remainder of the analyses and placed in a cooler containing ice.

Surface soil samples will be submitted to a New York State certified laboratory for analyses by USEPA SW846 methods (USEPA, 2004). These samples will be analyzed for TCL/TAL parameters using methods 8260B, 8270C, 8081A, 8082, 6010B, 7471A, and 9010C/9014 for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide, respectively.

Wetland Sediment Sampling

Objective: Wetland sediment samples are being collected to evaluate potential impacts to on-site wetland areas from Site run-off and Geddes Brook flooding.

Approach: Wetland sediment samples will be collected from approximately 14 locations by boring with a manually driven 2-in split spoon or hand auger. Proposed sample locations have been distributed throughout the delineated wetlands at the Site to evaluate constituent concentrations in wetland sediments. Samples will be collected from the 0-6 inch, 6-12 inch, and the 12-24 inch depth intervals. Proposed wetland sediment samples locations are presented on **Figure 2** and consist of five in W5, 2 in W6, 3 in W3, 2 in W4, 2 in the western, filled-in portion of the Old Erie Canal. The locations were selected to assess chemical impacts to wetland areas at the Site especially within the western portion of the Site. Exact sampling locations will be selected in the field, in concurrence with the NYSDEC. A photograph will be taken at each location at the time of sampling and a general description of the drainage area will be provided for each location in the PSA report. Additional samples may be collected in the wetland areas based on field observations and sample results.

Prior to homogenization of wetland sediments, a sample for VOCs analysis will be selected and containerized. Subsequent to homogenization, sediments will be transferred to the appropriate laboratory containers for the remainder of the analyses and placed in a cooler containing ice.

Wetland sediment samples will be submitted to a New York State-certified laboratory for analyses by USEPA SW846 methods (USEPA, 2004). These samples will be analyzed for TCL/TAL parameters using methods 8260B, 8270C, 8081A, 8082, 6010B, 7471A, and 9010C/9014 for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide, respectively. Wetland sediment samples will also be analyzed for total organic carbon (TOC) and grain size using methods modified ASTM D422 and 9060, respectively.

Surface Water/Sediment Sampling

Objective: Surface water and sediment samples will be collected to further evaluate the potential impact to sediment and surface water within on-site drainage ditches, the old Erie Canal, and Geddes Brook.

Approach: Surface water and sediment samples will be collected from 13 locations at the Site including five locations in the former Erie Canal, two locations from within the ponded area (W2), one south of the Village of Solvay property access road, two locations from within the drainage swale discharging to Geddes Brook, one location at the confluence of the drainage swale and Geddes Brook, one location within the ditch along the eastern side of the Site in the area of the noted iron staining, and one location in Geddes Brook downstream of Gere Lock Road. Two additional locations adjacent to MA-SS-01/MA-SW-01 will be sampled for sediment only. Proposed surface water and sediment samples locations are presented on **Figure 2**. Exact sampling locations will be selected in the field, in concurrence with the NYSDEC. Additional samples may be collected based on field observations and sample results. A photograph will be taken at each location at the time of sampling and a general description of the drainage area will be provided for each location in the PSA report.

Sampling locations in the old Erie Canal were selected based on previous sampling results. The remaining locations were selected to provide a better understanding of the potential movement of site related constituents within drainage structures on-Site.

Surface water samples will be collected by immersing a location-dedicated glass container in the surface water body. This glass container will then be used to fill the laboratory containers. The presence of sufficient quantity of surface water will determine whether the surface water sample can be collected. Water samples collected for organic analyses will not be preserved or adjusted for pH. The pH will be measured in the field.

Samples will be collected from the 0-6 inch and 6-12 inch depth intervals using Lexan® tubing or dedicated plastic scoops. Prior to homogenization of sediments, a sample for VOCs analysis will be selected and containerized. Subsequent to homogenization, sediments will be transferred to the appropriate laboratory containers for the remainder of the analyses and placed in a cooler containing ice.

Surface water and sediment samples will be submitted to a New York State certified laboratory for analyses by USEPA SW846 methods (USEPA, 2004). These samples will be analyzed for TCL/TAL parameters using methods 8260B, 8270C, 8081A, 8082, 6010B, 7470A/7471A, and 9010C/9014 for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide, respectively. Sediment samples will also be analyzed for total organic carbon (TOC) and grain size using methods modified ASTM D422 and 9060, respectively. Sediment samples collected from the five eastern most locations within the old Erie Canal and the two locations within the ponded area (W2) will also be analyzed for PCDD/Fs using method 8290. All surface water samples will be analyzed for mercury using high resolution method 1631.

Iron Staining Evaluation

Objective: Test pitting will be performed along the eastern portion of the Site in the area of the drainage ditch along Gere Lock Rd to evaluate the physical and chemical characteristics of shallow subsurface soils (0 to 10 ft) and potential source of the iron staining within the drainage ditch.

Approach: One to two test pits will be advanced using a rubber tire, extended reach backhoe, or tracked excavator. The approximate location of the test pitting is provided on **Figure 2**. Test pit(s) will be advanced until native materials are encountered, or to a depth of 10 ft. The contractor's supervising geologist will complete a test pit log to document encountered subsurface strata and other pertinent observations (e.g., visible staining, etc.). A photoionization detector (PID) will be used to screen collected samples and to monitor the breathing zone during excavation. The supervising geologist will take photographs of the excavation(s) and these photographs will be attached to the test pit log.

At least one soil sample will be collected from the test pits. Additional samples may be collected, at the discretion of Honeywell and the NYSDEC, if visible staining, etc. is observed. Samples will be transferred from the bucket to a dedicated aluminum pan or decontaminated mixing bowl and homogenized using a dedicated plastic spatula or decontaminated metal spoon. Prior to homogenization, a sample for VOCs will be selected and containerized. Subsequent to homogenization, soils will be transferred to the appropriate laboratory containers for the remainder of the analyses and placed in a cooler containing ice.

Test pit samples will be submitted for laboratory analyses for TCL/TAL parameters using USEPA SW846 methods (USEPA 1996a). These analyses will be performed using methods 8260B, 8270C, 8081A, 8082, 6010B, 7471A, and 9010C/9014 for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide respectively.

Vapor Intrusion Evaluation

Objective: Vapor samples will be collected to evaluate the potential for vapor intrusion into future buildings in the Site. An ambient air sample will be collected to evaluate the background atmospheric conditions at the Site.

Approach: Vapor samples will be collected to evaluate the potential for vapor intrusion into future buildings on the Site. Vapor intrusion may result from ground water, soils, or both. To evaluate these potential pathways, soil vapor samples will be collected from 8 ft below ground surface (bgs), and from just above the water table depending on its depth. If the depth to ground water is greater than 10 ft bgs then 2 samples will be collected. If possible one sample will be collected from 8-ft bgs and one sample will be collected from a shallower depth to evaluate vapor intrusion with regards to potential future slab on grade construction at location MA-VI-06.

Eight locations will be advanced on the Site in the vicinity of the Mathews Avenue landfill, with two off-site locations north of Gere Lock Road. The two proposed off-site locations are pending access agreements with current property owners. Also, two ambient air samples will be collected concurrently with the vapor intrusion samples. The proposed locations are presented on **Figure 2.**

The ten soil vapor samples will be collected through vapor probe holes. The sampling apparatus, consisting of a vapor point and hollow push rods, will be driven into the ground using a slide hammer, power hammer, or direct push drill rig. In the event a slide hammer or power hammer is used, the tubing will be connected to a slotted stem drive point before the rods are driven. In the event that a drill rig is used, the 1/8-inch tubing will be attached to a six-inch stainless steel screen and attached to the drive point after the rods and drive point have been advanced. Irrespective of the drive method, the annular space between the hole and the tubing will be packed, first using several inches of grade #1A crushed stone or sand allowing a permeable path for soil vapor to enter the drive stem or stainless steel screen. Then the remainder of the annular space will be packed with bentonite grout to preclude ambient air from being drawn into the sampling point and compromising the sample collection. The bentonite will be hydrated for two to twelve hours before a sample is collected depending on field conditions such as soil moisture.

Once the soil vapor probe apparatus has been installed and the bentonite hydrated, the inert sample tubing will be purged of from one to three volumes of ambient air with a 60-cubic centimeter syringe to provide samples that are representative of subsurface conditions. The sampling tubing will then be connected to a sampling canister at the ground surface and the sample collected over a four-hour period. The purging rate will not exceed 0.2 L/min. Each sampling apparatus, consisting of the vapor sampling point, stone pack, and tubing, will be purged of approximately one to three volumes of ambient air with a 60-cubic centimeter syringe to provide samples that are representative of subsurface conditions. In addition, to allow subsurface conditions to equilibrate after the installation of the sampling point, samples will not be collected for a minimum of 30 minutes.

Prior to sample collection, probe construction will be evaluated using helium as a tracer gas. To administer the helium, a polycarbonate bucket will be placed over the location where the probe intersects the ground surface. The sample tubing will be guided through an airtight port in the bucket and secured using a cap or clamp until sampled. The bucket will be charged with helium using a second port at the top of the bucket. Once the bucket has been charged, the tubing will be connected to a MGD 2002 Helium Leak Detector. If no helium is detected, the tubing will be purged as noted above and a soil vapor sample collected in accordance with the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006). At the conclusion of sample collection, the gas analyzer will again be connected to the sample tubing and a second sample analyzed for helium. If no helium is detected, the sample will be sent to the laboratory for analysis. If helium is detected, the soil vapor sample will be considered invalid if the helium detected equals or exceeds 10 percent.

Samples will be collected in accordance with the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006). After the sample points are purged, air samples will be collected in 1.0 L Silonite®-coated stainless steel vacuum canisters. The sampling rate will not exceed 0.2 L/min. Sample flow controllers will be calibrated to collect the sample over a 4-hour period.

Ambient air samples will be collected concurrently with soil vapor samples described above. The one ambient air sample collected in the vicinity of the Mathews Avenue Site and the one ambient air sample collected upwind to the west of the cogeneration plant on Gere Lock Road will be collected in a 1.4 L Silonite®-coated stainless steel vacuum canisters. Samples will be collected in the same manner as the soil vapor samples. Sample flow controllers will be calibrated to collect the samples over a 4-hour period.

The overall vapor intrusion evaluation will be overseen by Jeffrey Banikowski of O'Brien & Gere. Edward Rahn of O'Brien & Gere will oversee the installation of vapor points by Parratt-Wolff, Inc. and the collection of air samples. The parties involved have performed similar investigations under NYSDEC approved work plans at adjacent Honeywell Sites including the Ballfield Site, Wastebed B/Harbor Brook, and Wastebeds 1-8. The results of the Ballfield RI vapor intrusion evaluation validated results are included in the Ballfield RI Report submitted to the NYSDEC for review in August 2006.

Chain-of-custody documentation will be maintained, and the samples will be submitted to NYSDOH-approved laboratory Centek Laboratories for analysis according to USEPA Method TO-15. The full list of TO-15 VOCs will be analyzed for and reported. Samples will be analyzed by methods that are able to achieve a minimum reporting limit of 1 microgram per cubic meter or less. Sampling equipment designated for re-use will be decontaminated between each installation. The vapor data will be validated as per the guidance and the results of the validation will be included within the Data Validation Report discussed below.

Constituent concentrations in soil vapor will be compared to Tables 2a, 2b, and 2c in the OSWER Draft Guidance for Evaluating the Vapor Intrusion into Indoor Air from Groundwater and Soils (USEPA, 2002), consistent with the Ballfield Remedial Investigation (O'Brien & Gere, 2006) and what is currently proposed in the NYSDEC approved work plans for the Wastebed B/Harbor Brook Supplemental RI (O'Brien & Gere, 2006a) and the Wastebeds 1-8 RI/FS Work Plan (O'Brien & Gere, 2006b). Constituent concentrations in ground water will be compared to screening values presented in Tables 2a, 2b, and 2c in the OSWER Draft Guidance for Evaluating the Vapor Intrusion into Indoor Air from Groundwater and Soils (USEPA, 2002) for areas where no buildings currently exist. The results of these screening will be used to evaluate and develop the need for the installation of mitigation systems if new buildings are constructed in these areas in the future.

Site Survey

A sample location survey will be performed by a NYS-licensed surveyor following the completion of the test pit excavations, soil borings, monitoring well installations, surface soils, sediment, and wetland sediment sampling. For surface soils, test pits, sediment, wetland sediment samples, soil borings, and monitoring wells, the New York State Plane coordinates (NAD 83) will be determined. For monitoring wells, the ground surface elevation and top of casing elevation will be surveyed to allow for the calculation of ground water elevations and development of ground water flow maps. A limited number of pertinent site features will be surveyed to allow for accurate placement of sampling locations on existing maps.

FWIA Steps I through IIB

Evaluations of impacts to ecological receptors at hazardous waste sites in New York State are performed in accordance with the NYSDEC document entitled *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites* (NYSDEC 1994). The FWIA guidance presents a stepwise approach to evaluating ecological impacts that allows decisions to be made regarding the need to proceed to subsequent steps based on the results of the previous steps.

Step I A through D and Step II A through II B will be completed for the Matthews Avenue Site in accordance with the Site Consent Order #D-7-0007-01-09. Per the NYSDEC guidance document, Step I - *Site Description* of the FWIA consists of the following:

A. Site Maps
B. Description of Fish and Wildlife Resources
C. Description of Fish and Wildlife Resource Values
D. Identification of Applicable Fish and Wildlife Regulatory Criteria

Step II - *Contaminant-Specific Impact Assessment* consists, in part, of:

A. Pathway Analysis

During the Pathway Analysis, potential pathways between fish and wildlife resources and contaminants of potential concern are identified. If pathways do not exist or impact to a resource is minimal, no additional analysis is required.

B. Criteria Specific Analysis

If complete exposure pathways exist at or down gradient of the Site, then the performance of Step IIB, *Criteria-Specific Analysis*, is recommended. The *Criteria-Specific Analysis* compares site-specific contaminant levels with numerical criteria to provide an assessment of potential impact. If contaminant levels are below criteria, it is assumed a minimal threat to the fish and wildlife resource exists and additional analysis is unnecessary. If contaminant levels exceed criteria, the *Toxic Effect Analysis* (Step IIC) is performed. Step IIC is not included within the scope of work outlined herein.

Jurisdictional Wetland Delineation

A jurisdictional wetland survey was previously completed at the Mathews Avenue Site. The survey was completed in May 2006 by O'Brien & Gere Engineers, Inc. The methodology and results of this delineation will be included within the PSA Report.

Sample Analysis

TCL/TAL parameter analysis will be performed using USEPA SW-846 Methods 8260B plus 10 TICs, 8270C plus 20 TICs and polychlorinated naphthalenes (PCN), 8081A, 8082, 6010B, 7470A/7471A, and 9010C/9014 for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) including polychlorinated naphthalenes, pesticides, polychlorinated biphenyls (PCBs) including Aroclor 1268, metals, mercury, and cyanide. All sediment samples collected at the Site will also be analyzed for grain size and total organic carbon (TOC) will be analyzed using methods ASTM D422 and 9060, respectively. Several sediment samples collected within the former

Erie Canal will also be analyzed for PCDD/Fs using method 8290. Soil vapor samples will be analyzed using USEPA Method TO-15. Besides TCL/TAL parameters, ground water samples will be analyzed for alkalinity and major cations and anions (Ca, Mg, Na, K, Cl, SO_4, CO_3, HCO_3) using methods 310.1/2320B and 6010B/E300/2320B, respectively. The methods presented within this Work Plan are consistent with the NYSDEC approved PSA Work Plan (MWH, 2002). Ground water density will be measured in the field using a hydrometer.

Data Validation/Data Management

Quality Assurance/Quality Control (QA/QC) for this program are specified in the NYSDEC approved *RI/FS Wastebeds 1-8 Quality Assurance Project Plan* (QAPP) (O'Brien & Gere, 2006). The QAPP was prepared in accordance with the *RCRA Quality Assurance Project Plan Guidance* (NYSDEC, 1991) and the *EPA requirements for the Preparation of Quality Assurance Project Plans* (USEPA, 2001). In accordance with the agreement between Honeywell and the NYSDEC, ten percent of the data will be validated and one hundred percent of the calibration data will be validated.

In the event that major systematic excursions, including excursions pertaining to the laboratory calculation and target analyte identification, are detected during the validation process, full validation will be performed on additional data to further investigate the issue. The data validator will evaluate the impact that the excursion would have on the data and determine if additional full validation would be warranted, based on the severity of the excursion. The Project Manager will be informed about the systematic excursion. The results of the data validation effort and a corrective action addressing the issue will be discussed with the Project Manager and the laboratory.

Subsequent to validation, the data will be uploaded to the Locus Technologies EIM™ environmental data management system. The data validation report will be prepared and included as an appendix in the PSA Report and subsequent reports, if necessary.

PSA Report

Subsequent to completion of the field program described above, a concise PSA Report will be submitted to the NYSDEC for review. The PSA Report shall be prepared in accordance with the requirements of Consent Order #D-7-0007-01-09; specifically Section III – Performance and Reporting of PSA.

Schedule

A preliminary schedule for this work is provided as **Figure 3**.

Investigation Derived Waste (IDW) Characterization and Disposal

IDW Characterization

Subsequent to completion of the borings, well development, and ground water sampling, samples of the investigation derived soil and water will be collected for analyses. A composite sample of the soil will be collected using a hand auger, hand trowel, Lexan tubing, or equivalent. The soils will be transferred to a dedicated aluminum pan using a dedicated plastic scoop. Prior to homogenization, representative samples for VOCs analyses will be selected and containerized. Subsequent to homogenization, soils will be transferred to the appropriate sample containers for the remainder of the

analyses and then placed in a cooler containing ice. The soil samples will be submitted to a New York State certified laboratory for the following analyses:

- TCLP VOCs by 1311/8260, respectively
- TCLP SVOCs by 1311/8270, respectively
- TCLP Pesticides by Method 1311/8081
- TCLP Herbicides by Method 1311/8151
- TCLP metals by Method 1311/6010/7470A/9010B/9014.

A sample of the water will be collected by immersing a glass container into the plastic storage tank and filling the appropriate laboratory containers. The water sample will be analyzed for total VOCs, SVOCs, Pesticides, PCBs, and metals by Methods 8260B, 8270C, 8081A, 8082, and 6010B/7470A, respectively.

IDW Disposal

Based on the sampling results discussed above, IDW soils and water will be disposed of at an appropriate off-Site facility in accordance with the PSA Work Plan (MWH, 2002).

Please contact Christopher Calkins of O'Brien & Gere or me if you have any questions regarding this matter.

Sincerely,

HONEYWELL INTERNATIONAL INC.

Christopher C. Calkins for JPM

John P. McAuliffe
Program Director, Syracuse

cc: Mr. Alfred J. Labuz– Honeywell
Brian D. Israel, Esquire. – Arnold & Porter
Ms. Mary Jane Peachey – NYSDEC 7
Mr. Ken Lynch – NYSDEC 7
Mr. Gregg Townsend – NYSDEC 7
Mr. Tim DiGiulio – NYSDEC 7
Mr. Tracy Smith - NYSDEC
Mr. Bob Nunes – USEPA
Mr. M. Spera – TAMS
Ms. Henriette Hamel – NYSDOH
Mr. Mark Van Valkenburg – NYSDOH
Mr. Christopher C. Calkins – O'Brien & Gere
Carol Conyers, Esquire – NYSDEC
Mr. Richard Koepicus – NYSDEC
George Shanahan, Esquire – USEPA

TABLE 1A
HONEYWELL
MATHEWS AVENUE
SAMPLING SUMMARY MATRIX

Sample Type	# of Locations	Objectives	Analytic Summary
Wetland Sediment Samples	14	• Evaluate wetland areas and quantify CPOI concentrations in wetland sediments.	14 locations; 42 samples (0-0.5 ft, 0.5-1.0 ft, 1-2 ft) for the following chemical analyses: • VOCs (8260B) • SVOCs (8270C) • Pesticides (8081A) • PCBs (8082) • Metals (6010B/7471A) • Cyanide (9010C/9014) • Total Organic Carbon • Percent Solid • Grain Size
Soil Borings (approx. 20 ft bgs)	4 (locations determined in the field subsequent to site recon)	• Evaluate subsurface strata and quantify CPOI concentrations in subsurface soil	8 Soil samples (2 per location >2 ft) for the following analyses: • VOCs (8260B) • SVOCs (8270C) • Pesticides (8081A) • PCBs (8082) • Metals (6010B/7471A) • Cyanide (9010C/9014)

Sample Type	# of Locations	Objectives	Analytic Summary
Overburden Soil Borings/Monitoring Wells	6 shallow wells 2 deep well	• Evaluate subsurface strata, quantify CPOI concentrations in subsurface soil, and facilitate installation of 5 wells.	8 Soil samples (>2 ft) for the following analyses: • VOCs (8260B) • SVOCs (8270C) • Pesticides (8081A) • PCBs (8082) • Metals (6010B/7471A) • Cyanide (9010C/9014)
Monitoring Well Installation	8 overburden wells	• Further quantify CPOI concentrations in ground water, further evaluate ground water flow patterns, and estimate loading of CPOIs to nearby surface water.	NA
Hydraulic Conductivity Testing	29 wells	• Evaluate the horizontal hydraulic conductivity in Site wells.	NA

Sample Type	# of Locations	Objectives	Analytic Summary
Ground Water Sampling	8 new wells, 21 existing wells, and 3 piezometers at LCP	• Evaluate CPOI concentrations in Site ground water.	1 round of 29 Samples for the following analyses: • VOCs (8260B) • SVOCs (8270C) • Pesticides (8081A) • PCBs (8082) • Metals (6010B/7470A) • Cyanide (9010C/9014) • Alkalinity (310.1/2320B) • Major Cations/Anions (6010/300/2320B) • Density (hydrometer) 1 round at 3 LCP piezometers for the following analyses: • VOCs (8260B) • Density (hydrometer)
Ground Water Elevation Monitoring	29 + 3 peizometers at LCP	• Evaluate the range in ground water elevations and the hydraulic response to recharge events.	• 2 rounds of water levels for two months. • Density (via hydrometer) will be collected concurrently.

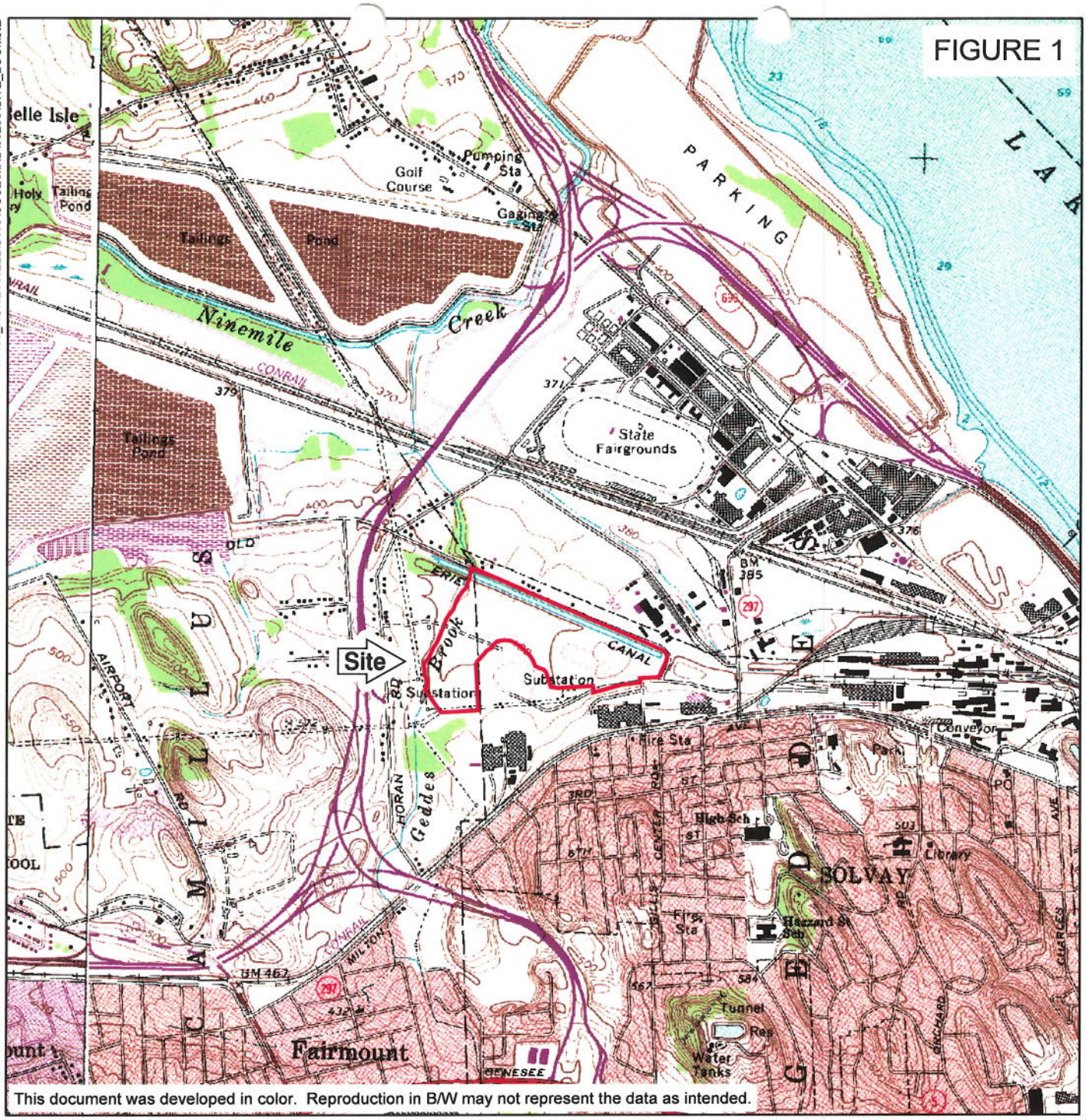
Sample Type	# of Locations	Objectives	Analytic Summary
Sediment/Surface Water Sampling	15 sediment/13 surface water	• Evaluate sediment and surface water within the former Erie Canal, on-site drainage swales, and Geddes Brook	15 locations: 30 sediment samples (0-0.5 ft and 0.5-1.0 ft) for the following chemical analyses: • VOCs (8260B) • SVOCs (8270C) • Pesticides (8081A) • PCBs (8082) • Metals (6010B/7471A) • Cyanide (9010C/9014) • Total Organic Carbon • Percent Solid • Grain Size • PCDD/PCDFs (8290) – 7 locations 13 surface water samples for the following chemical analyses: • VOCs (8260B) • SVOCs (8270C) • Pesticides (8081A) • PCBs (8082) • Metals (6010B) • High resolution mercury (1631) • Cyanide (9010C/9014)
Surface Soils	2	• Evaluate diaphragm cell area north of Mathews Avenue landfill	2 locations: 4 samples (0-0.5 ft and 0.5-1.0 ft) for the following chemical analyses: • VOCs (8260B) • SVOCs (8270C) • Pesticides (8081A) • PCBs (8082) • Metals (6010B/7471A) • Cyanide (9010C/9014)

Sample Type	# of Locations	Objectives	Analytic Summary
"Iron Staining Area" Test Pits	2	• Evaluate "Iron Staining" area east of Mathews Avenue landfill	2 locations: 2 samples for the following chemical analyses: • VOCs (8260B) • SVOCs (8270C) • Pesticides (8081A) • PCBs (8082) • Metals (6010B/7471A) • Cyanide (9010C/9014)
Vapor Intrusion	10 VI samples 2 ambient air	• Evaluate the potential for vapor intrusion into current or future buildings	• USEPA Method TO-15

T:\1163_HONEYWELL\SYRACUSE\MXD\39256\SITE_LOC.MXD

PLOT DATE: 02/06/07 DIV. 732 JPS

FIGURE 1



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ADAPTED FROM: SYRACUSE WEST/CAMILLUS, NEW YORK USGS QUADRANGLE

QUADRANGLE LOCATION

HONEYWELL
MATHEWS AVENUE SITE
GEDDES, NEW YORK

SITE LOCATION

0 1,000 2,000 4,000 6,000 8,000

Feet

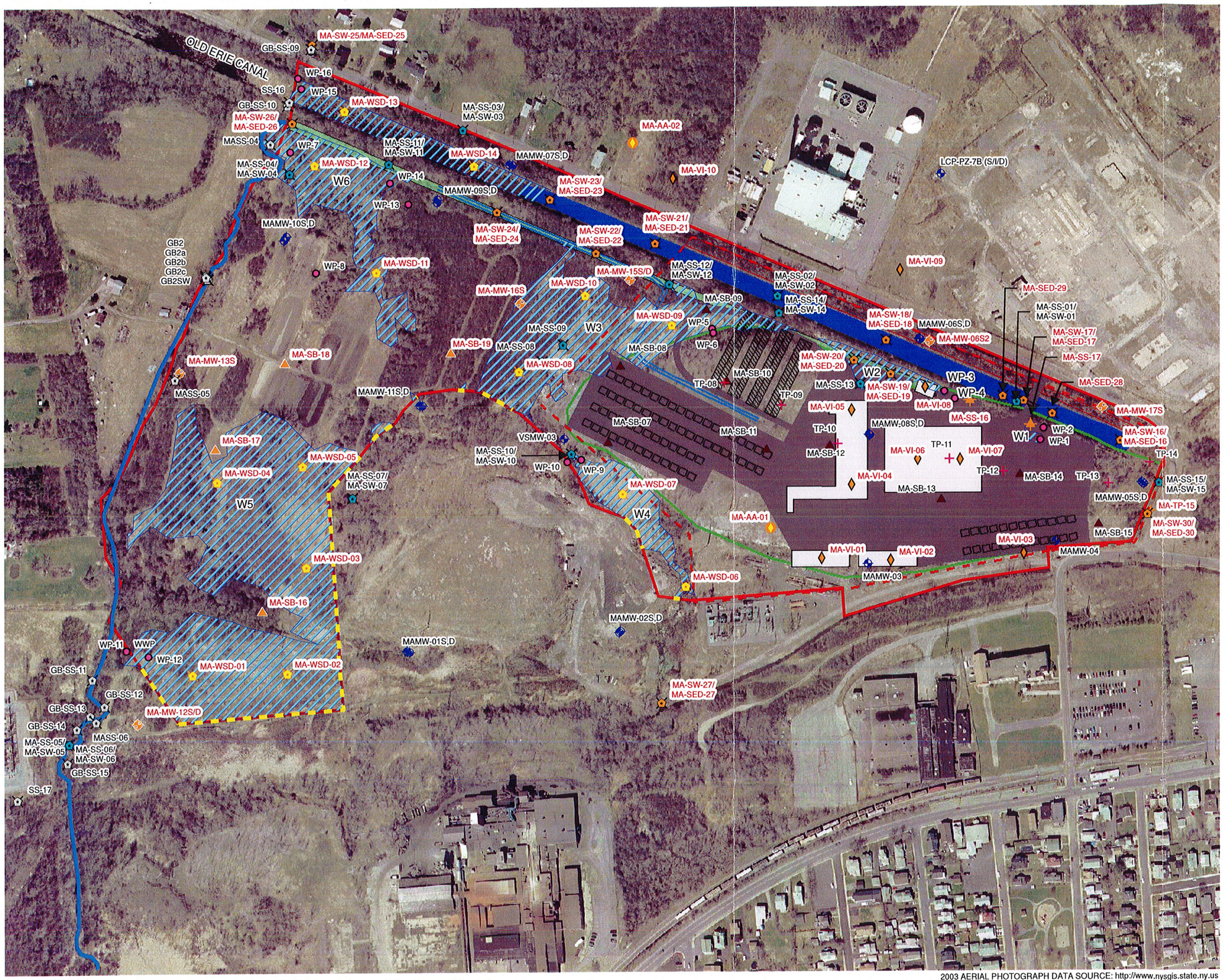
1163.39256
FEBRUARY 2007

1:24,000

O'BRIEN & GERE ENGINEERS, INC.

T:\1163_HONEYWELL\SYRACUSE\MXD\39256\PROP_LOC-OCT06-rev03.MXD

FIGURE 2



LEGEND

EXISTING SITE FEATURES

- APPROXIMATE SITE BOUNDARY
- OPEN WATER
- MATHEWS AVENUE LANDFILL
- DRAINAGE SWALE
- DELINEATED WETLANDS
- WETLAND PLOTS
- "OPEN" WETLAND BOUNDARY

HISTORICAL LOCATIONS

- MONITORING WELL
- SOIL BORING
- TEST PIT SAMPLE
- SURFACE WATER/SEDIMENT
- GEDDES BROOK SEDIMENT LOCATIONS

PROPOSED LOCATIONS

- SOIL BORING
- MONITORING WELL
- SOIL VAPOR
- AMBIENT AIR
- SURFACE WATER/SEDIMENT
- WETLAND SEDIMENT
- SURFACE SOIL
- TEST PIT

PROPOSED SITE DEVELOPMENT

- PROPOSED WORK AREA
- PROPOSED BUILDING
- PROPSED PAVEMENT
- PROPSED LUMBER STORAGE AREA
- PROPSED RAW MATERIAL STORAGE AREA

SUPPLEMENTAL PSA WORK PLAN
MATHEWS AVE.
GEDDES, NEW YORK

PROPOSED SAMPLE LOCATIONS

0 150 300 600
Feet

FEBRUARY 2007
1163.40137

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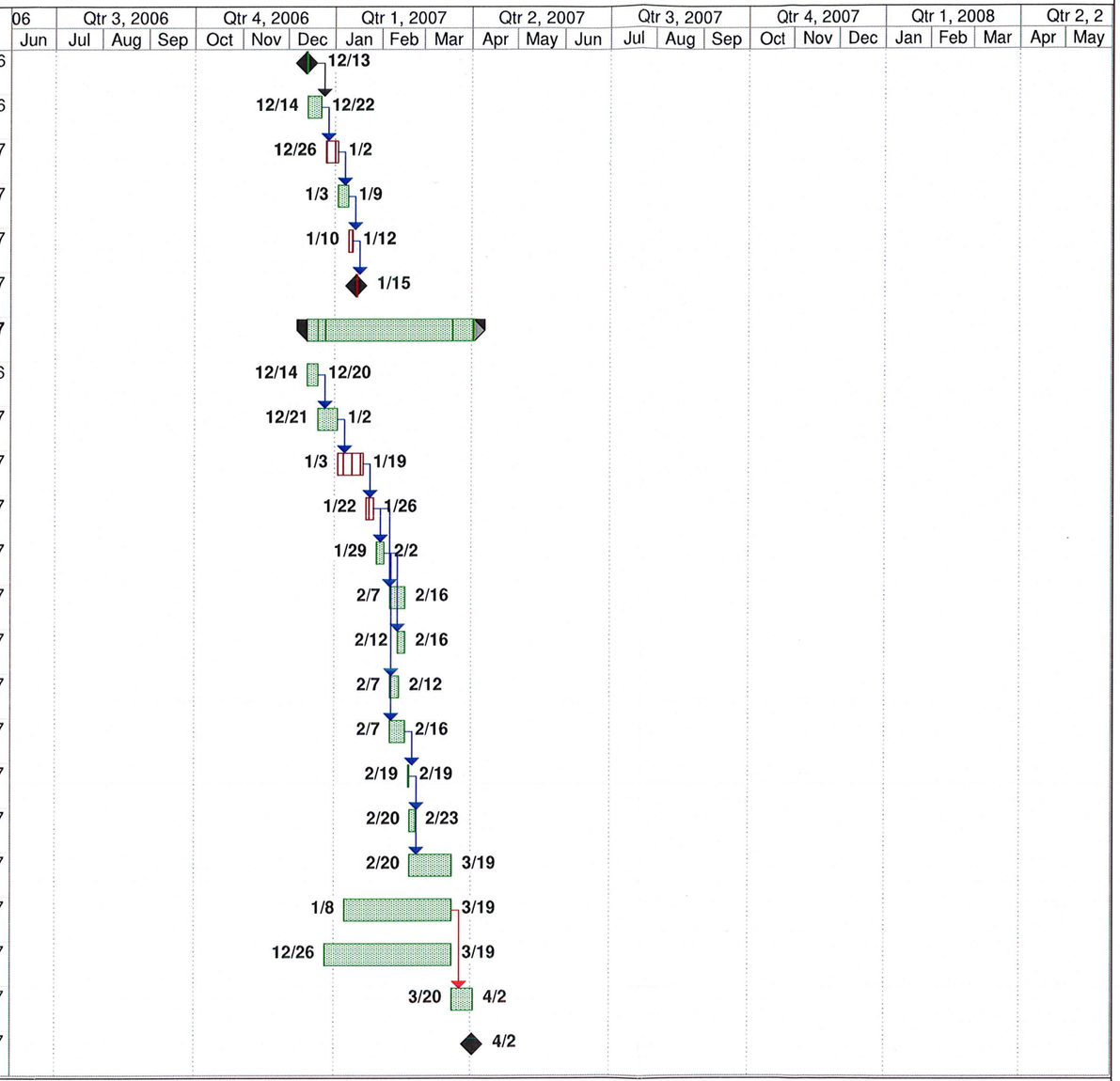
2003 AERIAL PHOTOGRAPH DATA SOURCE: http://www.nysgis.state.ny.us

PLOT DATE: 02/1/07 DIV. 71 JSB

Figure 3

Mathews Avenue Supplemental PSA

ID	Task Name	Duration	Start	Finish
1	NYSDEC Suppemenatal PSA Conference Call	1 day	Wed 12/13/06	Wed 12/13/06
2	Submit Supplemental PSA Work Plan	7 days	Thu 12/14/06	Fri 12/22/06
3	NYSDEC Review	6 days	Tue 12/26/06	Tue 1/2/07
4	Submit Revised Supplemental PSA Work Plan	5 days	Wed 1/3/07	Tue 1/9/07
5	NYSDEC Review	3 days	Wed 1/10/07	Fri 1/12/07
6	NYSDEC approval	1 day	Mon 1/15/07	Mon 1/15/07
7	**Supplemental PSA**	**78 days**	**Thu 12/14/06**	**Mon 4/2/07**
8	Mobilization	5 days	Thu 12/14/06	Wed 12/20/06
9	Soil Borings/Monitoring Well Installation	9 days	Thu 12/21/06	Tue 1/2/07
10	Work Plan Negotiation	13 days	Wed 1/3/07	Fri 1/19/07
11	Notification of Work	5 days	Mon 1/22/07	Fri 1/26/07
12	Soil Borings/Monitoring Well Installation/Development	5 days	Mon 1/29/07	Fri 2/2/07
13	Wetland Sediments/Sediment/Surface Water/Surface Soil Sampling	8 days	Wed 2/7/07	Fri 2/16/07
14	Vapor Intrusion Investigation	5 days	Mon 2/12/07	Fri 2/16/07
15	Hydraulic Conductivity testing	4 days	Wed 2/7/07	Mon 2/12/07
16	Ground Water Sampling	8 days	Wed 2/7/07	Fri 2/16/07
17	Iron Staining Test Pit	1 day	Mon 2/19/07	Mon 2/19/07
18	Site Survey	4 days	Tue 2/20/07	Fri 2/23/07
19	Laboratory Turnaround Time	20 days	Tue 2/20/07	Mon 3/19/07
20	Data Management	51 days	Mon 1/8/07	Mon 3/19/07
21	Data Validation	60 days	Tue 12/26/06	Mon 3/19/07
22	Supplemental PSA Report	10 days	Tue 3/20/07	Mon 4/2/07
23	Submit Supplemental PSA Report	1 day	Mon 4/2/07	Mon 4/2/07



Project: Mathews Avenue
Date: Tue 2/6/07

Approved Work Plan Task	Rolled Up Task	External Tasks	Rolled Up Winter Break	Construction Activity
Critical Path	Rolled Up Critical Path	Project Summary	Rolled Up Construction Tasks	Rolled Up NYSDEC Tasks
Progress	External Milestone	Estimated Schedule	Est. Sch. Rolled Up	
Milestone	Rolled Up Progress	NYSDEC Dependent	Estimated	
Summary	Split	Winter Break	Normal Rolled Up	

O'Brien & Gere Cos.

MA_SuppPSA_sched6.mpp