HILLCREST SITE

SITE INVESTIGATION REPORT

WORK ASSIGNMENT D004440-13.5

HILLCREST SITE

FENTON (T)
BROOME COUNTY, NY

Prepared for:

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 Broadway, Albany, New York

Alexander B. Grannis, Commissioner

DIVISION OF ENVIRONMENTAL REMEDIATION

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HILLCREST SITE INVESTIGATION REPORT

HAMLET OF HILLCREST, TOWN OF FENTON, NEW YORK

FINAL

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BUFFALO, NEW YORK 14203

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1.0 INTRODUCTION

1.1 Site History and Background Information

The Hillcrest neighborhood is located approximately 2,200 feet south and east of the Chenango River and adjacent to Interstate 88, in the Town of Fenton, Broome County, NY (Figure 1). Hillcrest is a mix of primarily residential homes with light commercial and industrial facilities. Soil and groundwater have been contaminated, primarily by trichloroethene (TCE) from past discharges from CAE Electronics, Site No. 704015, and potentially from former operations at Triple Cities Metal Finishing (TCMF). CAE was a manufacturer of flight simulator equipment. Poor housekeeping practices apparently lead to soil contamination immediately adjacent to the building. CAE had State Pollution Discharge Elimination System (SPDES) permits to discharge wastewater directly to groundwater through a system of outfalls on their property. TCMF was a metal finishing business that operated immediately adjacent to CAE and conducted similar waste disposal practices.

The initial investigations at the Hillcrest site began in the 1980s with the former CAE site. Pursuant to a Voluntary Cleanup Agreement between CAE and the NYSDEC, a Remedial Investigation/Feasibility Study (RI/FS) began in the fall of 1988. The draft RI report was prepared by H2M Group in December of 1990. Further investigation of the off-site groundwater contamination was completed in 1992. The FS was submitted in 1993, and a Record of Decision (ROD) was signed on March 30, 1994. The ROD originally called for the in-situ treatment of soils to address metals contamination and subsequent monitoring of groundwater and surface water. The selected remedy for soils was modified to excavation and off-site disposal instead of in-situ treatment. Remediation began in September of 1998 and most of the metals-contaminated soil was removed. Metals contamination located adjacent to the main building at the site was chemically stabilized to prevent leaching in 2003. The ROD did not include any provisions for treatment of contaminated groundwater.

The TCMF facility was subject to investigation under the RCRA Act. Wells were installed around the facility during the 1990s to evaluate the possible presence of groundwater contamination. Based on the presence of solvent contamination in groundwater in these wells, the Facility applied for and was accepted into the Brownfield Cleanup Program (BCP) in July 2004. Initial Investigations began in the summer of 2005.

In 2003, as concerns grew state-wide regarding possible vapor intrusion (VI) exposure pathways at sites known to have solvent contamination in groundwater, NYSDEC retained URS to perform a soil gas investigation in the neighborhoods immediately adjacent (within one or two blocks) of the CAE and TCMF facilities. Based on the detection of chlorinated solvent vapors, including trichloroethene (TCE) in the soil gas, NYSDEC directed URS to perform VI sampling at selected structures in the neighborhood, starting in March 2004. Because TCE was found in subslab and indoor air at concentrations sufficient to warrant mitigation activities, the VI sampling has continued in each heating season since, continuing up through the sampling documented in this report. Including this past heating season, URS has sampled 214 structures in the Hillcrest area. URS and/or NYSDEC have installed 122 mitigation systems in structures to reduce the potential for exposures related to soil vapor intrusion.

Because of the extensive nature of the VI impacts in this neighborhood, NYSDEC tasked URS in 2004 to evaluate whether a continuing source of TCE contamination existed, and if so whether it could be remediated to eliminate the need for ongoing structure mitigation activities. As mentioned above, the ROD for the CAE facility included no groundwater treatment activities. CAE had presumably released TCE to the groundwater as part of its wastewater discharges to the aquifer. However, for the most part, groundwater was found to be only sparingly contaminated, exhibiting TCE concentrations in the 20 μg/L range throughout a wide extent of the sand and gravel aquifer (compared to a drinking water standard of 5 μg/L). Because the TCE contamination was widespread (yet relatively low level) and was remaining present for years, URS hypothesized that TCE may be being released slowly from the low permeability silt that is present 10 – 15 feet below the water table. URS designed and performed the 2004-2005 investigation that demonstrated that TCE levels were elevated at the top of the silt layer, providing support to the hypothesis that this zone is the continuing source of TCE contamination

in the sand and gravel aquifer. Due to the widespread presence of relatively low-level contamination, it was determined that treatment or removal could not occur within a reasonable timeframe, and may not be feasible to implement. Therefore, efforts remained focused on VI sampling and mitigation to ensure protection of public health.

One curious result of the study performed in 2004-2005 was that the second highest detection of TCE in the silt layer was found not downgradient (west) of the CAE or TCMF sources, but rather northeast of CAE in sample location SD-15 (Figure 2). This sample location, though not currently downgradient of the CAE facility, is located within a zone that may have been previously impacted from outfall releases from the CAE facility direct to groundwater, since this outfall would have caused mounding of the groundwater table, as reported in the Remedial Investigation Report prepared by H2M for CAE in 1990. Additionally, as URS and NYSDEC continued the VI sampling each heating season, structures needing mitigation were found as far to the north as Cornell Ave., which is not located hydraulically downgradient of the CAE or TCMF sites. Further, most of the structures along Hotchkiss Ave. were found to require mitigation, including some with rather high subslab TCE concentrations, representing in some ways a greater zone of VI impacts than other portions of the neighborhood closer to the CAE and TCMF properties. Taken together, these observations suggested the possible presence of either a separate source north of the CAE facility, or the presence of alternative migration pathways that do not closely follow the current direction of the groundwater hydraulic gradient.

1.2 Objectives

The primary objective of this investigation was to determine why contamination had spread north of the source areas. The extent of contamination in this direction was to be further defined, preferably establishing the northern limits of contamination. This included both better delineation of soil/groundwater contamination in this direction as well as establishing the northernmost extent of structures subject to VI exposure. A secondary objective of the investigation was to define the limit of contamination to the south of the CAE facility. While the extent of VI impacts had been adequately delineated in this direction, the study sought to establish the limits of groundwater contamination in this direction.

As discussed above, one of the highest TCE levels detected in the upper silt zone was found in a boring advanced south of the east end of Hotchkiss and adjacent to the railroad line. This TCE concentration was higher than other top-of-silt samples collected during the source characterization study, and may have indicated a source other than CAE. Because its location is upgradient of a residential area where structure sampling has shown that potential VI exposure pathways are common, this anomaly needed further investigation.

The site investigation was focused in areas to the east, northeast, north, northwest, and south of the source area and was biased toward areas that would aid in determining the horizontal extent of the dissolved phase groundwater plume. This included, for example, areas directly east of the source area (and east of Chenango St.) and the neighborhood between Nowlan St. and Alida Ave. north of the source area.

2.0 SCOPE OF WORK

2.1 Conceptual Model and Investigation Design

The conceptual model has been developed based upon information obtained from previous investigations and additional subsurface data gathered as part of this study. It represents the current understanding of subsurface information and data gathered to date. The 2004-2005 source characterization gathered data that supported the hypothesis that the continuing source of TCE contamination in the sand/gravel portion of the aquifer is the underlying silt layer located several feet below the water table. Apparently TCE was released from the CAE facility at high enough concentrations that it migrated down to the interface between the silt and the sand/gravel unit where the lower permeability of the silt retarded further vertical migration. The lower permeability silt layer continues to act as a residual source of groundwater contamination, slowly releasing TCE into the groundwater by desorption. Section 3.0 provides additional detailed subsurface geological and hydrogeological information that substantiates the conceptual model presented above.

The investigation was designed to be performed in a phased manner. The initial phase comprised a top-of-silt direct-push soil and groundwater screening effort to determine the horizontal extent where TCE was adsorbed to the top of the silt layer in areas beyond where it was originally observed in the 2004-2005 study. This effort also was directed at mapping the top of silt elevation contour. Based on the screening results, new monitoring wells were installed and were sampled, along with some of the existing monitoring wells. Additionally, soil vapor intrusion sampling continued in an effort to bound the area where actions are necessary to address potential exposures related to soil vapor intrusion.

As noted above, because most of the structures immediately adjacent of the CAE and TCMF facilities have already been mitigated (or offered mitigation systems) to address exposures related to soil vapor intrusion , this study did not focus on further delineation or documentation of the contamination in this central portion of the study area.

2.2 Source Area Investigation

Based on the discussion above, an investigation program was performed to collect further data on the depth to the top of the silt layer and to evaluate soil and water quality at the sand and gravel/silt interface and within the silt itself. The investigation activities included:

- Investigation preparation and coordination.
- Completion of soil borings through the entire thickness of sand and gravel deposits to further characterize lithologic conditions, and to identify the depth to the top of the silt layer.
- Collection of soil samples from within the upper 5 feet of the silt, below the interface with the sand and gravel, and analysis for volatile organic compounds (VOCs).
- Collection of groundwater samples at discrete depths within the sand and gravel zone and the silt zone to evaluate possible VOC source areas.
- Collection and analysis of groundwater samples from existing monitoring wells for VOCs as well as additional remediation parameters.
- Surveying of soil boring locations and elevations.
- Collection, containerization, and disposal of wastes generated during the investigation.

The general approach to these activities was documented in Amendment Request No. 5 submitted in October 2007. URS also assembled a detailed work plan for these activities (i.e., Field Sampling Plan-Winter 2008, January 2008). A brief description of each task is presented in the following sections.

2.2.1 Preparation and Coordination

Prior to mobilizing to the field, URS performed the following activities:

- Coordination of staff responsibilities including attendance at a kick-off meeting
- Conducting a site visit to identify and mark out the boring locations and coordinating utility clearance with Dig Safely, New York (DSNY) participating members
- Coordination with direct push and laboratory subcontractors, and
- Mobilization.

2.2.2 Direct Push Soil Sampling

Nature's Way Environmental Consultants & Contactors, Inc. (Nature's Way) advanced 28 soil borings (GS-01 through GS-28) with oversight by URS during the period of January 28, 2008 through March 17, 2008. The 28 soil borings were placed in the residential areas, mostly north, west and south of the CAE and TCMF facilities. Soil boring logs are provided in Appendix A. Soil boring locations are shown on Figure 3.

Most soil borings were completed using a Simco Earthprobe 200 direct-push drill rig. Soil samples were collected continuously using four-foot long macrocore samplers equipped with acetate liners. Borings extended from the ground surface through the entire thickness of the sand and gravel deposits, and approximately 5 feet into the underlying silt layer, or to a maximum depth of 50 feet if the silt was not encountered. Refusal was encountered at depths shallower than the silt unit at seven locations (GS-08, GS-13, GS-20, GS-21, GS-25, GS-26, and GS-27). These seven locations, and one additional location (GS-28), subsequently were completed using 2 ¼-inch hollow stem augers advanced by a truck mounted Mobile B-57 drill rig. Retrieved soil samples were visually examined, field screened using a MiniRae 2000 photoionization detector (PID) and logged by a URS geologist. A discrete soil sample was collected in most borings from the uppermost one foot of the silt zone, and retained for laboratory analysis. The soil samples

were submitted to Upstate Laboratories, Inc., Syracuse, NY, for analysis of target compound list (TCL) VOCs (EPA Method 8260B). A second soil sample was retained from the bottom of the boring (approximately 5 feet into the silt) at selected boring locations. These samples were also analyzed for VOCs (EPA Method 8260B). Sample locations and sampling intervals are provided on Table 1.

Upon completion, the soil borings were backfilled with granular bentonite material or cement/bentonite grout to just below ground surface. Boring locations penetrating surface pavement such as asphalt or concrete were patched accordingly.

2.2.3 Groundwater Screening and Sampling

At each of the 28 soil boring locations (GS-01 through GS-28), with the exception of GS-19, at least one discrete groundwater sample was collected from within the sand and gravel aquifer and submitted for analysis. If there was sufficient saturated thickness (8 feet or greater) two groundwater samples were collected from within the sand and gravel unit to help evaluate potential vertical stratification of contamination. At several locations, determined by proximity to the former CAE facility and overall spatial distribution of sampling points, an additional sample was collected from within the silt unit. Groundwater samples were collected by advancing a Geoprobe SP-15 retractable groundwater sampling screen point immediately adjacent to the soil borings to the target interval. The rods were then retracted approximately 4 feet, exposing the screen. Groundwater was manually purged using a stainless steel check valve and dedicated tubing. All samples were submitted to Upstate Labs for analysis of TCL VOCs (EPA Method 8260B). Sample locations and sampling intervals are provided on Table 1.

2.2.4 Monitoring Well Installation

Eleven groundwater monitoring well locations (MW-07-01 through MW-07-11) were selected based upon the groundwater screening analytical results from GS-01 through GS-28 and the overall distribution of dissolved phase contamination indicated by those points. MW-28R was

installed to replace the original MW-28, which could not be located. Installation procedures were conducted in general accordance with the Work Plan. At each location, 2-inch inside diameter (ID) overburden monitoring wells were installed using 4-¼ inch ID hollow-stem auger (HSA) drilling methods advanced by a truck mounted Mobile B-57 drill rig. During drilling, continuous two-foot long soil samples were obtained in accordance with ASTM D-1586 procedures. The soil samples were evaluated by the site geologist and classified in accordance with the USCS. Soils also were screened for evidence of contamination. Screening methods included visual inspection for staining or the presence of NAPL, olfactory evidence, and monitoring for VOCs using a PID. Soil descriptions and screening observations were recorded on geologic boring logs completed for each borehole. If an adjacent soil boring had already been completed soil samples were not collected. Boring logs are included in this report as Appendix A.

In general, the well screens were positioned to straddle the groundwater surface and extended to the top of the silt unit. The wells were constructed using 2-inch ID Schedule 40 polyvinyl chloride (PVC) pipe, with a 10 to 15-foot length of #10 (0.010-inch) slot screen and an appropriate length of solid PVC riser to allow for installation of a flush mount curb box. The wells were installed to depths ranging from 20.5 to 38 feet below ground surface (bgs). Sand filter pack material consisting of washed and graded sand (size #0) was placed in the annular space between the well screen and the borehole wall to two feet above the top of the screen. A 2-foot thick bentonite seal was placed in the annular space above the sand filter pack and hydrated with potable water. After allowing the bentonite seal sufficient time to become fully hydrated the remainder of each boring was backfilled with cement/bentonite grout to approximately 0.5 feet bgs. Each well was finished at ground surface with an 8-inch diameter flush mount road box set in concrete. Well construction details are provided in Appendix A. The locations of the monitoring wells are shown on Figure 3.

2.2.4.1 Monitoring Well Development

All newly installed monitoring wells were developed by URS and/or Nature's Way a minimum of 72 hours after installation. Well development was accomplished by pumping wells with a submersible pump and dedicated, disposable polyethylene tubing and/or bailing.

Development was generally considered complete when development water was determined to be generally free of sediment; that is turbidity was reduced to values less than 50 nephelometric turbidity units (NTUs) and pH, conductivity and temperature values had stabilized. Field water quality measurements were recorded. The available data are presented on the monitoring well development logs in Appendix B.

Similarly all existing wells that were selected for sampling during this investigation were redeveloped. At two locations, MW-02A and MW-06, the well screens were completely filled in with silt from the formation because they are screened within the silt unit. Nature's Way attempted to flush the silt out of the wells using potable water, tremie pipe, and a wash tee, however, the silt was just pushed out into the formation only to begin returning through the well screen immediately upon completion of pumping. Attempts were made to bail and pump the silt out of the wells but it was determined that improper well construction (i.e. improperly sized sand pack and/or screen slot size) prohibits complete removal of the silt from the wells. However, these wells were left in the sampling program since a significantly increased portion of the screen interval was revealed from the redevelopment process.

2.2.4.2 Hydraulic Monitoring

Complete synoptic rounds of water level information were collected on April 7, 2008 and July 7, 2008 prior to each round of groundwater sampling. Depth to groundwater and water elevations in each monitoring well are presented in Table 2.

Also from March 28, 2008 through April 11, 2008 Minitroll dataloggers were installed in wells MW-09, MW-27, and MW-07-11. Groundwater level data was recorded continuously during this period. The intent of this monitoring was to evaluate if the Town of Fenton water supply wells, which are screened in a sand and gravel aquifer beneath the silt unit, are hydraulically connected with the shallow sand and gravel aquifer. Results of the Hydraulic monitoring are discussed in Section 3.3.3.

2.2.4.3 Groundwater Sampling

Groundwater samples were collected in two rounds. First, following completion of the monitoring well installation and development, groundwater sampling was conducted from April 7, 2008 through April 11, 2008. Groundwater samples were collected from all 12 newly installed monitoring wells and 23 of the previously installed monitoring wells. For the second round, samples were collected from the same wells except for MW-07-01 which was found to be dry.

All wells were purged and sampled in general accordance with USEPA-approved low flow sampling guidelines using a Grundfos submersible pump. The intake of the pump was set at the midpoint of the screened or saturated interval in each monitoring well. The purging rates were established low enough to prevent excessive drawdown and encourage stabilization.

During purging, field personnel monitored temperature, pH, specific conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity using a multi-parameter meter connected to an in-line flow-through cell. A water level reading was collected at each well in conjunction with water quality parameters. Water quality parameters were recorded at intervals of approximately five minutes during purging. Samples were collected after a minimum of one well volume was removed and water quality parameters had stabilized over three consecutive recording intervals. The criteria below were generally used to determine if parameters were stable.

- pH within 0.10 SU
- Specific Conductivity within 3%
- DO within 10%
- Turbidity within 10%
- ORP within 10 millivolts (mV)

At all wells, groundwater sampling commenced immediately after purging without turning the pump off. The discharge tubing was removed from the flow-through cell prior to sampling to minimize cross-contamination. Low-Flow Groundwater Purging/Sampling Logs are included in Appendix C. Samples were collected from each of the wells, sent to Upstate Laboratories, and analyzed for TCL VOCs by USEPA Method 8260B. Analytical results are discussed in Section 4.

2.2.4.4 Packer Sampling

Packer sampling of three monitoring wells (MW-2A, MW-6 and MW-15) was proposed in *Project Management Work Plan – Amendment No. 5*. However, as discussed previously MW-2A and MW-6 were silted in and could not be redeveloped. Additionally both well casings appeared to be slightly out of plumb (i.e., tremie pipe inserted in the wells could only be advanced using significant force because of a bow in the riser casing which caused it to bind). URS and the NYSDEC discussed these issues in the field and determined that it would be very difficult, if not impossible, to obtain representative and useful discrete groundwater samples from two of the three wells. Therefore no packer sampling was conducted.

2.2.5 Soil Vapor Intrusion Investigation

URS performed structure sampling during two periods: January 2008 and March 2008. Most of the structure sampling (24 structures) was completed in January, with just three additional structures sampled in March. Four of the structures sampled were resamples, nine were new structures sampled, and fourteen were post-mitigation sampling. In addition, at nineteen structures, offers for sampling were refused, or attempts at contact were unsuccessful.

2.2.6 Surveying

All new groundwater screening and monitoring well locations were surveyed for vertical and horizontal location upon completion of the field program in April 2008. YEC, Inc. of Valley

Cottage, NY conducted the survey. Survey results are provided on the URS boring logs presented in Appendix A and in a table in Appendix D.

2.2.7 Investigation Derived Waste Management

Investigation-derived waste (IDW) produced during the installation of soil borings and during monitoring well development and sampling, consisted of soil cuttings, macrocore liners, tubing, decontamination pad plastic, and purge and redevelopment water. These wastes were placed in 55-gallon drums and stored at a location near the study area. Water was also stored in a 450-gallon poly tank staged nearby. Nature's Way removed and disposed of these wastes following approval from the NYSDEC stating that the waste could be handled as non-hazardous waste and transported to the Chemical Waste Facility at Model City, New York. NYSDEC was onsite during the IDW pick-up and signed the appropriate bills of lading for transport of the IDW.

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

Characteristics of the study area are based on existing literature and modified by findings from this investigation and previous investigations at the site.

3.1 Surface Features

The study area lies in the Allegheny Plateau physiographic region and within the Susquehanna River Basin. The Chenango River runs through the vicinity, northeast to southwest, and is a tributary to the Susquehanna River. The former CAE facility lies on a river terrace approximately 70 feet above and adjacent to the Chenango River. The Chenango River is approximately 2,200 feet west northwest of the former CAE facility.

3.2 Area Groundwater Use

The Town of Fenton operates three municipal wells located approximately 2,500 feet to the north-northwest of the former CAE facility. The wells are screened in a sand and gravel aquifer that lies beneath approximately 100 feet of interstratified glacial lacustrine silt and clays (Empire, 1985). Potable water is supplied to all properties in the immediate vicinity by the Town of Fenton municipal water supply. The shallow groundwater aquifer (i.e., near-surface sand/gravel unit) is not known to be used for any drinking water purposes in the vicinity.

3.3 Geology and Hydrogeology

3.3.1 Regional Geology

The bedrock underlying the Hillcrest area primarily consists of Upper Devonian age sandy shales and thin-bedded sandstones of the Sonyea Group (Rickard, et al., 1970). The rock is slightly tilted and has a regional dip of about 40 feet per mile towards the south. Major features

of relief are present from normal stream erosion naturally dissecting the bedrock topography. Continental glacier advancement during the Pleistocene modified the major features of relief and developed many minor features. Areas of high relief exhibit very little change due to glaciation. However, widespread evidence of ice erosion is present in the low areas (Pre-Glacial valleys). The general direction of ice movement was south to southwesterly. Therefore, valleys parallel with this movement were the most affected (e.g., the Chenango and Susquehanna River Valleys).

Much of the soil in the Hillcrest region is derived from deposits of the continental glacier and associated weathered material. Terminal drift is strongly concentrated in the valleys. A regional cross section adapted from the Empire Soil Investigations, Inc. March 1985 Preliminary Hydrogeologic Study for the Town of Fenton is presented as Figure 4 and included as Appendix E.

3.3.2 Site Geology

The aquifer underlying the Chenango River in the vicinity of the study area was formed approximately 13,000 years ago at the end of the last ice age. Deep original stream-cut valleys had been widened and deepened by ice. Kame terraces formed between the ice and the valley walls. The terraces collapsed totally or partially, as the ice melted. In some areas younger outwash or lake sediments covered the collapsed terraces. Isolated kames are present where gravel, deposited in depressions in the glacier surface, was left behind as the ice melted. Outwash is present along most of the valley floor with kame deposits along the valley sides and beneath the outwash. Pro-glacial lakes formed at the front of the receding glacier, forming thick deposits of lake silt and clay (Muller, et al., 1988).

The result of glaciation is three distinct hydrostratigraphic units in the study area, consisting of (from shallow to deep):

- Outwash sand and gravel
- Lake silt and fine sand

- Kame and kame terrace sand and gravel

Thickness of the units varies but review of boring logs from this and previous investigations indicate the upper outwash sand and gravel unit ranges from 15 to greater than 50 feet thick; the lake silt unit is approximately 140 feet thick; and the kame terrace sand and gravel ranges from 20 to 50 feet thick.

Saturated conditions in the soil borings were typically found at about 15 to 25 feet bgs in the sand and gravel unit, which corresponds to about 5 to 10 feet above the top of the silt. Similar groundwater elevations were observed in nearby monitoring wells.

A map showing the elevation contours of the top of the silt unit is provided in Figure 5. This map is drawn using data from both this investigation, from silt depths measured during the 2004-2005 source characterization study, and from depths reported by the 1989 investigation report prepared by the H2M Group for CAE. As noted in URS's 2005 source characterization study report, The H2M Group inferred the presence of a localized depression in the top of silt in the vicinity of MW-16. However, review of the boring log for this well does not reveal the presence of a sand/gravel-to-silt interface – H2M Group inferred the silt layer to be at the bottom of the boring. URS believes there may be an error in the logging of this borehole and thus did not use this point in the top-of-silt contouring. The main features shown on this figure is a local depression in the silt surface between the former CAE facility and the TCMF property (identified in the 2004-2005 study), and a localized high point on the silt surface located beneath Avenue A and extending north of the CAE facility (delineated by the current study). There also appears to be a slight trough trending north-south along the east side of the silt high north of the facility. To the west, the silt surface drops steadily in elevation westward toward the Chenango River.

Four geologic cross sections have been prepared based on subsurface data collected from this investigation and previous investigations (Figure 6). Cross section A-A' is oriented approximately north to south while cross sections B-B', C-C', and D-D' are oriented approximately east to west through the study area (see Figure 5 for section locations).

3.3.3 Site Hydrogeology

Groundwater elevation monitoring rounds were conducted by URS on April 7, 2008 and July 7, 2008. The results are presented in Table 2 and a groundwater contour map is presented on Figures 7A and 7B. Only groundwater elevation data for wells screened in the sand and gravel unit are shown on this figure.

Figures 7A and 7B show that the groundwater surface is found from 900 to 840 feet above mean sea level through the study area. Groundwater generally flows in an east to west direction towards the Chenango River with a gradient of ranging from 0.01 ft/ft on the terrace where CAE and TCMF are located between the railroad tracks and Chenango Street and 0.04 ft/ft down the slope from Chenango Street to the I-88 Access Road. The gradient is also steeper east of the railroad tracks as surface topography increases eastward. This data is consistent with previous hydrogeological investigations (H2M Group, 1990). At the far north end of the study area there appears to be a northwesterly component to the groundwater flow direction.

Empire Soils Investigations Inc. conducted a Preliminary Hydrogeologic Study of the Town of Fenton Water Supply wells in 1985 (Included as Appendix E). The purpose of the study was to evaluate the potential for impacts to the Town wells by the realignment of I-88 and future mining in the gravel pits north and west of the Town wells. A regional cross section adapted from the report is presented as Figure 4. The report and cross section indicate that the silt and clay deposits in the Chenango River Valley can be isolated and discontinuous. Furthermore, water level information collected in 1977 substantiates a hydrologic connection between the upper sand and gravel aquifer and the partially confined deep sand and gravel aquifer, which supplies water to the Town wells. During 1977 study water levels in both the shallow and deep aquifers were observed to respond similarly during an extended rainfall event. The rapid response of the deep sand and gravel indicated there is a hydrologic connection between the surficial sand and gravel and the deep sand and gravel aquifer. However, in the 1990 Remedial Investigation Report prepared by H2M Group, it was stated that the upper and lower aquifers are not in hydraulic connection with the exception of the valley sides at elevations greater than the source of the contaminants where recharge occurs.

In order to determine if there is a hydraulic connection between the two aquifers URS conducted a two week long hydrologic investigation from March 28, 2008 through April 11, 2008. Minitroll® dataloggers were utilized to record data in wells MW-09, MW-27, and MW-07-11 (locations shown on Figure 3). These wells were selected for the following reasons:

- MW-07-11: Adjacent to the production wells
- MW-27: Next closest well to the production wells, but located on the escarpment above the river floodplain.
- MW-09: Well located near the original TCE release location.

The data from this event are plotted on Figure 8 along with gauge data from the Chenango River and rainfall data from a nearby weather station. MW-07-11, situated in close proximity to the Town of Fenton pumping wells, indicated significant response to pumping with drawdown correlating directly with the Town well pumping cycles. This well is also significantly influenced by the elevation of the Chenango River, which responds as expected to rainfall events. The near instantaneous response of MW-07-11 to the pumping of the Town wells refutes the statements made by H2M Group that the upper and lower aquifers are not in hydraulic connection and supports the findings of the Empire Soils Investigations, Inc. that the silt unit can be isolated and discontinuous and there is a hydraulic connection between the upper and lower sand and gravel units.

The wells located further from the pumping wells (MW-27 [625 feet] and MW-09 [2,500 ft]) showed no influence from the production well cycles. In general, the groundwater elevations in these wells fluctuated less than a few inches, in contrast to 4.5 feet of elevation fluctuation in MW-07-11. Whereas the production wells and MW-07-11 are located in the river floodplain, MW-27 is located at a higher elevation, above the river valley escarpment. It is thus less influenced by the river elevation, although the direction (but not the magnitude) of elevation changes mirrors the rainfall and river level elevation changes. MW-09, located furthest from the river showed minor elevation changes that correlated to rain events, although elevations started dropping before each rain event finished.

4.0 INVESTIGATION RESULTS

4.1 Soil Investigation Results

4.1.1 Soil Analytical Results

VOC analytical data for soil samples collected from soil borings are provided in Table 3. Analytical results for TCE in the soil samples, including results from the 2004-2005 source investigation, are presented in Figure 9.

As discussed in Section 2.2.2, soil samples were collected from the silt unit during the drilling of the soil borings. Samples were collected from the top of the silt unit and at some locations approximately 5 feet within the silt.

Laboratory results for the soil samples (Table 3) show TCE concentrations present in the soil samples at concentrations ranging from not detected to 52 µg/kg at location GS-11. Other parameters were also detected, including acetone and methylene chloride.

The distribution of TCE in the silt samples is shown on Figure 9. With the exception of locations GS-15 and GS-20, the locations of the soil sampling were selected to: (a) help better understand the local high concentrations observed in 2004 at SD-15; and to (b) identify whether top-of-silt contamination was present in the northern and western portions of the study area, where in some cases (e.g. along Cornell Ave.) vapor intrusion issues have been observed.

The samples collected along the railroad right-of-way, east of the 2004 SD-15 sample, showed the highest TCE levels in soil samples taken during the 2008 sampling, with TCE concentrations up to 52 µg/kg. This distribution corresponds to the apparent location of a top-of-silt trough that runs along the western side of the railroad tracks (and pinches out near Hotchkiss Ave.)

The soil samples taken further afield in the northern and western portions of the study area did not reveal the presence of TCE in the silt.

Of the two samples taken south of the site, only GS-20 revealed a trace of TCE (12 µg/kg). Based on the interpretation of the top-of-silt elevation presented in Figure 5, this location may represent a local depression in the silt that may have allowed TCE to accumulate during the period when it was released from the industrial facilities. However, there silt elevation data in this are is sparse and thus conclusions are difficult to draw.

There does not appear to be an obvious vertical TCE distribution pattern. TCE was detected in soil at six boring locations. At GS-20 only a top of silt sample was collected. TCE concentrations decreased with depth at three locations (from 48 µg/kg to non-detect at GS-01, from 52 µg/kg to non-detect at GS-11, and from 8.1 µg/kg to non-detect at GS-12) and increased with depth below top of silt at the other two locations (from 20 µg/kg to 45 µg/kg at GS-02, and from non-detect to 25 µg/kg at GS-09).

4.2 Groundwater Investigation Results

4.2.1 Grab Groundwater Sample Analytical Results

TCE results for groundwater screening samples collected from the soil borings are provided in Table 4 and on Figure 10. Figure 10 also includes results from the 2004-2005 source investigation. Where multiple samples were taken TCE concentrations were generally higher in the silt unit than in the overlying sand and gravel unit. Exceptions include GS-01, GS-11, and GS-18 where TCE concentrations were not detected in the silt. The highest TCE concentration detected in the geoprobe groundwater screening samples during this investigation (32 µg/L) was found in soil borings GS-10 and GS-12 north of the former CAE facility. While elevated silt zone TCE concentrations may be due in part to the presence of silt particles in grab samples collected in this zone, these results are still indicative of elevated mass of TCE in this unit compared to the sand/gravel unit.

TCE was not detected in samples collected along Ronan Street and north of GS-17. TCE was also not detected south of the site along Utica Avenue and Franklin Avenue. Based on the distribution and concentrations of TCE detected in the groundwater, there does not appear to be any other potential sources to the east, north and south of the former CAE facility. The only chlorinated compound other than TCE detected in the grab groundwater samples was 1,1-Dichloroethane at a concentration of 7 µg/L in the 28-32' sample collected from location GS-02 (Table 4).

4.2.2 Monitoring Well Sample Analytical Results

Groundwater analytical results are presented on Table 5. TCE results (only) are provided on Figure 11.

Laboratory results (Table 5) show that TCE is present in the highest concentrations of all of the analyzed parameters. TCE was detected in only two of the seven wells sampled within the former CAE facility, at concentrations ranging from 39 µg/L in MW-02A to 130 µg/L in MW-06 (Both of these wells, unlike the other wells, are screened in the silt layer). Outside the CAE facility, the highest offsite concentration of TCE was found in MW-19 at 68 µg/L, located just north of the former CAE property boundary. The remaining wells outside of the CAE property where TCE was detected had concentrations that ranged from 11 µg/L in MW-15, MW-21, and NW-5, to 51 µg/L in MW-7.

Figure 11 provides TCE isoconcentration contours for the study area based on monitoring well results for wells screened in the sand/gravel zone. Figure 11 shows the TCE concentrations to be highest immediately north and northwest of the former CAE facility. TCE concentrations drop to non-detect concentrations north of Hotchkiss Avenue. No compounds other than TCE were detected in the monitoring well groundwater samples.

TCE was not detected in some monitoring wells that were installed directly adjacent to soil borings where TCE was detected in the Geoprobe grab groundwater samples. This is likely

due to the more discrete nature of the grab groundwater sampling method (an approximately 4 foot screen interval versus a 10 foot or longer screen interval) and sample turbidity. Therefore two more isoconcentration maps are presented as Figure 12 and 13. Figure 12 shows the TCE concentrations detected in the sand and gravel unit during the 2004 and 2008 investigations. Similarly, Figure 13 presents the data for the silt unit. The overall distribution is similar for both sample types (monitoring well and geoprobe grab) with lower concentrations appearing slightly more extensive in the geoprobe grab samples. The overall distribution is also similar in the sand gravel unit compared to the silt unit, but there are higher concentrations present in the silt unit.

4.3 Soil Vapor and Indoor Air Sampling Results

During the heating season, URS sampled nine structures for the first time, fourteen structures (basement only) following mitigation activities, and four structures that had been sampled before where TCE vapor had been detected but not at levels warranting mitigation. The results of the sampling are presented on Table 6. Each structure is referred to by its alphanumeric designation (e.g. H-273) rather than its address to protect the privacy of the residents of each structure.

None of the structures sampled for the first time require further monitoring or mitigation activities in accordance with the NYSDOH guidance for TCE. The houses sampled following mitigation all showed little to no TCE vapors in the basement air, demonstrating the effectiveness of the installed mitigation systems. The four houses resampled based on previous results continued to show somewhat elevated subslab TCE vapors (in the range of 20 – 60 $\mu g/m^3$) and little to no indoor air TCE. These structures remain in the "monitor" category in accordance with the NYSDOH guidance for TCE.

5.0 CONCLUSIONS

Based on results of this and previous investigations the following conclusions were reached:

5.1 Top-of-Silt Contours and Extent of Contamination

Soil and groundwater samples were collected from the upper 5 feet of the silt layer or if it was not encountered from depths of 50 feet at 28 locations during this investigation. Four of these locations were south of the CAE and TCMF structures/facilities, and the remaining were north.

The four locations sampled to the south (two on Utica Ave, two on Franklin Ave.) showed no detections of TCE. These results suggest that the southern boundary of the extent of contamination has been delineated, with little to no contamination south of a line located roughly along Utica Ave. Although some potential VI exposures have been identified (and mitigated) in two structures south of Beckwith Ave., there does not appear to be a continuing source of TCE contamination in the upper portion of the silt unit in the neighborhoods south of those two structures.

The twenty-four locations sampled north of the central site area focused on the following areas:

- The area east of Alida Ave. where the 2004-2005 investigation showed a high top-of-silt TCE concentration

- The vicinity in between the "east of Alida" area and Cornell Ave. to the north/northwest where potential VI exposures were previously identified.

- Areas east, west, and north of the previously investigated areas, in an effort to delineate the extent of dissolved phase TCE contamination.

The top-of-silt elevation contour defined by these twenty-four boring locations (and elevations measured during the 2004-2005 study) infer the presence of a silt mound extending from Nowlan Ave. in the south to at least the GS-23 location to the north. The eastern edge of the mound forms a trough in the top of silt parallel to, and just west of, the railroad line. A localized ridge in the top-of-silt appears to extend from the northern portion of the mound to the northwest as defined by silt elevations at locations GS-19 and GS-25 (Figure 5).

The silt contours are inferred through a fairly high, but not quite uniform, density of elevation measurement locations. Thus the inferred surface is just an estimate and there may be other features and undulations that are not mapped. While keeping these limitations in mind, the inferred surface shape does provide a plausible explanation of the extent of TCE contamination north of the central site area.

The soil and groundwater screening samples collected east of Alida, including in the ballfield and along the railroad right-of-way, consistently show TCE contamination. This zone roughly corresponds to the valley in the top of silt. Should the TCE have been released by CAE in the past as a DNAPL, the TCE would sink to the top of silt and then migrate along the top of the silt irrespective of the direction of groundwater flow. Similar conditions are present at the northwest corner of the TCMF facility where TCE DNAPL would sink into a depression in the silt and flow towards the northwest to GS-18. The apparent valley located just west of the railroad right-of-way may have served as a TCE DNAPL migration pathway. While there is no longer any DNAPL present in the area, the legacy contamination that has accumulated along the top of silt in this area serves as a continuing source of groundwater contamination. The downhill gradient defined by, for example, the silt elevations at (south to north) SB-09 to SD-15, to GS-09 would serve to transport TCE north of the site to at least as far as the ballfield where it would continue to serve as a source to areas hydraulically downgradient of that area.

Areas hydraulically downgradient of the apparent silt-valley source include not only the immediately adjacent Hotchkiss Ave. area, but also further downgradient areas such as Cornell Ave., especially considering the apparent northward component of the groundwater gradient in the northern portions of the study area. While soil samples collected along the apparent silt ridge extending from the silt mound northwest towards Cornell Ave. did not show the presence of TCE, groundwater screening samples taken from these locations showed the presence of TCE throughout this zone hydraulically downgradient of the valley zone. TCE was detected in screening samples taken as far to the northwest as location GS-17, although wells near the screening locations (e.g. MW-07-08, MW-27, MW-07-11, and MW-07) did not show TCE contamination. The presence of TCE in the screening samples is, however, consistent with the spatial pattern of structures impacted by TCE vapors, explaining why mitigations are required as far north as Cornell Ave.

The lack of TCE detections in soil and groundwater screening samples taken along Ronan Ave. is interpreted to indicate that the northern extent of possible VI exposures has been adequately delineated.

To the west of the site, four wells (three new – MW-07-09, MW-07-10, and MW-07-11 – and one existing – MW-25) and four grab groundwater sample locations (GS-18, GS-22, GS-24, and GS-28) below the river terrace (along the interstate service road) were tested to evaluate the western extent of contamination. These samples were clean except for the grab and groundwater samples collected immediately downgradient at the site, at locations MW-25 and grab sample location GS-18.

5.2 Hydraulic Connection Between Upper Sand and Gravel and Lower Aquifer

The two week long hydrologic investigation conducted by URS confirmed that there is a hydraulic connection between the upper sand and gravel and the lower sand and gravel aquifers. The Minitroll® datalogger installed in MW-07-11, situated in close proximity to the Town of Fenton pumping wells, indicated significant response to supply well pumping with drawdown correlating directly with the Town well pumping cycles. This well is also significantly influenced

by the elevation of the Chenango River, which responds as expected to rainfall events. The near instantaneous response of MW-07-11 to the pumping of the Town wells refutes the statements made by H2M Group that the upper and lower aquifers are not in hydraulic connection and supports the findings of the Empire Soils Investigations, Inc. that the silt unit can be isolated and discontinuous and there is a hydraulic connection between the upper and lower sand and gravel units.

5.3 Structure Sampling Conclusions

The following conclusions are drawn from the results of the structure sampling:

- No structures sampled for the first time require monitoring or mitigation
- Structures requiring monitoring in accordance with the NYSDOH VI guidance still fall into the "monitoring" category.
- At structures where mitigation systems have been installed, reported concentrations were either non-detect or below guidance values.

In contrast with previous years, the VI sampling conducted during this study examined fewer structures as most structures within the study area had already been tested. To summarize the results of all the VI sampling conducted during investigations at this site going back to 2004, Figure 14 shows the general locations of all the structures sampled over the years in the study area. Each location is color coded as to its action category according to the NYSDOH action matrix for TCE. These categories are no further action, monitor, monitor/mitigate, and mitigate. For structures that were sampled more than once, the action category was shown corresponding to the highest concentrations detected. Additionally, structures that have been mitigated with subslab depressurization (SSD) systems are also indicated. It is noted that some structures were mitigated even without a "mitigate" or "monitor/mitigate" designation if they were located in areas where many other structures were found to be in these categories. This figure shows that

the study area has been thoroughly tested, and the extent of impacted structures has been adequately delineated and impacted structures mitigated.

6.0 REFERENCES

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TABLES

Table 1
Soil Boring Sampling Information
Hillcrest Plume Trackdown Investigation
January-April 2008

Location	Soil Samples Depth (ft)	Water Samples Depth (ft)	Top of Silt (ft bgs)
GS-01	30-31	15-19	30
	35-36	26-30	
		32-36	
GS-02	27.5-28.0	18-22	27.5
	31-32	23.5-27.5	
		28-32	
GS-03	24-25	20-24	24
	29-30	26-30	
GS-04	23-24	19-23	23
	27-28	24-28	
GS-05	Silt not encountered	21-25	>50
		46-50	
GS-06	28-29	20-24	27.9
	31-32	24-28	
		29-33	
GS-07	29-30	20-24	29
		25-29	
GS-08	30-31	28-30	30
GS-09	32-33	20-24	32
	35-36	28-32	
		33-37	
GS-10	30-31	22-26	30
	35-36	26-30	
		32-36	
GS-11	31-32	20-24	31
	35-36	27-31	
		32-36	
GS-12	32.5-33.5	24-28	32.5
	37.5-38.5	28.5-32.5	
		34-38	
GS-13	None Refusal at 24'	28-32	
GS-14	28-29	24-28	28
	30-31	28-32	
GS-15	30-31	16-20	31
		26-30	
		32-36	
GS-16	20-21	16-20	20
GS-17	15-16	8-12	15
		12-16	
		16-20	
GS-18	22-23	18-22	22
	27-28	24-28	
GS-19	24-25	28-32	24
GS-20	51.5-52.0	24-29	51.5
		45-50	

Table 1
Soil Boring Sampling Information
Hillcrest Plume Trackdown Investigation
January-April 2008

Location	Soil Samples Depth (ft)	Water Samples Depth (ft)	Top of Silt (ft bgs)
GS-21	Silt not encountered	45-50	>50
GS-22	20.5-21.5	17-21	20.5
		24-28	
GS-23	22-23	20-24	22
	27-28	24-28	
GS-24	20-21	16-20	20
GS-25	28-29	25-30	28
GS-26	43-44	32-36	43
		38-43	
GS-27	37-38	34-38	37

TABLE 2
GROUNDWATER ELEVATIONS ON APRIL 7, 2008 and JULY, 2008

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
CAE-MW-03	782554.6632	1009053.0144	898.20	NA	898.20	A						
MNW							7/7/2008 1836	24.98	873.22	0.00	873.22	
MW-02	783383.207	1009459.279	899.69	900.22	900.22	A						
MNW							4/7/2008 0000	21.19	879.03	0.00	879.03	
MNW							7/7/2008 1416	25.00	875.22	0.00	875.22	
MW-02A	783369.57	1009459.99	899.80	901.63	901.48	A						
MNW							4/7/2008 0000	33.38	868.10	0.00	868.10	
MNW							7/7/2008 1415	30.09	871.39	0.00	871.39	
MW-03	783403.161	1008886.096	899.59	899.59	899.33	A						
MNW							4/7/2008 0000	28.82	870.51	0.00	870.51	
MNW							7/7/2008 1447	30.23	869.10	0.00	869.10	
MW-04	782601.581303	1009604.47992	899.73	899.73	899.26	A						
MNW							7/7/2008 1830	19.70	879.56	0.00	879.56	
MW-06	783235.980	1009413.851	899.50	900.22	900.17	A						
MNW							4/7/2008 0000	21.70	878.47	0.00	878.47	
MNW							7/7/2008 1413	25.50	874.67	0.00	874.67	
MW-07	783367.421	1009231.134	896.95	896.95	896.87	A						
MNW							4/7/2008 0000	18.05	878.82	0.00	878.82	
MNW							7/7/2008 1423	22.03	874.84	0.00	874.84	
MW-07-01	783852.37281	1010301.0847	899.21	899.21	898.94	A						
MNW							4/7/2008 0000	15.09	883.85	0.00	883.85	
MNW							7/7/2008 1541	NM	-	NM	-	
MW-07-02	784666.81836	1010644.8491	898.12	898.12	897.81	A						
MNW							4/7/2008 0000	18.54	879.27	0.00	879.27	
MNW							7/7/2008 1557	21.53	876.28	0.00	876.28	
MW-07-03	785056.7805	1010587.3720	898.9	898.90	898.58	A						
MNW							4/7/2008 0000	19.90	878.68	0.00	878.68	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2
GROUNDWATER ELEVATIONS ON APRIL 7, 2008 and JULY, 2008

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW							7/7/2008 1618	22.42	876.16	0.00	876.16	
MW-07-04	784104.04104	1010105.6539	903.22	903.22	902.79	A						
MNW							4/7/2008 0000	23.60	879.19	0.00	879.19	
MNW							7/7/2008 1849	26.61	876.18	0.00	876.18	
MW-07-05	784388.95257	1009963.7687	904.95	904.95	904.72	A						
MNW							4/7/2008 0000	25.54	879.18	0.00	879.18	
MNW							7/7/2008 1626	28.57	876.15	0.00	876.15	
MW-07-06	784227.31447	1009679.0257	904.05	904.05	903.76	A						
MNW							4/7/2008 0000	24.73	879.03	0.00	879.03	
MNW							7/7/2008 1724	27.58	876.18	0.00	876.18	
MW-07-07	785405.03419	1009840.5590	894.01	894.01	893.75	A						
MNW							4/7/2008 0000	31.61	862.14	0.00	862.14	
MNW							7/7/2008 1732	33.76	859.99	0.00	859.99	
MW-07-08	784830.89057	1009599.5579	895.88	895.88	895.66	A						
MNW							4/7/2008 0000	19.13	876.53	0.00	876.53	
MNW							7/7/2008 1756	21.46	874.20	0.00	874.20	
MW-07-09	784711.92403	1008598.1021	853.33	853.33	853.03	A						
MNW							4/7/2008 0000	12.54	840.49	0.00	840.49	
MNW							7/7/2008 1641	16.98	836.05	0.00	836.05	
MW-07-10	785289.03552	1008837.5839	856.88	856.88	856.40	A						
MNW							4/7/2008 0000	15.69	840.71	0.00	840.71	
MNW							7/7/2008 1634	20.28	836.12	0.00	836.12	
MW-07-11	785744.55109	1009121.4373	857.57	857.57	857.12	A						
MNW							4/7/2008 0000	15.90	841.22	0.00	841.22	
MNW							7/7/2008 1658	20.98	836.14	0.00	836.14	
MW-09	783434.54	1009930.42	902.1	902.78	901.82	A						
MNW							4/7/2008 0000	19.44	882.38	0.00	882.38	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

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TABLE 2
GROUNDWATER ELEVATIONS ON APRIL 7, 2008 and JULY, 2008

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW							7/7/2008 1349	23.46	878.36	0.00	878.36	
MW-10	783110.32	1009908.28	901.2	903.43	903.31	A						
MNW							4/7/2008 0000	17.92	885.39	0.00	885.39	
MNW							7/7/2008 1352	21.32	881.99	0.00	881.99	
MW-11	783091.739	1009374.519	898.70	900.07	899.63	A						
MNW							4/7/2008 0000	19.67	879.96	0.00	879.96	
MNW							7/7/2008 1411	24.24	875.39	0.00	875.39	
MW-14	783529.20	1009325.92	897.7	897.65	897.19	A						
MNW							4/7/2008 0000	18.33	878.86	0.00	878.86	
MNW							7/7/2008 1512	22.29	874.90	0.00	874.90	
MW-15	783688.49	1009313.79	899.3	899.34	898.91	A						
MNW							4/7/2008 0000	21.00	877.91	0.00	877.91	
MNW							7/7/2008 1505	24.38	874.53	0.00	874.53	
MW-16	783358.303	1009087.540	896.87	896.87	896.65	A						
MNW							4/7/2008 0000	19.20	877.45	0.00	877.45	
MNW							7/7/2008 1425	22.52	874.13	0.00	874.13	
MW-17	783603.343	1008899.825	NA	NA	898.02	A						
MNW							4/7/2008 0000	27.62	870.40	0.00	870.40	
MNW							7/7/2008 1458	28.89	869.13	0.00	869.13	
MW-18	783215.824	1009056.551	894.68	894.68	894.33	A						
MNW							4/7/2008 0000	16.44	877.89	0.00	877.89	
MNW							7/7/2008 1427	20.06	874.27	0.00	874.27	
MW-19	783480.64	1009647.87	900.60	900.57	900.37	A						
MNW							4/7/2008 0000	20.94	879.43	0.00	879.43	
MNW							7/7/2008 1517	23.88	876.49	0.00	876.49	
MW-20	784255.312	1009355.534	NA	NA	901.46	A						
MNW							4/7/2008 0000	24.54	876.92	0.00	876.92	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

Filter = (((tblGWD.LOGDATE>=#1/1/2008# And tblGWD.LOGDATE<=#12/31/2008#))) AND ((tblGWD.LOGDATE=#4/7/2008# Or tblGWD.LOGDATE=#7/7/2008#))

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TABLE 2
GROUNDWATER ELEVATIONS ON APRIL 7, 2008 and JULY, 2008

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW							7/7/2008 1714	27.31	874.15	0.00	874.15	
MW-21	783341.391	1008608.369	899.75	899.84	899.68	A						
MNW							4/7/2008 0000	30.22	869.46	0.00	869.46	
MNW							7/7/2008 1440	31.56	868.12	0.00	868.12	
MW-22	783205.52	1009557.49	900.50	902.48	902.41	A						
MNW							4/7/2008 0000	21.44	880.97	0.00	880.97	
MNW							7/7/2008 1418	25.68	876.73	0.00	876.73	
MW-23	782908.346	1007833.498	852.34	NA	852.34	A						
MNW							7/7/2008 1808	17.08	835.26	0.00	835.26	
MW-24	783589.453	1008120.387	878.80	878.77	878.59	A						
MNW							7/7/2008 1443	38.86	839.73	0.00	839.73	
MW-25	784281.169	1008519.761	NA	NA	854.26	A						
MNW							4/7/2008 0000	5.71	848.55	0.00	848.55	
MNW							7/7/2008 1648	8.20	846.06	0.00	846.06	
MW-26	782806.175	1010342.789	NA	NA	911.44	A						
MNW							4/7/2008 0000	10.54	900.90	0.00	900.90	
MNW							7/7/2008 1534	13.53	897.91	0.00	897.91	
MW-27	785233.10	1009349.92	891.0	890.97	890.37	A						
MNW							4/7/2008 0000	25.96	864.41	0.00	864.41	
MNW							7/7/2008 1745	26.76	863.61	0.00	863.61	
MW-28R	783673.1878	1009923.4735	901.5	901.50	900.93	A						
MNW							4/7/2008 0000	19.12	881.81	0.00	881.81	
MNW							7/7/2008 1522	22.54	878.39	0.00	878.39	
NW-05	783528.861	1008866.379	899.16	899.16	898.77	A						
MNW							4/7/2008 0000	28.34	870.43	0.00	870.43	
MNW							7/7/2008 1453	29.65	869.12	0.00	869.12	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

Filter = (((tblGWD.LOGDATE>=#1/1/2008# And tblGWD.LOGDATE<=#12/31/2008#))) AND ((tblGWD.LOGDATE=#4/7/2008# Or tblGWD.LOGDATE=#7/7/2008#))

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TABLE 2
GROUNDWATER ELEVATIONS ON APRIL 7, 2008 and JULY, 2008

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
NW-06	783574.210	1008532.173	887.56	887.56	887.15	A						
MNW							4/7/2008 0000	21.83	865.32	0.00	865.32	
MNW							7/7/2008 1818	22.50	864.65	0.00	864.65	
NW-07	783129.625	1009134.942	894.5	894.50	894.25	A						
MNW							4/7/2008 0000	15.82	878.43	0.00	878.43	
MNW							7/7/2008 1435	20.82	873.43	0.00	873.43	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 3
SUMMARY OF DETECTED ANALYTES - SOIL SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID		GS-01	GS-01	GS-02	GS-02	GS-03
Sample ID		GS-01-30-31'	GS-01-35-36'	GS-02-27.5-28.0'	GS-02-31-32'	GS-03-24-25'
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		30.0-31.0	35.0-36.0	27.5-28.0	31.0-32.0	24.0-25.0
Date Sampled		01/28/08	01/28/08	01/29/08	01/29/08	01/29/08
Parameter	**Units**					
Volatile Organic Compounds						
Acetone	UG/KG		21 J	39 J		
Methylene chloride	UG/KG		11 J			
Trichloroethene	UG/KG	48		20	45	
Miscellaneous Parameters						
Solids, Percent	PERCENT	80.04	84.3 J	72.1	82.82	78.85

Flags assigned during chemistry validation are shown.

UG/KG - Micrograms per kilogram.
J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 3
SUMMARY OF DETECTED ANALYTES - SOIL SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID		GS-03	GS-04	GS-04	GS-04	GS-06
Sample ID		GS-03-29-30'	FD-SO-013008	GS-04-23-24'	GS-04-27-28'	GS-06-28-29'
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		29.0-30.0	27.0-28.0	23.0-24.0	27.0-28.0	28.0-29.0
Date Sampled		01/29/08	01/30/08	01/30/08	01/30/08	01/31/08
Parameter	**Units**		Field Duplicate (1-1)			
Volatile Organic Compounds						
Acetone	UG/KG					
Methylene chloride	UG/KG					
Trichloroethene	UG/KG					
Miscellaneous Parameters						
Solids, Percent	PERCENT	78.41	81.3	70.02	71.69	77.67

Flags assigned during chemistry validation are shown.

UG/KG - Micrograms per kilogram.
J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 3
SUMMARY OF DETECTED ANALYTES - SOIL SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID		GS-06	GS-07	GS-08	GS-09	GS-09
Sample ID		GS-06-31-32	GS-07-29-30	GS-08-30-31	GS-09-32-33	GS-09-35-36
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		31.0-32.0	29.0-30.0	30.0-31.0	32.0-33.0	35.0-36.0
Date Sampled		01/31/08	01/31/08	03/06/08	02/01/08	02/01/08
Parameter	**Units**					
Volatile Organic Compounds						
Acetone	UG/KG					
Methylene chloride	UG/KG					
Trichloroethene	UG/KG					25
Miscellaneous Parameters						
Solids, Percent	PERCENT	71.03	72.3	80.6	81.0	73.66

Flags assigned during chemistry validation are shown.

UG/KG - Micrograms per kilogram.
J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 3
SUMMARY OF DETECTED ANALYTES - SOIL SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID		GS-10	GS-10	GS-11	GS-11	GS-12
Sample ID		GS-10-30-31	GS-10-35-36	GS-11-31-32	GS-11-35-36	GS-12-32.5-33.5
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		30.0-31.0	35.0-36.0	31.0-32.0	35.0-36.0	32.5-33.5
Date Sampled		02/04/08	02/04/08	01/31/08	01/31/08	02/08/08
Parameter	**Units**					
Volatile Organic Compounds						
Acetone	UG/KG					
Methylene chloride	UG/KG				29 J	
Trichloroethene	UG/KG			52		8 J
Miscellaneous Parameters						
Solids, Percent	PERCENT	66.78	66.64	71.75	76.56 J	78.7

Flags assigned during chemistry validation are shown.

UG/KG - Micrograms per kilogram.
J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 3
SUMMARY OF DETECTED ANALYTES - SOIL SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID		GS-12	GS-14	GS-14	GS-15	GS-16
Sample ID		GS-12-37.5-38.5	GS-14-28-29	GS-14-30-31	GS-15-30-31	GS-16-20-21
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		37.5-38.5	28.0-29.0	30.0-31.0	30.0-31.0	20.0-21.0
Date Sampled		02/08/08	02/05/08	02/05/08	02/20/08	02/05/08
Parameter	**Units**					
Volatile Organic Compounds						
Acetone	UG/KG					
Methylene chloride	UG/KG					
Trichloroethene	UG/KG					
Miscellaneous Parameters						
Solids, Percent	PERCENT	82.6	72.03	79.72	81.5	81.41

Flags assigned during chemistry validation are shown.

UG/KG - Micrograms per kilogram.
J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 3
SUMMARY OF DETECTED ANALYTES - SOIL SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID		GS-17	GS-18	GS-18	GS-18	GS-19
Sample ID		GS-17-15-16	FD-021808	GS-18-22-23	GS-18-27-28	GS-19-24-25
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		15.0-16.0	27.0-28.0	22.0-23.0	27.0-28.0	24.0-25.0
Date Sampled		02/21/08	02/18/08	02/18/08	02/18/08	02/14/08
Parameter	Units		Field Duplicate (1-1)			
Volatile Organic Compounds						
Acetone	UG/KG					
Methylene chloride	UG/KG					9
Trichloroethene	UG/KG					
Miscellaneous Parameters						
Solids, Percent	PERCENT	81.5	78.8	80.7	77.8	74.2

Flags assigned during chemistry validation are shown.

UG/KG - Micrograms per kilogram.
J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 3
SUMMARY OF DETECTED ANALYTES - SOIL SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID		GS-20	GS-22	GS-23	GS-23	GS-24
Sample ID		GS-20-51.5-52	GS-22-20.5-21.5	GS-23-22-23	GS-23-27-28	GS-24-20-21
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		51.5-52.0	20.5-21.5	22.0-23.0	27.0-28.0	20.0-21.0
Date Sampled		03/05/08	02/15/08	02/13/08	02/13/08	02/14/08
Parameter	**Units**					
Volatile Organic Compounds						
Acetone	UG/KG					
Methylene chloride	UG/KG		8	9		9
Trichloroethene	UG/KG	12				
Miscellaneous Parameters						
Solids, Percent	PERCENT	77.3	78.8	71.4	75	80.7

Flags assigned during chemistry validation are shown.

UG/KG - Micrograms per kilogram.
J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 3
SUMMARY OF DETECTED ANALYTES - SOIL SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID		GS-25	GS-26	GS-27
Sample ID		GS-25-28-29	GS-26-43-44	GS-27-37-38
Matrix		Soil	Soil	Soil
Depth Interval (ft)		28.0-29.0	43.0-44.0	37.0-38.0
Date Sampled		03/07/08	03/17/08	03/06/08
Parameter	**Units**			
Volatile Organic Compounds				
Acetone	UG/KG			
Methylene chloride	UG/KG			
Trichloroethene	UG/KG			
Miscellaneous Parameters				
Solids, Percent	PERCENT	73.8	77.8	77

Flags assigned during chemistry validation are shown.

UG/KG - Micrograms per kilogram.
J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 4
SUMMARY OF DETECTED ANALYTES - GROUNDWATER SCREENING SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID			GS-01	GS-01	GS-01	GS-02	GS-02
Sample ID			GS-01-32-36'	GS-01-26-30'	GS-01-15-19'	GS-02-28-32'	GS-02-23.5-27.5'
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			32.0-36.0	26.0-30.0	15.0-19.0	28.0-32.0	23.5-27.5
Date Sampled			01/28/08	01/28/08	01/28/08	01/29/08	01/29/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1-Dichloroethene	UG/L	5				7	
Trichloroethene	UG/L	5		9	5 J	15	8

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 4
SUMMARY OF DETECTED ANALYTES - GROUNDWATER SCREENING SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID			GS-02	GS-03	GS-03	GS-04	GS-04
Sample ID			GS-02-18-22'	GS-03-26-30'	GS-03-20-24'	FD-GW-013008	GS-04-24-28
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			18.0-22.0	26.0-30.0	20.0-24.0	19.0-23.0	24.0-28.0
Date Sampled			01/29/08	01/29/08	01/29/08	01/30/08	01/30/08
Parameter	**Units**	*				Field Duplicate (1-1)	
Volatile Organic Compounds							
1,1-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5	4 J	28	4 J	4 J	5

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 4
SUMMARY OF DETECTED ANALYTES - GROUNDWATER SCREENING SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID			GS-04	GS-05	GS-05	GS-06	GS-06
Sample ID			GS-04-19-23	GS-05-46-50'	GS-05-21-25'	GS-06-29-33	GS-06-24-28
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			19.0-23.0	46.0-50.0	21.0-25.0	29.0-33.0	24.0-28.0
Date Sampled			01/30/08	01/30/08	01/30/08	01/31/08	01/31/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5	4 J	6		4 J	3 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 4
SUMMARY OF DETECTED ANALYTES - GROUNDWATER SCREENING SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID			GS-06	GS-07	GS-07	GS-08	GS-09
Sample ID			GS-06-20-24	GS-07-25-29	GS-07-20-24	GS-08-28-30	GS-09-33-37
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			20.0-24.0	25.0-29.0	20.0-24.0	28.0-30.0	33.0-37.0
Date Sampled			01/31/08	01/31/08	01/31/08	03/06/08	02/01/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5					23

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 4
SUMMARY OF DETECTED ANALYTES - GROUNDWATER SCREENING SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID			GS-09	GS-09	GS-10	GS-10	GS-10
Sample ID			GS-09-28-32	GS-09-20-24	GS-10-32-36	GS-10-26-30	GS-10-22-26
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			28.0-32.0	20.0-24.0	32.0-36.0	26.0-30.0	22.0-26.0
Date Sampled			02/01/08	02/01/08	02/04/08	02/04/08	02/04/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5	6	4 J	32	4 J	5 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

Advanced Selection: Table 4
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[MATRIX] = 'WG' AND ([SACODE] = 'N' OR [SACODE] = 'FD') AND [LOGDATE] BETWEEN #1/7/2008# AND #3/31/2008# AND [LOCID] LIKE 'GS

TABLE 4
SUMMARY OF DETECTED ANALYTES - GROUNDWATER SCREENING SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID			GS-11	GS-11	GS-11	GS-12	GS-12
Sample ID			GS-11-32-36	GS-11-27-31	GS-11-20-24	GS-12-34-38	GS-12-28.5-32.5
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			32.0-36.0	27.0-31.0	20.0-24.0	34.0-38.0	28.5-32.5
Date Sampled			02/01/08	02/01/08	02/01/08	02/12/08	02/12/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5		6	2 J	8	32

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 4
SUMMARY OF DETECTED ANALYTES - GROUNDWATER SCREENING SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID			GS-12	GS-13	GS-14	GS-14	GS-15
Sample ID			GS-12-24-28	GS-13-28-32	GS-14-28-32	GS-14-24-28	FD-022008
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			24.0-28.0	28.0-32.0	28.0-32.0	24.0-28.0	16.0-20.0
Date Sampled			02/13/08	02/21/08	02/05/08	02/05/08	02/20/08
Parameter	**Units**	*					Field Duplicate (1-1)
Volatile Organic Compounds							
1,1-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5	24		8	10	

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 4
SUMMARY OF DETECTED ANALYTES - GROUNDWATER SCREENING SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID			GS-15	GS-15	GS-15	GS-16	GS-17
Sample ID			GS-15-32-36	GS-15-26-30	GS-15-16-20	GS-16-16-20	GS-17-16-20
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			32.0-36.0	26.0-30.0	15.0-16.0	16.0-20.0	16.0-20.0
Date Sampled			02/20/08	02/20/08	02/20/08	02/05/08	02/21/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5					12

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 4
SUMMARY OF DETECTED ANALYTES - GROUNDWATER SCREENING SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID			GS-17	GS-17	GS-18	GS-18	GS-19
Sample ID			GS-17-12-16	GS-17-8-12	GS-18-24-28	GS-18-18-22	GS-19-28-32
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			12.0-16.0	8.0-12.0	24.0-28.0	18.0-22.0	28.0-32.0
Date Sampled			02/21/08	02/21/08	02/18/08	02/18/08	02/15/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5	11	9		10	

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 4
SUMMARY OF DETECTED ANALYTES - GROUNDWATER SCREENING SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID			GS-20	GS-20	GS-21	GS-22	GS-22
Sample ID			GS-20-45-50	GS-20-24-29	GS-21-45-50	GS-22-24-28	GS-22-17-21
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			45.0-50.0	20.0-24.0	45.0-50.0	24.0-28.0	17.0-21.0
Date Sampled			03/05/08	03/05/08	03/04/08	02/15/08	02/15/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5					

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 4
SUMMARY OF DETECTED ANALYTES - GROUNDWATER SCREENING SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID			GS-23	GS-23	GS-23	GS-24	GS-25
Sample ID			FD-021508	GS-23-24-28	GS-23-20-24	GS-24-16-20	GS-25-25-30
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			20.0-24.0	24.0-28.0	20.0-24.0	16.0-20.0	25.0-30.0
Date Sampled			02/15/08	02/15/08	02/15/08	02/14/08	03/07/08
Parameter	**Units**	*	Field Duplicate (1-1)				
Volatile Organic Compounds							
1,1-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5		13	5	6	7

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 4
SUMMARY OF DETECTED ANALYTES - GROUNDWATER SCREENING SAMPLES
HILLCREST SITE INVESTIGATION
JANUARY - MARCH 2008

Location ID			GS-26	GS-26	GS-27	GS-28	GS-28
Sample ID			GS-26-32-36	GS-26-38-43	GS-27-34-38	GS-28-18-22	GS-28-45-50
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			32.0-36.0	38.0-43.0	34.0-38.0	18.0-22.0	45.0-50.0
Date Sampled			03/17/08	03/17/08	03/06/08	03/13/08	03/13/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5					

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 5
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-02	MW-02A	MW-03	MW-06	MW-07
Sample ID			MW-02	MW-02A	MW-03	MW-06	FD-041008
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/10/08	04/10/08	04/09/08	04/10/08	04/10/08
Parameter	**Units**	*					Field Duplicate (1-1)
Volatile Organic Compounds							
Trichloroethene	UG/L	5		39		130	12

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 5
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-07	MW-07-01	MW-07-02	MW-07-03	MW-07-04
Sample ID			MW-07	MW-07-01	MW-07-02	MW-07-03	MW-07-04
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/10/08	04/09/08	04/09/08	04/08/08	04/08/08
Parameter	**Units**	*					
Volatile Organic Compounds							
Trichloroethene	UG/L	5	12				15

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 5
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-07-05	MW-07-06	MW-07-07	MW-07-08	MW-07-08
Sample ID			MW-07-05	MW-07-06	MW-07-07	FD-040808	MW-07-08
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/08/08	04/08/08	04/08/08	04/08/08	04/08/08
Parameter	**Units**	*				Field Duplicate (1-1)	
Volatile Organic Compounds							
Trichloroethene	UG/L	5		15			

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 5
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-07-09	MW-07-10	MW-07-11	MW-09	MW-10
Sample ID			MW-07-09	MW-07-10	MW-07-11	MW-09	MW-10
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/07/08	04/07/08	04/11/08	04/11/08	04/10/08
Parameter	**Units**	*					
Volatile Organic Compounds							
Trichloroethene	UG/L	5					

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 5
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-11	MW-14	MW-15	MW-16	MW-17
Sample ID			MW-11	MW-14	MW-15	MW-16	MW-17
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/10/08	04/09/08	04/09/08	04/10/08	04/09/08
Parameter	**Units**	*					
Volatile Organic Compounds							
Trichloroethene	UG/L	5			11		51

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 5
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-18	MW-19	MW-20	MW-21	MW-22
Sample ID			MW-18	MW-19	MW-20	MW-21	MW-22
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/10/08	04/09/08	04/08/08	04/08/08	04/10/08
Parameter	**Units**	*					
Volatile Organic Compounds							
Trichloroethene	UG/L	5		68	11	11	

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 5
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-25	MW-26	MW-27	MW-28R	NW-05
Sample ID			MW-25	MW-26	MW-27	MW-28R	NW-05
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/07/08	04/07/08	04/11/08	04/08/08	04/09/08
Parameter	**Units**	*					
Volatile Organic Compounds							
Trichloroethene	UG/L	5	15				11

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 5
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			NW-06	NW-07
Sample ID			NW-06	NW-07
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			04/08/08	04/10/08
Parameter	**Units**	*		
Volatile Organic Compounds				
Trichloroethene	UG/L	5	14	

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 6
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-02	MW-02A	MW-03	MW-06	MW-07
Sample ID			MW-02	MW-02A	MW-03	MW-06	MW-07
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			08/28/08	08/28/08	07/09/08	07/11/08	08/28/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5					
1,2-Dichloroethene (cis)	UG/L	5	2 J				
Trichloroethene	UG/L	5	140	25	11	100	13

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

(oval) Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 6
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-07-02	MW-07-03	MW-07-03	MW-07-04	MW-07-04
Sample ID			MW-07-02	20080708-FD-1	MW-07-03	20080710-FD-1	MW-07-04
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/10/08	07/08/08	07/08/08	07/10/08	07/10/08
Parameter	**Units**	*		Field Duplicate (1-1)		Field Duplicate (1-1)	
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5					
1,2-Dichloroethene (cis)	UG/L	5					
Trichloroethene	UG/L	5	2 J	2 J		13 J	13 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 6
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-07-05	MW-07-06	MW-07-07	MW-07-08	MW-07-09
Sample ID			MW-07-05	MW-07-06	MW-07-07	MW-07-08	MW-07-09
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/08/08	07/08/08	07/08/08	07/08/08	08/28/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5					
1,2-Dichloroethene (cis)	UG/L	5					
Trichloroethene	UG/L	5	3 J	13	2 J	4 J	6 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 6
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-07-10	MW-07-11	MW-09	MW-10	MW-11
Sample ID			MW-07-10	MW-07-11	MW-09	MW-10	MW-11
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			08/28/08	07/08/08	07/08/08	07/09/08	07/11/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5				4 J	
1,2-Dichloroethene (cis)	UG/L	5					
Trichloroethene	UG/L	5	4 J		4 J	15	8

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 6
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-14	MW-15	MW-16	MW-17	MW-18
Sample ID			MW-14	MW-15	MW-16	MW-17	MW-18
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/09/08	07/09/08	07/10/08	07/10/08	07/10/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5					
1,2-Dichloroethene (cis)	UG/L	5					
Trichloroethene	UG/L	5	13	12 J		61	10

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 6
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-19	MW-20	MW-21	MW-21	MW-22
Sample ID			MW-19	MW-20	20080709-FD-1	MW-21	MW-22
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/10/08	07/08/08	07/09/08	07/09/08	07/10/08
Parameter	**Units**	*			Field Duplicate (1-1)		
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5				2 J	
1,2-Dichloroethene (cis)	UG/L	5					
Trichloroethene	UG/L	5	59	18	11 J	12	4 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 6
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-25	MW-26	MW-27	MW-28R	NW-05
Sample ID			MW-25	MW-26	MW-27	MW-28R	NW-05
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/09/08	07/09/08	07/08/08	07/11/08	07/10/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5					
1,2-Dichloroethene (cis)	UG/L	5					
Trichloroethene	UG/L	5	14 J			5	9

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 6
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			NW-06	NW-07
Sample ID			NW-06	NW-07
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			07/09/08	08/28/08
Parameter	**Units**	*		
Volatile Organic Compounds				
1,1,1-Trichloroethane	UG/L	5		
1,2-Dichloroethene (cis)	UG/L	5		
Trichloroethene	UG/L	5	13 J	9

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

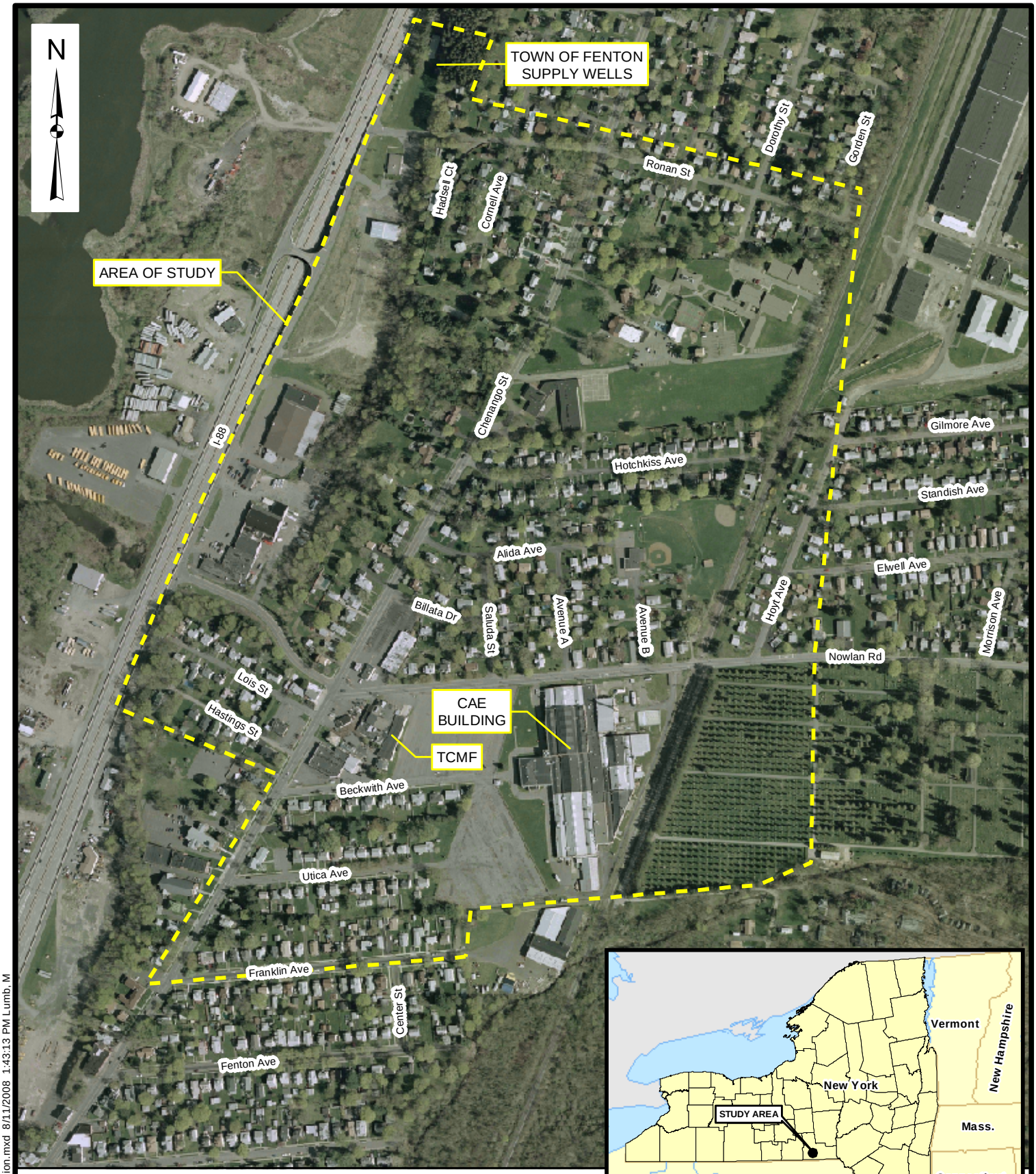
Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

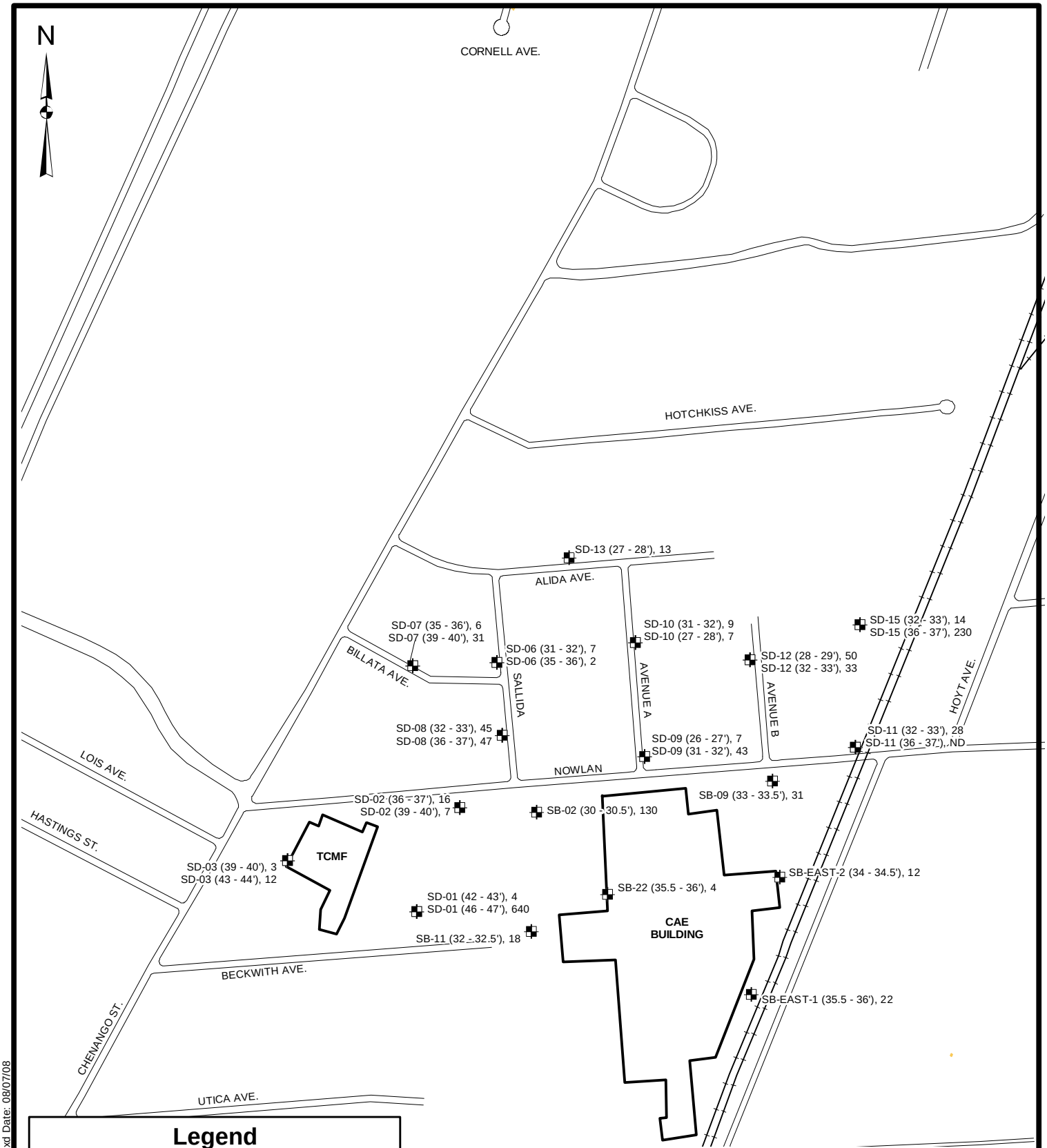
Only Detected Results Reported.

FIGURES



N:\11\173142.00000\DBG\S\SiteLocation.mxd 8/11/2008 1:43:13 PM Lumb, M

URS	HILLCREST SITE LOCATION	FIGURE 1



Legend

Soil Sample Location

SD-01 (46 - 47'), 640

Location ID | Depth Interval | Concentration (UG/KG)

NOTE: Upper sample interval from approximately the top one or two feet below the top of the silt unit. Lower sample interval from approximately four to five feet below the top of the silt unit.

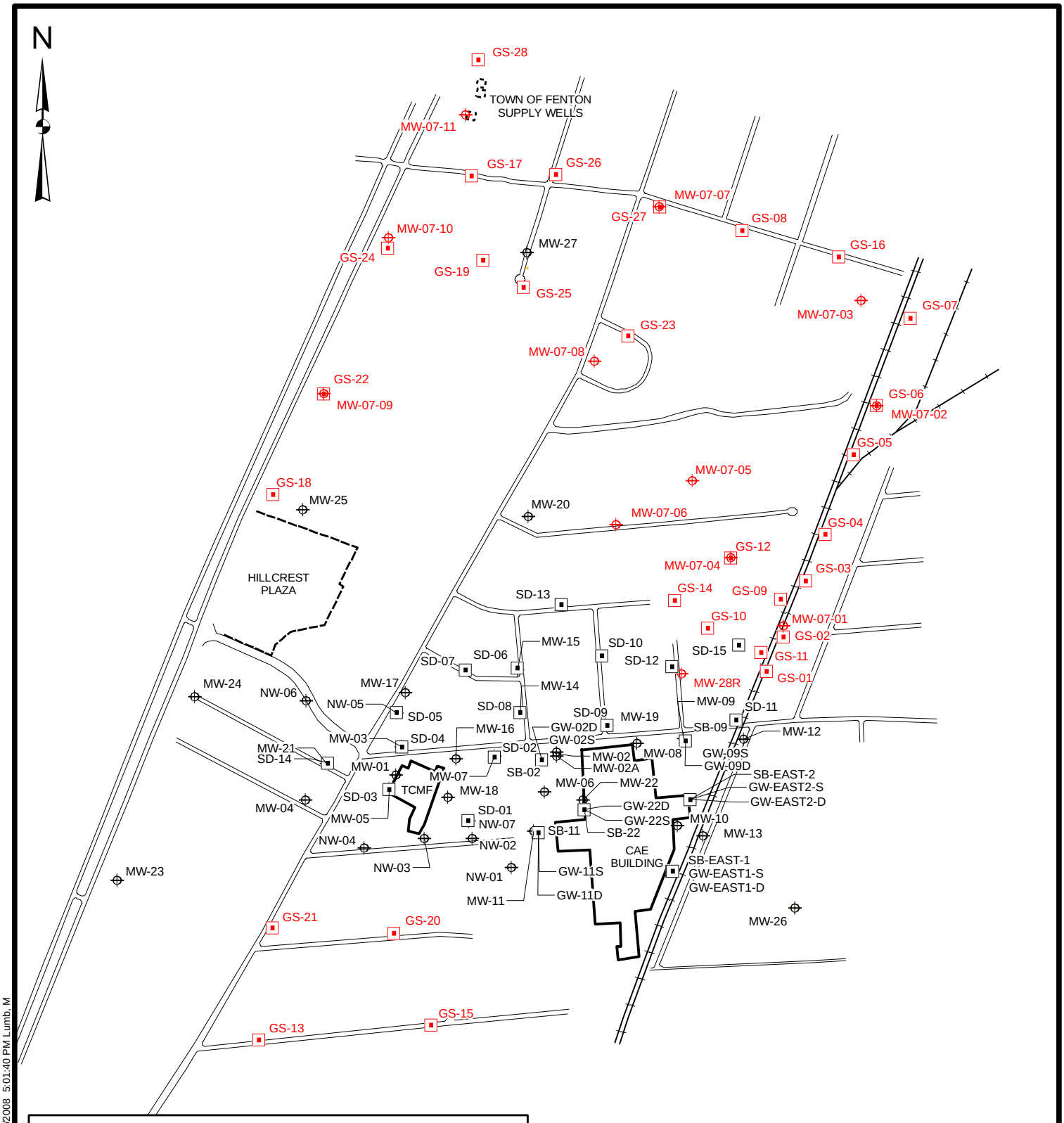
0 150 300 600 Feet

N:\111 73142.00000\DBG\SI\Figure 2 2008.mxd Date: 08/07/08

URS

HILLCREST SOURCE CHARACTERIZATION INVESTIGATION
TCE SOIL ANALYTICAL RESULTS IN THE SILT UNIT
(OCTOBER - NOVEMBER 2004)

FIGURE 2

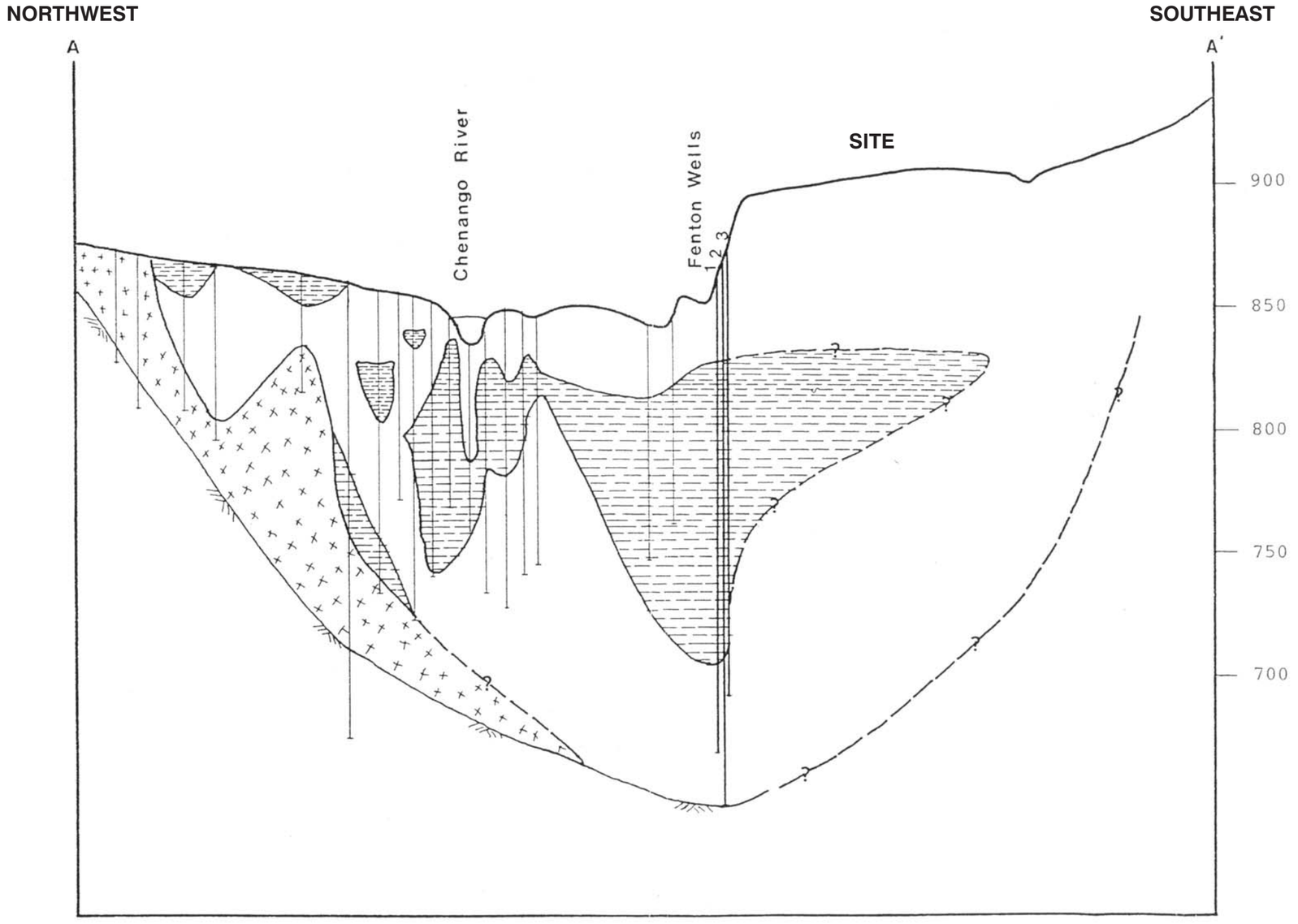


URS

HILLCREST
MONITORING WELL AND
SOIL BORING LOCATIONS

FIGURE 3

N:\11173142.00000\DBG\SMW_SB_LOCATIONS.mxd 8/7/2008 5:01:40 PM Lumb, M



KEY

BORING or WELL

SAND & GRAVEL

SILTS & CLAYS

GLACIAL TILL

BEDROCK

— ?—

SCALE: 1" ≈ 900' Horizontal
1" = 50' Vertical

NOTE: Cross Section adapted from Empire Soil Investigations, Inc. March 1985, Preliminary Hydrogeologic Study (Included as Appendix E) See Appendix E for Cross Section Location.

REGIONAL CROSS SECTION
CHENANGO RIVER VALLEY

URS

FIGURE 4

AG20088A-11174227-081108-GCM

N:\11173142.00000\DB\GIS\TOPSILT_05-06-2008-revised.mxd 1/06/2009 Sundquist, J

N

MW-07-11, 829.57

GS-17, 851.30

GS-26, 849.95

GS-27, 857.99

GS-08, 862.71

GS-24, 834.15

GS-19, 866.36

GS-16, 875.62

GS-25, 862.07

MW-07-03, 868.9

GS-07, 868.25

GS-23, 872.42

MW-07-08, 868.88

GS-22, 832.70

GS-06, 870.15

GS-05, <848

MW-07-05, 876.95

GS-18, 832.96

MW-25, 831

MW-20, 847

MW-07-06, 872.55

GS-04, 876.61

GS-12, 870.65

GS-03, 875.61

GS-09, 867.81

SD-13, 877.06

GS-14, 874.86

GS-10, 871.53

GS-02, 872.33

SD-15, 867.96

SD-10, 875.64

GS-11, 870.67

SD-12, 873.08

GS-01, 868.87

MW-15, 869

SD-06, 869

MW-28R, 870.5

SD-07, 862.58

MW-24, 805

NW-06, 865

NW-05, 861

MW-14, 868

SD-08, 865.7

SD-09, 874.63

SD-11, 869.22

SB-09, 869.1

B-2, 869

SD-02, 861.04

SB-02, 869.6

MW-21, 865

SD-03, 860.53

TCMF

MW-18, 866

SB-EAST-2, 870

SB-22, 865

SD-01, 852.36

CAE BUILDING

NW-04, 867

SB-11, 866.7

SB-EAST-1, 865.8

B-3, 859

GS-21, 846.08

GS-20, 842.60

B-1, 848

GS-15, 861.23

GS-13, 862.20

SALLIDA

AVENUE A

AVENUE B

BILLATA AVE.

NOWLAN

LOIS AVE.

HASTINGS ST.

BECKWITH AVE.

CHENANGO ST.

UTICA AVE.

FRANKLIN AVE.

A

A'

B

B'

C

C'

D

D'

820

830

840

850

860

870

Legend

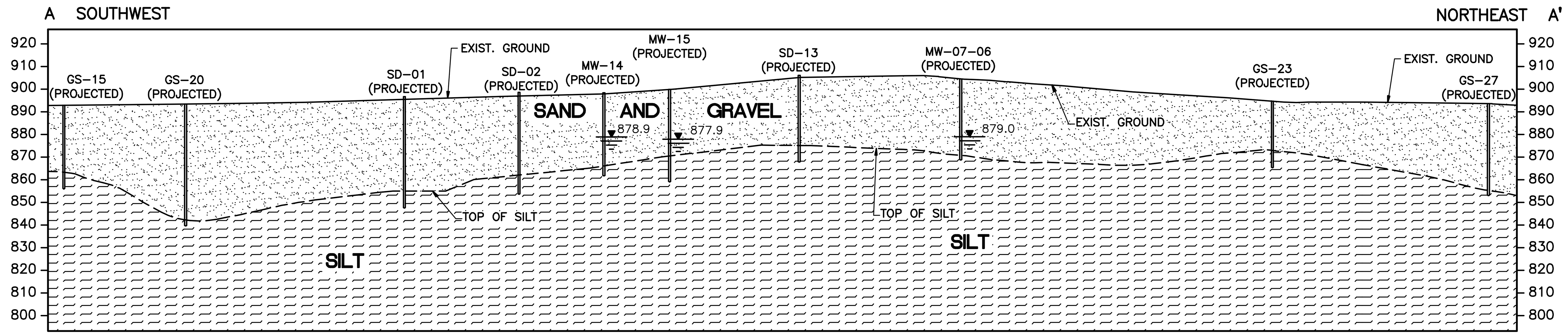
- Soil Boring Location
- Top of Silt Elevation Contour (870)
- A A' Geologic Cross Section
- SD-01, 852.36 (Location ID; Top of Silt Elevation (ft amsl))

300 150 0 300 Feet

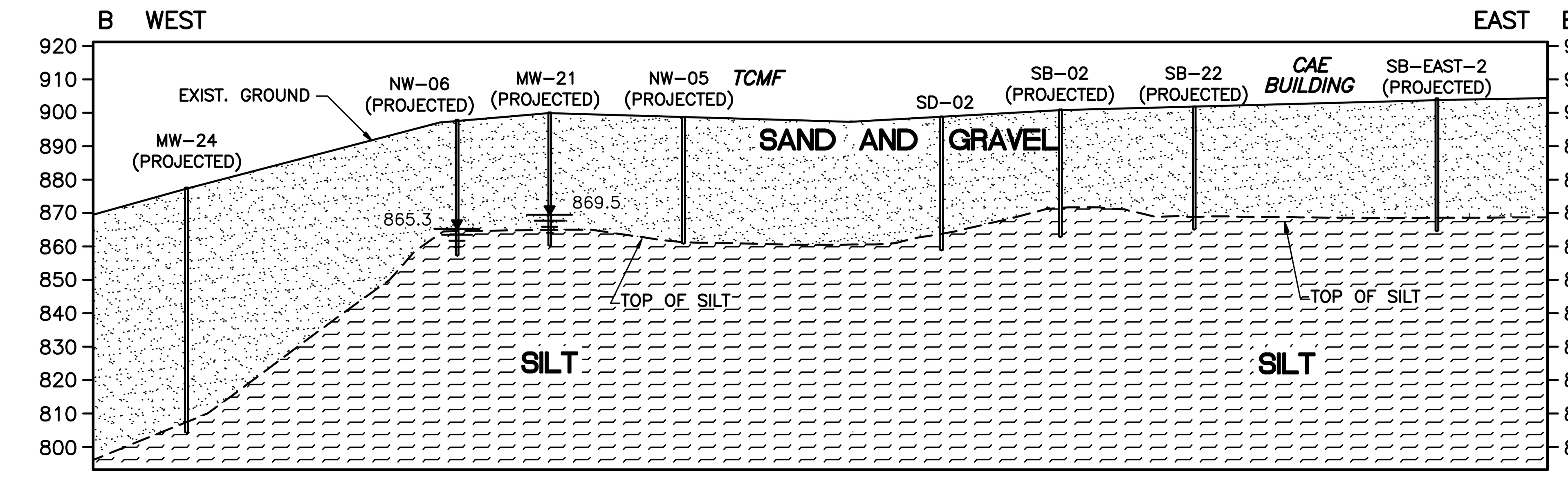
URS

HILLCREST SOURCE AREA INVESTIGATION
TOP OF SILT ELEVATION CONTOUR MAP

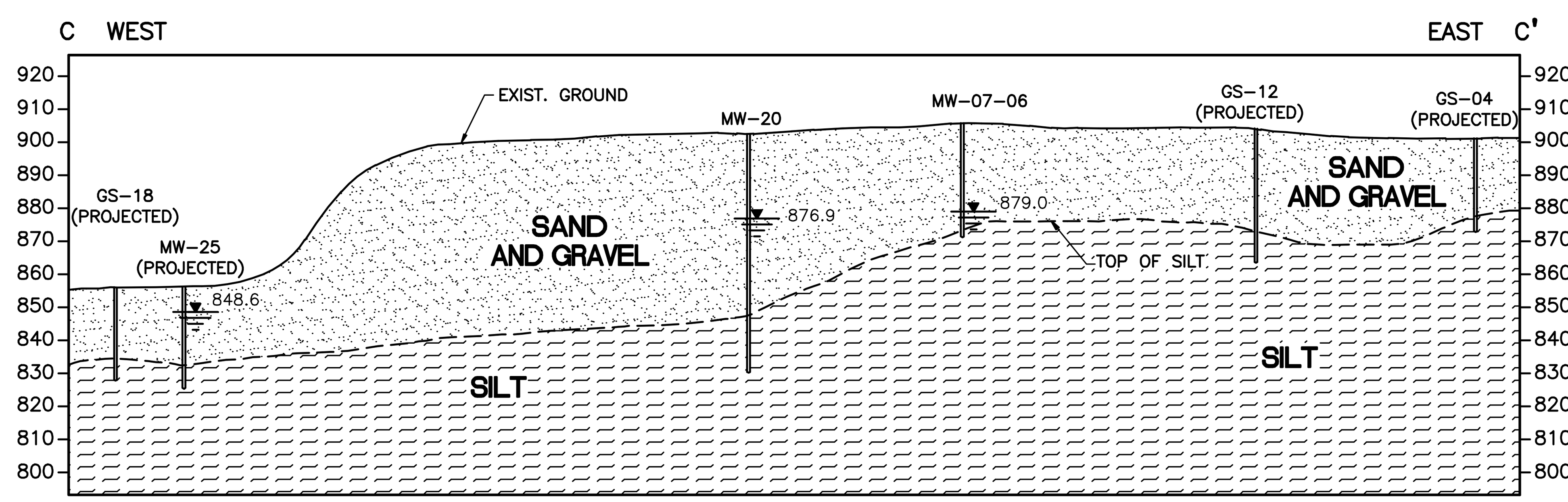
FIGURE 5



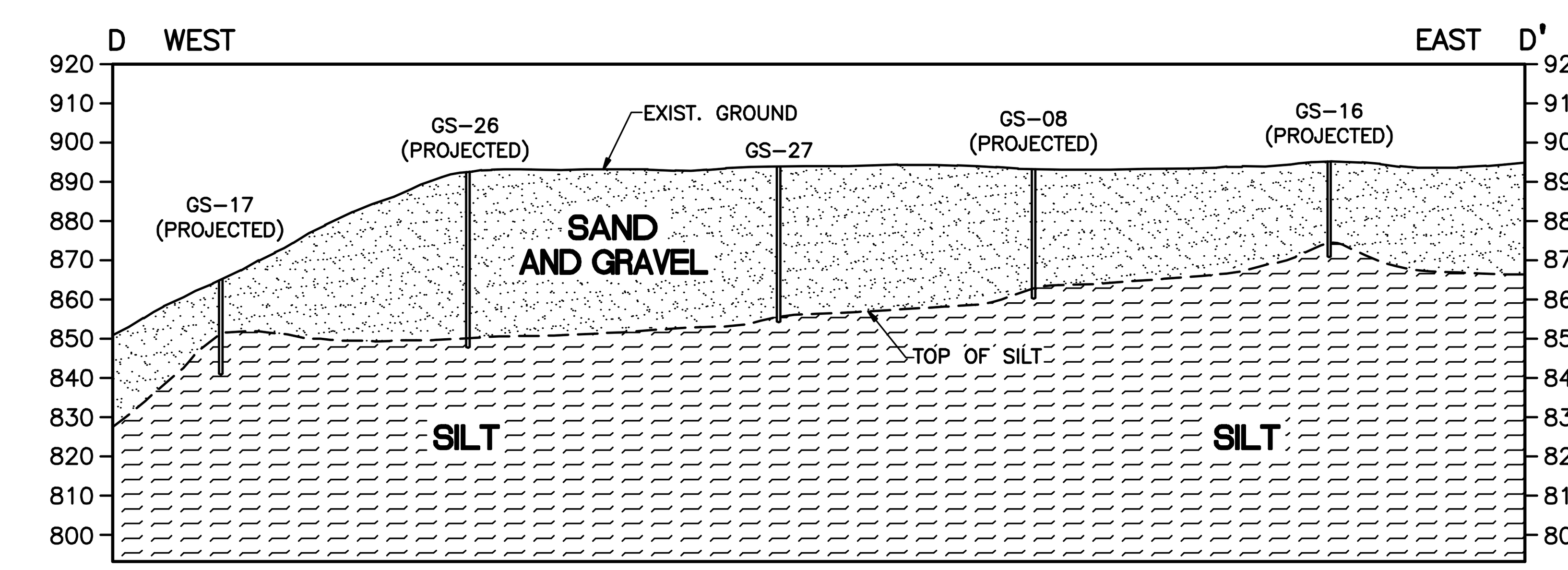
SECTION A-A'



SECTION B - B'



SECTION C-C'



SECTION D-D'

NOTE:
SEE FIGURE 5 FOR SECTION LOCATIONS

LEGEND:

GROUNDWATER ELEVATIONS TAKEN APRIL 7, 2008.

200' 0 200'
HORIZ. SCALE IN FEET
40' 0 40'
VERT. SCALE IN FEET

WARNING
IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON OTHER THAN WHOSE SEAL APPEARS ON THIS DRAWING, TO ALTER IN ANY WAY AN ITEM ON THIS DRAWING. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: RJM
DRAWN BY: RAL
CHECKED BY:
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JOB NO. 11174227.00000

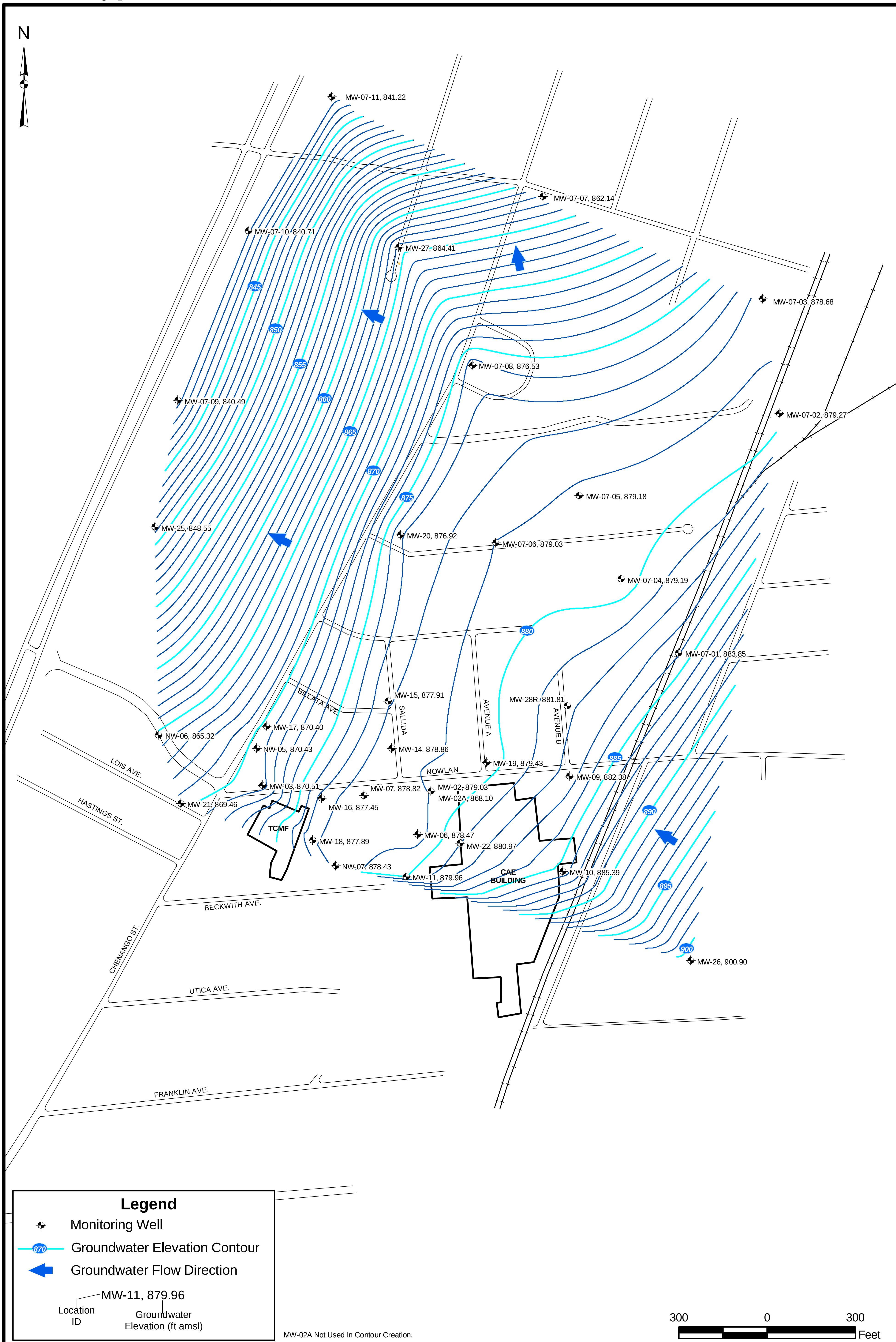
HILLCREST SOURCE AREA INVESTIGATION

GEOLOGIC CROSS SECTIONS

Scale: AS SHOWN | Date: JULY 2008 | **FIGURE 6**

N:\11174227.00000\CAD\FIGURE 6.dwg 1:1 1/8/09 - 2 EJH

N:\11173142.00000\DB\GIS\wgcon_2008-04-07.mxd 8/7/2008 5:15:15 PM Lumb, M



URS

HILLCREST SOURCE CHARACTERIZATION INVESTIGATION
GROUNDWATER ELEVATION CONTOUR MAP
(APRIL 7, 2008)

FIGURE 7A

N:\11173142.00000\DB\GIS\wgcon_2008-07-07.mxd 1/12/2009 11:22:49 AM Lumb, M

N

MW-07-11, 836.14
MW-07-07, 859.99
MW-07-10, 836.12
MW-27, 863.61
MW-07-03, 876.16
MW-07-08, 874.20
MW-07-09, 836.05
MW-07-02, 876.28
MW-07-05, 876.15
MW-25, 846.06
MW-20, 874.15
MW-07-06, 876.18
MW-07-04, 876.18
MW-07-01, Dry
MW-15, 874.53
MW-28R, 878.39
MW-24, 839.73
NW-06, 864.65
MW-17, 869.13
NW-05, 869.12
MW-14, 874.90
MW-19, 876.49
MW-03, 869.10
MW-09, 878.36
MW-21, 868.12
MW-16, 874.13
MW-02, 875.22
MW-07, 874.84
MW-06, 874.67
MW-18, 874.27
MW-22, 876.73
MW-11, 875.39
NW-07, 873.43
MW-10, 881.99
MW-23, 835.26
MW-26, 897.91
MW-04, 879.56
CAE-MW-03, 873.22

840
845
850
855
860
865
870
875
880
885
890
895

BILLATA AVE.
SALLIDA
AVENUE A
AVENUE B
NOWLAN
LOIS AVE.
HASTINGS ST.
BECKWITH AVE.
CHENANGO ST.
UTICA AVE.
FRANKLIN AVE.

TCMF

CAE BUILDING

Legend

- Monitoring Well
- 870 Groundwater Elevation Contour
- Groundwater Flow Direction
- MW-23, 835.26 (Location ID; Groundwater Elevation (ft amsl))

NOTE:
MW-02A and MW-07-01 were not used in contour creation.

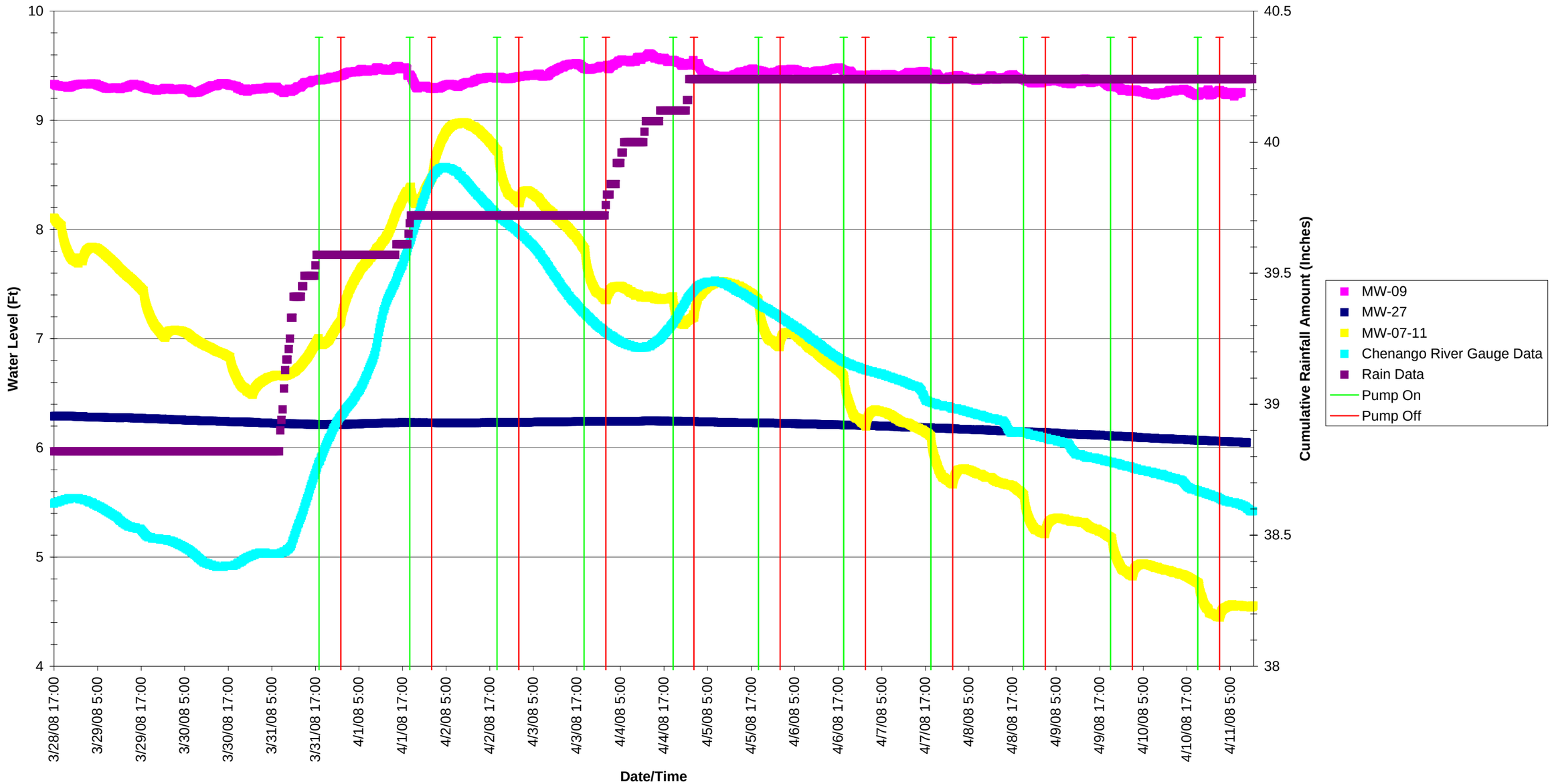
300 0 300 Feet

URS

HILLCREST SOURCE CHARACTERIZATION INVESTIGATION
GROUNDWATER ELEVATION CONTOUR MAP
(JULY 7, 2008)

FIGURE 7B

FIGURE 8
Hillcrest Hydrologic Study Summary



N:\11173142.00000\DB\GIS\2008-geoprobe-SO_Hist.mxd 8/11/2008 9:32:50 AM Lumb, M

N

TOWN OF FENTON
SUPPLY WELLS

GS-17 (15-16'), ND
GS-26 (43-44'), ND
GS-27 (37-38'), ND
GS-08 (30-31'), ND
GS-16 (20-21'), ND
GS-24 (20-21'), ND
GS-19 (24-25'), ND
GS-25 (28-29'), ND
GS-07 (29-30'), ND
GS-23 (27-28'), ND
GS-23 (22-23'), ND
GS-22 (20.5-21.5'), ND
GS-06 (31-32'), ND
GS-06 (28-29'), ND
GS-18 (22-23'), ND
GS-18 (27-28'), ND
GS-04 (23-24'), ND
GS-04 (27-28'), ND
GS-12 (32.5-33.5'), 8.1
GS-12 (37.5-38.5'), ND
GS-03 (24-25'), ND
GS-03 (29-30'), ND
SD-13 (27-28'), 13
GS-14 (28-29'), ND
GS-14 (30-31'), ND
GS-09 (32-33'), ND
GS-09 (35-36'), 25
GS-10 (30-31'), ND
GS-10 (35-36'), ND
GS-02 (27.5-28'), 20
GS-02 (31-32'), 45
SD-15 (32-33'), 14
SD-15 (36-37'), 230
GS-11 (31-32'), 52
GS-11 (35-36'), ND
SD-10 (27-28'), 7
SD-10 (31-32'), 9
SD-07 (35-36'), 6
SD-07 (39-40'), 31
SD-06 (31-32'), 7
SD-06 (35-36'), 2
SD-12 (28-29'), 50
SD-12 (32-33'), 33
GS-01 (30-31'), 48
GS-01 (35-36'), ND
SD-08 (32-33'), 45
SD-08 (36-37'), 47
SD-09 (26-27'), 7
SD-09 (31-32'), 43
SD-11 (32-33'), 28
SD-11 (36-37'), ND
SB-09 (33-33.5'), 31
SD-02 (36-37'), 16
SD-02 (39-40'), 7
SB-02 (30-30.5'), 130
SD-03 (39-40'), 3
SD-03 (43-44'), 12
TCMF
SB-EAST-2 (34-34.5'), 12
SB-22 (35.5-36'), 4
SD-01 (42-43'), 4
SD-01 (46-47'), 640
CAE
BUILDING
SB-11 (32-32.5'), 18
SB-EAST-1 (35.5-36'), 22
GS-20 (51.5-52'), 12
GS-15 (30-31'), ND

Hotchkiss Ave
Alida Ave
Nowlan Rd
Lois St
Hastings St
Beckwith Ave
Utica Ave
Franklin Ave
Cornell Ave
Ronan St
Saluda St
Avenue A
Avenue B
Chenango St

Legend

Fall 2004 Sampling Event TCE Concentrations (ug/kg)	Spring 2008 Sampling Event TCE Concentrations (ug/kg)
ND	ND
< 10	< 10
10 - 50	10 - 50
50 - 100	50 - 100
> 100	> 100

SD-01 (46 - 47'), 640
Location ID | Depth Interval | Concentration (ug/kg)

300 0 300 Feet

URS

NYSDEC HILLCREST - BINGHAMTON, NEW YORK
GEOPROBE SOIL CONCENTRATIONS (SILT UNIT)
TRICHLOROETHENE

FIGURE 9

N:\11173142.00000\DB\GIS\2008-geoprobe-GW_wHistorical.mxd 8/11/2008 10:09:31 AM Lumb, M

N

TOWN OF FENTON SUPPLY WELLS

GS-28 (18-22'), ND
GS-28 (45-50'), ND
GS-17 (8-12'), 8.7
GS-17 (12-16'), 11
GS-17 (16-20'), 12
GS-26 (32-36'), ND
GS-26 (38-43'), ND
GS-27 (34-38'), ND
GS-08 (28-30'), ND
GS-16 (16-20'), ND
GS-24 (16-20'), 6.5
GS-19 (28-32'), ND
GS-25 (25-30'), 7.1
GS-07 (20-24'), ND
GS-07 (25-29'), ND
GS-23 (20-24'), 5.2
GS-23 (24-28'), 13
GS-22 (17-21'), ND
GS-22 (24-28'), ND
GS-06 (20-24'), ND
GS-06 (24-28'), 3
GS-06 (29-33'), 4
GS-05 (21-25'), ND
GS-05 (46-50'), 5.4
GS-18 (18-22'), 9.5
GS-18 (24-28'), ND
GS-04 (19-23'), 4
GS-04 (24-28'), 5.1
GS-12 (24-28'), 24
GS-12 (28.5-32.5'), 32
GS-12 (34-38'), 7.9
GS-03 (20-24'), 4
GS-03 (26-30'), 28
SD-13 (28-32'), 20
GS-14 (24-28'), 9.5
GS-14 (28-32'), 7.9
SD-15 (18-22'), 9
SD-15 (27-31'), 14
SD-15 (33-37'), ND
GS-09 (20-24'), 4
GS-09 (28-32'), 6.4
GS-09 (33-37'), 23
GS-10 (22-26'), 5
GS-10 (26-30'), 4
GS-10 (32-36'), 32
GS-02 (18-22'), 4
GS-02 (23.5-27.5'), 7.8
GS-02 (28-32'), 15
SD-06 (26-30'), 17
SD-06 (32-36'), 26
SD-10 (22-26'), 6
SD-10 (28-32'), 15
SD-12 (23-27'), 3.7
SD-12 (29-33'), 57
GS-11 (20-24'), 3
GS-11 (27-31'), 5.8
GS-11 (32-36'), ND
SD-07 (25-29'), 16
SD-07 (31-35'), 77
SD-07 (36-40'), 100
GS-01 (15-19'), 5
GS-01 (26-30'), 9
GS-01 (32-36'), ND
SD-08 (28-32'), 15
SD-08 (33-37'), 2
SD-09 (21-25'), 19
SD-09 (27-31'), 28
SD-11 (20-24'), 7
SD-11 (27-31'), 14
SD-11 (33-37'), ND
GW-09S (32-33'), 48
GW-09D (37-38'), 210
SD-02 (31-35'), 24
SD-02 (37-41'), 31
GW-02S (29-30'), 11
GW-02D (34-35'), 180
SD-03 (35-37'), 17
SD-03 (39-44'), 220
TCMF
GW-22S (34.5-35.5'), 21
GW-22D (39.5-40.5'), 100
GW-EAST2-S (33-34'), 49
GW-EAST2-D (38-39'), 1
SD-01 (37-41'), 13
SD-01 (43-47'), 120
GW-11S (31-32'), 8.7
GW-11D (36-37'), 28
CAE BUILDING
GW-EAST1-S (34.5-35.5'), ND
GW-EAST1-D (39.5-40.5'), ND
GS-21 (45-50'), ND
GS-20 (24-29'), ND
GS-20 (45-50'), ND
GS-15 (16-20'), ND
GS-15 (26-30'), ND
GS-15 (32-36'), ND
GS-13 (28-32'), ND

Comell Ave
Ronan St
Chenango St
Hotchkiss Ave
Alida Ave
Nowlan Rd
Saluda St
Avenue A
Avenue B
Lois St
Hastings St
Beckwith Ave
Utica Ave
Franklin Ave
Center St
Fenton Ave

Legend

Fall 2004 Sampling Event TCE Concentrations (ug/L)	Spring 2008 Sampling Event TCE Concentrations (ug/L)
ND	ND
< 10	< 10
10 - 50	10 - 50
50 - 100	50 - 100
> 100	> 100

GS-12 (24-28'), 24
Location ID | Depth Interval | Concentration (ug/L)

NOTE:
Orange font indicates sample from the sand and gravel layer.
Black font indicates sample from the silt layer.

300 0 300 Feet

URS

NYSDEC HILLCREST - BINGHAMTON, NEW YORK
GEOPROBE GROUNDWATER CONCENTRATIONS
TRICHLOROETHENE

FIGURE 10

N:\11173142.00000\DB\GIS\2008-combined-GW_ISO.mxd 8/11/2008 10:14:43 AM Lumb, M

N

TOWN OF FENTON SUPPLY WELLS

MW-07-11, ND
MW-07-07, ND
MW-07-10, ND
MW-27, ND
MW-07-03, ND
MW-07-08, ND
MW-07-09, ND
MW-07-02, ND
MW-07-05, ND
MW-25, 15
MW-20, 11
MW-07-06, 15
MW-07-04, 15
MW-07-01, ND
MW-15, 11
MW-28R, ND
MW-17, 51
NW-06, 14
NW-05, 11
MW-14, ND
MW-19, 68
MW-09, ND
MW-03, ND
MW-07, 12
MW-02, ND
MW-02A, 39
MW-21, 11
MW-16, ND
MW-07, 12 UG/L
MW-06, 130
MW-18, ND
MW-22, ND
MW-10, ND
NW-07, ND
MW-11, ND
MW-26, ND

ND
10
20
30
40
50
60

Cornell Ave
Ronan St
Chenango St
Hotchkiss Ave
Alida Ave
Saluda St
Avenue A
Avenue B
Nowlan Rd
Lois St
Hastings St
Beckwith Ave
Utica Ave
Franklin Ave
Center St
Fenton Ave

TCMF

CAE BUILDING

Legend

Isoconcentration Contour

TCE Concentrations (ug/L)

- ND
- < 10
- 10 - 50
- 50 - 100
- > 100

MW-17, 51
Location ID
Concentration (ug/L)

NOTE:
MW-6 was not used in contours, because it is screened entirely in the silt unit.

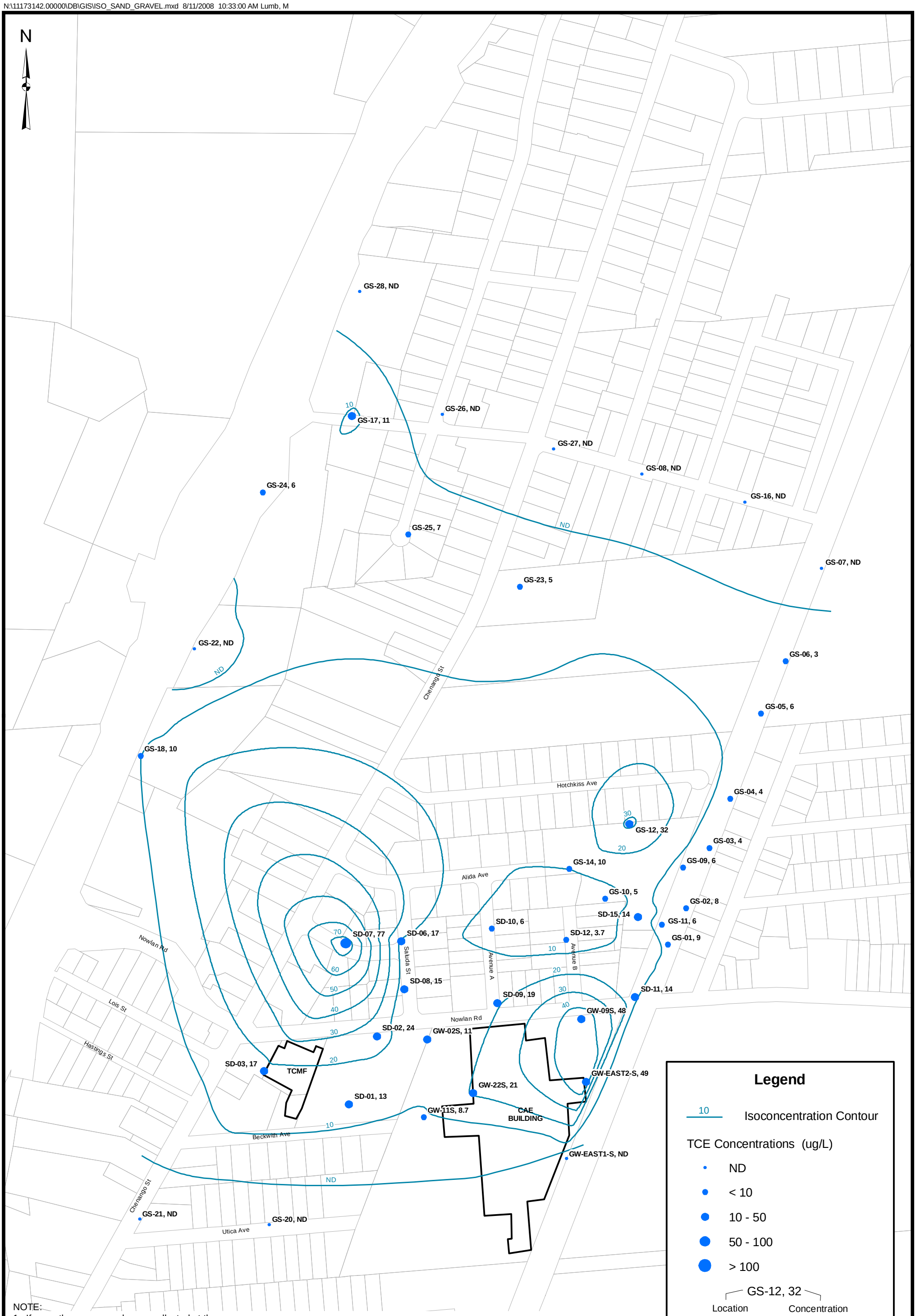
300 0 300 Feet

URS

NYSDEC HILLCREST - BINGHAMTON, NEW YORK
TRICHLOROETHENE ISOCONCENTRATION CONTOURS
MONITORING WELLS - SPRING 2008

FIGURE 11

N:\11173142.00000\DB\GIS\ISO_SAND_GRAVEL.mxd 8/11/2008 10:33:00 AM Lumb, M



NOTE:
1. If more than one sample was collected at the same location the highest value is presented and used.
2. ND = Non Detect

URS

NYSDEC HILLCREST - BINGHAMTON, NEW YORK
TRICHLOROETHENE ISOCONCENTRATION CONTOURS
GEOPROBE GROUNDWATER SAMPLES FROM THE SAND AND GRAVEL UNIT

FIGURE 12

N:\11173142.00000\DB\GIS\ISO_SILT.mxd 8/11/2008 11:38:47 AM Lumb, M

N

GS-17, 12

GS-19, ND

GS-23, 13

GS-22, ND

GS-06, 4

Chenango St

GS-18, ND

ND

20

40

60

80

100

120

140

160

180

200

Hotchkiss Ave

GS-04, 5

GS-12, 8

GS-03, 28

GS-09, 23

SD-13, 20

Alida Ave

GS-14, 8

GS-10, 32

GS-02, 15

SD-15, ND

SD-10, 15

GS-11, ND

SD-07, 100

SD-06, 26

SD-12, 57

GS-01, ND

Nowlan Rd

Saluda St

Avenue A

Avenue B

SD-08, 2

SD-11, ND

SD-09, 28

GW-09D, 210

Lois St

Nowlan Rd

SD-02, 31

GW-02D, 180

Hastings St

SD-03, 220

TCMF

GW-EAST2-D, 1

GW-22D, 100

SD-01, 120

GW-11D, 28

CAE BUILDING

Beckwith Ave

GW-EAST1-D, ND

Chenango St

Utica Ave

GS-15, ND

Franklin Ave

Center St

Fenton Ave

Legend

20 — Isoconcentration Contour

TCE Concentrations (ug/L)

- ND
- < 10
- 10 - 50
- 50 - 100
- > 100

GS-23, 13

Location ID — Concentration (ug/L)

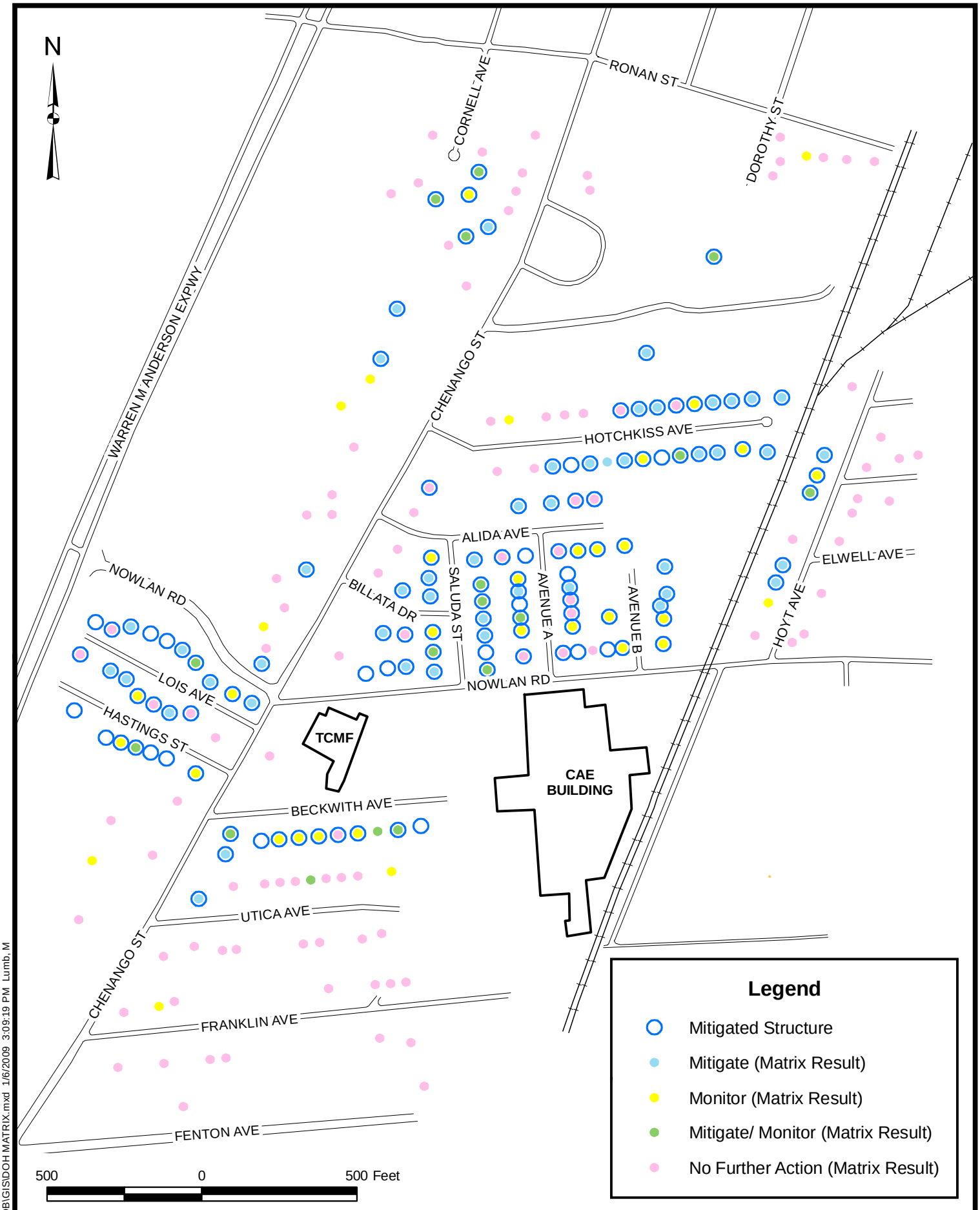
NOTE:
1. If more than one sample was collected at the same location the highest value is presented and used.
2. ND = Non Detect

300 0 300 Feet

URS

NYSDEC HILLCREST - BINGHAMTON, NEW YORK
TRICHLOROETHENE ISOCONCENTRATION CONTOURS
GEOPROBE GROUNDWATER SAMPLES FROM THE SILT UNIT

FIGURE 13



N:\11173142.00000\DB\GIS\DOH MATRIX.mxd 1/6/2009 3:09:19 PM Lumb, M

URS

NYSDEC HILLCREST - BINGHAMTON, NEW YORK
NYSDOH VI ACTION MATRIX DETERMINATION
(BASED ON HIGHEST SAMPLE RESULT)
AND DESIGNATION OF MITIGATED STRUCTURES

FIGURE 14