Groundwater Flow Model

For the RACER Delco Chassis Industrial Land
13000 Eckles Road Site
Livonia, Michigan

RACER Trust

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1. Introduction

On behalf of Revitalizing Auto Communities Environmental Response Trust (RACER), GHD prepared this Report to document the Groundwater Flow Model developed for the Delco Chassis Industrial Land [former General Motors Corporation (GMC)] located at 13000 Eckles Road, in the City of Livonia, Wayne County, Michigan (Site). The model was developed to aid in evaluating alternatives to the existing groundwater collection/treatment operation at the Site. Specifically, RACER is contemplating replacing the groundwater collection/treatment operation with permeable reactive gate(s) (PRG) to treat groundwater with elevated concentrations of nickel and chromium. The groundwater flow model documented in this report forms the basis for subsequent nickel and chromium transport models that will be documented at a later date. The nickel and chromium transport model will be applied to optimize PRG placement.

The Groundwater Flow Model was calibrated to observed steady-state hydrogeologic conditions at the Site. GHD also applied a secondary transient check of model performance. This Report describes the development of the Groundwater Flow Model.

1.1 Background

The Site encompasses approximately 120 acres on the western edge of Livonia, east of Interstate Highway 275 (Hwy 275) and south of Interstate Highway 96 (Hwy 96), approximately 24 miles northwest of the downtown area of the City of Detroit, Michigan. The Site location is presented on Figure 1.1. Environmental activities at the Site are being conducted by GHD under the direction of RACER. RACER was established on March 31, 2011 and assumed the Site pursuant to an Environmental Response Trust Consent Decree and Settlement Agreement ("Settlement Agreement") entered by the U.S. Bankruptcy Court for the Southern District of New York on March 29, 2011, in the case of *In re Motors Liquidation Company, etc. et al.,* Debtors, Case No. 09-50026 (REG), among the Debtors, the United States of America, certain states including the State of Michigan, the Saint Regis Mohawk Tribe, and EPLET, LLC (not individually but solely in its representative capacity as Administrative Trustee of the Trust). An approximate 101-acre portion of the property was sold to Livonia West Commerce Center, LLC on August 18, 2015. RACER retains ownership of the approximate 19-acre southwest corner of the Site. Historically, the Site was used for the fabrication of coil springs, bumpers, and strut assemblies for vehicles from the Site's development in 1953/1954 to approximately July 2000. During the Site's operation, chrome plating was performed in the chrome plating area (Plating Line) in the southwest corner of the Site as presented on Figure 1.2. Following the cessation of operations at the Site in 2000, all Site structures except the groundwater collection/treatment operation buildings on the southwest corner of the Site were environmentally decommissioned and demolished. The spring and bumper plant and powerhouse were steel-framed structures with basement areas. Underneath the Coil Spring Building was a basement as well as the Pedestrian Clock Tunnel, which employees would use to enter and exit the adjacent parking lot that occupied the area where the Coil Spring Building was constructed. The remaining buildings were steel-framed structures with concrete slab-on-grade floors. Former building concrete floor slabs remain in place, with the exception of the Marshalling Building slab that has been removed.

RACER is currently implementing performance-based Resource Conservation and Recovery Act (RCRA) Corrective Action at the Site pursuant to an October 16, 2001 RCRA Corrective Action Agreement between the United States Environmental Protection Agency (U.S. EPA) and GMC, and subsequent Administrative Order on Consents, the most recent being executed September 29, 2011 between U.S. EPA and RACER. For the Purpose of the RCRA Corrective Action and discussion, the former Waste Water Treatment Plant (WWTP) [Area of Interest (AOI) 1], the Stormwater Clarifier (AOI 3), the Old Nickel Bright Tank (AOI 14), Waste Sump Under Plating Line (AOI 15), French Drain Collection System (AOI 18), and Plating Line (AOI 20) have all been grouped into a zone referred to as Area 1 due to their proximity and similar environmental conditions.

The French Drain Collection System, a groundwater collection/treatment operation, is located in the southwest corner of the Site and collects groundwater impacted by the historical chrome plating operations through a French drain system that was installed at an approximate elevation of 685 feet above mean sea level (AMSL). Groundwater is collected and treated by pH adjustment, addition of sodium bisulfate, lime, a polymer flocculent, followed by a gravity settling, and then batch discharged to the Great Lakes Water Authority (GLWA). No other activities are currently conducted at the Site.

Between October 2004 and December 2004 a 4,700-foot barrier wall, 2.5 feet thick, was installed surrounding Area 1, consisting of soil-bentonite with limited areas of jet grouting. The barrier wall was designed to contain groundwater with elevated concentrations of nickel and hexavalent chromium, and was intended to supplement the French Drain Collection System, which GMC had installed in 1980 to 1981 to address migration of groundwater from the Plating Line area. Pumping from the French Drain Collection System has been ongoing since the barrier wall was installed.

RACER currently is considering alternatives to the existing interim measures operating at the Site to reduce operational costs. Specifically, RACER is considering in-situ chemical reduction (ISCR) to treat the nickel and chromium plumes and replacing the operation of the French Drain Collection System with PRG(s) that would be installed on the downgradient side of the barrier wall to treat groundwater with elevated concentrations of nickel and chromium. The proposed PRG media will consist of a mixture of granular zero valent iron (ZVI) and background sands.

1.2 Purpose

On behalf of RACER, GHD has prepared this report to document the Groundwater Flow Model developed for the Site. The model was developed to represent the existing hydrologic, geologic, and hydrogeologic conditions observed at the Site and surrounding area.

1.3 Scope of Work

The groundwater flow model was constructed based on the Site-specific and available regional hydrogeologic data including surface water features, topography, water well records, and geological information.

The scope of work completed by GHD to develop the Groundwater Flow Model included the following:

- Review the available Site and regional hydrologic, geologic, and hydrogeologic data
- Development of a conceptual hydrogeologic model for the Site and surrounding area based on the available regional and Site-specific information
- Construction of a two-dimensional (2D) numerical groundwater flow model to represent the existing Site conditions based on the conceptual hydrogeologic model
- Calibration of the groundwater flow model under steady-state conditions to the groundwater elevations and groundwater flow directions observed in the overburden at the Site prior to the installation of the barrier wall surrounding Area 1 (i.e., August 21, 2003)
- Compared groundwater displacement in the groundwater flow model under transient conditions to observed groundwater displacement following a March 2014 French Drain Collection System shutdown (i.e., after the installation of the barrier wall surrounding Area 1) as a secondary check to ensure that the hydraulic conductivity in Area 1 applied in the calibrated Groundwater Flow Model can reasonably represent flow conditions
- Documentation of the Groundwater Flow Model development

Stated more generally, the Groundwater Flow Model was calibrated to provide a reasonable representation of groundwater elevations and groundwater flow directions observed at the Site.

1.4 Report Organization

This report is organized as follows:

1. **Section 1 – Introduction:** Presents the introduction, purpose, and scope of the hydrogeologic modeling conducted for the Site.
2. **Section 2 – Summary of Hydrologic, Geologic, and Hydrogeologic Conditions:** Presents a summary of the observed regional and Site hydrologic, geologic, and hydrogeologic conditions.
3. **Section 3 – Conceptual Hydrogeologic Model:** Presents the conceptual hydrogeologic model developed for the Site that forms the basis for the construction of the numerical groundwater flow model.
4. **Section 4 – Simulation Program Selection:** Presents a description of the simulation programs selected to conduct the hydrogeologic modeling.
5. **Section 5 – Groundwater Flow Model Construction:** Presents the details regarding the construction of the numerical groundwater flow model for the existing conditions at the Site.
6. **Section 6 – Groundwater Flow Model Calibration:** Presents the calibration of the numerical groundwater flow model to steady-state conditions and provides a check of the hydraulic conductivity in Area 1 through a comparison of the simulated and observed groundwater displacement following a 9 day shut-down of the French Drain Collection System in March 2014.
7. **Section 7 – Summary and Conclusions:** Presents a summary of the hydrogeologic modeling conducted for the Site and the conclusions obtained.
8. **Section 8 – References:** Lists the references cited in this Report.

2. Summary of Hydrologic, Geologic, and Hydrogeologic Conditions

The regional and Site hydrologic, geologic, and hydrogeologic conditions were evaluated for the development of the 2D Groundwater Flow Model. The details of the regional and Site hydrologic, geologic, and hydrogeologic conditions are presented in the "Hydrogeologic Study" (Techna, 1997) and "Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report" (Conestoga-Rovers & Associates [CRA], 2005a) (RFI) and are briefly summarized below.

2.1 Hydrologic Conditions

The hydrologic conditions of the Site are affected by regional physiography that is affected in part by glacial land systems, topography, and surface water features. Each of these features is illustrated on Figure 2.1. The regional study area is framed with a purple border on each of the plots on Figure 2.1. On each of the bottom three panels of Figure 2.1, representing Michigan glacial land systems, ground surface elevation, and surface water features, respectively, the major water bodies of Lake St. Claire and Lake Erie are identified with a blue backward slashing. The following sections provide brief overviews of regional physiography, topography, and surface water features.

Physiography

Physiographic regions are areas that have common landforms and geological history. They are divided into units of major divisions, provinces, and sections (Fenneman, 1917). The Site is situated within the Eastern Lake Section of the Central Lowland Physiographic Province in the Interior Plains Division. The Eastern Lake Section is identified with a pink fill in the upper left image on Figure 2.1. The Eastern Lake Section encompasses Michigan completely and includes minor regions in Ohio, Indiana, Illinois, and Wisconsin. The Eastern Lake Section is bordered to the north and east by Lakes Superior, Michigan, Huron, St. Claire, and Erie.

The bottom left panel of Figure 2.1 illustrates the glacial land systems that define the physiography in the area. The land surface near the Site is a nearly featureless lake plane composed of coarse-textured lacustrine sediments. Fine-textured lacustrine sediments surround much of the coarse-textured sediments in the regional study area. The coarse and fine-textured lacustrine sediments are colored yellow and light blue on the bottom left panel of Figure 2.1. Near the Site, the coarse sediments are typically well drained and have low to very low runoff (USDA/NRCS, 2017).

Topography

Topography in the regional study area is illustrated in the bottom middle panel on Figure 2.1. The National Elevation Dataset (NED) data formed the basis for the illustrated topography. Data contained in the NED has been derived predominantly from the U.S. Geological Survey's (USGS's) Digital Elevation Model (DEM) with supplemental information from high quality remote sensing technology sources including Light Detection and Ranging (LIDAR), Interferometric Synthetic Aperture Radar (IFSAR), and digital photogrammatic processes. The topography of the regional study area was reviewed from a portion of the NED covering the regional study area at 30-meter (98.4-foot) resolution. Ground surface elevation contours in the bottom middle panel of Figure 2.1

are assigned every 50 feet above mean sea level (AMSL) and are colored from light green, representing lower ground surface elevations, to light brown, representing higher ground surface elevations.

The Site, depicted by a magenta symbol, is situated on a relatively flat surface that dips to the east towards Lake St. Claire and Lake Erie. Figure 2.2 shows ground surface elevations near the Site. Ground surface elevations depicted on Figure 2.2 are based on a portion of the NED covering the Livonia, Michigan area at 1/3 arc second resolution. Ground surface elevation in the Site area ranges from 705 feet to 665 feet AMSL. The Site is situated on a relatively flat surface that gently dips radially to the east and south where relief increases substantially in the vicinity of Newburgh Lake.

Surface Water Features

The most significant surface water body in the area of the Site is Newburgh Lake, which is located at its nearest point approximately 1,900 feet south of the Site. The location of Newburgh Lake, relative to the Site is illustrated on Figure 2.2. Newburgh Lake is presented as an inland lake feature on the bottom right panel of Figure 2.1. Newburgh Lake is a shallow man-made multiple-use storage reservoir (U.S. Department of Agriculture [USDA], 1969) with a surface elevation of 659.3 feet AMSL (O'Meara et al., 1999) and is located on the Middle Rouge River. The section of Middle Rouge River near the Site is identified on the bottom right panel of Figure 2.1 with a heavy-weighted blue line. Gunn Branch Creek and an unidentified wetland were historically located on the property to the north of the Site. There are several ephemeral drainage ditches located on the eastern portion of the Site that retain water only during extreme precipitation events.

The nearest Rouge River Discharge Gauge Station, USGS 04167000, is located approximately 7 miles downriver near Garden City and represents a drainage area approximately 99.9 square miles (miles^2) in size. During the 15-year interval between 2002 and 2017, the recorded discharge at USGS Station 04167000 ranged from 15 cubic feet per second (feet^3/s) to 2,590 feet^3/s, often in response to seasonality and the corresponding changes to precipitation, evaporation, and transpiration rates. The average daily Middle Rouge River discharge rates recorded at Station 04167000 are presented on Figure 2.3 alongside the precipitation levels recorded at the Detroit Metropolitan Airport (National Climatic Data Center [NCDC], 2017). The Middle Rouge River is part of a set of tributaries that drain to the Detroit River, which then drains into Lake Erie approximately 40 miles southeast of the Site.

2.2 Geologic Conditions

Regional Overburden Geology

The bedrock of Wayne County is covered with glacial materials that were deposited on glacial lake bottoms leaving lacustrine plains (as illustrated on the bottom-left panel on Figure 2.1) as the glacial lakes receded following the retreat of glacial ice lobes to the southeast. These lacustrine plains are common throughout southeastern Michigan, particularly in Wayne County.

The glacial drift thickness in the vicinity of the Site is in the range of 51 feet to 200 feet as identified in the Western Michigan University (WMU) Hydrogeologic Atlas of Michigan Map "Map of Glacial Drift Thickness" (Rieck, 1981). The overburden for the majority of Wayne County, including the area

of the Site, consists of a relatively thin silty sand unit, which overlies a regional lacustrine clay unit. The silty sand unit ranges in elevation from approximately 640 feet AMSL at its western margin to approximately 620 feet AMSL at its eastern margin.

Beneath the silty sand unit is a clay unit, which is present regionally over all of Wayne County. A characteristic of this unit includes medium bluish-gray clay that supports well rounded to subangular pebbles and cobbles. A discontinuous sand, gravel, and cobble layer is present in some locations beneath the clay unit and overlies the bedrock (Clayton Environmental Consultants, 1996).

Site Overburden Geology

Numerous soil borings and monitoring wells have been completed at the Site as part of the RFI sampling program (CRA, 2005) and historical investigations completed by various environmental consulting firms. A summary of historical soil borings and monitoring wells are presented in the Current Conditions Report (CCR) (CRA, 2002) and the stratigraphic and instrumentation logs from the soil borings and monitoring wells completed for the RFI are presented in Appendix A. Geologic data from these soil borings and monitoring wells were used to determine the Site overburden geology and hydrogeology.

The surficial glacial deposits in the Site area generally consist of a fine- to medium-grained sand of approximately 20 to 30 feet in thickness underlain by a continuous clay layer (clay aquitard). Geotechnical laboratory testing was performed on numerous granular soil samples throughout the Site as part of the RFI, which indicated that the upper sands were predominantly fine- and medium-grained sands with trace silts and clays and an average bulk density of approximately 1.9 kilograms per liter (kg/L). Figure 2.4 presents a distribution of soil materials based on textual descriptions presented in borehole logs. Based on descriptions of the overburden materials, it appears that the coarser-grained sands are distributed predominantly throughout the northeastern portion of the Site property whereas the overburden observed in the southwestern portion of the Site is predominantly characterized as silty sand. Some wells along the western property line also exhibit coarser-grained sand profiles. Laboratory testing of the deeper clay aquitard samples collected from opposite corners of the Site indicate that the permeability of the continuous clay aquitard beneath the Site is on the order of 1.55×10^{-8} centimeters per second (cm/s) (4.4×10^{-5} feet per day [feet/day]). Continuous sampling was conducted to 25 feet below the top of the clay aquitard at these four locations, which showed no evidence of interbedded granular soils within the aquitard.

Three geologic cross-sections (Cross-Sections A-A', B-B', and C-C') were developed based on the observed subsurface conditions. The cross-section locations are presented of Figure 2.5 and Cross-Sections A-A', B-B', and C-C' are presented on Figures 2.6, 2.7, and 2.8, respectively. The cross-sections illustrate that, vertically, there is little stratification in the overburden above the clay aquitard. As described in the stratigraphic and instrumentation logs portrayed on the cross-sections, the sand unit is typically poorly graded and sparsely interbedded with lenses of silty sand and occasionally coarse sand and gravel to a depth of 20 to 30 feet below ground surface (bgs). A thin silty to silty sand unit is present at the base of the sand unit in some areas of the Site. As indicated on Cross-Section C-C' (Figure 2.8), the silty sands and sandy silts become more predominant off-Site to the southeast. Based on information from the RFI, the clay aquitard layer underlying the glacial sand deposit is greater than 25 feet thick and is a laterally extensive unit that is present

beneath the entire Site. Based on water well logs and regional data, the clay aquitard beneath the Site is approximately 50 feet thick. Figure 2.8 illustrates that there is a general drop in elevation of the top of the clay aquitard layer that appears to coincide with the decreasing elevation of the ground surface. Figures 2.6 and 2.7 show relatively flat relief in the top of the clay aquitard layer along Cross-Sections A-A' and B-B', which coincides with the flat relief of ground surface along the alignment of these cross-sections.

Regional Bedrock Geology

The bedrock of Wayne County is comprised of evaporites, carbonates, and clastics that are Paleozoic in age from the Devonian period. These evaporites, carbonates, and clastics were formed in the Michigan Basin, which had developed by late Silurian time. The topography of the bedrock surface for Wayne County is in the range of 400 feet AMSL to 650 feet AMSL.

Immediately beneath the glacial overburden of Wayne County are three primary bedrock formations. The lowest unit is the Dundee Limestone Formation, which underlies the southeastern and eastern portions of Wayne County. The Dundee Limestone Formation is a fossiliferous limestone, increasing in thickness from 150 feet in the western half of the Michigan Basin to 350 feet near the east-central portion of the Michigan Basin.

The Traverse Group, consisting of Rogers City Limestone and Bell Shale, lies on top of the Dundee Limestone Formation and covers a portion of Wayne County running in a southwestern to northeastern direction. The Traverse Group includes a thick sequence of alternating shales and limestones that range in thickness from 100 feet to 180 feet. The shales of the Traverse Group are not aquifers and can be highly restrictive to groundwater flow, whereas the limestone units can be karstic and capable of supplying large volumes of groundwater.

The uppermost bedrock covering the northwestern portion of Wayne County is that of the Antrim Shale Formation. The Antrim Shale is comprised of hard, dark gray to black or brown, pyritiferous shale that contains abundant silt, restricting the flow of groundwater across this layer (i.e., the Antrim Shale is a confining unit). The Antrim Shale ranges in thickness from 0 feet to 100 feet in Wayne County. The shale unit is generally too impermeable to be an aquifer and the abundance of pyrite restricts its water quality for use as a potable water supply.

Site Bedrock Geology

Based on water well logs and regional data, the clay aquitard is underlain by interbedded gravel, boulders, sands, and clays to approximately 145 feet bgs, to the top of the Antrim Shale bedrock. The Antrim Shale is comprised of hard, dark gray to black or brown, pyritiferous shale that contains abundant silt making it a confining layer. The shale is generally too impermeable to be an aquifer and the abundance of pyrite restricts its water quality for use as a potable water supply.

2.3 Hydrogeologic Conditions

Regional Hydrogeology

As described in Section 2.4, the glacial overburden of Wayne County consists of lacustrine deposits comprised of silt and clay and may be up to 50 feet thick with low relief. Lacustrine sediments have

low permeability and porosity and do not yield large quantities of water. Lake beds may contain isolated sands and are therefore sometimes able to meet localized water needs.

The groundwater within the upper silty sand unit is unconfined and is found generally from 8 to 12 feet bgs. The hydraulic conductivity values for this unit range between 1×10^{-6} cm/s (2.8×10^{-3} feet/day) and 1×10^{-2} cm/s (28.3 feet/day) (Clayton Environmental Consultants, 1996). Groundwater in this unit is generally discontinuous or intermittent in nature and not present in large volumes. Groundwater flow within this unit is generally in an east-southeast direction following regional topography and hydrology towards the Detroit River.

Site Hydrogeology

Historical soil and groundwater investigations indicate groundwater at the Site is present within the fine to medium-grained surficial sand unit (shallow water-bearing unit). This shallow water-bearing unit has an average saturated thickness of 15 feet. The depth to groundwater is generally 8 to 12 feet bgs although it was identified up to 3.5 feet bgs in a slightly depressed area in the northwest portion of the Site and down to 14 feet bgs in the southeast corner of the Site (in AOI 31) and 15.5 feet bgs at the southwest corner (in Area 1 near the French Drain Collection System). Aquifer testing has been performed at the Site through both slug testing and pump testing at specified wells. The locations and calculated hydraulic conductivities of the shallow water-bearing unit based on the aquifer testing results are presented on Figure 2.9. The range of hydraulic conductivity values presented on Figure 2.9 spans from 1×10^{-3} cm/s (3 feet/day) to 4×10^{-2} cm/s (116 feet/day) and is a range that is consistent with values for fine to coarse-grained sands (Bear et al., 1968) and is on the higher end of the range for soils observed regionally in the upper lacustrine sediments (Clayton Environmental Consultants, 1996).

A groundwater elevation contour map for August 21, 2003 prior to the installation of the barrier wall surrounding Area 1[1] is presented as Figure 2.10 based on groundwater elevation measurements from Table 2.1. Table 2.1 also includes well construction details for Site area wells. Based on the groundwater elevation contours on Figure 2.10 groundwater flows radially across the Site to the south and southeast. The southward flow is influenced by both the French Drain Collection System in the southwest corner of Area 1 and by topographic relief, which also dips radially towards Newburgh Lake to the south and more regionally towards the southeast. As illustrated on Figure 2.10 one monitoring well, MW-22-1S, exhibits anomalous groundwater elevations compared to the groundwater elevations at neighboring wells. The reason for this anomaly is unknown.

As described in Section 1.1, a barrier wall was installed surrounding Area 1, enclosing approximately 6 hectares of land, to contain groundwater that had elevated concentrations of nickel and hexavalent chromium. The barrier wall alignment is presented on Figure 2.11. The barrier wall consists of soil-bentonite slurry approximately 2.5 feet thick with depths varying between 20 feet to 30 feet bgs. The barrier wall is keyed into the underlying clay aquitard layer. Where obstructions

[1] There are more recent groundwater elevation monitoring events than the August 21, 2003 monitoring event. However, this data set was selected to represent the groundwater flow system throughout the model domain prior to installing the barrier wall for the purpose of developing a groundwater flow model that represents these general flow conditions. Groundwater flow under barrier wall conditions were evaluated as part of the groundwater flow model using a transient model secondary check as discussed in Section 6.4. This transient secondary check represents a rigorous evaluation of the groundwater flow system after the installation of the barrier wall.

were encountered in limited areas, the soil-bentonite slurry wall was supplemented with a jet-grouted barrier wall using a mixture of attapulgite clay, metallurgical slag cement, and ground lime (Impermix), as shown on Figure 2.11. Collectively, the soil-bentonite slurry wall and the jet-grouted barrier wall are referred to as the barrier wall. Some of the obstructions that were encountered during the installation of the barrier wall were associated with the presence of underground utilities and subterranean structures that remain at the Site, including basement structures. The jet-grouting was used to fill voids and cavities in the vicinity of the obstructions in order to obtain a competent seal of the barrier wall surrounding Area 1. Based on laboratory testing of the permeability of the soil-bentonite slurry obtained from 9 sections of the barrier wall, the geometric mean hydraulic conductivity of the barrier wall is 2×10^{-8} cm/s (7×10^{-5} feet/day) and the jet-grouted sections were estimated to have a hydraulic conductivity of 1×10^{-7} cm/s (3×10^{-4} feet/day) (CRA, 2006).

Following the installation of the barrier wall a series of paired piezometers was installed in 2005, each with one member of the pair installed inside the barrier wall and the other member installed outside the barrier wall. These pairs included the following piezometers:

- PZ-SW-2 (inside) and PZ-SW-1 (outside): Situated along the northern side of the barrier wall
- PZ-SW-4 (inside) and PZ-SW-3 (outside): Situated in the northeast corner along the east side of the barrier wall
- PZ-SW-6 (inside) and PZ-SW-5 (outside): Situated near the southeast corner along the east side of the barrier wall
- PZ-SW-8 (inside) and PZ-SW-7 (outside): Situated near the southeast corner along the south side of the barrier wall
- PZ-SW-9 (inside) and PZ-SW-10 (outside): Situated along the south side of the barrier wall near the French Drain Collection System
- PZ-SW-12 (inside) and PZ-SW-11 (outside): Situated along the west side of the barrier wall

The locations of the paired piezometers are presented on Figure 2.11. Groundwater elevation monitoring results at the piezometer locations indicate that an inward gradient across the barrier wall has not been achieved at three of the pairing locations (PZ-SW-3 and PZ-SW-4; PZ-SW-5 and PZ-SW-6; and PZ-SW-7 and PZ-SW-8). In 2007, pumping tests were conducted to investigate the competency of the barrier wall at each of these three piezometer pairs. The piezometer inside the barrier wall was pumped at a constant rate for a period of time, after which the pump was turned off and the water level was allowed to recover. During the pumping and recovery periods, the water levels in the pumped piezometer and surrounding monitoring wells and piezometers were monitored continuously with pressure transducers to identify drawdown/recovery influences, if any. There was no response observed in PZ-SW-4, PZ-SW-5, and PZ-SW-7 to the PZ-SW-3, PZ-SW-6, and PZ-SW-8 pumping tests, respectively (CRA, 2007).

Groundwater Recharge and Discharge

Groundwater in the Site area primarily receives recharge from precipitation at a reported annual rate of 31 inches per year (in/yr) based on 1981-2010 climatic normal (NCDC, 2013). Where ground surfaces are covered by concrete slabs, much of the precipitation will disperse to the edges and

infiltrate into the ground there. The high hydraulic conductivity calculated for the shallow fine and medium-grained sands would transmit recharged water rapidly such that little mounding in the water table would occur.

The low permeability 50-foot thick clay aquitard layer that underlies the Site described in Section 2.4 restricts upward vertical leakage. This stratigraphic unit is considered the bottom of the study area.

Groundwater in the Site area discharges to Newburgh Lake, to the French Drain Collection System, and to downgradient areas to the east and southeast as lateral flow. Between January 2013 and November 2016 after installation of the barrier wall and groundwater withdrawal reached equilibrium, pumping from the French Drain Collection System has averaged approximately 13 gallons per minute (GPM). In June 2016 GHD installed a new flow meter/totalizer for the French Drain Collection system. The older and newer totalizers continue to record total flow simultaneously. Figure 2.12 shows a comparison of the old and new French Drain Collection System pumping rates. The left panel of Figure 2.12 is a scatter plot of old totalizer flow rates versus new totalizer flow rates. A line of exact match overlays the plot. The left panel of Figure 2.12 shows that the new totalizer records a generally higher rate than the older totalizer. The average difference between flow recorded by the newer totalizer and flow recorded by the older totalizer is 1.2 GPM as depicted by the histogram of differences between new and old totalizer flow rates on the right panel of Figure 2.12.

3. Conceptual Hydrogeologic Model

Development of the conceptual hydrogeologic model involves the selection of the model domain, stratigraphic representation, and boundary conditions taking into consideration the observed Site and regional hydrogeologic conditions. The conceptual hydrogeologic model then forms the basis for constructing the numerical groundwater flow model for the Site.

Understanding the general hydrogeologic characteristics of the groundwater flow system for the Site is fundamental to developing a representative conceptual hydrogeologic model, and guides the development of the groundwater flow model. Based on the available regional and Site-specific information, the hydrogeologic characteristics are briefly summarized as follows:

- Both ground surface elevation and the top surface elevation of the underlying clay aquitard unit dip gently to the south toward Newburgh Lake and to the east.
- Groundwater flows towards the east and south and appears to be strongly influenced by the topographic relief of the clay aquitard unit and the gradient imposed by the French Drain Collection System.
- Much of the overburden is fine- and medium-grained sands with relatively high hydraulic conductivity values that range from 1×10^{-3} cm/s (3 feet/day) to 4×10^{-2} cm/s (116 feet/day).
- Borehole log descriptions of the overburden material tend to describe silty sands in the southwest portion of the Site and sands in the northeastern portion of the Site.
- The underlying clay aquitard unit is very restrictive to groundwater flow as estimated by the laboratory-measured hydraulic conductivity.

- Numerous subsurface structures that remain following Site demolition; which includes the press pit basement, pits, trenches, and basements; locally may influence the groundwater flow regime.
- Following the installation of the barrier wall, groundwater elevations measured in three sets of paired piezometers (one member of the pair inside the barrier wall and the other member outside the barrier wall) indicated higher groundwater elevations on the inside of the barrier wall than on the outside at the northeast corner (PZ-SW-3 and PZ-SW-4), east side of the southeast corner (PZ-SW-5 and PZ-SW-6), and southern side of the southeast corner (PZ-SW-7 and PZ-SW-8).
- Following the installation of the barrier wall, groundwater elevations measured in three sets of paired piezometers (one member of the pair inside the barrier wall and the other member outside the barrier wall) indicated higher groundwater elevations on the inside of the barrier wall than on the outside at the northeast corner (PZ-SW-3 and PZ-SW-4), east side of the southeast corner (PZ-SW-5 and PZ-SW-6), and southern side of the southeast corner (PZ-SW-7 and PZ-SW-8).
- Groundwater is withdrawn from the French Drain Collection System at rates that since installation of the barrier wall and since withdrawal has reached equilibrium have averaged approximately 13 GPM.
- Groundwater is recharged through precipitation infiltration in the more permeable shallow fine and medium-grained sands.
- Much of the precipitation landing on the impermeable concrete slabs that remain on the Site will disperse to the edges and infiltrate into the ground there.
- Once infiltration water has reached the water table it will be transmitted relatively rapidly throughout the highly permeable fine and medium-grained sands and groundwater mounding and depressions due to ground surface coverings will likely be minimized.
- In addition to the French Drain Collection System, groundwater discharges to Newburgh Lake and to downgradient areas to the east and southeast as lateral flow.

4. Simulation Program Selection

The simulation program selection for the Site hydrogeologic modeling was based on the following considerations:

- The ability of the program to represent the key components of the conceptual hydrogeologic model
- The demonstrated verification that the program correctly represents the hydrogeologic processes being considered
- The proven acceptance of the program by regulatory agencies and the scientific/engineering community

4.1 Groundwater Flow Model

MODFLOW-2005 (Harbaugh, 2005), developed by the USGS, is capable of simulating steady-state or transient groundwater flow in two or three dimensions. MODFLOW-2005 uses the finite-difference method leading to a numerical approximation that allows for a description and solution of complex groundwater flow problems. A rectangular grid was superimposed over the study area to subdivide horizontally the region of interest into a number of rectangular cells. A single layer was used to represent the common hydrogeologic properties that are observed throughout the vertical profile. The groundwater flow equation was formulated as a differential water balance for every model cell and hydraulic head is solved at the center of every model cell. MODFLOW-2005 allows for the specification of flows associated with wells, area-averaged groundwater recharge, rivers, drains, streams, and other groundwater sources/sinks.

MODFLOW-2005 (Harbaugh, 2005) was selected to simulate groundwater flow for this modeling study. MODFLOW-2005 is an update to the original MODFLOW (McDonald and Harbaugh, 1988). MODFLOW has been extensively verified and readily accepted by many regulatory agencies throughout North America and Europe. MODFLOW-2005 is capable of representing the hydrogeologic components included in the conceptual hydrogeologic model for the Site.

To obtain a simulated groundwater flow field within the model domain, the solution to the groundwater flow equation was obtained using a numerical solver with specified convergence criteria. The Geometric Multigrid Solver (GMG) (Wilson and Naff, 2004) matrix solution method included in MODFLOW-2005 was employed to solve the groundwater flow equation. For convergence, the solution technique requires the satisfaction of both hydraulic head change and flow residual criteria providing a rigorous and reliable simulated water balance throughout the model domain.

4.2 Parameter Estimation

The calibration of the groundwater flow model was aided through the use of the parameter estimation program PEST, which is an acronym for Parameter Estimation) (Watermark Numerical Computing, 2016). PEST is a model-independent parameter estimator that has become a groundwater industry standard for groundwater model calibration. It has a powerful inversion engine, which provides the ability to set bounds on model input parameters such as hydraulic conductivity and groundwater recharge. PEST serves to convey input parameters at variable values within their bounds collectively to MODFLOW-2005 for the purpose of establishing optimal input parameter values for the specific groundwater model under development. For each run of input parameters, PEST calculates objective function values (OFV) at model observation points or cells. OFVs represent the error of calculated versus observed groundwater target values (i.e., groundwater elevations or groundwater displacement). Of the numerous runs, PEST selects the run that exhibits the lowest overall OFVs as the optimal solution.

4.3 Graphical User Interface

The graphical user interface (GUI) Groundwater Vistas (Rumbaugh, 2011) was employed as the interface between the assembled hydrogeologic data and the required MODFLOW-2005/PEST input files. The GUI also provides pre-processing and post-processing of MODFLOW-2005/PEST input/output files.

5. Groundwater Flow Model Construction

The construction of the numerical groundwater flow model is the process of developing the horizontal and vertical discretization of the selected model domain, the specification of hydraulic properties, and implementation of boundary conditions consistent with the conceptual hydrogeologic model. The model construction in relation to these aspects of the groundwater flow model is presented in the following sections.

5.1 Groundwater Flow Model Spatial Domain and Discretization

The model domain should extend to where reasonably defensible boundary conditions can be established. Model domain limits, and the associated boundary conditions, should be based on regional-scale natural hydrogeologic features where possible. Boundary conditions must be selected to minimize potentially incorrect bias to the model predictions within the area of interest in the interior of the model domain[2].

The selected model domain for this modeling study is presented on Figure 5.1. It extends 6,980 feet in the east-west direction and 7,260 feet in the north-south direction. The model domain is oriented with its vertical and horizontal axes aligned north-south and east-west to align the average observed groundwater flow directions in the Site vicinity, which flow radially to the south towards Newburgh Lake and to the east. Aligning the model domain with the primary flow directions aids in minimizing potential numerical dispersion in subsequent contaminant transport simulations.

A rectangular finite-difference grid was extended over the groundwater flow model domain. Details of the finite difference grid are illustrated on Figure 5.2. Horizontally, the model domain is discretized into rows and columns. A minimum finite-difference grid spacing of 0.5 feet by 0.5 feet was applied over the entire perimeter of Area 1 to represent the barrier wall. Within Area 1 the maximum finite-difference grid spacing is 10 feet by 10 feet to provide sufficient resolution to subsequent contaminant transport simulations. The grid spacing was progressively increased outside the area of interest towards the model domain limits to a maximum grid spacing of 200 feet by 200 feet. The cell spacing was increased by no more than 1.5 times between adjacent model cells. Horizontally, the model domain is discretized into 556 rows and 529 columns.

[2] For example, specifying a constant head boundary condition located in close proximity to a pumping well when there is no physical basis to do so, such as the absence of a major river or other surface water body nearby, could supply an unlimited amount of water to the well introducing a reduced effect (i.e., a potentially incorrect bias) of the pumping on the simulated groundwater flow field.

Vertically, the model domain extends from ground surface to the top of the clay aquitard unit at its deepest point in the southeast corner of the model domain. The vertical model domain is represented vertically by a single model layer that ranges in thickness from 21 feet to 33.7 feet. There are a total of 294,124 model cells, of which 247,781 are active for flow.

Inactive areas of the model domain, depicted by grey back-slashed no-flow cells on Figure 5.1 define the limits of the active groundwater flow represented within the model domain. The active model domain limits are described below in general terms.

- **North**: The horizontal limit of the active model domain to the north extends approximately 1,700 feet north of the property. Groundwater flow in this area is from east to west. A no-flow boundary was applied to represent flow line boundaries in this area.
- **East**: The horizontal limit of the active model domain is located approximately 2,100 feet east of the Site. The eastern extent is represented by a linearly variable constant head boundary condition to reflect the underflow that discharges to downgradient locations.
- **South**: The natural boundary condition to the south is Newburgh Lake. Newburgh Lake is located approximately 1,700 feet and 2,900 feet south of the Site. However, to improve numerical convergence of the finite-difference flow equation near the high topographic relief zone near Newburgh Lake that is depicted on Figure 2.2, a linearly variable constant head boundary condition was assigned to represent underflow that discharges south of the Site towards Newburgh Lake. The southern limit of the active model domain is therefore situated north of the region of high topographic relief.
- **West**: The horizontal limit of the active model domain, approximately 1,700 feet west of the Site, corresponds approximately to a north-south oriented flow-line in this area, and a no-flow boundary conditions is applied beyond this.

5.2 Flow Model Boundary Conditions

The boundary conditions for the flow model consist of the following:

- Linearly variable constant head boundary conditions representing groundwater underflow discharging to downgradient locations to the east and to the south towards Newburgh Lake[3]
- Wells were assigned to represent water withdrawal through the French Drain Collection System
- No flow boundary at the bottom of the model to represent the underlying clay aquitard
- Area averaged recharge over the top of the model

The specifications of these boundary conditions in the model are described further below.

Constant Head Boundary

As described in Section 5.1, a linearly variable constant head boundary condition was assigned to the south and east to represent the lateral transmission of groundwater out of the model domain. The values assigned to the linearly variable constant head boundary conditions were based on

[3] The locations of the linearly variable constant head boundary conditions are illustrated on Figure 5.1.

interpolated groundwater elevations representing observed conditions from August 21, 2003 (prior to the installation of the barrier wall).

Model Domain Top and Bottom

Recharge from precipitation infiltration was applied as the top model domain boundary condition. As described in Section 2.3, the regional, 30-year average annual rate of precipitation (based on rainfall collected at the Detroit Airport in Detroit, Michigan) between 1981 and 2010 was 31 in/yr (NCDC, 2013). The amount of precipitation reaching the groundwater table is typically considered to range from approximately 10 to 40 percent of the average annual precipitation (Arnold et al., 2000; and Rushton and Ward, 1979); however, with high permeability soils at ground surface a relatively high recharge rate is expected.

The area-average recharge rates were used to represent the precipitation infiltration over the top of the model domain. Using area-average recharge rates was considered appropriate for the model even though the former building concrete floor slabs cover some Site areas and would prevent infiltration directly beneath the slabs. Precipitation falling on the concrete slabs would run off to infiltrate at the slab edges where the highly permeable soils at ground surface would allow rapid infiltration and transmission to the groundwater table. As such, localized influences on the groundwater table (i.e., mounds and depressions) would not form in the vicinity of the concrete slabs, which supports applying the area-average recharge rates to the top of the model.

The area-average recharge rate applied to the model was initially estimated to be 12 in/yr. This corresponds to approximately 37 percent of the 30-year average annual precipitation rate of 31 in/yr, and was estimated using the recession-curve method described by Domenico and Schwartz 1990) and presented in Table 5.1 using the Middle Rouge River discharge and recession curves presented on Figure 5.3. The recharge rates were adjusted during model calibration as described in Section 6.2.

At the bottom of the model, a no-flow boundary condition was applied, which is representative of the low permeable nature of the clay aquitard.

Groundwater Pumping Wells

As described in Section 2.3, the differences between the old and new French Drain Collection System totalizers are not linear. That is to say that a conversion factor cannot be applied to the one to derive the flow measured in the other. Given that the average discrepancy is approximately 1.2 GPM and that values measured by the new totalizer do not span to periods prior to the installation of the barrier wall, flow measurements based on the old totalizer readings were applied to groundwater flow model development.

The French Drain Collection System was represented in the groundwater flow model as a series of individual wells assigned to adjacent individual model cells. The total pumping was distributed across each of the model well cells by applying a linearly-weighted (in the east-west direction perpendicular to groundwater flow) average pumping rate.

As described in Section 1.1, the French Drain Collection System has been in operation at the Site since 1981 and has withdrawn groundwater at an average rate of 13 GPM since groundwater extraction has reached equilibrium. Prior to the August 21, 2003 monitoring event, the French Drain

Collection System was pumping at a rate of 33.6 GPM. This is the pumping rate that was applied to the steady-state conditions representing August 21, 2003.

Groundwater rebound following the shut-off of an extraction well is a reflection[4] of groundwater drawdown under pumping conditions (Ferris et al., 1962). Groundwater rebound is simulated in MODFLOW by comparing simulated water levels to a starting condition. The shape of the water table prior to the shut-off event is not sufficiently known at the level of detail required to estimate rebound. This March 2014 event was instead simulated by assigning the sump pumping rate of 25.9 GPM that was recorded prior to shut-down to the model. The groundwater rebound that occurred at PZ-SW-9[5] during the March 2014 French Drain Collection System shut-down and corresponding numeric reflection are illustrated on Figure 5.4. The drawdown condition was simulated instead of a rebound condition.

5.3 Model Hydraulic Conductivity Distribution

Horizontally variable hydraulic conductivity zones were applied in the model domain for the shallow water-bearing unit. The zones were established based on the spatial distribution of wells and the respective textual descriptions of the soil types documented in the borehole logs, as presented on Figure 2.4. The ranges of the hydraulic conductivity values determined from the single well-response tests and from pumping tests conducted at the Site are summarized on Figure 2.9. The hydraulic conductivity values and spatial variability of the hydraulic conductivity distribution were adjusted during model calibration, as described in Section 6.2.

5.4 Groundwater Flow Simulation Method

A steady-state groundwater flow model was constructed for the flow model calibration against the complete round of Site groundwater elevation measurements from the August 21, 2003 monitoring event. The steady-state model simulation represented groundwater flow prior to the installation of the barrier wall and groundwater impoundment inside Area 1.

The barrier wall restricts the movement of groundwater into Area 1. Since the barrier wall is restricted to flow there is no control in the model on groundwater elevations in Area 1. Under this condition there are an infinite number of solutions for the groundwater flow equation. Such a model is non-unique. To represent groundwater flow conditions following installation of the barrier wall, GHD applied a transient simulation. The transient simulation was a numeric reflection of the rebound conditions that occurred during a French Drain Collection System shut-down event that occurred in March 2014. The reflection was applied by assigning a pumping rate to an initially static

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[4] Reflection in this instance refers to a reversal of the sign (i.e., positive or negative). That is to say that if an aquifer exhibits a 1 foot drawdown following 1 minute of pumping that same aquifer would exhibit 1 foot of rebound 1 minute following well shut-off if the pumping rates are equal. The hysteresis that occurs in reality is not simulated in MODFLOW.

[5] During the French Drain Collection System shut-down each of the Area 1 piezometers were fitted with transducers to provide continuous monitoring of drawdown. Only MH-1 and PZ-SW-9 exhibited strong evidence of rebound. MH-1 is in close proximity to the French Drain Collection System and is likely affected by local hydraulics including skin effects. As a result only PZ-SW-9 was considered for analysis of the French Drain Collection System shut-off event.

condition rather than a rebound from an unknown stressed starting condition. The transient groundwater flow was simulated using 222 time steps over a period of 9.25 days representing one time step for every hour. The transient model served as a secondary check on the hydraulic property values applied to the groundwater flow model to ensure that the hydraulic conductivity applied in Area 1 can reasonably represent flow conditions.

To obtain a simulated groundwater flow field within the model domain, the groundwater flow equations were solved using a numerical solver under certain constraints such as convergence criteria for accurate solutions to represent the physical conditions observed at the Site. As discussed in Section 4.1, the numerical solver used was the GMG solver implemented in MODFLOW-2005. The convergence criteria for the solution routine were specified as 0.001 feet for the maximum hydraulic head change and 7.68 cubic feet per day (feet^3/day) for the maximum flow residual throughout the solution domain; 25 inner solver iterations were used. With the above criteria, the solution is considered to converge satisfactorily if a mass balance discrepancy of less than 0.1 percent can be achieved.

6. Groundwater Flow Model Calibration

6.1 Calibration Targets

Selection of the model calibration targets for a steady-state model normally considers whether the groundwater elevation monitoring event:

- Represents average groundwater flow conditions as opposed to low (i.e., dry) or high (i.e., wet) groundwater flow conditions
- Groundwater stresses (i.e., extraction rates) represent the average conditions affecting groundwater elevations
- Provide spatial coverage of the model domain with measurements at the majority of the monitoring well locations
- Includes key areas of interest within the model domain

Multiple synoptic groundwater elevation monitoring events have been conducted for the on-Site monitoring well network. The August 21, 2003 monitoring event consisted of a comprehensive set of groundwater elevation measurements prior to the installation of the Area 1 barrier wall. The continuous pumping operations of the French Drain Collection System since 1981 in the relatively permeable shallow water-bearing unit represents a steady-state condition under a continuous groundwater stress.

The March 2014 French Drain Collection System shut-off event was an event in a key area of interest. As described in Sections 5.2 and 5.4, the initial condition of the water table was not known in sufficient detail to simulate rebound following the French Drain Collection System shut-off. Instead, the sign of the rebound values was reversed to obtain a numeric reflection representative of drawdown that would occur under a French Drain Collection System start-up following static groundwater level conditions. The transducer in piezometer PZ-SW-9 recorded groundwater pressure every minute for the duration of the shut-off event. The groundwater pressure was

converted into a height of water above the transducer, which was then converted to a rebound using groundwater height at the time of the shut-off as a reference datum. To facilitate reading these target values into the GUI, which cannot handle the 13,320 minute by minute rebound measurements, one measurement per hour was assigned as a target value. This transient simulation provided a secondary check to ensure that the calibrated hydraulic conductivity values could reasonably satisfy different flow (or stress) conditions and represents a rigorous check on the hydraulic conductivity distribution in the southern portion of Area 1.

6.2 Calibration Methodology

Model calibration was performed in an iterative manner by manually adjusting the distribution (or zones) and values of hydraulic conductivity, recharge rates, and boundary conditions. From time to time, PEST was applied to optimize the input parameters. The input parameters associated with the PEST results were evaluated manually in terms of the overall model calibration. Hydraulic conductivity results within the Site were selected based on the hydraulic conductivity testing results and borehole log details.

As described in Section 5.2, an area-average recharge rate was assigned that was based initially on calculations using the recession-curve method (Domenico and Schwartz, 1990) based on the Middle Rouge River discharge and recession curves constructed for July 2003 and presented on Figure 5.3.

If the simulated groundwater flow pattern and the observed groundwater flow pattern were not in good agreement, manual adjustments to the model input parameters were performed. This iteration process was repeated until a reasonable agreement was achieved between observed and simulated groundwater elevations and groundwater flow pattern, and the residual difference between observed and simulated groundwater elevations was minimized over the model domain.

The model calibration was evaluated both qualitatively and quantitatively. A qualitative evaluation was conducted for the August 21, 2003 steady-state calibration by visually comparing the simulated versus observed groundwater elevations and flow directions. This comparison provided a qualitative measure of the spatial distribution of calibration error and a measure to judge whether the calibrated model could reasonably represent observed conditions. A qualitative evaluation was also conducted for the March 2014 transient secondary check by visually comparing the simulated versus observed numeric reflection of groundwater rebound. The numeric reflection of groundwater rebound represents the drawdown from static conditions that would occur if the French Drain Collection System began pumping at 25.9 GPM.

The quantitative assessment of the calibration was conducted by examining the calibration target errors, or residuals. Residuals were calculated by subtracting the simulated groundwater elevations from the observed groundwater elevations. The mean residual, absolute mean residual, and residual sum of square statistics, standard deviation, normalized error, etc., were calculated to

quantify the discrepancy between observed and simulated groundwater elevations provided by the calibrated model[6]. The objective of the model calibration was to minimize this discrepancy.

A second quantitative measure of the calibration was provided by the simulated volumetric water budget reported by MODFLOW-2005 indicating the quantities of flow into and out of the model domain via the groundwater flow components specified in the model. The volumetric budget was reviewed to ensure that the total inflows and outflows were consistent with the conceptual hydrogeologic model. The volumetric budget also provided a percent discrepancy between the total simulated inflows and outflows; a discrepancy of less than 0.1 percent indicates a satisfactory numerical convergence.

6.3 Steady-State Calibration for the August 21, 2003 Model

As presented in Table 6.1, groundwater elevation measurements at 222 monitoring well locations were used as targets for the calibration of the August 21, 2003 model. These targets included monitoring wells situated throughout the Site area and are shown on Figure 6.1.

Hydraulic conductivity zones are explicitly presented on Figure 6.2. Each of the geologic units (i.e., sand and silty sand) area represented exclusively with unique hydraulic conductivity properties. The horizontal hydraulic conductivity values applied in the calibrated model are summarized as follows:

- Sand: 75.2 feet/day
- Silty sand: 23 feet/day

The calibrated hydraulic conductivity values are generally consistent with the hydraulic conductivity values estimated from the single well response tests and the pumping test results. They are also within the range of published literature values for the observed soil types (Bear et al., 1968). For the August 21, 2003 model, a uniform recharge rate of 12 in/yr was specified over the model domain, which corresponds to approximately 37 percent of the annual average precipitation from 1981 to 2010 and approximately 23 percent of the August 2003 precipitation rate of 4 inches per month (in/month).

The simulated groundwater elevation contours for the calibrated August 21, 2003 model are presented on Figure 6.1. The simulated groundwater elevation contours are in reasonable agreement with the observed groundwater elevation contours presented on Figure 2.10 and as reference contours on Figure 6.1.

Table 6.1 presents the calibration targets and residuals for the August 21, 2003 model calibration to observed groundwater conditions. The residual values are calculated as the observed groundwater elevation minus the simulated groundwater elevations. The calibration target residuals for the calibrated model are plotted spatially on Figure 6.1. The target residuals are colored based on whether the residual is positive (blue: indicating that the observed groundwater elevation is

[6] For the calculation of these residual statistics, the monitoring well that exhibits anomalous groundwater elevations (i.e., MW-22-1S) had a weighting of 1 percent applied to its residual errors. This weighting was applied so that the anomalous nature of the groundwater elevations observed at this location does not adversely influence the calibration process.

under-predicted) or negative (red: indicating that the observed groundwater elevation is over-predicted). In general Figure 6.2 demonstrates that the positive and negative residuals are reasonably distributed throughout the model domain. Focused areas of either positive or negative residuals are limited. On Figure 6.1 the residuals are predominantly positive within and north of Area 1 (i.e., under-predicting) and are predominantly negative surrounding Area 1 (i.e., over-predicting). This is considered conservative because it would result in a lower gradient from inside to outside of Area 1 through the potential PRG system. The residuals at the majority of the monitoring wells are sufficiently small to represent the groundwater flow conditions in the key areas of the model. Thus, the calibrated model provides a reasonable representation of the observed groundwater flow conditions at the Site.

Figure 6.3 lists the residual statistics. The top panel of Figure 6.3 presents a scatter plot of the observed versus simulated groundwater elevations for the model calibration to August 21, 2003 flow conditions. The bottom panel of Figure 6.3 presents a scatter plot of the observed groundwater elevations versus the model residuals. The calibrated model provides a residual mean of -0.5 feet, an absolute residual mean of 0.9 feet, a residual sum of squares of 335.1 feet, and a residual standard deviation of 1.1 feet. The residual standard deviation is 4 percent of the range in the August 21, 2003 measured groundwater elevations. Spitz and Moreno (1996) suggest that the residual standard deviation should be less than about 10 percent of the observed head range, which is satisfied by the August 21, 2003 model calibration.

Each of the scatter plots presented on Figure 6.3 includes a line of exact match between the simulated and observed groundwater elevations. In the bottom panel of Figure 6.3, the line of exact match is represented as a residual of 0 feet. The lines of exact match are each bounded by dashed lines of ± residual standard deviation as a reference for reasonable matches. On the upper panel of Figure 6.3 plotted points appearing above the match line over-predict the observed groundwater elevation (and have a negative residual). The plotted points appearing below the exact match line in the upper panel of Figure 6.3 under-predict the observed groundwater elevation (and have positive residual). A reasonable distribution of the residual points on Figure 6.3 occurs above and below the match line over the full range of the measured groundwater elevations throughout the model domain, which further supports that the calibrated model provides a reasonable match to the observed average groundwater flow conditions.

GHD examined the volumetric water budget for the calibrated model. A discrepancy of less than 0.005 percent occurs in the budget between the simulated inflows and outflows, demonstrating that a good numerical convergence was achieved throughout the model domain.

6.4 Transient Calibration for French Drain Collection System Shut-Down

The ability of the calibrated groundwater flow model to match groundwater displacement during the French Drain Collection System shut-down is a rigorous test of the hydraulic conductivity distribution in Area 1. For this analysis, the sign of the groundwater rebound was reversed to obtain a numeric reflection of rebound, representing the drawdown that would occur under a French Drain Collection System start-up following static groundwater level conditions. As a secondary check, the transient flow model was based on hydraulic properties that were described in Section 5 and 6.3

with the exception that recharge was assigned a value of 0 in/yr for the limited duration of the shut-off event. In addition to the hydraulic property zones described in Section 6.3 two low permeability zones surrounding Area 1 were also assigned representing the soil bentonite slurry wall and the jet-grouted barrier wall. These zones were assigned hydraulic conductivity values of 2×10^{-8} cm/s (7×10^{-5} feet/day) and 1×10^{-7} cm/s (3×10^{-4} feet/day) for the soil bentonite slurry wall and jet-grouted barrier wall, respectively based on the measured values that were described in Section 2.3. The location of the barrier wall is presented on Figure 2.11. For the solution to the groundwater flow equation under transient conditions a specific yield (S_y) was included to represent storage in the unconfined water-bearing unit. A S_y value of 14 percent was applied to the sand and silty sand units. A S_y value of 14 percent is within the range of published literature for fine sand (Johnson, 1967).

The rebound that occurred at PZ-SW-9 during the French Drain Collection System shut-down and its numeric reflection are presented on Figure 5.4. Piezometer PZ-SW-9 is located approximately 23.2 feet horizontally from the French Drain Collection System. Figure 6.4 presents the simulated and observed groundwater numerical reflection of hydraulic rebound following the shut-down event. The numerical reflection of groundwater rebound is described using the generalized term "groundwater displacement" on Figure 6.4. Comparing the observed and simulated groundwater displacement indicates that the model is able to provide a reasonable representation of transient groundwater flow.

7. Summary and Conclusions

The Site historically manufactured coil springs, bumpers, and strut assemblies between approximately 1953/1954 and July 2000. As part of the manufacturing process, chrome plating was performed in the chrome plating area, which is situated in what is now referred to as Area 1. Area 1 consists of several areas of interest that are grouped together by their proximities and similar environmental conditions and includes AOI 1 (former Waste Water Treatment Plant), AOI 3 (Stormwater Clarifier), AOI 14 (Old Nickel Bright Tank), AOI 15 (Waste Sump Under Plating Line), AOI 18 (French Drain Collection System), and AOI 20 (Plating Line). Historical soil and groundwater concentrations collected from boreholes and wells throughout the Site area have identified concentrations of nickel and hexavalent chromium in groundwater at levels above the Michigan Department of Environmental Quality Residential & Commercial I Drinking Water Criteria (RDW) of 0.1 milligrams per liter (mg/L).

Remedial measures have been implemented at the Site through the installation of a French Drain Collection System in 1981, which was subsequently supplemented with a soil-bentonite slurry wall with isolated areas of jet-grouted barrier wall (barrier wall) to prevent the off-Site migration of nickel and hexavalent chromium. Following construction of the barrier wall, GHD had investigated whether any hydraulic connection existed between areas inside and outside of the barrier wall. At that time, GHD concluded that no hydraulic connection existed. Since groundwater extraction has reached equilibrium, the French Drain Collection System has removed groundwater at an overall average rate of 13 GPM.

RACER is investigating alternatives to the existing remedial measures operating at the Site. The proposed alternative remedial measures include ISCR the cessation of operations of the French Drain Collection System and installation of a PRG system. The groundwater flow model, presented in this report will be used as the basis for transport modeling to evaluate and optimize the size and locations of potential PRGs that would prevent the off-Site migration of nickel and hexavalent chromium.

GHD developed the groundwater flow model to represent the existing hydrologic, geologic, and hydrogeologic conditions observed at the Site and surrounding area. The groundwater flow model was calibrated under steady-state conditions to provide a reasonable match to groundwater elevations and groundwater flow directions observed in the Site area prior to the installation of the Area 1 barrier wall. The groundwater flow model then was checked under transient conditions. Comparison of transient groundwater displacement during the French Drain Collection System shut-down is a rigorous test of hydraulic conductivity distribution in Area 1. The numerical model, MODFLOW-2005 calculates drawdown by comparing water levels to an initial state. Under a stressed (i.e., pumping) condition groundwater elevations near the French Drain Collection System will exhibit a depression that fills-in following shut-down. The initial stressed shape of the water table under pumping conditions is not known in sufficient detail for GHD to develop a transient model of rebound. Since groundwater rebound is a numerical reflection of drawdown under pumping conditions GHD compared simulated drawdown under pumping conditions to the numerical reflection of groundwater rebound.

The calibrated groundwater flow model and the secondary transient check indicate that the model is appropriate for use for subsequent metals transport simulations.

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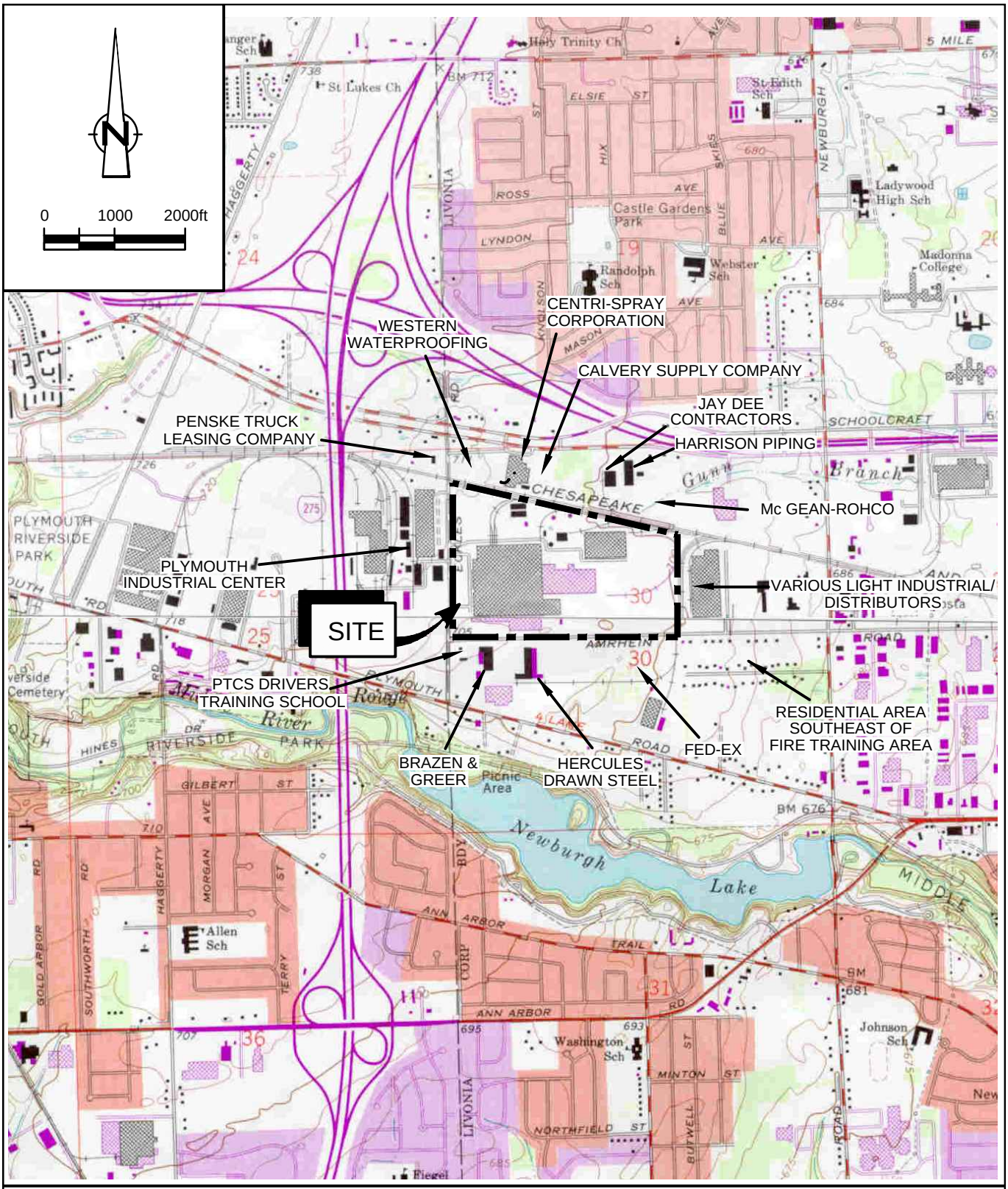


SOURCE: USGS QUADRANGLE MAPS;
NORTHVILLE AND WAYNE, MICHIGAN

figure 1.1

SITE LOCATION
13000 ECKLES ROAD SITE
Livonia, Michigan

GHD

LIVONIA

12607-T02Y16(065)GN-WA001 DEC 6, 2016

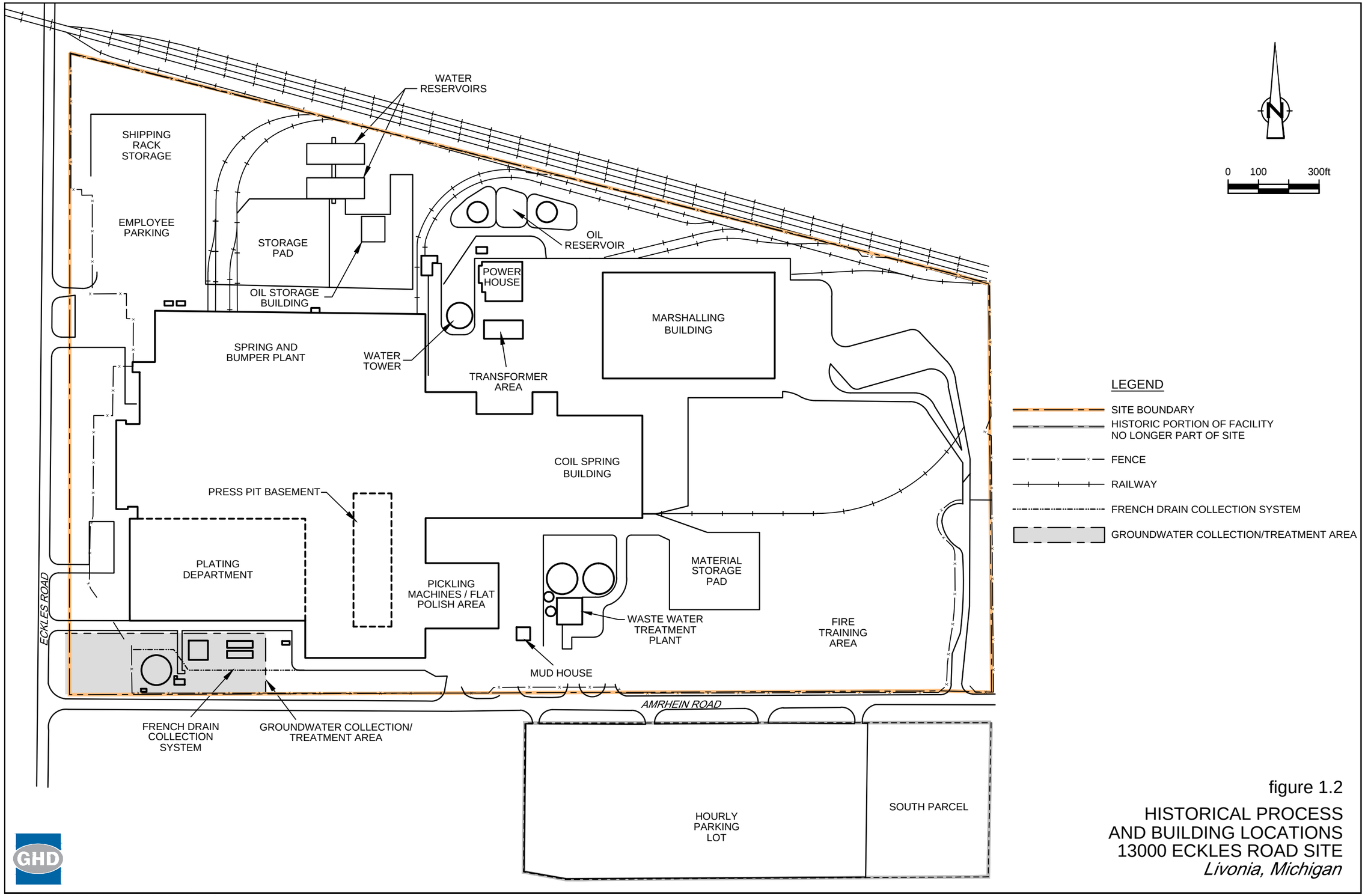
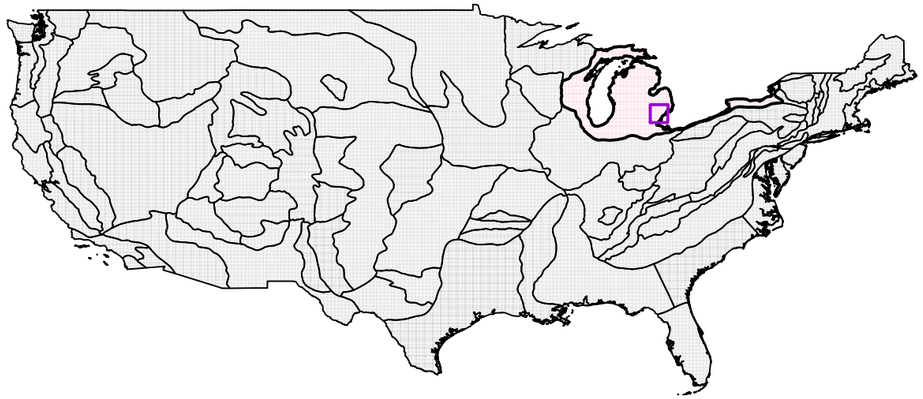


figure 1.2

HISTORICAL PROCESS AND BUILDING LOCATIONS
13000 ECKLES ROAD SITE
Livonia, Michigan

12607-T02Y16(065)GN-WA002 DEC 6, 2016

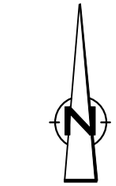
Physiographic Sections of The United States

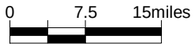


LEGEND

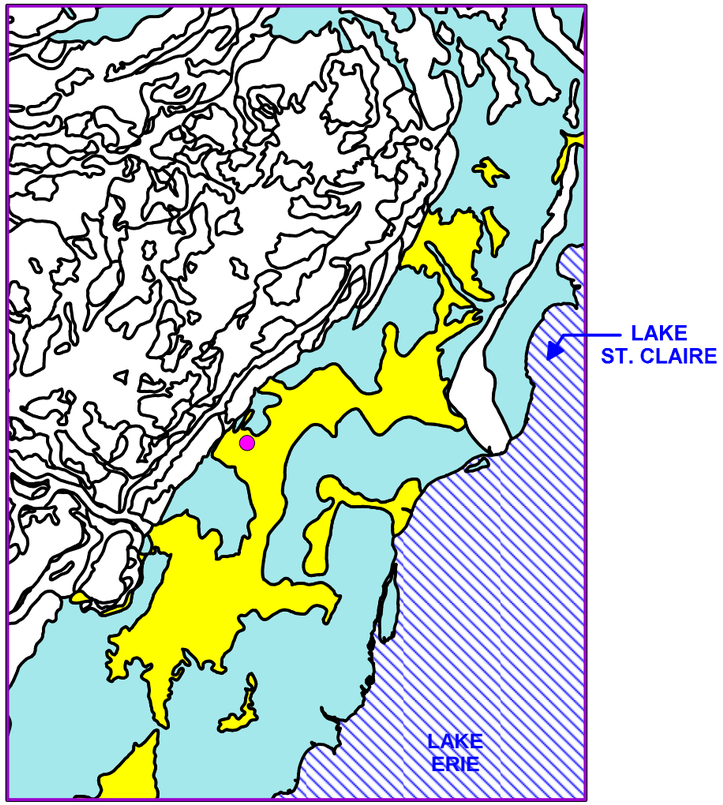
- EASTERN LAKE PHYSIOGRAPHIC SECTION OF THE CENTRAL LOWLAND PHYSIOGRAPHIC PROVINCE
- COARSE LACUSTRINE SURFICIAL DEPOSITS
- FINE LACUSTRINE SURFICIAL DEPOSITS
- REGIONAL RIVER SYSTEMS
- INLAND LAKES
- MAJOR WATER BODY
- SITE LOCATION
- GROUND SURFACE ELEVATION CONTOUR

GROUND SURFACE ELEVATION CONTOUR (FEET AMSL)

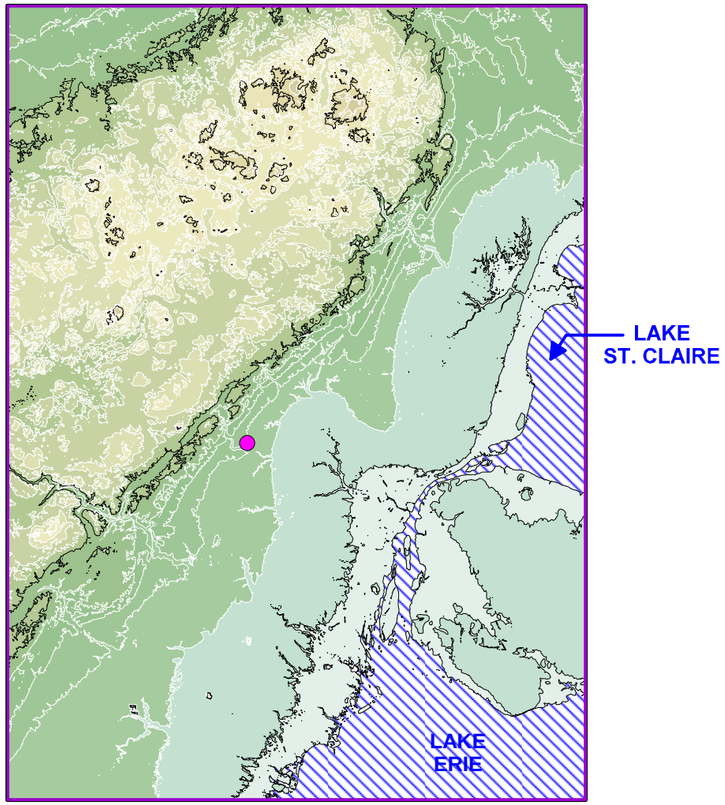




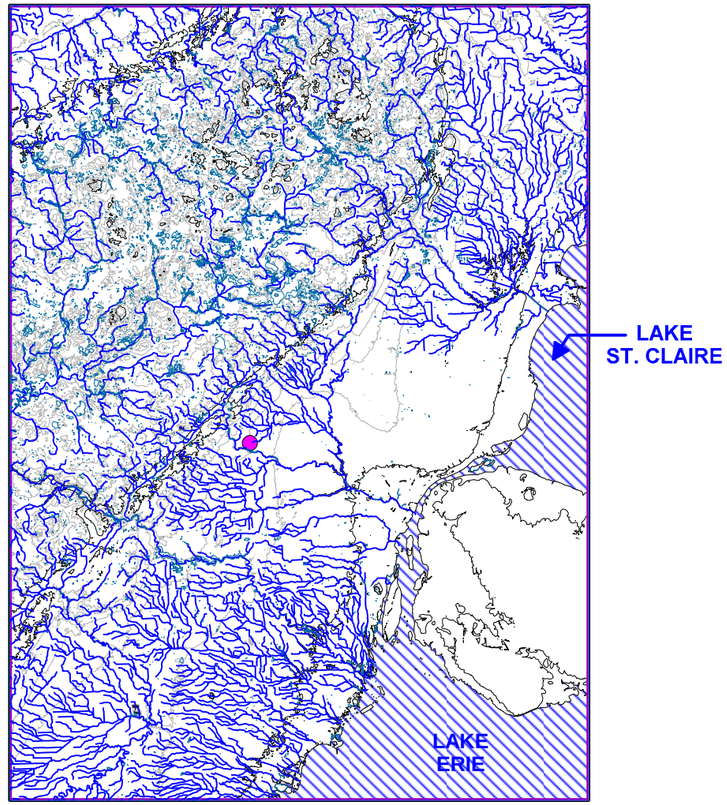
MICHIGAN GLACIAL LAND SYSTEMS



GROUND SURFACE ELEVATION



SURFACE WATER FEATURES



Sources:

Physiographic Sections: Fenneman and Johnson, 1946
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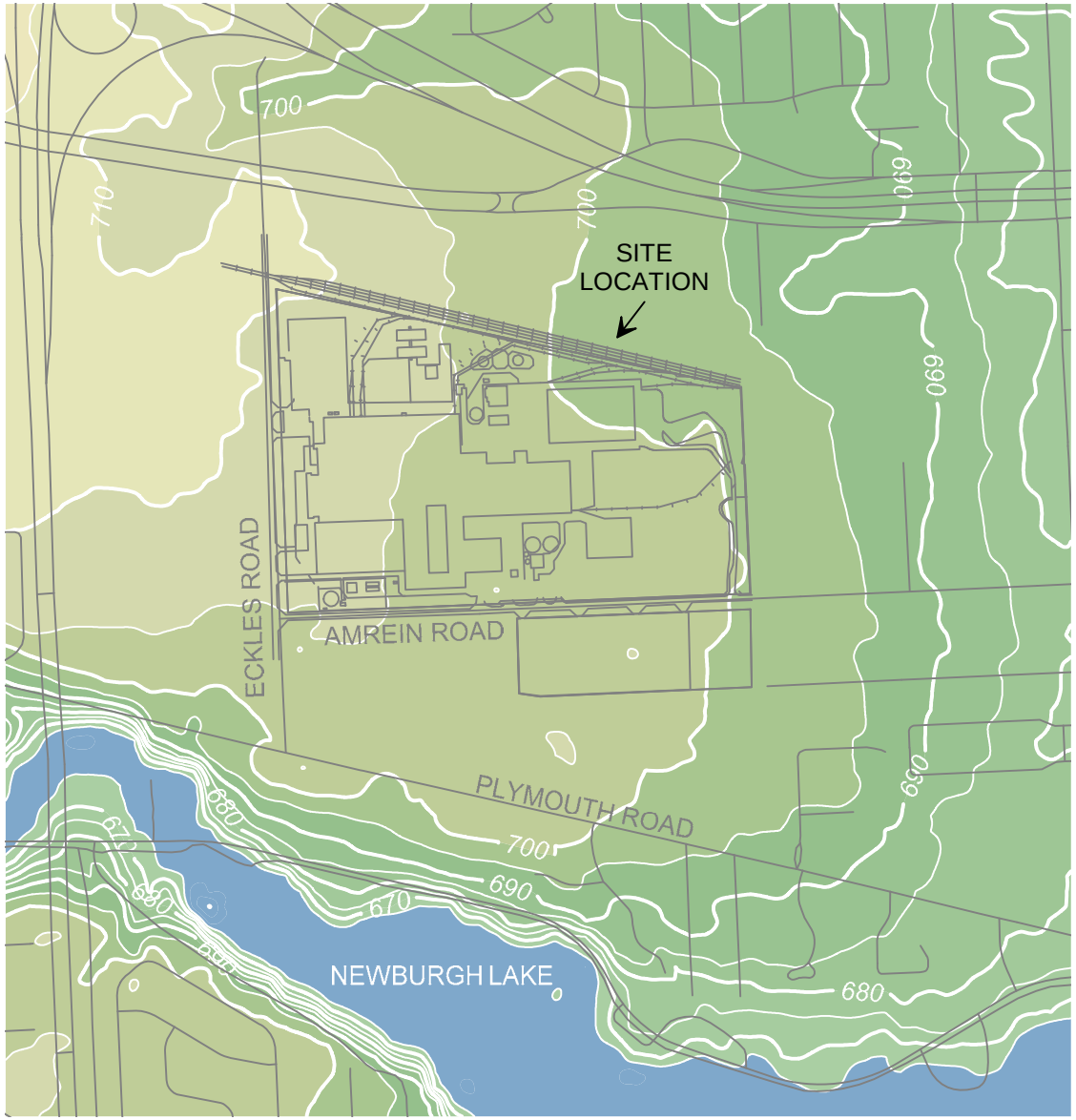
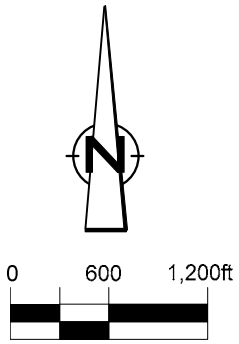
Ground Surface Elevations: USDA/NRCS, 2016
Surface Water Feautures: Rivers and Streams - Groundwater Inventory and Mapping Project, 2015b
Inland Lakes - Groundwater Inventory and Mapping Project, 2015c

figure 2.1

HYDROLOGIC CONDITIONS
13000 ECKLES ROAD
Livonia, Michigan





LEGEND

—700— GROUND SURFACE ELEVATION CONTOUR (FT AMSL)

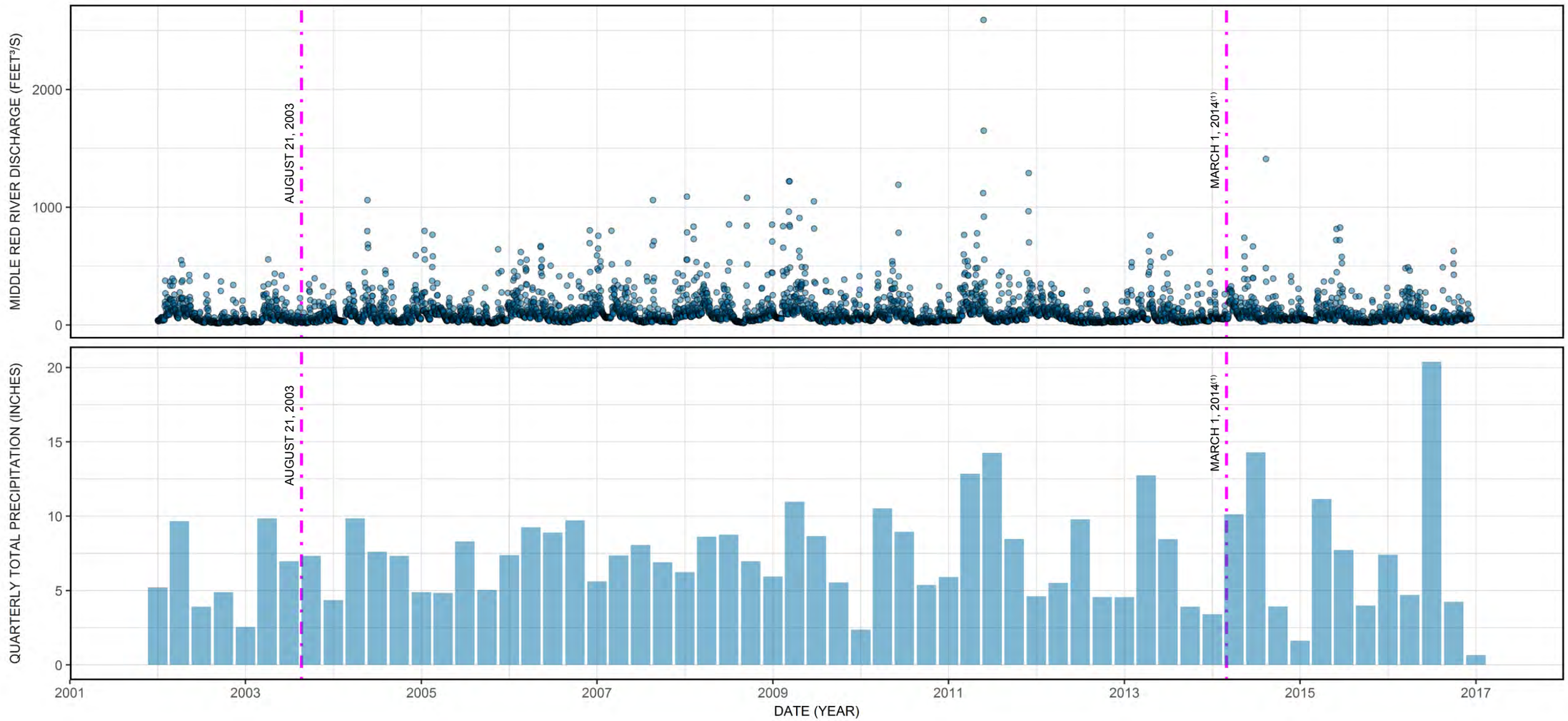
GROUND SURFACE ELEVATION (FT AMSL)

650 660 670 680 690 700 710 720

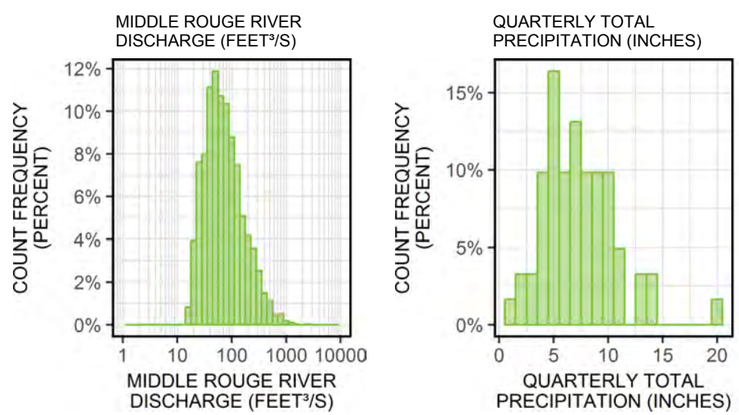
figure 2.2

GROUND SURFACE ELEVATION
13000 ECKLES ROAD SITE
Livonia, Michigan

12607-T02Y13(065)GN-WA-HYD (Z:\HEG\012607\DOCUMENTATION\REPORTS\012607-RPT-65\FIGURES\12607-GElev.srf) JAN 13/2016



SUMMARY HISTOGRAM PLOTS



LEGEND

- MIDDLE ROUGE RIVER DISCHARGE (FEET³/S)
- QUARTERLY TOTAL PRECIPICATION (INCHES)
- SELECTED SITE MONITORING EVENTS

NOTE:

(1) SELECTED MONITORING EVENT INVOLVED CONTINUOUS MONITORING OF SELECT MONITORING WELLS WITH TRANSDUCERS DURING 10-DAY FRENCH DRAIN COLLECTION SYSTEM SHUT-DOWN EVENT

figure 2.3

MIDDLE ROUGE RIVER DAILY DISCHARGE RATES
AND QUARTERLY TOTAL PRECIPITATION 2002 - 2017
13000 ECKLES ROAD SITE
Livonia, Michigan

12607-T02Y16(065)GN-WA (Z:\HEG\012607\DOCUMENTATION\REPORTS\012607-RPT-65\FIGURES\MiddleRouge_&_Precip.srf) JAN 16/2017

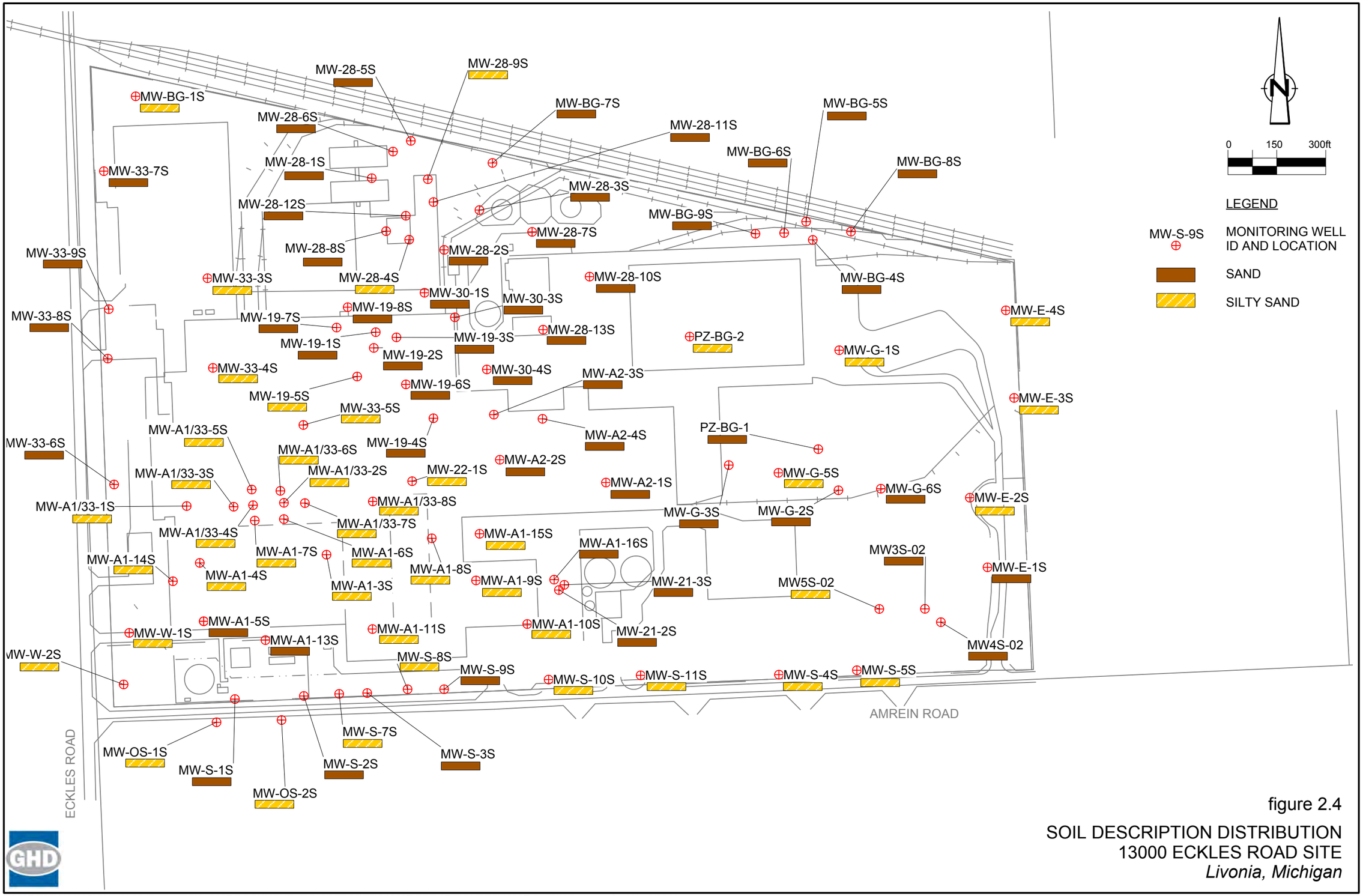


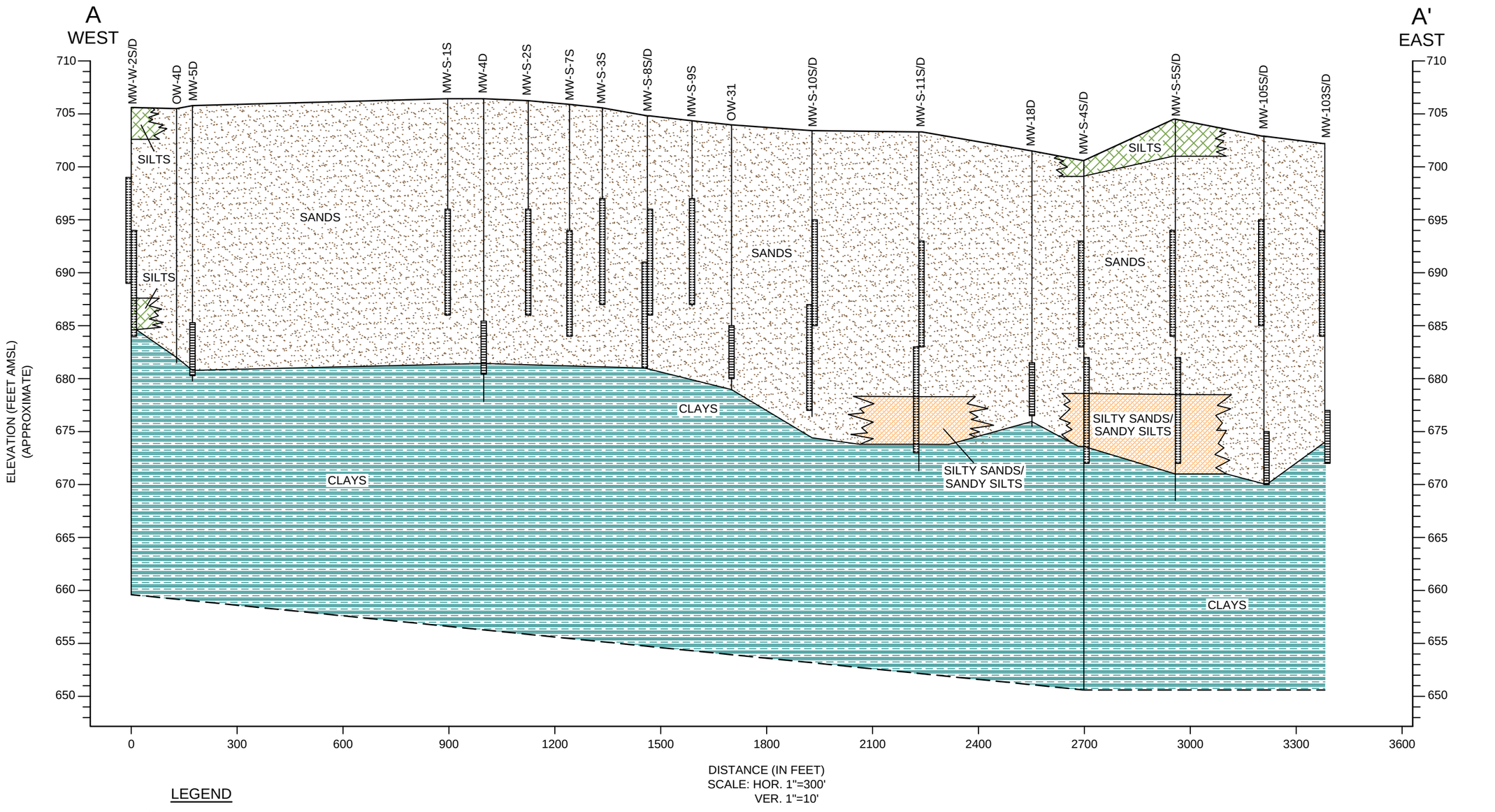
figure 2.4

SOIL DESCRIPTION DISTRIBUTION
13000 ECKLES ROAD SITE
Livonia, Michigan

figure 2.5

CROSS-SECTION LOCATION MAP
13000 ECKLES ROAD SITE
Livonia, Michigan

12607-T02Y16(065)GN-WA003 JAN 16, 2017



LEGEND

MW-33-7S

- WELL DESIGNATION
- GROUND SURFACE
- STRATIGRAPHIC CONTACT
- SCREEN
- END OF BOREHOLE

- SILTS
- SAND
- CLAY
- SILTY SANDS/SANDY SILTS

figure 2.6

GEOLOGIC CROSS-SECTION A-A'
13000 ECKLES ROAD SITE
Livonia, Michigan

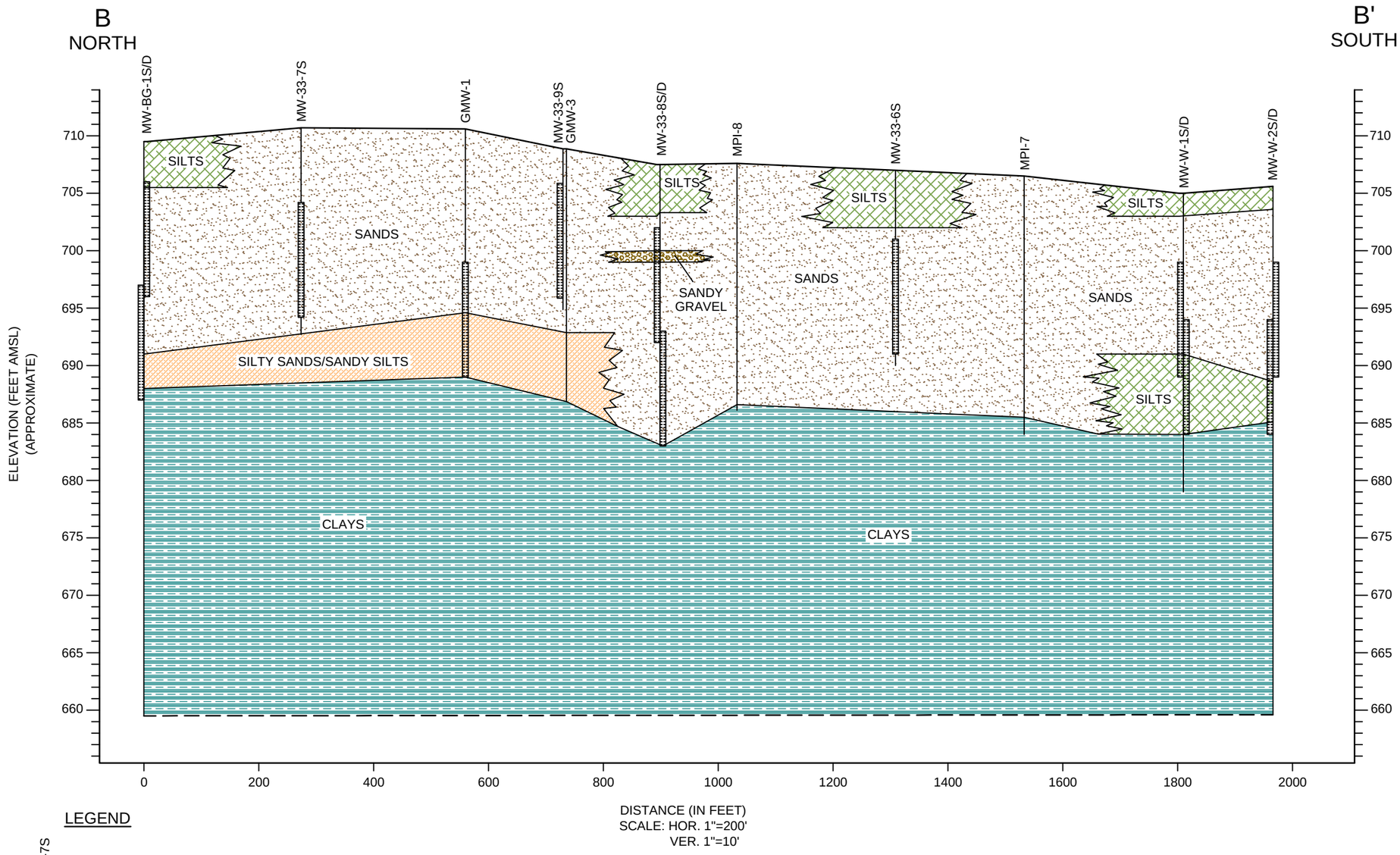
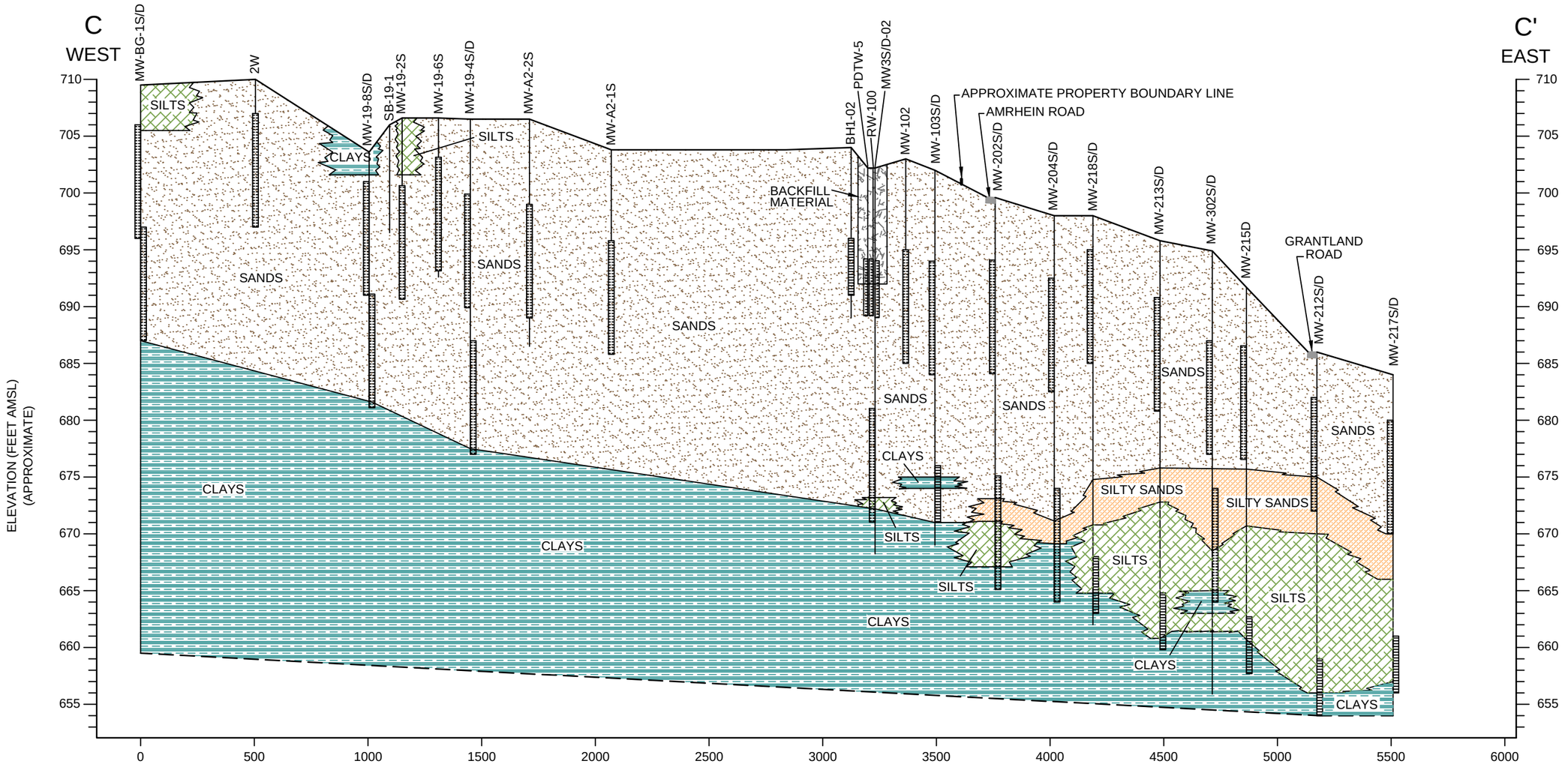


figure 2.7

GEOLOGIC CROSS-SECTION B-B'
13000 ECKLES ROAD SITE
Livonia, Michigan



LEGEND

MW-33-7S

- WELL DESIGNATION
- GROUND SURFACE
- STRATIGRAPHIC CONTACT
- SCREEN
- END OF BOREHOLE

- SILTS
- SAND
- CLAY
- SILTY SANDS/SANDY SILTS
- BACKFILL MATERIAL FROM PCB-IMPACTED SOIL REMEDIATION (GZA, 1998)

figure 2.8

GEOLOGIC CROSS-SECTION C-C'
13000 ECKLES ROAD SITE
Livonia, Michigan

12607-T02Y16(065)GN-WA006 JAN 16, 2017

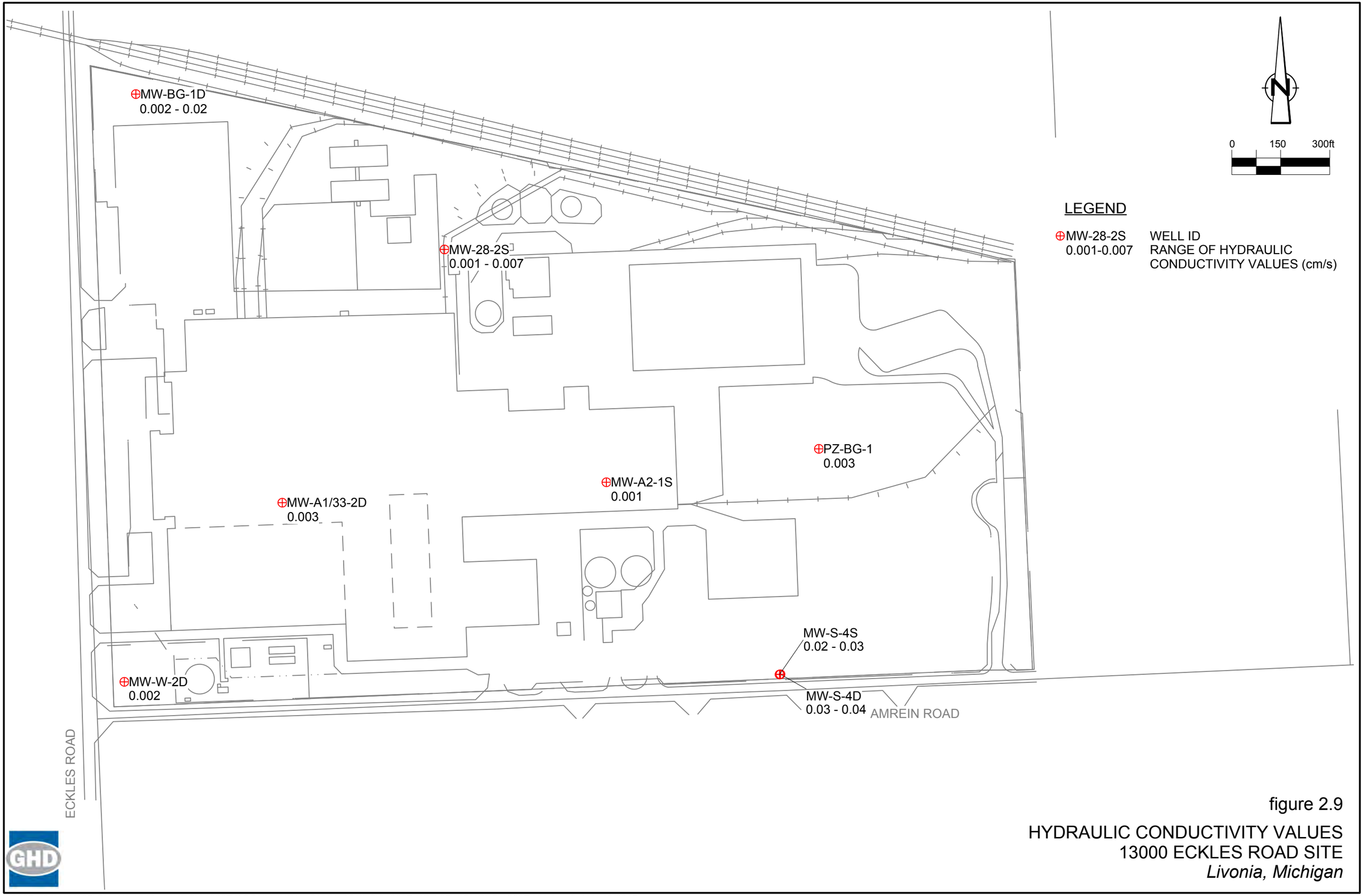
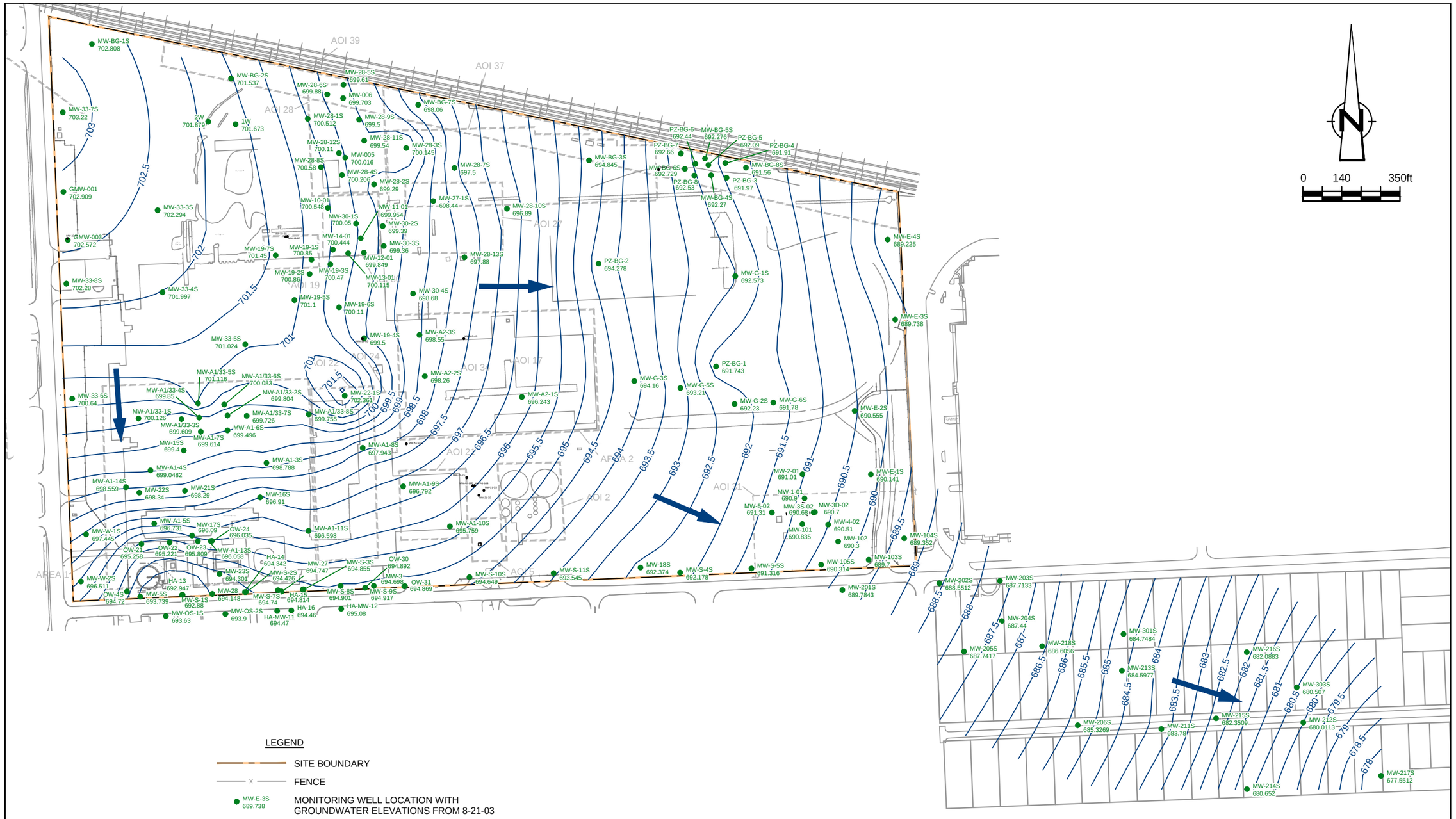


figure 2.9

HYDRAULIC CONDUCTIVITY VALUES
13000 ECKLES ROAD SITE
Livonia, Michigan

12607-T02Y13(065)GN-WA-HYD (Z:\HEG\012607\DOCUMENTATION\REPORTS\012607-RPT-65\FIGURES\12607-KVals.srf) JAN 16/2017



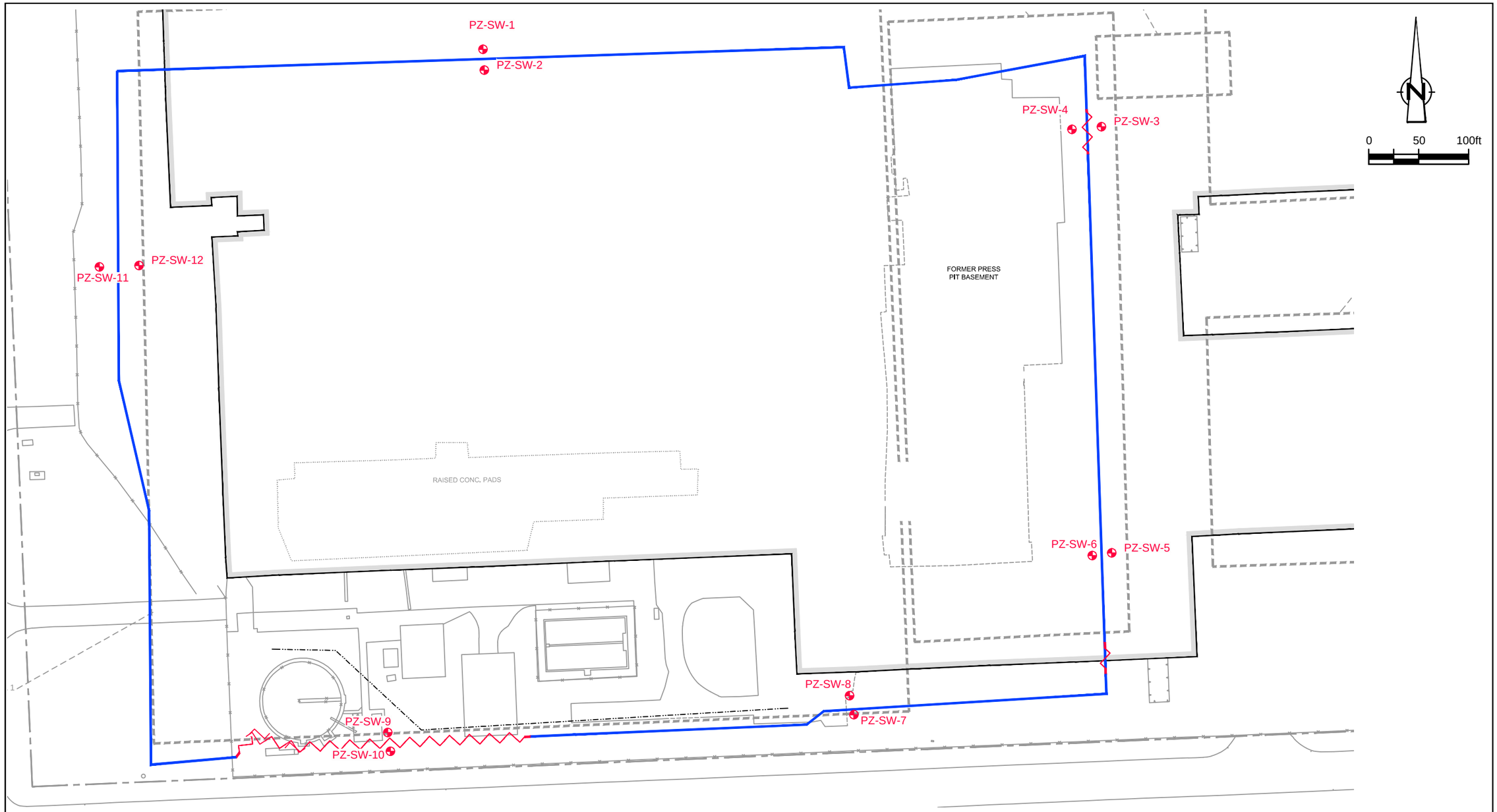
LEGEND

- SITE BOUNDARY
- FENCE
- MW-E-3S 689.738 — MONITORING WELL LOCATION WITH GROUNDWATER ELEVATIONS FROM 8-21-03
- 691 — GROUNDWATER ELEVATION CONTOUR AUGUST 21, 2003
- APPROXIMATE GROUNDWATER FLOW DIRECTION

figure 2.10

GROUNDWATER ELEVATION CONTOURS
(AUGUST 21, 2003)
13000 ECKLES ROAD SITE
Livonia, Michigan

12607-T02Y16(065)GN-WA007 JAN 16, 2017



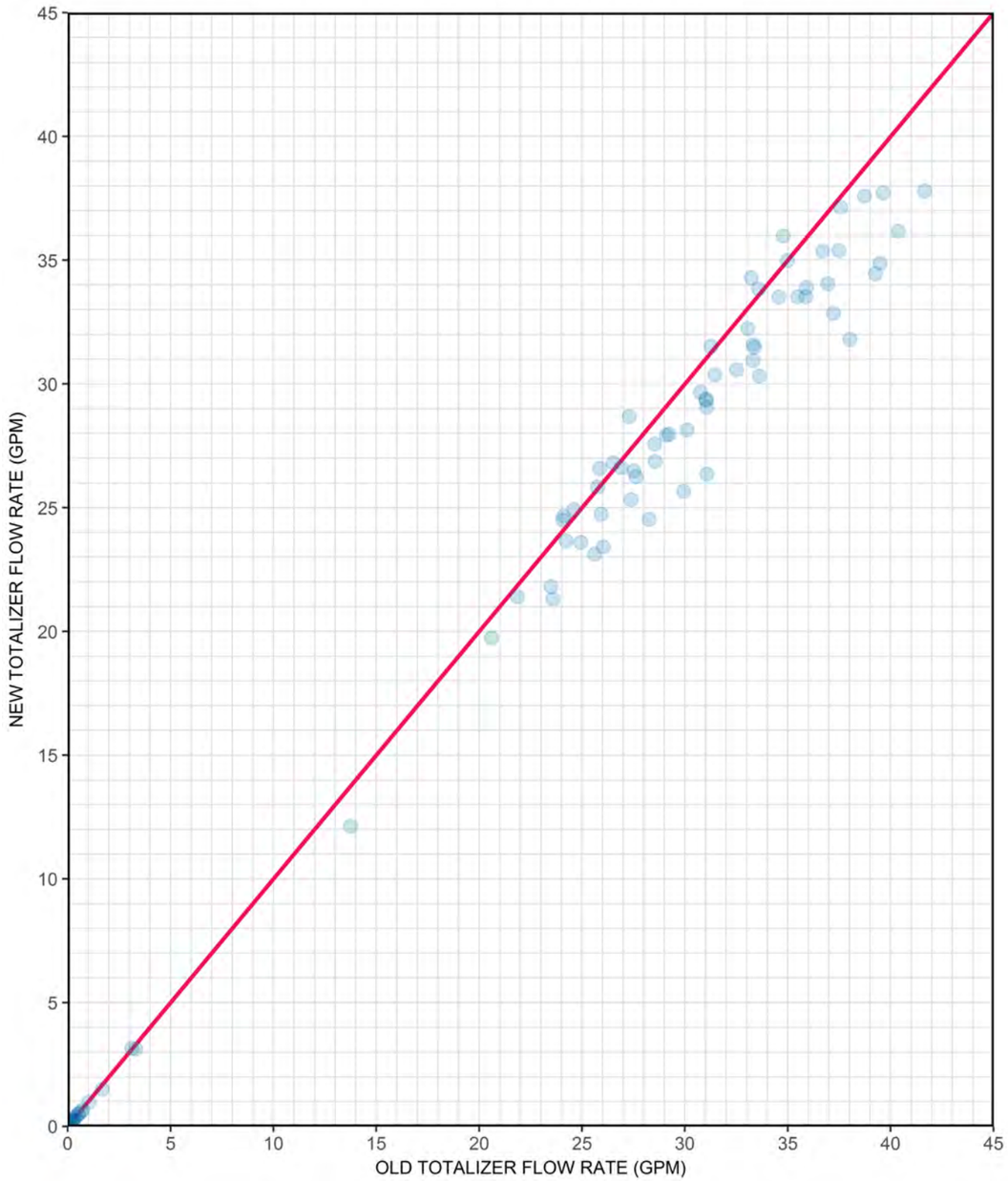
LEGEND

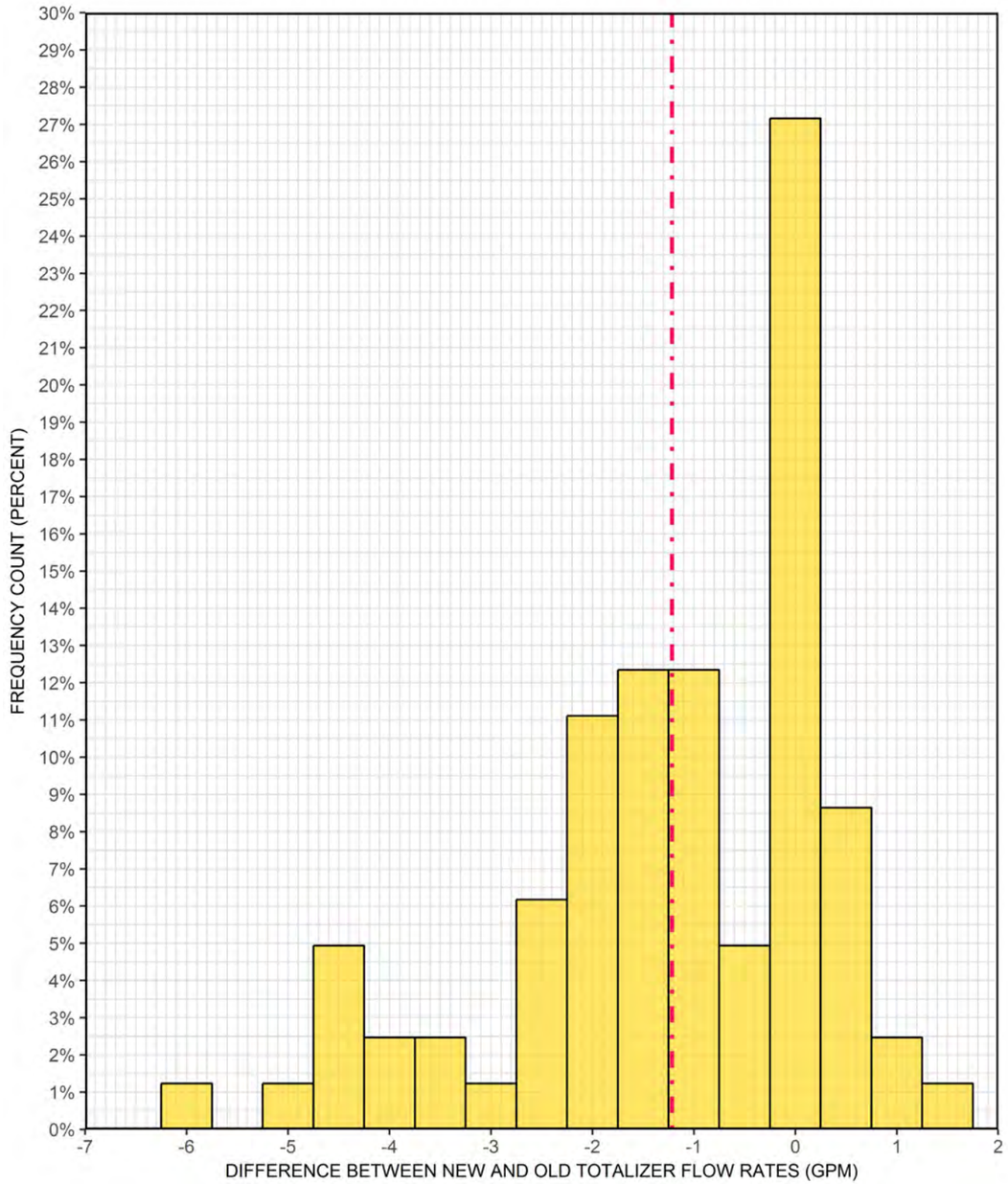
- SITE BOUNDARY
- EXISTING CONCRETE SLAB
- EXISTING FRENCH DRAIN COLLECTION SYSTEM
- EXISTING FENCE
- EXISTING AOI AREA
- PZ-SW-3 BARRIER WALL PIEZOMETER
- SURVEYED SLURRY WALL - 3/1/2005
- JET GROUTED BARRIER WALL

figure 2.11

BARRIER WALL ALIGNMENT
13000 ECKLES ROAD
Livonia, Michigan

12607-T02Y16(065)GN-WA008 JAN 16, 2017





LEGEND

SCATTER PLOT

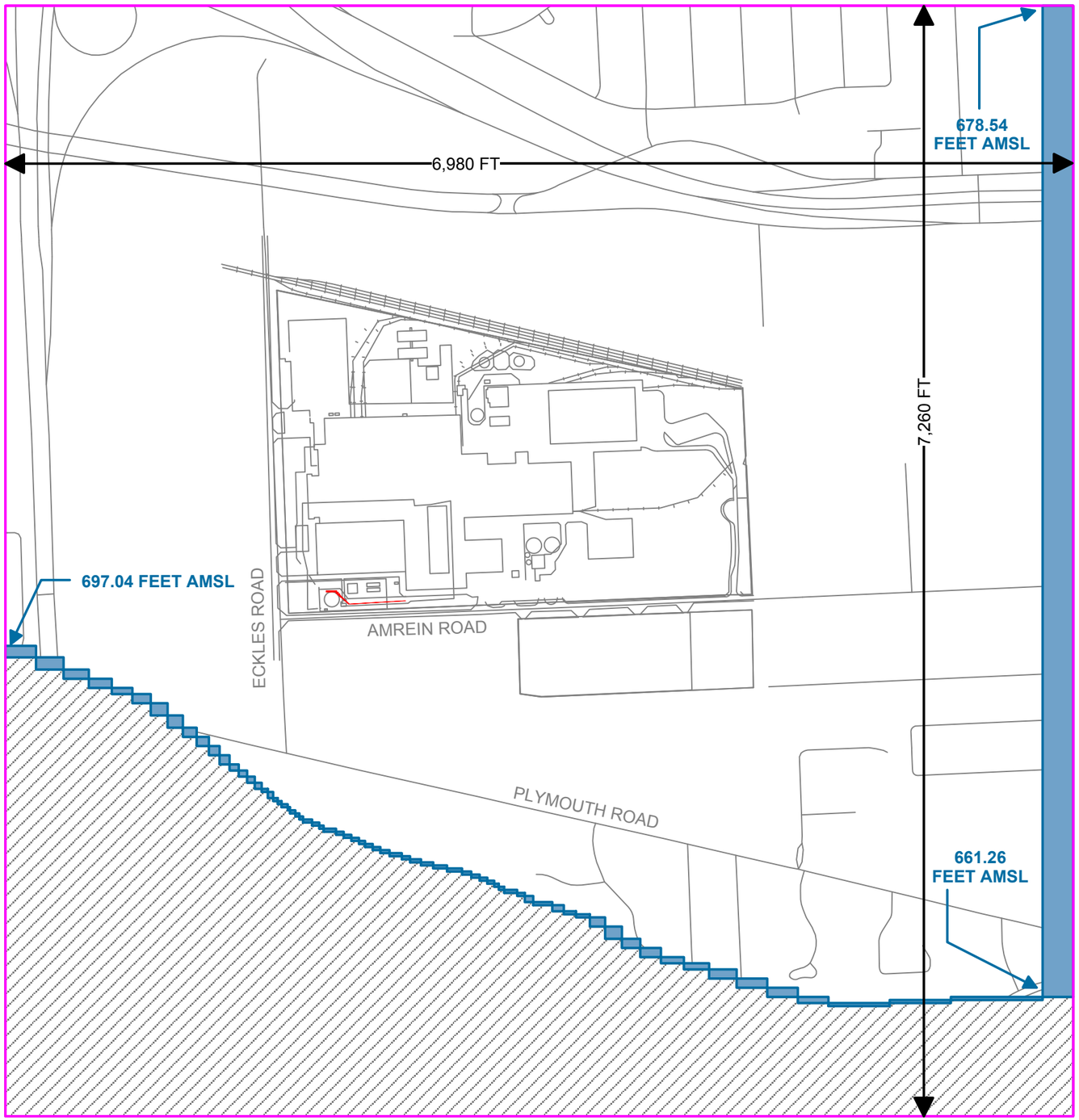
- FRENCH DRAIN FLOW RATE MEASURED WITH OLD AND NEW TOTALIZERS (GPM)
- LINE OF EXACT MATCH

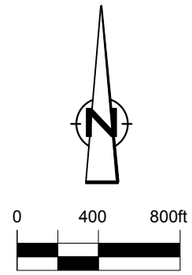
HISTOGRAM

- AVERAGE DIFFERENCE BETWEEN NEW AND OLD TOTALIZER FLOW RATES (-1.2 GPM)

figure 2.12

OLD AND NEW TOTALIZER
FRENCH DRAIN PUMPING RATES
13000 ECKLES ROAD SITE
Livonia, Michigan



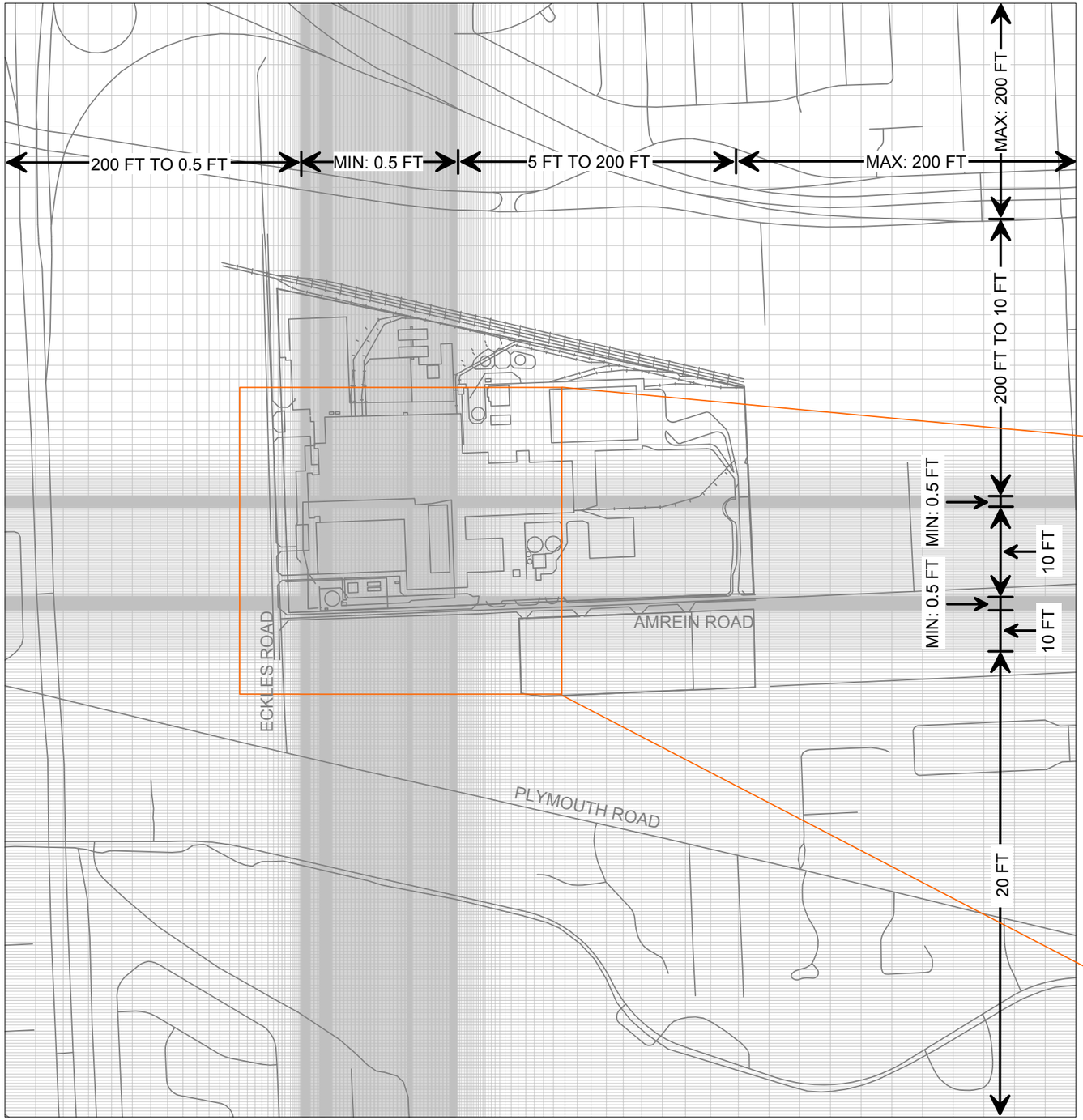


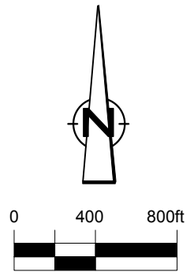
LEGEND

- MODEL DOMAIN
- NO-FLOW BOUNDARY CONDITION
- LINEARLY VARIABLE CONSTANT HEAD BOUNDARY CONDITION
- FRENCH DRAIN COLLECTION SYSTEM

figure 5.1

GROUNDWATER FLOW MODEL DOMAIN
AND BOUNDARY CONDITIONS
13000 ECKLES ROAD SITE
Livonia, Michigan





LEGEND

MODEL DOMAIN

MODEL GRID

MIN: 10 FT — MODEL HORIZONTAL GRID SPACING

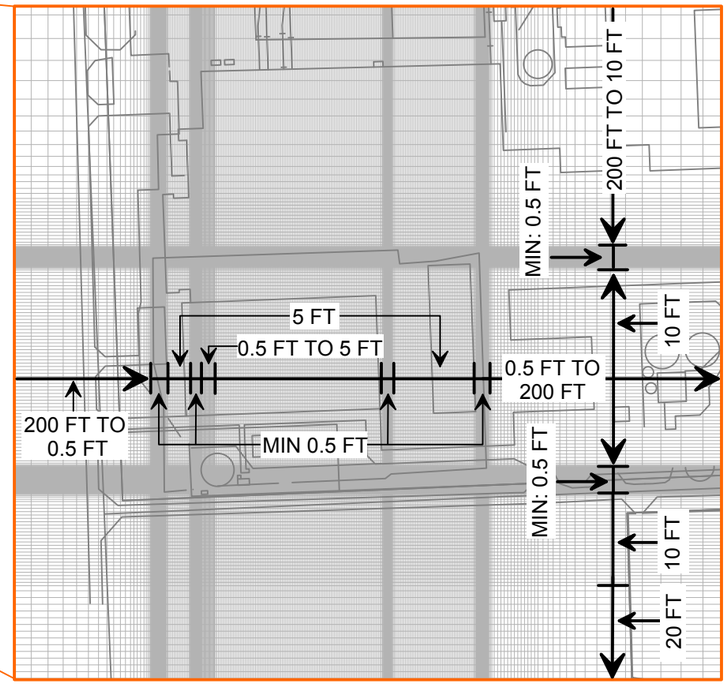
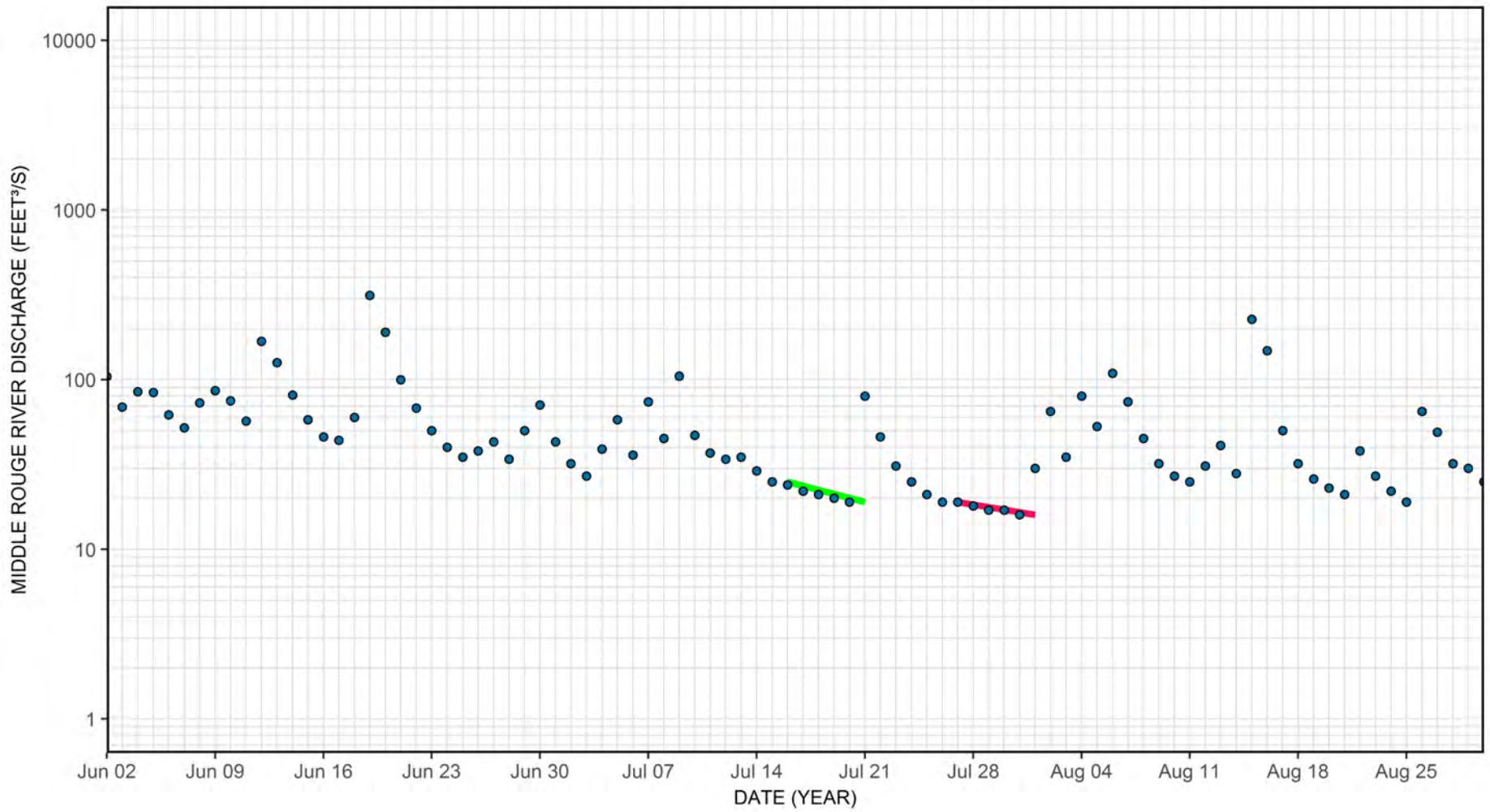


figure 5.2

FINITE-DIFFERENCE GRID
13000 ECKLES ROAD SITE
Livonia, Michigan

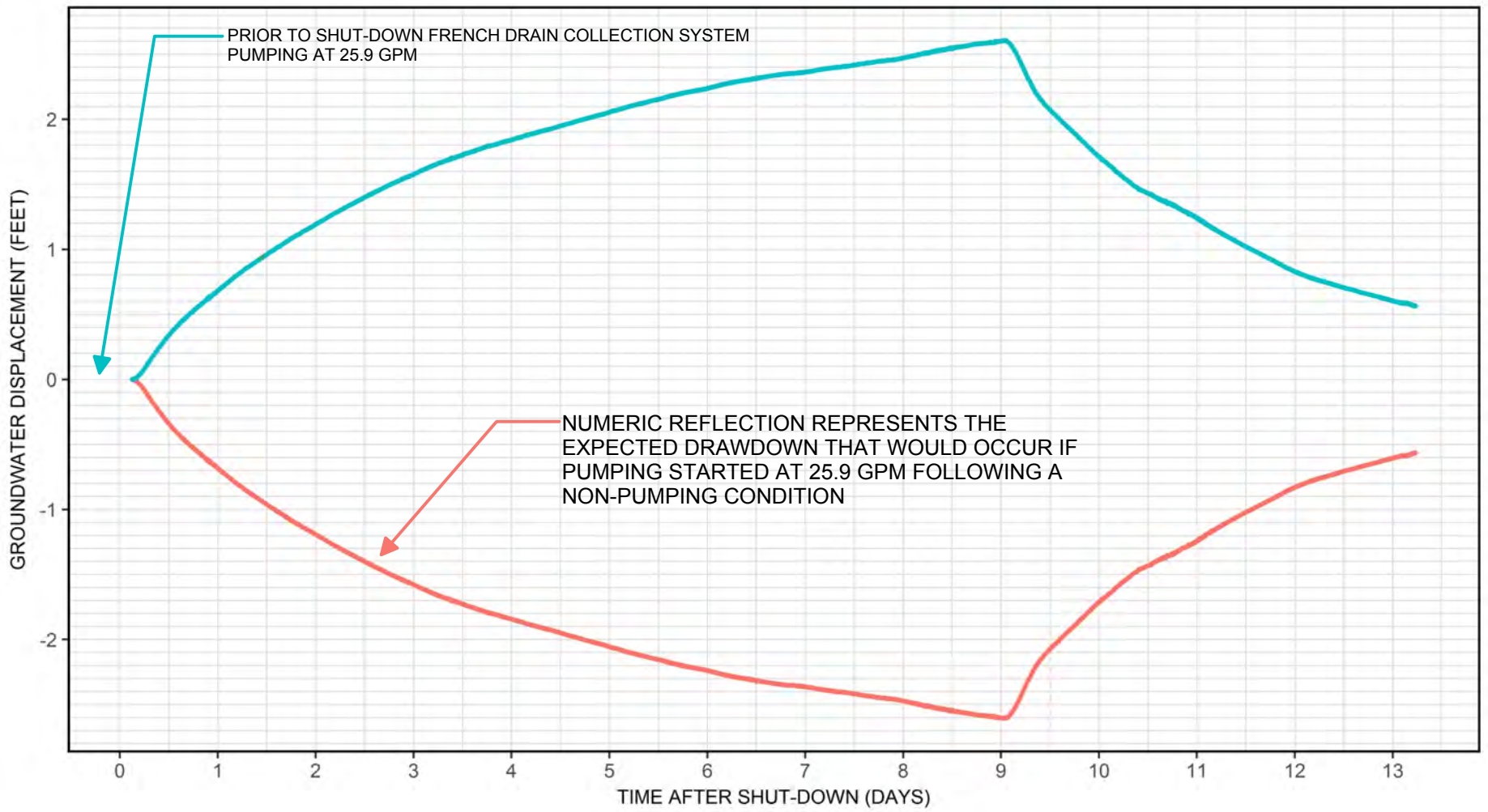


LEGEND

- DAILY ROUGE RIVER DISCHARGE (FEET³/S)
- FIRST BASEFLOW RECESSION
- SECOND BASEFLOW RECESSION

figure 5.3

MIDDLE ROUGE RIVER DISCHARGE AND BASEFLOW RECESSION CURVES (JUNE TO AUGUST 2003)
Livonia, Michigan



LEGEND

GROUNDWATER REBOUND AT PZ-SW-9 FOLLOWING FRENCH DRAIN COLLECTION SYSTEM SHUT-DOWN EVENT

NUMERIC REFLECTION OF THE GROUNDWATER REBOUND AT PZ-SW-9 FOLLOWING FRENCH DRAIN COLLECTION SYSTEM SHUT-DOWN EVENT

figure 5.4

MARCH 2014 REBOUND AND NUMERIC REFLECTION AT PZ-SW-9 FOLLOWING FRENCH DRAIN COLLECTION SYSTEM SHUT-DOWN EVENT
13000 ECKLES ROAD SITE
Livonia, Michigan

12607-T02Y13(065)GN-WA-HYD (Z:\HEG\012607\DOCUMENTATION\REPORTS\012607-RPT-65\FIGURES\FigureFiles\GW_REBOUND.srf) JAN 18/2017

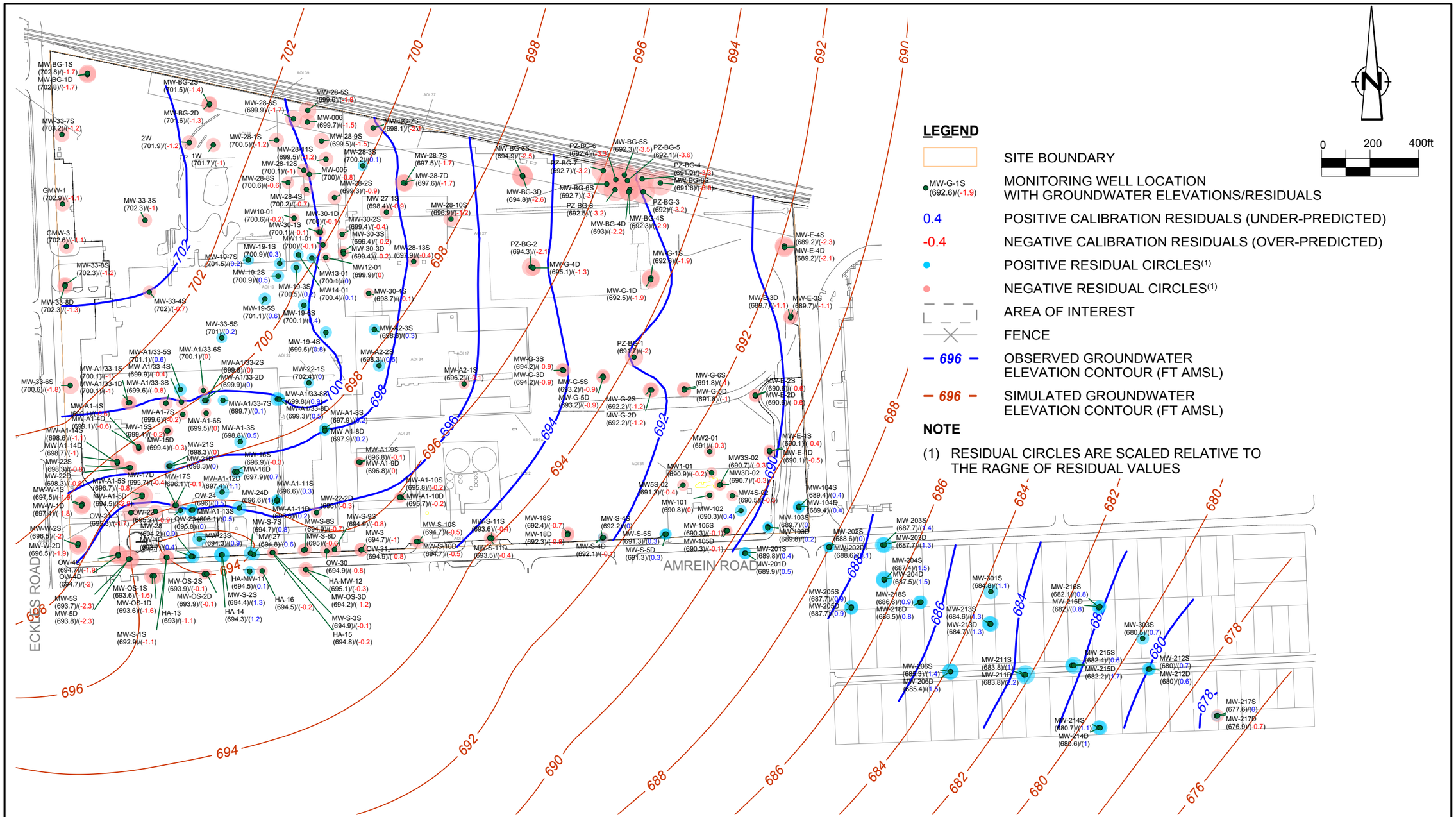
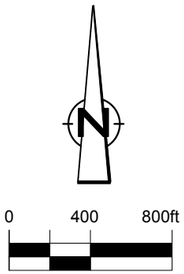


figure 6.1

SIMULATED VS. OBSERVED GROUNDWATER ELEVATIONS CONTOURS - AUGUST 21, 2003 MODEL
13000 ECKLES ROAD SITE
Livonia, Michigan



LEGEND

- MODEL DOMAIN
- NO-FLOW BOUNDARY CONDITION
- LINEARLY VARIABLE CONSTANT HEAD BOUNDARY CONDITION
- FRENCH DRAIN COLLECTION SYSTEM

HYDRAULIC CONDUCTIVITY ZONES

- SILTY SAND (23 FEET / DAY)
- SAND (75.2 FEET / DAY)

figure 6.2

MODEL BOUNDARY CONDITIONS AND
HYDRAULIC CONDUCTIVITY ZONES
13000 ECKLES ROAD SITE
Livonia, Michigan

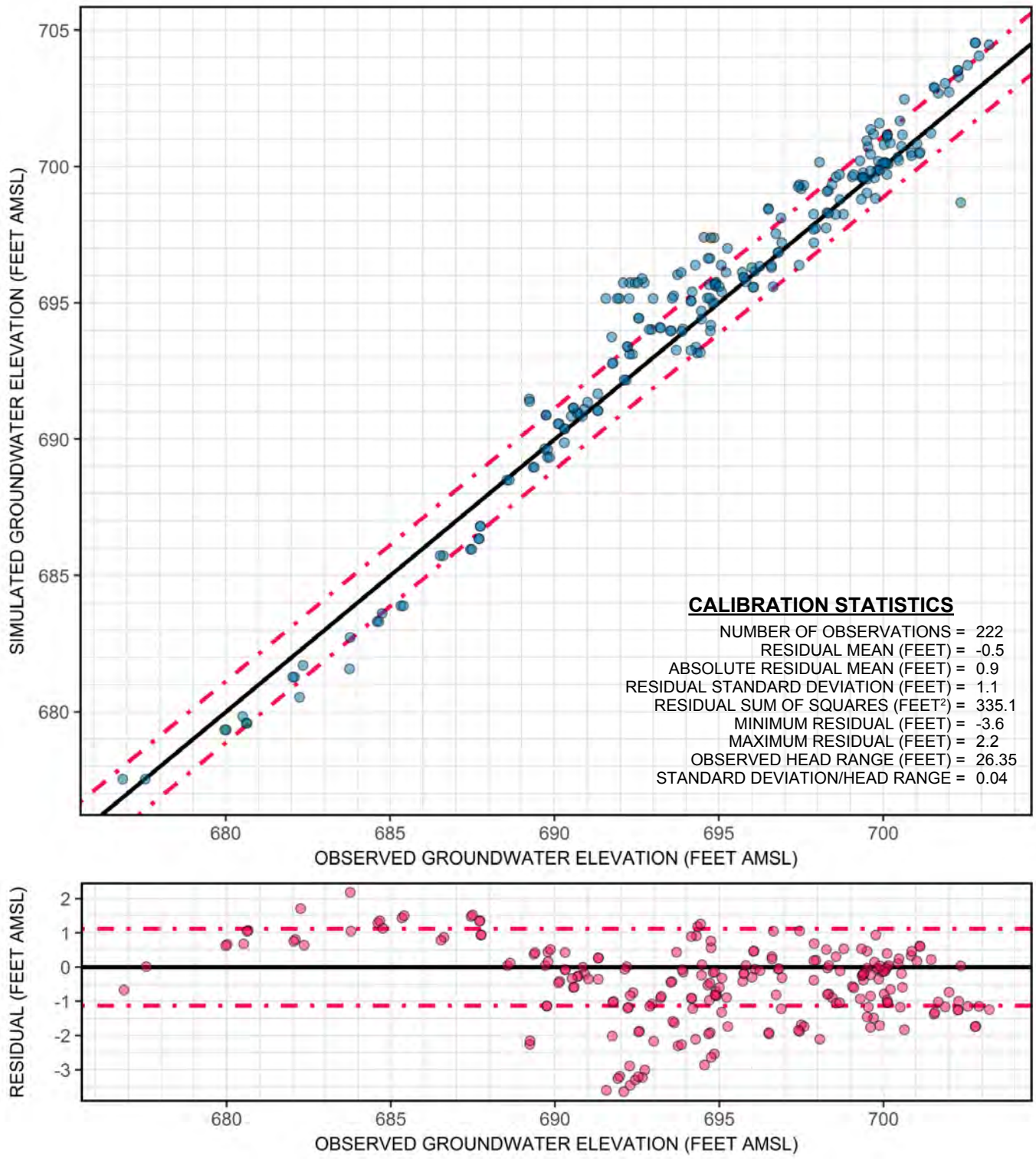
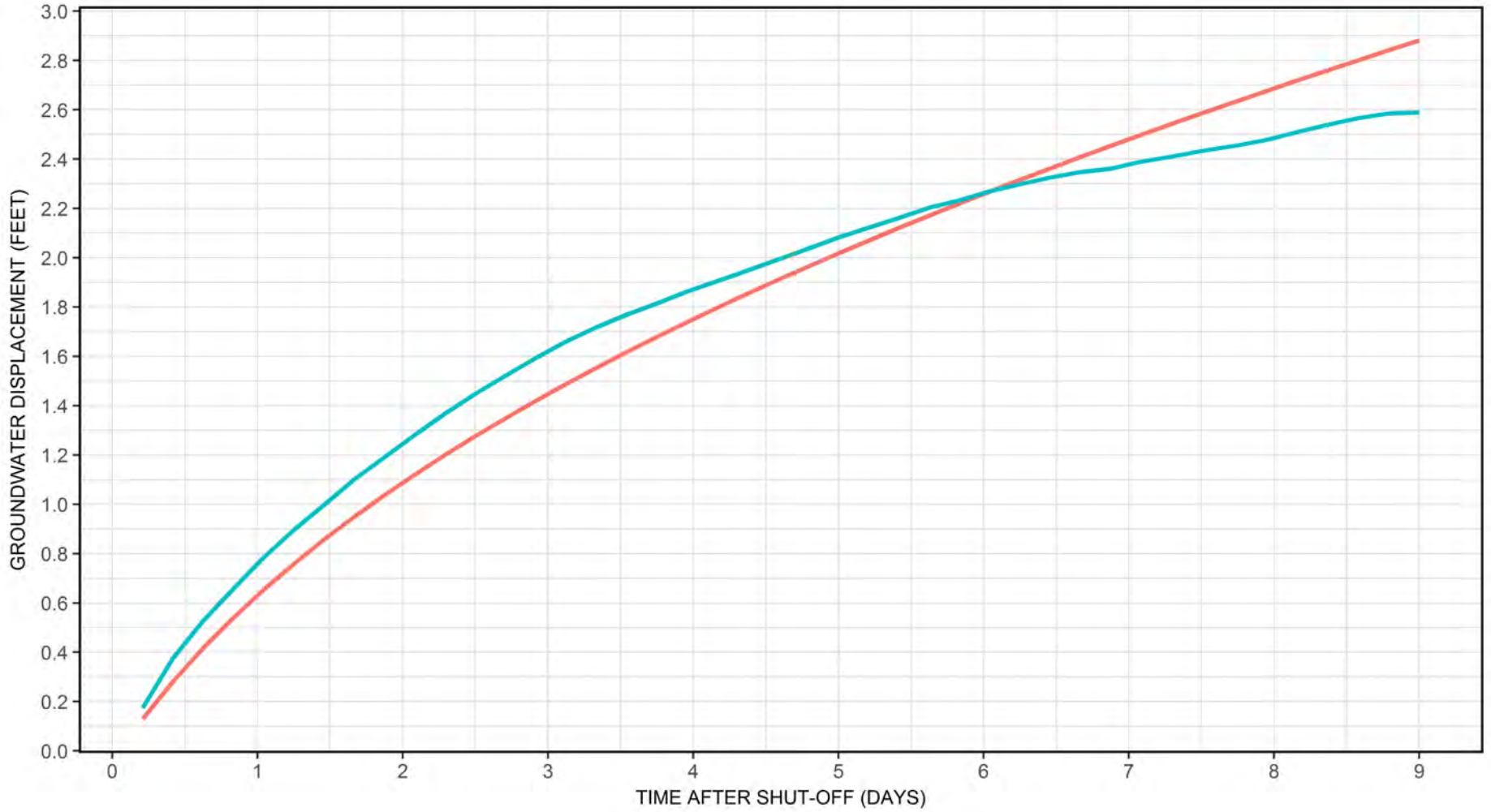


figure 6.3

SCATTER PLOT OF SIMULATED VS. OBSERVED GROUNDWATER ELEVATIONS (AUGUST 21, 2003)
13000 ECKLES ROAD SITE
Livonia, Michigan

012607-T02Y16(065)GN-WA-HYD (Z:\HEG\012607\DOCUMENTATION\REPORTS\012607-RPT-65\FIGURES\ObsVsSim.srf) JAN 18/2017



LEGEND

OBSERVED GROUNDWATER REBOUND AT PZ-SW-9 FOLLOWING FRENCH DRAIN COLLECTION SYSTEM SHUT-DOWN EVENT

SIMULATED GROUNDWATER REBOUND AT PZ-SW-9 FOLLOWING FRENCH DRAIN COLLECTION SYSTEM SHUT-DOWN EVENT

figure 6.4

MARCH 2014 OBSERVED AND SIMULATED GROUNDWATER DISPLACEMENT AT PZ-SW-9 FOLLOWING FRENCH DRAIN COLLECTION SYSTEM SHUT-DOWN EVENT
13000 ECKLES ROAD SITE
Livonia, Michigan

12607-T02Y13(065)GN-WA-HYD (Z:\HEG\012607\DOCUMENTATION\REPORTS\012607-RPT-65\FIGURES\FigureFiles\GW_REBOUND_OBS_v_SIM.srf) JAN 18/2017

Table 2.1

August 21, 2003 Groundwater Elevation Measurements
and Well Construction Details
13000 Eckles Road Site
Livonia, Michigan

Location	Measured Depth to Water (feet)	Well Depth (feet)	Northing	Easting	Top of Casing Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)	Depth to Well Bottom Elevation (feet AMSL)
Shallow							
1W	5.03	16.30	321755.26	13376811.58	706.70	701.67	690.40
2W	3.73	14.00	321764.44	13376712.93	705.61	701.88	691.61
GMW-001	10.45	24.60	321511.68	13376190.80	713.36	702.91	688.76
GMW-003	8.78	24.60	321337.51	13376206.61	711.35	702.57	686.75
HA-13	15.56	17.38	320057.84	13376618.23	708.51	692.95	691.13
HA-14	14.02	29.43	320067.97	13376845.36	708.36	694.34	678.93
HA-15	13.05	26.20	320077.14	13377053.76	707.86	694.81	681.66
HA-16	10.07	29.50	320001.54	13377012.63	704.53	694.46	675.03
HA-MW-11	10.02	17.45	319999.90	13376961.32	704.49	694.47	687.04
HA-MW-12	9.17	15.75	320007.73	13377192.66	704.25	695.08	688.50
MW-005	8.14	27.82	321634.38	13377206.98	708.16	700.02	680.34
MW-006	8.02	17.02	321849.34	13377199.14	707.72	699.70	690.70
MW-10-01	6.45	14.50	321453.42	13377144.23	707.00	700.55	692.50
MW-101	11.73	17.77	320313.42	13378855.10	702.57	690.84	684.80
MW1-01	13.63	16.26	320406.10	13378863.32	704.53	690.90	688.27
MW-102	12.35	17.40	320250.36	13378984.11	702.65	690.30	685.25
MW-103S	12.00	17.50	320184.36	13379094.35	701.70	689.70	684.20
MW-104S	12.75	18.00	320261.78	13379222.54	702.10	689.35	684.10
MW-105S	12.23	17.93	320167.08	13378922.87	702.54	690.31	684.61
MW-11-01	8.27	14.00	321343.86	13377263.03	708.22	699.95	694.22
MW-12-01	8.24	13.70	321292.13	13377274.27	708.09	699.85	694.39
MW-13-01	7.49	13.35	321289.48	13377217.43	707.61	700.12	694.26
MW-14-01	6.87	14.42	321302.96	13377162.52	707.31	700.44	692.89
MW-15S	11.15	17.35	320578.90	13376624.56	710.55	699.40	693.20
MW-16S	9.37	14.93	320409.37	13376899.92	706.28	696.91	691.35
MW-17S	10.25	16.25	320271.83	13376654.42	706.34	696.09	690.09
MW-18S	11.60	15.30	320156.52	13378271.79	703.97	692.37	688.67
MW-19-1S	8.66	18.08	321267.18	13377085.07	709.51	700.85	691.43
MW-19-2S	8.60	19.02	321215.22	13377078.56	709.46	700.86	690.44
MW-19-3S	9.14	19.06	321250.19	13377153.27	709.61	700.47	690.55
MW-19-4S	9.86	19.77	320983.49	13377275.18	709.36	699.50	689.59
MW-19-5S	8.95	17.58	321121.06	13377023.76	710.05	701.10	692.47
MW-19-6S	9.72	16.68	321095.09	13377184.58	709.83	700.11	693.15
MW-19-7S	6.77	14.30	321282.38	13376955.98	708.22	701.45	693.92

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MW2-01	14.19	17.71	320493.18	13378855.43	705.20	691.01	687.49
MW-201S	12.31	16.73	320075.09	13378999.27	702.09	689.78	685.36
MW-202S	10.70	14.47	320099.72	13379349.06	699.25	688.55	684.78
MW-203S	9.97	14.70	320108.51	13379567.59	697.68	687.71	682.98
MW-204S	9.89	12.35	319963.51	13379574.06	697.33	687.44	684.98
MW-205S	9.68	11.03	319853.49	13379438.37	697.42	687.74	686.39
MW-206S	10.23	14.75	319587.74	13379848.10	695.56	685.33	680.81
MW-211S	10.54	15.79	319574.18	13380149.80	694.32	683.78	678.53
MW-212S	6.10	14.30	319597.58	13380661.52	686.11	680.01	671.81
MW-213S	10.88	14.81	319784.66	13380007.41	695.48	684.60	680.67
MW-214S	7.15	12.55	319357.40	13380458.18	687.80	680.65	675.25
MW-215S	9.04	12.72	319612.72	13380346.98	691.39	682.35	678.67
MW-216S	7.01	12.42	319851.18	13380457.75	689.10	682.09	676.68
MW-217S	6.02	13.00	319405.29	13380941.99	683.57	677.55	670.57
MW-218S	10.95	12.72	319872.83	13379719.99	697.56	686.61	684.84
MW-21S	7.80	12.31	320433.40	13376628.82	706.09	698.29	693.78
MW-22-1S	7.00	18.25	320775.97	13377205.07	709.36	702.36	691.11
MW-22S	12.31	17.21	320426.58	13376464.30	710.65	698.34	693.44
MW-23S	13.37	16.45	320133.07	13376753.98	707.67	694.30	691.22
MW-27	13.21	25.13	320069.86	13376977.48	707.96	694.75	682.83
MW-27-1S	9.35	17.53	321478.40	13377524.45	707.79	698.44	690.26
MW-28	14.35	25.04	320061.11	13376727.19	708.50	694.15	683.46
MW-28-10S	9.00	18.18	321450.41	13377790.13	705.89	696.89	687.71
MW-28-11S	8.68	19.25	321696.15	13377275.44	708.22	699.54	688.97
MW-28-12S	7.78	17.68	321650.95	13377184.23	707.89	700.11	690.21
MW-28-13S	9.32	18.00	321275.44	13377636.88	707.20	697.88	689.20
MW-28-1S	7.69	16.38	321774.81	13377071.86	708.20	700.51	691.82
MW-28-2S	9.19	19.24	321538.48	13377310.64	708.48	699.29	689.24
MW-28-3S	8.32	20.31	321669.76	13377426.92	708.47	700.15	688.16
MW-28-4S	7.46	17.72	321572.04	13377195.19	707.67	700.21	689.95
MW-28-5S	7.70	17.40	321897.76	13377200.76	707.31	699.61	689.91
MW-28-6S	7.68	17.73	321862.64	13377141.98	707.56	699.88	689.83
MW-28-7S	10.95	20.38	321597.82	13377600.71	708.45	697.50	688.07
MW-28-8S	7.88	17.16	321600.16	13377119.23	708.46	700.58	691.30
MW-28-9S	9.28	13.40	321771.43	13377256.86	708.78	699.50	695.38
MW-3	11.74	17.00	320088.68	13377419.96	706.44	694.70	689.44

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MW-301S	12.20	17.97	319916.52	13380013.23	696.95	684.75	678.98
MW-30-1S	8.09	16.38	321397.25	13377245.84	708.14	700.05	691.76
MW-30-2S	9.84	19.30	321387.59	13377342.09	709.23	699.39	689.93
MW-303S	6.90	14.25	319724.04	13380638.17	687.41	680.51	673.16
MW-30-3S	9.25	18.15	321316.25	13377346.04	708.61	699.36	690.46
MW-30-4S	8.78	19.05	321144.38	13377451.39	707.46	698.68	688.41
MW-33-3S	5.93	18.40	321445.09	13376530.33	708.22	702.29	689.82
MW-33-4S	7.25	17.60	321149.41	13376548.05	709.25	702.00	691.65
MW-33-5S	8.46	18.10	320961.29	13376846.40	709.48	701.02	691.38
MW-33-6S	9.60	19.05	320765.10	13376222.36	710.24	700.64	691.19
MW-33-7S	10.75	19.70	321797.98	13376188.56	713.97	703.22	694.27
MW-33-8S	8.41	17.90	321180.20	13376201.45	710.69	702.28	692.79
MW-3D-02	14.55	30.17	320356.62	13378900.38	705.25	690.70	675.08
MW-3S-02	14.80	16.70	320355.19	13378895.88	705.48	690.68	688.78
MW4-02	15.52	16.50	320311.32	13378948.45	706.03	690.51	689.53
MW5-02	15.63	20.90	320354.85	13378745.35	706.94	691.31	686.04
MW-5S	14.68	19.48	320051.15	13376468.11	708.42	693.74	688.94
MW-A1/33-1S	8.76	18.42	320694.12	13376461.72	708.89	700.13	690.47
MW-A1/33-2S	9.04	19.19	320704.77	13376782.37	708.84	699.80	689.65
MW-A1/33-3S	9.85	19.22	320691.83	13376616.47	709.46	699.61	690.24
MW-A1/33-4S	9.63	17.53	320696.88	13376680.49	709.48	699.85	691.95
MW-A1/33-5S	8.46	18.10	320748.54	13376676.18	709.58	701.12	691.48
MW-A1/33-6S	9.42	17.62	320744.12	13376770.55	709.50	700.08	691.88
MW-A1/33-7S	9.83	19.29	320703.77	13376851.50	709.56	699.73	690.27
MW-A1/33-8S	9.78	20.21	320709.14	13377075.42	709.54	699.76	689.33
MW-A1-10S	13.82	23.50	320305.03	13377584.93	709.58	695.76	686.08
MW-A1-11S	12.92	22.58	320288.55	13377074.26	709.52	696.60	686.94
MW-A1-13S	13.20	23.45	320252.11	13376721.46	709.26	696.06	685.81
MW-A1-14S	11.04	19.85	320446.18	13376416.28	709.60	698.56	689.75
MW-A1-3S	10.97	19.08	320533.69	13376922.78	709.76	698.79	690.68
MW-A1-4S	10.04	17.98	320506.73	13376504.79	709.09	699.05	691.11
MW-A1-5S	12.61	21.16	320314.81	13376518.11	709.34	696.73	688.18
MW-A1-6S	9.92	18.50	320651.06	13376782.16	709.42	699.50	690.92
MW-A1-7S	9.85	18.58	320646.18	13376686.18	709.46	699.61	690.88
MW-A1-8S	11.61	21.45	320587.84	13377269.80	709.55	697.94	688.10
MW-A1-9S	12.82	22.88	320448.89	13377415.71	709.61	696.79	686.73

Table 2.1

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MW-A2-1S	12.37	19.88	320771.54	13377844.19	708.61	696.24	688.73
MW-A2-2S	11.18	20.76	320846.70	13377494.17	709.44	698.26	688.68
MW-A2-3S	11.06	19.95	320995.44	13377474.6	709.61	698.55	689.66
MW-BG-1S	9.78	16.51	322044.73	13376293.43	712.59	702.81	696.08
MW-BG-2S	7.09	15.30	321920.51	13376794.95	708.63	701.54	693.33
MW-BG-3S	10.57	18.57	321625.23	13378086.06	705.42	694.85	686.85
MW-BG-4S	11.15	19.86	321571.37	13378526.04	703.42	692.27	683.56
MW-BG-5S	11.04	19.04	321631.66	13378504.13	703.32	692.28	684.28
MW-BG-6S	8.60	17.39	321594.12	13378431.64	701.33	692.73	683.94
MW-BG-7S	9.81	18.08	321825.06	13377469.80	707.87	698.06	689.79
MW-BG-8S	11.00	19.80	321598.52	13378652.02	702.56	691.56	682.76
MW-E-1S	14.20	21.28	320492.17	13379102.24	704.34	690.14	683.06
MW-E-2S	12.20	19.24	320721.51	13379043.98	702.76	690.56	683.52
MW-E-3S	12.71	21.15	321050.49	13379189.93	702.45	689.74	681.30
MW-E-4S	13.25	21.80	321339.32	13379162.76	702.48	689.23	680.68
MW-G-1S	10.74	19.90	321207.78	13378613.27	703.31	692.57	683.41
MW-G-2S	16.20	24.89	320746.11	13378610.61	708.43	692.23	683.54
MW-G-3S	9.60	17.19	320829.03	13378249.09	703.76	694.16	686.57
MW-G-5S	13.17	19.50	320803.64	13378415.91	706.38	693.21	686.88
MW-G-6S	16.43	24.10	320751.25	13378750.65	708.21	691.78	684.11
MW-OS-1S	10.00	16.95	319981.35	13376560.15	703.63	693.63	686.68
MW-OS-2S	10.67	17.95	319988.70	13376774.47	704.57	693.90	686.62
MW-S-10S	11.68	20.73	320122.07	13377654.94	706.33	694.65	685.60
MW-S-11S	12.49	22.58	320136.21	13377958.45	706.04	693.55	683.46
MW-S-1S	17.00	21.85	320057.77	13376620.74	709.88	692.88	688.03
MW-S-2S	14.83	21.58	320067.96	13376848.03	709.26	694.43	687.68
MW-S-3S	13.83	20.82	320077.61	13377056.93	708.69	694.86	687.87
MW-S-4S	11.23	19.44	320138.32	13378414.51	703.41	692.18	683.97
MW-S-5S	14.81	20.23	320152.87	13378671.48	706.13	691.32	685.90
MW-S-7S	14.23	24.03	320074.80	13376964.42	708.97	694.74	684.94
MW-S-8S	13.34	21.85	320090.18	13377190.09	708.24	694.90	686.39
MW-S-9S	12.52	20.32	320090.18	13377310.48	707.44	694.92	687.12
MW-W-1S	10.40	18.82	320276.00	13376272.45	707.85	697.45	689.03
MW-W-2S	11.72	19.11	320106.06	13376253.85	708.23	696.51	689.12
OW-21	12.37	25.25	320241.49	13376472.05	707.63	695.26	682.38
OW-22	12.15	25.15	320246.75	13376573.38	707.37	695.22	682.22

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OW-23	11.85	25.00	320250.89	13376675.76	707.66	695.81	682.66
OW-24	11.58	25.12	320252.72	13376726.56	707.62	696.04	682.50
OW-30	11.65	23.20	320083.60	13377278.67	706.54	694.89	683.34
OW-31	10.60	25.12	320089.40	13377422.07	705.47	694.87	680.35
OW-4S	13.72	16.25	320070.08	13376419.96	708.44	694.72	692.19
PZ-BG-1	13.78	20.63	320881.63	13378544.16	705.52	691.74	684.89
PZ-BG-2	10.85	18.66	321252.65	13378120.27	705.13	694.28	686.47
PZ-BG-3	9.55	17.14	321562.29	13378581.77	701.52	691.97	684.38
PZ-BG-4	10.64	16.40	321615.13	13378577.39	702.55	691.91	686.15
PZ-BG-5	8.69	14.65	321608.28	13378516.34	700.78	692.09	686.13
PZ-BG-6	8.82	13.50	321612.3	13378469.11	701.26	692.44	687.76
PZ-BG-7	9.87	15.80	321649.52	13378417.24	702.53	692.66	686.73
PZ-BG-8	9.44	15.40	321570.54	13378465.64	701.97	692.53	686.57
Deep							
MW-103D	12.01	30.01	320179.04	13379094.54	701.80	689.79	671.79
MW-104D	12.80	30.77	320267.27	13379222.83	702.19	689.39	671.42
MW-105D	12.17	33.10	320167.22	13378927.81	702.47	690.30	669.37
MW-15D	6.74	22.70	320578.55	13376621.10	706.09	699.35	683.39
MW-16D	8.45	23.50	320409.35	13376909.49	706.34	697.89	682.84
MW-17D	10.62	24.60	320272.20	13376658.48	706.33	695.71	681.73
MW-18D	11.46	29.63	320150.79	13378270.87	703.74	692.28	674.11
MW-201D	12.13	34.60	320075.29	13379002.84	701.98	689.85	667.38
MW-202D	10.62	33.70	320099.75	13379345.72	699.25	688.63	665.55
MW-203D	9.80	31.28	320108.98	13379574.92	697.49	687.69	666.21
MW-204D	9.79	33.70	319967.81	13379573.36	697.27	687.48	663.57
MW-205D	9.69	33.75	319850.18	13379438.36	697.44	687.75	663.69
MW-206D	10.20	29.03	319587.44	13379845.63	695.60	685.40	666.57
MW-211D	10.43	29.47	319574.76	13380155.65	694.19	683.76	664.72
MW-212D	6.20	30.84	319597.72	13380666.63	686.17	679.97	655.33
MW-213D	10.57	35.43	319783.23	13380012.94	695.23	684.66	659.80
MW-214D	7.02	25.21	319356.21	13380463.34	687.64	680.62	662.43
MW-215D	8.97	30.81	319612.87	13380354.32	691.22	682.25	660.41
MW-216D	7.01	23.33	319854.91	13380461.80	689.05	682.04	665.72
MW-217D	6.76	26.90	319405.86	13380946.16	683.63	676.87	656.73
MW-218D	10.96	33.90	319873.59	13379725.08	697.48	686.52	663.58

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MW-21D	7.88	22.35	320434.00	13376633.78	706.22	698.34	683.87
MW-22-2D	13.66	30.35	320241.75	13377236.52	709.66	696.00	679.31
MW-22D	12.27	26.60	320426.66	13376470.95	710.56	698.29	683.96
MW-24D	12.08	27.81	320259.88	13376918.83	708.73	696.65	680.92
MW-28-7D	10.75	30.16	321598.90	13377594.04	708.33	697.58	678.17
MW-30-1D	8.25	29.74	321396.35	13377252.96	708.25	700.00	678.51
MW-30-3D	9.15	23.41	321307.81	13377347.58	708.55	699.40	685.14
MW-33-8D	8.40	27.93	321174.60	13376201.02	710.67	702.27	682.74
MW-4D	15.41	28.16	320061.73	13376721.27	709.11	693.70	680.95
MW-5D	14.20	27.41	320050.80	13376463.08	708.05	693.85	680.64
MW-A1/33-1D	9.10	26.00	320694.42	13376467.46	709.22	700.12	683.22
MW-A1/33-2D	9.16	12.94	320704.21	13376776.22	709.05	699.89	696.11
MW-A1/33-8D	10.23	27.94	320708.54	13377083.42	709.56	699.33	681.62
MW-A1-10D	13.91	32.10	320305.04	13377578.77	709.65	695.74	677.55
MW-A1-11D	12.90	30.70	320294.50	13377074.03	709.50	696.60	678.80
MW-A1-12D	12.46	29.63	320326.28	13376847.76	709.90	697.44	680.27
MW-A1-14D	10.96	25.91	320452.41	13376415.66	709.62	698.66	683.71
MW-A1-4D	9.76	26.48	320512.90	13376503.96	708.86	699.10	682.38
MW-A1-5D	15.04	26.35	320308.25	13376518.34	709.59	694.55	683.24
MW-A1-8D	11.70	29.71	320578.95	13377270.89	709.58	697.88	679.87
MW-A1-9D	12.89	29.14	320449.73	13377411.34	709.71	696.82	680.57
MW-BG-1D	9.03	25.28	322050.31	13376293.75	711.82	702.79	686.54
MW-BG-2D	6.49	23.40	321924.04	13376796.28	708.06	701.57	684.66
MW-BG-3D	10.19	31.96	321629.35	13378083.95	704.94	694.75	672.98
MW-BG-4D	10.59	29.00	321561.47	13378522.38	703.59	693.00	674.59
MW-E-1D	14.22	31.40	320497.06	13379101.83	704.32	690.10	672.92
MW-E-2D	11.31	30.38	320725.38	13379043.00	701.89	690.58	671.51
MW-E-3D	12.69	30.70	321044.24	13379188.21	702.44	689.75	671.74
MW-E-4D	13.33	30.92	321332.92	13379163.32	702.57	689.24	671.65
MW-G-1D	10.86	30.58	321201.02	13378612.40	703.41	692.55	672.83
MW-G-2D	16.33	38.35	320746.30	13378616.20	708.54	692.21	670.19
MW-G-3D	9.19	28.60	320827.35	13378254.03	703.34	694.15	674.74
MW-G-4D	10.89	32.53	321248.92	13378128.65	705.96	695.07	673.43
MW-G-5D	13.36	32.62	320798.99	13378417	706.59	693.23	673.97
MW-G-6D	16.01	40.16	320746.15	13378750.81	707.76	691.75	667.60
MW-OS-1D	10.10	22.28	319981.36	13376568.37	703.68	693.58	681.40

August 21, 2003 Groundwater Elevation Measurements
and Well Construction Details
13000 Eckles Road Site
Livonia, Michigan

Location	Measured Depth to Water (feet)	Well Depth (feet)	Northing	Easting	Top of Casing Elevation (feet AMSL)	Groundwater Elevation (feet AMSL)	Depth to Well Bottom Elevation (feet AMSL)
MW-OS-2D	10.84	27.16	319989.50	13376784.72	704.71	693.87	677.55
MW-OS-3D	9.63	24.63	320007.23	13377192.43	703.82	694.19	679.19
MW-S-10D	11.60	27.30	320122.61	13377647.71	706.31	694.71	679.01
MW-S-11D	12.88	33.45	320137.01	13377950.02	706.40	693.52	672.95
MW-S-4D	11.20	31.44	320139.04	13378417.74	703.32	692.12	671.88
MW-S-5D	15.28	35.25	320153.28	13378676.28	706.60	691.32	671.35
MW-S-8D	12.95	26.45	320087.80	13377184.26	707.96	695.01	681.51
MW-W-1D	10.38	23.73	320269.80	13376269.03	707.79	697.41	684.06
MW-W-2D	11.39	24.22	320114.19	13376255.83	707.90	696.51	683.68
OW-4D	14.08	26.20	320065.05	13376419.99	708.75	694.67	682.55

Table 5.1

Recharge Calculations
13000 Eckles Road Site
Livonia, Michigan

A. Field Measurements

Drainage Area (mi^2)[(1)]: 100
River Gauge:[(1)] Middle Rouge River, Near Garden City

	First Baseflow Recession[(2)]		Second Baseflow Recession[(2)]	
	Start Date	End Date	Start Date	End Date
Dates:	July 15, 2003	July 20, 2003	July 26, 2003	July 31, 2003
Discharge (ft^3/s):	25	19	19	16

B. Recharge Calculations [(3)]

1. Recession Constant (day^{-1}):
   = ln(discharge ratio) / time difference
   - Discharge ratio is based on the discharge values for each recession
   First Baseflow Recession: -0.055
   Second Baseflow Recession: -0.034

2. Time at one log cycle after initial discharge (day):
   = ln(0.1) / recession constant
   First Baseflow Recession: 42
   Second Baseflow Recession: 67

3. Total Potential Discharge after one log cycle ($feet^3$):
   = initial flow × time / 2.3 × 24 × 3600
   - Time is based on time at one log cycle after initial discharge
   First Baseflow Recession: 39,397,548
   Second Baseflow Recession: 47,816,195

4. Remaining Groundwater volume in the First Baseflow Recession ($feet^3$): 3,939,755
   - Based on 10% of the total potential discharge in the First Baseflow Recession

5. Recharge ($feet^3$): 43,876,440
   = total potential discharge of the Second Baseflow Recession - Remaining groundwater volume in the First Baseflow Recession

6. Recharge period (days)
   = Starting date of Second Baseflow Recession + Time at one log cycle after initial discharge - End date of First Baseflow Recession: 6

C. Recharge Rate

Recharge through drainage area (feet)	0.02
Recharge rate between the two recessions (feet/day)	0.0026
Annual Recharge rate (in/yr)	11.5
Annual precipitation (30-year average) (in/yr)	31
Percentage of precipitation (%)	36.7

Notes:

(1) USGS, 2013. USGS 04167000 Middle River Rouge, Near Garden City, MI. Accessed October 29, 2013.
(2) Values obtained from digitization of log-transformed discharge plot.
(3) Domenico and Schwartz, 1990. Physical and Chemical Hydrogeology. John Wiley & Sons, Inc., New York, NY. pp 824.

Table 6.1

Calibration Targets and Residuals for August 21, 2003 Model
13000 Eckles Road Site
Livonia, Michigan

Name	Observed Head (feet AMSL)	Simulated Head (ft AMSL)	Weight	Residual[(1)]
1W	701.7	702.7	1	-1.02
2W	701.9	703.0	1	-1.16
GMW-1	702.9	704.1	1	-1.15
GMW-3	702.6	703.7	1	-1.15
HA-13	693.0	694.0	1	-1.08
HA-14	694.3	693.2	1	1.18
HA-15	694.8	695.0	1	-0.16
HA-16	694.5	694.7	1	-0.24
HA-MW-11	694.5	694.4	1	0.07
HA-MW-12	695.1	695.4	1	-0.32
MW-005	700.0	700.8	1	-0.78
MW-006	699.7	701.2	1	-1.49
MW10-01	700.6	700.7	1	-0.19
MW-101	690.8	690.8	1	0.00
MW1-01	690.9	691.1	1	-0.20
MW-102	690.3	689.9	1	0.43
MW-103S	689.7	689.7	1	0.04
MW-104S	689.4	689.0	1	0.38
MW-105S	690.3	690.4	1	-0.07
MW11-01	700.0	700.1	1	-0.13
MW12-01	699.9	699.9	1	-0.04
MW13-01	700.1	700.1	1	0.01
MW14-01	700.4	700.3	1	0.10
MW-15S	699.4	699.6	1	-0.20
MW-16S	696.9	697.2	1	-0.31
MW-17S	696.1	696.2	1	-0.06
MW-18S	692.4	693.1	1	-0.74
MW-19-1S	700.9	700.5	1	0.33
MW-19-2S	700.9	700.4	1	0.46
MW-19-3S	700.5	700.2	1	0.24
MW-19-4S	699.5	699.0	1	0.46
MW-19-5S	701.1	700.5	1	0.62
MW-19-6S	700.1	699.7	1	0.40
MW-19-7S	701.5	701.2	1	0.22
MW2-01	691.0	691.4	1	-0.35
MW-201S	689.8	689.3	1	0.44
MW-202S	688.6	688.5	1	0.04
MW-203S	687.7	686.3	1	1.36
MW-204S	687.4	686.0	1	1.48
MW-205S	687.7	686.8	1	0.94
MW-206S	685.3	683.9	1	1.43
MW-211S	683.8	682.7	1	1.05
MW-212S	680.0	679.3	1	0.66
MW-213S	684.6	683.3	1	1.29
MW-214S	680.7	679.6	1	1.07
MW-215S	682.4	681.7	1	0.64

Table 6.1

Calibration Targets and Residuals for August 21, 2003 Model
13000 Eckles Road Site
Livonia, Michigan

Name	Observed Head (feet AMSL)	Simulated Head (ft AMSL)	Weight	Residual[(1)]
MW-216S	682.1	681.3	1	0.81
MW-217S	677.6	677.5	1	0.01
MW-218S	686.6	685.7	1	0.88
MW-21S	698.3	698.3	1	-0.02
MW-22-1S	702.4	698.7	0.01	0.04
MW-22S	698.3	699.1	1	-0.79
MW-23S	694.3	693.4	1	0.92
MW-27	694.8	694.2	1	0.56
MW-27-1S	698.4	699.3	1	-0.89
MW-28	694.2	693.3	1	0.89
MW-28-10S	696.9	698.1	1	-1.22
MW-28-11S	699.5	700.7	1	-1.17
MW-28-12S	700.1	701.1	1	-0.96
MW-28-13S	697.9	698.3	1	-0.38
MW-28-1S	700.5	701.7	1	-1.17
MW-28-2S	699.3	700.2	1	-0.93
MW-28-3S	700.2	700.1	1	0.05
MW-28-4S	700.2	700.9	1	-0.65
MW-28-5S	699.6	701.4	1	-1.76
MW-28-6S	699.9	701.6	1	-1.70
MW-28-7S	697.5	699.2	1	-1.68
MW-28-8S	700.6	701.2	1	-0.59
MW-28-9S	699.5	701.0	1	-1.46
MW-3	694.7	695.7	1	-0.97
MW-301S	684.8	683.6	1	1.14
MW-30-1S	700.1	700.2	1	-0.11
MW-30-2S	699.4	699.8	1	-0.38
MW-303S	680.5	679.8	1	0.68
MW-30-3S	699.4	699.6	1	-0.22
MW-30-4S	698.7	698.8	1	-0.11
MW-33-3S	702.3	703.3	1	-1.00
MW-33-4S	702.0	702.7	1	-0.73
MW-33-5S	701.0	700.8	1	0.18
MW-33-6S	700.6	702.5	1	-1.83
MW-33-7S	703.2	704.5	1	-1.24
MW-33-8S	702.3	703.5	1	-1.25
MW3D-02	690.7	691.0	1	-0.26
MW3S-02	690.7	691.0	1	-0.28
MW4S-02	690.5	690.8	1	-0.33
MW5S-02	691.3	691.7	1	-0.35
MW-5S	693.7	696.0	1	-2.30
MW-A1/33-1S	700.1	701.2	1	-1.04
MW-A1/33-2S	699.8	699.8	1	-0.04
MW-A1/33-3S	699.6	700.5	1	-0.84
MW-A1/33-4S	699.9	700.2	1	-0.35
MW-A1/33-5S	701.1	700.5	1	0.60

Table 6.1

Calibration Targets and Residuals for August 21, 2003 Model
13000 Eckles Road Site
Livonia, Michigan

Name	Observed Head (feet AMSL)	Simulated Head (ft AMSL)	Weight	Residual[(1)]
MW-A1/33-6S	700.1	700.1	1	-0.05
MW-A1/33-7S	699.7	699.6	1	0.15
MW-A1/33-8S	699.8	698.8	1	0.94
MW-A1-10S	695.8	695.9	1	-0.18
MW-A1-11S	696.6	696.3	1	0.30
MW-A1-13S	696.1	695.6	1	0.47
MW-A1-14S	698.6	699.6	1	-1.06
MW-A1-3S	698.8	698.3	1	0.53
MW-A1-4S	699.1	699.6	1	-0.57
MW-A1-5S	696.7	697.5	1	-0.81
MW-A1-6S	699.5	699.5	1	-0.03
MW-A1-7S	699.6	699.8	1	-0.23
MW-A1-8S	697.9	697.7	1	0.20
MW-A1-9S	696.8	696.8	1	-0.05
MW-A2-1S	696.2	696.3	1	-0.10
MW-A2-2S	698.3	697.7	1	0.51
MW-A2-3S	698.6	698.2	1	0.30
MW-BG-1S	702.8	704.5	1	-1.72
MW-BG-2S	701.5	702.9	1	-1.37
MW-BG-3S	694.9	697.4	1	-2.54
MW-BG-4S	692.3	695.2	1	-2.89
MW-BG-5S	692.3	695.7	1	-3.45
MW-BG-6S	692.7	695.7	1	-3.00
MW-BG-7S	698.1	700.2	1	-2.10
MW-BG-8S	691.6	695.2	1	-3.60
MW-E-1S	690.1	690.6	1	-0.42
MW-E-2S	690.6	691.2	1	-0.59
MW-E-3S	689.7	690.9	1	-1.14
MW-E-4S	689.2	691.5	1	-2.26
MW-G-1S	692.6	694.4	1	-1.87
MW-G-2S	692.2	693.4	1	-1.18
MW-G-3S	694.2	695.1	1	-0.92
MW-G-5S	693.2	694.1	1	-0.89
MW-G-6S	691.8	692.8	1	-1.01
MW-OS-1S	693.6	695.3	1	-1.63
MW-OS-2S	693.9	694.0	1	-0.15
MW-S-10S	694.7	695.2	1	-0.53
MW-S-11S	693.6	694.0	1	-0.42
MW-S-1S	692.9	694.0	1	-1.15
MW-S-2S	694.4	693.2	1	1.26
MW-S-3S	694.9	695.0	1	-0.15
MW-S-4S	692.2	692.2	1	0.01
MW-S-5S	691.3	691.1	1	0.27
MW-S-7S	694.7	694.0	1	0.77
MW-S-8S	694.9	695.6	1	-0.72
MW-S-9S	694.9	695.8	1	-0.83

Table 6.1

Calibration Targets and Residuals for August 21, 2003 Model
13000 Eckles Road Site
Livonia, Michigan

Name	Observed Head (feet AMSL)	Simulated Head (ft AMSL)	Weight	Residual[(1)]
MW-W-1S	697.5	699.3	1	-1.88
MW-W-2S	696.5	698.5	1	-1.95
OW-21	695.3	697.0	1	-1.74
OW-22	695.2	696.1	1	-0.89
OW-23	695.8	695.8	1	0.05
OW-24	696.0	695.6	1	0.47
OW-30	694.9	695.7	1	-0.83
OW-31	694.9	695.7	1	-0.80
OW-4S	694.7	696.6	1	-1.91
PZ-BG-1	691.7	693.8	1	-2.01
PZ-BG-2	694.3	696.4	1	-2.11
PZ-BG-3	692.0	695.2	1	-3.19
PZ-BG-4	691.9	695.2	1	-3.25
PZ-BG-5	692.1	695.7	1	-3.64
PZ-BG-6	692.4	695.7	1	-3.29
PZ-BG-7	692.7	695.9	1	-3.23
PZ-BG-8	692.5	695.7	1	-3.20
MW-103D	689.8	689.6	1	0.16
MW-104D	689.4	689.0	1	0.42
MW-105D	690.3	690.4	1	-0.08
MW-15D	699.4	699.6	1	-0.25
MW-16D	697.9	697.2	1	0.68
MW-17D	695.7	696.1	1	-0.42
MW-18D	692.3	693.1	1	-0.83
MW-201D	689.9	689.3	1	0.51
MW-202D	688.6	688.5	1	0.12
MW-203D	687.7	686.3	1	1.35
MW-204D	687.5	686.0	1	1.52
MW-205D	687.7	686.8	1	0.94
MW-206D	685.4	683.9	1	1.51
MW-211D	683.8	681.6	1	2.18
MW-212D	680.0	679.3	1	0.63
MW-213D	684.7	683.3	1	1.35
MW-214D	680.6	679.6	1	1.04
MW-215D	682.2	680.5	1	1.71
MW-216D	682.0	681.3	1	0.76
MW-217D	676.9	677.5	1	-0.67
MW-218D	686.5	685.7	1	0.79
MW-21D	698.3	698.3	1	0.05
MW-22-2D	696.0	696.3	1	-0.29
MW-22D	698.3	699.1	1	-0.80
MW-24D	696.6	695.6	1	1.05
MW-28-7D	697.6	699.3	1	-1.73
MW-30-1D	700.0	700.1	1	-0.12
MW-30-3D	699.4	699.6	1	-0.18
MW-33-8D	702.3	703.5	1	-1.26

Table 6.1

Calibration Targets and Residuals for August 21, 2003 Model
13000 Eckles Road Site
Livonia, Michigan

Name	Observed Head (feet AMSL)	Simulated Head (ft AMSL)	Weight	Residual[(1)]
MW-4D	693.7	693.3	1	0.44
MW-5D	693.8	696.1	1	-2.26
MW-A1/33-1D	700.1	701.1	1	-1.02
MW-A1/33-2D	699.9	699.9	1	0.03
MW-A1/33-8D	699.3	698.8	1	0.53
MW-A1-10D	695.7	695.9	1	-0.19
MW-A1-11D	696.6	696.4	1	0.24
MW-A1-12D	697.4	696.4	1	1.06
MW-A1-14D	698.7	699.7	1	-1.04
MW-A1-4D	699.1	699.7	1	-0.60
MW-A1-5D	694.5	697.4	1	-2.86
MW-A1-8D	697.9	697.7	1	0.19
MW-A1-9D	696.8	696.9	1	-0.05
MW-BG-1D	702.8	704.5	1	-1.74
MW-BG-2D	701.6	702.9	1	-1.33
MW-BG-3D	694.8	697.4	1	-2.64
MW-BG-4D	693.0	695.2	1	-2.16
MW-E-1D	690.1	690.6	1	-0.46
MW-E-2D	690.6	691.2	1	-0.58
MW-E-3D	689.7	690.9	1	-1.14
MW-E-4D	689.2	691.4	1	-2.15
MW-G-1D	692.5	694.4	1	-1.89
MW-G-2D	692.2	693.4	1	-1.20
MW-G-3D	694.2	695.1	1	-0.90
MW-G-4D	695.1	696.4	1	-1.32
MW-G-5D	693.2	694.1	1	-0.85
MW-G-6D	691.8	692.8	1	-1.02
MW-OS-1D	693.6	695.2	1	-1.59
MW-OS-2D	693.9	693.9	1	-0.07
MW-OS-3D	694.2	695.4	1	-1.21
MW-S-10D	694.7	695.2	1	-0.46
MW-S-11D	693.5	694.0	1	-0.44
MW-S-4D	692.1	692.2	1	-0.06
MW-S-5D	691.3	691.1	1	0.26
MW-S-8D	695.0	695.6	1	-0.59
MW-W-1D	697.4	699.3	1	-1.85
MW-W-2D	696.5	698.4	1	-1.92
OW-4D	694.7	696.6	1	-1.95

Notes:

(1) Residual is calculated as the observed head minus the simulated head.

-0.59 Negative head residual - over-prediction of observed head.
0.24 Positive head residual - under-prediction of observed head.

Appendix A
Site Stratigraphic Well Logs

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-01
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.02						
0	SP-SANDS, with silts, trace coarse sands, loose, poorly graded, fine grained, brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE					
2	- no vegetation at 0.5ft BGS		BENTONITE CHIPS	1AL 0-2'		70		0.0
4								
6				2AL		70		0.0
8				3AL 7-9'		100		0.0
9	END OF BOREHOLE @ 9.0ft BGS	696.02						
10	REFUSAL @ 9.0ft BGS							
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-02
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.02						
0	SP-SANDS (FILL), with silts, trace vegetation, loose, poorly graded, fine grained, dark brown, moist	704.52	2-1/4" BOREHOLE					
		704.36						
2	ORANGE BRICK LIKE MATERIAL (FILL), fragmented, mixed with above sands	703.02		1AL 0-2'		100		0.0
4	SC-CLAYEY SANDS, with silt, loose, poorly graded, fine grained, dark brown, moist		BENTONITE CHIPS					
	SP-SANDS, with silts, trace coarse sands, loose, poorly graded, fine grained, brown, moist							
6	- beige at 4.0ft BGS			2AL		30		0.0
8								
10				3AL 7.5-9.5'		10		0.0
12	- wet at 11.8ft BGS							
	END OF BOREHOLE @ 12.0ft BGS	693.02						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-03
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.44						
2	SP-SANDS, trace silts, trace vegetation (rootlets), loose, poorly graded, brown with orange hue, moist - no vegetation at 0.5ft BGS		2-1/4" BOREHOLE	1AL 0-2'		65		0.0
4	- beige at 4.0ft BGS		BENTONITE CHIPS					
6				2AL		70		0.0
8								
10	- 2" silty layer at 10.0ft BGS			3AL 8-10'		70		0.0
12	END OF BOREHOLE @ 12.0ft BGS	693.44						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-04
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.86						
0	ASPHALT, weathered, poor condition	705.36	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace coarse sands, loose, poorly graded, fine grained, brown, moist	703.86		1AL 0-2'		80		0.0
	SC-CLAYEY SANDS, trace silts, firm, poorly graded, fine grained, dark brown, moist	703.66	BENTONITE CHIPS					
4	SP-SANDS, with silts, loose, poorly graded, fine grained, beige, moist							
6				2AL		100		0.0
8								
10				3AL 9-11'		100		0.0
	- wet at 11.5ft BGS							
12	END OF BOREHOLE @ 12.0ft BGS	693.86						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-05
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.75						
2	SP-SANDS, with silts, trace fine subrounded gravels, loose, poorly graded, fine grained, brown/beige, moist (top 4" with vegetation-rootlets)		2-1/4" BOREHOLE	1AL 0-2'		60		0.0
4			BENTONITE CHIPS					
6				2AL		50		0.0
8								
10				3AL		50		0.0
12								
14				4AL 13.5-15.5		90		0.0
16	- wet at 15.5ft BGS							
	END OF BOREHOLE @ 16.0ft BGS	689.75						
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-06
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.07						
2	SP-SANDS, with silts, trace fine subangular gravel, loose, poorly graded, fine grained, brown, moist (top 4" trace vegetation-rootlets)		2-1/4" BOREHOLE	1AL 0-2'				0.0
4			BENTONITE CHIPS					
6				2AL 6-8'				0.0
8	- wet at 8.0ft BGS							
10				3AL				0.0
12	END OF BOREHOLE @ 12.0ft BGS	694.07						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-07
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.26						
0	CONCRETE, constructed with subrounded fine gravels up to 2cm, green and slightly pitted at surface	705.56	2-1/4" BOREHOLE; BENTONITE CHIPS					
2	SP-SANDS, with silts, loose, poorly graded, fine grained, brown, moist			1AL 0-2'		50		0.0
4	- 2" to 3" pieces of deep purple slag/debris, fine grained at 2.0ft BGS							
	- 2" deep purple slag/debris, fine grained at 3.0ft BGS							
6	- orange/brown, oxidation, trace clays at 5.0ft BGS			2AL 5-7'		75		0.0
	- brown/ trace clays at 5.5ft BGS							
8	- 2" deep purple slag/debris, fine grained at 6.0ft BGS							
	- green/brown at 6.3ft BGS							
10	- deep purple, green/brown, tan/beige sands in banded layers at 7.5ft BGS			3AL 8-10'		66		0.0
	- green/gray at 8.0ft BGS	695.93						
	- 4" deep purple slag/debris, fine grained at 10.0ft BGS	695.26						
12	ML-SILTS, with sands, compact, non-plastic, fine grained, gray/green, very moist-saturated	694.26						
14	SP-SANDS, trace silts, loose, poorly graded, fine to medium grained, gray, saturated							
	END OF BOREHOLE @ 12.0ft BGS							
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-08
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.62						
0	CONCRETE, constructed with subrounded fine gravels up to 2cm, good condition	706.04	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace gravels, loose to compact, poorly graded, fine to coarse grained, brown, moist, trace oxidation			1AL 0-2'		100		0.0
		703.62	BENTONITE CHIPS					
4	SC-CLAYEY SANDS, compact/firm, poorly graded, trace plasticity, fine to medium grained, dark brown, moist, trace oxidation	703.12						
6	SP-SANDS, with silts, trace fine gravels, loose to compact, poorly graded, fine grained, brown, moist, trace oxidation - beige, trace fine gravels, moist, trace oxidation at 5.0ft BGS			2AL		90		0.0
8	- beige, no gravels at 7.0ft BGS							
10	- very moist, brown gray at 10.0ft BGS - saturated, fine to medium grained, light gray at 10.5ft BGS			3AL 8-10'		80		0.0
12	END OF BOREHOLE @ 12.0ft BGS	694.62						
14								
16								
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28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-09
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.64						
0	CONCRETE, constructed with subrounded fine gravels up to 2cm, good condition	705.85	2-1/4" BOREHOLE; BENTONITE CHIPS					
2	SP-SANDS (FILL), with silts, trace gravels, loose, poorly graded, fine grained, brown, moist, trace oxidation			1AL 0-2'		50		0.0
4	- light brown at 3.5ft BGS							
6				2AL		50		0.0
8								
10	- brown, saturated at 9.5ft BGS			3AL 8-10'		50		0.0
12	END OF BOREHOLE @ 11.0ft BGS	695.64						
	REFUSAL-CONCRETE @ 11.0ft BGS							
14								
16								
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24								
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28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-10
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.56						
0	CONCRETE, constructed with subrounded fine gravesl up to 2cm, good condition	705.73	2-1/4" BOREHOLE					
2	SP-SANDS, with silts,loose, poorly graded, fine grained, brown, moist			1AL 0-2		75		0.0
	- brown and brown/orange mottled with oxidation at 2.5ft BGS		BENTONITE CHIPS					
4								
	- beige, trace oxidation at 5.0ft BGS							
6		700.56		2AL		87		0.0
	SC-CLAYEY SANDS, trace coarse sands, trace plasticity, compact/firm, fine grained, poorly graded, dark brown, orange mottled, trace plasticity, moist	699.56						
8								
	SP-SANDS, with silts, trace gravels, loose, poorly graded, fine to medium grained, beige, moist							
10	- fine grained, brown, trace oxidation at 7.5ft BGS			3AL 8-10		95		0.0
	- brownish-orange at 8.5ft BGS							
12	- brown/gray, very moist at 9.0ft BGS	694.56						
	- saturated, fine grained at 9.5ft BGS							
	- light gray at 11.5ft BGS							
14	END OF BOREHOLE @ 12.0ft BGS							
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-11
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.53						
	CONCRETE, constructed with subrounded gravels up to 2cm, good condition	705.87	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, loose, poorly graded, fine grained, light brown, moist, trace oxidation		BENTONITE CHIPS	1AL 0-2'		95		0.0
	- brown, trace gravel at 1.5ft BGS							
	- dark brown, trace coarse gravels at 3.0ft BGS							
4	- brown at 3.3ft BGS							
	- brownish orange, trace clays and coarse sands, trace oxidation at 4.3ft BGS							
6	- fine to coarse grained, brown at 5.0ft BGS			2AL		100		0.0
	- fine grained, beige at 6.5ft BGS							
8								
	- trace clays, brown, trace oxidation at 9.0ft BGS							
10	- fine grained, light brown, very moist at 9.5ft BGS			3AL 8-10'		90		0.0
	- saturated at 10.0ft BGS							
12	- fine to medium grained, poorly graded, trace gravels, saturated, light brown at 10.5ft BGS	694.53						
	END OF BOREHOLE @ 12.0ft BGS							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-12
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.51						
0	CONCRETE, constructed with subrounded fine gravels up to 2cm diameter, good condition	705.85	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, loose, poorly graded, fine grained, beige, moist - brown, trace gravels at 2.0ft BGS		BENTONITE CHIPS	1AL 0-2'		98		0.0
4	- dark brown at 3.0ft BGS - brown at 3.5ft BGS - trace clays, brownish orange, trace gravels at 4.5ft BGS							
6	- fine to medium grained, trace gravels, beige, trace oxidation at 5.5ft BGS - fine grained, beige, trace coarse sand at 6.0ft BGS			2AL		100		0.0
8	- trace clays, brownish orange, trace gravels at 9.0ft BGS							
10	- trace gravels, fine to medium grained, poorly graded, beige, very moist at 9.5ft BGS - saturated at 10.0ft BGS			3AL 8-10'		97		0.0
12	- fine grained, beige at 10.5ft BGS END OF BOREHOLE @ 12.0ft BGS	694.51						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-13
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.61						
0	CONCRETE, constructed with subrounded fine gravels up to 2cm, good condition	705.82	2-1/4" BOREHOLE					
2	SP-SANDS, trace silts, loose, poorly graded, fine to coarse grained, beige, moist	704.61		1AL 0-2'		75		0.0
	SC-CLAYEY SANDS, firm, trace plasticity, orange to brown, moist	704.11						
4	SP-SANDS, trace silts, loose, poorly graded, fine to coarse grained, beige, moist	703.61	BENTONITE CHIPS					
6	SP-SANDS with silts, compact, fine grained, poorly graded, dark brown, moist - brown/orange, trace oxidation at 3.5ft BGS - beige at 6.0ft BGS			2AL		87		0.0
8	- fine to medium grained at 7.0ft BGS - trace clays, brown and orange mottled, oxidation at 9.0ft BGS							
10	- fine to medium grained, very moist, gray/green at 9.5ft BGS	696.61		3AL 8-10'		75		0.0
	ML-SILTS, trace sands, firm, non-plastic, gray, very moist	696.36						
12	SP-SANDS, with silts, loose to compact, poorly graded, fine grained, gray, saturated	694.61						
14	END OF BOREHOLE @ 12.0ft BGS							
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-14
DATE COMPLETED: September 25, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.62						
0	CONCRETE, constructed with subrounded fine gravels up to 2cm, good condition	705.96	2-1/4" BOREHOLE					
2	SP-SANDS, trace silts, trace fine gravel, loose, poorly graded, fine grained, brown with orange hue, moist		BENTONITE CHIPS	1AL 0-2'		90		6.1
4		702.62						
6	SP-SANDS, with silts, trace fine grained, loose, poorly graded, beige, moist			2AL		80		3.1
8								
10	- wet, with medium grained at 10.0ft BGS			3AL 8-10'		90		3.7
12	END OF BOREHOLE @ 12.0ft BGS	694.62						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-15
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.71						
0	CONCRETE, constructed with subrounded fine grained gravel up to 2cm, good condition	705.96	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace gravels, trace coarse sands, compact, poorly graded, fine grained, beige, moist - brown at 2.8ft BGS		BENTONITE CHIPS	1AL 0-2'		80		0.0
4	- light brown at 3.3ft BGS							
6	- brown, fine to medium grained at 6.5ft BGS			2AL		50		0.0
8	- beige, fine grained, trace coarse sands at 7.5ft BGS							
10	- brown and orange mottled, very moist, fine grained at 9.5ft BGS - fine to medium grained, gray, saturated at 10.0ft BGS			3AL 8-10'		75		0.0
12	- fine grained at 10.5ft BGS END OF BOREHOLE @ 12.0ft BGS	694.71						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-16
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.70						
0	CONCRETE, constructed with subrounded fine gravel up to 2cm, good condition	705.95	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, loose, poorly graded, fine grained, brown, moist to very moist		BENTONITE CHIPS	1AL 0-2'		75		0.0
4	- tan/beige, moist at 2.0ft BGS - trace gravels, brown and orange mottled, moist at 2.5ft BGS							
6	- light brown, trace gravels and coarse sands at 3.0ft BGS - trace clays, orangish brown, trace gravels, fine grained at 5.5ft BGS			2AL		80		0.0
8	- tan/beige, fine grained at 6.5ft BGS - fine to medium grained, beige at 7.0ft BGS - light brown, trace oxidation at 7.5ft BGS							
10	- very moist at 9.5ft BGS - gray, saturated at 10.0ft BGS			3AL 8-10'		75		0.0
12	- fine to medium grained at 11.0ft BGS - fine grained at 11.3ft BGS							
	END OF BOREHOLE @ 12.0ft BGS	694.70						
14								
16								
18								
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22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-17
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	106.47						
0	CONCRETE, constructed with subrounded fine gravels up to 2cm, good condition	105.81	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace gravels, loose to compact, poorly graded, fine grained, trace coarse sands, brown, moist, trace oxidation		BENTONITE CHIPS	1AL 0-2'		90		0.0
4								
6				2AL		66		0.0
	- light brown, moist at 7.0ft BGS	98.97						
8	ML/CL-SILTS AND CLAYS, firm, low plasticity, brown, moist	98.47						
10	SP-SANDS, with silts, loose, poorly graded, fine grained, brown, moist - fine to medium grained, very moist to saturated, gray at 9.0ft BGS			3AL 8-10'		90		0.0
12	- fine grained, gray, saturated, trace coarse sands at 9.5ft BGS - fine to medium grained, brownish orange at 10.5ft BGS	94.47						
14	- fine grained, gray at 11.0ft BGS END OF BOREHOLE @ 12.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-18
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.47						
0	CONCRETE, constructed with subrounded fine gravels up to 2cm, good condition	705.81	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace gravels, loose to compact, poorly graded, light brown, moist, trace gravels		BENTONITE CHIPS	1AL (0-2')		90		0.0
4								
6	- beige at 6.5ft BGS			2AL		75		0.0
8	ML/CL-SILTS AND CLAYS, firm, low plasticity, brown, moist	698.72 698.47						
10	SP-SANDS, with silts, compact, poorly graded, fine grained, brown, moist - fine to medium grained, brown/gray, very moist at 9.0ft BGS			3AL (8-10')		75		0.0
12	- saturated at 9.5ft BGS - 2" clay seam at 9.8ft BGS - fine grained, trace coarse sands, saturated at 10.0ft BGS	694.47						
14	END OF BOREHOLE @ 12.0ft BGS							
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34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-19
DATE COMPLETED: September 25, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.91						
0	CONCRETE, constructed with subrounded fine gravels upt to 2cm, good condition	706.25	2-1/4" BOREHOLE					
2	SM-SILTY SANDS, loose, poorly graded, fine grained, trace coarse grain, beige, moist	705.66		1AL 0-2'				7.9
4	SP-SANDS, trace silts, trace fine gravel, loose, poorly graded, fine grained with trace medium grained, brown with orange hue, moist - 2" layer dark brown, no orange at 2.0ft BGS - beige at 2.5ft BGS - orange hue at 4.0ft BGS		BENTONITE CHIPS					
6	- no orange, beige, no medium grains at 6.0ft BGS - 2" clay, firm, low plasticity, brown at 6.5ft BGS			2AL 5-7'				7.9
8	- sands, medium grains, beige at 6.7ft BGS							
10	- wet, no medium grains, fine grained at 9.5ft BGS - medium grained at 10.0ft BGS - fine grained at 10.3ft BGS			3AL				7.3
12	- medium grained at 11.0ft BGS END OF BOREHOLE @ 12.0ft BGS	694.91						
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34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-20
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.65						
0	CONCRETE, constructed with subrounded fine gravels up to 2cm, good condition	705.85	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, loose, poorly graded, fine grained, brown, moist, trace oxidation		BENTONITE CHIPS	1AL 0-2'		66		0.0
4								
6				2AL		50		0.0
8	- very moist at 8.5ft BGS - saturated at 9.0ft BGS							
10	- gray, saturated at 10.5ft BGS			3AL 7-9'		87		0.0
12	SP-SANDS, trace silts and gravels, loose, poorly graded, fine to coarse grained, gray, saturated	695.65 695.40						
14	SP-SANDS, with silts, loose, poorly graded, fine grained, gray, saturated END OF BOREHOLE @ 12.0ft BGS	694.65						
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34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-21
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.62						
0	CONCRETE, constructed with subrounded fine gravels up to 2cm, good condition	705.87	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace gravels, fine grained, poorly graded, brown, moist			1AL 0-2'		80		0.0
	- organic layer, black, trace vegetation at 2.3ft BGS	704.12						
4	SC-CLAYEY SANDS, trace gravels, compact, dark brown, moist	703.62	BENTONITE CHIPS					
6	SP-SANDS, with silts, loose, poorly graded, fine grained, orange-brown, moist, oxidation - beige at 3.5ft BGS - light brown at 6.5ft BGS			2AL		90		0.0
8								
10	- very moist at 9.0ft BGS - saturated at 9.5ft BGS - fine to medium grained, saturated, trace gravels, gray at 10.0ft BGS			3AL 8-10'		90		0.0
12	- fine grained, saturated, light gray at 10.5ft BGS	694.62						
	END OF BOREHOLE @ 12.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-22
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.66						
2	SP-SANDS, with silts, trace coarse sands, loose, poorly graded, fine grained, brown, with orange hue, moist (top wet from coring) - slag-like fragment (4cm) at 0.5ft BGS - 2" black layer (stains gloves) at 1.0ft BGS - 2" dark brown layer, clayey at 3.0ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL (0-2/2-4')		70		0.0
4	- 4cm subangular rock fragment, trace fine subangular gravel at 3.5ft BGS - no gravel at 4.0ft BGS							
6	- beige at 5.0ft BGS			2AL (5-7')		95		0.0
8	- wet at 7.0ft BGS							
10	- medium grained at 9.0ft BGS - silty, no medium grains, black and brown banding <1mm at 10.0ft BGS			3AL		75		0.0
12	- 2" with silts, trace medium grains at 10.3ft BGS - medium grains at 11.5ft BGS	694.66						
14	END OF BOREHOLE @ 12.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-23
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	707.00						
0	CONCRETE, constructed with subrounded fine gravel up to 2cm, good condition	706.34	2-1/4" BOREHOLE; BENTONITE CHIPS					
2	SP-SANDS, with silts, trace coarse sands, loose, poorly graded, fine grained, brown with slight orange hue, moist			1AL 0-2'		70		6.7
4	- 2" layer with petroleum-like odor, trace angular fragments at 8.0ft BGS							
6				2AL 6-8'		40		0.0
8	ML-SILTS, compact, poorly graded, fine grained, dark brown, wet	699.00						
10				3AL 10-11'		45		0.0
12	END OF BOREHOLE @ 12.0ft BGS	695.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-24
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.53						
	CONCRETE, constructed with subrounded fine gravels up to 2cm, good condition	705.83	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, loose to compact, fine grained, poorly graded, brown, moist		BENTONITE CHIPS	1AL 0-2'		87		0.0
	- trace clays, non-plastic, dark brown at 2.8ft BGS							
4	- brown at 3.3ft BGS							
	- orange/brown, oxidation, trace coarse sands, moist at 3.8ft BGS							
6	- light brown, trace oxidation, moist at 5.5ft BGS			2AL		87		0.0
	- trace clays, brown, moist at 6.5ft BGS							
8	- light brown, trace oxidation, moist at 7.0ft BGS							
	- brown, saturated at 9.0ft BGS							
10	- fine to medium grained, brown, saturated at 10.0ft BGS			3AL 8-10'		100		0.0
	- fine grained, gray, saturated at 11.3ft BGS							
12	END OF BOREHOLE @ 12.0ft BGS	694.53						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-25
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.75						
0	CONCRETE, constructed with subrounded fine gravel up to 2cm, good condition	705.92	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace gravels and coarse sands, loose, poorly graded, fine grained, brown, trace oxidation, moist	704.25	BENTONITE CHIPS	1AL 0-2'		90		0.0
4	SM/SC-SANDS, with silts and clays, compact, poorly graded, fine grained, non-plastic, dark brown, damp - brownish orange at 3.0ft BGS	703.25						
6	SP-SANDS, with silts, loose, poorly graded, fine grained, brown, trace oxidation, moist - brown/gray, very moist at 7.0ft BGS			2AL		90		0.0
8	- trace gravels, fine to medium grained, poorly graded, gray, saturated at 8.0ft BGS							
10	- fine grained, poorly graded, gray, saturated, trace gravels at 10.0ft BGS			3AL 6-8'		100		0.0
12	END OF BOREHOLE @ 12.0ft BGS	694.75						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-26
DATE COMPLETED: September 23, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.66						
0	CONCRETE AND ASPHALT, constructed with subrounded fine gravels up to 2cm, good condition	705.83	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, loose, fine grained, poorly graded, brown, moist	703.66	BENTONITE CHIPS	1AL 0-2'		95		0.0
4	SC-CLAYEY SANDS, compact, fine to medium grained, poorly graded, dark brown, moist	702.66						
6	SP-SANDS, with silts, loose, fine grained, poorly graded, beige, moist, trace oxidation			2AL		75		0.0
8								
10	- very moist at 9.5ft BGS - light gray, saturated at 10.0ft BGS			3AL 8-10'		85		0.0
12	END OF BOREHOLE @ 12.0ft BGS	694.66						
14								
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-27
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.40						
0	CONCRETE, constructed with subrounded fine gravel up to 2cm, good condition	705.74	2-1/4" BOREHOLE					
2	SP-SANDS (FILL), with silts, trace fine subrounded gravels, loose, poorly graded, fine grained, brown with orange hue, moist		BENTONITE CHIPS	1AL 0-2'		55		0.0
4	- beige at 4.0ft BGS							
	- 2" concrete fragments and dust layer at 5.0ft BGS							
6	- brown with orange hue at 6.0ft BGS			2AL 6-8'		25		0.0
	- brown, wet at 7.3ft BGS							
8								
10				3AL		55		0.0
12	- 2" nail at 12.0ft BGS	694.40						
	END OF BOREHOLE @ 12.0ft BGS							
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34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-28
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.78						
0	CONCRETE, constructed with subrounded fine gravels up to 2cm, good condition	705.95	2-1/4" BOREHOLE					
2	SP-SANDS, trace silts, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist		BENTONITE CHIPS	1AL 0-2'		70		0.7
4	- 1" black band with 4cm gravel at 3.5ft BGS							
6	- beige, trace medium grained at 6.0ft BGS			2AL		70		1.9
8	- no medium grains at 7.0ft BGS							
10	- wet at 9.0ft BGS - 2" medium grained at 10.0ft BGS			3AL 7-9'		100		1.2
12	- 2" medium grained band at 12.0ft BGS	694.78						
	END OF BOREHOLE @ 12.0ft BGS							
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34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-29
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.70						
0	CONCRETE, constructed with subrounded fine gravels up to 2cm, good condition	705.89	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace coarse sands to fine subrounded gravels, loose, poorly graded, fine grained, brown with orange hue, moist		BENTONITE CHIPS	1AL 0-2'		50		3.2
4								
6				2AL 6-8'		45		1.5
8	- wet at 8.0ft BGS							
10				3AL		60		0.7
12	END OF BOREHOLE @ 12.0ft BGS	694.70						
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34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-30
DATE COMPLETED: September 24, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.50						
2	SP-SANDS, with silts, trace coarse sands to fine subrounded gravels, loose, poorly graded, fine grained, brown with orange hue, moist		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL 0-2'		75		0.0
4								
6				2AL 5-7'		75		0.0
8	- wet at 7.0ft BGS - saturated at 8.0ft BGS							
10				3AL		75		0.0
12	- 2" beige band at 12.0ft BGS	694.50						
	END OF BOREHOLE @ 12.0ft BGS							
14								
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-31
DATE COMPLETED: March 4, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.25						
0	ML-SILTS WITH SANDS (FILL), trace topsoil, trace fine grained rounded gravel, trace wood debris, loose, fine grained, poorly graded, dark brown, moist	704.75	2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	SM-SILTY SANDS (FILL), trace coarse grained rounded gravels, compact, fine grained, poorly graded, dark brown, moist	702.45						
4	- light brown at 2.2ft BGS							
6	SP-SANDS, trace silt, compact, fine to medium grained, poorly graded, reddish brown, moist		BENTONITE CHIPS					
8	- light brown at 4.1ft BGS			2AL 6.5-8.5'		100		0.0
10	- wet at 8.5ft BGS							
12	END OF BOREHOLE @ 10.0ft BGS	695.25						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1-PIT
DATE COMPLETED: January 8, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	CONCRETE, constructed with rebar	0.83					
	VOID	1.50					
2	SP-SANDS (FILL), trace silts, very loose, poorly graded, fine with medium grained, brown with orange hue, moist		1AL		100		0.9
4	- no orange at 4.0ft BGS						
6							
8	- beige, wet at 8.0ft BGS		2AL		75		1.2
	END OF BOREHOLE @ 9.0ft BGS	10.00					
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12							
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34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1/33-1
DATE COMPLETED: October 16, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.51						
0	CONCRETE, subrounded fine gravels up to 2.0 cm, good condition	706.01	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace fine subangular gravel, loose, poorly graded, brown, moist - saturated with strong petroleum-like odor at 2.0ft BGS		BENTONITE CHIPS	1AL 0-2'				0.0
4	- moist at 4.0ft BGS							
6	- medium grained, wet at 5.0ft BGS							
8				2AL				0.0
10	END OF BOREHOLE @ 10.0ft BGS	696.51						
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1/33-2
DATE COMPLETED: October 16, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.56						
0	CONCRETE, subrounded fine gravels up to 2.0 cm, good condition	705.90	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace fine subangular gravel, compact, poorly graded, brown/orange, moist			1AL 0-2'		60		0.0
4			1" PVC WELL CASING					
6	CL-CLAY, with sands, firm, low plasticity, fine grained, with trace coarse grains, brown/orange, moist	701.56 701.31						
8	SP-SANDS, with silts, loose, poorly graded, fine grained, gray, very moist - medium grained, trace coarse grained, trace silts, wet at 6.0ft BGS - with silts at 9.0ft BGS			2AL 4-6'		100		0.0
10	END OF BOREHOLE @ 10.0ft BGS	696.56	1" PVC WELL SCREEN					
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34								

WELL DETAILS
Screened interval:
701.56 to 696.56ft AMSL
5.00 to 10.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1/33-3
DATE COMPLETED: October 16, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.68						
0	CONCRETE, subrounded fine gravel up to 2.0 cm, good condition	706.02	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace fine subangular gravel, compact, poorly graded, brown/orange, moist			1AL 0-2'		50		0.0
4			1" PVC WELL CASING					
	SC-CLAYEY SANDS, firm, low plasticity, fine grained with trace coarse grains, black, moist	702.18						
6	SP-SANDS, with silts, trace fine subangular gravel, compact, poorly graded, brown/gray, moist	701.93						
8	- wet, 2" with medium grains at 7.0ft BGS		1" PVC WELL SCREEN	2AL 5-7'		100		0.0
10								
	END OF BOREHOLE @ 11.0ft BGS	695.68						
12	NOTE: TEMPORARY MONITORING WELL REMOVED. ANNULUS BACKFILLED WITH BENTONITE CHIPS							
14								
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24								
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30								
32								
34								

WELL DETAILS
Screened interval:
701.68 to 695.68ft AMSL
5.00 to 11.00ft BGS
Length: 6ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A1/33-4
DATE COMPLETED: October 16, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.54						
	CONCRETE, subrounded fine gravel up to 2.0 cm, good condition	705.88	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist			1AL 0-2'		70		0.0
4	- compact at 4.0ft BGS		1" PVC WELL CASING					
	SC-CLAYEY SAND, trace vegetation (rootlets), firm, low plasticity, black, moist	701.79 701.54						
6	SP-SANDS, with silts, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, very moist	700.54						
8	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, gray, wet		1" PVC WELL SCREEN	2AL 4-6'		100		0.0
10	END OF BOREHOLE @ 10.0ft BGS	696.54						
	NOTE: TEMPORARY MONITORING WELL REMOVED. ANNULUS BACKFILLED WITH BENTONITE CHIPS							

WELL DETAILS
Screened interval:
701.54 to 696.54ft AMSL
5.00 to 10.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A2-1
DATE COMPLETED: September 26, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.84						
2	SP-SANDS, with silts, trace fine subangular and subrounded gravel, loose, poorly graded, fine grained, brown, moist - 2" clayey layer - dark orange hue for 4" then light orange hue at 2.5ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2'		90		0.0
4								
6	- beige, wet at 6.0ft BGS			2AL 3-5'		100		0.0
8	END OF BOREHOLE @ 8.0ft BGS	695.84						
10								
12								
14								
16								
18								
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24								
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28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A2-2
DATE COMPLETED: September 25, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.47						
0	CONCRETE, constructed with subrounded fine gravel up to 2cm, good condition	705.81	2-1/4" BOREHOLE					
2	SM-SILTY SANDS, trace fine gravel, loose, poorly graded, fine grained, brown with orange hue, moist		BENTONITE CHIPS	1AL 0-2'		50		0.0
4								
6				2AL 6-8'		50		0.0
		699.47						
8	SP-SANDS, trace silts, loose, poorly graded, medium grained, beige, moist	698.47						
10	SM-SILTY SANDS, loose, poorly graded, fine grained, brown, wet			3AL		75		0.0
		695.47						
12	SP-SANDS, trace silts, loose, poorly graded, medium grained, beige, wet	694.47						
	END OF BOREHOLE @ 12.0ft BGS							
14								
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18								
20								
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24								
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28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A2-3
DATE COMPLETED: September 25, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.55						
0	CONCRETE, constructed with subrounded fine gravel up to 2cm, good condition	706.05	2-1/4" BOREHOLE					
2	SM-SILTY SANDS, trace fine gravels, loose, poorly graded, fine grained, brown with orange hue, moist		BENTONITE CHIPS	1AL 0-2'				0.0
4	- 1" darker brown at 3.5ft BGS							
6	- very dark brown, clayey at 6.0ft BGS			2AL				0.0
8	SP-SANDS, trace silts, loose, poorly graded, medium grained, brown, wet	698.55						
10				3AL 7-9'				0.0
12	END OF BOREHOLE @ 12.0ft BGS	694.55						
14								
16								
18								
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24								
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-A2-4
DATE COMPLETED: September 26, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.53						
0	CONCRETE, constructed with subrounded fine gravel up to 2cm, good condition	706.03	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace coarse sands, loose, poorly graded, fine grained, beige, moist			1AL		60		0.0
	- 2" clayey layer at 3.0ft BGS		1" PVC WELL CASING					
4								
6				2AL		75		0.0
	- orange hue at 7.0ft BGS							
8	- brown, wet at 8.0ft BGS		1" PVC WELL SCREEN					
10				3AL		75		0.0
12								
14	- 1' layer with medium grains at 14.0ft BGS			4AL		90		0.0
16	END OF BOREHOLE @ 16.0ft BGS	690.53						
18			WELL DETAILS Screened interval: 699.53 to 694.53ft AMSL 7.00 to 12.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC					
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-2-1
DATE COMPLETED: September 30, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.60						
0	GW-GRAVELS, rubble mixed with asphalt	702.44	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, loose, poorly graded, fine grained, trace medium grained, brown, moist			1AL 0-2'		75		0.0
		699.60						
4	SC-CLAYEY SANDS, compact, poorly graded, fine grained with trace medium grained, dark brown, moist	698.85	1" PVC WELL CASING					
6	SP-SANDS, trace silts, trace fine subangular gravel, loose, poorly graded, fine grained, brown, very moist - wet at 6.0ft BGS							
8				2AL 4-6'		100		0.0
			1" PVC WELL SCREEN					
		693.60						
10	SP-SANDS, trace silts, trace fine subangular gravel, loose, poorly graded, medium grained, brown, saturated	692.60						
12	END OF BOREHOLE @ 10.0ft BGS							
14								
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28								
30								
32								
34								

WELL DETAILS
Screened interval:
697.60 to 692.60ft AMSL
5.00 to 10.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-2-2
DATE COMPLETED: September 30, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.65						
0	SM-SILTY SANDS, loose, poorly graded, fine grained, brown with orange hue, moist (top 2" gravel rubbel)		2-1/4" BOREHOLE	1AL 0-2'		75		0.0
4	- brown, trace coarse sands at 4.5ft BGS		1" PVC WELL CASING					
6								
8	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, brown, wet	695.65	1" PVC WELL SCREEN	2AL 5-7'		90		0.0
10	END OF BOREHOLE @ 10.0ft BGS	692.65						

WELL DETAILS
Screened interval:
697.65 to 692.65ft AMSL
5.00 to 10.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-2-3
DATE COMPLETED: September 27, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.05						
0	SM-SILTY SANDS, loose, poorly graded, fine grained, brown with orange, moist		2-1/4" BOREHOLE					
2				1AL 0-2'		75		0.0
4	- 2" dark brown layer at 3.0ft BGS - trace fine gravels at 3.2ft BGS		BENTONITE CHIPS					
6	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, beige, wet	696.05		2AL 4-6'		75		0.0
8	END OF BOREHOLE @ 8.0ft BGS	694.05						
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-5-1
DATE COMPLETED: October 9, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.87						
0	SP-SANDS, with silts, trace subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL 0-2'		75		0.1
4	- very moist, with medium grains, beige at 4.5ft BGS							
6	- 2" layer with fine subangular gravel at 6.0ft BGS - trace medium grained at 6.5ft BGS			2AL 7-9'		100		1.0
10	SM-SILTY SANDS, loose, poorly graded, fine grained, brown/beige, wet	692.87						
12	- 1ft silt layer (saturated) at 11.0ft BGS			3AL		100		0.0
14	- compact at 15.0ft BGS							
18				4AL		60		0.0
20	- dense at 20.0ft BGS							
22				5AL				0.0
24	END OF BOREHOLE @ 25.0ft BGS	677.87						
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-5-2
DATE COMPLETED: September 27, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.69						
2	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist - piece of green concrete at 6.0ft BGS		2-1/4" BOREHOLE	1AL 0-2'		45		0.0
4			1" PVC WELL CASING					
6	SP-SANDS, with silts, loose, poorly graded, fine grained, brown/beige, wet	695.69		2AL 4-6'		55		0.0
8	SP-SANDS, trace silts, loose, poorly graded, medium grained, brown/beige, wet	694.69 693.69	1" PVC WELL SCREEN					
10	SP-SANDS, with silts, loose, poorly graded, fine grained, brown/beige, wet ML-SILTS, loose, poorly graded, brown, wet SP-SANDS, trace silts, loose, poorly graded, medium grained, brown/beige, wet	692.19 691.69 691.19		3AL		100		0.0
12	ML-SILTS, loose, poorly graded, brown, wet END OF BOREHOLE @ 12.0ft BGS	689.69						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
696.69 to 691.69ft AMSL
5.00 to 10.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC
Sand Pack:
696.69 to 689.69ft AMSL
5.00 to 12.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-5-3
DATE COMPLETED: September 26, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.35						
2	SM-SILTY SANDS, trace gravels and coarse sands, compact, poorly graded, fine grained, brown/orange, trace oxidation, moist		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL 0-2'		80		0.0
4								
6	- sand with silts, fine grained, poorly graded, tan/beige, moist at 5.0ft BGS - very moist, light brown at 6.5ft BGS - brown, saturated at 7.0ft BGS			2AL 5-7'		80		0.0
8	END OF BOREHOLE @ 8.0ft BGS	695.35						
10								
12								
14								
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-5-4
DATE COMPLETED: March 4, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.08						
2	SM-SILTY SANDS (FILL), compact, fine grained, poorly graded, medium brown, moist - trace medium grained rounded gravels at 0.6ft BGS	700.98	2-1/4" BOREHOLE	1AL 0-2'		100		0.0
4	SP-SANDS, trace silts, trace fine grained rounded gravels, compact, fine to medium grained, poorly graded, light brown, moist - 1" lens sandy silt at 4.4ft BGS		BENTONITE CHIPS					
6	- fine to coarse grained at 5.5ft BGS - trace fine grained rounded gravel at 5.9ft BGS							
8	END OF BOREHOLE @ 8.0ft BGS	695.08		2AL 6-8'		100		0.0
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-5-5
DATE COMPLETED: March 4, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.91						
0	SM-SILTY SANDS (FILL), compact, fine grained, poorly graded, medium brown, moist - 2" lens sandy silt at 1.2ft BGS - trace medium grained rounded gravels at 1.6ft BGS		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2		700.11	BENTONITE CHIPS					
4	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist - medium to coarse grained at 5.3ft BGS							
6				2AL 6-8'		100		0.0
8	END OF BOREHOLE @ 8.0ft BGS	694.91						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-5-6
DATE COMPLETED: March 4, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.01						
0	SM-SILTY SANDS (FILL), compact, fine grained, poorly graded medium brown, moist	701.91	2-1/4" BOREHOLE					
2	- trace medium grained rounded gravels at 0.4ft BGS			1AL 0-2'		100		0.0
4	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist - 1" lens sandy silt at 3.1ft BGS - medium grained at 3.3ft BGS		BENTONITE CHIPS					
6	- medium to coarse graded, trace fine grained rounded gravels at 4.3ft BGS	697.01		2AL 6-8'		100		0.0
8	GW-SAND AND GRAVELS, trace silts, compact, fine to medium grained rounded gravels, well graded, light brown, moist	696.51						
10	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist END OF BOREHOLE @ 8.0ft BGS	695.01						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-19-1
DATE COMPLETED: October 11, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.54						
0	SP-SANDS (FILL), with fine gravel and silts, loose, well graded, fine grained with medium and coarse grained, light gray, moist	706.21	2-1/4" BOREHOLE					
2	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, brown with orange hue, moist			1AL 0-2'				0.0
4	- dark brown at 4.3ft BGS	702.04	BENTONITE CHIPS					
6	SC-CLAYEY SAND, trace fine subrounded gravel, firm, low plasticity, brown with orange hue, moist	701.79						
8	SP-SANDS, with silts, compact, poorly graded, fine grained, gray, moist to wet - with medium grained, wet at 6.0ft BGS - trace medium grained with silts at 7.0ft BGS - with medium grained at 9.0ft BGS			2AL 4-6'				0.0
10	END OF BOREHOLE @ 10.0ft BGS	696.54						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-19-2
DATE COMPLETED: October 10, 2002
DRILLING METHOD: 4/6" ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.58						
0	CONCRETE (FILL), with fine, rounded to subrounded gravesl (to 2")	705.75	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, loose, poorly graded, fine grained, brown, moist - silty, trace fine gravels, dark brown to black at 1.7ft BGS			1AL 0-2'				2.7
4	- brown/orange/gray mottled at 2.5ft BGS	702.58	BENTONITE CHIPS					
	SC-CLAYEY SANDS, with silts, very low plasticity, fine grained, gray/green mottled, moist	701.58						
6	SP-SILTY SANDS, loose, poorly graded, fine grained, light gray, moist to very moist - saturated, gray at 6.0ft BGS							
8				2AL 5-7'				0.8
10								
12				3AL				4.4
14	ML-SANDY SILTS, loose to compact, non-plastic, fine grained, gray, saturated	693.08						
16								
18	SM-SANDS, with silts, trace fine gravels, loose, poorly graded, fine to coarse grained, gray, saturated	688.58		4AL				1.9
20								
22		684.58						
	SP-SANDS, trace fine gravel, loose, poorly graded, medium to coarse grained, gray, saturated	684.08		5AL				2.6
24	ML-SANDY SILTS, trace coarse sands, fine gravels and clays, non-plastic, poorly graded, fine grained, gray, saturated	683.58						
26	CL-SILTY CLAYS, trace coarse sands, firm to stiff, low plasticity, gray, moist							
28				6AL				0.2
30								
	END OF BOREHOLE @ 31.0ft BGS	675.58						
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-19-3
DATE COMPLETED: March 5, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.08						
0	GM-SILTY GRAVELS (FILL), with sands, compact, medium grained rounded gravel, poorly graded, light gray, dry	703.58	2" BOREHOLE					
2	SM-SILTY SANDS (FILL), trace medium grained rounded gravels, compact, fine grained, poorly graded, medium brown, moist		BENTONITE CHIPS	1AL (0-2', 2.5-4.5')		100		0.0
4	- 1" brick rubble at 4.0ft BGS	699.98						
6	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, medium brown, moist - wet at 4.5ft BGS - gray at 6.2ft BGS			2AL		100		0.0
8	END OF BOREHOLE @ 8.0ft BGS	696.08						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-19-4
DATE COMPLETED: March 5, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.44						
0	GM-SILTY GRAVELS (FILL), trace fine grained sand, compact, medium grained, subrounded, poorly graded, light brown, moist		2-1/4" BOREHOLE					
2		700.94		1AL 0-2' 2-4'		100		0.0
4	SM-SILTY SANDS (FILL), trace medium grained rounded gravels, compact, fine grained, poorly graded, medium brown, moist	699.94	BENTONITE CHIPS					
6	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, grayish brown, moist - black, odor, wet at 4.0ft BGS			2AL		100		0.0
8	END OF BOREHOLE @ 8.0ft BGS	695.44						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-21-1
DATE COMPLETED: September 26, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.73						
0	CONCRETE, constructed with subrounded fine gravel up to 2cm, good condition	706.15	2-1/4" BOREHOLE					
2	SM-SILTY SANDS, trace fine subrounded gravel, loose, poorly graded, fine grained, beige, moist - orange hue at 1.5ft BGS - no orange hue at 3.0ft BGS			1AL 0-2'		95		0.0
4			1" PVC WELL CASING					
6	SC-CLAYEY SANDS, with fine subangular gravels, medium firmness, poorly graded, fine grained, dark brown, moist	700.73 700.23		2AL		80		2.9
8	SP-SANDS, trace fine gravels (subangular), loose, poorly graded, fine, medium and coarse grained, beige, moist		1" PVC WELL SCREEN					
10	SP-SANDS, with silts, loose, poorly graded, fine grained, gray/brown, wet, petroleum-like odor	697.23		3AL 7-9		95		19.9
12								
14				4AL				0.0
16	END OF BOREHOLE @ 16.0ft BGS	690.73						
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24								
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30								
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34								

WELL DETAILS
Screened interval:
698.23 to 693.23ft AMSL
8.50 to 13.50ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-21-2
DATE COMPLETED: September 26, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	706.62
0	CONCRETE, constructed with subrounded fine gravel up to 2cm, good condition	706.04
1	SM-SILTY SANDS, trace subangular fine gravel, loose, poorly graded, fine grained, brown with orange hue, moist	705.12
2		704.62
3	SC-CLAYEY SANDS, firm, poorly graded, fine grained, brown/black, moist	702.62
4	SP-SANDS, with silts, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	702.42
5	- beige at 3.0ft BGS	
6	SC-CLAYEY SANDS, firm, poorly graded, fine grained, black/brown, moist	
7	SP-SANDS, with silts, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	697.62
8	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, brown/beige, wet	
9		
10		
11		
12		
13		
14		
15		
16	END OF BOREHOLE @ 16.0ft BGS	690.62
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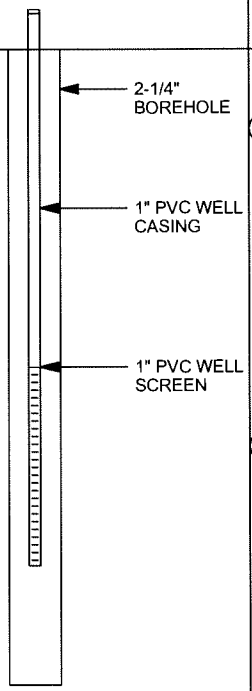
TEMP. MONITORING WELL



WELL DETAILS
Screened interval:
698.62 to 693.62ft AMSL
8.00 to 13.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL 0-2'		100		0.0
2AL		80		0.0
3AL 7-9'		100		0.0
4AL		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-21-3
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP-SANDS, trace vegetation (grass and rootlets), loose to compact, poorly graded, fine grained, trace medium grained, brown, very moist		BACKFILLED WITH BENTONITE CHIP	1AL		100		0.3
4	-dark brown, no vegetation at 0.25ft BGS - petroleum-like odor at 1.0ft BGS - 2" rock fragment at 3.0ft BGS					80		0.2
6	- with medium grained, trace coarse grained at 3.8ft BGS - trace fine subrounded gravels at 4.0ft BGS		8" BOREHOLE			50		1.0
8	- wet, oily sheen at 8.5ft BGS			2AL		75		0.8
10	- trace medium grained, no coarse grained at 9.0ft BGS	10.00				50		12.5
	END OF BOREHOLE @ 10.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-21-4
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP-SANDS, trace silts, trace fine subrounded gravels, loose to compact, poorly graded, fine grained, trace medium grained, brown, moist		BACKFILLED WITH BENTONITE CHIP	1AL		100		4.7
4	- dark brown, very moist, petroleum-like odor at 3.5ft BGS - wet at 4.0ft BGS					75		6.0
6	- very moist to wet at 6.0ft BGS		8" BOREHOLE			60		8.0
8	- wet at 8.0ft BGS			2AL		60		9.6
10	END OF BOREHOLE @ 10.0ft BGS	10.00				75		9.0
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-21-5
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP-SANDS, trace silts, compact, poorly graded, fine grained, brown, moist		BACKFILLED WITH BENTONITE CHIP	1AL		100		3.2
4	- dark brown, petroleum-like odor at 1.8ft BGS					75		5.3
6	- with medium grained, trace fine grained, trace fine subrounded gravels, very moist at 3.5ft BGS					75		8.1
8	- wet at 6.0ft BGS		8" BOREHOLE	2AL		75		7.9
10		10.00				75		7.2
12	END OF BOREHOLE @ 10.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-21-6
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP-SANDS, trace silts, compact, poorly graded, fine grained, brown, moist		BACKFILLED WITH BENTONITE CHIP	1AL		75		0.9
4						75		1.0
6	- with medium grained, trace coarse grained at 5.0ft BGS					75		1.2
8	- wet at 7.0ft BGS		8" BOREHOLE	2AL		75		0.6
10	END OF BOREHOLE @ 10.0ft BGS	10.00				75		0.3
12								
14								
16								
18								
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34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-21-7
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP-SANDS, trace silts, trace fine angular gravels, concrete fragments, compact, poorly graded, fine grained, brown, moist - no gravels and concrete at 1.0ft BGS - very moist at 2.0ft BGS		BACKFILLED WITH BENTONITE CHIP	1AL		100		0.2
4	- 2" very dark brown layer at 3.5ft BGS - clayey, with coarse grained, dark brown at 3.9ft BGS					75		1.5
6	- with medium grained, trace coarse grained, gray/brown, not clayey at 5.0ft BGS					60		1.2
8	- wet at 7.0ft BGS		8" BOREHOLE	2AL		75		1.0
10	END OF BOREHOLE @ 10.0ft BGS	10.00				75		0.7
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-21-8
DATE COMPLETED: November 24, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, compact, poorly graded, fine grained, brown, moist			1AL		60		0.2
2	- dark brown at 1.0ft BGS - brown, very moist at 2.0ft BGS			0-2' -1398				
4			2-1/4" BOREHOLE	2AL		70		0.9
6	- with medium grained, trace coarse grained at 6.0ft BGS		BENTONITE CHIPS	3AL		50		1.9
8	- wet, slight petroleum-like odor at 8.0ft BGS			6-8' -1399				
10				4AL		75		0.9
12	END OF BOREHOLE @ 12.0ft BGS	12.00		5AL		75		6.1
14				6AL		100		2.6
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB21-9
DATE COMPLETED: January 20, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace gravels (FILL), compact, fine grained, poorly graded, brown, moist							
2	- gravels not present at 2.5ft BGS		2-1/4" BOREHOLE	1AL 0-2' 1407		100		0.0
4								
6	- fine to medium grained, light grayish-brown at 6.0ft BGS		BENTONITE CHIPS					
8	- wet at 7.5ft BGS			2AL 5.5-7.5' 1408		100		8.6
10	END OF BOREHOLE @ 10.0ft BGS	10.00						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB21-10
DATE COMPLETED: January 20, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, medium brown, moist							
2	- 2" lens with topsoil at 2.3ft BGS							
	MH-SANDY SILTS, trace gravels (FILL), compact, fine grained, poorly graded, dark brown, moist	2.80	2-1/4" BOREHOLE	1AL 0-2' -1413 -1414		100		0.0
4	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, grayish-brown, moist	4.00						
6								
8	- wet, odor present at 7.5ft BGS		BENTONITE CHIPS	2AL 5.5-7.5' -1415		80		0.0
10	END OF BOREHOLE @ 10.0ft BGS	10.00						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-22-1
DATE COMPLETED: September 25, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.46						
0	CONCRETE, constructed with subrounded fine gravel up to 2cm, good condition	705.63	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace coarse sands and fine gravels, fine grained, loose, poorly graded, brown, trace oxidation, moist			1AL 0-2'		50		0.0
4			1" PVC WELL CASING					
6				2AL 5-7'		25		0.0
8	- very moist at 7.0ft BGS - gray, brown, saturated at 8.0ft BGS		1" PVC WELL SCREEN					
10				3AL		50		0.3
12	SW-SANDS, loose, well graded, coarse grained sands with fine gravels, gray-brown, saturated	695.96 695.46						
14	SP-SANDS, with silts, compact, poorly graded, fine grained, gray, saturated, slight petroleum/hydrocarbon-like odor - dark gray-black (possibley stained) slight to moderate petroleum/hydrocarbon-like odor at 11.5ft BGS	694.46						
16	END OF BOREHOLE @ 12.0ft BGS							
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
699.46 to 694.46ft AMSL
7.00 to 12.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-22-2
DATE COMPLETED: September 25, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.47						
0	CONCRETE, constructed with subrounded fine gravel up to 2cm, good condition	705.81	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, loose, poorly graded, fine grained, brown, moist			1AL (0-2')		25		0.0
4			1" PVC WELL CASING					
6				2AL (5-7')		85		0.0
	- wet at 7.0ft BGS							
8			1" PVC WELL SCREEN					
	- pieces of red brick at 9.0ft BGS							
10				3AL		50		0.0
12								
14				4AL		100		0.0
16	END OF BOREHOLE @ 16.0ft BGS	690.47						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
700.47 to 695.47ft AMSL
6.00 to 11.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

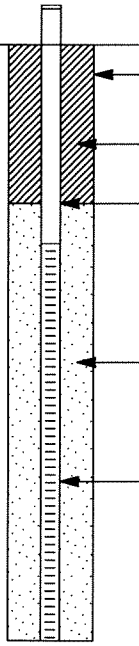
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-24-1
DATE COMPLETED: January 8, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	CONCRETE, constructed with rebar	1.00
2	SP-SANDS (FILL), trace silts, loose, poorly graded, fine and medium grained, brown with slight orange hue, moist	
4	CONCRETE	3.67
		5.67
6	VOID, with small amount of fill (possibly from above concrete)	
	- metal sheet (punctured thru with direct push) at 7.1ft BGS	7.00
8	VOID, filled with water (no evidence of sediment)	
10		
12		
14		
	END OF BOREHOLE @ 15.0ft BGS	15.00
16		
18		
20		
22		
24		
26		
28		
30		
32		
34		

TEMPORARY MONITORING WELL



WELL DETAILS
Screened interval:
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 1in
Slot Size: 0.010
Material: PVC
Sand Pack:
4.00 to 15.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE
1AL			
2AL			
3AL			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-1
DATE COMPLETED: October 16, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.75						
0	CONCRETE RUBBLE	704.59	2-1/4" BOREHOLE					
2	SP-SANDS (FILL), with red brick fragments, loose, poorly graded, fine and medium grained, brown, moist			1AL		60		0.0
4	SP-SANDS, with silts, loose, poorly graded, fine grained, dark brown, moist	700.75	1" PVC WELL CASING					
6	- wet, light brown at 7.0ft BGS							
8				2AL		75		0.0
10			1" PVC WELL SCREEN					
12	END OF BOREHOLE @ 11.0ft BGS	693.75						
14	NOTE: TEMPORARY MONITORING WELL REMOVED. ANNULUS BACKFILLED WITH BENTONITE CHIPS							
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
698.75 to 693.75ft AMSL
6.00 to 11.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-1A
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SP-SANDS, with bricks/concrete, trace silts (FILL), loose, fine grained, poorly graded, medium brown, moist		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL 0-2' 1443			
3.00	END OF BOREHOLE @ 3.0ft BGS	3.00					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-2
DATE COMPLETED: October 16, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.97						
0	CONCRETE RUBBLE	704.81	2-1/4" BOREHOLE					
	SP-SANDS (FILL), with fine subangular gravel, loose, poorly graded, fine grained, moist							
2	ASPHALT, broken, black	702.97						
	SP-SANDS, with silts, loose, poorly graded, fine grained, light brown, moist	701.97		1AL		50		0.1
4	- very moist at 5.0ft BGS		1" PVC WELL CASING					
6								
8	- wet, gray at 9.0ft BGS			2AL		40		117
	- petroleum-like odor at 9.5ft BGS							
10								
12			1" PVC WELL SCREEN					
14	END OF BOREHOLE @ 14.0ft BGS	690.97						
	NOTE: TEMPORARY MONITORING WELL REMOVED. ANNULUS BACKFILLED WITH BENTONITE CHIPS							
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
695.97 to 690.97ft AMSL
9.00 to 14.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-3
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.76						
0	GP-GRAVELS, trace silts (FILL), loose, fine and coarse grained, angular, poorly graded, gray, dry	703.76						
2	SP-SANDS, trace silts, trace fine grained rounded gravels (FILL), compact, fine grained, poorly graded, gray, dry - light brown at 2.1ft BGS - 1/4" lens coal at 2.4ft BGS - 1/2" wood at 4.9ft BGS			1MC 0-2' -1170		85		0.0
4			2-1/4" BOREHOLE					
6	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist to very moist - wet at 7.3ft BGS	698.76	MEDIUM BENTONITE CHIPS					
8				2MC 5-7' -1171		100		0.0
10	END OF BOREHOLE @ 10.0ft BGS	694.76						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-4
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.36						
0	SM/GM-SILTY SANDS AND GRAVELS, (FILL), compact, medium grained, angular, poorly graded, medium brown, moist		2-1/4" BOREHOLE	1MC 0-2' -1177		100		0.0
2								
4								
6			MEDIUM BENTONITE CHIPS					
8	- wet at 7.8ft BGS			2MC 6-8' -1178		70		0.0
10	END OF BOREHOLE @ 10.0ft BGS	695.36						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-5
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.78						
0	SP-SANDS, with silts, trace fine grained rounded gravels (FILL), loose, fine grained, poorly graded, light brown, dry	703.48						
2	COAL, (FILL)	701.78		1MC 0-2' -1175		100		0.0
4	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, orange-brown, moist -medium brown at 3.1ft BGS		2-1/4" BOREHOLE					
6	- wet at 7.0ft BGS		MEDIUM BENTONITE CHIPS					
8				2MC 5-7' -1176		100		0.0
10	END OF BOREHOLE @ 10.0ft BGS	694.78						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-5A
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	GM-SILTY SANDS AND GRAVELS, (FILL), compact, fine grained, poorly graded, dark brown, moist		2-1/4" BOREHOLE	1AL 0-2' 1450			
2	COAL AND SILTS	1.70	BENTONITE CHIPS				
	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, brown, moist	3.00					
4	END OF BOREHOLE @ 4.0ft BGS	4.00					
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-6
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.44						
0	GM-SILTY GRAVELS, with sands (fill), compact, medium grained, rounded, poorly graded, dark brown, moist			0-2' -1172				
2								
4	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, medium brown, moist	701.64	2-1/4" BOREHOLE	1MC 0-2' -1173		90		0.3
6	- wet at 6.0ft BGS		MEDIUM BENTONITE CHIPS			100		0.2
8				2MC 4-6' -1174		100		0.4
10	END OF BOREHOLE @ 10.0ft BGS	694.44						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-6A
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	COAL		2-1/4" BOREHOLE	1AL (0-2' -1451)			
2	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, medium brown, moist	1.80	BENTONITE CHIPS				
4	END OF BOREHOLE @ 4.0ft BGS	4.00					
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-7
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.81						
0	GM-GRAVELS, with sands and silts, trace bricks and concrete (FILL), loose, medium grained subangular, poorly graded, light gray, dry		2-1/4" BOREHOLE	1MC 0-2' -1179		60		0.0
4			MEDIUM BENTONITE CHIPS					
5	END OF BOREHOLE @ 5.0ft BGS	699.81						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-8
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	FILL-SANDS, trace silts, trace concrete, loose, poorly graded, fine grained, black, moist			1SS (0-2'-1389)		60		1.2
2	- trace coarse angular gravels, brown at 2.0ft BGS		BACKFILLED WITH BENTONITE CHIP	2SS (4-6'-1390)		15		5.0
4	- very moist at 4.0ft BGS		2-1/4" BOREHOLE	3SS		40		11.0
6	END OF BOREHOLE @ 6.0ft BGS	6.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-8A
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SP-SANDS, trace silts, trace concrete debris (FILL), loose, fine grained, poorly graded, gray, damp		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL 0-2' 1442			
3.00	END OF BOREHOLE @ 3.0ft BGS	3.00					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-9
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	FILL-SANDS, trace silts, with 2" concrete fragments, loose, poorly graded, fine graine,d with medium grained, brown, moist		BACKFILLED WITH BENTONITE CHIP; 2-1/4" BOREHOLE	1SS 0-2' -1376		20 30		0.6 --
2				0-2' -1377 2SS 4-6' -1378		10		0.5
4								
6	END OF BOREHOLE @ 6.0ft BGS	6.00		3SS		20		0.5
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-9A
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SM-SANDY SILTS, with gravels (FILL), trace concrete, loose, fine grained, poorly graded, dark brown, moist		2-1/4" BOREHOLE	1AL 0-2' -1436			
3.00	END OF BOREHOLE @ 3.0ft BGS	3.00	BENTONITE CHIPS				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-10
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace fine subangular gravels, compact, poorly graded, fine grained, trace medium grained, brown, moist		BACKFILLED WITH BENTONITE CHIP	1SS 0-2' -1379		90		0.2
2	- 2" layer yellow brick fragments at 1.0ft BGS		2-1/2" BOREHOLE	2SS 4-6' -1380		80		0.2
4	- wet at 5.0ft BGS			3SS		80		0.2
6	END OF BOREHOLE @ 6.0ft BGS	6.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-11
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace fine subangular gravels, compact, poorly graded, fine grained, trace medium grained, brown, moist		BACKFILLED WITH BENTONITE CHIP	1SS 0-2' -1383		75		0.2
2	- 2" dark brown layer, with fine angular gravels at 0.5ft BGS			2SS 4-6' -1384		75		0.2
4	- wet at 4.0ft BGS		2-1/4" BOREHOLE	3SS		75		0.2
6	END OF BOREHOLE @ 6.0ft BGS	6.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-11A
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SP-SANDS, trace silts, trace concrete debris (FILL), loose, fine grained, poorly graded, dark brown, moist - light brown at 0.5ft BGS - dark brown at 1.0ft BGS - concrete debris not present at 1.5ft BGS END OF BOREHOLE @ 3.0ft BGS	3.00	2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2' 1434 1435			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-12
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace fine subangular gravels, compact, poorly graded, fine grained, trace medium grained, brown, moist			1SS 0-2' -1381		80		1.0
2	- 2" concrete fragment at 1.0ft BGS		BACKFILLED WITH BENTONITE CHIP	2SS 4-6' -1382		80		0.3
4	- wet at 5.0ft BGS		2-1/4" BOREHOLE	3SS		80		0.2
6	END OF BOREHOLE @ 6.0ft BGS	6.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-12A
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
2	SP-SANDS, trace silts, trace cinders (FILL), compact, fine grained, poorly graded, stained black, moist - cinders not present at 1.5ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	0-2' -1445 1AL			
4	END OF BOREHOLE @ 3.0ft BGS	3.00					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-13
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace fine subangular gravels, compact, poorly graded, fine grained, trace medium grained, brown, moist - 2" layer black, with angular gravels at 1.5ft BGS - orange hue at 1.8ft BGS - no orange at 2.0ft BGS - wet at 4.0ft BGS		BACKFILLED WITH BENTONITE CHIP 2-1/4" BOREHOLE	1SS 0-2' -1385		75		0.3
2				2SS 4-6' -1386		75		0.3
4				3SS		75		0.2
6	END OF BOREHOLE @ 6.0ft BGS	6.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-13A
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SP-SANDS, trace silts, trace fine grained rounded gravels (FILL), loose, fine grained, poorly graded, medium brown, moist		2-1/4" BOREHOLE	1AL 0-2' -1449			
2	COAL	1.80 2.20	BENTONITE CHIPS				
	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, orange-brown, moist						
4	- medium brown at 2.4ft BGS	4.00					
	END OF BOREHOLE @ 4.0ft BGS						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-14
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	FILL, black, loose, slag-like material			1SS 0-2' -1387		75		0.1
2	SP-SANDS, trace silts, trace fine subangular gravels, compact, poorly graded, fine grained, trace medium grained, orange, moist	1.90	BACKFILLED WITH BENTONITE CHIP	2SS 4-6' -1388		75		0.2
4	- brown/beige at 3.9ft BGS		2-1/4" BOREHOLE	3SS		75		0.1
6	END OF BOREHOLE @ 6.0ft BGS	6.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-14A
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
2	SM-SILTY SANDS, trace coal (<5%), loose, fine grained, poorly graded, medium brown, moist	2.00	2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2' 1452			
	END OF BOREHOLE @ 2.0ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-15
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	FILL-black, light, loose		2-1/4" BOREHOLE	1AL		75		1.4
2	SP-SANDS, trace silts, loose, poorly graded, fine grained, brown, moist	2.00	BENTONITE CHIPS	0-2' -1998				
4				2AL		75		1.4
6	END OF BOREHOLE @ 6.0ft BGS	6.00		4-6' -1999				
8				3AL		75		1.5
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-16
DATE COMPLETED: November 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	FILL, sands, with concrete and red brick fragments, loose, poorly graded, dark brown, moist			1SS 0-2' -1338		75		1.4
2	- brown at 1.5ft BGS	2.00	BACKFILLED WITH BENTONITE CHIP	0-2' -1339				
	SP-SANDS, trace silts, with fine subangular gravels, compact, poorly graded, fine and medium grained, brown, moist		2-1/4" BOREHOLE	2SS 4-6' -1340		75		2.1
4	- dark brown, trace concrete fragments at 4.0ft BGS							
6	END OF BOREHOLE @ 6.0ft BGS	6.00		3SS		75		2.4
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-17
DATE COMPLETED: November 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace vegetation (grass), compact, poorly graded, fine grained, trace medium grained, brown, moist			1SS 0-2' -1343		80		1.0
2	-2" concrete and red brick fragment layer at 0.5ft BGS		BACKFILLED WITH BENTONITE CHIP	2SS 4-6' -1344		100		1.1
4	-no vegetation, dark brown at 0.7ft BGS		2-1/4" BOREHOLE					
6	- wet at 5.0ft BGS			3SS		80		0.8
	END OF BOREHOLE @ 6.0ft BGS	6.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-18
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SC-CLAYEY SANDS, compact, poorly graded, fine grained, trace medium and coarse grained, trace fine subrounded gravels, dark brown, moist - brown at 1.0ft BGS - dark brown at 2.0ft BGS - very moist to wet at 4.0ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL		90		2.3
2				0-2' -2015				
4				2AL		90		2.3
				4-6' -2016				
6	END OF BOREHOLE @ 6.0ft BGS	6.00		3AL		80		2.7
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-19
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine grained, trace coarse grained, brown, wet	1.00	2-1/4" BOREHOLE	1AL		100		1.3
	FILL, black, lite	2.00		0-2' -2011				
4	SP-SANDS, trace silts, loose, poorly graded, fine grained, trace medium and coarse grained, brown, moist - dark brown, very moist at 4.0ft BGS		BENTONITE CHIPS	2AL		80		1.6
				4-6' -2012				
6	END OF BOREHOLE @ 6.0ft BGS	6.00		3AL		80		6.7
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-19A
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, dark brown, moist		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2' 1446			
2	END OF BOREHOLE @ 2.0ft BGS	2.00					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-20
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, loose, poorly graded, fine grained, brown, wet		2-1/4" BOREHOLE	1AL		75		1.4
2	FILL, black, lite	1.00	BENTONITE CHIPS	0-2' -2009		75		2.3
	SP-SANDS, trace silts, loose, poorly graded, fine grained, orange, moist	2.00		2AL				
4	CL-CLAYS, trace fine subrounded gravels, firm, low plasticity, brown, moist	3.00		4-6' -2010		75		1.3
	SP-SANDS, trace silts, loose, poorly graded, fine grained, brown, wet	4.00		3AL				
6	END OF BOREHOLE @ 6.0ft BGS	6.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-21
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, with fine subrounded gravels, loose, poorly graded, fine grained, with medium and coarse grained, brown, wet		2-1/4" BOREHOLE	1AL		75		1.4
2				0-2' -2003				
4	- trace medium and coarse grained at 4.0ft BGS		BENTONITE CHIPS	2AL		75		2.1
6	END OF BOREHOLE @ 6.0ft BGS	6.00		4-6' -2004				
				3AL		75		1.9
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-22
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	FILL, black, light, loose		2-1/4" BOREHOLE	1AL		75		2.0
2	- brown at 2.2ft BGS	1.90	BENTONITE CHIPS	0-2' -2000				
4	SP-SANDS, trace silts, loose, poorly graded, fine grained, orange, moist			2AL		75		2.1
6	END OF BOREHOLE @ 6.0ft BGS	6.00		4-6 -2001 -2002				
				3AL		75		2.1
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-23
DATE COMPLETED: November 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	FILL, sands, with gravels, trace concrete and red brick fragments, loose, dark brown, moist		BACKFILLED WITH BENTONITE CHIP; 2-1/4" BOREHOLE	1SS 0-2' -1336		75		1.1
2				2SS 4-6' -1337		60		1.1
4	- wet at 5.0ft BGS			3SS		50		0.6
6	END OF BOREHOLE @ 6.0ft BGS	6.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-24
DATE COMPLETED: November 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	FILL-SANDS, with concrete and red brick fragments, loose, poorly graded, dark brown, moist		BACKFILLED WITH BENTONITE CHIP	1SS 0-2' -1341		75		0.7
2				2SS 2-4' -1342		75		0.4
4	- CONCRETE at 4.0ft BGS	4.00	2-1/4" BOREHOLE	3SS				N/A
	END OF BOREHOLE @ 4.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-25
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SC-CLAYEY SANDS, (FILL), trace fine subrounded gravels, compact, poorl ygraded, fine grained, dark brown, very moist	1.00	2-1/4" BOREHOLE	1AL		90		3.0
2	SP-SANDS, compact, poorly graded, fien grained, trace medium and coarse grained, dark brown, moist		BENTONITE CHIPS	0-2' -2017				
4				2AL		90		3.2
				4-6' -2018				
	CL-CLAYS, with silts, very soft, low plasticity, dark brown to black, moist	4.50		3AL		80		1.4
6	END OF BOREHOLE @ 6.0ft BGS	6.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-26
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP-SANDS, (FILL), with fine angular gravels, trace concrete pieces, loose, poorly graded, fine grained, with coarse grained, gray/bronw, wet	1.00	2-1/4" BOREHOLE	1AL		90		1.9
4	SP-SANDS, trace silts, loose to compact, poorly graded, fine grained, trace medium and coarse grained, brown, moist - wet at 4.0ft BGS		BENTONITE CHIPS	0-2' -2013 (CHEMICAL ANALYSIS)				
6	END OF BOREHOLE @ 6.0ft BGS	6.00		2AL		90		0.6
8				4-6' -2014 (CHEMICAL ANALYSIS)				
10				3AL		90		1.5
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-27
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, with fine angular gravels, loose, poorly graded, fine grained, with medium and coarse grained, brown, wet	1.00	2-1/4" BOREHOLE	1AL		60		1.2
2	CL-CLAYS, trace fine subrounded gravels, firm, low plasticity, brown, moist	2.00	BENTONITE CHIPS	0-2' -2007				
4	SP-SANDS, trace small black pieces, trace silts, trace fine subrounded gravels, loose, poorly graded, fine grained, brown, moist - trace medium grained, wet at 4.0ft BGS			2AL		50		4.7
6	- orange hue at 5.0ft BGS	6.00		4-6' -2008				
8	END OF BOREHOLE @ 6.0ft BGS			3AL		50		3.0
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-27-28
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace subangular gravels, loose, poorly graded, fine grained, with medium grained, trace coarse grained, brown, very moist - 1" layer fill, black at 2.3ft BGS - 2" orange layer at 2.5ft BGS - trace medium grained at 4.0ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL		75		2.0
2				0-2' -2005				
4				2AL		100		1.7
6	END OF BOREHOLE @ 6.0ft BGS	6.00		4-6' -2006				
8				3AL		75		1.3
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-30
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
2	SP-SANDS, trace silts, trace fine grained rounded gravels, trace brick, trace concrete (FILL), loose, fine grained, poorly graded, dark brown, moist		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL 0-2' 1437			
4	END OF BOREHOLE @ 3.0ft BGS	3.00					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-31
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SM-SANDS, with silts, trace fine grained rounded gravels, trace wood/ brick/concrete debris (FILL), loose, fine grained, poorly graded, black, moist		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL 0-2' -1438			
2							
3	END OF BOREHOLE @ 3.0ft BGS	3.00					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-32
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SP-SANDS, trace silts, trace concrete and brick debris, trace fine grained rounded gravels (FILL), loose, fine grained, poorly graded, dark brown, moist		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL 0-2' 1430			
3.00	END OF BOREHOLE @ 3.0ft BGS	3.00					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-33
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
2	ML/SM-SILTY SANDS, trace fine grained angular gravels (FILL), loose, fine grained, poorly graded, dark brown, moist		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2' -1427			
	END OF BOREHOLE @ 3.0ft BGS	3.00					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-34
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
2	SP-SANDS, trace silts, trace gravels (FILL), loose, fine grained, poorly graded, light brown, moist - fine grained, gravels not present at 2.0ft BGS	3.00	2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2' 1426			
4	END OF BOREHOLE @ 3.5ft BGS						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-35
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SM-SANDY SILTS, trace organics (topsoil) (FILL), loose, fine grained, poorly graded, dark brown, moist		2-1/4" BOREHOLE				
2	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, medium brown, moist	1.50	BENTONITE CHIPS	1AL 0-2' -1425			
4	END OF BOREHOLE @ 4.0ft BGS	3.00					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-36
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SW-SANDS, trace silts, trace fine grained rounded gravels (FILL), compact, fine to medium grained, well graded, brown, moist		2-1/4" BOREHOLE	1AL 0-2' 1424			
2							
3	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, medium brown, moist	3.00	BENTONITE CHIPS				
4	END OF BOREHOLE @ 4.0ft BGS	4.00					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-37
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SP-SANDS, trace silts, trace fine grained rounded gravels (FILL), compact, fine grained, poorly graded, medium brown, moist		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2' -1433			
2	END OF BOREHOLE @ 3.0ft BGS	3.00					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-39
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SM-SANDY SILTS, trace organics (topsoil), trace rootlets, loose, fine grianed, poorly graded, black, moist		2-1/4" BOREHOLE				
2	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, light brown, moist	2.30	BENTONITE CHIPS	1AL 0-2' -1416 -1417			
4	END OF BOREHOLE @ 4.0ft BGS	4.00					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-40
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, medium brown, moist		2-1/4" BOREHOLE	1AL 0-2' 1423			
2	- grayish brown at 2.5ft BGS		BENTONITE CHIPS				
4	END OF BOREHOLE @ 4.0ft BGS	4.00					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-41
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	CONCRETE DEBRIS	0.50	2-1/4" BOREHOLE	1AL (0-2' 1420)			
2	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, brown, moist		BENTONITE CHIPS				
	- very moist at 3.0ft BGS						
4	- gray at 3.9ft BGS	4.00					
	END OF BOREHOLE @ 4.0ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-42
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	CL-SILTY CLAYS, (FILL), firm, low plasticity, brown and gray, moist		2-1/4" BOREHOLE	1AL 0-2' 1421			
2	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, light/dark brown mixture, moist	1.80	BENTONITE CHIPS				
4	END OF BOREHOLE @ 4.0ft BGS	4.00					
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30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-43
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
2	SP-SANDS, trace silts, trace concrete debris (FILL), loose, fine grained, poorly graded, medium brown, moist		2-1/4" BOREHOLE	1AL (0-2' 1422)			
	OL-ORGANIC SILTS (FILL), loose, fine grained, poorly graded, black, moist	2.00 2.50	BENTONITE CHIPS				
4	SP-SANDS, trace silts, trace fine grained rounded gravels (FILL), compact, fine grained, poorly graded, medium brown, moist	4.00					
	END OF BOREHOLE @ 4.0ft BGS						
6							
8							
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24							
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28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-44
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SP-SANDS, with fine grained angular gravels, trace silts (FILL), loose, fine grained, poorly graded, light brown, moist						
2	- gravels not present, medium brown at 1.5ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2' -1428			
	END OF BOREHOLE @ 3.0ft BGS	3.00					
4							
6							
8							
10							
12							
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18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-45
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SP-SANDS, trace silts, trace fine grained angular gravels (FILL), loose, fine grained, poorly graded, medium brown, moist		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL (0-2' -1429)			
	END OF BOREHOLE @ 3.0ft BGS	3.00					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-46
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SP-SANDS, trace silts, trace fine grained rounded gravels (FILL), loose, fine grained, poorly graded, light brown, moist						
2	- gravels not present, medium brown at 1.0ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2' -1439			
4	- trace organics (topsoil), black at 1.4ft BGS	3.00					
	END OF BOREHOLE @ 3.0ft BGS						
6							
8							
10							
12							
14							
16							
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20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB27-47
DATE COMPLETED: January 21, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
0	SP-SANDS, trace silts (FILL), loose, fine grianed, poorly graded, medium brown, moist - 1.5" lens trace cynders at 0.5ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	0-2' 1440 1AL			
3	END OF BOREHOLE @ 3.0ft BGS	3.00					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1440)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-28-1
DATE COMPLETED: October 2, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.63						
0	RUBBLE AND ASPHALT FRAGMENTS (FILL)		2-1/4" BOREHOLE					
2	SP-SANDS, trace silts, trace subrounded fine gravel, loose, poorly graded, fine grained, brown with slight orange hue, moist	703.13	1" PVC WELL CASING	1AL 0-2'		60		0.0
4	- wet at 5.0ft BGS							
6								
8	- with medium grains, beige/brown at 7.5ft BGS		1" PVC WELL SCREEN	2AL 3-5'		100		0.0
10	END OF BOREHOLE @ 10.0ft BGS	694.63						
12								
14								
16								
18								
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24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
700.63 to 695.63ft AMSL
4.00 to 9.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-28-2
DATE COMPLETED: October 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.84						
0	CONCRETE (FILL), rubble, asphalt fragments, sands, fine and medium grained, loose, black, moist, slight petroleum-like odor		2-1/4" BOREHOLE					
2	SP-SANDS, trace silts, loose, poorly graded, fine grained, trace medium grained, brown, moist	703.34	1" PVC WELL CASING	1AL 0-2'		60		0.0
4	- red brick fragment at 4.0ft BGS - wet at 4.8ft BGS							
6								
8	- dark gray, silts at 7.5ft BGS		1" PVC WELL SCREEN	2AL 3-4.5'		95		0.0
10	- light gray at 9.5ft BGS							
	END OF BOREHOLE @ 10.0ft BGS	694.84						
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14								
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18								
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32								
34								

WELL DETAILS
Screened interval:
700.84 to 695.84ft AMSL
4.00 to 9.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-28-3
DATE COMPLETED: October 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.14						
0	SP-SANDS, with fine subangular gravel, loose, poorly graded, fine and medium grained, brown orange hue, moist	704.64	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, loose, poorly graded, fine grained, brown with slight orange hue, moist		1" PVC WELL CASING	1AL 0-2'		75		0.0
4	- 2" clay layer, brown with 1.0mm orange bands at 4.5ft BGS							
6	- wet, no orange hue at 5.0ft BGS							
8	- medium grains at 8.0ft BGS		1" PVC WELL SCREEN	2AL 3-5'		100		0.0
10	END OF BOREHOLE @ 10.0ft BGS	695.14						
12								
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34								

WELL DETAILS
Screened interval:
701.14 to 696.14ft AMSL
4.00 to 9.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-28-4
DATE COMPLETED: October 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	TEMP. MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.78						
2	SP-SANDS, with fine subangular gravel, trace silt, loose, poorly graded, fine grained, dark brown, moist	704.28	2-1/4" BOREHOLE					
4	SP-SANDS, with silts, loose, poorly graded, fine grained, brown, moist - trace vegetation (rootlets and wood), dark brown, compact at 3.5ft BGS - light brown, slight orange hue, loose at 5.0ft BGS		1" PVC WELL CASING	1AL		60		0.0
6	ML-SILTS, trace fine sands, loose, poorly graded, brown, wet	698.78 698.38						
8	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, brown, wet (top 1" dark brown) - with silts, fine grained at 8.0ft BGS		1" PVC WELL SCREEN	2AL		100		0.0
10	- fine and medium grained at 9.8ft BGS END OF BOREHOLE @ 10.0ft BGS	694.78						
12			WELL DETAILS Screened interval: 699.78 to 694.78ft AMSL 5.00 to 10.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC					
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-1
DATE COMPLETED: October 8, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.63						
0	CL-SANDY CLAY, firm, very low plasticity, trace vegetation in top 2.0", trace fine subangular gravel, dark brown, moist		2-1/4" BOREHOLE					
2		702.63						
	SP-SANDS, trace silts, trace fine subangular gravel, loose, poorly graded, fine and medium grained, brown, moist	702.33	BENTONITE CHIPS	1AL 0-2'		85		0.0
4	CL-CLAYS, with fine subangular gravel, firm, very low plasticity, trace orange oxidation marks, brown, bottom 4" black, moist	701.38						
6	SP-SANDS, with silts, loose, poorly graded, fine grained, trace coarse grained orange intermixed with beige and black, moist							
	- very moist to wet at 6.0ft BGS	697.63		2AL 4-6'		100		0.0
8	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, brown, wet							
10	- 1" orange band at 9.0ft BGS							
	END OF BOREHOLE @ 10.0ft BGS	694.63						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-2
DATE COMPLETED: October 8, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.97						
2	CL-SANDY CLAYS, trace vegetation in top 2.0", trace fine subangular gravel, firm, low plasticity, dark brown, moist - concrete, greenish gray from 2.0 to 2.5ft BGS		2-1/4" BOREHOLE					
4	CL-CLAYS, with fine subangular gravels, firm, very low plasticity, trace orange oxidation marks, brown, bottom 4" black, moist	702.47	BENTONITE CHIPS	1AL 0-2'		90		0.0
6	SM-SANDS, with silts, loose, poorly graded, fine grained, trace sands, orange/brown, intermixed with beige and black - wet at 6.5ft BGS	700.97						
8	- trace medium grained, brown at 7.5ft BGS			2AL 4.5-6.5'		100		0.0
10	END OF BOREHOLE @ 10.0ft BGS	694.97						
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-3
DATE COMPLETED: October 8, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.56						
0	CL-SANDY CLAYS, trace vegetation (rootlets), firm, very low plasticity, grayish, moist to dry		2-1/4" BOREHOLE					
2	- 2" layer loose sands, with clay at 2.5ft BGS		BENTONITE CHIPS	1AL 0-2'		85		0.0
4	SP-SANDS, with silts, loose, poorly graded, fine grained, trace medium grained, dark brown, moist	700.56						
6	- orange hue at 4.5ft BGS - silty at 6.0ft BGS							
8	- wet, beige at 7.0ft BGS			2AL 5-7'		100		0.0
10	END OF BOREHOLE @ 10.0ft BGS	694.56						
12								
14								
16								
18								
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24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-4
DATE COMPLETED: October 8, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.74						
2	SC-CLAYEY SANDS, with fine subangular gravel, trace vegetation (rootlets), firm/compact, poorly graded, very low plasticity, fine grained with trace coarse grained, dark brown, moist		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL 0-2'		85		0.0
4		700.74						
6	SP-SANDS, with silts, loose, poorly graded, fine grained, very dark brown, moist - orange hue with brown at 4.5ft BGS - wet at 6.0ft BGS							
8	- silty at 7.0ft BGS - 1" black layer, then rest brown at 7.5ft BGS			2AL 4-6'		100		0.0
10	- trace silts, trace medium grained at 9.0ft BGS							
	END OF BOREHOLE @ 10.0ft BGS	694.74						
12								
14								
16								
18								
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL, 2AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-5
DATE COMPLETED: October 8, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.14						
0	GP-GRAVELS (FILL), loose, poorly graded, fine, subangular, moist	704.64	2-1/4" BOREHOLE					
2	SP-SANDS, with silts (trace 2 cm blocks of wood), loose, poorly graded, fine grained, black, moist, petroleum-like odor, trace 2 cm blocks of wood		BENTONITE CHIPS	1AL 0-2'		90		0.0
4	- brown, no odor at 1.0ft BGS - some 1" black layers at 2.5ft BGS - brown/beige at 3.0ft BGS - 2" dark brown layer at 4.5ft BGS							
6	- brown with orange hue, wet at 7.0ft BGS			2AL 5-7'		95		0.0
8	- beige at 8.0ft BGS							
10	- with medium grains at 9.8ft BGS	695.14						
	END OF BOREHOLE @ 10.0ft BGS							
12								
14								
16								
18								
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24								
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28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-6
DATE COMPLETED: October 8, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.04						
0	CL-SANDY CLAYS, trace vegetation (rootlets), firm, very low plasticity, grayish, moist to dry		2-1/4" BOREHOLE					
2	- 0.5" layer fibrous material, beige at 2.5ft BGS		BENTONITE CHIPS	1AL 0-2'		80		0.0
4	SP-SANDS, trace silts, loose, poorly graded, fine grained with trace medium and coarse grains, brown with orange hue, moist	701.04						
6	- wet at 7.0ft BGS - bright orange at 7.5ft BGS							
8	- beige at 8.5ft BGS			2AL 5-7'		80		0.0
10	- orange hue at 9.5ft BGS							
	END OF BOREHOLE @ 10.0ft BGS	695.04						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-7
DATE COMPLETED: October 8, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.91						
2	SP-SANDS, with silts, loose, poorly graded, fine grained with trace coarse grained, brown, moist to dry		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL 0-2'		60		0.0
4	- dark brown, moist at 4.0ft BGS - brown with orange hue at 4.8ft BGS							
6								
8	- 2" clayey, wet at 7.5ft BGS - silty at 7.7ft BGS			2AL 5.5-7.5'		80		0.0
10	- 2" trace silt, with medium grained at 9.0ft BGS							
	END OF BOREHOLE @ 10.0ft BGS	694.91						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-7A
DATE COMPLETED: March 28, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.99						
2	SM-SILTY SANDS (FILL), trace coarse grained angular gravels, dense, fine grained, poorly graded, brown, moist - gray at 0.5ft BGS	703.19	2-1/4" BOREHOLE	1AL 3-5'		60		0.0
4	ML-SANDY SILTS (FILL), trace medium grained rounded gravels, compact, fine grained, poorly graded, gray, moist	701.99 701.29	BENTONITE CHIPS					
6	CL-SILTY CLAYS (FILL), trace sand, trace fine grained rounded gravels, stiff, low plasticity, gray, moist	699.99						
8	SM-SANDY SILTS (FILL), trace coarse grained rounded gravels, compact, fine grained, poorly graded, dark gray, moist - brown at 4.8ft BGS END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-8
DATE COMPLETED: October 8, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.21						
2	CL-SANDY CLAYS, trace vegetation (rootlets), firm, very low plasticity, grayish, moist to dry		2-1/4" BOREHOLE	1AL 0-2'		95		0.0
4	SP-SANDS, with silts, loose, poorly graded, fine grained, light brown, moist to dry	702.21 701.96	BENTONITE CHIPS					
6	CL-SANDY CLAYS, firm, very low plasticity, grayish, moist to dry	700.46						
8	SP-SANDS, with silts, medium compaction, poorly graded, fine grained, dark brown with orange oxidation swirls, moist - wet at 7.5ft BGS			2AL 5.5-7.5'		95		0.0
10	- brown with medium grains at 9.0ft BGS							
12	END OF BOREHOLE @ 10.0ft BGS	695.21						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-9
DATE COMPLETED: March 28, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.90						
2	SM-SILTY SANDS (FILL), with medium grained angular gravels, compact, fine grained, poorly graded, dark brown to black, moist		2-1/4" BOREHOLE					
	- 1" lens, fine grained angular gravels at 1.1ft BGS	703.10						
	SP-SANDS (FILL), trace silts, compact, fine grained, poorly graded, medium brown, moist	702.50	BENTONITE CHIPS	1AL 0-2' 3-5'		100		0.0
4	ML-SILTS, trace sod, compact, fine grained, poorly graded, black, moist, faint odor	701.80						
6	SW-SANDS, trace silts, compact, fine to medium grained, well graded, medium brown, moist							
		697.40		2AL 6-8'		100		0.0
8	CONCRETE DEBRIS (FILL)	697.00						
	SP-SANDS, trace silts, compact, fine to medium grained, well graded, light brown, moist	695.90						
10	END OF BOREHOLE @ 9.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-10
DATE COMPLETED: March 28, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.54						
2	SM/ML-SILTY SANDS, trace medium grained angular gravels, compact, fine grained, poorly graded, brown, moist - gray at 0.8ft BGS - 2"lens, sand and medium grained gravel at 1.3ft BGS	702.54	2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2' 3-5'		100		0.0
4	SW-SANDS (FILL), trace silts, compact, fine to medium grained, well graded, brownish gray, moist - trace coal at 2.8ft BGS - coal not present at 3.0ft BGS - black staining at 3.3ft BGS	700.74						
6								
8	SP-SANDS, trace silt, compact, fine to medium grained, poorly graded, orange-brown, moist - light brown at 7.0ft BGS - gray, wet at 8.0ft BGS			2AL 6-8'		100		0.0
10	END OF BOREHOLE @ 10.0ft BGS	694.54						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-11
DATE COMPLETED: March 28, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.73						
2	SW-SANDS (FILL), trace silts, trace fine to coarse grained subrounded gravel, compact, fine to medium grained, well graded, dark brown, moist		2-1/4" BOREHOLE					
	- 1" lens fine grained sands and gravels at 1.5ft BGS			1AL 0-2' 3-5'		100		0.0
4	- orange/brown oxidation at 2.9ft BGS							
	- brown at 3.0ft BGS							
	- dark brown/black staining at 3.3ft BGS							
6	- medium brown (no staining) at 3.7ft BGS	699.03	BENTONITE CHIPS					
	- light brown at 4.0ft BGS							
	- black at 4.8ft BGS							
8	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist, faint odor			2AL 6-8'		100		0.0
	- wet at 8.0ft BGS							
10	- gray at 8.2ft BGS	694.73						
	END OF BOREHOLE @ 10.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL, 2AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-12
DATE COMPLETED: March 28, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.83						
2	ML-SANDY SILTS (FILL), trace fine to coarse grained angular gravels, compact, fine grained, light brown, moist - dark gray at 0.4ft BGS - trace wood, trace concrete debris at 1.9ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2' 3-5'		100		0.0
4	- 2" lens silty sands at 2.7ft BGS - with clay, trace coarse grained, angular gravel at 3.1ft BGS	701.03 699.83						
6	SM-SILTY SANDs (FILL), trace fine grained, subrounded gravels, compact, fine to medium grained, poorly graded, black, moist							
8	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist - gray, wet at 8.8ft BGS			2AL 6-8'		100		0.0
10	END OF BOREHOLE @ 10.0ft BGS	694.83						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL, 2AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-13
DATE COMPLETED: March 28, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.61						
2	SM-SILTY SANDS, compact, fine grained, poorly graded, light brown, moist - dark brown staining, faint odor at 0.3 ft BGS		2-1/4" BOREHOLE					
		702.41	BENTONITE CHIPS	1AL 0-2' 3-5'		100		0.0
4	SP-SANDS, trace silts, compact, fine to medium grained, well graded, light brown, moist - 1" lens dark brown at 2.9ft BGS	700.81						
6	SM-SILTY SANDS, trace coarse grained rounded gravels, compact, fine grained, poorly graded, dark brown, moist	699.41						
8	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown and black, mixture, moist, faint odor - light brown at 7.1ft BGS - wet, grayish brown at 8.5ft BGS			2AL 6-8'		100		0.0
10	END OF BOREHOLE @ 10.0ft BGS	694.61						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-14
DATE COMPLETED: March 28, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.64						
2	ML-SILT WITH SANDS (FILL), trace coarse grained, angular gravels, compact, fine grained, poorly graded, gray, moist	703.54	2-1/4" BOREHOLE					
	SM-SILTY SANDS, compact, fine grained, poorly graded, medium brown, moist	702.64		1AL 0-2' 3-5'		100		0.0
	- 1.5" lens fine angular gravel at 1.9ft BGS	701.34	BENTONITE CHIPS					
4	SW-SANDS (FILL), trace silts, compact, fine to medium grained, well graded, medium brown, moist	700.94						
6	SM-SILTY SANDS, compact, fine grained, poorly graded, black moist, faint odor							
8	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, medium brown, moist			2AL 6-8'		100		0.0
	- 1.5" yellow brick at 4.7ft BGS							
	- black staining at 5.0ft BGS							
10	- brown, no staining at 5.5ft BGS	694.64						
	- wet at 7.9ft BGS							
	- grayish brown at 8.0ft BGS							
12	END OF BOREHOLE @ 10.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-15
DATE COMPLETED: March 28, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.27						
2	ML-SANDY SILTS (FILL), trace fine grained angular gravels, compact, fine grained, poorly graded, brownish gray, moist		2-1/4" BOREHOLE					
4	SW-SANDS (FILL), trace silts, compact, fine to medium grained, well graded, light brown, moist	703.07	BENTONITE CHIPS	1AL 0-2' 3-5'				0.0
6	GM-SILTY SANDY GRAVELS WITH CONCRETE (FILL), compact, fine grained, poorly graded, black, moist, faint odor	700.87						
8	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist	699.87						
10	ML-SANDY SILTS, compact, fine grained, poorly graded, medium brown, moist	698.57		2AL 6-8'				0.0
12	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, brown, moist - gray at 8.8ft BGS - wet at 9.0ft BGS	697.67						
14	END OF BOREHOLE @ 10.0ft BGS	695.27						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL, 2AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-16
DATE COMPLETED: March 28, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.95						
2	ML-SANDY SILTS (FILL), trace coarse grained, angular gravels, compact, fine grained, poorly graded, brown and gray, moist - silt with sand, trace coarse gravel at 2.4ft BGS	702.05	2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2' 3-5'				0.0
4	SM-SILTY SANDS (FILL), compact, fine grained, poorly graded, dark gray, moist, faint odor	701.15						
6	SW-SANDS (FILL), trace coarse grained rounded gravel, compact, fine to medium grained, well graded, light brown, moist							
8	- wet at 8.0ft BGS			2AL 6-8'				0.0
10	SP-SANDS, trace silt, compact, fine to medium grained, poorly graded, light brown, moist - gray at 9.6ft BGS	695.75 694.95						
12	END OF BOREHOLE @ 10.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-17
DATE COMPLETED: July 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.02						
0	ML-SANDY SILTS, trace clays (FILL), compact, fine grained, poorly graded, light brown, dry					85		0.7
2	SP-SANDS, trace silts, trace fine grained subangular gravels (FILL), compact, fine grained, poorly graded, grayish-brown, dry	701.72		0-2' -1205 1MC		85		0.2
4	CL-SILTY CLAYS, trace fine grained sands, trace fine grained rounded gravels (FILL), stiff, low plasticity, gray, moist	701.02	2-1/4" BOREHOLE	3-5' -1206		100		0.2
6	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, dark brown, moist	700.12	MEDIUM BENTONITE CHIPS	5-6.8' -1207				
8	-orange-brown at 4.2ft BGS - wet at 6.8ft BGS - grayish-brown at 7.2ft BGS			2MC		100		0.4
10	END OF BOREHOLE @ 10.0ft BGS	694.02						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-18
DATE COMPLETED: July 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE	704.54						
0	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, dark brown, moist			0-2' -1202		95		7.7
2	- black at 1.8ft BGS - 1.5" lens silty gravels at 2.2ft BGS - light brown at 2.4ft BGS			1MC 3-5' -1203		95		10.7
4	- orange-brown with black staining at 3.7ft BGS - with silts at 4.2ft BGS		2-1/4" BOREHOLE					
6	ML-SANDY SILTS, trace clays (FILL), compact, fine grained, brown, moist	698.34 697.74	MEDIUM BENTONITE CHIPS	5-6.8' -1204		100		2.2
8	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, medium brown, wet			2MC		100		0.2
10	END OF BOREHOLE @ 10.0ft BGS	694.54						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-19
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.50						
0	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, light brown, moist			0-2' -1187		95		4.6
2	- 1/4" lens coal at 2.6ft BGS - banded with 1/8" black staining at 3.4ft BGS			1MC 3-5' -1188		95		5.1
4	- black at 3.9ft BGS - light brown at 4.1ft BGS - 1/4" black stain at 4.4ft BGS		2-1/4" BOREHOLE					
6	- black at 4.8ft BGS - 1" lens silty sands, very moist at 6.8ft BGS		MEDIUM BENTONITE CHIPS	5-7' -1189		100		0.1
8	- wet at 7.0ft BGS - 1/2" lens silty sands at 8.6ft BGS - gray at 8.7ft BGS			2MC		100		0.3
10	END OF BOREHOLE @ 10.0ft BGS	694.50						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-20
DATE COMPLETED: July 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE	704.59						
0	SP-SANDS, (FILL), trace silts, compact, fine grained, poorly graded, dark brown, moist			0-2' -1190		100		3.5
2	- 1/2" lens silty fine gravels at 2.5ft BGS			1MC 3-5' -1191		100		3.6
4	- black at 4.4ft BGS - light brown at 4.7ft BGS		2-1/4" BOREHOLE					
6	- 1" black staining at 6.5ft BGS		MEDIUM BENTONITE CHIPS	5.6-7.6' -1192		100		1.8
8	- wet at 7.6ft BGS - 2" lens silty sands at 8.7ft BGS			2MC		100		1.2
10	END OF BOREHOLE @ 10.0ft BGS	694.59						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-21
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE	704.61						
0	SM/ML-SANDY SILTS, trace clays, trace fine grained subrounded gravels (FILL), compact, fine grained, grayish-brown, moist			0-2' -1184		90		0.0
2				1MC 3-5' -1185		90		5.4
4	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, dark brown, moist, odor	700.51	2-1/4" BOREHOLE					
6	-2.5" lens sandy silts at 4.3ft BGS - light brown at 4.6ft BGS - 1.5" lens sandy silts at 6.9ft BGS		MEDIUM BENTONITE CHIPS	5.6-7.6' -1186		100		4.7
8	- wet at 7.6ft BGS - gray at 8.3ft BGS			2MC		100		2.3
10	- medium grained at 9.6ft BGS END OF BOREHOLE @ 10.0ft BGS	694.61						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-22
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.19						
0	ML-SANDY SILTS, trace clays, trace fine grained rounded gravels (FILL), compact, fine grained, gray, moist			0-2' -1180		90		0.0
2				0-2' -1181 1MC		90		0.0
		702.19						
4	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, light brown, moist		2-1/4" BOREHOLE	3-5' -1182				
6			MEDIUM BENTONITE CHIPS					
8	- very moist at 8.1ft BGS - wet at 8.5ft BGS - gray at 8.7ft BGS			6.5-8.5' -1183 2MC		100 100		0.0 0.0
10	- trace fine grained rounded gravels at 9.3ft BGS	695.19						
	END OF BOREHOLE @ 10.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-23
DATE COMPLETED: July 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE	705.32						
0	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, light brown, dry	704.22		0-2' -1199		100		2.2
2	CL-SILTY CLAYS, trace sands (FILL), stiff, low plasticity, brown, dry	703.32		1MC 3-5' -1200		100		6.0
4	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, light brown, dry - black staining at 2.8ft BGS - brown at 3.3ft BGS - black staining at 3.7ft BGS		2-1/4" BOREHOLE	6.3-8.3' -1201		100		2.5
6	- trace coal (less than 5%) at 4.6ft BGS	699.32	MEDIUM BENTONITE CHIPS					
8	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, orange-brown, moist - 2" lens silty sands at 7.9ft BGS - wet at 8.3ft BGS			2MC		100		0.1
10	END OF BOREHOLE @ 10.0ft BGS	695.32						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-24
DATE COMPLETED: July 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.20						
0	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, light brown, dry	704.10		0-2" -1196		100		0.9
2	CL-SILTY CLAYS, (FILL), stiff, low plasticity, gray, dry	702.70						
	SP-SANDS, with silts (FILL), trace fine grained rounded gravels, compact, fine grained, poorly graded, light brown, moist	702.10		1MC 3-5' -1197		100		0.6
4	CL-SILTY CLAYS, trace fine grained subangular gravels (FILL), stiff, low plasticity, gray, moist	701.00	2-1/4" BOREHOLE					
6	SP-SANDS, trace silts, trace coal (FILL), compact, fine grained, poorly graded, dark brown, moist	698.60	MEDIUM BENTONITE CHIPS	5.7-7.7' -1198		100		0.6
8	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist - wet at 7.7ft BGS			2MC		100		2.2
10	END OF BOREHOLE @ 10.0ft BGS	695.20						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-25
DATE COMPLETED: July 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE	705.03						
0	SP-SANDS, trace silts, trace fine grained rounded gravels (FILL), loose, fine grained, poorly graded, light gray, dry, odor present			0-2' 1193		100		0.9
2	CL-SANDY CLAYS, trace silts (FILL), stiff, low plasticity, gray, dry, odor present	703.13		1MC 3-5' 1194		100		1.4
4	SP-SANDS, trace silts, trace fine grained rounded gravels (FILL), compact, fine grained, poorly graded, brown, dry	702.33						
	- trace coarse grained rounded gravels at 3.7ft BGS	700.93	2-1/4" BOREHOLE					
6	CL-SILTY CLAYS, (FILL), stiff, low plasticity, gray, moist	700.13	MEDIUM BENTONITE CHIPS	6.5-8.8' 1195		100		1.2
8	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, light brown, dry			2MC		100		0.8
	- moist at 6.0ft BGS							
	- wet at 7.8ft BGS							
10	- grayish-brown at 8.5ft BGS	695.03						
	END OF BOREHOLE @ 10.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-26
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.58						
0	SM-SILTY SANDS, loose, fine grained, poorly graded, light brown, dry (FILL)		2-1/4" BOREHOLE			80		0.0
2	- trace medium grained subrounded gravel at 2.3ft BGS	700.58		1MC				
	SP-SANDS, trace silt, trace coal (FILL)	699.68	MEDIUM BENTONITE CHIPS			80		0.0
4	SP-SANDS, trace silt (natural) compact fine grained, poorly graded, medium brown, moist	698.58						
	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-27
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.21						
0	GP-GRAVELS, trace silt (FILL), loose, medium grained, subangular, poorly graded, grayish-white, dry	700.71	2-1/4" BOREHOLE			50		0.0
2	SP-SANDS, trace silt (FILL), loose, fine grained, poorly graded, medium brown, moist			1MC				
4	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, dark brown, moist	698.21	MEDIUM BENTONITE CHIPS			50		0.0
6	-orange-brown at 4.1ft BGS	697.21						
	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-28
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.17						
0	GP-SANDY GRAVELS, trace silt (FILL), loose, medium grained subangular, poorly graded, grayish-white, dry		2-1/4" BOREHOLE	1MC		80		0.0
4	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, medium brown, moist	698.77	MEDIUM BENTONITE CHIPS			80		0.0
6	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, dark brown, moist -orange-brown at 4.6ft BGS	697.77						
8	END OF BOREHOLE @ 5.0ft BGS	697.17						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-29
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.77						
0	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, light brown, dry		2-1/4" BOREHOLE	1MC		80		0.0
2								
4	- trace gray angular gravel at 3.8ft BGS		MEDIUM BENTONITE CHIPS			80		0.0
	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, light brown, moist	697.27						
6	END OF BOREHOLE @ 5.0ft BGS	696.77						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-30
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.14						
0	SP-SANDS, trace silt, trace fine grained rounded gravels (FILL), loose, fine grained, poorly graded, light brown, dry					80		0.0
2	- with medium grained rounded gravel at 2.3ft BGS			1MC				
	- gravel not present, dark brown at 2.9ft BGS					80		0.0
4	- trace coal (<5%) at 3.1ft BGS		2-1/4" BOREHOLE					
	- coal not present at 3.7ft BGS							
	- trace black staining at 4.2ft BGS	699.04						
6	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, dark brown, moist		MEDIUM BENTONITE CHIPS			100		0.0
8	-light brown at 5.3ft BGS			2MC				
	- wet at 7.0ft BGS					100		0.0
10	END OF BOREHOLE @ 10.0ft BGS	694.14						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-31
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.31						
0	SP-SANDS, trace silt (FILL), loose, fine grained, poorly graded, medium brown, dry	702.21	2-1/4" BOREHOLE	1MC		90		0.0
2	SM-SILTY SANDS, with coal (FILL), compact, fine grained, poorly graded, black, moist							
4	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, orange-brown, moist	699.51	MEDIUM BENTONITE CHIPS			90		0.0
5	END OF BOREHOLE @ 5.0ft BGS	698.31						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-32
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.36						
0	SP-SANDS, trace silt, trace fine grained rounded gravels (FILL), loose, fine grained, poorly graded, brown, dry		2-1/4" BOREHOLE	1MC		90		0.0
2		699.56						
4	SM-SILTY SANDS, trace coal, trace organic silt (FILL), compact, fine grained, poorly graded, black, moist	698.86	MEDIUM BENTONITE CHIPS			90		0.0
6	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, light orange-brown, moist - light brown at 4.8ft BGS	697.36						
8	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-33
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.81						
0	SP-SANDS, trace silt, trace topsoil (FILL), loose, fine grained, poorly graded, brown, dry		2-1/4" BOREHOLE			90		0.0
2	- topsoil not present at 2.5ft BGS			1MC				
4	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, orange-brown, moist	698.31	MEDIUM BENTONITE CHIPS			90		0.0
6	-light brown at 3.8ft BGS END OF BOREHOLE @ 5.0ft BGS	696.81						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-34
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.32						
2	SP-SANDS, trace silt (FILL), loose, fine grained, poorly graded, light brown, moist - trace medium grained subangular gravels at 1.4ft BGS - 1/2" piece slag at 2.1ft BGS	698.62	2-1/4" BOREHOLE	1MC		80		0.0
4	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, light brown, moist -orange-brown at 3.0ft BGS	696.32	MEDIUM BENTONITE CHIPS			80		0.0
6	- medium brown, laminated at 4.1ft BGS END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-35
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.14						
0	GP-SANDY GRAVELS, trace silt (FILL), loose, medium grained subangular, poorly graded, grayish-brown, moist					80		0.0
2	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, light brown, moist	699.14	2-1/4" BOREHOLE	1MC				
	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, brown, moist	698.14				80		0.0
4			MEDIUM BENTONITE CHIPS					
	END OF BOREHOLE @ 5.0ft BGS	696.14						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-36
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.10						
2	SP-SANDS, trace silt, trace organics (topsoil) (FILL), loose, fine grained, poorly graded, dark brown, dry		2-1/4" BOREHOLE	1MC		90		0.0
	- topsoil not present, compact, moist, light brown at 3.0ft BGS							
4	- 1.5" coarse grained subangular gravels at 3.6ft BGS	698.10	MEDIUM BENTONITE CHIPS			90		0.0
6	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, orange-brown, moist	697.10						
	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-37
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.45						
0	GP-SANDY GRAVELS, trace silt (FILL), loose, medium grained subangular, poorly graded, dark brown, dry		2-1/4" BOREHOLE	1MC		90		0.0
2	- grayish-white, compact at 2.3ft BGS							
4	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, orange-brown, moist	698.35	MEDIUM BENTONITE CHIPS			90		0.0
	- medium brown at 4.0ft BGS							
6	END OF BOREHOLE @ 5.0ft BGS	696.45						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-38
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.94						
0	SP-SANDS, trace compact, fine grained, poorly graded, brown, dry (FILL)		2-1/4" BOREHOLE	1 MC 0-2.5'		85		0.0
2	MH-SANDY SILT, compact, fine grained, poorly graded, brown, moist (FILL)	701.54						
	SM-SILTY SANDS, fine grained, poorly graded, faint odor, moist (FILL)	700.54						
4	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, black, medium	699.84	MEDIUM BENTONITE CHIPS					
	- dark brown at 3.9ft BGS							
6	- medium brown at 4.1ft BGS	697.94				85		0.0
	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-39
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.22						
0	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, brown, dry		2-1/4" BOREHOLE	1MC 0-2.5'		90		0.0
2	ML-SILT, with clay (FILL), compact, fine grained, brown, moist	700.42						
	SM-SILTY SANDS, compact, fine grained, poorly graded, black, moist (FILL)	699.82						
4	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, light brown, moist	699.12	MEDIUM BENTONITE CHIPS			90		0.0
	END OF BOREHOLE @ 5.0ft BGS	697.22						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-40
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.67						
2	SM-SILTY SANDS, (FILL), compact, fine grained, poorly graded, gray, dry	700.67	2-1/4" BOREHOLE	1MC 0-2.5'		85		0.0
	GP-SANDY GRAVELS, (FILL), compact, medium grained angular, poorly graded, grayish-brown, dry	700.07						
4	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, medium brown, moist		MEDIUM BENTONITE CHIPS					
6	END OF BOREHOLE @ 5.0ft BGS	697.67				85		0.0
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-41
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE	701.67					
0	SM-SILTY SANDS, (FILL), loose, fine grained, poorly graded, brown, dry		2-1/4" BOREHOLE	1MC 0-2.5'			
2	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, light brown, moist	699.57					
4	SM-SANDS, with silt, compact, fine grained, poorly graded, light dark brown, very moist to wet	697.67	MEDIUM BENTONITE CHIPS				
6	END OF BOREHOLE @ 5.0ft BGS	696.67					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-42
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE	702.07					
0	SP-SANDS, trace silt, compact, fine grained, poorly graded, light brown, dry		2-1/4" BOREHOLE	1MC 0-2.5'			
2	- with silt, medium brown at 2.5ft BGS - organic sand (trace peat fibers) at 3.0ft BGS						
4	SP-SANDS, trace silt, compact, fine grained, poorly graded, gray, moist (natural)	698.27	MEDIUM BENTONITE CHIPS				
	END OF BOREHOLE @ 5.0ft BGS	697.07					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-43
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.00						
0	SM-SILTY SANDS, trace medium grained rounded gravels (FILL), compact, fine grained, poorly graded, light brown, dry	701.40	2-1/4" BOREHOLE	1MC 0-2.5'		85		0.0
2	SP-SANDS, trace silt (natural) - dark brown at 2.4ft BGS - light brown at 3.3ft BGS		MEDIUM BENTONITE CHIPS					
4	- trace black, faint odor, very moist to wet at 4.8ft BGS	697.00				85		0.0
6	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-44
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.96						
0	TOPSOIL	704.86	2-1/4" BOREHOLE	1MC 0-2.5'		85		0.0
2	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, light brown, dry							
	- trace medium grained subrounded gravel at 2.8ft BGS							
4	- 1/2" lens clay at 4.1ft BGS		MEDIUM BENTONITE CHIPS					
	END OF BOREHOLE @ 5.0ft BGS	699.96				85		0.0
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-45
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.40						
2	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, light brown, moist - trace coarse grained subrounded gravels at 1.9ft BGS - gray and brown at 2.0ft BGS		2-1/4" BOREHOLE	1MC 0-2.5'		80		0.0
4	COAL (FILL)	701.70 701.40	MEDIUM BENTONITE CHIPS					
6	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, orange-brown, moist -medium brown at 4.2ft BGS	700.40				80		0.0
8	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-46
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.84						
0	GM-SILTY SANDS, gravel (FILL), loose, fine and coarse grained angular, poorly graded, light brown, dry		2-1/4" BOREHOLE					
2	SP-SANDS, and coal (FILL), loose, fine grained, poorly graded, light brown and black, moist	702.94 702.14		1MC 0-2.5'		90		0.0
4	SP-SANDS, trace silt (natural), compact, medium grained, poorly graded, orange-brown, moist	699.84	MEDIUM BENTONITE CHIPS			90		0.0
6	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-47
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.00						
0	SM-SILTY SANDS, trace coarse grained angular gravels (FILL), loose, fine grained, poorly graded, light brown, dry		2-1/4" BOREHOLE	1MC 0-2.5'		90		0.0
2	COAL (FILL)	703.20						
	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, orange-brown, moist - medium brown at 4.3ft BGS	702.10	MEDIUM BENTONITE CHIPS			90		0.0
4	END OF BOREHOLE @ 5.0ft BGS	700.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-48
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.03						
0	SM-SILTY SANDS, trace fine grained subrounded gravels (FILL), loose, fine grained, poorly graded, light brown, dry		2-1/4" BOREHOLE	1MC 0-2.5'		90		0.0
2	SP-SANDS, trace coal (FILL), compact, fine grained, poorly graded, dark brown and black, moist	702.93	MEDIUM BENTONITE CHIPS					
4	- 1" lens coal at 2.6ft BGS - light brown, trace fine grained rounded gravel at 2.9ft BGS	701.23						
6	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, orange-brown, moist	700.03				90		0.0
8	-medium brown at 3.9ft BGS END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-49
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.47						
2	SM-SILTY SANDS, (FILL), loose, fine grained, poorly graded, light brown, dry		2-1/4" BOREHOLE	1MC 0-2.5'		90		0.0
	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, orange-brown, moist	703.47						
4	- medium brown at 3.6ft BGS							
	- 1/2" lens coal at 3.9ft BGS	701.47	MEDIUM BENTONITE CHIPS					
6	SP-SANDS, trace silt, trace organics (rootlets/topsoil) (FILL), compact, fine grained, poorly graded, orange-brown, moist	700.47				90		0.0
	- black, rootlets and organics present at 4.4ft BGS							
8	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-50
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.17						
0	ML-SANDY SILT, compact, fine grained, brown, damp		2-1/4" BOREHOLE	1MC 0-2.5'		90		0.0
2	- 1.5" lens silty gravel at 2.6ft BGS	702.47						
4	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, brown, damp		MEDIUM BENTONITE CHIPS					
	END OF BOREHOLE @ 5.0ft BGS	700.17				90		0.0
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-51
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.08						
0	SM-SILTY SAND, (FILL), compact, fine grained, poorly graded, light brown, dry		2-1/4" BOREHOLE	1MC 0-2.5'		85		0.0
2	SP-SANDS, trace silt, trace medium grained rounded gravels (FILL), compact, fine grained, poorly graded, light brown, moist	703.28						
4	- 2" lens clay at 3.1ft BGS	701.78	MEDIUM BENTONITE CHIPS					
	CL-SILTY CLAYS, (FILL), stiff, low plasticity, gray, moist	700.28				85		0.0
6	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, medium brown, moist	700.08						
	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-52
DATE COMPLETED: July 15, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.52					
0	SM-SILTY SANDS, (FILL), with subangular medium grained gravels, compact, fine grained, poorly graded, brown, dry				80		0.0
2	SP-SANDS, trace silt with coal (FILL), loose, fine grained, poorly graded, black, damp - coal not present at 3.1ft BGS	703.72	1MC				
4			2-4' -1168		80		0.0
6	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, medium brown, moist	699.52			100		0.0
8	- moist to very moist at 8.0ft BGS		2MC				
10	END OF BOREHOLE @ 10.0ft BGS	695.52			100		0.0
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-53
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.00						
0	SP-SANDS, trace silt (FILL), loose, fine grained, poorly graded, light brown, dry							
2	- trace fine grained rounded gravels, compact, black, moist at 1.6ft BGS - 1/2" gravels at 2.8ft BGS		2-1/4" BOREHOLE	1MC		90		0.0
4	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, dark brown, moist	700.60	MEDIUM BENTONITE CHIPS			90		0.0
6	-orange-brown at 3.6ft BGS END OF BOREHOLE @ 5.0ft BGS	699.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-54
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.13						
0	SP-SANDS, trace fine grained rounded gravels, trace silt (FILL), compact, medium grained, poorly graded, medium brown, moist					80		
2	- sand and coal, black, very moist at 2.7ft BGS	701.13	2-1/4" BOREHOLE	1MC				
4	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, gray, very moist, faint odor		MEDIUM BENTONITE CHIPS			80		0.0
6	END OF BOREHOLE @ 5.0ft BGS	699.13						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-55
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.77						
0	SP-SANDS, with trace silt, trace fine grained rounded gravels (FILL), compact, fine grained, poorly graded, medium brown, moist		2-1/4" BOREHOLE			90		0.0
2	COAL, (FILL)	702.87		1MC				
4	SP-SANDS, trace silt (natural), compct, fine grained, poorly graded, light brown, moist	701.27	MEDIUM BENTONITE CHIPS			90		0.0
5	END OF BOREHOLE @ 5.0ft BGS	699.77						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-56
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.53						
0	SP-SANDS, with silt, trace fine grained rounded gravels (FILL), compact, fine grained, poorly graded, light brown, moist		2-1/4" BOREHOLE	1MC		90		0.0
2	COAL (FILL)	703.43						
4	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, light brown, moist	702.33	MEDIUM BENTONITE CHIPS			90		0.0
5.0	END OF BOREHOLE @ 5.0ft BGS	700.53						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-57
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.05						
0	SP-SANDS, trace silt, fine grained rounded gravels (FILL), compact, fine grained, poorly graded, gray, dry					90		0.0
2	- dark gray at 2.2ft BGS		2-1/4" BOREHOLE	1MC				
	- 1/2" lens coal at 2.6ft BGS	702.05						
	- 1/2" lens coal at 2.9ft BGS					90		0.0
4	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, brown, moist	700.05	MEDIUM BENTONITE CHIPS					
6	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-58
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.51						
0	SP-SANDS, trace silt, trace fine grained rounded gravels (FILL), compact, fine grained, poorly graded, light brown, damp							
2	- 1-1/2" lens gravels at 1.8ft BGS	702.51	2-1/4" BOREHOLE	1MC		90		0.0
	SP-SANDS, trace silt (natural), compact, fine grained, poorly graded, light brown, moist							
4			MEDIUM BENTONITE CHIPS			90		0.0
	END OF BOREHOLE @ 5.0ft BGS	699.51						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-59
DATE COMPLETED: July 16, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.05						
0	SP-SANDS, trace silt (FILL), compact, fine grained, poorly graded, light brown, dry - trace medium grained rounded gravels at 1.0ft BGS - dark brown, with silt at 2.4ft BGS - black, diesel-type odor at 3.2ft BGS - very moist, gray at 4.0ft BGS		2-1/4" BOREHOLE MEDIUM BENTONITE CHIPS	1MC		80		0.0
4						80		38.5
5	END OF BOREHOLE @ 5.0ft BGS	700.05						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-60
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.15						
0	GM-SILTY GRAVELS, (FILL), compact, coarse grained angular, poorly graded, gray - concrete slab at 0.6ft BGS		2-1/4" BOREHOLE MEDIUM BENTONITE CHIPS	1MC		50		--
5	END OF BOREHOLE @ 5.0ft BGS	700.15						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-61
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.41						
0	SP-SANDS, trace gravels, trace silts (FILL), loose, fine grained, poorly graded, light brown, dry					90		0.0
2	- black, staining, moist at 0.9ft BGS	703.61	2-1/4" BOREHOLE	1MC		90		0.4
	- light brown at 1.4ft BGS							
	COAL, (FILL)	702.31						
4	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, orange-brown, moist		MEDIUM BENTONITE CHIPS					
	- dark gray at 4.6ft BGS	700.41						
6	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-62
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.51						
0	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, brown, dry							
2		702.51	2-1/4" BOREHOLE	1MC		80		0.0
	SW-SANDS, trace silts, trace fine grained rounded gravels (FILL), compact, fine grained to medium grained, well graded, light brown, moist	701.71						
4			MEDIUM BENTONITE CHIPS					
	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, brown, moist	699.51						
6	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-63
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.51						
0	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, light brown, dry							
2	SM-SILTY SANDS, trace fine grained rounded gravels (FILL), compact, fine grained, poorly graded, dark brown, moist	702.81	2-1/4" BOREHOLE	1MC		80		0.0
4	- brown and black mixture at 3.0ft BGS	700.51	MEDIUM BENTONITE CHIPS					
6	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, orange-brown, moist - 1" concrete at 4.6ft BGS	699.51						
8	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-64
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.66						
2	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, brown, dry - moist at 0.9ft BGS - trace fine grained rounded gravels at 1.2ft BGS	703.66	2-1/4" BOREHOLE	1MC		80		0.0
4	COAL (FILL)	702.86						
	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, brown, moist	702.06	MEDIUM BENTONITE CHIPS					
6	SM-SILTY SANDS, (FILL), compact, fine-grained, poorly graded, brown, moist - trace rootlets, dark gray at 4.4ft BGS	700.66						
8	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-65
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.67						
0	SM-SILTY SANDS, trace fine grained angular gravels (FILL), compact, fine grained, poorly graded, light brown, dry		2-1/4" BOREHOLE					
2	COAL (FILL)	703.37		1MC		90		0.0
	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, brown, moist	702.87	MEDIUM BENTONITE CHIPS					
4	END OF BOREHOLE @ 5.0ft BGS	700.67						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-66
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.43						
0	MH-SANDY SILTS, (FILL), loose, fine grained, poorly graded, light brown, dry							
2	GP-GRAVELS, with fine grained sands (FILL), compact, medium grained, angular, poorly graded, gray, dry	703.53 702.93	2-1/4" BOREHOLE	1MC		90		0.0
4	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, dark brown, moist - orange-brown at 2.9ft BGS - light brown at 3.2ft BGS - with silts at 4.4ft BGS	700.43	MEDIUM BENTONITE CHIPS					
6	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-67
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.19						
0	MH-SANDY SILTS, trace fine grained angular gravels (FILL), loose, fine grained, poorly graded, brown, dry							
2	BRICKS AND CONCRETE, (FILL)	704.19	2-1/4" BOREHOLE	1MC		80		0.0
	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, dark brown, moist	703.89						
4	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist	703.19	MEDIUM BENTONITE CHIPS					
	END OF BOREHOLE @ 5.0ft BGS	701.19						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-68
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.26						
2	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, light brown, dry - trace bricks at 1.9ft BGS - trace rootlets, dark brown at 2.0ft BGS - trace coal (less than 5%) at 2.2ft BGS	702.66	2-1/4" BOREHOLE	1MC		80		0.0
4	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist	700.26	MEDIUM BENTONITE CHIPS					
6	END OF BOREHOLE @ 5.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-69
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	CL-CLAY, trace fine subrounded gravels, firm, low plasticity, brwon			1SS -0-2' -1356		75		1.3
2				-0-2' -1357				
3	SP-SANDS, trace silts, trace fine grained, compact, poorly graded, fine grained, with medium grained, dark brown, moist	3.00	BACKFILLED WITH BENTONITE CHIP	2SS -3-5' -1358		75		22.8
4								
5	- brown with orange hue at 5.0ft BGS		2-1/4" BOREHOLE	3SS		75		1.5
6								
7	- wet at 7.0ft BGS			4SS -6-8' -1359		75		0.6
8	END OF BOREHOLE @ 8.0ft BGS	8.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-70
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SC-CLAYEY SANDS, trace fine subangular gravels, compact, poorly graded, fine grained, dark brown, moist			1SS 0-2' -1373		50		0.2
3.00	SP-SANDS, trace silts, compact, poorly graded, fine grained, trace medium grained, brown/orange hue, moist	3.00	BACKFILLED WITH BENTONITE CHIP	2SS 3-5' -1374		50		0.2
			2-1/4" BOREHOLE	3SS		50		0.1
	- wet at 7.0ft BGS			4SS 6-8' -1375		50		0.2
8.00	END OF BOREHOLE @ 8.0ft BGS	8.00						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-71
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SC-CLAYEY SANDS, trace fine subangular gravels, compact, poorly graded, fine grained, dark brown, moist			1SS 0-2' -1370		50		0.2
2	SP-SANDS, trace silts, compact, poorly graded, fine grained, dark brown, moist	2.00	BACKFILLED WITH BENTONITE CHIP	2SS 3-5' -1371		50		0.3
4	- brown, slight orange hue at 3.8ft BGS		2-1/4" BOREHOLE	3SS		50		0.2
6	- wet, brown at 6.5ft BGS			4SS 6-8' -1372				
8	END OF BOREHOLE @ 8.0ft BGS	8.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-72
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SC-CLAYEY SANDS, trace fine subrounded gravels, firm, low plasticity, dark brown, moist			1SS 0-2' -1366		60		0.9
			BACKFILLED WITH BENTONITE CHIP	2SS 3-5' -1367		50		1.7
4		3.50						
	SP-SANDS, trace silts, compact, poorly graded, fine grained, trace medium grained, slight orange hue, moist		2-1/4" BOREHOLE	3SS		60		0
6	- wet at 6.3ft BGS							
				4SS 6-8' -1368		80		0.1
8	END OF BOREHOLE @ 8.0ft BGS	8.00		6-8' -1369				
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-73
DATE COMPLETED: November 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL BORING	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SC-CLAYEY SANDS, trace fine subrounded gravels, firm, low plasticity, dark brown, moist		BACKFILLED WITH BENTONITE CHIP; 8" BOREHOLE	1AL 0-2' -1363		75		2.9
4	SP-SANDS, trace silts, compact, poorly graded, fine grained, trace medium grained, brown, moist	4.00		3-5' -1364		60		2.6
6				2AL 6-8' -1365		60		2.5
8	END OF BOREHOLE @ 8.0ft BGS	8.00				60		2.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-74
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, compact, poorly graded, fine grained, brown, wet	0.50	2-1/4" BOREHOLE	1AL		80		2.3
2	SC-CLAYEY SANDS, trace fine subrounded gravels, compact, poorly graded, fine grained, trace medium grained, dark brown, moist	2.00	BENTONITE CHIPS	0-2' -2026				
4	SP-SANDS, trace silts, trace fine subrounded gravels, compact, poorly graded, fine grained, trace medium grained, brown with slight orange hue, moist			2AL		75		2.3
				3-5' -2027				
6	- very moist to wet at 6.0ft BGS			3AL		50		1.6
				6-8' -2028				
8	END OF BOREHOLE @ 8.0ft BGS	8.00		4AL		90		1.6
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-75
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, loose, poorly graded, fine grained, brown, moist	1.00	2-1/4" BOREHOLE BENTONITE CHIPS	1AL		80		2.5
2	SC-CLAYEY SANDS, trace fine subrounded gravels, compact, poorly graded, fien grained, trace medium and coarse grained, dark brown, moist	2.00		0-2' -2022				
				2AL		75		2.4
4	SP-SANDS, trace silts, compact, poorly graded, fine grained, trace medium grained, brown, moist			3-5' -2023				
				3AL		75		2.6
6	- wet at 6.0ft BGS			6-8' -2024 -2025				
				4AL		100		2.4
8	END OF BOREHOLE @ 8.0ft BGS	8.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-37-76
DATE COMPLETED: November 21, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	CL-CLAYS, with sands, trace fine subrounded gravels, firm, low plasticity, brown, moist		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL		90		2.6
2				0-2' -2019				
4				2AL		90		2.6
				3-5' -2020				
6	SP-SANDS, with fine subrounded gravels, compact, poorly graded, fine grained, with medium grained, trace medium grained, brown, very moist	5.00		3AL		90		2.9
	- brown, wet at 6.0ft BGS			6-8' -2021				
8	END OF BOREHOLE @ 8.0ft BGS	8.00		4AL		90		2.2
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH1-02
DATE COMPLETED: June 11, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.00						
0	SM-SILTY SANDS (FILL), with vegetation, loose, poorly graded, fine and medium grained, moist, with vegetation (grass and rootlets)	703.50	2-1/4" BOREHOLE					
2	SP-SANDS, trace subrounded gravels, poorly graded, loose, fine and medium grained, light brown, moist to dry		BENTONITE CHIPS	1AL 0-2'				0
4	- orange/brown, moist to wet at 3.5ft BGS - with gravels, light brown, moist at 4.0ft BGS							
6								
8				2AL 8.5-9.5'				0
10	- trace gravels, brown, moist to wet at 9.0ft BGS							
12	- with silts, fine grained, wet at 12.5ft BGS			3AL				0
14								
		689.00						
16	END OF BOREHOLE @ 15.0ft BGS NOTE: BOREHOLE SOIL SAMPLED ON JUNE 7, 2002. TEMPORARY WELL WITH 2-INCH, 5-FOOT 10-SLOT STAINLESS STEEL SCREEN SET AT 13-FEET BGS AND RISER INSTALLED IN ORDER TO COLLECT GROUND WATER SAMPLE, ON JUNE 11, 2002. SUBSEQUENT TO SAMPLING, WELL MATERIAL PULLED AND BOREHOLE ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH2-02
DATE COMPLETED: June 11, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.86						
0	SM-SILTY SANDS (FILL), loose, poorly graded, fine and medium grained, moist, with vegetation (grass and rootlets)	702.20	2-1/4" BOREHOLE					
2	SP-SANDS, trace subrounded gravels, poorly graded, loose, fine and medium grained, light brown, moist to dry		BENTONITE CHIPS	1AL 0-2'				0
4	- brown/orange at 1.5ft BGS - light brown, moist at 2.0ft BGS							
6								
8				2AL 7.5-9.5'				0
10	- wet, brown at 9.5ft BGS							
12	- 2" coarse grained seam at 12.5ft BGS			3AL				0
14								
	END OF BOREHOLE @ 15.0ft BGS	687.86						
16	NOTE: BOREHOLE SOIL COLLECTED ON JUNE 7, 2002.							
18	TEMPORARY WELL WITH 2-INCH, 5-FOOT 10-SLOT STAINLESS STEEL SCREEN SET AT 13-FEET BGS AND RISER INSTALLED IN ORDER TO COLLECT GROUND WATER SAMPLE, ON JUNE 11, 2002. SUBSEQUENT TO SAMPLING, WELL MATERIAL PULLED AND BOREHOLE ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH3-02
DATE COMPLETED: June 10, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.31						
0	SM-SILTY SANDS (FILL), loose, poorly graded, fine and medium grained, moist, with vegetation (grass and rootlets)	702.90	2-1/4" BOREHOLE					
2	SP-SANDS, trace subrounded fine gravels, loose, poorly graded, fine and medium grained, brown/orange, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- trace silts, light brown at 4.0ft BGS							
6								
8				2AL 8-10'				1.7
10	- wet at 10.0ft BGS							
12	- coarse grained sand, and fine gravel unit (2") at 11.5ft BGS			3AL				1.2
14								
16	END OF BOREHOLE @ 15.0ft BGS	688.31						
18	NOTE: BOREHOLE SOIL SAMPLE SAMPLED ON JUNE 10, 2002.							
20	TEMPORARY WELL WITH 2-INCH, 5-FOOT 10-SLOT STAINLESS STEEL SCREEN SET AT 13-FEET BGS AND RISER INSTALLED IN ORDER TO COLLECT GROUND WATER SAMPLE, ON JUNE 10, 2002. SUBSEQUENT TO SAMPLING, WELL MATERIAL PULLED AND BOREHOLE ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH4-02
DATE COMPLETED: June 10, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.60						
0	SM-SILTY SANDS (FILL), loose, poorly graded, fine and medium grained, moist, with vegetation (grass and rootlets)	703.10	2-1/4" BOREHOLE					
2	SP-SANDS, with subrounded fine gravels, loose, poorly graded, fine and medium grained, brown/orange, moist		BENTONITE CHIPS	1AL 0-2'				0
4								
6	- with silts, light brown at 5.0ft BGS							
8				2AL 8-10'				0
10	- dark brown, wet at 10.0ft BGS							
12				3AL				0
14								
	END OF BOREHOLE @ 15.0ft BGS	688.60						
16	NOTE: BOREHOLE SOIL SAMPLED ON JUNE 10, 2002.							
18	TEMPORARY WELL WITH 2-INCH, 5-FOOT 10-SLOT STAINLESS STEEL SCREEN SET AT 13-FEET BGS AND RISER INSTALLED IN ORDER TO COLLECT GROUND WATER SAMPLE, ON JUNE 10, 2002. SUBSEQUENT TO SAMPLING, WELL MATERIAL PULLED AND BOREHOLE ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH5-02
DATE COMPLETED: June 10, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.07						
0	SM-SILTY SANDS (FILL), loose, poorly graded, fine and medium grained, moist, with vegetation (grass and rootlets)	702.57	2-1/4" BOREHOLE					
2	SP-SANDS, with subrounded small gravels, loose, poorly graded, fine and medium grained, brown/orange, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- with silts at 5.0ft BGS							
6								
8				2AL 8-10'				0
10	- fine grained, brown, wet at 10.0ft BGS							
12	- coarse grained (2") at 12.0ft BGS - fine grained with silts, orange/brown, black lamination at 12.2ft BGS			3AL				0
14	- coarse grained, brown at 12.6ft BGS - fine grained at 14.6ft BGS							
16	END OF BOREHOLE @ 15.0ft BGS	688.07						
18	NOTE: BOREHOLE SOIL SAMPLED ON JUNE 10, 2002.							
20	TEMPORARY WELL WITH 2-INCH, 5-FOOT 10-SLOT STAINLESS STEEL SCREEN SET AT 13-FEET BGS AND RISER INSTALLED IN ORDER TO COLLECT GROUND WATER SAMPLE, ON JUNE 10, 2002. SUBSEQUENT TO SAMPLING, WELL MATERIAL PULLED AND BOREHOLE ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH6-02
DATE COMPLETED: June 10, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	PID (ppm)
	GROUND SURFACE	703.55						
0	SM-SILTY SANDS (FILL), loose, poorly graded, fine and medium grained, moist, with vegetation (grass and rootlets)	703.14	2-1/4" BOREHOLE					
2	SP-SANDS, trace subrounded small gravels, loose, poorly graded, fine and medium grained, brown/orange, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- light brown at 4.0ft BGS							
6								
8				2AL 8-10'				0
10	- dark brown, wet at 10.0ft BGS							
12				3AL				0
14	- 2" coarse sand seam at 14.0ft BGS							
15	END OF BOREHOLE @ 15.0ft BGS	688.55						
16	NOTE: BOREHOLE SOIL SAMPLED ON JUNE 10, 2001.							
18	TEMPORARY WELL WITH 2-INCH, 5-FOOT 10-SLOT STAINLESS STEEL SCREEN SET AT 13-FEET BGS AND RISER INSTALLED IN ORDER TO COLLECT GROUND WATER SAMPLE, ON JUNE 10, 2002. SUBSEQUENT TO SAMPLING, WELL MATERIAL PULLED AND BOREHOLE ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH7-02
DATE COMPLETED: June 10, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.06						
0	SM-SILTY SANDS (FILL), loose, poorly graded, fine and medium grained, moist, with vegetation (grass and rootlets)	702.65	2-1/4" BOREHOLE					
2	SP-SANDS, trace subrounded fine gravels, loose, poorly graded, fine and medium grained, brown/orange, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- light brown at 4.0ft BGS							
6								
8				2AL 8-10'				0
10	- dark brown, wet at 10.0ft BGS							
12				3AL				0
14	- 2" coarse sand seam at 14.0ft BGS							
15	END OF BOREHOLE @ 15.0ft BGS	688.06						
16	NOTE: BOREHOLE SOIL SAMPLED ON JUNE 10, 2002.							
18	TEMPORARY WELL WITH 2-INCH, 5-FOOT 10-SLOT STAINLESS STEEL SCREEN SET AT 13-FEET BGS AND RISER INSTALLED IN ORDER TO COLLECT GROUND WATER SAMPLE, ON JUNE 10, 2002. SUBSEQUENT TO SAMPLING, WELL MATERIAL PULLED AND BOREHOLE ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH8-02
DATE COMPLETED: June 10, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.89						
0	SM-SILTY SANDS (FILL), loose, poorly graded, fine and medium grained, moist, with vegetation (grass and rootlets)	703.56	2-1/4" BOREHOLE	0-2'				
2	SP-SANDS, trace subangular gravels, loose, poorly graded, fine and medium grained, light brown, moist		BENTONITE CHIPS	1AL				0
4	- gravels subrounded, brown/orange, highly oxidized, moist at 3.0ft BGS							
6	- brown/beige at 5.0ft BGS							
8				2AL 8-10'				0
10	- wet at 10.0ft BGS							
12				3AL				0
14								
	END OF BOREHOLE @ 15.0ft BGS	688.89						
16	NOTE: BOREHOLE SOIL SAMPLED ON JUNE 10, 2002.							
18	TEMPORARY WELL WITH 2-INCH, 5-FOOT 10-SLOT STAINLESS STEEL SCREEN SET AT 13-FEET BGS AND RISER INSTALLED IN ORDER TO COLLECT GROUND WATER SAMPLE, ON JUNE 10, 2002. SUBSEQUENT TO SAMPLING, WELL MATERIAL PULLED AND BOREHOLE ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH9-02
DATE COMPLETED: June 11, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.48						
0	SM-SILTY SANDS (FILL), loose, poorly graded, fine and medium grained, moist, with vegetation (grass and rootlets)	703.07	2-1/4" BOREHOLE					
2	SP-SANDS, with silts, trace subrounded gravels, loose, poorly graded, brown/orange, fine grained, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- increase in moisture at 4.0ft BGS							
	- light brown, fine and medium grained at 5.0ft BGS							
6								
8				2AL 8-10'				0
10	- dark brown, wet at 10.0ft BGS							
12				3AL				0
	- with gravels, black, wet, petroleum-like odor at 13.0ft BGS							
14	- mostly fine grained with medium and coarse grains, brown at 14.0ft BGS							
	END OF BOREHOLE @ 15.0ft BGS	688.48						
16	NOTE: PID 12-15 FOOT READING OF ~10.0 MAY BE ERRONEOUS DUE TO DIFFICULTIES WITH METER.							
18	BOREHOLE SOIL SAMPLED ON JUNE 11, 2002.							
20	TEMPORARY WELL WITH 2-INCH, 5-FOOT 10-SLOT STAINLESS STEEL SCREEN SET AT 13-FEET BGS AND RISER INSTALLED IN ORDER TO COLLECT GROUND WATER SAMPLE, ON JUNE 11, 2002. SUBSEQUENT TO SAMPLING, WELL MATERIAL PULLED AND BOREHOLE ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH10-02
DATE COMPLETED: June 11, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.21						
0	SM-SILTY SANDS (FILL), loose, poorly graded, fine and medium grained, moist, with vegetation (grass and rootlets)	702.80	2-1/4" BOREHOLE					
2	SP-SANDS, with silts and trace subrounded gravels, loose, poorly graded, brown/orange, fine grained, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- increase in moisture at 4.0ft BGS							
	- light brown at 5.0ft BGS							
6								
	- brown/orange at 7.0ft BGS			2AL 8-10'				0
8								
10	- brown, medium grains, wet at 10.0ft BGS							
12				3AL				0
14								
	END OF BOREHOLE @ 15.0ft BGS	688.21						
16	NOTE: BOREHOLE SOIL SAMPLED ON JUNE 11, 2002.							
18	TEMPORARY WELL WITH 2-INCH, 5-FOOT 10-SLOT STAINLESS STEEL SCREEN SET AT 13-FEET BGS AND RISER INSTALLED IN ORDER TO COLLECT GROUND WATER SAMPLE, ON JUNE 11, 2002. SUBSEQUENT TO SAMPLING, WELL MATERIAL PULLED AND BOREHOLE ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH11-02
DATE COMPLETED: June 17, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.81						
0	SP-SANDS (FILL), loose, poorly graded, fine grained, light brown, moist	702.31	2-1/4" BOREHOLE					
2	SP-SANDS, loose, poorly graded, fine grained, brown, moist - 6" compact, dark brown, petroleum-like odor at 1.5ft BGS		BENTONITE CHIPS	1AL (0-2', 1.5-2')				0
4	- light brown at 2.0ft BGS - with gravels, orange/brown at 5.0ft BGS							
6								
8	- with silts and subrounded gravels, light brown at 7.0ft BGS			2AL (8-10')				0
10	END OF BOREHOLE @ 10.0ft BGS	692.81						
12	NOTE: SOILS SAMPLES ON JUNE 17, 2002, SUBSEQUENTLY BOREHOLE ANNULUS ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH12-02
DATE COMPLETED: June 17, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.10						
0	SP-SANDS (FILL), trace silts, loose, poorly graded, light brown, fine grained, moist, rootlets	701.65	2-1/4" BOREHOLE					
2	SP-SANDS, trace silts, loose, poorly graded, brown, fine grained, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- 2" of dark brown at 0.5ft BGS - trace coarse grains, orange/brown at 4.0ft BGS							
6	- light brown at 6.0ft BGS							
8				2AL 7.5-9.5'				0
10	- coarse grained, wet at 9.5ft BGS END OF BOREHOLE @ 10.0ft BGS	692.10						
12	NOTE: SOILS SAMPLES ON JUNE 17, 2002, SUBSEQUENTLY BOREHOLE ANNULUS ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH13-02
DATE COMPLETED: June 17, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.58						
0	SP-SANDS (FILL), loose, poorly graded, fine grained, light brown, moist	702.08	2-1/4" BOREHOLE					
2	SP-SANDS, trace silts, loose, poorly graded, brown, fine grained, moist - dark brown at 1.0ft BGS - orange hue at 2.0ft BGS		BENTONITE CHIPS	1AL 0-2'				0
4								
6	- with gravels, light brown at 6.0ft BGS							
8				2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	692.58						
12	NOTE: SOILS SAMPLES ON JUNE 17, 2002, SUBSEQUENTLY BOREHOLE ANNULUS ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH14-02
DATE COMPLETED: June 17, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.54						
0	SP-SANDS (FILL), with silts, loose, poorly graded, fine grained, light brown, moist	702.04	2-1/4" BOREHOLE					
2	SP-SANDS, trace silts, loose, poorly graded, brown, fine grained, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- 2" dark brown at 4.1ft BGS - medium grained, trace subrounded gravels at 5.0ft BGS							
6								
8	- with silts and gravels, light brown at 8.5ft BGS - 2" fine grained sand, wet at 9.0ft BGS			2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	692.54						
12	NOTE: SOILS SAMPLED ON JUNE 17, 2002, SUBSEQUENTLY BOREHOLE ABANDONED WITH BENTONITE CHIPS TO SURFACE.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH15-02
DATE COMPLETED: August 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.51						
2	SP-SANDS, with silts (top 2" trace vegetation - rootlets), loose, poorly graded, fine grained with trace medium grained, light brown, moist - 2" dark layer, compact at 1.5ft BGS		BENTONITE CHIPS	1AL 0-2'				0
4	- light orange hue at 3.0ft BGS		2-1/4" BOREHOLE					
6								
8	- trace fine gravels and coarse sands at 7.5ft BGS			2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	692.51						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH16-02
DATE COMPLETED: August 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.62						
0	SP-SANDS (FILL), trace vegetation (rootlets), with silts, loose, poorly graded, fine grained, beige, moist to dry	701.62	BENTONITE CHIPS	1AL 0-2'				54
2	SC-CLAYEY SANDS, with silts, compact, poorly graded, fine grained, very dark brown, moist, strong petroleum-like odor							
4	- increase in moisture at 4.0ft BGS	698.12	2-1/4" BOREHOLE					
6	SP-SANDS, with silts, trace fine gravels, loose, poorly graded, fine grained with trace medium and coarse, beige, moist to dry							
8				2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	692.62						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH17-02
DATE COMPLETED: August 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.49						
0	SP-SANDS (FILL), with silts, trace vegetation (rootlets), loose, poorly graded, fine grained, beige, moist	701.99						
2	SP-SANDS, with silts, loose, poorly graded, fine grained, trace medium grained, light brown, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- dark brown, slight petroleum-like odor at 0.8ft BGS		2-1/4" BOREHOLE					
6	- orange, more moist, trace coarse sands at 1.0ft BGS							
8	- beige, no coarse sands at 6.0ft BGS			2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	692.49						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH18-02
DATE COMPLETED: August 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.49						
0	SP-SANDS, with silts (top 2" trace vegetation, rootlets), loose, poorly graded, fine grained, trace medium grained, light brown, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- 2" orange layers, more moist at 4.0ft BGS - trace coarse sands at 4.2ft BGS - trace fine gravel at 5.0ft BGS		2-1/4" BOREHOLE	2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	692.49						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH19-02
DATE COMPLETED: August 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.38						
0	SP-SANDS, with silts (top 2" trace vegetation, rootlets), loose, poorly graded, fine grained, trace medium grained, light brown, moist							
2	- light brown with slight orange hue at 1.0ft BGS		BENTONITE CHIPS	1AL 0-2'				0
4			2-1/4" BOREHOLE					
6								
8	- trace coarse sands and fine gravels at 7.0ft BGS			2AL 8-10'				0
10	- rock, light gray at 9.0ft BGS							
	END OF BOREHOLE @ 10.0ft BGS	692.38						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH20-02
DATE COMPLETED: August 19, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.65						
0	SP-SANDS (FILL), with silts, trace fine gravel, loose, poorly graded, fine grained, dark brown and black, moist, top 2cm hard	702.15	BENTONITE CHIPS	1AL 0-2'				0
2	SP-SANDS, with silts, trace fine gravels, loose, poorly graded, fine grained, light brown, moist							
4	- orange, very moist at 2.0ft BGS							
6	- beige, moist at 4.0ft BGS		2-1/4" BOREHOLE					
8				2AL 8-10'				0
10	- very moist at 9.8ft BGS	692.65						
	END OF BOREHOLE @ 10.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH21-02
DATE COMPLETED: August 19, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.03						
0	SP-SANDS, (top 2" dark brown), trace fine gravel, trace vegetation (rootlets), with silts, loose, poorly graded, fine grained, light brown/beige, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- orange/brown, wet, clayey at 3.5ft BGS		2-1/4" BOREHOLE					
6	- beige and light brown at 6.0ft BGS			2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	694.03						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH22-02
DATE COMPLETED: August 19, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.63						
0	SP-SANDS (top 2" dark brown) with vegetation (rootlets), with silts, trace fine gravels, loose, poorly graded, fine grained, beige, moist		BENTONITE CHIPS	1AL 0-2'				0
2								
4	- 2" orange, very moist at 3.5ft BGS		2-1/4" BOREHOLE					
6								
8	- with medium grained at 7.0ft BGS			2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	694.63						
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14								
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20								
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH23-02
DATE COMPLETED: August 19, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.57						
0	SP-SANDS (top 2" dark brown), with vegetation (rootlets), with silts, trace fine gravels, loose, poorly graded, fine grained, beige, moist		BENTONITE CHIPS	1AL 0-2'				0
2	- orange, very moist from 2.0 to 4.0ft BGS							
4	- intermittent 1" layers with medium grained sands at 4.0ft BGS		2-1/4" BOREHOLE					
6								
8				2AL 8-10				0
10	END OF BOREHOLE @ 10.0ft BGS	694.57						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH24-02
DATE COMPLETED: August 19, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.26						
0	SP-SANDS, trace silts, trace vegetaion (rootlets), trace fine gravels, loose, poorly graded, fine and medium grained with trace coarse grains, beige, moist to dry		BENTONITE CHIPS	1AL 0-2'				0
2	- 4" layer orange at 2.5ft BGS							
	- no vegetation at 2.5ft BGS		2-1/4" BOREHOLE					
4								
6								
8				2AL 8-10'				0
10	- very moist at 9.5ft BGS							
	END OF BOREHOLE @ 10.0ft BGS	694.26						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH25-02
DATE COMPLETED: August 19, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.61						
0	SP-SANDS, with silts, trace vegetation (rootlets), trace fine gravels, loose, poorly graded, fine grained, dark brown, moist							
2	- beige at 0.5ft BGS		BENTONITE CHIPS	1AL 0-2'				0
4	- 2" layer orange, very moist at 3.0ft BGS							
6	- trace coarse sand at 5.0ft BGS		2-1/4" BOREHOLE					
8				2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	693.61						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH26-02
DATE COMPLETED: August 19, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.07						
0	SP-SANDS, trace silts, trace vegetation (rootlets), loose, poorly graded, fine and medium grained with trace coarse grains, beige, moist to dry							
2	- dark brown, earthy odor from 0.5 to 1.0ft BGS		BENTONITE CHIPS	1AL 0-2'				0
4	- orange, very moist from 3.0 to 3.3ft BGS							
6	- silts and sands at 5.0ft BGS		2-1/4" BOREHOLE					
8				2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	694.07						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH27-02
DATE COMPLETED: August 19, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.23						
0	SP-SANDS, trace silts, trace fine gravels, trace vegetation (rootlets), loose, poorly graded, fine and medium grained with trace coarse grains, beige, moist to dry		BENTONITE CHIPS	1AL 0-2'				0
2	- orange/brown, moist to very moist, no vegetation at 1.0ft BGS							
4	- beige, moist at 2.5ft BGS		2-1/4" BOREHOLE					
6								
8				2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	694.23						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH28-02
DATE COMPLETED: August 19, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.06						
0	SP-SANDS, with silts, trace vegetation (rootlets), loose, poorly graded, fine grained, with trace coarse grained, beige, moist - dark orange/brown, very moist, no vegetation at 1.0ft BGS - beige at 3.0ft BGS		BENTONITE CHIPS 2-1/4" BOREHOLE	1AL 0-2'				0
8				2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	694.06						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH29-02
DATE COMPLETED: August 19, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.93						
0	SP-SANDS, trace silts, trace vegetation (rootlets), loose, poorly graded fine and medium grained, with trace coarse grains, beige, moist to dry							
2	- orange, moist from 1.5 to 2.0ft BGS		BENTONITE CHIPS	1AL 0-2'				0
4								
5	- silts and sands at 5.0ft BGS		2-1/4" BOREHOLE					
6								
8				2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	693.93						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH30-02
DATE COMPLETED: August 19, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	PID (ppm)
	GROUND SURFACE	703.53						
0	SP-SANDS, trace silts, trace vegetation (rootlets), loose, poorly graded, fine and medium grained with trace coarse grains, brown, moist to dry							
2	- orange from 2.0 to 2.2ft BGS		BENTONITE CHIPS	1AL 0-2'				0
4	- beige at 2.2ft BGS							
6	- silts and sands at 5.0ft BGS		2-1/4" BOREHOLE					
8				2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	693.53						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH31-02
DATE COMPLETED: August 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.55						
0	SP-SANDS, with silts (top 2" trace vegetation, rootlets), loose, poorly graded, fine grained with trace medium grained, light brown, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- 4" orange, increase in moisture, trace coarse sands and fine gravel at 3.5ft BGS - beige at 4.0ft BGS		2-1/4" BOREHOLE					
8	- 2" clayey layer, dark brown at 7.5ft BGS			2AL 8-10'				0
10	END OF BOREHOLE @ 10.0ft BGS	691.55						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH32-02
DATE COMPLETED: August 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.59						
0	SP-SANDS, with silts (top 2" trace vegetation, rootlets), loose, poorly graded, fine grained with trace medium grained, light brown, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- trace coarse sands and fine gravels at 4.5ft BGS		2-1/4" BOREHOLE					
6	- 2" clayey layer at 6.0ft BGS							
8				2AL 8-10'				0
10	- increase in moisture at 9.0ft BGS							
	END OF BOREHOLE @ 10.0ft BGS	691.59						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH33-02
DATE COMPLETED: August 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.82						
2	SP-SANDS, with silts (top 2" trace vegetation, rootlets), loose, poorly graded, fine grained with trace medium grained, light brown, moist		BENTONITE CHIPS	1AL 0-2'				0
4	- 4" orange, increase in moisture at 4.0ft BGS - beige, trace fine gravel and coarse sands at 4.3ft BGS							
6	- 2" coarse sands at 5.0ft BGS		2-1/4" BOREHOLE					
8				2AL 8-10'				0
10	- fine grains only at 9.0ft BGS END OF BOREHOLE @ 10.0ft BGS	692.82						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH34-02
DATE COMPLETED: December 3, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.06						
0	SP-SANDS, trace silts, loose, fine and coarse grained, poorly graded, dark brown, moist, trace vegetation		2-1/4" BOREHOLE					
2	- orange-brown at 0.25ft BGS		BENTONITE CHIPS	1AL 0-2'				0.0
4								
6								
8	- medium grained at 8.0ft BGS			2AL 8-10'				0.0
10	END OF BOREHOLE @ 10.0ft BGS	692.06						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH35-02
DATE COMPLETED: December 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.12						
2	SP-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation - trace clays and fine subrounded gravels, fine and coarse grained, orange-brown, damp to moist at 1.0ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2'				0.0
4				2AL 4-6'				0.0
6	- trace silts and fine subangular gravels, fine to medium grained, beige at 6.0ft BGS							
8				3AL 8-10'				0.0
10	END OF BOREHOLE @ 10.0ft BGS	693.12						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH36-02
DATE COMPLETED: December 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.47						
2	SP-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation - trace silts and fine subangular gravels, orange-brown at 1.0ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2'				0.0
4				2AL 4-6'				0.0
6								
8	- beige, moist to wet at 7.5ft BGS			3AL 6-8'				0.0
10	END OF BOREHOLE @ 10.0ft BGS	692.47						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH37-02
DATE COMPLETED: December 3, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.31						
0	SP-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation	702.06	2-1/4" BOREHOLE					
2	SM-SILTY SANDS, loose, fine to medium grained, poorly graded, orange-brown, moist		BENTONITE CHIPS	1AL 0-2'				0.0
4		697.31						
6	SP-SANDS, trace silts, loose, fine to medium grained, poorly graded, beige, moist							
8				2AL 4-6' 8-10'				0.0
10	END OF BOREHOLE @ 10.0ft BGS	692.31						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH38-02
DATE COMPLETED: December 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.48						
0	SP-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation		2-1/4" BOREHOLE					
2	- trace silts and fine subangular gravels, orange-brown at 1.5ft BGS		BENTONITE CHIPS	1AL 0-2'				0.0
4								
6	- light brown at 6.0ft BGS							
8				2AL 4-6' 8-10'				0.0
10	END OF BOREHOLE @ 10.0ft BGS	693.48						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH39-02
DATE COMPLETED: December 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.73						
0	SP-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation	701.73	2-1/4" BOREHOLE	1AL 0-2'				0.0
2	SC-CLAYEY SANDS, trace fine subangular gravels, loose, fine to medium grained, poorly graded, orange-brown, moist		BENTONITE CHIPS					
4	SP-SANDS, trace silts and fine subangular gravels, loose, fine to medium grained, poorly graded, orange-brown, moist	698.73		2AL 4-6'				0.0
6	- beige at 5.0ft BGS							
8				3AL 8-10'				0.0
10	END OF BOREHOLE @ 10.0ft BGS	692.73						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH40-02
DATE COMPLETED: December 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.50						
2	SP-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation - trace silts and fine subangular gravels, orange-brown at 1.0ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2'				0.0
4								
6	- beige at 6.0ft BGS							
8				2AL 4-6' 8-10'				0.0
10	SC-CLAYEY SANDS WITH GRAVELS, loose, fine to medium grained, poorly graded, low plasticity, brown, wet	693.50 692.50						
12	END OF BOREHOLE @ 10.0ft BGS							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH41-02
DATE COMPLETED: December 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.75						
0	SP-SANDS, trace silts, loose, fine grained, poorly graded, beige, moist		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL				0.0
6	ML-SILTS, trace fine sands, loose to compact, nonplastic, orange-brown, wet	696.75		2AL 10-10.5 4-6'				0.0
10	END OF BOREHOLE @ 10.5ft BGS	692.25						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH42-02
DATE COMPLETED: December 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.47						
0	SP-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation		2-1/4" BOREHOLE					
2	SC-CLAYEY SANDS, trace fine subangular gravels, loose, fine to medium grained, poorly graded, orange-brown, moist	701.72 701.47	BENTONITE CHIPS	1AL 0-2'				0.0
4	SP-SANDS, trace silts, loose, fine grained, poorly graded, beige, moist							
6								
8				2AL 4-6' 8-10'				0.0
10	END OF BOREHOLE @ 10.0ft BGS	693.47						
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH43-02
DATE COMPLETED: December 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.99						
0	SP-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation	701.99	2-1/4" BOREHOLE					
2	SC-CLAYEY SANDS, trace fine subangular gravels, loose, fine to medium grained, poorly graded, orange-brown, moist	699.99	BENTONITE CHIPS	1AL 0-2'				0.0
4	SP-SANDS, trace silts, loose, fine grained, poorly graded, light beige, moist - medium grained at 5.0ft BGS							
6	- fine grained at 6.0ft BGS							
8				2AL 4-6' 8-10'				0.0
10	END OF BOREHOLE @ 10.0ft BGS	692.99						
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14								
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH44-02
DATE COMPLETED: December 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.45						
0	SP-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation		2-1/4" BOREHOLE					
2	- trace silts and clays, fine to coarse grained, orange-brown at 0.5ft BGS		BENTONITE CHIPS	1AL 0-2'				0.0
4								
6								
8	- wet at 8.0ft BGS			2AL 4-6' 8-10'				0.0
	- beige at 9.0ft BGS							
10	END OF BOREHOLE @ 10.0ft BGS	692.45						
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24								
26								
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30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH45-02
DATE COMPLETED: December 2, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.52						
2	SP-SANDS, trace silts, loose, fine to medium grained, poorly graded, orange-brown, moist		2-1/4" BOREHOLE; BENTONITE CHIPS	1AL 0-2'				0.0
4								
6								
8				2AL 4-6' 8-10'				0.0
10	- trace fine to medium subangular gravels at 9.5ft BGS	692.52						
	END OF BOREHOLE @ 10.0ft BGS							
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32								
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH46-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.90						
0	SP-SANDS, with silts, loose, fine grained, poorly graded, dark brown/black, moist, trace vegetation (rootlets),		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- light brown, no vegetation at 0.5ft BGS		BENTONITE CHIPS					
4	- light brown to gray at 3.0ft BGS			2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	695.90						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH47-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.27						
0	SP-SANDS, with silts, trace fine to medium gravel, loose, poorly graded, fine grained, light brown, moist, trace vegetation (rootlets),		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- light brown-gray at 3.0ft BGS		BENTONITE CHIPS	2AL 4-5'		100		0.0
4								
6	END OF BOREHOLE @ 6.0ft BGS	696.27						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH48-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.92						
0	SP-SANDS, with silt, loose, poorly graded, trace fine to medium subangular gravels, light brown, moist, trace vegetation (rootlets),		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- no vegetation at 0.5ft BGS		BENTONITE CHIPS					
	- light brown-gray, few 1.0cm gravel at 3.0ft BGS			2AL 4-5'		100		0.0
4								
6	END OF BOREHOLE @ 6.0ft BGS	695.92						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH49-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.28						
0	SP-SANDS, with silts, loose, fine grained, poorly graded, trace fine gravels, light brown to dark brown, moist, trace vegetation (rootlets),		2-1/4" BOREHOLE	1AL		100		0.0
2	- light brown at 1.0ft BGS		BENTONITE CHIPS					
4	- 2" layer of hardened black material, no odor at 4.0ft BGS			2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	696.28						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (2AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH50-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.46						
2	SP-SANDS, with silt, trace fine subrounded gravels, loose, fine grained, poorly graded, light brown to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL		100		0.0
4	- black staining, slight petroleum-like odor, moist at 1.5ft BGS - light brown-gray at 3.0ft BGS		BENTONITE CHIPS	2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	696.46						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH51-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.42						
0	SP-SANDS, with silt, trace fine subrounded gravels, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- black, slight petroleum-like odor, trace vegetation (rootlets) at 1.0ft BGS		BENTONITE CHIPS					
4	- trace clays, fine grained, dark brown, moist at 4.0ft BGS			2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	696.42						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH51A-02
DATE COMPLETED: January 8, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.42						
0	SP-SANDS, trace silts, trace vegetation (grass), loose, poorly graded, fine and medium grained, beige, moist, frozen		2-1/4" BOREHOLE					
2	- dark brown, thawed at 0.3ft BGS			1AL		60		1.7
4	- brown with orange hue, trace fine subrounded gravels at 0.5ft BGS - very moist at 4.0ft BGS		BENTONITE CHIPS					
6								
8	SP/GW-SANDS AND GRAVELS, trace silts, loose, well graded, fine to medium to coarse grained sands, fine subrounded to rounded gravels, brown/beige, moist	694.92		2AL 5-6' 7-8' 9-10'		75		1.2
10	SP-SANDS, trace silts, trace fine subrounded and subangular gravels, loose, poorly graded, fine and medium grained, beige, moist	693.42						
12	END OF BOREHOLE @ 10.0ft BGS	692.42						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH52-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.45						
2	SP-SANDS, with silt, trace fine subrounded gravels, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
4	- stained black, petroleum-like odor, hardened black pieces, trace vegetation (rootlets) at 1.0ft BGS - dark brown with black stripes at 4.0; trace medium grained gravels at 3.0ft BGS		BENTONITE CHIPS	2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	696.45						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH53-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.55						
0	SP-SANDS, with silt, trace fine subrounded gravel, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- black at 1.0ft BGS		BENTONITE CHIPS					
4	- light brown to gray, trace fine gravels at 4.0ft BGS			2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	696.55						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH54-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.85						
2	SP-SANDS, with silt, trace fine subrounded gravel, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets),		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
	- black at 0.7ft BGS		BENTONITE CHIPS					
4	- light brown-gray, medium grained sands with fine subrounded gravels at 4.0ft BGS			2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	696.85						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH55-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.43						
2	SP-SANDS, with silts, trace fine subrounded gravels, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets) - black at 1.0ft BGS - trace clays, low plasticity, dark gray, very moist at 3.0ft BGS - trace fine subrounded gravels at 4.0ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL		100		0.0
4				2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	696.43						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH56-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.42						
0	SP-SANDS, with silts, trace fine subrounded gravel, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- hardened black pieces with sands and gravels, petroleum-like odor at 1.0ft BGS		BENTONITE CHIPS					
4	- fine grained sands with subrounded gravels at 1.5ft BGS			2AL 4-5'		100		0.0
6	- light brown, moist at 4.0ft BGS							
	END OF BOREHOLE @ 6.0ft BGS	696.42						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH57-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.99						
0	SP-SANDS, with silts, trace fine subrounded gravel, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- hardened black pieces with sands and gravels, petroleum-like odor at 1.0ft BGS		BENTONITE CHIPS					
4	- medium grained sands at 2.0ft BGS - light brown-gray, trace subrounded gravels at 4.0ft BGS			2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	696.99						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH58-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.18						
0	SP-SANDS, with silts, trace fine subrounded gravel, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- hardened black sands with fine subrounded gravels, "asphalt" layers 1mm-5mm thick, petroleum-like odor at 0.8ft BGS		BENTONITE CHIPS					
4	- medium grained sands with gravels at 2.0ft BGS			2AL 4-5'		100		0.0
6	- fine to medium grained, light brown-gray, moist at 3.5ft BGS							
	END OF BOREHOLE @ 6.0ft BGS	697.18						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH59-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.35						
0	SP-SANDS, with silt, loose, fine grained, poorly graded, light brown, moist, trace vegetation (rootlets),		2-1/4" BOREHOLE	1AL		100		0.0
2	- dark brown at 0.6ft BGS		BENTONITE CHIPS					
4	- orange-brown, very moist to moist at 3.0ft BGS			2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	696.35						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH60-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.31						
0	SP-SANDS, with silts, trace fine subrounded gravels, loose, fine grained, poorly graded, light to dark brown, moist trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL		100		0.0
2	- hardened black sands with fine subrounded gravels and small pieces of "asphalt", petroleum-like odor at 1.0ft BGS		BENTONITE CHIPS					
4	- orange-brown with gravels up to 1.0cm, moist at 2.0ft BGS			2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	696.31						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH61-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.58						
2	SP-SANDS, with silts, trace fine subrounded gravels, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
4	- hardened black sands with fine subrounded gravels and small pieces of "asphalt", petroleum-like odor at 1.0ft BGS		BENTONITE CHIPS					
6	- orange-brown, medium grained sands with trace fine subrounded gravels, moist at 2.0ft BGS			2AL 4-5'		100		0.0
	END OF BOREHOLE @ 6.0ft BGS	696.58						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH62-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.75						
0	SP-SANDS, with silts, trace fine subrounded gravels, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- dark brown to black, no odor at 0.7ft BGS		BENTONITE CHIPS					
4	- orange-brown, gravels up to 1.0cm, moist to very moist at 2.0ft BGS			2AL 4-5'		100		0.0
6	- light brown-gray, moist, subrounded gravels up to 1.0cm at 4.0ft BGS							
	END OF BOREHOLE @ 6.0ft BGS	696.75						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH62A-03
DATE COMPLETED: January 10, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.75						
0	SP-SANDS, trace silts, trace vegetation (grass), loose, poorly graded, fine and medium grained, dark brown/black, moist, petroleum-like odor - trace fine subrounded gravels, brown with orange hue, no odor at 2.5ft BGS - beige at 3.8ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 2AL 5-6' 7-8' 9-10'				2 0.9
10	END OF BOREHOLE @ 10.0ft BGS	692.75						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH63-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.94						
2	SP-SANDS, with silts, trace fine subrounded gravels, loose, poorly graded, light to dark brown, moist to very moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
	- dark brown to black, moist, no odor at 1.0ft BGS		BENTONITE CHIPS					
4	- orange-brown, medium grained sands with fine subrounded gravels, very moist at 2.0ft BGS			2AL 4-5'		100		0.0
	- wet at 3.0ft BGS							
6	END OF BOREHOLE @ 6.0ft BGS	696.94						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH64-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.23						
0	SP-SANDS, with silts, trace fine subround gravels, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- black hardened layers (asphalt) up to 5mm thick, slight petroleum-like odor, trace rootlets, moist at 0.2ft BGS		BENTONITE CHIPS					
4	- light brown-gray, moist at 4.0ft BGS			2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	697.23						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH65-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.69						
0	SP-SANDS, with silts, trace fine subrounded gravels, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- black sand with subrounded gravel, trace vegetation (rootlets), moist, no odor at 0.16ft BGS		BENTONITE CHIPS					
4	- medium grained sand with fine subrounded gravel, light brown-gray, moist at 2.5ft BGS			2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	697.69						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH66-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.29						
0	SP-SANDS, with silts, trace fine subrounded gravels, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL		100		0.0
2	- black sands, trace vegetation (rootlets), moist at 0.01ft BGS		BENTONITE CHIPS					
4	- orange-brown, medium grained sand, moist at 1.0ft BGS			2AL 4-5'		100		0.0
6	- light brown-gray, moist at 3.5ft BGS							
	END OF BOREHOLE @ 6.0ft BGS	696.29						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH67-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.73						
2	SP-SANDS, with silts, trace fine subrounded gravels, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
4	- black, fine grained sands, trace vegetation (rootlets), moist at 0.2ft BGS - orange hue to brown, moist at 1.0ft BGS		BENTONITE CHIPS					
6	- light brown-gray, medium grained sands with fine subrounded gravels, moist at 2.0ft BGS			2AL 4-5'		100		0.0
	END OF BOREHOLE @ 6.0ft BGS	696.73						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH68-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.22						
0	SP-SANDS, with silt, trace fine subrounded gravels, loose, fine grained, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	0-2' 1AL		100		0.0
2	- black fine grained sands, trace vegetation (rootlets), moist, no odor at 0.2ft BGS		BENTONITE CHIPS					
4	- orange-brown, moist at 1.0ft BGS			2AL 4-5'		100		0.0
6	- light brown-gray, medium grained sand with fine subrounded gravel, moist at 3.0ft BGS							
	END OF BOREHOLE @ 6.0ft BGS	697.22						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH69-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.54						
0	SP-SANDS, with silts, trace vegetation (rootlets), trace fine subrounded gravels, loose, fine grained, poorly graded, light to dark brown, moist		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- black fine grained sands, trace vegetation (rootlets), moist, no odor at 0.2ft BGS		BENTONITE CHIPS					
4	- orange-brown, moist at 2.0ft BGS			2AL 4-5'		100		0.0
	- light brown-gray, medium grained sand with fine subrounded gravel, moist at 3.0ft BGS							
6	END OF BOREHOLE @ 6.0ft BGS	697.54						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH70-02
DATE COMPLETED: December 20, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.82						
0	SP-SANDS, with silt, trace fine subrounded gravels, loose, poorly graded, light to dark brown, moist, trace vegetation (rootlets)		2-1/4" BOREHOLE	1AL 0-2'		100		0.0
2	- black fine grained sands, trace vegetation (rootlets), moist, no odor at 0.2ft BGS		BENTONITE CHIPS					
	- orange hue, moist at 2.0ft BGS							
4	- light brown-gray, medium grained sand with fine subrounded gravel, moist at 3.5ft BGS			2AL 4-5'		100		0.0
6	END OF BOREHOLE @ 6.0ft BGS	697.82						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH71-03
DATE COMPLETED: January 10, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	704.03						
2	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine and medium grained, brown with orange hue, moist		2-1/4" BOREHOLE	1AL 0-2'		60		17.9
4	- beige, trace coarse grained at 3.0ft BGS - 2" orange hued band at 4.0ft BGS		BENTONITE CHIPS					
6	END OF BOREHOLE @ 5.0ft BGS	699.03						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH72-03
DATE COMPLETED: January 10, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.89						
2	SP-SANDS, trace silts, trace fine subrounded gravels, trace vegetation (grass & rootlets), loose, poorly graded, fine and medium grained, dark brown, moist - clayey consistency, orange hue, no vegetation at 2.5ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2'		75		17.7
4	- beige, no clayey consistency at 4.5ft BGS							
	END OF BOREHOLE @ 5.0ft BGS	698.89						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH73-03
DATE COMPLETED: January 10, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.86						
2	SP-SANDS, trace silts, trace fine subrounded gravels, trace vegetation (grass & rootlets), loose, poorly graded, fine and medium grained, dark brown, moist - orange hue, clayey, no vegetation at 2.0ft BGS - beige, no clay at 2.5ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2'		75		14.9
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	END OF BOREHOLE @ 5.0ft BGS	698.86						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH74-03
DATE COMPLETED: January 10, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.69						
2	SP-SANDS, trace silts, trace fine subrounded gravels, trace vegetation (grass & rootlets), loose, poorly graded, fine and medium grained, dark brown, moist - orange hue, clayey, no vegetation at 1.0ft BGS - beige, no clay at 3.0ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2'		55		14.6
4								
		698.69						
6	END OF BOREHOLE @ 5.0ft BGS							
8								
10								
12								
14								
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: BH75-03
DATE COMPLETED: January 10, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.51						
2	SP-SANDS, trace silts, trace fine subrounded gravels, trace vegetation (grass & rootlets), loose, poorly graded, fine and medium grained, dark brown, moist - beige at 0.5ft BGS - orange hue, clayey at 2.5ft BGS - beige, no clay, no vegetation at 4.0ft BGS		2-1/4" BOREHOLE BENTONITE CHIPS	1AL 0-2'		75		13.7
4								
	END OF BOREHOLE @ 5.0ft BGS	698.51						
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8								
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12								
14								
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18								
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30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

TEST PIT STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: TP1-02 (E)
DATE COMPLETED: June 7, 2002
TEST PIT METHOD: EXCAVATOR
FIELD PERSONNEL: T. JOHNSON
CONTRACTOR: CRA SERVICES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE	703.41				
0	SP-SANDS (FILL), trace silts, fine grained, loose, poorly graded, light brown, moist					
2						
4						
6	- dark brown, compact, moist, vegetation (roots) at 5.0ft BGS					
8	- slight sweet odor at 8.6ft BGS					
	SP-SANDS (NATIVE), trace silts and subrounded fine gravels, loose, poorly graded, fine with medium grained, grayish, very moist	694.41				
10	END OF BOREHOLE @ 10.0ft BGS	693.41				
12	NOTE: TEST PIT STRATIGRAPHIC LOG IS OF EASTERN PORTION OF TEST PIT TP1-02.					
14	TEST PIT WAS SUBSEQUENTLY BACKFILLED ON JUNE 7, 2002 WITH EXCAVATED MATERIAL.					
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34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

TEST PIT STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: TP1-02 (W)
DATE COMPLETED: June 7, 2002
TEST PIT METHOD: EXCAVATOR
FIELD PERSONNEL: T. JOHNSON
CONTRACTOR: CRA SERVICES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE	703.86				
0	SP-SANDS (FILL), trace silts, fine grained, loose, poorly graded, light brown, moist	702.86				
2	SP-SANDS (NATIVE), with silts, compact, poorly graded, fine grained, black, moist, tar-like burnt odor - loose, orange-brown, oxidized, no longer tar-like at 1.6ft BGS					
4						
6						
8						
	- gray, very moist at 9.0ft BGS					
10	END OF BOREHOLE @ 10.0ft BGS	693.86				
12	NOTE: TEST PIT STRATIGRAPHIC LOG IS OF WESTERN PORTION OF TEST PIT TP1-02.					
14	TEST PIT WAS SUBSEQUENTLY BACKFILLED ON JUNE 7, 2002 WITH EXCAVATED MATERIAL.					
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30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

TEST PIT STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: TP2-02 (N)
DATE COMPLETED: June 7, 2002
TEST PIT METHOD: EXCAVATOR
FIELD PERSONNEL: T. JOHNSON
CONTRACTOR: CRA SERVICES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE	703.02				
	SP-SANDS (FILL), trace silts, fine grained, loose, poorly graded, light brown, moist	702.02				
2	SP-SILTY SANDS (NATIVE), with vegetation, trace fine rounded gravels, loose, poorly graded, brown, moist	701.02				
	SP-SANDS (NATIVE), trace silts, poorly graded, loose, orange-brown, oxidized, fine grained, moist, slight burnt like odor					
4						
6						
8						
	- with gravels, trace silts, loose, poorly graded, fine and medium grained, grayish, very moist at 9.0ft BGS					
10	END OF BOREHOLE @ 10.0ft BGS	693.02				
12	NOTE: TEST PIT STRATIGRAPHIC LOG IS OF NORTHERN PORTION OF TEST PIT TP2-02.					
14	TEST PIT WAS SUBSEQUENTLY BACKFILLED ON JUNE 7, 2002 WITH EXCAVATED MATERIAL.					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

TEST PIT STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: TP2-02 (S)
DATE COMPLETED: June 7, 2002
TEST PIT METHOD: EXCAVATOR
FIELD PERSONNEL: T. JOHNSON
CONTRACTOR: CRA SERVICES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE	703.44				
0	SP-SANDS (FILL), trace silts, fine grained, loose, poorly graded, light brown, moist					
2						
4	- dark brown, compact, moist, vegetation (roots) at 5.0ft BGS					
6						
8						
	SW-SANDS (NATIVE), with fine gravels, trace silts, loose, poorly graded, fine and medium grained, grayish, very moist	694.44				
10	END OF BOREHOLE @ 10.0ft BGS	693.44				
12	NOTE: TEST PIT STRATIGRAPHIC LOG IS OF SOUTHERN PORTION OF TEST PIT TP2-02.					
14	TEST PIT WAS SUBSEQUENTLY BACKFILLED ON JUNE 7, 2002 WITH EXCAVATED MATERIAL.					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

TEST PIT STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: TP3-02 (E)
DATE COMPLETED: June 7, 2002
TEST PIT METHOD: EXCAVATOR
FIELD PERSONNEL: T. JOHNSON
CONTRACTOR: CRA SERVICES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE	703.22				
0	SP-SANDS (FILL), trace silts, fine grained, loose, poorly graded, light brown, moist	702.22				
2	SP-SILTY SANDS (NATIVE), with vegetation, trace fine rounded gravel, loose, poorly graded, brown, moist	701.22				
4	SP-SANDS (NATIVE), trace silts, poorly graded, loose, orange-brown, oxidized, fine grained, moist, slight burnt like odor					
6	- trace subrounded fine gravels, grayish, very moist at 7.0ft BGS					
8						
10	END OF BOREHOLE @ 10.0ft BGS	693.22				
12	NOTE: TEST PIT STRATIGRAPHIC UNIT IS OF EASTERN PORTION OF TEST PIT TP2-02.					
14	TEST PIT WAS SUBSEQUENTLY BACKFILLED ON JUNE 7, 2002 WITH EXCAVATED MATERIAL.					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

TEST PIT STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: TP3-02 (W)
DATE COMPLETED: June 7, 2002
TEST PIT METHOD: EXCAVATOR
FIELD PERSONNEL: T. JOHNSON
CONTRACTOR: CRA SERVICES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE	703.01				
0	SP-SANDS (FILL), trace silts, fine grained, loose, poorly graded, light brown, moist					
2						
4	- dark brown, compact, moist, vegetation (roots) at 5.0ft BGS					
6						
8	SP-SANDS (NATIVE), trace silts and subrounded fine gravels, loose, poorly graded, fine with medium grained, grayish, very moist	695.01				
10	END OF BOREHOLE @ 10.0ft BGS	693.01				
12	NOTE: TEST PIT STRATIGRAPHIC LOG IS OF WESTERN PORTION OF TEST PIT TP3-02.					
14	TEST PIT WAS SUBSEQUENTLY BACKFILLED ON JUNE 7, 2002 WITH EXCAVATED MATERIAL.					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

TEST PIT STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: TP4-02 (N)
DATE COMPLETED: June 7, 2002
TEST PIT METHOD: EXCAVATOR
FIELD PERSONNEL: T. JOHNSON
CONTRACTOR: CRA SERVICES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE	703.21				
0	SP-SANDS (FILL), trace silts, fine grained, loose, poorly graded, light brown, moist					
8	SP-SANDS (NATIVE), trace silts and subrounded fine gravels, loose, poorly graded, fine with medium grained, grayish, very moist	695.21				
10	END OF BOREHOLE @ 10.0ft BGS	693.21				

NOTE: TEST PIT STRATIGRAPHIC LOG IS OF NORTHERN PORTION OF TEST PIT TP4-02.

TEST PIT WAS SUBSEQUENTLY BACKFILLED ON JUNE 7, 2002 WITH EXCAVATED MATERIAL.

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

TEST PIT STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: TP4-02 (S)
DATE COMPLETED: June 7, 2002
TEST PIT METHOD: EXCAVATOR
FIELD PERSONNEL: T. JOHNSON
CONTRACTOR: CRA SERVICES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE	703.73				
0	SP-SANDS (FILL), trace silts, fine grained, loose, poorly graded, light brown, moist	702.73				
2	SP-SANDS (NATIVE), trace silts, poorly graded, loose, orange-brown, oxidized, fine grained, moist, slight burnt odor					
8	- trace subrounded fine gravels, grayish, very moist at 8.0ft BGS					
10	END OF BOREHOLE @ 10.0ft BGS	693.73				
	NOTE: TEST PIT STRATIGRAPHIC LOG IS OF SOUTHERN PORTION OF TEST PIT TP4-02.					
	TEST PIT WAS SUBSEQUENTLY BACKFILLED ON JUNE 7, 2002 WITH EXCAVATED MATERIAL.					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-1
DATE COMPLETED: October 11, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	706.36						
2	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine to coarse subangular gravels, gray, moist	704.36	2-1/4" BOREHOLE	1AL 0-2'				0.0
4	GM-GRAVEL-SAND-SILT (FILL), poorly graded, loose, dark gray to black, coarse to fine gravels, moist	703.36	BENTONITE CHIPS					
6	SM-SILTY SANDS, trace fine subangular gravel, poorly graded, fine grained with trace medium grained, moist, light brown - very moist, 2" layer of firm very low plasticity, clayey sand at 4.5ft BGS	701.36						
8	END OF BOREHOLE @ 5.0ft BGS							
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34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-1A
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray, moist	1.00	2-1/4" BOREHOLE; BENTONITE CHIPS	1AL		100		0.0
2	- evidence of black staining, no odor at 1.0ft BGS			2AL				0.0
4	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	4.00						
6	END OF BOREHOLE @ 4.0ft BGS							
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34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-2
DATE COMPLETED: October 11, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.01						
0	GM-GRAVEL-SAND-SILT (FILL), loose, well graded, fine to medium sands with fine subangular gravel, grayish brown, moist		2-1/4" BOREHOLE	1AL 0-2'				0.0
4	SM-SILTY SANDS, trace fine subangular gravel, poorly graded, fine grained with trace medium grained, moist, light brown	701.51	BENTONITE CHIPS					
	- orange hue at 4.9ft BGS	700.01						
6	END OF BOREHOLE @ 5.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-2A
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE	1AL		100		0.0
2	- evidence of black staining at 2.0ft BGS	2.50	BENTONITE CHIPS	2AL				0.0
4	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	4.00						
	END OF BOREHOLE @ 4.0ft BGS							
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8								
10								
12								
14								
16								
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30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (2AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-3
DATE COMPLETED: October 11, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.69						
0	GM-GRAVEL-SAND-SILT (FILL), loose, well graded, fine to medium sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE					
2	SM-SILTY SANDS, trace fine subangular gravel, poorly graded, fine grained with trace medium grained, moist, light brown	700.69	BENTONITE CHIPS	1AL 0-2'				0.0
4	- very moist, dark orange to black at 4.0ft BGS							
	END OF BOREHOLE @ 5.0ft BGS	697.69						
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-3A
DATE COMPLETED: February 27, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.60						
2	GM-SILTY GRAVELS (FILL), trace sands, loose, fine grained, rounded gravels, poorly graded, gray and dark brown mixture, moist - trace concrete present at 0.6ft BGS		2-1/4" BOREHOLE					
4	SP-SANDS, with silts, compact, fine to medium grained, poorly graded, light brown, moist	700.10	BENTONITE CHIPS	1AL 2-4'		100		0.0
6	END OF BOREHOLE @ 5.0ft BGS	697.60						
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10								
12								
14								
16								
18								
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24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-4
DATE COMPLETED: October 11, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.03						
0	GM-GRAVEL-SILT-SAND (FILL), loose, poorly graded, fine to medium sands with fine to coarse subangular gravels, dark brown, moist	700.53	2-1/4" BOREHOLE					
2	SM-SILTY SANDS, trace fine subangular gravels, poorly graded, fine grained with trace medium grained, moist, light brown to gray		BENTONITE CHIPS	1AL 0-2'				0.0
4	- light to dark gray at 4.0ft BGS							
	END OF BOREHOLE @ 5.0ft BGS	696.03						
6								
8								
10								
12								
14								
16								
18								
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24								
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-5
DATE COMPLETED: October 11, 2002
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	699.28						
2	GM-GRAVEL-SAND-SILT (FILL), loose, well graded, fine sands with medium subangular gravel, gray-brown, moist	698.28	2-1/4" BOREHOLE	1AL 0-2'				0.0
4	SM-SILTY SANDS, trace fine subangular gravel, poorly graded, fine grained with trace medium grained, light brown, moist		BENTONITE CHIPS					
6	END OF BOREHOLE @ 5.0ft BGS	694.28						
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14								
16								
18								
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28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-6
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist	1.00	2-1/4" BOREHOLE	1AL		100		0.0
2	- evidence of black staining, no odor at 1.0ft BGS		BENTONITE CHIPS	2AL				0.0
4	SM-SILTY SAND, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	4.00						
6	END OF BOREHOLE @ 4.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-7
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist	0.50	2-1/4" BOREHOLE	1AL		100		0.0
2	- very little staining, approx. 1cm		BENTONITE CHIPS	2AL				0.0
4	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	4.00						
	END OF BOREHOLE @ 4.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-8
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE	1AL		100		0.0
	- evidence of black staining, no odor at 1.7ft BGS	2.00						
4	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	4.00	BENTONITE CHIPS	2AL				0.0
	END OF BOREHOLE @ 4.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-9
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist - evidence of staining, no odor at 2.0ft BGS	2.50	2-1/4" BOREHOLE	1AL		100		0.0
4	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	4.00	BENTONITE CHIPS	2AL				0.0
	END OF BOREHOLE @ 4.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-10
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE	1AL		100		0.0
2	- 2cm band of black staining at 1.5ft BGS	2.00	BENTONITE CHIPS	2AL				0.0
4	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	4.00						
	END OF BOREHOLE @ 4.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-11
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE	1AL		100		0.0
2	- evidence of black staining to 2.5', no odor at 1.5ft BGS	2.50	BENTONITE CHIPS	2AL				0.0
4	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	4.00						
	END OF BOREHOLE @ 4.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-12
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist	0.50	2-1/4" BOREHOLE	1AL		100		0.0
2	SM-SILTY SANDS, trace fine subangular gravels, loose, poorly graded, fine grained, brown with orange hue, moist		BENTONITE CHIPS	2AL				0.0
4	END OF BOREHOLE @ 4.0ft BGS	4.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-13
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown, moist		2-1/4" BOREHOLE	1AL		100		0.0
2	- light brown with orange hue at 2.0ft BGS		BENTONITE CHIPS	2AL				0.0
4	END OF BOREHOLE @ 4.0ft BGS	4.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-14
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP/GW-SAND AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE	1AL		100		0.0
2	- 0.5ft band of black staining at 1.5ft BGS	2.00	BENTONITE CHIPS	2AL				0.0
4	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	4.00						
	END OF BOREHOLE @ 4.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-15
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE	1AL		100		0.0
	- 0.5ft band of black staining at 1.5ft BGS	2.00						
4	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, fine grained, brown with orange hue, moist		BENTONITE CHIPS	2AL				0.0
	END OF BOREHOLE @ 4.0ft BGS	4.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-16
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist - evidence of black staining at 2.0ft BGS	2.50	2-1/4" BOREHOLE	1AL		100		0.0
4	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	4.00	BENTONITE CHIPS	2AL				0.0
	END OF BOREHOLE @ 4.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-17
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE	1AL		100		0.0
2	- evidence of black staining at 2.5ft BGS	2.50	BENTONITE CHIPS	2AL				0.0
4	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	4.00						
	END OF BOREHOLE @ 4.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-18
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist - evidence of staining, shiny silver luster at 2.0ft BGS	2.50	2-1/4" BOREHOLE	1AL	X	100		0.0
4	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	4.00	BENTONITE CHIPS	2AL	X			0.0
	END OF BOREHOLE @ 4.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-19
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE	1AL		100		0.0
3.00	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	3.00	BENTONITE CHIPS	2AL				0.0
4.00	END OF BOREHOLE @ 4.0ft BGS	4.00						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-20
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE	1AL		100		0.0
2	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	2.00	BENTONITE CHIPS	2AL				0.0
4	- evidence of staining throughout	4.00						
6	- man-made debris (railroad fill) at 2.5ft BGS at 2.5ft BGS END OF BOREHOLE @ 4.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-21
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE	1AL		100		0.0
	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	2.00	BENTONITE CHIPS	2AL				0.0
4	- evidence of staining and man-made debris (railroad fill) at 2.5ft BGS	4.00						
	END OF BOREHOLE @ 4.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-22
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown, moist		2-1/4" BOREHOLE	1AL		100		0.0
	- orange hue at 3.0ft BGS		BENTONITE CHIPS	2AL				0.0
4	END OF BOREHOLE @ 4.0ft BGS	4.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-23
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE	1AL		100		0.0
2	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	2.00	BENTONITE CHIPS	2AL				0.0
4	END OF BOREHOLE @ 4.0ft BGS	4.00						
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-24
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP/GW-SANDS AND GRAVELS (FILL), loose, poorly graded, fine grained sands with fine subangular gravels, gray to black, moist		2-1/4" BOREHOLE	1AL	X	100		0.0
2	SM-SILTY SANDS, trace fine subangular gravel, loose, poorly graded, fine grained, brown with orange hue, moist	2.00	BENTONITE CHIPS	2AL	X			0.0
4	END OF BOREHOLE @ 4.0ft BGS	4.00						
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30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-25
DATE COMPLETED: February 27, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.74						
0	GM-SILTY GRAVELS (FILL), trace sand, trace concrete, loose, fine grained, poorly graded, dark brown and gray mixture, moist		2-1/4" BOREHOLE					
2	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist	700.44	BENTONITE CHIPS	1AL 0-2' 2-4'		100		0.0
4	END OF BOREHOLE @ 5.0ft BGS	697.74						
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28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-26
DATE COMPLETED: February 27, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.92						
0	GM-SILTY GRAVELS (FILL), trace sands, trace concrete, loose fine grained, rounded gravels, poorly graded, dark brown and gray mixture, moist		2-1/4" BOREHOLE	1AL 0-2' 2-4'		100		0.0
2	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist	700.72	BENTONITE CHIPS					
4	END OF BOREHOLE @ 5.0ft BGS	697.92						
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24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-27
DATE COMPLETED: February 27, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D.DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE	702.18					
0	GM-SILTY GRAVELS (FILL), trace sands, trace concrete, loose, medium to coarse grained, rounded gravels, poorly graded, dark brown and gray, moist	700.58	2-1/4" BOREHOLE	1AL 0-2' 2-4'		100	
4	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist		BENTONITE CHIPS				
5	END OF BOREHOLE @ 5.0ft BGS	697.18					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-28
DATE COMPLETED: February 27, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.36						
0	SM-SILTY SANDS (FILL) compact, fine grained, poorly graded, dark brown, moist - 1.5" lens coal at 1.5ft BGS							
2	SM-SILTY SANDS, with black staining, loose, fine grained, poorly graded, black, moist	700.76	2-1/4" BOREHOLE	1AL 2-4'		100		0.0
4	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist	699.16	BENTONITE CHIPS					
6	END OF BOREHOLE @ 5.0ft BGS	697.36						
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14								
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18								
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22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-29
DATE COMPLETED: February 27, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	702.61						
0	SM-SILTY SANDS (FILL), trace fine grained rounded gravels, trace wood, loose, fine grained, poorly graded, dark brown, moist		2-1/4" BOREHOLE					
2	SP-SANDS (FILL), trace silts, trace coal, compact, fine grained, poorly graded, black, moist	700.81	BENTONITE CHIPS	1AL 0-2' 2-4'		100		0.0
4	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist	699.81						
6	END OF BOREHOLE @ 5.0ft BGS	697.61						
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10								
12								
14								
16								
18								
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28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-30
DATE COMPLETED: February 27, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	701.97						
0	SM-SILTY SANDS (FILL), trace rootlets, trace fine grained, rounded gravels, loose, fine grained, poorly graded, dark brown, moist		2-1/4" BOREHOLE					
2	- light brown, gravel not present at 2.5ft BGS			1AL 0-2' 2-4'		100		0.0
4	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist	698.77	BENTONITE CHIPS					
6	END OF BOREHOLE @ 5.0ft BGS	696.97						
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10								
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14								
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18								
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26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: SB-BG-43
DATE COMPLETED: July 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	705.22						
0	GP-GRAVELS, with sands, trace slag (FILL), loose, medium grained subangular, poorly graded, dark brown, dry		2-1/4" BOREHOLE	1MC 0-2' -1208		80		0.0
4	SP-SANDS, trace silts, compact, fine grained, poorly graded, light brown, moist	702.12						
	- trace fine grained rounded gravels at 3.6ft BGS	700.22						
6	END OF BOREHOLE @ 5.0ft BGS							
8								
10								
12								
14								
16								
18								
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28								
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32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

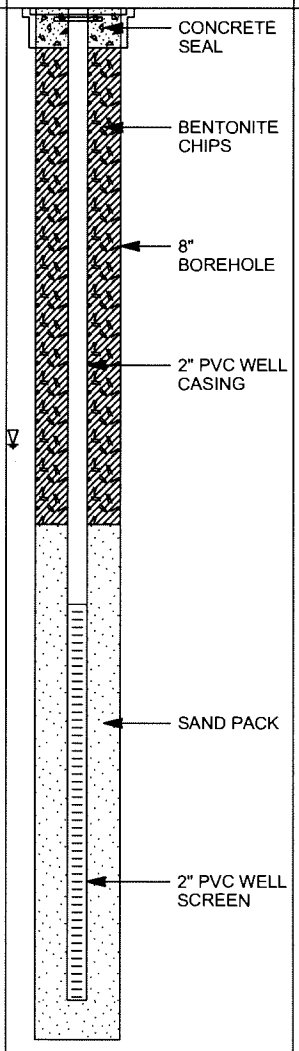
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-1D
DATE COMPLETED: February 7, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	SM-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation (rootlets)	
2	- light brown at 1.0ft BGS	
4	- brown with orange hue at 4.5ft BGS	
	- light brown at 5.5ft BGS	
6	- orange stripes for 2" at 7.0ft BGS	
	- light brown at 7.2ft BGS	
8	- gray to light brown at 8.5ft BGS	
10	- wet at 11.0ft BGS	
12	- brown-gray at 12.0ft BGS	
14		
16		
18	- 2" layer of fine subangular gravel at 17.5ft BGS	
	- fine sand, trace fine subangular gravel, gray at 17.7ft BGS	
20		
22		
	- compact at 23.0ft BGS	
24		
	CL-CLAY, trace fine subangular gravel, firm, low plasticity, gray, very moist	25.00
26	END OF BOREHOLE @ 26.0ft BGS	26.00
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
15.00 to 25.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
13.00 to 26.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1SS		80	32	0.0
2SS		80	2	0.0
3SS		80	5	0.0
4SS		100	42	0.0
5SS		100	48	0.0
6SS		100	44	0.0
7SS		80	40	0.0
8SS		100	49	0.0
9SS		80	71	0.0
10SS		80	98	0.0
11SS		100	80	0.0
12SS		100	75	0.0
13SS		100	40	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

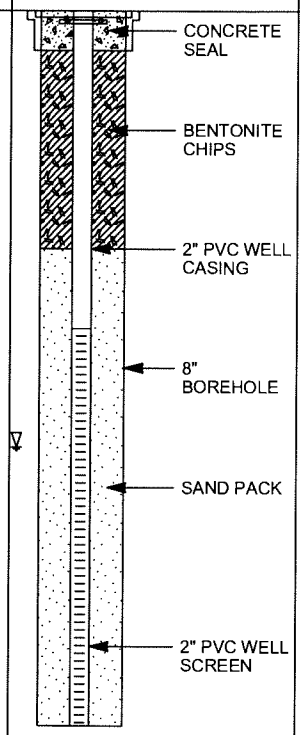
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-1S
DATE COMPLETED: February 7, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	SM-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation (rootlets)	
2	- light brown at 1.0ft BGS	
4	- brown with orange hue at 4.5ft BGS	
	- light brown at 5.5ft BGS	
6	- orange stripes for 2" at 7.0ft BGS	
	- light brown at 7.2ft BGS	
8	- gray to light brown at 8.5ft BGS	
10	- wet at 11.0ft BGS	
12	- brown-gray at 12.0ft BGS	
14		
16		
18	END OF BOREHOLE @ 18.0ft BGS	18.00
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
8.00 to 18.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
8.00 to 18.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1SS		80	32	0.0
2SS		80	2	0.0
3SS		80	5	0.0
4SS		100	42	0.0
5SS		100	48	0.0
6SS		100	44	0.0
7SS		80	40	0.0
8SS		100	49	0.0
9SS		80	71	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

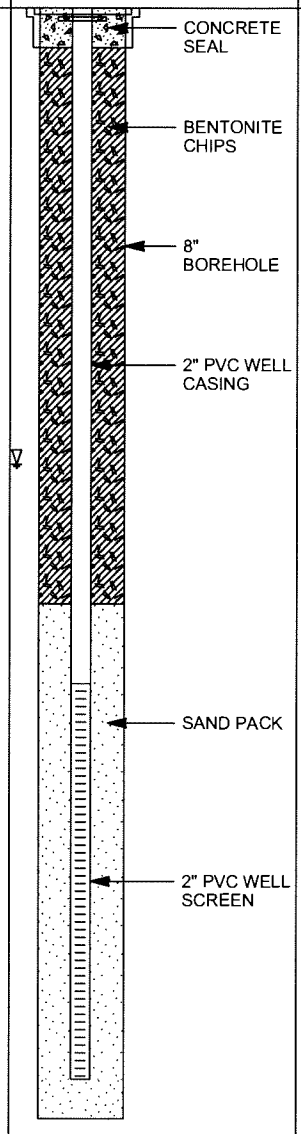
OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-2D
DATE COMPLETED: February 6, 2003
DRILLING METHOD: SPLIT SPOON
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	SM-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation (rootlets)	
2	- light brown at 1.0ft BGS	
	- brown, trace fine subangular gravel at 2.5ft BGS	
4		
6	- light brown with orange stripes, moist to wet at 5.5ft BGS	
	- light brown, moist at 7.0ft BGS	
8		
10		
12	- wet at 11.5ft BGS	
	- gray at 13.0ft BGS	
14	- with fine subangular gravel at 14.0ft BGS	
	- very fine sand, gray, wet, no gravel at 14.5ft BGS	
16	- with fine subangular gravel at 16.0ft BGS	
	- very fine sand, no gravel, wet, gray at 17.0ft BGS	
18		
20	- trace soft clay, low plasticity, 1" thick at 20.5ft BGS	
	- trace silts, soft clay, compact, very fine grained, plasticity, compact, poorly graded, gray, moist at 21.5ft BGS	
22	- trace silts, loose, poorly graded, light brown at 22.0ft BGS	
24		
26	CL-CLAY, trace fine subangular gravel, firm, low plasticity, gray, very moist	26.50
28	END OF BOREHOLE @ 28.0ft BGS	28.00
30		
32		
34		



WELL DETAILS
Screened interval:
17.00 to 27.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
15.00 to 28.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1SS		100	126	0.0
2SS		95	4	0.0
3SS		95	4	0.0
4SS		100	36	0.0
5SS		100	25	0.0
6SS		100	18	0.0
7SS		95	51	0.0
8SS		100	47	0.0
9SS		100	32	0.0
10SS		100	41	0.0
11SS		100	38	0.0
12SS		100	43	0.0
13SS		100	34	0.0
14SS		100	25	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

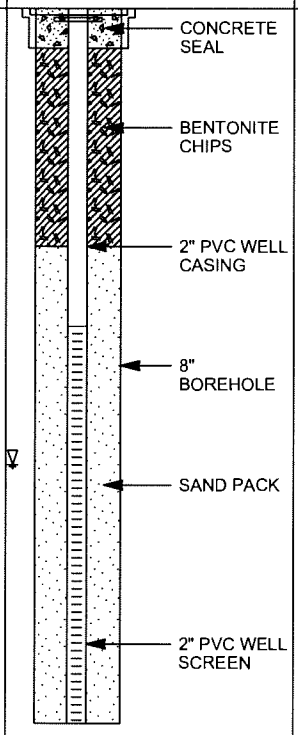
PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-2S
DATE COMPLETED: February 6, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS
0	SM-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation (rootlets)
2	- light brown at 1.0ft BGS
	- brown, trace fine subangular gravel at 2.5ft BGS
4	
	- light brown with orange stripes, moist to wet at 5.5ft BGS
6	
	- light brown, moist at 7.0ft BGS
8	
10	
	- wet at 11.5ft BGS
12	
	- gray at 13.0ft BGS
14	- with fine subangular gravel at 14.0ft BGS
	- very fine sand, gray, wet, no gravel at 14.5ft BGS
16	- with fine subangular gravel at 16.0ft BGS
	- very fine sand, no gravel, wet, gray at 17.0ft BGS
18	END OF BOREHOLE @ 18.0ft BGS
20	
22	
24	
26	
28	
30	
32	
34	

DEPTH ft BGS: 18.00

MONITORING WELL



WELL DETAILS
Screened interval:
8.00 to 18.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
6.00 to 18.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1SS		100	126	0.0
2SS		95	4	0.0
3SS		95	4	0.0
4SS		100	36	0.0
5SS		100	25	0.0
6SS		100	18	0.0
7SS		95	51	0.0
8SS		100	47	0.0
9SS		100	32	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

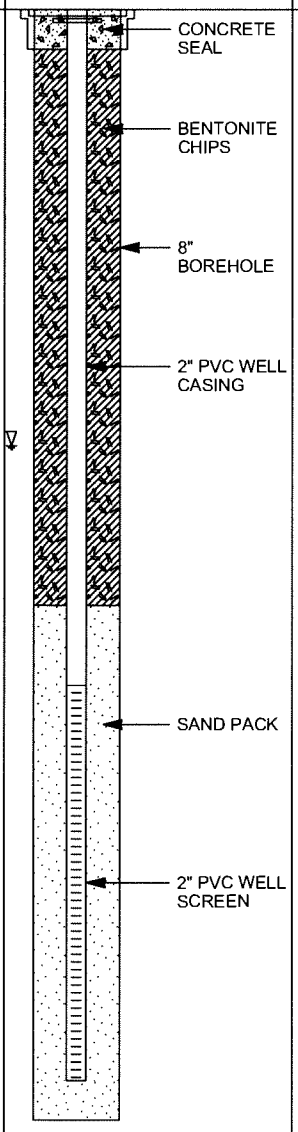
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-3D
DATE COMPLETED: February 6, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	SM-SANDS, trace silts, loose, fine grained, poorly graded, dark brown, moist, trace vegetation (rootlets)	
2	- light brown at 0.5ft BGS	
	- with fine subangular gravel at 2.0ft BGS	
	- brown at 3.0ft BGS	3.00
4		
	- light brown at 5.5ft BGS	
6		
	- brown with orange hue at 7.0ft BGS	
8		
	- light brown to gray at 9.0ft BGS	
10		
	- with fine subangular gravel at 10.5ft BGS	
	- wet at 11.0ft BGS	
12		
	- orange hue at 14.0ft BGS	
14		
	- very fine grained sand, no gravel, gray at 15.5ft BGS	
16		
18		
	trace fine subangular gravel, gray	
20		
22		
24		
26	CL-CLAY, trace fine subangular gravel, firm, low plasticity, gray, very moist	25.50
28	END OF BOREHOLE @ 28.0ft BGS	28.00
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
17.00 to 27.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
15.00 to 28.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1SS		95	35	0.0
2SS		95	8	0.0
3SS		95	5	0.0
4SS		95	44	0.0
5SS		100	23	0.0
6SS		100	33	0.0
7SS		100	42	0.0
8SS		100	31	0.0
9SS		100	74	0.0
10SS		95	39	0.0
11SS		100	56	0.0
12SS		100	65	0.0
13SS		100	26	0.0
14SS		100	44	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

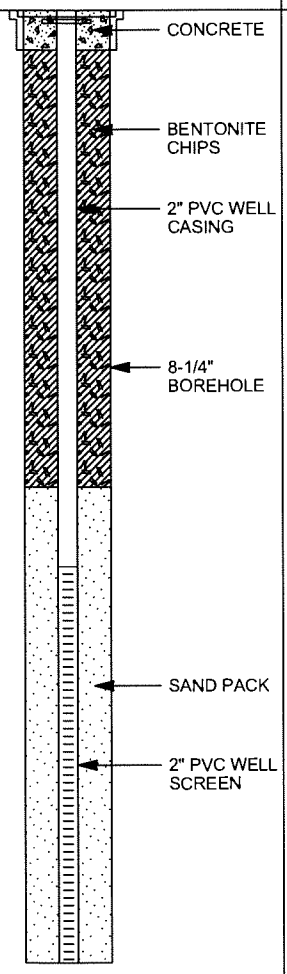
OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-4D
DATE COMPLETED: September 26, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	703.84
	TOP OF RISER	703.54
	CONCRETE	703.54
	GW-SANDY GRAVELS, trace silts (FILL), compact, fine to medium grained, angular, well graded, medium brown, moist	702.84
2	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, yellowish brown, dry	
4		
6	- orange-brown, moist at 6.0ft BGS	
	- with silts at 7.3ft BGS	
8	- trace silts, medium brown at 7.7ft BGS	
	- with silts at 8.1ft BGS	
	- light brown, damp at 8.3ft BGS	
10		
	- wet at 10.9ft BGS	
	- coarse grained at 11.0ft BGS	
12	- fine grained at 11.2ft BGS	
	- orange-brown oxidation at 12.2ft BGS	
	- coarse grained, traced medium grained subrounded gravels at 12.3ft BGS	
14	- fine grained at 12.6ft BGS	
	- very fine grained, light brown at 12.8ft BGS	
16	- 1/2" lens medium grained sands at 13.9ft BGS	
18		
	- 1/4" lens clayey sands at 18.8ft BGS	
20		
22		
24	CL-SILTY CLAYS, with 1mm-thick silt lenses, stiff, low plasticity, gray, moist	679.94
	END OF BOREHOLE @ 25.0ft BGS	678.84
26		
28		
30		
32		
34		



WELL DETAILS
Screened interval:
689.84 to 679.84ft AMSL
14.00 to 24.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
691.84 to 679.84ft AMSL
12.00 to 24.00ft BGS
Material: #5 GLOBAL

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE
1SS		70	
2SS		70	
3SS		80	
4SS		70	
5SS		80	
6SS		80	
7SS		70	
8SS		90	
9SS		80	
10SS		100	
11SS		90	
12SS		70	
13SS		70	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-4S
DATE COMPLETED: September 26, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE TOP OF RISER	703.82 703.60					
0	CONCRETE	703.52	CONCRETE				
	GW-SANDY GRAVELS, trace silts (FILL), compact, fine to medium grained angular, well graded, medium brown, moist	702.82		1SS		70	
2			BENTONITE CHIPS				
	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, yellowish brown, dry			2SS		70	
4							
			2" PVC WELL CASING	3SS		80	
6	- orange-brown, moist at 6.0ft BGS						
			8-1/4" BOREHOLE	4SS		70	
	- with silts at 7.3ft BGS						
8	- trace silts, medium brown at 7.7ft BGS - with silts at 8.1ft BGS			5SS		80	
	- light brown, damp at 8.3ft BGS						
10				6SS		80	
	- wet at 10.9ft BGS						
	- coarse grained at 11.0ft BGS		SAND PACK				
12	- fine grained at 11.2ft BGS			7SS		70	
	- orange-brown oxidation at 12.2ft BGS						
14	- coarse grained, traced medium grained subrounded gravels at 12.3ft BGS						
	- fine grained at 12.6ft BGS						
	- very fine grained, light brown at 12.8ft BGS		2" PVC WELL SCREEN	8SS		90	
16	- 1/2" lens medium grained sands at 13.9ft BGS						
				9SS		80	
18							
	END OF BOREHOLE @ 18.5ft BGS	685.32		10SS		100	
20			WELL DETAILS Screened interval: 695.32 to 685.32ft AMSL 8.50 to 18.50ft BGS Length: 10ft Diameter: 2in Slot Size: 0.01 Material: PVC Sand Pack: 697.32 to 685.32ft AMSL 6.50 to 18.50ft BGS Material: #5 GLOBAL	11SS		90	
22							
				12SS		70	
24							
				13SS		70	
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

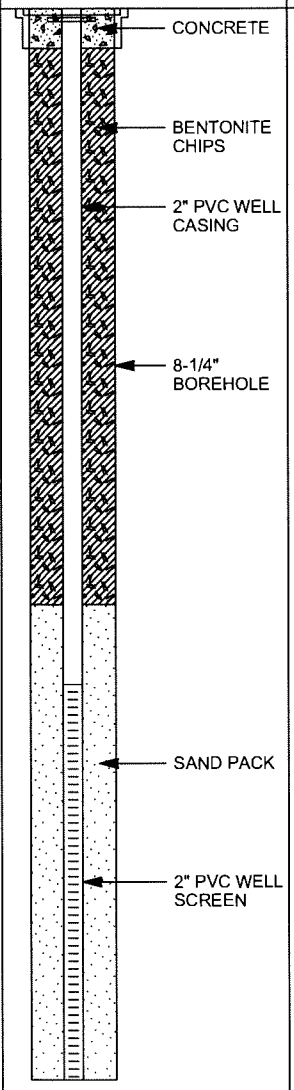
OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-5D
DATE COMPLETED: September 25, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE TOP OF RISER	704.99 704.98
2	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, light brown, moist to very moist - gray and brown, trace rootlets at 2.0ft BGS	
4	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist	701.49
6		
8	- wet at 7.5ft BGS	
10	- 1" lens sandy silts at 9.8ft BGS - fine to medium grained at 10.5ft BGS	
12	- sands with silts, fine grained at 11.8ft BGS	
14	- sands, trace silts, fine to medium grained at 14.2ft BGS	
16	- trace fine grained subrounded gravels at 15.0ft BGS	
18		
20		
22	- fine grained at 21.0ft BGS	
24	- with silts at 23.0ft BGS	
26		678.49
28	CL-SILTY CLAYS, stiff, low plasticity, gray, moist - with silt lenses 1mm thick at 27.0ft BGS	
30	END OF BOREHOLE @ 30.0ft BGS	674.99
32		
34		



WELL DETAILS
Screened interval:
687.99 to 677.99ft AMSL
17.00 to 27.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
689.99 to 677.99ft AMSL
15.00 to 27.00ft BGS
Material: #5 GLOBAL

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE
1SS		90	
2SS		95	
3SS		60	
4SS		80	
5SS		70	
6SS		70	
7SS		60	
8SS		80	
9SS		90	
10SS		70	
11SS		65	
12SS		75	
13SS		80	
14SS		80	
15SS		80	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-6D
DATE COMPLETED: September 25, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE TOP OF RISER	704.02 703.54					
0	GM-SILTY SANDS/GRAVELS, (FILL), compact, medium grained, angular, poorly graded, dark brown, moist	703.02	CONCRETE	1SS		40	
2	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, light brown, moist		BENTONITE CHIPS	2SS		80	
4			2" PVC WELL CASING	3SS		80	
6	- 3" lens silty sands, trace gravels at 6.2ft BGS	697.62		4SS		90	
8	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist - trace fine grained rounded gravels at 7.0ft BGS		8-1/4" BOREHOLE	5SS		80	
10	- gravels not present at 8.4ft BGS			6SS		70	
12	- wet at 11.5ft BGS			7SS		70	
14	- orange-brown at 14.0ft BGS - with silts, brownish gray at 15.0ft BGS			8SS		65	
16				9SS		100	
18			SAND PACK	10SS		70	
20				11SS		80	
22			2" PVC WELL SCREEN	12SS		70	
24				13SS		60	
26				14SS		75	
28	CL-SILTY CLAYS, trace 1mm-thick silt lenses, stiff, low plasticity, gray, moist	676.32		15SS		70	
30	END OF BOREHOLE @ 30.0ft BGS	674.02					
32							
34							
36							

WELL DETAILS
Screened interval:
686.02 to 676.02ft AMSL
18.00 to 28.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
688.02 to 676.02ft AMSL
16.00 to 28.00ft BGS
Material: #5 GLOBAL

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-7D
DATE COMPLETED: September 26, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE TOP OF RISER	705.77 705.43					
0	GM-SILTY GRAVELS, (FILL), compact, medium grained angular, poorly graded, dark brown, moist		CONCRETE	1SS		50	
2							
		702.77	BENTONITE CHIPS	2SS		75	
4	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, orange-brown, dry		2" PVC WELL CASING	3SS		70	
6				4SS		30	
8	- moist at 8.0ft BGS		8-1/4" BOREHOLE	5SS		90	
10	- light brown at 10.0ft BGS			6SS		90	
12				7SS		90	
14	- wet at 14.5ft BGS - medium grained at 15.0ft BGS			8SS		20	
16	- fine grained, grayish brown at 16.0ft BGS			9SS		100	
18			SAND PACK	10SS		80	
20	- loose at 20.0ft BGS			11SS		85	
22	- compact at 22.0ft BGS		2" PVC WELL SCREEN	12SS		90	
24				13SS		60	
26				14SS		90	
	- coarse grained at 27.4ft BGS	678.17					
28	CL-SILTY CLAYS, trace 1mm-thick silt lenses, stiff, low plasticity, gray, moist			15SS		60	
30	END OF BOREHOLE @ 30.0ft BGS	675.77					
32							
34							
36							

WELL DETAILS
Screened interval:
687.77 to 677.77ft AMSL
18.00 to 28.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
689.77 to 677.77ft AMSL
16.00 to 28.00ft BGS
Material: #5 GLOBAL

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-8D
DATE COMPLETED: September 29, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE TOP OF RISER	703.09 703.04					
0	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, light brown, dry, trace organics (topsoil)	701.59	CONCRETE	1SS		100	
2	SW-SANDS, with fine grained angular gravels, trace silts (FILL), compact, fine to medium grained, well graded, light brown, dry	700.59	BENTONITE CHIPS	2SS		80	
4	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, light brown, dry - 1" piece concrete at 5.0ft BGS		2" PVC WELL CASING	3SS		80	
6	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, orange-brown, dry	697.09		4SS		60	
8	- trace fine grained rounded gravels at 8.5ft BGS		8-1/4" BOREHOLE	5SS		80	
10	- very moist to wet at 9.8ft BGS - wet at 10.5ft BGS			6SS		60	
12				7SS		70	
14	- fine grained, light grayish brown at 13.5ft BGS			8SS		50	
16	- loose, fine to medium grained at 16.0ft BGS			9SS		90	
18	- fine grained at 17.5ft BGS - compact at 18.0ft BGS		SAND PACK	10SS		60	
20	- 2" lens sandy silts at 19.8ft BGS - 3" lens silty sands at 20.5ft BGS			11SS		60	
22			2" PVC WELL SCREEN	12SS		80	
24	- 1/8" lens coarse grained sands at 23.9ft BGS			13SS		60	
26	- 1" lens coarse grained sands at 25.3ft BGS - 1/2" lens coarse grained sands at 25.8ft BGS	677.19		14SS		80	
28	CL-SILTY CLAYS, trace 1mm-thick silt lenses, stiff, low plasticity, gray, moist			15SS		80	
30	END OF BOREHOLE @ 29.0ft BGS	674.09					
32							
34							

WELL DETAILS
Screened interval:
686.09 to 676.09ft AMSL
17.00 to 27.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
688.09 to 676.09ft AMSL
15.00 to 27.00ft BGS
Material: #5 GLOBAL

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-9D
DATE COMPLETED: September 29, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE TOP OF RISER	704.55 704.31					
0	MH-SANDY SILTS, (FILL), (topsoil), loose, fine grained, poorly graded, dark brown, moist	703.55	CONCRETE	1SS		90	
2	SP-SANDS, trace silts (natural), compact, fine to medium grained, poorly graded, orange-brown, dry		BENTONITE CHIPS	2SS		25	
4	- moist at 4.0ft BGS		2" PVC WELL CASING	3SS		80	
6	- 2.5" lens silty sands at 6.4ft BGS			4SS		100	
8			8-1/4" BOREHOLE	5SS		80	
10	- wet at 9.8ft BGS			6SS		80	
12				7SS		100	
14	- with silts, trace fine grained subrounded gravels, fine grained, grayish brown at 14.0ft BGS			8SS		80	
16				9SS		90	
18				10SS		90	
20				11SS		80	
22	- 2.5" lens medium grained sands at 21.9ft BGS			12SS		80	
24	CL-SILTY CLAYS, trace 1mm-thick silt lenses, stiff, low plasticity, gray, moist	680.75		13SS		80	
26			WELL DETAILS Screened interval: 689.55 to 679.55ft AMSL 15.00 to 25.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.01 Material: PVC Sand Pack: 691.55 to 679.55ft AMSL 13.00 to 25.00ft BGS Material: #5 GLOBAL				
28	END OF BOREHOLE @ 27.0ft BGS	677.55		14SS		100	
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-9S
DATE COMPLETED: September 29, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	GROUND SURFACE TOP OF RISER	704.53 704.26					
0	MH-SANDY SILTS, (FILL), (topsoil), loose, fine grained, poorly graded, dark brown, moist	703.53	CONCRETE	1SS		90	
2	SP-SANDS, trace silts (natural), compact, fine to medium grained, poorly graded, orange-brown, dry		BENTONITE CHIPS	2SS		25	
4	- moist at 4.0ft BGS		2" PVC WELL CASING	3SS		80	
6	- 2.5" lens silty sands at 6.4ft BGS		8-1/4" BOREHOLE	4SS		100	
8				5SS		80	
10	- wet at 9.8ft BGS			6SS		80	
12			SAND PACK	7SS		100	
14	- with silts, trace fine grained subrounded gravels, fine grained, grayish brown at 14.0ft BGS			8SS		80	
16				9SS		90	
18	END OF BOREHOLE @ 18.0ft BGS	686.53		10SS		90	
20				11SS		80	
22				12SS		80	
24				13SS		80	
26				14SS		100	
28							
30							
32							
34							

WELL DETAILS
Screened interval:
696.53 to 686.53ft AMSL
8.00 to 18.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
698.53 to 686.53ft AMSL
6.00 to 18.00ft BGS
Material: #5 GLOBAL

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

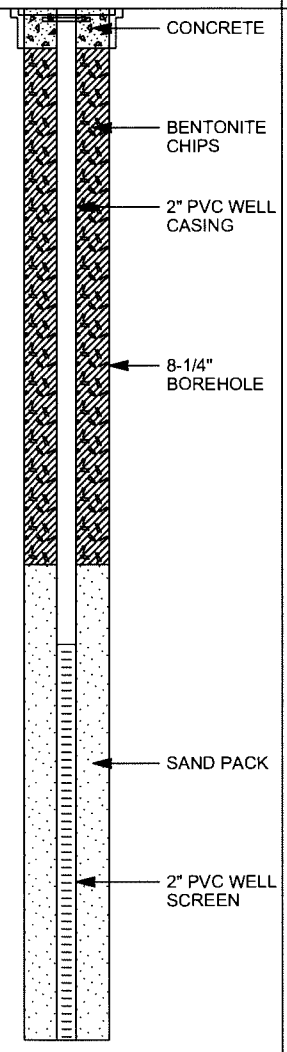
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-OS-10D
DATE COMPLETED: September 26, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	705.76
	TOP OF RISER	705.44
0	ASPHALT	705.56
	GW-SANDS AND GRAVELS, trace silts (FILL), compact, fine grained to medium grained, angular, well graded, brown, moist	704.26
2	CL-SILTY CLAYS, (FILL), firm, low plasticity, brown, moist	
4		
	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, orange-brown, dry	700.76
6	- moist at 7.0ft BGS	
8	- light brown at 8.5ft BGS	
10		
12	- wet at 12.0ft BGS	
14		
16		
18		
20	- loose at 20.0ft BGS	
	- 1/2" lens coarse grained sands at 21.2ft BGS	
22	- compact at 22.0ft BGS	
24		
	CL-SILTY CLAYS, stiff, low plasticity, gray, moist, trace 1mm-thick silt lenses	680.56
26		
28	END OF BOREHOLE @ 28.0ft BGS	677.76
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
689.76 to 679.76ft AMSL
16.00 to 26.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
691.76 to 679.76ft AMSL
14.00 to 26.00ft BGS
Material: #5 GLOBAL

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE
1SS		80	
2SS		30	
3SS		80	
4SS		50	
5SS		75	
6SS		80	
7SS		60	
8SS		25	
9SS		100	
10SS		80	
11SS		80	
12SS		80	
13SS		100	
14SS		60	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

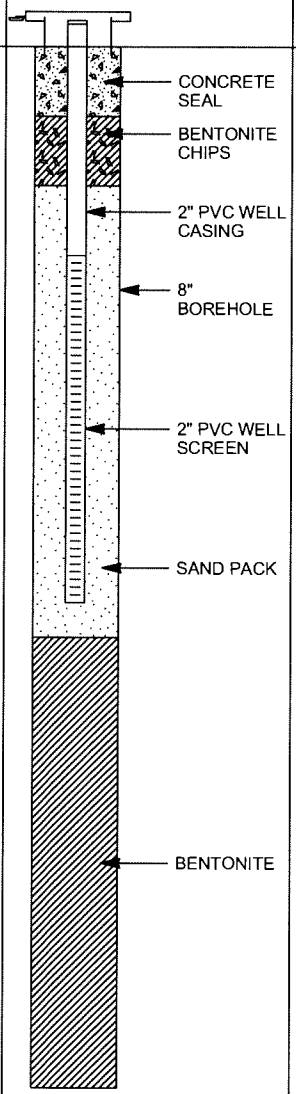
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-3S
DATE COMPLETED: October 16, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	CONCRETE, with subrounded fine gravels	1.00
2	SM-SILTY SANDS, trace coarse sands, fine gravels, loose, fine grained, poorly graded, brown, moist	3.00
4	SP-SANDS, with clays, trace silts, fine gravels, compact, fine grained, poorly graded, dark brown, moist, low plasticity - brown at 3.5ft BGS	6.50
6		
8	SM-SILTY SANDS, trace fine gravels, loose, fine grained, poorly graded, tan/beige, moist - very moist at 7.5ft BGS - saturated, brown/gray at 8.0ft BGS - compact, gray at 9.0ft BGS	
10		
12		
14		14.50
16	SP-SANDS, trace silts with fine gravels, loose, fine to coarse grained, poorly graded, brown and gray, saturated	
18	SM-SILTY SANDS, compact, very fine grained to fine grained, poorly graded, gray, saturated	17.50
20		
22		
24		
26	CL-SILTY CLAY, firm to stiff, low plasticity, gray, moist	25.50
28		
30	END OF BOREHOLE @ 30.0ft BGS	30.00
32		
34		
36		
38		

MONITORING WELL



WELL DETAILS
Screened interval:
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
17.00 to 30.00ft BGS
Material: Bentonite
Sand Pack:
6.00 to 17.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1HA		80		0.9
2HA		75		0.2
3HA		80		1.0
4HA		80		0.9
5HA		80		0.2
6HA		90		0.1

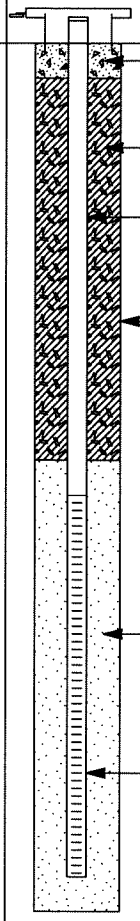
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-4D
DATE COMPLETED: January 8, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	FILL, rubble	0.08
	CONCRETE	1.80
2	SP-SANDS, trace silts, loose, poorly graded, fine with medium grained, dark brown, moist	
4	- trace fine subrounded and subangular gravels, brown with orange hue at 2.0ft BGS	
	- 2" clayey layer at 3.5ft BGS	
6	- less orange at 4.8ft BGS	
	- beige at 5.5ft BGS	
8	- 2" clay lense, silty brown at 7.5ft BGS	
	- 0.3" orange band at 8.0ft BGS	
	- wet at 8.3ft BGS	
10	- fine and medium grained, saturated at 10.0ft BGS	
12	- fine grained, trace medium grained, with silts at 10.2ft BGS	
	- wet at 12.5ft BGS	
14	- with medium grained, trace silts at 14.0ft BGS	
16	SM-SILTY SANDS, medium compaction, poorly graded, fine grained, trace medium grained, brown, wet	16.00
18		
20	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, brown, wet	20.00
22		22.50
24	SM-SILTY SANDS, medium compaction, poorly graded, fine grained, trace medium grained, brown, wet	23.00
	CL-CLAYS, trace silts, firm, low to medium plasticity, brown, moist	25.00
26	END OF BOREHOLE @ 25.0ft BGS	
28		
30		
32		
34		
36		
38		



WELL DETAILS
Screened interval:
14.00 to 24.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
2.50 to 12.00ft BGS
Material: Bentonite
Sand Pack:
12.00 to 25.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL 1.8-3.8'				1.7
2AL 6-8'				4.9
3AL				2.7
4AL				1.2
5AL				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

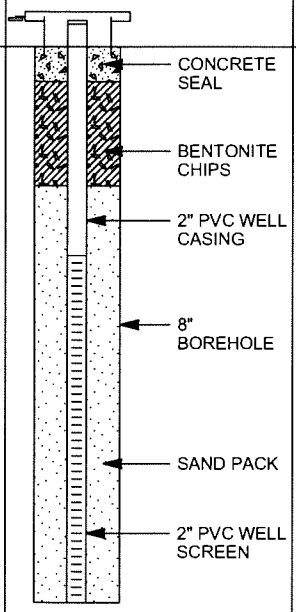
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-4S
DATE COMPLETED:
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	FILL, rubble	0.08
	CONCRETE	1.80
2	SP-SANDS, trace silts, loose, poorly graded, fine with medium grained, dark brown, moist	
4	- trace fine subrounded and subangular gravels, brown with orange hue at 2.0ft BGS	
	- 2" clayey layer at 3.5ft BGS	
6	- less orange at 4.8ft BGS	
	- beige at 5.5ft BGS	
8	- 2" clay lense, silty, brown at 7.5ft BGS	
	- 0.3" orange band at 8.0ft BGS	
10	- wet at 8.3ft BGS	
	- fine and medium grained, saturated at 10.0ft BGS	
12	- fine grained, trace medium grained, with silts at 10.2ft BGS	
	- wet at 12.5ft BGS	
14	- with medium grained, trace silts at 14.0ft BGS	
16	END OF BOREHOLE @ 16.0ft BGS	16.00
18		
20		
22		
24		
26		
28		
30		
32		
34		
36		
38		

MONITORING WELL



WELL DETAILS
Screened interval:
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
17.00 to 30.00ft BGS
Material: Bentonite
Sand Pack:
4.00 to 16.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL				1.7
2AL				4.9
3AL				2.7
4AL				1.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-5D
DATE COMPLETED: March 10, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	709.59 706.25						
0	CONCRETE	705.25	CONCRETE					
2	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist							
4	- trace fine grained rounded gravels at 3.5ft BGS		2" PVC WELL CASING	1RS		100		0.0
6			BENTONITE CHIPS					
8	- light brown at 7.0ft BGS - medium grained at 7.5ft BGS		6" BOREHOLE					
10	- wet at 9.0ft BGS - gray at 9.3ft BGS							
12				2RS		100		0.0
14								
16								
18			SAND PACK 2" PVC WELL SCREEN					
20								
22				3RS		100		0.0
24	CL-SILTY CLAYS, firm, low plasticity, gray, moist, homogenous	683.25						
26			BENTONITE CHIPS					
28	END OF BOREHOLE @ 27.0ft BGS	679.25						
30								
32								
34								

WELL DETAILS
Screened interval:
692.75 to 682.75ft AMSL
13.50 to 23.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
694.75 to 681.75ft AMSL
11.50 to 24.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-5S
DATE COMPLETED: March 10, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	709.34 706.26						
0	CONCRETE	705.26	CONCRETE					
2	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist		2" PVC WELL CASING	1RS		100		0.0
4	- trace fine grained rounded gravels at 3.5ft BGS		BENTONITE CHIPS					
6								
8	- light brown at 7.0ft BGS - medium grained at 7.5ft BGS		6" BOREHOLE					
10	- wet at 9.0ft BGS - gray at 9.3ft BGS							
12				2RS		100		0.0
14								
16			SAND PACK 2" PVC WELL SCREEN					
18								
20				3RS		100		0.0
22	END OF BOREHOLE @ 21.0ft BGS	685.26						
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
695.26 to 685.26ft AMSL
11.00 to 21.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
697.26 to 685.26ft AMSL
9.00 to 21.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-6S
DATE COMPLETED: March 6, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	709.42 706.57						
0	CONCRETE	705.57	CONCRETE					
2	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, orange brown, moist, oxidation		BENTONITE CHIPS	1RS 1-3'				0.5
4	- trace clays and fine subrounded gravels, dark brown at 4.0ft BGS - brown at 4.8ft BGS			2RS				0.6
6	- trace fine subrounded gravels, fine and coarse grained, light brown at 5.5ft BGS - fine grained, slight diesel-like odor at 6.5ft BGS		2" PVC WELL CASING 6" BOREHOLE	3RS 5-7'				1.2
8	- orange-brown, very moist, oxidation at 7.0ft BGS			4RS				3.1
10	- gray-brown, saturated, moderate diesel-like odor at 7.5ft BGS - gray at 8.5ft BGS - compact, slight diesel-like odor at 10.0ft BGS		SAND PACK 2" PVC WELL SCREEN	5RS				4.8
12	- no odor at 13.0ft BGS			6RS				2.3
14								
16				7RS				0.5
	END OF BOREHOLE @ 17.0ft BGS	689.57	NATURAL COLLAPSE OF NATIVE SOILS					
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
701.07 to 691.07ft AMSL
5.50 to 15.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
702.07 to 691.07ft AMSL
4.50 to 15.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

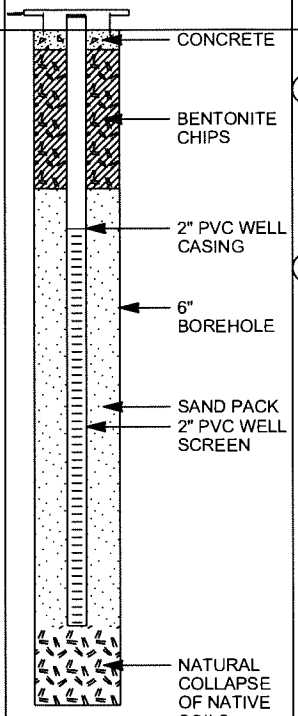
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-7S
DATE COMPLETED: March 6, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.46
	GROUND SURFACE	706.59
	CONCRETE	
		705.59
2	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, orange brown, moist, oxidation	
4	- trace clays and fine subrounded gravels, dark brown and orange mottled at 4.0ft BGS	
	- trace fine subrounded gravels, brown-gray at 5.5ft BGS	
6	- gray, saturated at 7.0ft BGS	
8		
10		
	- compact at 11.0ft BGS	
12		
14		
16		
		689.59
	END OF BOREHOLE @ 17.0ft BGS	
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
701.59 to 691.59ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
702.59 to 691.59ft AMSL
4.00 to 15.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS (1-3')				0.4
2RS				0.2
3RS (5-7')				0.3
4RS				0.2
5RS				0.1
6RS				0.0
7RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

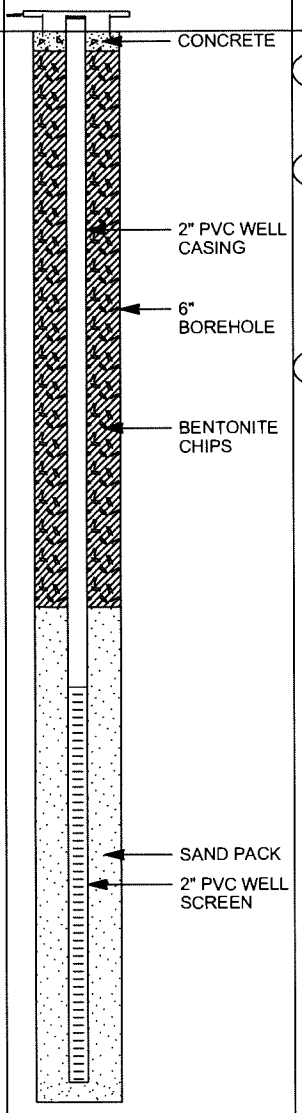
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-8D
DATE COMPLETED: February 26, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.58
	GROUND SURFACE	706.57
0	CONCRETE	705.82
2	SM-SILTY SANDS (FILL), loose, fine grained, poorly graded, tan/beige, moist	
4	- dark brown, moderate diesel-like odor at 5.0ft BGS	
6	CONCRETE, white, fine subrounded gravel	700.57
		699.57
8	SM-SILTY SANDS, loose, fine grained, poorly graded, tan/beige, moist	
	- very moist, light brown, slight diesel-like odor at 8.5ft BGS	
10	- brown, saturated, trace coarse sands, fine to medium grained at 10.0ft BGS	
12		694.07
14	SP-SANDS, trace silts and fine subrounded gravels, loose, fine to coarse grained, poorly graded, gray, saturated, moderate diesel-like odor	
		691.57
16	SM-SILTY SANDS, loose to compact, fine grained, poorly graded, gray, saturated, slight diesel-like odor	
18	- no odor at 18.0ft BGS	
20		
22		
24		
26	CL-SILTY CLAYS, trace fine subrounded gravels, firm, low to medium plasticity, gray, moist	680.57
		679.57
28	END OF BOREHOLE @ 27.0ft BGS	
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
690.07 to 680.07ft AMSL
16.50 to 26.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
692.07 to 679.57ft AMSL
14.50 to 27.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'				3.1
2RS 4-6'				9.3
3RS				8.2
4RS 8-10'				8.5
5RS				4.1
6RS				17.8
7RS				3.2
8RS				1.2
9RS				0.5
10RS				0.0
11RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

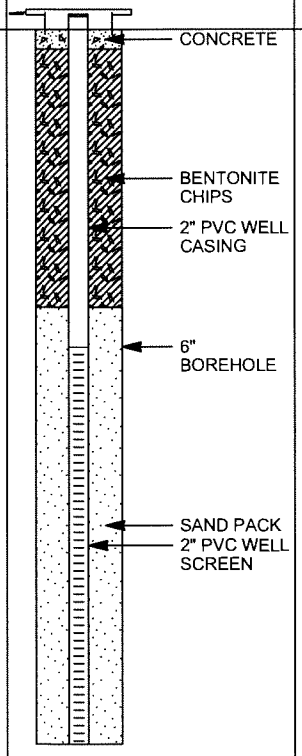
OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-8S
DATE COMPLETED: February 26, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.55
	GROUND SURFACE	706.64
	CONCRETE	705.89
2	SM-SILTY SANDS (FILL), loose, fine grained, poorly graded, tan/beige, moist	
4		
	- dark brown, diesel-like odor at 5.0ft BGS	
6	CONCRETE, white, fine subrounded gravels	700.64
		699.64
8	SM-SILTY SAND, loose, fine grained, poorly graded, tan/beige, moist	
	- very moist, light brown, slight, diesel-like odor at 8.5ft BGS	
10	- brown, saturated, trace coarse sands, fine to medium grained at 10.0ft BGS	
12		
	SP-SANDS, trace silts and fine subrounded gravels, loose, fine to coarse grained, poorly graded, gray, saturated, slight diesel-like odor	694.14
14		
		691.64
16	SM-SILTY SANDS, loose to compact, fine grained, poorly graded, gray, saturated, diesel-like odor	
18		688.64
	END OF BOREHOLE @ 18.0ft BGS	
20		
22		
24		
26		
28		
30		
32		
34		



WELL DETAILS
Screened interval:
698.64 to 688.64ft AMSL
8.00 to 18.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
699.64 to 688.64ft AMSL
7.00 to 18.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS				3.1
2RS				9.3
3RS				8.2
4RS				8.5
5RS				9.1
6RS				17.8
7RS				3.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

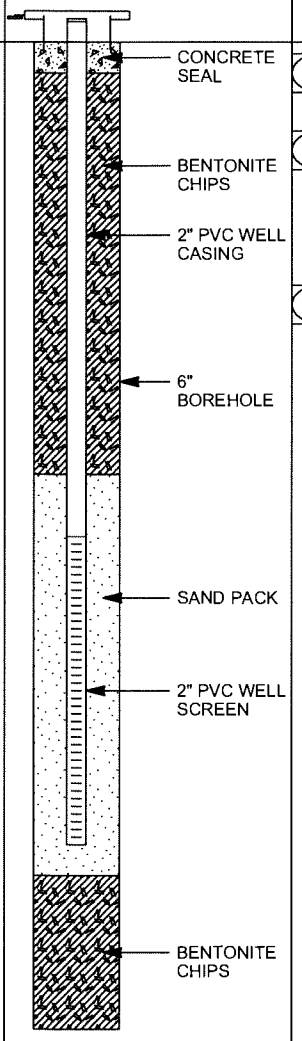
OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-9D
DATE COMPLETED: February 25, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.71
	GROUND SURFACE	706.81
	CONCRETE	705.98
2	SM-SILTY SANDS, trace coarse sands, fine subrounded gravels, loose, fine grained, poorly graded, brown, gray, moist	
	- gray, slight diesel-like odor at 1.5ft BGS	
4	- orange brown, oxidation at 3.0ft BGS	
	- dark gray, strong diesel-like odor at 3.8ft BGS	
6	- dark brown, trace fine to medium grained, gravels, slight diesel-like odor at 5.0ft BGS	
	- 2" sandy clay seam, trace fine gravels, fine to medium grained sands, low plasticity, dark brown, moist at 6.5ft BGS	
8		
10	- brown at 7.0ft BGS	
	- light brown and black (salt and pepper), slight odor at 9.0ft BGS	
12	- light brown, very moist at 10.0ft BGS	
	- saturated, brown at 10.5ft BGS	
14	- dark gray, diesel-like odor/moderate at 13.3ft BGS	
	- brown at 14.0ft BGS	
16	- orange, trace coarse sands at 14.3ft BGS	
	- brown at 15.3ft BGS	
18	- gray at 17.0ft BGS	
20		
22		
24		
26	CL-SILTY CLAYS, trace fine subrounded gravels, firm to stiff, trace plasticity, gray, moist	680.81
28		
30		
32	END OF BOREHOLE @ 32.0ft BGS	674.81
34		
36		
38		
40		
42		
44		



WELL DETAILS
Screened interval:
690.81 to 680.81ft AMSL
16.00 to 26.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
692.81 to 679.81ft AMSL
14.00 to 27.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL 0-2'				10.2
2AL 4-5'				24.6
3AL				18.2
4AL 8-10'				15.3
5AL				14.6
6AL				18.3
7AL				2.5
8AL				0.1
9AL				0.0
10AL				0.0
11AL				0.0
12AL				0.0
13AL				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-9S
DATE COMPLETED: March 4, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	709.61 706.77						
	CONCRETE	705.94	CONCRETE SEAL	1AL				10.2
	SM-SILTY SANDS, trace coarse sands, fine subrounded gravels, loose, fine grained, poorly graded, brown, gray, moist - gray, slight diesel-like odor at 1.5ft BGS - orange brown, oxidation at 3.0ft BGS - dark gray, strong diesel-like odor at 3.8ft BGS - dark brown, trace fine to medium grained gravels, slight diesel-like odor at 5.0ft BGS - 2" sandy clay seam, trace fine gravels, fine to medium grained sands, low plasticity, dark brown, moist at 6.5ft BGS - brown at 7.0ft BGS - light brown and black-salt and pepper, slight odor at 9.0ft BGS - light brown, very moist at 10.0ft BGS - saturated, brown at 10.5ft BGS - dark gray, diesel-like odor, moderate at 13.3ft BGS - brown at 14.0ft BGS - orange, trace coarse sands at 14.3ft BGS - brown at 15.3ft BGS - gray at 17.0ft BGS		2" PVC WELL CASING BENTONITE CHIPS 8" BOREHOLE SAND PACK 2" PVC WELL SCREEN	2AL 3AL 4AL 5AL 6AL 7AL 8AL				24.6 18.2 15.3 14.6 18.3 2.5 0.1
	END OF BOREHOLE @ 19.5ft BGS	687.27						

WELL DETAILS
Screened interval:
697.27 to 687.27ft AMSL
9.50 to 19.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
699.27 to 687.27ft AMSL
7.50 to 19.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

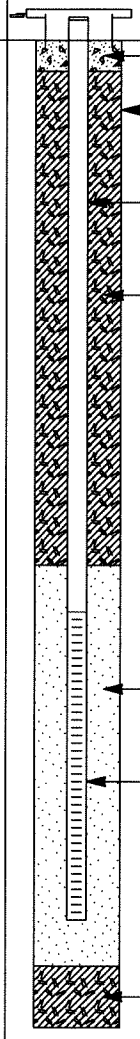
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-10D
DATE COMPLETED: February 25, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	706.68
	TOP OF RISER	9.65
0	CONCRETE	705.85
2	SM-SILTY SANDS (FILL), loose, fine grained, poorly graded, light brown, moist	704.18
4	CONCRETE, debris, slag debris with silty sands, fine to coarse grained, poorly graded, dark brown, moist	703.68
6	SM-SILTY SANDS, loose, fine grained, poorly graded, orange-brown, moist, trace oxidation - dark brown, trace fine subrounded gravels at 5.0ft BGS	
8	- brown, no gravels at 5.3ft BGS	
	- light brown, trace coarse sands at 7.0ft BGS	
10	- very moist at 9.5ft BGS	
	- saturated, brown at 10.5ft BGS	
12		
14		
16	- gray at 16.5ft BGS	
18		
20		
22		
24		
26		
28	CL-SILTY CLAYS, trace fine subrounded gravels, firm to stiff, low to medium plasticity, gray, moist	678.68
30		
32	END OF BOREHOLE @ 32.0ft BGS	674.68
34		
36		
38		
40		
42		
44		

MONITORING WELL



WELL DETAILS
Screened interval:
688.18 to 678.18ft AMSL
18.50 to 28.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
689.68 to 676.68ft AMSL
17.00 to 30.00ft BGS
Material: Bentonite
Sand Pack:
689.68 to 676.68ft AMSL
17.00 to 30.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL 0-2'				0.2
2AL				0.2
3AL				0.1
4AL 8-10'				0.1
5AL				0.0
6AL				0.0
7AL				0.0
8AL				0.0
9AL				0.0
10AL				0.0
11AL				0.0
12AL				0.0
13AL				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

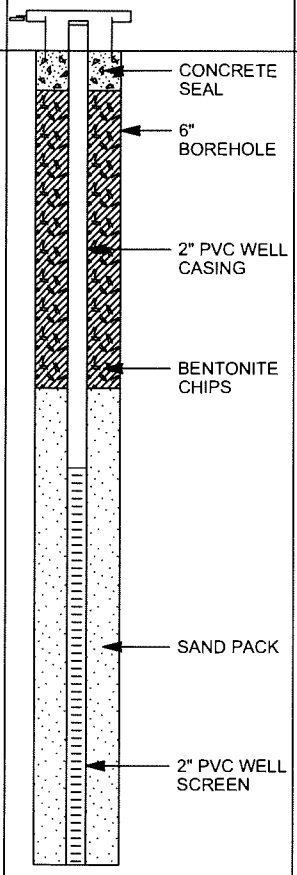
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-10S
DATE COMPLETED: February 28, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.58
	GROUND SURFACE	706.65
0	CONCRETE	705.82
2	SM-SILTY SANDS (FILL), loose, fine grained, poorly graded, light brown, moist	704.15
4	CONRETE, debris, slag debris with silty sands, fine to coarse grained, poorly graded, dark brown, moist	703.65
6	SM-SILTY SANDS, loose, fine grained, poorly graded, orange-brown, moist, trace oxidation - dark brown, trace fine subrounded gravels at 5.0ft BGS	
8	- brown, no gravels at 5.3ft BGS - light brown, trace coarse sands at 7.0ft BGS	
10	- very moist at 9.5ft BGS - saturated, brown at 10.5ft BGS	
12		
14		
16	- gray at 16.5ft BGS	
18		
20	END OF BOREHOLE @ 20.5ft BGS	686.15
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
696.15 to 686.15ft AMSL
10.50 to 20.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
689.65 to 676.65ft AMSL
17.00 to 30.00ft BGS
Material: Bentonite
Sand Pack:
698.15 to 686.15ft AMSL
8.50 to 20.50ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL				0.2
2AL				0.2
3AL				0.1
4AL				0.1
5AL				0.0
6AL				0.0
7AL				0.0
8AL				0.0

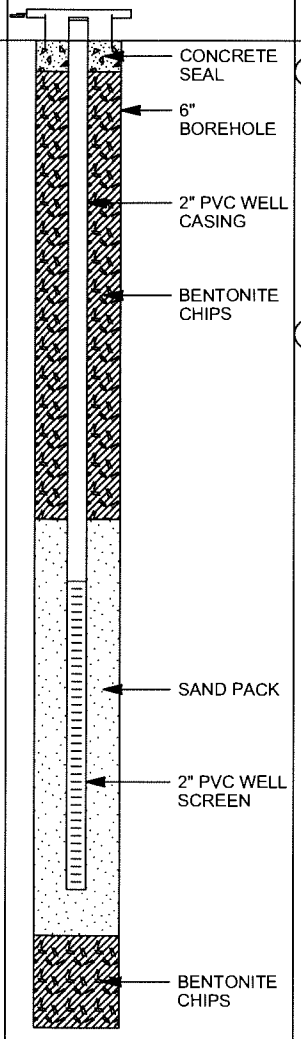
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-11D
DATE COMPLETED: February 26, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.50
	GROUND SURFACE	706.60
0	CONCRETE	705.60
2	SM-SILTY SANDS, trace coarse sands and fine subrounded gravels, loose, fine grained, poorly graded, light brown, moist	
4	- fine to coarse grained, brown at 2.5ft BGS	
6	- fine grained, light brown at 6.5ft BGS	
8		
10	- brown, very moist at 10.5ft BGS	
12	- saturated at 11.5ft BGS	
14	- gray/brown at 13.0ft BGS	
16		
18	- gray at 17.0ft BGS	
20		
22		
24		
26		
28	CL-SILTY CLAYS, trace fine subrounded gravels, firm to stiff, low to medium plasticity, gray, moist	679.60
30		
32	END OF BOREHOLE @ 32.0ft BGS	674.60
34		
36		
38		
40		
42		
44		



WELL DETAILS
Screened interval:
689.10 to 679.10ft AMSL
17.50 to 27.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
691.10 to 677.60ft AMSL
15.50 to 29.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'				0.1
2RS				0.2
3RS 9-11'				0.1
4RS				0.0
5RS				0.0
6RS				0.0
7RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-11S
DATE COMPLETED: February 26, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	709.52 706.55						
0	CONCRETE	705.55	CONCRETE SEAL	1RS				0.1
2	SM-SILTY SANDS, trace coarse sands and fine subrounded gravels, loose, fine grained, poorly graded, light brown, moist - fine to carse grained, brown at 2.5ft BGS		BENTONITE CHIPS					
4			2" PVC WELL CASING	2RS				0.2
6	- fine grained, light brown at 6.5ft BGS							
8			6" BOREHOLE					
10	- brown, very moist at 10.5ft BGS			3RS				0.1
12	- saturated at 11.5ft BGS		SAND PACK					
14			2" PVC WELL SCREEN	4RS				0.0
16	- gray at 17.0ft BGS							
18				5RS				0.0
20	END OF BOREHOLE @ 20.0ft BGS	686.55						
22								
24								
26								
28								
30								
32								
34								
36								
38								

WELL DETAILS
Screened interval:
697.05 to 687.05ft AMSL
9.50 to 19.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
689.55 to 676.55ft AMSL
17.00 to 30.00ft BGS
Material: Bentonite
Sand Pack:
699.05 to 686.55ft AMSL
7.50 to 20.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-12D
DATE COMPLETED: March 10, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	TOP OF RISER GROUND SURFACE	709.90 706.51						
0	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist		CONCRETE					
2								
4				1RS 0-2' 5-7'		100		0.0
6			2" PVC WELL CASING					
8			BENTONITE CHIPS					
10								
12	- wet at 12.0ft BGS			2RS 8-10' 13-15'		100		0.0
14			6" BOREHOLE					
16	- medium to coarse grained at 15.5ft BGS - trace medium grained subrounded gravels at 16.4ft BGS							
18	- gravels not present at 18.5ft BGS							
20								
22			SAND PACK 2" PVC WELL SCREEN	3RS 18-20' 23-25'		100		0.0
24								
26	CL-SILTY CLAYs, stiff, low plasticity, gray, moist	680.01 679.51						
28	END OF BOREHOLE @ 27.0ft BGS							
30	NOTE: TREATABILITY SAMPLES COLLECTED OVER 5-FOOT INTERVALS							
32								
34								

WELL DETAILS
Screened interval:
689.51 to 679.51ft AMSL
17.00 to 27.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.10
Material: PVC
Sand Pack:
691.51 to 679.51ft AMSL
15.00 to 27.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

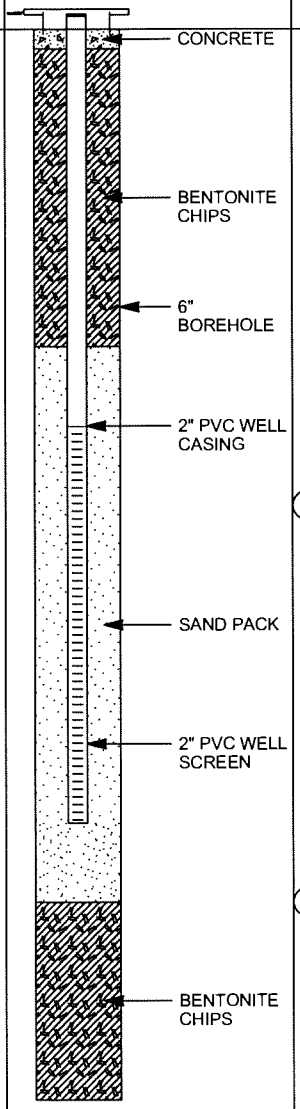
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-13S
DATE COMPLETED: March 11, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.26
	GROUND SURFACE	706.17
	CONCRETE	705.42
2	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, medium brown, moist	
	- trace coarse grained rounded gravels at 1.3ft BGS	
4	- gravel not present at 2.0ft BGS	
6		
8	- trace fine grained rounded gravels at 8.2ft BGS	
	- trace coarse grained rounded gravels at 9.0ft BGS	
10		
12		
14	- fine grained at 14.5ft BGS	
16	- medium to coarse grained at 16.0ft BGS	
	- yellowish green, fine grained at 17.5ft BGS	
18	- fine to medium grained at 18.5ft BGS	
20	- 2" lens sandy clay at 20.2ft BGS	
22	CL-SANDY CLAYS, firm, low plasticity, gray, moist	684.17
		683.17
24	CL-SILTY CLAYS, stiff, low plasticity, gray, moist, homogenous	
26		679.17
28	END OF BOREHOLE @ 27.0ft BGS	
	NOTE: TREATABILITY SAMPLES COLLECTED OVER 5-FOOT INTERVALS	
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
696.17 to 686.17ft AMSL
10.00 to 20.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
698.17 to 684.17ft AMSL
8.00 to 22.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'		100		0.0
2RS 8-10' 13-15'		100		0.0
3RS 18-20' 22-23' 20-23'		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

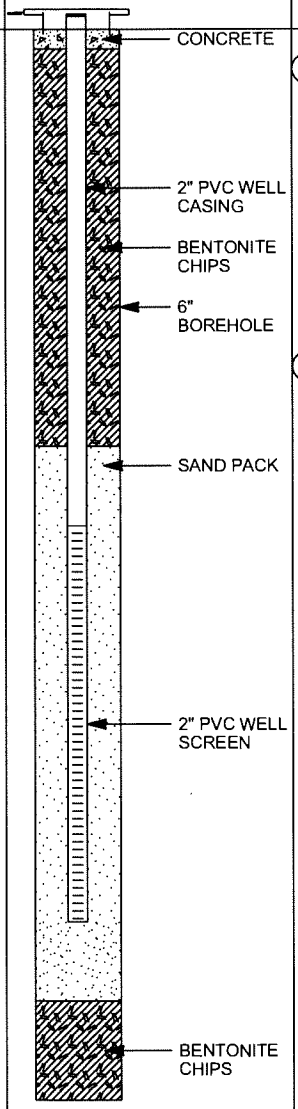
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-14D
DATE COMPLETED: February 27, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.62
	GROUND SURFACE	706.69
	CONCRETE	705.69
2	SM-SILTY SANDS, trace coarse sands and fine subrounded gravels, loose, fine grained, poorly graded, brown, moist	
4		
6	- tan/beige, trace coarse sand at 6.5ft BGS	
	- brown, fine to medium grained at 7.3ft BGS	
8		
	- saturated, gray brown at 9.0ft BGS	
10	- gray at 9.3ft BGS	
12		
14		
16		
18		
20		
22		684.69
	CL-SILTY CLAYS, trace coarse sands and fine gravels, firm to stiff, low to medium plasticity, gray, moist	
24		
26		
		679.69
	END OF BOREHOLE @ 27.0ft BGS	
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
694.19 to 684.19ft AMSL
12.50 to 22.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
696.19 to 684.19ft AMSL
10.50 to 22.50ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'				0.2
2RS				0.3
3RS				0.1
4RS 7-9'				0.2
5RS				0.4
6RS				0.3
7RS				0.2
8RS				0.3
9RS				0.0
10RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-14S
DATE COMPLETED: February 27, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	709.60 706.65						
0	CONCRETE	705.65	CONCRETE	1RS				0.2
2	SM-SILTY SANDS, trace coarse sands and fine subrounded gravels, loose, fine grained, poorly graded, brown, moist		BENTONITE CHIPS	2RS				0.3
4			2" PVC WELL CASING					
6	- tan/beige, trace coarse sands			3RS				0.1
8	- brown, fine to medium grained at 7.25ft BGS at 6.5ft BGS - brown, fine to medium grained at 7.3ft BGS		6" BOREHOLE	4RS				0.2
10	- saturated, gray brown at 9.0ft BGS - gray at 9.3ft BGS			5RS				0.4
12			SAND PACK 2" PVC WELL SCREEN					
14				6RS				0.3
16				7RS				0.2
18	END OF BOREHOLE @ 17.0ft BGS	689.65						
20			WELL DETAILS Screened interval: 699.65 to 689.65ft AMSL 7.00 to 17.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 700.65 to 689.65ft AMSL 6.00 to 17.00ft BGS Material: SAND					
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-15D
DATE COMPLETED: July 25, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	708.11 704.97						
0	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, brown, dry			1SS 0-2' -1282		90		0.0
2	- moist at 2.0ft BGS							
	- black (organics mixed with sands/topsoil) at 2.7ft BGS	701.87		2SS		80		0.0
4	- 2" lens silty clays at 2.8ft BGS	700.77						
	SM-SILTY SANDS (FILL), compact, fine grained, poorly graded, dark gray, moist		BENTONITE CHIPS	3SS		80		0.0
6	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist			4SS 6-8' -1283		80		0.0
8	- wet at 7.8ft BGS			5SS		80		0.0
10	- gray, faint odor at 10.0ft BGS		2" PVC WELL CASING	6SS		75		0.0
12				7SS		50		0.0
14			8-1/4" BOREHOLE	8SS		0		--
16				9SS		75		0.0
18				10SS		75		0.0
20			SAND PACK	11SS		80		0.0
22			2" PVC WELL SCREEN	12SS		95		0.0
24				13SS		50		0.0
26		678.47		14SS		75		0.0
	ML-SILTS, trace sands, trace clays, compact, fine grained, gray, moist, medium	677.97						
28	CL-SILTY CLAYS, stiff, low plasticity, gray, moist, homogeneous			15SS		90		0.0
30	END OF BOREHOLE @ 30.0ft BGS	674.97						
32								
34								
36								
38								
40								
42								

WELL DETAILS
Screened interval:
686.97 to 676.97ft AMSL
18.00 to 28.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Seal:
676.47 to 674.97ft AMSL
28.50 to 30.00ft BGS
Material: BENTONITE CHIPS
Sand Pack:
688.97 to 676.47ft AMSL
16.00 to 28.50ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (15SS)

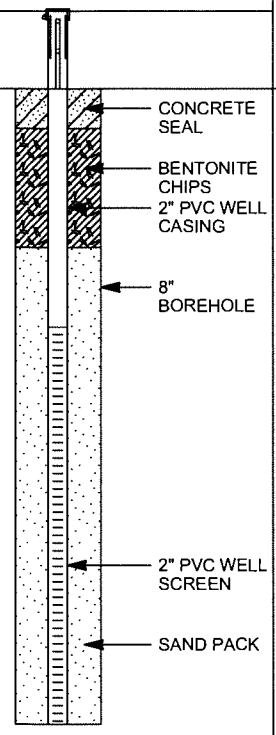
OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-15S
DATE COMPLETED: November 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE



WELL DETAILS
Screened interval:
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
4.00 to 16.00ft BGS
Material: #6 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-16S
DATE COMPLETED: November 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
2	SP-SANDS, trace silts, trace vegetation (grass), loose to compact, poorly graded, fine grained, brown with slight orange tint, moist to very moist - no vegetation, no orange at 1.0ft BGS		CONCRETE SEAL BENTONITE CHIPS	1AL		50		0.4
		3.00						
4	SC-CLAYEY SANDS, trace silts, compact, poorly graded, fine grained, trace medium grained, brown, very moist	4.00	2" PVC WELL CASING			75		0.8
6	SP-SANDS, trace silts, trace fine subrounded gravels, compact, poorly graded, fine grained, with medium grained, trace coarse grained, brown, very moist, slight petroleum-like odor			5-7' -1332		40		2.7
8	- oily sheen, stronger odor, wet at 8.0ft BGS		8" BOREHOLE	2AL		10		6.5
10						75		9.4
12			2" PVC WELL SCREEN			75		6.0
			SAND PACK	3AL				
14	- no sheen, no odor at 14.5ft BGS					100		5.1
	END OF BOREHOLE @ 15.0ft BGS	15.00						
16			WELL DETAILS Screened interval: 5.00 to 15.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 3.00 to 15.00ft BGS Material: #6 SAND					
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

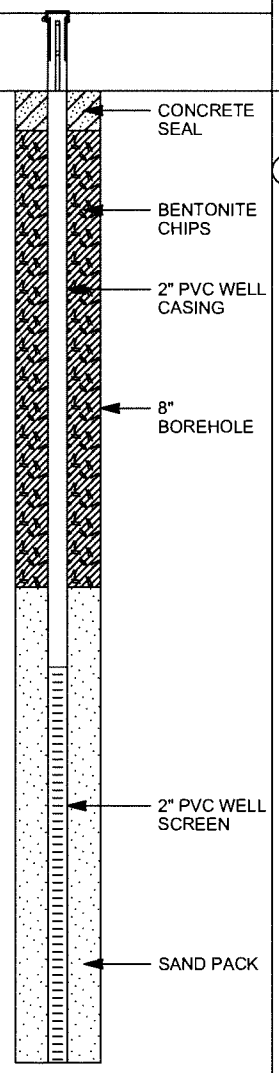
OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-16D
DATE COMPLETED: November 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	SP-SANDS, trace silts, trace vegetation (grass), loose to compact, poorly graded, fine grained, brown with slight orange tint, moist to very moist	
2	- no vegetation, no orange at 1.0ft BGS	
	SC-CLAYEY SANDS, trace silts, compact, poorly graded, fine grained, trace medium grained, brown, very moist	3.00
4	SP-SANDS, trace silts, trace fine subrounded gravels, compact, poorly graded, fine grained, with medium grained, trace coarse grained, brown, very moist, slight petroleum-like odor	4.00
6		
8	- oily sheen, stronger odor, wet at 8.0ft BGS	
10		
12		
14	- no sheen, no odor at 14.5ft BGS - 2" silty sand layer at 15.0ft BGS	
16		
18	- trace medium grained, no coarse grained at 17.5ft BGS	
20		
22		
24	CL-CLAY, firm, medium plasticity, olive gray, moist	23.75
26	END OF BOREHOLE @ 26.0ft BGS	26.00
28		
30		
32		
34		



WELL DETAILS
Screened interval:
14.50 to 24.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
12.50 to 24.50ft BGS
Material: #6 SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
0-2' -1331 1AL		50		0.4
		75		0.8
		40		2.7
2AL		10		6.5
		75		9.4
		75		6.0
3AL				
		100		5.1
		100		2.9
4AL		100		1.9
		100		1.7
		25		1.3
5AL				
		25		1.0
		10		0.7

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1331)

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1-17S
DATE COMPLETED: November 24, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace fine subrounded gravels, compact, poorly graded, fine grained, with medium grained, trace coarse grained, brown, moist		BENTONITE CHIPS	1AL		75		0.2
2	- orange hue at 1.0ft BGS			0-2' -1400				
	- 2" black layer at 3.7ft BGS			2AL		90		0.5
4			2" PVC WELL CASING	4-6' -1401				
				3AL		90		0.6
6	- wet, sheen, petroleum-like odor at 6.0ft BGS		6" BOREHOLE					
				4AL		90		0.8
8	- with medium and coarse grained, grayish at 7.8ft BGS		SAND PACK					
				5AL		90		9.2
10	- trace coarse grained at 10.0ft BGS							
	- no sheen at 11.0ft BGS			6AL		100		7.2
12			2" PVC WELL SCREEN					
				7AL		80		6.9
14	END OF BOREHOLE @ 14.0ft BGS	14.00						
16			WELL DETAILS Screened interval: 4.00 to 14.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 2.00 to 14.00ft BGS Material: Silica Sand					
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (O)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

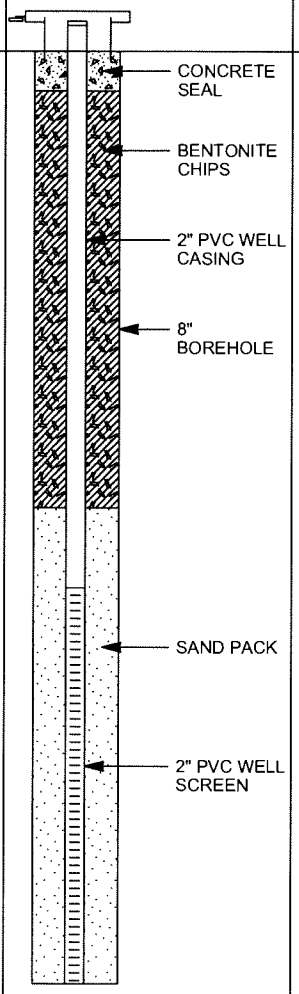
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1/33-1D
DATE COMPLETED: September 30, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	709.22
	GROUND SURFACE	706.44
0	SP-SANDS, trace silts, loose to medium compact, poorly graded, fine grained, brown with orange hue, moist	
2		
4	- concrete fragments at 4.8ft BGS	
6	- compact, brown/beige at 6.0ft BGS	
8		
	SW-SANDS, trace silts, loose, well graded, fine to coarse grained, brown, wet	698.44
		697.44
10	SM-SILTY SANDS, loose, poorly graded, fine grained, brown, wet	
12	- medium grained (1" layer) at 12.8ft BGS	
14		
		691.44
16	ML-SILTS, trace fine grained sands, loose, poorly graded, brown, saturated	
18		
20	- with medium grained at 20.0ft BGS	
22		
		683.94
24	CL-SILTY CLAYS, compact, low plasticity, gray, moist	
		681.44
26	END OF BOREHOLE @ 25.0ft BGS	
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
692.94 to 682.94ft AMSL
13.50 to 23.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
694.94 to 681.44ft AMSL
11.50 to 25.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL		80		0.0
2AL		100		0.0
3AL		80		0.0
4AL		70		0.0
5AL		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1/33-1S
DATE COMPLETED: September 30, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	TOP OF CASING GROUND SURFACE	708.89 706.44					
0	SP-SANDS, trace silts, loose to medium compact, poorly graded, fine grained, brown with orange hue, moist		CONCRETE SEAL				
2			BENTONITE CHIPS	1HA			
4	- concrete fragments at 4.8ft BGS		2" PVC WELL CASING				
6	- compact, brown/beige at 6.0ft BGS		8-1/2" BOREHOLE	2HA			
8	SW-SANDS, trace silts, loose, well graded, fine to coarse grained, brown, wet	698.44 697.44					
10	SM-SILTY SANDS, loose, poorly graded, fine grained, brown, wet		SAND PACK				
12							
14			2" PVC WELL SCREEN	3HA			
16	END OF BOREHOLE @ 16.5ft BGS	689.94					
18							
20							
22							
24							
26							
28							
30							
32							
34							

WELL DETAILS
Screened interval:
699.94 to 689.94ft AMSL
6.50 to 16.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
701.94 to 689.94ft AMSL
4.50 to 16.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

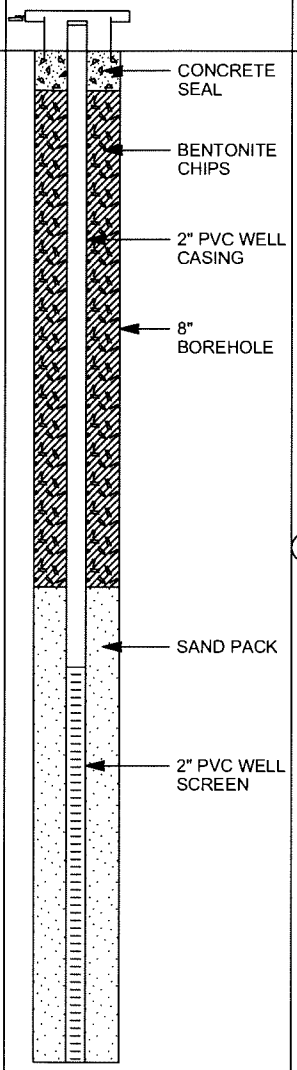
OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1/33-2D
DATE COMPLETED: September 30, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	TOP OF CASING GROUND SURFACE	709.05 706.47					
0	CONCRETE, constructed with subrounded fine gravel up to 2.0 cm, good condition	705.89					
2	SM-SANDS, with silts, trace fine subrounded grains, loose, poorly graded, fine grained, brown with slight orange hue, moist		1AL		90		15.7
4		702.47					
	SC-SANDS, with firm low plasticity clay, trace subangular fine gravel, compact, poorly graded, fine and medium grained, dark brown, moist	701.47					
6	SM-SILTY SANDS, loose, poorly graded, fine grained, brown, moist						
8		698.97	2AL		90		46.0
	- wet at 7.5ft BGS						
10	SP-SANDS, trace silts, loose, well graded, fine to coarse sands, dark brown, wet, slight petroleum-like odor	696.47					
	SM-SILTY SANDS, loose, poorly graded, fine grained, brown, wet, slight petroleum-like odor	694.97					
12	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, brown, moist	694.47	3AL (8-10')		90		112
14	SM-SILTY SANDS, loose, poorly graded, fine grained, brown, wet, slight petroleum-like odor						
	- clay lense (0.5 cm thick) at 12.5ft BGS	692.47					
16	SW-SANDS, trace silts, loose, well graded, fine to coarse sands, dark brown, wet, slight						
18		688.47	4AL		75		0.0
	ML-SILTS, trace fine sands, loose, poorly graded, fine grained, brown, wet						
20							
22			5AL		75		0.0
24							
		681.47					
26	CL-SILTY CLAYS, compact, low plasticity, gray, moist						
28			6AL		75		0.0
30		676.47					
	END OF BOREHOLE @ 30.0ft BGS						
32							
34							



WELL DETAILS
Screened interval:
690.97 to 680.97ft AMSL
15.50 to 25.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
692.97 to 676.47ft AMSL
13.50 to 30.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

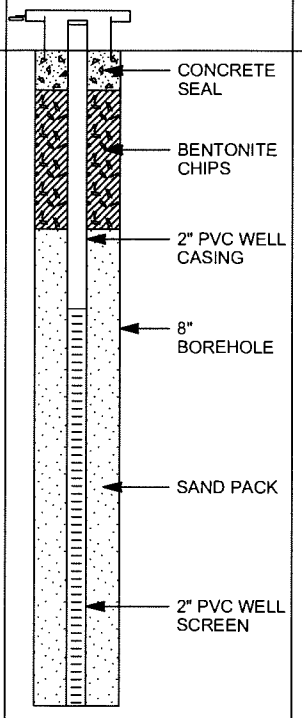
OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1/33-2S
DATE COMPLETED: September 30, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	708.84
	GROUND SURFACE	706.48
0	CONCRETE, constructed with subrounded fine gravel up to 2.0 cm, good condition	705.90
2	SM-SANDS, with silts, trace fine subrounded grains, loose, poorly graded, fine grained, brown with slight orange hue, moist	
4		702.48
	SC-SANDS, with firm low plasticity clay, trace subangular fine gravel, compact, poorly graded, fine and medium grained, dark brown, moist	701.48
6	SM-SILTY SANDS, loose, poorly graded, fine grained, brown, moist	
8	- wet at 7.5ft BGS	698.98
	SP-SANDS, trace silts, loose, well graded, fine to coarse sands, dark brown, wet, slight petroleum-like odor	696.48
10	SM-SILTY SANDS, loose, poorly graded, fine grained, brown, wet, slight petroleum-like odor	694.98
12	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, brown, moist	694.48
	SM-SILTY SANDS, loose, poorly graded, fine grained, brown, wet, slight petroleum-like odor	
14	- clay lense (0.5 cm thick) at 12.5ft BGS	692.48
	SP-SANDS, trace silts, loose, well graded, fine to coarse sands, dark brown, wet, slight	
16	END OF BOREHOLE @ 16.5ft BGS	689.98
18		
20		
22		
24		
26		
28		
30		
32		
34		



WELL DETAILS
Screened interval:
699.98 to 689.98ft AMSL
6.50 to 16.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
701.98 to 689.98ft AMSL
4.50 to 16.50ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE
1HA			
2HA			
3HA			
4HA			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

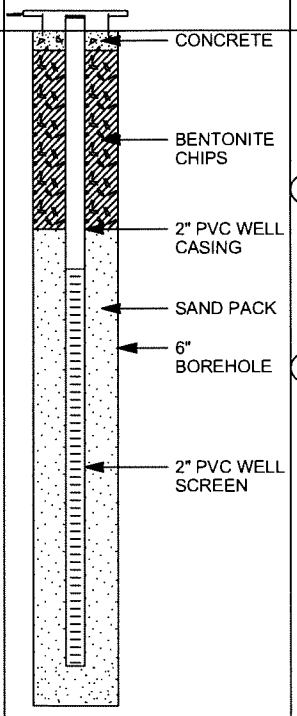
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1/33-3S
DATE COMPLETED: March 6, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.46
	GROUND SURFACE	706.53
0	CONCRETE	
2		
4	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, dark brown and gray, moist	703.53
6	- trace clays, brown and orange mottled, oxidation at 4.0ft BGS	
8	- brown, saturated at 8.0ft BGS	
10	- loose to compact, gray at 9.0ft BGS	
12		
14		
16		
18	END OF BOREHOLE @ 17.0ft BGS	689.53
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
700.53 to 690.53ft AMSL
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
701.53 to 689.53ft AMSL
5.00 to 17.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS				N/A
2RS 3-5'				0.9
3RS				0.4
4RS 6-8'				0.2
5RS				0.0
6RS				0.0
7RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

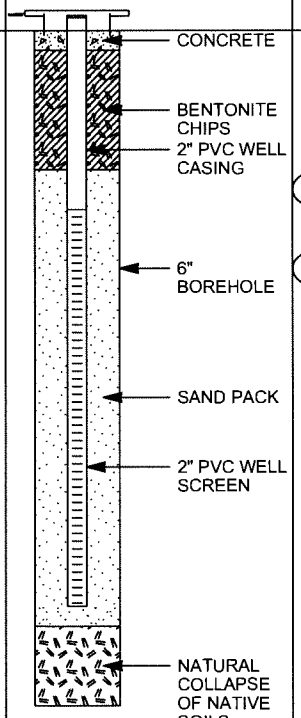
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1/33-4S
DATE COMPLETED: March 6, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.48
	GROUND SURFACE	706.60
0	CONCRETE	
2		
4	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, brown-green, moist, slight diesel-like odor	703.60
6	- brown at 5.5ft BGS	
8	- brown and gray, saturated, slight diesel-like odor at 7.0ft BGS	
10	- gray at 10.5ft BGS	
12	- fine to medium grained at 11.5ft BGS	
14	- compact, fine grained at 13.0ft BGS	
16		689.60
18	END OF BOREHOLE @ 17.0ft BGS	
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
702.10 to 692.10ft AMSL
4.50 to 14.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
703.10 to 691.60ft AMSL
3.50 to 15.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS				N/A
2RS 3-5'				4.8
3RS 6-8'				2.6
4RS				1.0
5RS				0.3
6RS				0.0
7RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1/33-5S
DATE COMPLETED: March 6, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	709.58 706.51						
0	CONCRETE		CONCRETE					
	SM-SILTY SANDS, trace fine subrounded gravel, loose, fine grained, poorly graded, orange brown, moist, oxidation	705.51	BENTONITE CHIPS	1RS (1-3')				0.8
4	- trace clays, black, no odor at 4.5ft BGS - green-gray, black and brown mottled at 5.0ft BGS		2" PVC WELL CASING	2RS				2.4
6	- green-gray and brown mottled, slight petroleum-like odor at 6.0ft BGS			3RS (5.5-7.5')				8.6
8	- gray and black stained, saturated, moderate petroleum odor, fine to medium grained at 7.5ft BGS		6" BOREHOLE	4RS				10.2
10	- loose to compact, fine grained, gray, no odor at 10.0ft BGS		SAND PACK 2" PVC WELL SCREEN	5RS				0.9
12				6RS				0.2
14								
16			NATIVE SOILS	7RS				0.0
	END OF BOREHOLE @ 17.0ft BGS	689.51						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
701.01 to 691.01ft AMSL
5.50 to 15.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
702.01 to 691.01ft AMSL
4.50 to 15.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

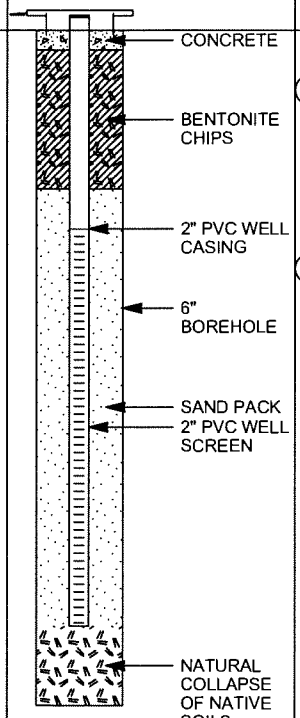
OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1/33-6S
DATE COMPLETED: March 7, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.50
	GROUND SURFACE	706.56
	CONCRETE	705.56
2	SM-SILTY SANDS, trace fine subrounded gravels, loose to compact, fine to medium grained, poorly graded, orange-brown, moist, oxidation	
4		702.56
	CL-SILTY CLAYS, trace fine to medium sands and fine subrounded gravels, soft to firm, low plasticity, dark brown, moist	
6	- gray and rust brown mottled at 4.8ft BGS	701.06
	SM-SILTY SANDS, trace fine subrounded gravel, loose, fine grained, poorly graded, brown, moist, trace oxidation	
8	- very moist at 6.5ft BGS	
	- saturated at 7.0ft BGS	
10	- gray, slight diesel-like odor at 10.0ft BGS	
12	- compact at 13.0ft BGS	
14		
16		
	END OF BOREHOLE @ 17.0ft BGS	689.56
18		
20		
22		
24		
26		
28		
30		
32		
34		



WELL DETAILS
Screened interval:
701.56 to 691.56ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
702.56 to 691.56ft AMSL
4.00 to 15.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 1-3'				0.9
2RS				1.2
3RS 4.5-6.5'				0.7
4RS				4.9
5RS				2.9
6RS				0.1
7RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1RS)

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1/33-7S
DATE COMPLETED: March 7, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	709.56 706.63						
0	CONCRETE	705.63	CONCRETE					
2	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, orange-brown, moist, oxidation		BENTONITE CHIPS	1RS (1-3')				0.3
4				2RS				0.2
6			2" PVC WELL CASING	3RS (6-8')				0.8
8	CL-SILTY CLAYS, with sands and concrete debris, soft, low plasticity, gray, saturated, concrete debris to 3"	698.63	6" BOREHOLE	4RS				3.2
10			SAND PACK					
12	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, gray, saturated	695.38	2" PVC WELL SCREEN	5RS				20.6
14				6RS				0.9
16	- compact at 15.5ft BGS			7RS				0.3
18	END OF BOREHOLE @ 17.0ft BGS	689.63	NATURAL COLLAPSE OF NATIVE SOILS					
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
700.63 to 690.63ft AMSL
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
701.63 to 690.63ft AMSL
5.00 to 16.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

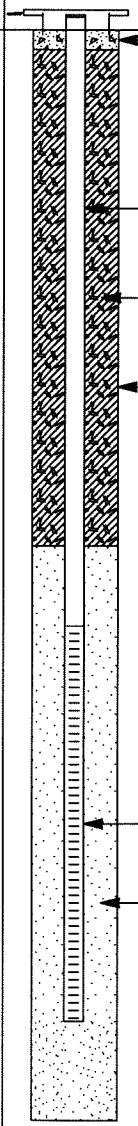
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1/33-8D
DATE COMPLETED: February 27, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.56
	GROUND SURFACE	706.60
	CONCRETE	
		705.60
2	SM-SILTY SANDS, trace coarse sands, fine subrounded gravels, loose, fine grained, poorly graded, light brown, moist	
4	- brown, red brick debris at 3.5ft BGS	
6		
8	- very moist, orange brown, oxidation, slight diesel-like odor at 8.0ft BGS	
	- saturated, brown at 9.0ft BGS	
10		
12	- dark brown, moderate diesel-like odor at 12.8ft BGS	
14	- brown, slight diesel-like odor at 14.0ft BGS	
	- gray	
16	- no odor at 16.25ft BGS at 15.0ft BGS	
18		
20		
22		
		683.10
24	SM/ML-SILTS and SANDS, compact, fine grained, poorly graded, non-plastic, gray, saturated	682.10
26	CL-SILTY CLAYS, trace coarse sand, firm, low to medium plasticity, gray, moist	
		679.10
28	END OF BOREHOLE @ 27.5ft BGS	
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
691.60 to 681.60ft AMSL
15.00 to 25.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
693.60 to 679.10ft AMSL
13.00 to 27.50ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS				1.5
2RS				3.6
3RS				3.5
4RS 7-9				4.3
5RS				3.8
6RS				5.6
7RS				1.8
8RS				1.2
9RS				0.3
10RS				0.0
11RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A1/33-8S
DATE COMPLETED: February 27, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	709.54 706.65						
0	CONCRETE	705.65	CONCRETE	1RS 0-2'				1.5
2	SM-SILTY SANDS, trace coarse sands and fine subrounded gravels, loose, fine grained, poorly graded, light brown, moist							
	- brown, red brick debris at 3.5ft BGS		BENTONITE CHIPS	2RS				3.6
4								
6			1" PVC WELL CASING	3RS				3.5
8	- very moist, orange brown, oxidation, slight diesel-like odor at 8.0ft BGS		6" BOREHOLE	4RS				4.3
	- saturated, brown at 9.0ft BGS							
10								
12			SAND PACK 1" PVC WELL SCREEN	5RS				3.8
	- dark brown, moderate diesel-like odor at 12.8ft BGS							
14	- brown, slight diesel-like odor at 14.0ft BGS			6RS				5.6
	- gray at 15.0ft BGS							
16	- no odor at 16.3ft BGS			7RS				1.8
	END OF BOREHOLE @ 17.0ft BGS	689.65						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
699.65 to 689.65ft AMSL
7.00 to 17.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
700.65 to 689.65ft AMSL
6.00 to 17.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1RS 0-2')

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A2-1S
DATE COMPLETED: September 26, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	703.84						
2	SP-SANDS, with silts, trace fine gravel, loose, poorly graded, fine grained, brown with orange, hue, moist (top 2" very moist from drilling)		CONCRETE SEAL	1AL 0-2'		90		0.0
	- beige at 2.0ft BGS		BENTONITE CHIPS					
4			8" BOREHOLE					
6			2" PVC WELL CASING	2AL		80		0.0
8			SAND PACK					
10	- wet at 10.0ft BGS		2" PVC WELL SCREEN	3AL 8-10'		80		0.0
12								
14								
16								
18	END OF BOREHOLE @ 18.0ft BGS	685.84						
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
695.84 to 685.84ft AMSL
8.00 to 18.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
697.84 to 685.84ft AMSL
6.00 to 18.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MI

HOLE DESIGNATION: MW-A2-2S
DATE COMPLETED: March 4, 2003
DRILLING METHOD: 4.25" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DIETNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	709.44 706.52						
0	CONCRETE		CONCRETE SEAL					
2	GP-SILTY GRAVELS (FILL), trace sands, compact, fine grained rounded gravels, poorly graded, light gray, dry	705.02 704.52	BENTONITE CHIPS	1AL 0-2'		100		0.0
4	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, medium brown, moist		2" PVC WELL CASING					
6	- 3/4" lens trace black staining at 6.3 ft BGS - trace fine grained rounded gravels at 7.0 ft BGS							
8	- medium to coarse grained, light brown at 7.5 ft BGS			2AL 7.5-9.5'		100		0.0
10	- fine to medium grained, medium brown at 9.0 ft BGS - wet at 9.5 ft BGS							
12	- yellowish brown at 12.2 ft BGS - grayish brown at 12.4 ft BGS		SAND PACK 2" PVC WELL SCREEN	3AL		100		0.0
14	- gray at 12.8 ft BGS - trace coarse grained sand lenses at 13.0 ft BGS							
16	- medium to coarse grained at 16.6 ft BGS			4AL		100		0.0
18	- fine to medium grained at 19.0 ft BGS							
20	END OF BOREHOLE @ 20.0ft BGS	686.52						
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
699.02 to 689.02ft AMSL
7.50 to 17.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
701.02 to 689.02ft AMSL
5.50 to 17.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-FRANS.GPJ CRA_CORP.GDT 12/16/03

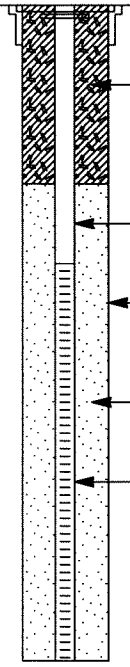
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A2-3S
DATE COMPLETED: July 25, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.61
	GROUND SURFACE	706.62
	CONCRETE	
2	SP-SANDS, trace silts (FILL), compact, medium grained, poorly graded, light brown, moist	704.82
		704.32
4	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist	
6	- with silts, dark brown at 5.8ft BGS	
		699.12
8	SM-SILTY SANDS, compact, fine grained, poorly graded, brown, moist	698.62
	SP-SANDS, trace silts, compact, fine grained, poorly graded, brown, moist	
10	- wet at 8.5ft BGS	
12	- gray at 11.2ft BGS	
14		
16		
	END OF BOREHOLE @ 16.5ft BGS	690.12
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
700.12 to 690.12ft AMSL
6.50 to 16.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
702.12 to 690.12ft AMSL
4.50 to 16.50ft BGS
Material: #5 SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
0-2' -1279 1SS 0-2' -1280				0.0
2SS		80		0.0
3SS		80		0.0
4SS 6.5-8.5' -1281		50		0.0
5SS		75		0.0
6SS		75		0.0
7SS		75		0.0
8SS		75		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-A2-4S
DATE COMPLETED: November 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace fine subangular gravels, trace silts, trace clay nodules, loose to compact, poorly graded, fine grained, trace medium grained, brown, slight orange hue, moist		CONCRETE SEAL; BENTONITE CHIPS	1SS		75		1.0
2			2" PVC WELL CASING	0-2' -1333 -1334		80		0.8
4	- with medium grained at 5.0ft BGS		8" BOREHOLE	4-6' -1335		60		1.2
6	- trace medium grained, wet at 6.0ft BGS			2SS		100		1.7
8	- gray/brown at 8.0ft BGS					100		0.6
10			2" PVC WELL SCREEN			100		0.4
12			SAND PACK	3SS		80		0.3
14	END OF BOREHOLE @ 14.0ft BGS	14.00						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
4.00 to 14.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
2.00 to 14.00ft BGS
Material: #6 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

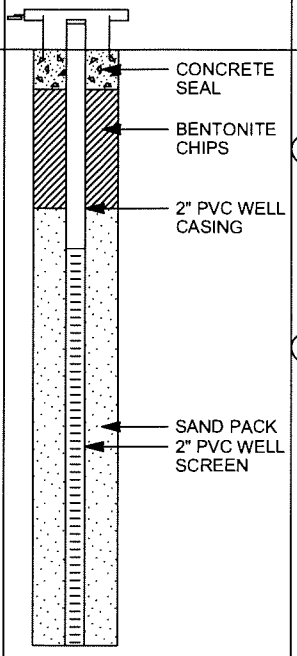
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MI

HOLE DESIGNATION: MW-19-1S
DATE COMPLETED: March 5, 2003
DRILLING METHOD: 4.25" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DIETNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.51
	GROUND SURFACE	706.48
0	CONCRETE	705.73
2	SW-SANDS (FILL), trace silts, trace fine grained rounded gravels, compact, fine to medium grained, well graded, medium brown, moist	
4	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist	702.58
6	SM-SILTY SANDS, compact, fine grained, poorly graded, medium brown, moist - very moist at 6.5 ft BGS	700.98
8	- wet at 7.0 ft BGS	698.48
10	SW-SANDS, trace silts, compact, fine to medium grained, poorly graded, medium brown, wet	
12		
14		
16	END OF BOREHOLE @ 15.0ft BGS	691.48
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
701.48 to 691.48ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
702.48 to 691.48ft AMSL
4.00 to 15.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL 0-2'		100		0.0
2AL 5-7'		100		0.0
3AL		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-FRANS.GPJ CRA_CORP.GDT 12/16/03

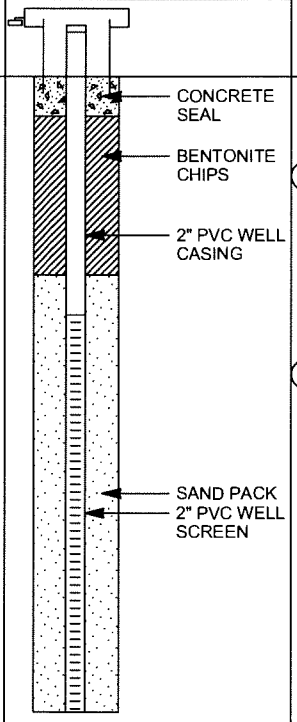
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MI

HOLE DESIGNATION: MW-19-2S
DATE COMPLETED: March 6, 2003
DRILLING METHOD: 4.25" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DIETNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.46
	GROUND SURFACE	706.65
	CONCRETE	705.98
2	ML-SANDY SILTS (FILL), compact, fine grained, poorly graded, medium brown, moist - trace fine grained, rounded gravels at 1.3 ft BGS	
4	- trace coarse grained, rounded gravels at 2.9 ft BGS - 2" lense silty sands at 3.8 ft BGS	
6	- stained green, yellow, and black; odor present at 4.8 ft BGS	700.95
8	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, gray, moist, odor - wet, stronger odor at 8.0 ft BGS - slight sheen at 8.5 ft BGS	
10	- 1/2" lense with green staining at 10.4 ft BGS	
12	- medium to coarse grained at 12.8 ft BGS - fine grained at 13.4 ft BGS	
14		
16	END OF BOREHOLE @ 16.0ft BGS	690.65
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
700.65 to 690.65ft AMSL
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
701.65 to 690.65ft AMSL
5.00 to 16.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL 0-2'		100		0.0
2AL 6-8'		100		0.0
3AL		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607-FRANS.GPJ CRA_CORP.GDT 12/16/03

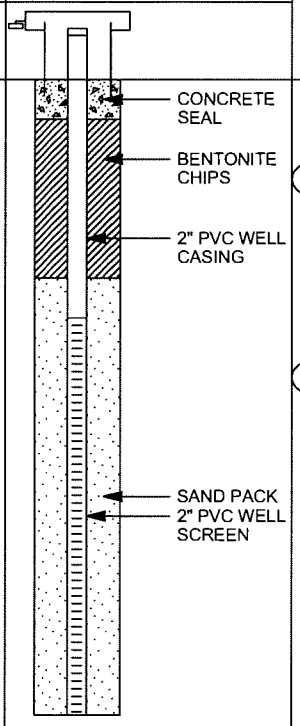
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MI

HOLE DESIGNATION: MW-19-3S
DATE COMPLETED: March 6, 2003
DRILLING METHOD: 4.25" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DIETNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER GROUND SURFACE	709.61 706.45
0	ML-SANDY SILTS (FILL), trace coarse grained gravels, rounded gravels, compact, fine grained, poorly graded, dark gray, moist	
2	CONCRETE	704.45
		703.45
4	ML-SANDY SILTS (FILL), compact, fine grained, poorly graded, dark brown, moist - green and black staining, odor at 3.5 ft BGS	
6		700.15
8	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, gray, moist, faint odor - wet at 8.0 ft BGS	
10		
12		
14		
16	END OF BOREHOLE @ 16.0ft BGS	690.45
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
700.45 to 690.45ft AMSL
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
701.45 to 690.45ft AMSL
5.00 to 16.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL 0-2'		100		0.0
2AL 6-8'		100		0.0
3AL		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607-FRANS.GPJ CRA_CORP.GDT 12/16/03

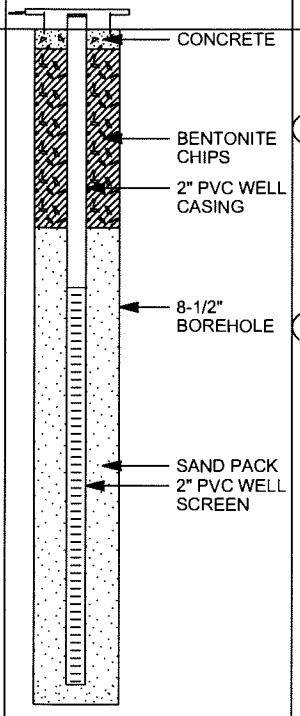
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-19-4S
DATE COMPLETED: March 7, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.36
	GROUND SURFACE	706.48
0	CONCRETE	705.38
2	SW-SANDS (FILL), trace silts, trace fine grained rounded gravels, compact, fine to medium grained, well graded, medium brown, moist	
6		699.98
8	SM-SILTY SANDS, compact, fine grained, poorly graded, yellowish brown, moist - trace fine grained rounded gravel at 7.1ft BGS	698.48
10	SW-SAND, trace silts, compact, fine to medium grained, well graded, yellowish brown, moist to very moist	
12	- gray at 8.3ft BGS - wet at 8.5ft BGS	
14	- finer grain size at 13.8ft BGS	
16		689.98
	END OF BOREHOLE @ 16.5ft BGS	

MONITORING WELL



WELL DETAILS
Screened interval:
699.98 to 689.98ft AMSL
6.50 to 16.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
701.48 to 689.48ft AMSL
5.00 to 17.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL 0-2'		100		0.0
2AL 6.5-8.5'		100		0.0
3AL		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

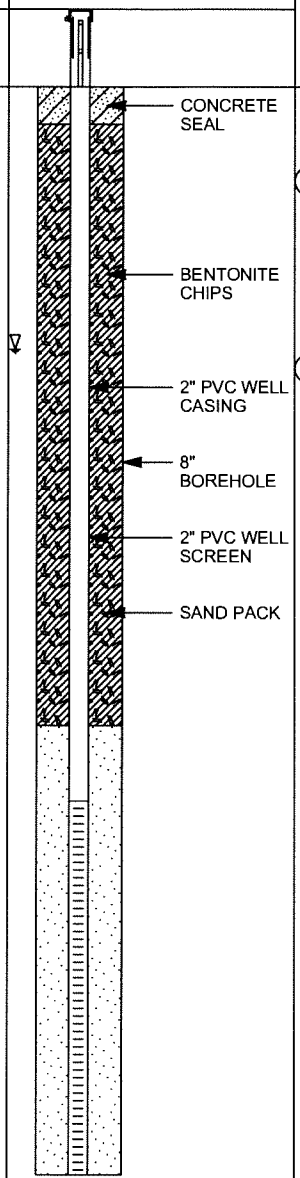
OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-19-4D
DATE COMPLETED: November 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	CONCRETE	
	SW-SANDS (FILL), trace silts, trace fine grained rounded gravels, compact, fine to medium grained, well graded, medium brown, moist	1.10
6	SM-SILTY SANDS, compact, fine grained, poorly graded, yellowish brown, moist	6.50
8	- trace fine grained rounded gravel at 7.1ft BGS	8.00
10	SW-SAND, trace silts, compact, fine to medium grained, well graded, yellowish brown, moist to very moist	
12	- gray at 8.3ft BGS - wet at 8.5ft BGS	
14	- finer grain size at 13.8ft BGS	
18	SP-SANDS, trace silts, compact, poorly graded, fine grained, trace medium grained, gray/brown, wet	18.50
28	CL-CLAY, trace silts, firm, medium plasticity, olive gray, moist	28.50
30	END OF BOREHOLE @ 29.0ft BGS	29.00
	NOTE: 6-8' INTERVAL CAUSING SOME PROBLEMS SANDS HEAVING IN HSA AT 17'	



WELL DETAILS
Screened interval:
19.00 to 29.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
17.00 to 29.00ft BGS
Material: #6 SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
0-2' 1AL		100		0.0
6.5-8.5'				
2AL		100		0.0
3AL		100		0.0
4SS		75		0.6
5SS		50		0.2
6SS		50		2.0
7SS		75		0.1
8SS		100		0.1
9SS		75		0.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-19-5S
DATE COMPLETED: July 25, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	710.05 706.62						
0	CONCRETE	705.82	BENTONITE CHIPS	1SS 0-2' -1275		90		0.0
2	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist		2" PVC WELL CASING	2SS		90		0.0
4			8-1/4" BOREHOLE	3SS 4-6' -1276		80		0.0
6	- wet at 6.0ft BGS		SAND PACK	4SS		95		0.0
8	- 1" orange oxidation at 7.2ft BGS - gray at 7.4ft BGS			5SS		50		1.8
10				6SS		50		2.9
12	- medium grained, trace fine grained rounded gravels at 12.0ft BGS			7SS		80		2.0
14	END OF BOREHOLE @ 14.0ft BGS	692.62						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
702.62 to 692.62ft AMSL
4.00 to 14.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
704.62 to 692.62ft AMSL
2.00 to 14.00ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-19-6S
DATE COMPLETED: July 25, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	709.83 706.65						
	CONCRETE	706.05	BENTONITE CHIPS	1SS 0-2' -1277		80		0.0
2	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, brown, moist, strong odor			2SS		90		0.0
4			2" PVC WELL CASING	3SS 3.5-5.5' -1278		90		0.0
6	- wet at 5.5ft BGS							
8	- gray at 7.2ft BGS		8-1/4" BOREHOLE	4SS		90		0.0
10			SAND PACK	5SS		60		0.0
12			2" PVC WELL SCREEN	6SS		80		0.0
14	- very fine grained at 13.5ft BGS			7SS		80		0.0
	END OF BOREHOLE @ 14.0ft BGS	692.65						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
703.15 to 693.15ft AMSL
3.50 to 13.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
704.65 to 692.65ft AMSL
2.00 to 14.00ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-19-7S
DATE COMPLETED: July 22, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	708.22 704.94						
0	GP-GRAVELS, with sands (FILL), loose, medium grained, rounded, poorly graded, light gray, dry	704.64	BENTONITE CHIPS	1SS 0-2' -1217		80		0.0
2	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, brown, moist - trace fine grained subrounded gravels, dark brown at 0.9ft BGS	702.84		2SS 2.5-4.5' -1218		90		0.0
4	SM-SILTY SANDS, trace fine grained rounded gravels (FILL), compact, fine grained, poorly graded, brown and gray, moist	701.84	2" PVC WELL CASING	3SS		80		0.0
6	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist - wet at 4.5ft BGS		8-1/4" BOREHOLE	4SS		80		0.0
8	- gray at 6.3ft BGS - medium grained, trace fine grained rounded gravels at 7.9ft BGS			5SS		80		0.0
10	- fine grained at 9.6ft BGS			6SS		80		0.0
12	END OF BOREHOLE @ 12.0ft BGS	692.94		7SS		80		0.0
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
702.44 to 692.44ft AMSL
2.50 to 12.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
703.44 to 692.44ft AMSL
1.50 to 12.50ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-19-8D
DATE COMPLETED: November 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	SP-SANDS, trace silts, trace vegetation (rootlets), loose, poorly graded, fine grained, with medium grained, brown, wet	0.50
2	CL-CLAY, with silts, trace vegetation (rootlets), soft, low plasticity, dark brown, moist	1.50
4	SP-SANDS, trace silts, loose, poorly graded, fine grained, with medium grained, brown, wet	
8	- fine and medium grained, trace coarse grained at 8.5ft BGS	
10	- fine grained with medium grained at 9.5ft BGS	
12	- fine grained, trace medium grained at 11.0ft BGS	
24	CL-CLAYS, with silts, medium plasticity, olive/gray, moist	23.50
	END OF BOREHOLE @ 24.0ft BGS	24.00

MONITORING WELL: CONCRETE SEAL; BENTONITE CHIPS; 2" PVC WELL CASING; 8" BOREHOLE; 2" PVC WELL SCREEN; SAND PACK

WELL DETAILS
Screened interval:
14.00 to 24.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
12.00 to 24.00ft BGS
Material: #6 SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1SS (0-2' -1345)		60		1.6
		80		2.0
2SS		50		10.7
		100		12.6
3SS		100		6.2
		75		15.6
		50		3.9
4SS		50		6.5
		50		2.4
		30		1.1
5SS		30		1.8
		50		0.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-19-8S
DATE COMPLETED: November 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace vegetation (rootlets), loose, poorly graded, fine grained, with medium grained, brown	0.50	CONCRETE SEAL					
2	CL-CLAY, with silts, trace vegetation (rootlets), soft, low plasticity, dark brown, moist	1.50	BENTONITE CHIPS	0-2' -1345 1AL		60		1.6
4	SP-SANDS, trace silts, loose, poorly graded, fine grained, with medium grained, brown, wet		2" PVC WELL CASING			80		2.0
6			8" BOREHOLE			50		10.7
8	- fine and medium grained, trace coarse grained at 8.5ft BGS		2" PVC WELL SCREEN	2AL		100		12.6
10			SAND PACK			100		6.2
12	END OF BOREHOLE @ 12.5ft BGS	12.50		3AL		75		15.6
14						50		3.9
16						50		6.5
18				4AL		50		2.4
20						30		1.1
22				5AL		30		1.8
24						50		0.8
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
2.50 to 12.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
2.00 to 12.50ft BGS
Material: #6 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW21-2S
DATE COMPLETED: January 20, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace gravels (FILL), compact, fine grained, poorly graded, light brown, moist		CONCRETE SEAL					
2	- 2" lens organic sands (topsoil) at 2.3ft BGS		BENTONITE CHIPS	1MC 0-2' -1411		100		0.0
4	- light gray at 4.5ft BGS		2" PVC WELL CASING					
6								
8	- wet, odor present at 7.5ft BGS - 3" lens, medium grained sands and gravels, odor at 8.0ft BGS		8-1/2" BOREHOLE	2MC 5.5-7.5' -1412		100		0.0
10	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light grayish-brown, wet	9.00	SAND PACK					
12			2" PVC WELL SCREEN					
14				3MC		15		0.0
16	END OF BOREHOLE @ 15.0ft BGS	15.00						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
3.00 to 15.00ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW21-3S
DATE COMPLETED: January 20, 2004
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace fine grained subrounded gravels (FILL), compact, fine grained, poorly graded, brown, moist		CONCRETE SEAL					
2	- 2" lens wood at 2.3ft BGS		BENTONITE CHIPS	1MC 0-2' -1409		100		0.0
4			2" PVC WELL CASING					
6	- light grayish-brown at 6.5ft BGS							
8	- wet, odor present at 7.5ft BGS - gravels not present at 7.7ft BGS	8.00	8-1/2" BOREHOLE	2MC 5.5-7.5' -1410		100		2.3
10	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, wet		SAND PACK					
12			2" PVC WELL SCREEN					
14				3MC		15		
16	END OF BOREHOLE @ 15.0ft BGS	15.00						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
3.00 to 15.00ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 2/20/04

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-22-1S
DATE COMPLETED: October 11, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	709.36 706.61						
0	CONCRETE, constructed with medium to fine gravels, good condition	705.95	CONCRETE SEAL					
2	SP-SILTY SANDS, trace fine subangular gravel, poorly graded, fine grained with medium grained, light brown, moist		BENTONITE CHIPS	1AL				0.0
4			8" BOREHOLE					
6			2" PVC WELL CASING					
8	- wet at 7.5ft BGS		SAND PACK	2AL				0.0
10			2" PVC WELL SCREEN					
12								
14								
16	END OF BOREHOLE @ 15.5ft BGS	691.11						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
701.11 to 691.11ft AMSL
5.50 to 15.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
703.11 to 691.11ft AMSL
3.50 to 15.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

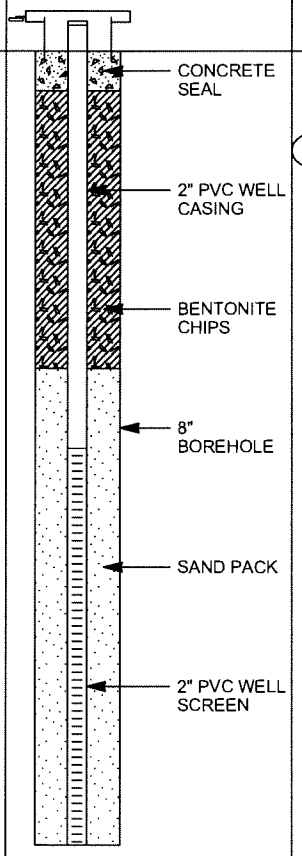
OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-24-1
DATE COMPLETED: January 10, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	CONCRETE	0.83
2	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine grained, trace medium grained, brown with orange hue, moist	
4	- beige at 1.0ft BGS	
	- orange hue at 3.0ft BGS	4.50
	SM-SILTY SANDS (FILL), loose, poorly graded, fine grained, brown, moist	5.00
6	SP-SANDS, trace silts, trace fine subrounded gravels, trace vegetation (rootlets), poorly graded, fine grained, trace medium grained, dark brown, moist	
8	- clayey, brown with orange hue at 6.0ft BGS	8.50
	SM-SILTY SANDS, loose, poorly graded, fine grained, brown/beige, moist	
10	- orange hue at 10.0ft BGS	
12	SP-SANDS, trace silts, trace fine subrounded gravels, poorly graded, fine grained, trace medium grained, brown/beige, wet, petroleum-like odor	12.00
14	- 0.33" black band at 12.1ft BGS	
	- 1" black band at 13.0ft BGS	15.00
16	END OF BOREHOLE @ 15.0ft BGS	
18		
20		
22		
24		
26		
28		
30		
32		
34		



WELL DETAILS
Screened interval:
10.00 to 20.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
8.00 to 20.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL (2-4')		60		9.7
2AL		75		14.9
3AL				15.7

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-24-2
DATE COMPLETED: January 10, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	FILL-GRAVEL AND GRASS	0.16	CONCRETE SEAL					
2	SP-SANDS (FILL), trace silts, trace fine subangular to subrounded gravels, very loose, poorly graded, fine with medium grained, brown, moist			1AL		40		1.6
4			2" PVC WELL CASING					
6	- wet at 5.0ft BGS		BENTONITE CHIPS					
8				2AL		30		2.7
10	- petroleum-like odor, saturated at 10.0ft BGS		8" BOREHOLE					
12				3AL		25		7
14			SAND PACK					
16			2" PVC WELL SCREEN	4AL		25		14.7
18	- REFUSAL, metal disk in liner with nail debris at 18.5ft BGS	18.50						
20	END OF BOREHOLE @ 18.5ft BGS							
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
8.50 to 18.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
6.50 to 18.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-1S
DATE COMPLETED: October 1, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	708.20 705.61						
0	CONCRETE (FILL), asphalt rubble	704.61	CONCRETE SEAL BENTONITE CHIPS 2" PVC WELL CASING					
2	SC-CLAYEY SANDS, compact, poorly graded, fine grained and coarse grained, black, moist, organic-like (earthy) odor, trace rootlets	704.11		1AL		75		0.0
4	SP-SANDS, trace silts, loose, poorly graded, fine grained, brown with orange hue, moist to wet							
6	- wet at 5.0ft BGS SP-SANDS, trace silts, loose, poorly graded, fine grained with medium grains, brown, wet	700.61	8-1/2" BOREHOLE	2AL		100		0.0
8								
10	ML-SILTS, trace fine grained sand, loose, poorly graded, brown, wet	696.61	SAND PACK 2" PVC WELL SCREEN					
12								
14	END OF BOREHOLE @ 13.0ft BGS NOTE: NOT SAMPLED FROM 10-13ft BGS	692.61						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
702.61 to 692.61ft AMSL
3.00 to 13.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
703.61 to 692.61ft AMSL
2.00 to 13.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-2S
DATE COMPLETED: October 1, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	708.76 705.77						
0	SP-SANDS, trace silts, trace fine gravel and glass shards, compact, poorly graded, fine grained, dark brown, moist to dry	705.52	CONCRETE SEAL					
2	SP-SANDS, with silts, loose, poorly graded, fine grained, dark brown, moist to dry - 2" orange-beige sand at 2.0ft BGS		BENTONITE CHIPS	1AL		75		0.0
4	- beige at 2.2ft BGS - 2" clayey, black, moist at 3.0ft BGS - orange hue, moist at 3.2ft BGS		2" PVC WELL CASING					
6	- moist to wet at 7.0ft BGS		8-1/2" BOREHOLE	2AL		100		0.0
8	- wet at 7.5ft BGS SP-SANDS, loose, well graded, medium grained with coarse grained, brown, wet	697.77	SAND PACK					
10	SM-SILTY SANDS, loose, poorly graded, fine grained, brown/beige, wet	696.02	2" PVC WELL SCREEN					
12								
14								
16	END OF BOREHOLE @ 15.5ft BGS	690.27						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
700.27 to 690.27ft AMSL
5.50 to 15.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
702.27 to 690.27ft AMSL
3.50 to 15.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-3S
DATE COMPLETED: October 1, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	708.47 705.77						
0	SP-SANDS, with fine gravels, subrounded to subangular, loose, poorly graded, fine grained, gray/brown, dry - wood cuttings from 0.8 to 1.3ft BGS	704.52	CONCRETE SEAL BENTONITE CHIPS	1AL		60		99
2	SP-SANDS, with silts, loose, poorly graded, fine grained, brown, moist							
4	- concrete at 1.25ft BGS - orange hue at 4.0ft BGS		2" PVC WELL CASING					
6	- wet at 7.0ft BGS							
8	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, brown, wet	698.27	8-1/2" BOREHOLE	2AL		100		0.0
10	- 1" clay layer at 9.8ft BGS		SAND PACK					
12			2" PVC WELL SCREEN					
14								
16	END OF BOREHOLE @ 15.0ft BGS	690.77						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
700.77 to 690.77ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
702.77 to 690.77ft AMSL
3.00 to 15.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-4S
DATE COMPLETED: October 2, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	707.67 705.35						
0	SM-SANDS, with silts, trace vegetation (rootlets), trace fine subrounded gravel, loose, poorly graded, fine grained, very dark brown, moist		CONCRETE SEAL BENTONITE CHIPS	1AL 0-2'		75		0.0
2	- no vegetation, brown with orange hue at 3.0ft BGS		2" PVC WELL CASING					
4								
6	- wet at 6.0ft BGS							
8	- beige/brown, trace medium grains at 7.5ft BGS - with medium grains at 8.0ft BGS		8-1/2" BOREHOLE SAND PACK	2AL 4-6'		100		0.0
10	- silts, compact at 9.8ft BGS							
12			2" PVC WELL SCREEN					
14	END OF BOREHOLE @ 14.0ft BGS	691.35						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
701.35 to 691.35ft AMSL
4.00 to 14.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
703.35 to 691.35ft AMSL
2.00 to 14.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

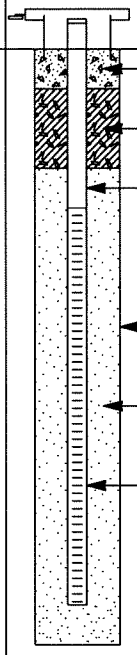
OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-5S
DATE COMPLETED: February 24, 2003
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	TOPSOIL	0.08
2	SW-SANDS, trace silts, compact, fine to medium grained, well graded, brown, moist, odor	1.50
4	- wet at 5.0ft BGS	
6	- gray at 6.5ft BGS	
8	- 1/2" lens coarse sand at 8.5ft BGS	
10	- 2" lens coarse sand at 9.5ft BGS	
12	SP-SANDS, trace silts, compact, medium grained, poorly graded, gray, wet - fine grained at 11.5ft BGS - medium grained at 13.0ft BGS	11.00
14		
16	END OF BOREHOLE @ 15.0ft BGS	15.00
18		
20		
22		
24		
26		
28		
30		
32		
34		



WELL DETAILS
Screened interval:
4.00 to 14.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
3.00 to 15.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1DP		100	0-2	0.0
2DP		100	3-5	0.0
3DP		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1DP)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-6S
DATE COMPLETED: February 24, 2003
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	CL-SILTY CLAYS (FILL), trace topsoil, firm, low plasticity, dark brown, moist	1.33	CONCRETE SEAL					
2	SW-SANDS, trace silts, compact, fine to medium grained, well graded, light brown, moist		BENTONITE CHIPS	1DP		100	0-2	0.0
4	- trace medium grained, rounded gravels at 4.0ft BGS - wet at 5.0ft BGS		2" PVC WELL CASING					
6	- orange-brown at 6.0ft BGS - gray at 6.5ft BGS							
8			8-1/2" BOREHOLE	2DP		100	3-5	0.0
10	- 2" lens coarse sands at 9.5ft BGS		SAND PACK					
12	SP-SANDS, trace silt, compact, fine grained, poorly graded, gray, wet	11.00	2" PVC WELL SCREEN	3DP		100		0.0
14								
	END OF BOREHOLE @ 15.0ft BGS	15.00						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
4.00 to 14.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
3.00 to 15.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1DP)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

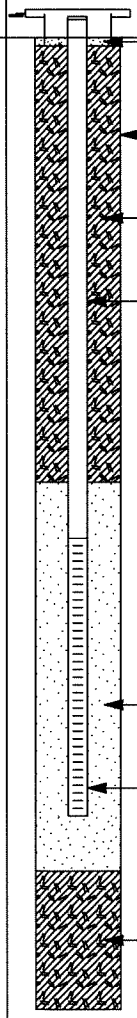
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-7D
DATE COMPLETED: February 25, 2003
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	SM-SILTY SANDS (FILL), with subangular medium grained gravels, compact, fine grained, poorly graded, brown, moist	
2	- 1" lens silty sand at 2.1ft BGS	1.80
4	SP-SANDS (FILL), with coal, trace silts, loose, fine grained, poorly graded, black, damp	
6	- sand/foundry sand mixture at 3.7ft BGS	6.00
8	SW-SANDS, trace silts, compact, fine to medium grained, well graded, light brown, moist	
10	- orange/brown oxidation at 7.9ft BGS	
12	- refusal at 8.0ft BGS	
14	- wet, trace rounded gravels, brown at 9.0ft BGS	
16	- fine to coarse grained at 10.0ft BGS	
18	- fine to medium grained, gravels not present at 12.6ft BGS	
20		
22		
24	- 2" lens silty sands at 24.5ft BGS	
26		
28	ML-SANDY SILTS, with clays, compact, fine grained, poorly graded, gray, moist	27.00
30	CL-SILTY CLAYS, trace fine grained sands, firm, low plasticity, gray, moist	28.00
32		
34		
36	END OF BOREHOLE @ 35.0ft BGS	35.00
38		
40		
42		
44		
46		
48		

MONITORING WELL



WELL DETAILS
Screened interval:
8.00 to 28.00ft BGS
Length: 20ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
16.00 to 30.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1DP		100	0-2	0.0
2DP		100	4-6	0.0
3DP		100	7-8	0.0
4DP		100		3.8
5DP		100		4.5
6DP		100		0.0
7DP		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1DP)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

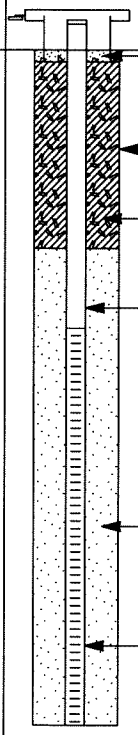
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-7S
DATE COMPLETED: February 25, 2003
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	SM-SILTY SANDS (FILL), with subangular medium grained gravels, compact, fine grained, poorly graded, brown, moist	
2	- 1" lens silty sand at 2.1ft BGS	1.80
	SP-SANDS (FILL), with coal, trace silts, loose, fine grained, poorly graded, black, damp	
4	- sand/foundry sand mixture at 3.7ft BGS	
6	SW-SANDS, trace silt, compact, fine to medium grained, well graded, light brown, moist	6.00
8	- orange/brown oxidation at 7.9ft BGS	
	- wet, trace rounded gravels at 9.0ft BGS	
10	- fine to coarse grained at 10.0ft BGS	
12	- fine to medium grained at 12.0ft BGS	
14		
16		
	END OF BOREHOLE @ 17.0ft BGS	17.00
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
7.00 to 17.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
5.00 to 17.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1DP		100	0-2	0.0
2DP		100	4-6	0.0
3DP		100	7-8	0.0
4DP		100		3.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-8S
DATE COMPLETED: February 26, 2003
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	708.46 705.17						
0	SW-SANDS (FILL), trace silts, compact, fine to medium grained, well graded, light brown, moist		CONCRETE SEAL					
2	SM-SILTY SANDS, trace topsoil, compact, fine grained, poorly graded, dark brown, moist	703.27 702.77	BENTONITE GROUT	1AL (0-2')		100		0.0
4	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist - medium grained at 4.9ft BGS		2" PVC WELL CASING					
6	- fine to medium grained at 5.3ft BGS - wet at 6.0ft BGS		8" BOREHOLE					
8	- gray at 7.5ft BGS - 1" lens coarse sand at 8.4ft BGS			2AL (4-6')		100		0.0
10			2" PVC WELL SCREEN					
12				3AL		100		0.0
14	END OF BOREHOLE @ 14.0ft BGS	691.17	SAND PACK					
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
701.17 to 691.17ft AMSL
4.00 to 14.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
702.17 to 690.17ft AMSL
3.00 to 15.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MI

HOLE DESIGNATION: MW-28-9S
DATE COMPLETED: March 7, 2003
DRILLING METHOD: 4"/6" ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	708.78 705.71						
0	SM-SILTY SANDS, trace fine to medium subrounded to subangular gravels, loose, fine to coarse grained, poorly graded, dark brown, moist		SURFACE SEAL	1RS (0-2')				0.2
2	- fine grained, brown, trace oxidation at 2.0 ft BGS		BENTONITE CHIPS	2RS				0.3
4	- trace clays and fine gravels, dark brown at 2.5 ft BGS		2" PVC WELL CASING					
6	- trace fine to medium subrounded gravels, brown, oxidation at 3.0 ft BGS - orange-brown at 3.5 ft BGS			3RS (5-7')				0.2
8	- light brown at 5.0 ft BGS - brown, very moist at 6.5 ft BGS - saturated at 7.0 ft BGS			4RS				0.8
10			SAND PACK 2" PVC WELL SCREEN	5RS				0.4
12	- brown-gray at 12.0 ft BGS			6RS				0.1
14	- gray at 14.5 ft BGS							
16			COLLAPSE OF NATIVE SOILS	7RS				0.0
	END OF BOREHOLE @ 17.0ft BGS	688.71						
18			WELL DETAILS Screened interval: 700.71 to 690.71ft AMSL 5.00 to 15.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 701.71 to 690.71ft AMSL 4.00 to 15.00ft BGS Material: SAND					
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-FRANS.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-10S
DATE COMPLETED: February 25, 2003
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	GW-SANDS AND MEDIUM GRAINED ANGULAR GRAVELS (FILL), trace silts, compact, fine to medium grained, well graded, light gray, dry	0.66	CONCRETE SEAL					
2	SW-SANDS, trace medium grained subrounded gravels, trace silts, compact, fine to medium grained, well graded, dark brown, moist		BENTONITE CHIPS	1DP		100	0-2	0.0
4	- gravels not present at 4.6ft BGS		2" PVC WELL CASING					
6	- light at 5.0ft BGS		8" BOREHOLE					
8	- wet, faint odor at 7.0ft BGS			2DP		100	5-7	0.0
10			SAND PACK					
12			2" PVC WELL SCREEN	3DP		100		0.0
14								
15	END OF BOREHOLE @ 15.0ft BGS	15.00						
16			WELL DETAILS Screened interval: 5.00 to 15.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 4.00 to 15.00ft BGS Material: Silica Sand					
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

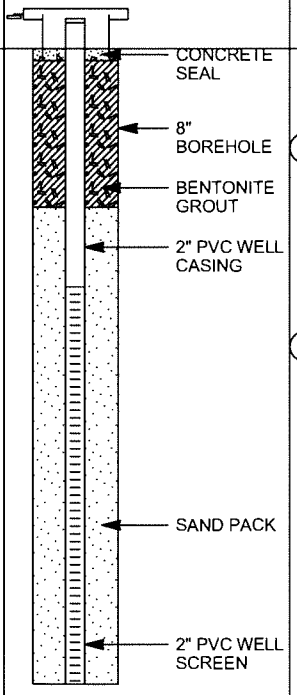
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-11S
DATE COMPLETED: February 26, 2003
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	DEBRIS, concrete, wood	0.50
2	SW-SAND(FILL), trace silts, trace fine grained subrounded gravels, compact, fine to medium grained, well graded, light brown, moist	
	- 2" lens, silty sand, dark brown, no odor present at 3.1ft BGS	3.50
4	SM-SILTY SAND (FILL), compact, fine grained, poorly graded, light brown, moist	5.00
6	SW-SAND, trace silt, compact, fine to medium grained, well graded, light beige, moist	
	- 1" lens, orange oxidation at 7.2ft BGS	
8	- wet at 8.0ft BGS	
10		
12	- fine grained at 11.6ft BGS - fine to medium grained at 12.1ft BGS	
14		
16	END OF BOREHOLE @ 16.0ft BGS	16.00
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
4.00 to 16.00ft BGS

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1DP		100	0.5-2.5	0.0
2DP		100	6-8	0.0
3DP		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (O)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-12S
DATE COMPLETED: February 26, 2003
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	707.89 704.71						
0	GM-SILTY GRAVELS (FILL), with sand, dense, medium grained, angular gravel, poorly graded, black, moist		CONCRETE SEAL 8" BOREHOLE					
2		702.31	BENTONITE GROUT	1AL 0-2'		100		0.0
	SM-SILTY SANDS (FILL), compact, fine grained, poorly graded, dark brown, moist	702.11						
4	SP-SANDS, trace silts, compact, fine grained, poorly graded, light brown, moist		2" PVC WELL CASING					
6	- medium to coarse grained, trace fine grained, rounded gravel at 5.5ft BGS - wet at 7.0ft BGS							
8	- gravel not present, fine to medium grained, gray at 7.2ft BGS			2AL 5-7'		100		0.0
10	- medium grained at 10.2ft BGS - fine to medium grained at 10.8ft BGS		SAND PACK					
12				3AL		100		0.0
14			2" PVC WELL SCREEN					
	END OF BOREHOLE @ 15.0ft BGS	689.71						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
699.71 to 689.71ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
700.71 to 689.71ft AMSL
4.00 to 15.00ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-28-13S
DATE COMPLETED: March 6, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	707.20 704.23						
0	GM-SILTY GRAVELS (FILL), with sands, compact, fine grained angular gravels, poorly graded, dark brown, moist	702.73	CONCRETE					
2	SM-SILTY SANDS (FILL), compact, fine grained, poorly graded, light brown, moist	701.23	BENTONITE CHIPS	1AL 0-2'		100		0.0
4	ML-SANDY SILTS (FILL), compact, fine grained, poorly graded, dark brown, moist	699.23	2" PVC WELL CASING					
6	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist		8-1/2" BOREHOLE					
8	- wet, faint organic odor at 7.5ft BGS			2AL 5.5-7.5'		100		0.0
10			SAND PACK 2" PVC WELL SCREEN					
12	- trace medium grained, sub-angular gravels at 12.3ft BGS - gravels not present at 12.5ft BGS			3AL		100		0.0
14								
16	END OF BOREHOLE @ 16.0ft BGS	688.23						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
698.73 to 688.73ft AMSL
5.50 to 15.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
700.23 to 688.23ft AMSL
4.00 to 16.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-30-1D
DATE COMPLETED: February 28, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	708.25 704.94						
0	SM-SILTY SANDS, trace fine subrounded gravels, loose to compact, fine grained, poorly graded, dark brown, moist, trace vegetation		CONCRETE	1RS (0-2')				3.6
2	CL-SANDY CLAYS, trace silts and fine gravels, fine to medium grained sands, soft to firm, low plasticity, dark brown, moist	702.94 701.94	2" PVC WELL CASING	2RS (4-6')				2.5
4	SM-SILTY SANDS, trace coarse sands, fine subrounded gravels, loose, fine grained, poorly graded, brown, moist - light brown at 4.0ft BGS			3RS				1.8
6	- very moist, brown at 5.3ft BGS - fine to coarse grained, brown gray, saturated at 6.0ft BGS		BENTONITE CHIPS	4RS				1.6
8	- trace fine subrounded gravel, fine grained, gray at 7.0ft BGS			5RS				1.3
10								
12			6" BOREHOLE	6RS				1.4
14								
16				7RS				1.3
18				8RS				1.0
20			SAND PACK	9RS				1.2
22			2" PVC WELL SCREEN					
24				10RS				1.0
26	CL-SILTY CLAYS, trace fine subrounded gravels, firm, low to medium plasticity, gray, moist	678.94 677.94		11RS				0.0
28	END OF BOREHOLE @ 27.0ft BGS							
30								
32								
34								

WELL DETAILS
Screened interval:
688.44 to 678.44ft AMSL
16.50 to 26.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
690.44 to 677.94ft AMSL
14.50 to 27.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

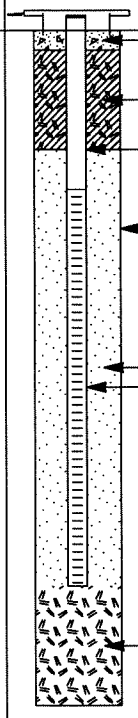
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-30-1S
DATE COMPLETED: February 28, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE TOP OF RISER	705.11 703.14
0	SM-SILTY SANDS, trace fine subrounded gravels, loose to compact, fine grained, poorly graded, dark brown, moist, trace vegetation	
2		703.11
	CL-SANDY CLAYS, trace silts and fine gravels, fine to medium grained sands, soft to firm, low plasticity, dark brown, moist	702.11
4	SM-SILTY SANDS, trace coarse sand, fine subrounded gravels, loose, fine grained, poorly graded, brown, moist - light brown at 4.0ft BGS	
6	- very moist, brown at 5.3ft BGS	
8	- fine to coarse grained, brown gray, saturated at 6.0ft BGS - trace fine subrounded gravels, fine grained, gray at 7.0ft BGS	
10		
12		
14		
16		
	END OF BOREHOLE @ 17.0ft BGS	688.11
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
701.11 to 691.11ft AMSL
4.00 to 14.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
702.11 to 691.11ft AMSL
3.00 to 14.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS				3.6
2RS				2.5
3RS				1.8
4RS				1.6
5RS				1.3
6RS				1.4
7RS				1.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

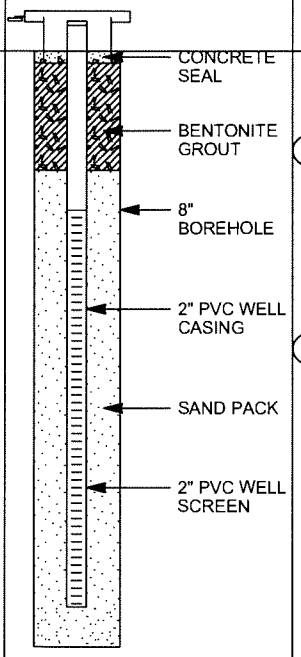
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-30-2S
DATE COMPLETED: February 26, 2003
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	GM-SILTY GRAVELS (FILL), with fine grained sands, compact, medium grained angular gravel, poorly graded, dark brown, moist	1.20
2	SM-SILTY SANDS (FILL), trace medium grained rounded gravels, compact, fine grained, poorly graded, dark brown, moist	2.10
4	SW-SANDS, trace silts, compact, fine to medium grained, well graded, medium brown, moist	
	- light brown at 2.8ft BGS	
6	- dark brown at 3.5ft BGS	5.30
	- medium brown at 4.5ft BGS	
8	ML-SANDY SILTS, with topsoil, compact, fine grained, poorly graded, dark brown, moist	8.00
	- gray at 7.1ft BGS	
10	- 1" lens with orange oxidation at 8.2ft BGS	
	- trace medium grained rounded gravel at 8.3ft BGS	
12	SW-SANDS, trace silts, compact, fine to medium grained, well graded, brown, moist	
14		
	END OF BOREHOLE @ 15.0ft BGS	15.00
16		
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
4.00 to 14.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
3.00 to 15.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1DP		100	0-2	0.0
2DP		100	6-8	0.0
3DP		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1DP)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

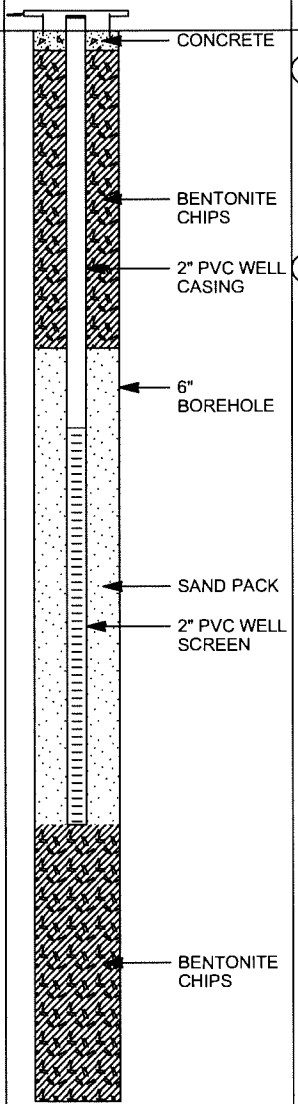
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-30-3D
DATE COMPLETED: February 28, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	708.55
	GROUND SURFACE	705.30
0	SM-SILTY SANDS, trace fine to medium gravels, loose, fine grained, poorly graded, dark brown, moist	
2	- trace fine gravels, brown, trace oxidation at 1.0ft BGS	
4		
6	- dark brown to black at 5.5ft BGS - very moist at 6.5ft BGS - gray, saturated at 7.0ft BGS	
8		
10		
12		
14		
16		
18		
20	CL-SILTS AND CLAYS, firm, low plasticity, gray, moist	685.80
22	CL-SILTY CLAYS, trace fine subrounded gravels, firm to stiff, low to medium plasticity, gray, moist	684.30
24		
26		
28	END OF BOREHOLE @ 27.0ft BGS	678.30
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
695.30 to 685.30ft AMSL
10.00 to 20.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
697.30 to 685.30ft AMSL
8.00 to 20.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'				3.6
2RS				9.2
3RS 5-7'				3.3
4RS				2.4
5RS				1.9
6RS				1.3
7RS				0.8
8RS				0.1
9RS				0.0
10RS				0.0
11RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1RS 0-2')

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

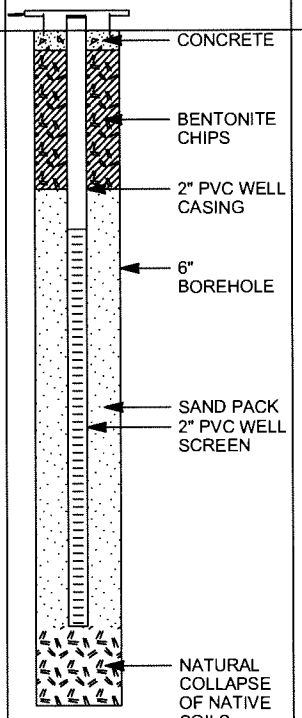
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-30-3S
DATE COMPLETED: February 28, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER GROUND SURFACE	708.61 705.34
0	SM-SILTY SANDS, trace fine to medium gravels, loose, fine grained, poorly graded, dark brown, moist	
2	- trace fine gravels, brown, trace oxidation at 1.0ft BGS	
4		
6	- dark brown to black at 5.5ft BGS - very moist at 6.5ft BGS - gray, saturated at 7.0ft BGS	
8		
10		
12		
14		
16		
	END OF BOREHOLE @ 17.0ft BGS	688.34
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
700.34 to 690.34ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
701.34 to 688.34ft AMSL
4.00 to 17.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS				3.6
2RS				4.2
3RS				3.3
4RS				2.4
5RS				1.9
6RS				1.3
7RS				0.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

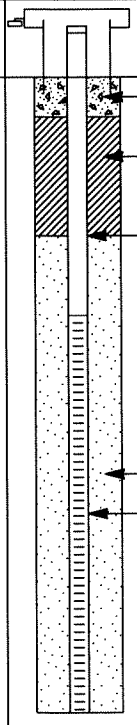
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MI

HOLE DESIGNATION: MW-30-4S
DATE COMPLETED: March 6, 2003
DRILLING METHOD: 4.25" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DIETNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	707.46
	GROUND SURFACE	704.46
0	SW-SANDS (FILL), trace fine grained rounded gravels, compact, fine to medium grained, well graded, medium brown, moist	703.36
2	CONCRETE	703.06
	SW-SANDS (FILL), trace silts, compact, fine to medium grained, well graded, medium brown, moist	
4	- trace organics (topsoil) at 3.2 ft BGS	
	- 1 1/4" lens sandy silt at 3.7 ft BGS	699.66
6	SM-SILTY SANDS, compact, fine grained, poorly graded, grayish brown, moist to very moist	698.66
8	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, medium brown, moist	
	- gray at 7.2 ft BGS	
10	- wet at 8.0 ft BGS	
	- medium-coarse grained at 11.4 ft BGS	
12		
	- fine to medium grained at 13.2 ft BGS	
14		
16	END OF BOREHOLE @ 16.0ft BGS	688.46
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
698.46 to 688.46ft AMSL
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
700.46 to 688.46ft AMSL
4.00 to 16.00ft BGS
Material: SAND

SAMPLE				
NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL 0-2'				0.0
2AL 6-8'				0.0
3AL				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607-FRANS.GPJ CRA_CORP.GDT 12/16/03

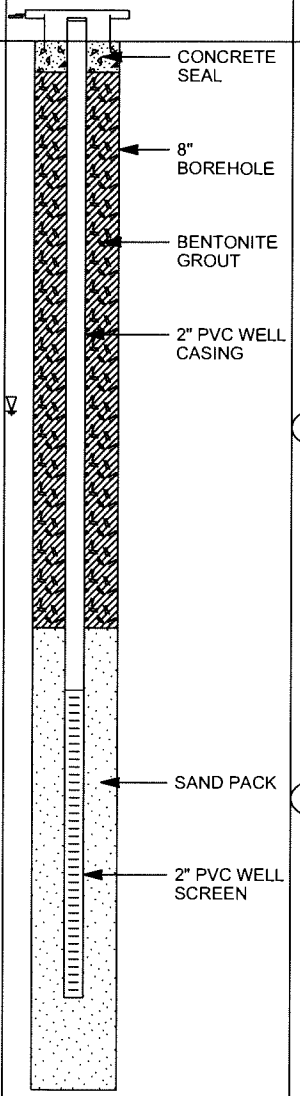
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW3D-02
DATE COMPLETED: January 7, 2003
DRILLING METHOD: DIRECT PUSH/2-1/4" OD AND 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	705.41
	GROUND SURFACE	702.21
0	SP-SANDS (FILL), loose, poorly graded, fine grained, light brown, moist	
4	- dark brown, rootlets at 4.5ft BGS - light brown at 5.0ft BGS	
10	SP-SANDS, trace gravels, loose, poorly graded, fine grained, brown/orange, moist	692.71
12	- fine and medium grained with coarse grains, brown, wet at 10.0ft BGS - wet at 12.0ft BGS	
30	ML-SILTS, compact, slight plasticity, gray/dark brown, moist	673.21 672.21
32	CH-SILTY CLAYS, firm, high plasticity, dark brown/gray, moist	
34	END OF BOREHOLE @ 34.0ft BGS	668.21
36	NOTE: NO PID READINGS AVAILABLE	

MONITORING WELL



WELL DETAILS
Screened interval:
681.21 to 671.21ft AMSL
21.00 to 31.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
683.21 to 668.21ft AMSL
19.00 to 34.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL				
2AL				
3AL 14-16				
4AL				
5AL 22-24				
6AL				
7AL		80		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW3S-02
DATE COMPLETED: June 19, 2002
DRILLING METHOD: DIRECT PUSH/4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	TOP OF RISER GROUND SURFACE	705.48 702.22					
0	SP-SANDS (FILL), loose, poorly graded, fine grained, light brown, moist		BENTONITE CHIPS	1AL 0-2'			
2							
4	- dark brown, rootlets at 4.5ft BGS - light brown at 5.0ft BGS		8" BOREHOLE				
6			2" STAINLESS STEEL WELL CASING				
8				2AL 8-10'			
10	SP-SANDS, trace gravels, loose, poorly graded, fine grained, brown/orange, moist - fine and medium grained with coarse grains, brown, wet at 10.0ft BGS	692.72	SAND PACK				
12			2" STAINLESS STEEL WELL SCREEN	3AL			
14							
16	END OF BOREHOLE @ 15.0ft BGS NOTE: SOIL SAMPLES COLLECTED USING DIRECT PUSH METHOD ON JUNE 11, 2002. MONITORING WELL INSTALLED AND COMPLETED ON JUNE 19, 2002 USING 4-1/4-INCH HSAs.	687.22					
18							
20							
22							
24							
26							
28							
30							
32							
34							

WELL DETAILS
Screened interval:
694.22 to 689.22ft AMSL
8.00 to 13.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: Stainless Steel
Sand Pack:
696.22 to 689.22ft AMSL
6.00 to 13.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW4S-02
DATE COMPLETED: June 19, 2002
DRILLING METHOD: DIRECT PUSH/4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	706.03 702.75						
0	VEGETATION (GRASS AND ROOTLETS), with silts	702.34	BENTONITE CHIPS					
2	SP-SANDS, with silts, trace subrounded small gravels, loose, poorly graded, fine grained, brown/orange, moist			1AL 0-2'				0
4	- increase in moisture and orange banding at 4.0ft BGS - reduced moisture and orange banding at 5.0ft BGS		8" BOREHOLE					
6			2" STAINLESS STEEL WELL CASING					
8	- light brown at 8.0ft BGS			2AL 8-10'				0
10	- wet at 10.0ft BGS		SAND PACK					
12	- 4" layer of sand and subangular gravels at 12.0ft BGS		2" STAINLESS STEEL WELL SCREEN	3AL				0
14			WELL DETAILS Screened interval: 694.75 to 689.75ft AMSL 8.00 to 13.00ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: Stainless Steel Sand Pack: 696.75 to 689.75ft AMSL 6.00 to 13.00ft BGS Material: Silica Sand					
15	END OF BOREHOLE @ 15.0ft BGS	687.75						
16	NOTE: SOIL SAMPLES COLLECTED USING DIRECT PUSH METHOD ON JUNE 11, 2002. MONITORING WELL INSTALLED AND COMPLETED ON JUNE 19, 2002 USING 4-1/4-INCH HSAs.							
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW5S-02
DATE COMPLETED: December 3, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	706.94 703.97						
0	SM/ML-SANDS AND SILTS, loose, fine grained, poorly graded, dark brown, mosit	703.64	CONCRETE SEAL					
2	SP-SANDS, trace silts and fine subangular gravels, compact, fine grained, poorly graded, orange-brown, moist		BENTONITE CHIPS	1AL 0-2'				0.0
4	- trace silts, fine to medium grained, beige at 4.0ft BGS		8" BOREHOLE					
6			2" PVC WELL CASING					
8				2AL 4-8'				0.0
10			SAND PACK					
12	- wet at 11.0ft BGS		2" PVC WELL SCREEN	3AL 12-16'				0.0
14								
16				4AL				0.0
18								
20	END OF BOREHOLE @ 19.0ft BGS	684.97						
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
694.97 to 684.97ft AMSL
9.00 to 19.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
696.97 to 684.97ft AMSL
7.00 to 19.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-301S
DATE COMPLETED: December 4, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE 697.34 TOP OF RISER 696.95							
0	SM-SILTY SANDS, loose, fine grained, poorly graded, dark brown, moist, trace vegetation - orange-brown at 1.0ft BGS		CONCRETE SEAL	1AL				0.0
2			8" BOREHOLE					
4								
5.66	SP-SANDS, trace silts, loose, fine to medium grained, poorly graded, beige, moist	692.34	BENTONITE					
6								
8	- fine to coarse grained at 8.0ft BGS		2" PVC WELL CASING	2AL 4-6'				0.0
10								
12	- wet at 13.0ft BGS			3AL 14-16'				0.0
14			SAND PACK					
16								
18	- fine to medium grained at 19.0ft BGS		2" PVC WELL SCREEN	4AL				0.0
20	END OF BOREHOLE @ 20.0ft BGS	677.34						
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
687.34 to 677.34ft AMSL
10.00 to 20.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
689.34 to 677.34ft AMSL
8.00 to 20.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

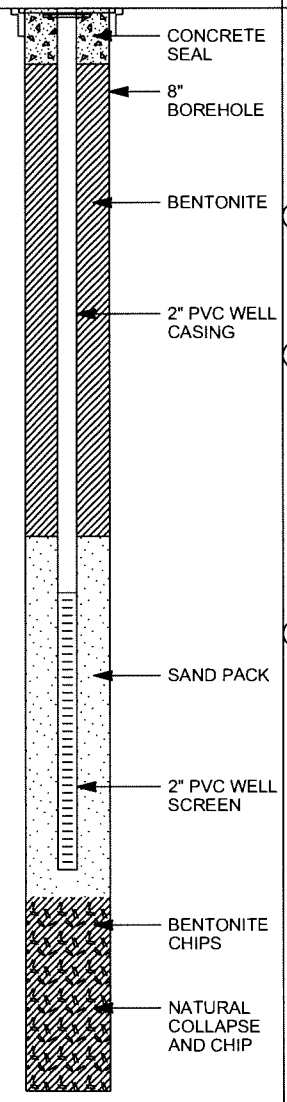
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-302D
DATE COMPLETED: January 7, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	694.90
	TOP OF RISER	694.60
0	SP-SANDS, trace silts, trace fine rounded gravels, trace vegetation (rootlets), loose, poorly graded, fine grained, trace medium grained, dark brown, moist	
2	- brown with orange hue, no vegetation at 0.5ft BGS	
4	- beige at 4.5ft BGS	689.90
6	GEOTECHICAL SAMPLE COLLECTED, no description	687.90
8	SP-SM-SANDS TO SILTY SANDS, loose, poory graded, fine grained, light beige, moist	
10	- damp at 9.0ft BGS	684.90
12	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, beige, moist	
14	- 4-inch layer with fine subangular/subrounded gravels, wet at 10.5ft BGS	
16	- geotechnical sample collected, no description from 13.0 to 15.0ft BGS	679.90
18	SP-SM-SANDS TO SILTY SANDS, loose, poorly graded, fine grained, beige, wet	
20	- 2-inch layer with medium grained at 19.0ft BGS	
22	- 2-inch layer with medium grained at 19.8ft BGS	
24	- geotechnical sample collected, no description from 20.0 to 22.0ft BGS	
26	- medium compaction, brown, saturated at 22.0ft BGS	668.90
28	ML-SILTS, trace fine sands, compact, brown, saturated	
30	- 1-inch clay lense at 26.5ft BGS	
32	- 1-inch clay lense at 27.0ft BGS	665.00
34	CL-SILTY CLAYS, firm, low plasticity, dark brown, moist	662.90
36	ML-SILTS, compact, poorly graded, dark brown, saturated	661.40
38	CH-CLAYS, trace silts, firm, high plasticity, dark brown/dark gray, moist	
40	END OF BOREHOLE @ 39.0ft BGS	655.90
42		
44		
46		
48		

MONITORING WELL



WELL DETAILS
Screened interval:
673.90 to 663.90ft AMSL
21.00 to 31.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
675.90 to 662.90ft AMSL
19.00 to 32.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL		75		0.1
2AL 5-7'		75		5
3AL 13-15'		75		9
4AL		75		10.2
5AL 20-22'		75		9.3
6AL		75		7.6
7AL				
8AL				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-302S
DATE COMPLETED: January 7, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	694.71 694.25						
0	SP-SANDS, trace silts, trace fine rounded gravels, trace vegetation (rootlets), loose, poorly graded, fine grained, trace medium grained, dark brown, moist - brown with orange hue, no vegetation at 0.5ft BGS - beige at 4.5ft BGS		CONCRETE SEAL 8" BOREHOLE BENTONITE	1AL		75		0.1
6	GEOTECHICAL SAMPLE COLLECTED, no description	689.71	2" PVC WELL CASING					
8	SP-SM-SANDS TO SILTY SANDS, loose, poory graded, fine grained, light beige, moist - damp at 9.0ft BGS	687.71		2AL		75		5
10	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, beige, moist - 4-inch layer with fine subangular/subrounded gravels, wet at 10.5ft BGS - geotech sample collected at 13.0ft BGS	684.71	SAND PACK	3AL		75		9
16	SP-SM-SANDS TO SILTY SANDS, loose, poorly graded, fine grained, beige, wet	679.71	2" PVC WELL SCREEN	4AL		75		10.2
18	END OF BOREHOLE @ 18.0ft BGS	676.71						

WELL DETAILS
Screened interval:
686.71 to 676.71ft AMSL
8.00 to 18.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
688.71 to 676.71ft AMSL
6.00 to 18.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-303S
DATE COMPLETED: January 16, 2003
DRILLING METHOD: 4-1/4" HSA & DIRECT PUSH (2-1/4" O.D.)
FIELD PERSONNEL: S. POOLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	687.70 687.41						
0	SM-SILTY SANDS, trace vegetation (rootlets), trace fine subangular gravel, poorly graded, loose, fine grained, dark brown, moist		CONCRETE SEAL					
2	- light brown, moist, no vegetation at 0.3ft BGS		BENTONITE CHIPS	1AL				0.0
4			2" PVC WELL CASING					
6								
8	- wet at 7.0ft BGS		8" BOREHOLE	2AL 6-8'				0.0
10			SAND PACK					
12	- light brown to gray at 12.0ft BGS			3AL 12-14'				0.0
14			2" PVC WELL SCREEN					
16	END OF BOREHOLE @ 16.0ft BGS	671.70		4AL				0.0
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
682.70 to 672.70ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
684.70 to 671.70ft AMSL
3.00 to 16.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-33-3S
DATE COMPLETED: October 1, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	708.22 705.70						
0	SP-SANDS, trace silts, trace subrounded fine gravel, loose, poorly graded, fine and medium grained, very dark brown, moist	705.54	BENTONITE CHIPS					
2	SP-SANDS, with silts, trace fine subrounded gravel, loose, poorly graded, fine grained, beige, moist - orange hue at 1.0ft BGS	703.20	8" BOREHOLE	1AL		75		0.0
4	SP-SANDS, trace silts, loose, poorly graded, medium grained, brown, wet	701.20	2" PVC WELL CASING					
6	SP-SANDS, with silts, loose, poorly graded, fine grained, beige/brown, moist	699.70		2AL		100		0.0
8	SP-SANDS, trace silts, trace fine subangular gravel, loose, well graded, fine to coarse grained, brown, moist to wet	697.70						
10	SP-SANDS, with silts, loose, poorly graded, fine to medium grained, wet							
12	SP-SANDS, trace silts, trace fine subangular gravel, loose, poorly graded, fine grained with medium grained, brown/beige, wet	694.70	2" PVC WELL SCREEN	3AL		100		0.0
14			SAND PACK					
16	ML-SILTY SANDS, compact, poorly graded, fine grained, brown/beige, wet	690.70 689.70						
	END OF BOREHOLE @ 16.0ft BGS							
18								
20								
22								
24								
26								
28								
30								
32								
34								
36								
38								

WELL DETAILS
Screened interval:
699.70 to 689.70ft AMSL
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
701.70 to 689.70ft AMSL
4.00 to 16.00ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-33-4S
DATE COMPLETED: October 1, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	709.25 706.54						
0	CONCRETE, constructed with subrounded fine gravels up to 2.0cm, good condition	705.88	CONCRETE SEAL					
2	SP-SANDS, trace silts, trace fine subrounded gravel, loose, poorly graded, fine grained, trace of medium grained, brown with slight orange hue, moist		BENTONITE CHIPS	1AL		70		0.0
4								
6	- saturated at 6.0ft BGS		2" PVC WELL CASING					
8	- 1" clayey asphalt-type layer and strong solvent-type odor at 7.5ft BGS		8" BOREHOLE	2AL		95		0.0
10	END OF BOREHOLE @ 10.0ft BGS		SAND PACK					
12			2" PVC WELL SCREEN					
14		691.54						
16			WELL DETAILS Screened interval: 701.54 to 691.54ft AMSL 5.00 to 15.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 703.54 to 691.54ft AMSL 3.00 to 15.00ft BGS Material: Silica Sand					
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

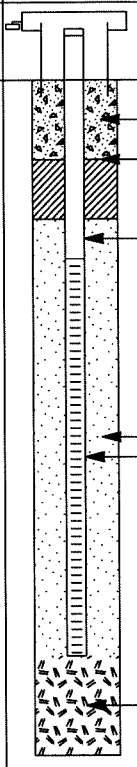
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MI

HOLE DESIGNATION: MW-33-5S
DATE COMPLETED: March 7, 2003
DRILLING METHOD: 6" ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	709.48
	GROUND SURFACE	706.53
0	CONCRETE	705.53
2	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, orange-brown, moist, oxidation	
6	- brown, very moist at 6.5 ft BGS - brown and gray, saturated, slight diesel-like odor at 7.0 ft BGS	
10	- dark gray, moderate diesel-like odor at 10.0 ft BGS	
12	- gray, slight diesel-like odor at 12.0 ft BGS	
17	END OF BOREHOLE @ 17.0ft BGS	689.53

MONITORING WELL



WELL DETAILS
Screened interval:
702.03 to 692.03ft AMSL
4.50 to 14.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
703.03 to 692.03ft AMSL
3.50 to 14.50ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 1-3'				0.8
2RS				1.2
3RS 4.5-6.5'				1.8
4RS				4.3
5RS				3.1
6RS				1.3
7RS				0.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-FRANS.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MI

HOLE DESIGNATION: MW-33-6S
DATE COMPLETED: March 5, 2003
DRILLING METHOD: 4.25" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DIETNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	710.24 707.04						
0	ML-SANDY SILTS (FILL), trace fine grained rounded gravels, trace rootlets, compact, fine grained, poorly graded, dark brown, moist		CONCRETE SEAL BENTONITE CHIPS 2" PVC WELL CASING	1AL 0-2'				0.0
4	SM-SILTY SANDS, compact, fine grained, poorly graded, orange-brown, moist	702.54 701.54						
6	SP-SANDS, trace silts, compact, fine to medium grained, well graded, light brown, moist			2AL 6-8'				0.0
8	- wet, grayish brown at 8.0 ft BGS							
10			SAND PACK 2" PVC WELL SCREEN					
12	- medium-coarse grained at 11.5 ft BGS			3AL				0.0
14								
16	END OF BOREHOLE @ 16.0ft BGS	691.04						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
701.04 to 691.04ft AMSL
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
703.04 to 691.04ft AMSL
4.00 to 16.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-FRANS.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-33-7S
DATE COMPLETED: March 7, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	713.97 710.72						
0	SM-SILTY SANDS (FILL), trace fine grained subrounded gravels, trace topsoil, compact, fine grained, poorly graded, dark brown, moist - light brown, topsoil not present at 1.8ft BGS - trace medium grained rounded gravels at 3.1ft BGS - with topsoil at 3.2ft BGS		CONCRETE BENTONITE CHIPS 2" PVC WELL CASING	1AL 0-2'		100		0.0
4	SP-SANDS, with silts, compact, fine to medium grained, poorly graded, light brown, moist	706.42						
8	- slight orange oxidation, wet at 8.5ft BGS - medium grained, grayish brown at 8.7ft BGS		8-1/2" BOREHOLE	2AL 6.5-8.5'		100		0.0
10	- fine to medium grained at 10.1ft BGS							
12	- fine to coarse grained at 11.3ft BGS - trace coarse grained rounded gravels at 11.7ft BGS		SAND PACK 2" PVC WELL SCREEN	3AL		100		0.0
16								
17	END OF BOREHOLE @ 17.0ft BGS	693.72						

WELL DETAILS
Screened interval:
704.22 to 694.22ft AMSL
6.50 to 16.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
705.72 to 693.72ft AMSL
5.00 to 17.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

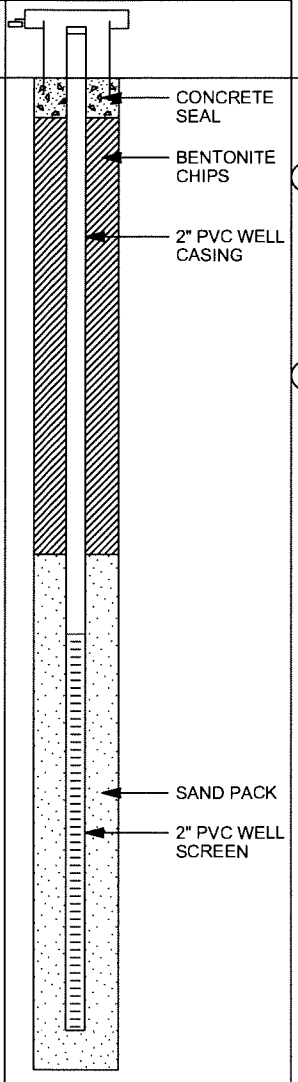
OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MI

HOLE DESIGNATION: MW-33-8D
DATE COMPLETED: March 5, 2003
DRILLING METHOD: 4.25" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DIETNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER GROUND SURFACE	710.67 707.51
0	ML-SANDY SILTS (FILL), trace coarse grained gravels, trace topsoil, compact, rounded, fine grained, poorly graded, dark brown, moist	
2	- reddish brown, topsoil not present at 1.5 ft BGS	704.71
4	SP-SANDS, trace silts, compact, fine to medium grained, well graded, light brown, moist	
6	GP-GRAVELS WITH SANDS, compact, fine grained rounded gravels, poorly graded, reddish brown, very moist	702.01
8	- wet at 7.0 ft BGS SP-SANDS, with silts, compact, fine to medium grained, well graded, medium brown, wet	699.91
10	- gray, fine grain size at 9.0 ft BGS	
12	- trace medium grained sand lenses, 5mm thick at 12.7 ft BGS	
14	- fine to coarse grained at 14.3 BGS	
16	SP-SANDS, trace silts, compact, coarse grained, poorly graded, gray, wet	692.01
18	- fine grained at 17.0ft BGS	
20		
22		
24	CL-SILTY CLAYS, stiff, low plasticity, gray, moist, homogenious	684.11
26	END OF BOREHOLE @ 25.0ft BGS	682.51
28		
30		
32		
34		



WELL DETAILS
Screened interval:
693.51 to 683.51ft AMSL
14.00 to 24.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
695.51 to 682.51ft AMSL
12.00 to 25.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL (0-2')		100		0.0
2AL (5-7')		100		0.0
3AL		100		0.0
4AL		100		0.0
5AL		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL, 2AL)

OVERBURDEN LOG 12607-FRANS.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MI

HOLE DESIGNATION: MW-33-8S
DATE COMPLETED: March 5, 2003
DRILLING METHOD: 4.25" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DIETNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	710.69 707.52						
0	ML-SANDY SILTS (FILL), trace coarse grained gravels, trace topsoil, compact, rounded, fine grained, poorly graded, dark brown, moist - reddish brown, topsoil not present at 1.5 ft BGS		CONCRETE SEAL BENTONITE CHIPS	1AL 0-2'		100		0.0
4	SP-SANDS, trace silts, compact, fine to medium grained, well graded, light brown, moist	704.72	2" PVC WELL CASING					
6	GP-GRAVELS WITH SANDS, compact, fine grained rounded gravels, poorly graded, reddish brown, very moist - wet at 7.0 ft BGS	702.02		2AL 5-7'		100		0.0
8	SP-SANDS, with silts, compact, fine to medium grained, well graded, medium brown, wet - gray, fine grain size at 9.0 ft BGS	699.92	SAND PACK 2" PVC WELL SCREEN					
12	- trace medium grained sand lenses, 5mm thick at 12.7 ft BGS			3AL		100		0.0
14	- fine to coarse grained at 14.3 ft BGS							
16	END OF BOREHOLE @ 15.0ft BGS	692.02						

WELL DETAILS
Screened interval:
702.52 to 692.52ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
704.02 to 692.52ft AMSL
3.50 to 15.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-FRANS.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-33-9S
DATE COMPLETED: November 19, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace vegetation (rootlets), loose, poorly graded, fine grained, trace medium grained, dark brown, moist		CONCRETE SEAL	1SS 0-2' -1346		100		4.3
2	- brown with orange hue, no vegetation at 1.0ft BGS		BENTONITE CHIPS			40		2.1
4			2" PVC WELL CASING	2SS		80		2.3
6	- wet, no orange hue at 5.8ft BGS		8" BOREHOLE	4-5' -1347		75		2.1
8	- with medium grained, trace coarse grained, trace fine subrounded gravels at 7.0ft BGS		2" PVC WELL SCREEN	3SS		80		2.0
10						60		1.9
12			SAND PACK			60		2.4
14	END OF BOREHOLE @ 14.0ft BGS	14.00						
16			WELL DETAILS Screened interval: 4.00 to 14.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 2.00 to 14.00ft BGS Material: #6 SAND					
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-BG-9S
DATE COMPLETED: November 19, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace vegetation (rootlets and grass), poorly graded, fine grained, trace medium grained, brown, moist		CONCRETE SEAL	1SS		100		1.8
2	- dark brown, petroleum-like odor at 1.5ft BGS		BENTONITE CHIPS	0-2' -1348		75		1.8
3	CL-CLAYS, with vegetation (rootlets), trace wood pieces, soft, low plasticity, dark brown, moist, petroleum-like odor	3.00	2" PVC WELL CASING	3-5' -1349				
4								
5	SP-SANDS, trace silts, trace fine subrounded gravels, loose to compact, poorly graded, fine grained, with medium grained, trace coarse grained, brown, wet	5.00	8" BOREHOLE					
6						75		1.7
7				2SS		75		2.0
8			2" PVC WELL SCREEN			75		1.2
9								
10			SAND PACK					
11								
12				3SS		75		1.5 1.4
13								
14	END OF BOREHOLE @ 14.0ft BGS	14.00						
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								

WELL DETAILS
Screened interval:
3.00 to 13.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
2.00 to 13.00ft BGS
Material: #6 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-LOST FILE.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-BG-1S
DATE COMPLETED: October 8, 2002
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	TOP OF CASING GROUND SURFACE	712.59 709.50					
0	ML-SILTS, with sands, loose, fine grained, non-plastic, trace fine gravels, vegetation, rootlets, dark brown, moist		CONCRETE SEAL BENTONITE CHIPS 2" PVC WELL CASING	1HA (0-2')			
4	SM-SILTY SANDS, loose, poorly graded, fine grained, trace coarse sands and fine gravels (to 2"), brownish orange, moist, oxidation - very moist, light gray at 6.0ft BGS	705.50	8-1/2" BOREHOLE				
8	SM-SANDS, with silts, fine to medium grained, loose, poorly graded, trace fine gravels (to 2"), light gray, very moist - saturated, gray at 7.0ft BGS	703.00	2" PVC WELL SCREEN	2HA			
12	SM-SILTY SANDS, loose, poorly graded, very fine to fine grained, gray, saturated	698.00	SAND PACK				
14	END OF BOREHOLE @ 13.5ft BGS SAMPLE (0-2') COLLECTED 10/8/02 USING HSA ROTOSONIC USED ON 10/10/02 TO INSTALL AND SET WELL	696.00		3HA			
18				4HA			

WELL DETAILS
Screened interval:
706.00 to 696.00ft AMSL
3.50 to 13.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
707.00 to 696.00ft AMSL
2.50 to 13.50ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

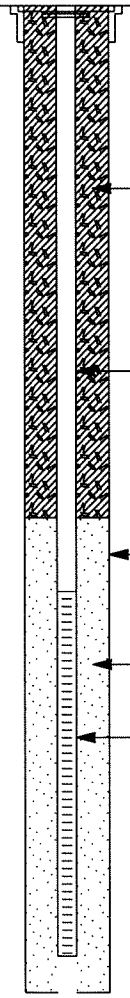
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-G-3D
DATE COMPLETED: July 23, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	703.34
	GROUND SURFACE	700.21
0	SP-SANDS, trace silts, trace medium grained subangular gravels (FILL), loose, fine grained, poorly graded, light brown, dry	699.01
2	- 2.5" lens sandy silts at 1.5ft BGS	698.01
	SM-SILTY SANDS, (FILL), compact, fine grained, poorly graded, medium brown, moist	
4	- trace fine grained rounded gravels at 1.8ft BGS	
	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, orange-brown, moist	
6	- medium brown at 3.8ft BGS	
	- wet at 5.5ft BGS	
8		
10		
12	- medium grained, trace fine grained rounded gravels at 11.9ft BGS	
14	- fine grained, gray at 13.8ft BGS	
16		
18		
20		
22	- 1" lens sandy clay at 21.8ft BGS	
24	CL-SILTY CLAYS, firm, low plasticity, gray, moist	676.31 676.21
26	SP-SANDS, trace silts, compact, fine grained, poorly graded, gray, wet	674.71
	CL-SILTY CLAYS, firm, low plasticity, gray, moist, homogeneous	
28	END OF BOREHOLE @ 28.0ft BGS	672.21
30		
32		
34		
36		

MONITORING WELL



WELL DETAILS
Screened interval:
684.21 to 674.21ft AMSL
16.00 to 26.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
686.21 to 672.21ft AMSL
14.00 to 28.00ft BGS
Material: #5 SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1SS 0-2' -1271		100		0.0
2SS		100		0.0
3SS 3.5-5.5' -1272		100		0.0
4SS		0		NA
5SS		70		0.0
6SS		80		0.0
7SS		90		0.0
8SS		100		0.0
9SS		90		0.0
10SS		70		
11SS		70		
12SS		90		
13SS		80		
14SS		90		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-G-3S
DATE COMPLETED: July 23, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	703.76 700.39						
0	SP-SANDS, trace silts, trace fine grained subangular gravels (FILL), loose, fine grained, poorly graded, light brown, dry	699.19	BENTONITE CHIPS	1SS		100		0.0
2	- 2.5" lens sandy silts at 1.5ft BGS	698.19	2" PVC WELL CASING	2SS		100		0.0
4	SM-SILTY SANDS, (FILL), compact, fine grained, poorly graded, medium brown, moist - trace fine grained rounded gravels at 1.8ft BGS		8-1/4" BOREHOLE	3SS		100		0.0
6	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, orange-brown, moist - medium brown at 3.8ft BGS - wet at 5.5ft BGS		SAND PACK	4SS		0		NA
8			2" PVC WELL SCREEN	5SS		70		0.0
10								
12	- medium grained, trace fine grained rounded gravels at 11.9ft BGS			6SS		80		0.0
14	END OF BOREHOLE @ 13.5ft BGS	686.89						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
696.89 to 686.89ft AMSL
3.50 to 13.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
698.39 to 686.89ft AMSL
2.00 to 13.50ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

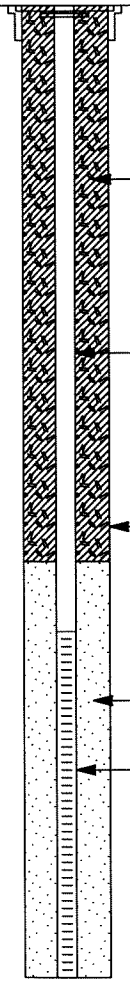
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-G-4D
DATE COMPLETED: July 24, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	705.96
	GROUND SURFACE	702.51
0	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, light brown, dry	702.01
2	SM-SILTY SANDS, (FILL), compact, fine grained, poorly graded, brown, damp	701.01
4	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, medium brown, moist	
	- 2" lens sandy silts at 5.2ft BGS	
6		
	- wet at 7.0ft BGS	
8	- light gray, medium grained at 7.8ft BGS	
	- fine grained at 8.0ft BGS	
10	- medium grained at 9.6ft BGS	
	- fine grained at 11.5ft BGS	
12		
14		
16		
18		
20		
22		
24		
26		
28	ML-SILTS, trace fine grained sands, trace clays, compact, fine grained, poorly graded, gray, moist	674.91
30		
	CL-SILTY CLAYS, firm, low plasticity, gray, moist, homogeneous	671.51
32	END OF BOREHOLE @ 32.0ft BGS	670.51
34		
36		
38		

MONITORING WELL



WELL DETAILS
Screened interval:
684.51 to 674.51ft AMSL
18.00 to 28.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
686.51 to 672.51ft AMSL
16.00 to 30.00ft BGS
Material: #5 SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1SS (0-2' -1273)		90		0.0
2SS		90		0.0
3SS		80		0.0
4SS (5-7' -1274)		80		0.0
5SS		70		0.0
6SS		95		0.0
7SS		75		0.0
8SS		80		0.0
9SS		80		--
10SS		0		--
11SS		0		--
12SS		0		--
13SS		80		0.0
14SS		80		0.0
15SS		80		0.0
16SS		80		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-BG-8S
DATE COMPLETED: March 7, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	TOP OF RISER GROUND SURFACE	702.56 699.73						
0	GM-SILTY GRAVELS (FILL), loose, fine grained to medium grained rounded gravels, poorly graded, black, moist	697.98	CONCRETE					
2	- with medium grained pink granite at 0.33ft BGS	696.53	BENTONITE CHIPS	1AL 0-2'		100		0.0
4	SW-SANDS (FILL) with silts, compact, fine to medium grained, well graded, medium brown, moist		2" PVC WELL CASING					
6	SP-SANDS, trace silt, compact, fine to medium grained, poorly graded, orange-brown, moist - light brown at 3.8ft BGS - 2" lens wet sandy silt at 5.9ft BGS		8-1/2" BOREHOLE	2AL 6.5-8.5'		100		0.0
8	- very moist, medium to coarse grained at 8.0ft BGS - wet at 8.5ft BGS							
10	- orange-brown at 10.2ft BGS		SAND PACK 2" PVC WELL SCREEN					
12	- gray at 11.1ft BGS - fine to medium grained at 11.3ft BGS							
14				3AL		100		0.0
16								
	END OF BOREHOLE @ 17.0ft BGS	682.73						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
693.23 to 683.23ft AMSL
6.50 to 16.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
694.73 to 682.73ft AMSL
5.00 to 17.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

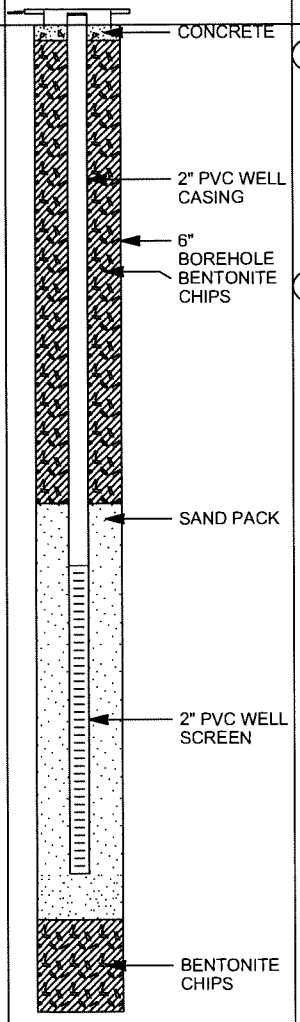
OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-G-1D
DATE COMPLETED: March 4, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	703.41
	GROUND SURFACE	700.42
	CONCRETE	699.67
2	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, dark brown, moist	
	- brown at 3.0ft BGS	
4	- compact, trace oxidation at 4.3ft BGS	
	- dark orange brown, loose to compact at 5.0ft BGS	
6	- brown at 5.8ft BGS	
8	- saturated at 8.5ft BGS	
10	- gray at 10.5ft BGS	
12		
14		
16		
18		
20		
22	- compact at 22.0ft BGS	
24		
		675.42
26	SM/ML-SILTS and SANDS, compact, fine grained, poorly graded, non-plastic, gray, saturated	
		673.42
28	CL-SILTY CLAYS, trace fine subrounded gravels, soft to firm, low to medium plasticity, gray, moist	
30		
32		668.42
	END OF BOREHOLE @ 32.0ft BGS	
34		
36		
38		
40		
42		
44		



WELL DETAILS
Screened interval:
682.92 to 672.92ft AMSL
17.50 to 27.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
684.92 to 671.42ft AMSL
15.50 to 29.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'				2.7
2RS				2.2
3RS				2.5
4RS 6-8'				1.9
5RS				1.7
6RS				1.0
7RS				0.9
8RS				1.3
9RS				1.0
10RS				0.9
11RS				1.4
12RS				0.3
13RS				0.7

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

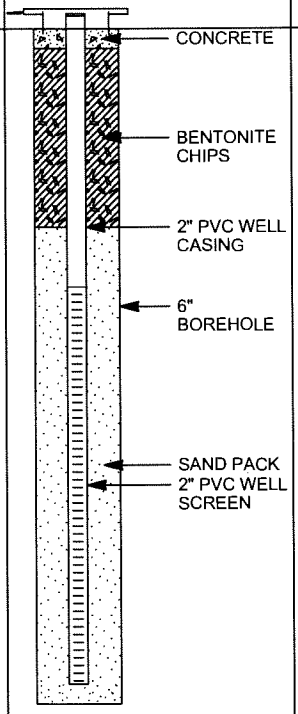
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-G-1S
DATE COMPLETED: March 4, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	703.31
	GROUND SURFACE	700.36
	CONCRETE	699.61
2	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, dark brown, moist	
	- brown at 3.0ft BGS	
4	- compact, trace oxidation at 4.3ft BGS	
	- dark orange brown, loose to compact at 5.0ft BGS	
6	- brown at 5.8ft BGS	
8	- saturated at 8.5ft BGS	
10	- gray at 10.5ft BGS	
12		
14		
16		
	END OF BOREHOLE @ 17.0ft BGS	683.36
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
693.86 to 683.86ft AMSL
6.50 to 16.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
695.36 to 683.36ft AMSL
5.00 to 17.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS				2.7
2RS				2.2
3RS				2.5
4RS				1.9
5RS				1.7
6RS				1.0
7RS				0.9

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

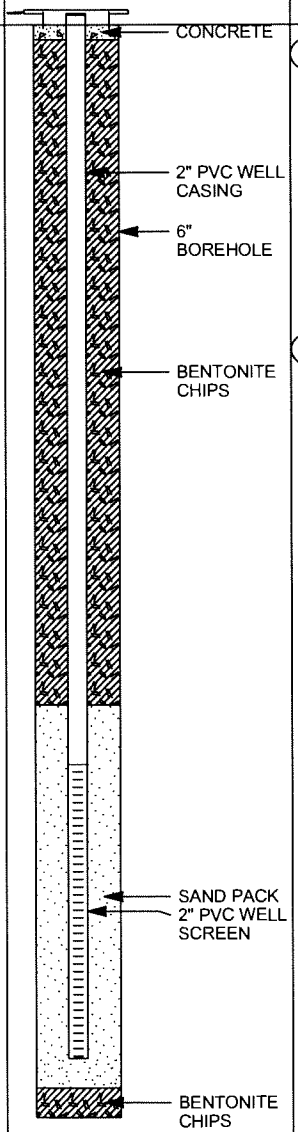
OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-G-2D
DATE COMPLETED: March 4, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	708.54
	GROUND SURFACE	705.50
0	SM-SILTY SANDS, trace clays and fine subrounded gravel, loose to compact, fine grained, poorly graded, dark brown, moist	
2		
4	- orange-brown, oxidation at 3.5ft BGS - dark orange-brown, trace coarse sands and fine gravels at 4.3ft BGS	
6	- dark brown at 5.3ft BGS - light brown at 5.8ft BGS	
8	SP-SANDS, trace silts and fine subrounded gravel, loose, fine to coarse grained, poorly graded, tan/beige, moist	697.75
10		
12	- fine grained at 10.25ft BGS - fine to coarse grained, brown at 12.5ft BGS	
14	- saturated at 13.5ft BGS - orange-brown at 15.0ft BGS	
16	- gray at 15.3ft BGS	689.25
18	SM-SILTY SAND, trace fine subrounded gravels, loose to compact, fine grained, poorly graded, gray, saturated	
20		
22		
24		
26		
28		
30		
32		
34		671.00
36	CL-SILTY CLAYS, trace fine subrounded gravels, soft to firm, low to medium plasticity, gray, moist	669.25
38	SM-SILTY SANDS, trace fine subrounded gravel, loose to compact, fine grained, poorly graded, gray, saturated	668.50
40	END OF BOREHOLE @ 37.0ft BGS	
42		
44		
46		



WELL DETAILS
Screened interval:
680.50 to 670.50ft AMSL
25.00 to 35.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
682.50 to 669.50ft AMSL
23.00 to 36.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'				1.9
2RS				1.5
3RS				1.8
4RS				7.3
5RS 11-13'				1.0
6RS				1.0
7RS				1.2
8RS				0.9
9RS				0.6
10RS				0.9
11RS				0.7
12RS				0.5
13RS				0.3
14RS				0.3
15RS				0.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

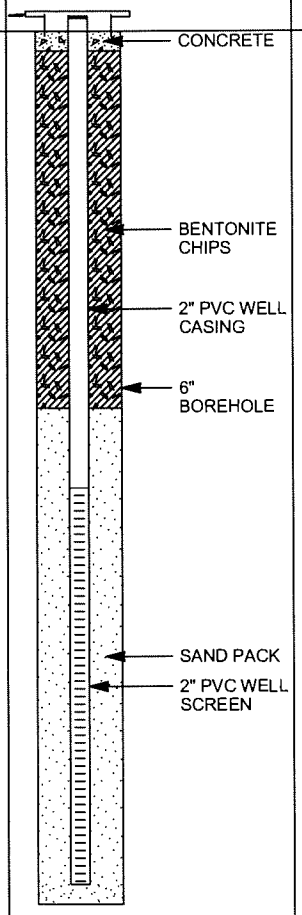
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-G-2S
DATE COMPLETED: March 4, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	708.73
	GROUND SURFACE	705.53
0	SM-SILTY SANDS, trace clays and fine subrounded gravels, loose to compact, fine grained, poorly graded, dark brown, moist	
2		
	- orange-brown, oxidation at 3.5ft BGS	
4		
	- dark brown at 5.3ft BGS	
	- light brown at 5.8ft BGS	
6		
8		697.78
	SP-SANDS, trace silts and fine subrounded gravels, loose, fine to coarse grained, poorly graded, tan/beige, moist	
10	- fine grained at 10.3ft BGS	
12	- fine to coarse grained, brown at 12.5ft BGS	
	- saturated at 13.5ft BGS	
14		
	- orange-brown at 15.0ft BGS	
	- gray at 15.3ft BGS	
16		689.28
	SM-SILTY SANDS, trace fine subrounded gravels, loose to compact, fine grained, poorly graded, gray, saturated	
18		
20		
22		683.53
	END OF BOREHOLE @ 22.0ft BGS	
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
694.03 to 684.03ft AMSL
11.50 to 21.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
696.03 to 683.53ft AMSL
9.50 to 22.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS				1.9
2RS				1.5
3RS				1.8
4RS				7.3
5RS				1.0
6RS				1.0
7RS				1.2
8RS				0.9
9RS				0.6

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

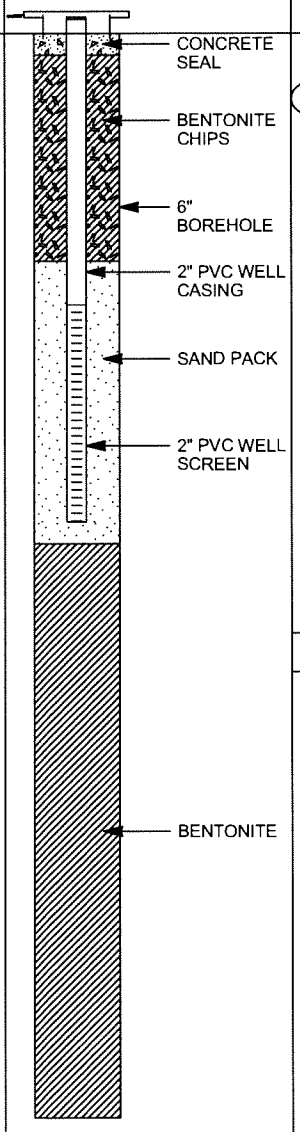
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-BG-1D
DATE COMPLETED: October 9, 2002
DRILLING METHOD: 4X6 ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	711.82
	GROUND SURFACE	709.50
0	ML-SILTS, with sands, loose, fine grained, non-plastic, trace fine gravels, vegetation, rootlets, dark brown, moist	
		705.50
5	SM-SILTY SANDS, loose, poorly graded, fine grained, trace coarse sands and fine gravels (to 2"), brownish orange, moist, oxidation	
	- very moist, light gray at 6.0ft BGS	703.00
	- saturated, gray at 7.0ft BGS	
10	SP-SANDS, with silts, fine to medium grained, loose, poorly graded, trace fine gravels (to 2"), light gray, very moist	698.00
	SM-SILTY SANDS, loose, poorly graded, very fine to fine grained, gray, saturated	
15		
20		690.00
	ML/SM-SILTS AND SILTY/SANDS, loose to compact, non-plastic, poorly graded, very fine grained, gray, saturated, non-plastic	687.50
	CL-SILTY CLAYS, trace fine coarse sands and fine gravels, firm to stiff, low plasticity, gray, moist, competent	
25		
	- stiff to very stiff at 29.0ft BGS	
30		
35		
40		
45		
50	END OF BOREHOLE @ 50.0ft BGS	659.50
55		
60		

MONITORING WELL



WELL DETAILS
Screened interval:
697.00 to 687.00ft AMSL
12.50 to 22.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
699.00 to 686.00ft AMSL
10.50 to 23.50ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'				0.3
2RS				0.4
3RS				0.8
4RS				0.7
5RS				0.1
6RS 27-29'				0.0
7RS				0.0
8RS				0.0
9RS				0.0
10RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

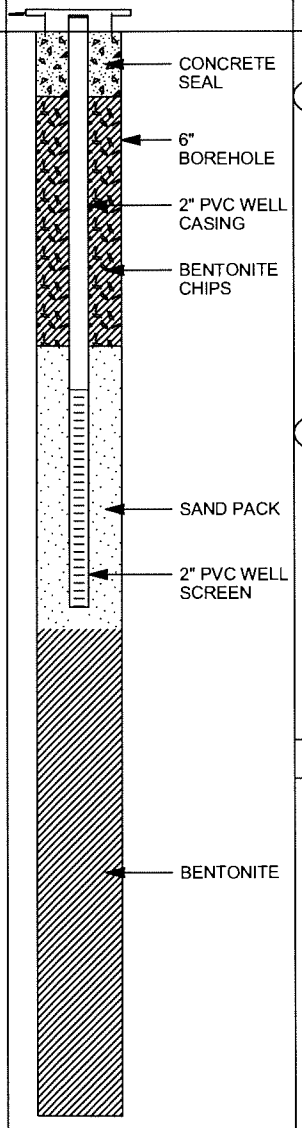
OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-BG-4D
DATE COMPLETED: October 8, 2002
DRILLING METHOD: 4x6 ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	703.59
	GROUND SURFACE	701.87
0	ML-SILTS, with sands, trace vegetation (rootlets), loose, non-plastic, fine grained, dark brown, moist	
		697.87
5	SM-SILTY SANDS, loose, poorly graded, very fine grained, trace coarse sands and fine gravels, light brown, moist, trace oxidation	695.87
10	SP-SANDS, with silts, trace coarse sands and fine gravels (to 1"), loose, poorly graded, fine grained, brown, moist - very moist at 7.0ft BGS - saturated, brown/gray at 9.0ft BGS	
15	- gray at 15.0ft BGS	
		684.87
20	ML/SM-SILTS AND SILTY SANDS, loose, non-plastic, fine grained, poorly graded, gray, saturated, non-plastic	681.87
	ML/SM-SILTS AND SANDS, loose, non-plastic, fine grained, poorly graded, gray, saturated, non-plastic	
25	ML-SANDY SILTS, loose, non-plastic, gray, saturated, trce silty clay nodules	677.37
	CL-SILTY CLAYS, firm, very low plasticity, gray, moist, competent	675.37
30	ML-CLAYEY SILTS, firm, very low plasticity, non-plastic, gray, moist, semi-competent	673.37
	CL-SILTY CLAYS, trace coarse sands and fine gravels, firm to stiff, low plasticity, gray, moist, competent	670.87
35	- stiff-very stiff at 36.0ft BGS	
40		
45		
50	END OF BOREHOLE @ 50.0ft BGS	651.87
55		
60		



WELL DETAILS
Screened interval:
685.37 to 675.37ft AMSL
16.50 to 26.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
687.37 to 674.37ft AMSL
14.50 to 27.50ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'				0.0
2RS				0.4
3RS				2.1
4RS				1.2
5RS				0.7
6RS				0.2
7RS 31-33'				0.0
8RS				0.0
9RS				0.0
10RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-BG-4S
DATE COMPLETED: October 10, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	TOP OF CASING GROUND SURFACE	704.08 700.49					
0	ML-SILTS, with sands, trace vegetation (rootlets), loose, non-plastic, fine grained, dark brown, moist		CONCRETE SEAL	1RS 0-2'			
		696.49	BENTONITE CHIPS				
5	SM-SILTY SANDS, loose, poorly graded, very fine grained, trace coarse sands and fine gravels, light brown, moist, trace oxidation	694.49	8-1/2" PVC WELL CASING 6" BOREHOLE	2RS			
10	SP-SANDS, with silts, trace coarse sands and fine gravels (to 1"), loose, poorly graded, fine grained, brown, moist - very moist at 7.0ft BGS - saturated, brown/gray at 9.0ft BGS			3RS			
15	- gray at 15.0ft BGS		SAND PACK				
	ML/SM-SILTS AND SILTY SANDS, loose, non-plastic, fine grained, poorly graded, gray, saturated, non-plastic	683.49	2" PVC WELL SCREEN	4RS			
20	END OF BOREHOLE @ 20.0ft BGS	680.49					
25							
30							
35							
40							
45							
50							
55							
60							

WELL DETAILS
Screened interval:
690.49 to 680.49ft AMSL
10.00 to 20.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
692.49 to 680.49ft AMSL
8.00 to 20.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

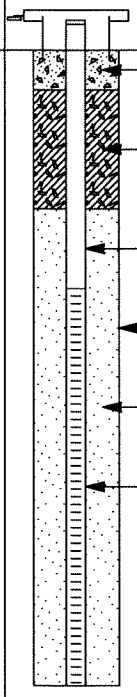
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-BG-5S
DATE COMPLETED: February 24, 2003
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	ML-SANDYS SILT(FILL), compact, fine grained, poorly graded, dark brown, moist	0.50
2	GP-GRAVELS WITH SANDS (FILL), trace to with silts, compact, coarse grained, angular gravels, poorly graded, gray, moist	2.50
4	SW-SANDS, trace silts, compact, fine to medium grained, well graded, light brown, moist	
6	- orange-brown at 6.5ft BGS	
8	- gray, wet at 8.0ft BGS	
10	SP-SANDS, trace silts, compact, coarse grained, poorly graded, gray, wet	10.50
12	SW-SANDS, trace silts, compact, fine to medium grained, well graded, gray, wet	11.50
14		
16	END OF BOREHOLE @ 16.0ft BGS	16.00
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
4.00 to 16.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1DP		100	0-2	0.0
2DP		100	6-8	0.0
3DP		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

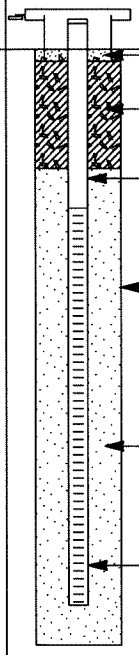
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-BG-6S
DATE COMPLETED: February 24, 2003
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	ML/SM-SANDY SILTS/SILTY SANDS (FILL), compact, fine grained, poorly graded, dark brown, moist, trace top soil	
1.50	SW-SANDS, trace silts, compact, fine to medium grained, well graded, light brown, moist	
	- wet at 5.5ft BGS - gray at 6.0ft BGS	
	- 1/2" lens coarse sand at 10.5ft BGS	
	- 1.5" lens coarse sand at 11.8ft BGS	
15.00	END OF BOREHOLE @ 15.0ft BGS	

MONITORING WELL



WELL DETAILS
Screened interval:
4.00 to 14.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
3.00 to 15.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1DP		100	0-2	0.0
2DP		100	3-5	0.0
3DP		100	100	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1DP)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

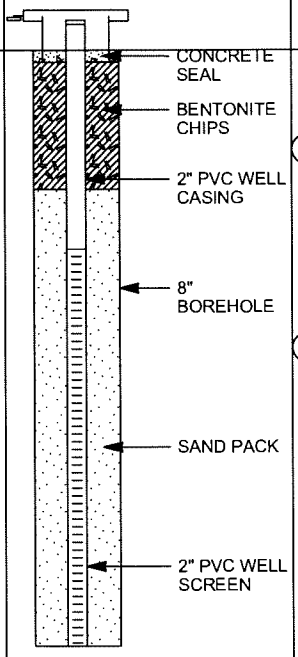
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-BG-7S
DATE COMPLETED: February 26, 2003
DRILLING METHOD: 4-1/4" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	CL-SILTY CLAYS (FILL), trace fine grained sands, trace coarse grained subangular gravels, stiff, low plasticity, gray, moist	1.10
2	SM-SILTY SANDS (FILL), trace topsoil, trace rootlets, compact, fine grained, poorly graded, dark brown, moist	2.10
4	SW-SANDS, trace silts, trace medium grained subrounded gravels, compact, fine to medium grained, well graded, light brown, moist	4.60
6	SM-SILTY SANDS, compact, fine grained, poorly graded, brown, moist - very moist at 6.0ft BGS	7.00
8	SW-SANDS, trace silts, compact, fine to medium grained, well graded, light brown, wet - 2" lens, dilutant sandy silt at 7.8ft BGS	
10		
12	- fine grained at 12.5ft BGS	
14	- fine to medium grained at 13.5ft BGS	
16	END OF BOREHOLE @ 15.0ft BGS	15.00
18		
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
3.50 to 15.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1DP		100	0-2	0.0
2DP		100	5-7	0.0
3DP		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-G-5D
DATE COMPLETED: July 23, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	706.59
	GROUND SURFACE	703.43
0	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, light gray, moist to very moist	702.43
2	- 1/2" organic sands at 0.9ft BGS	
	SP-SANDS, trace silts, trace fine grained rounded gravels (natural), compact, fine grained, poorly graded, medium brown, dry	
4	- light brown at 5.5ft BGS	
6		
8		
10	- wet at 10.5ft BGS	
	- 1" lens medium grained sands at 11.4ft BGS	
12	- medium grained at 12.0ft BGS	
14		
16	- trace coarse grained subrounded gravels at 15.5ft BGS	
18	- fine grained at 17.8ft BGS	
20		
22	- fine to medium grained at 22.5ft BGS	
	- fine grained at 23.1ft BGS	
24		
26		
28		
	CL-SILTY CLAYS, (natural), firm, low plasticity, gray, moist, homogeneous	674.73
30	- varved clay with fine silt lenses at 30.0ft BGS	
32	END OF BOREHOLE @ 32.0ft BGS	671.43
34		
36		
38		
40		
42		

MONITORING WELL

WELL DETAILS
Screened interval:
684.43 to 674.43ft AMSL
19.00 to 29.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Seal:
673.43 to 671.43ft AMSL
30.00 to 32.00ft BGS
Material: BENTONITE CHIPS
Sand Pack:
686.43 to 673.43ft AMSL
17.00 to 30.00ft BGS
Material: #5 SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1SS 0-2' -1219		100		0.0
2SS		100		0.0
3SS		0		--
4SS		65		0.0
5SS 8-10' -1220		65		0.0
6SS		80		0.0
7SS		80		0.0
8SS		80		0.0
9SS		50		0.0
10SS		50		0.0
11SS		60		0.0
12SS		100		0.0
13SS		0		--
14SS		0		--
15SS		80		0.0
16SS		80		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

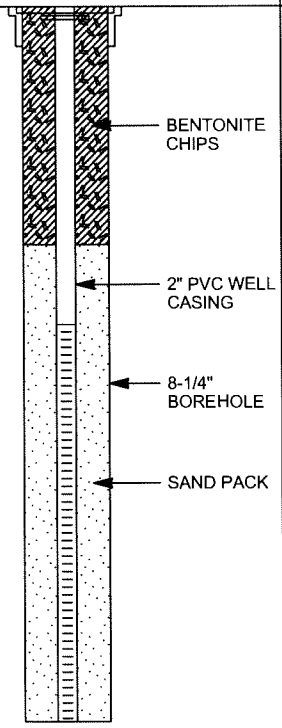
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-G-5S
DATE COMPLETED: July 23, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	706.38
	GROUND SURFACE	703.27
0	SP-SANDS, trace silts (FILL), compact, fine grained, poorly graded, light gray, moist to very moist	702.27
2	- 1/2" organic sands at 0.9ft BGS	
	SP-SANDS, trace silts, trace fine grained rounded gravels (natural), compact, fine grained, poorly graded, medium brown, dry	
4		
	- light brown at 5.5ft BGS	
6		
8		
10	- wet at 10.5ft BGS	
	- 1" lens medium grained sands at 11.4ft BGS	
12	- medium grained at 12.0ft BGS	
14		
	- trace coarse grained subrounded gravels at 15.5ft BGS	
16		
18	- fine grained at 17.8ft BGS	685.27
	END OF BOREHOLE @ 18.0ft BGS	
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
695.27 to 685.27ft AMSL
8.00 to 18.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
697.27 to 685.27ft AMSL
6.00 to 18.00ft BGS
Material: #5 SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1SS		100		0.0
2SS		100		0.0
3SS		0		--
4SS		65		0.0
5SS		65		0.0
6SS		80		0.0
7SS		80		0.0
8SS		80		0.0
9SS		50		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

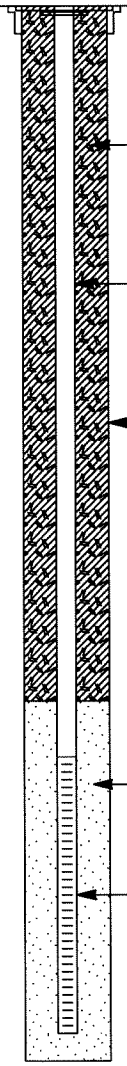
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-G-6D
DATE COMPLETED: July 22, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	708.48
	TOP OF RISER	707.76
0	SP-SANDS, trace silts, trace medium grained rounded gravels, loose, fine grained, poorly graded, dark brown, dry	
2	- compact, light brown, moist at 1.4ft BGS	
4	- medium grained at 2.9ft BGS	
6		
8		
10		
12	- medium to coarse grained at 11.0ft BGS	
14	- wet at 13.1ft BGS - fine grained at 13.5ft BGS	
16	- laminated at 15.5ft BGS	
18	- fine grained at 17.5ft BGS	
20	- medium brown, medium grained at 18.8ft BGS - light brown at 19.6ft BGS - fine grained at 21.0ft BGS	
22		
24		
26		
28		
30		
32	CL-SILTY CLAYS, firm, low plasticity, gray, moist	676.78 675.98
34	SP-SANDS, trace silts compact, fine grained, poorly graded, gray, wet	675.48
36	ML-CLAYEY SILTS, trace fine grained sands (natural), compact, fine grained with 1mm sand lenses, gray, moist	671.48
38	CL-SILTY CLAYS, firm, low plasticity, gray, moist	
40	END OF BOREHOLE @ 40.0ft BGS	668.48
42		
44		
46		
48		

MONITORING WELL



WELL DETAILS
Screened interval:
681.48 to 671.48ft AMSL
27.00 to 37.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Seal:
670.48 to 668.48ft AMSL
38.00 to 40.00ft BGS
Material: BENTONITE CHIPS
Sand Pack:
683.48 to 670.48ft AMSL

SAMPLE

NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
0-2' -1214 1SS		80		0.0
0-2' -1215 2SS		95		0.0
3SS		90		0.0
4SS		80		0.0
5SS		70		0.0
6SS 10-12' -1216		70		0.0
7SS		80		0.0
8SS		100		0.0
9SS		60		
10SS		60		0.0
11SS		50		0.0
12SS		60		0.0
13SS		85		0.0
14SS		100		0.0
15SS		100		0.0
16SS		100		0.0
17SS		100		0.0
18SS		100		0.0
19SS		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (O)

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-G-6D
DATE COMPLETED: July 22, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
52			25.00 to 38.00ft BGS Material: #5 SAND					
54								
56								
58								
60								
62								
64								
66								
68								
70								
72								
74								
76								
78								
80								
82								
84								
86								
88								
90								
92								
94								
96								
98								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-G-6S
DATE COMPLETED: July 22, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	708.21 705.08						
0	SP-SANDS, trace silts, trace medium grained rounded gravels, loose, fine grained, poorly graded, dark brown, dry			1SS		80		0.0
2	- compact, light brown, moist at 1.4ft BGS - medium grained at 2.9ft BGS		BENTONITE CHIPS	2SS		95		0.0
4			1" PVC WELL CASING	3SS		90		0.0
6			2-1/4" BOREHOLE	4SS		80		0.0
8				5SS		70		0.0
10	- medium to coarse grained at 11.0ft BGS			6SS		70		0.0
12	- wet at 13.1ft BGS		SAND PACK	7SS		80		0.0
14	- fine grained at 13.5ft BGS		1" PVC WELL SCREEN	8SS		100		0.0
16	- laminated at 15.5ft BGS			9SS		60		
18	- fine grained at 17.5ft BGS							
20	- medium brown, medium grained at 18.8ft BGS - light brown at 19.6ft BGS			10SS		60		0.0
22	END OF BOREHOLE @ 21.0ft BGS	684.08						
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
694.08 to 684.08ft AMSL
11.00 to 21.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: PVC
Sand Pack:
696.08 to 684.08ft AMSL
9.00 to 21.00ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

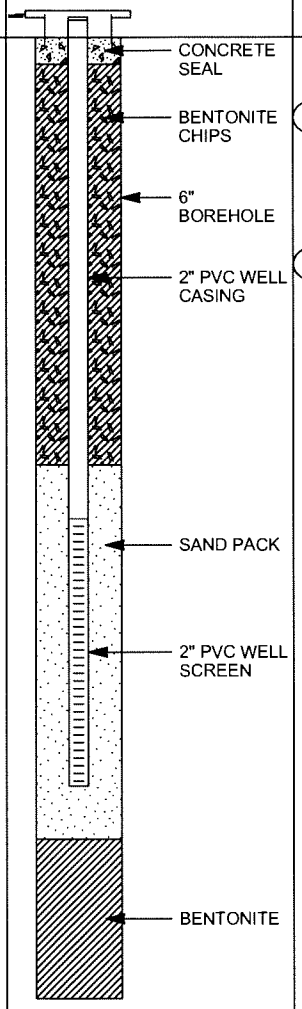
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-E-1D
DATE COMPLETED: October 9, 2002
DRILLING METHOD: 4x6 ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	704.32
	GROUND SURFACE	701.70
0	ML-SILTS, with sands, loose, non-plastic, fine grained - light brown, trace coarse sands and fine gravels at 1.5ft BGS - brownish orange, oxidation at 3.0ft BGS - light brown at 5.0ft BGS	
5		695.70
	SM-SILTY SANDS, trace coarse, loose, poorly graded, fine grained sands, tan/beige, moist	
10	- very moist to saturated at 10.0ft BGS - saturated, brown, trace coarse sands and fine gravels, fine to medium grained at 10.5ft BGS - fine grained, trace coarse sands/fine gravels at 12.5ft BGS	
15	- no coarse sands/fine gravels, very fine to fine grained, gray at 16.0ft BGS	
20		
25	ML/SM-SILTS AND SILTY SANDS, loose to competent, poorly graded, non-plastic, very fine grained, gray, saturated	677.20
	CL-SILTY CLAYS, firm, low plasticity, gray, moist, competent	674.20
30		
35	- firm to stiff at 33.0ft BGS	
	END OF BOREHOLE @ 36.0ft BGS	665.70
40		
45		
50		

MONITORING WELL



WELL DETAILS
Screened interval:
683.70 to 673.70ft AMSL
18.00 to 28.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
685.70 to 671.70ft AMSL
16.00 to 30.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'				0.3
2RS 8-10'				0.2
3RS				0.2
4RS				0.4
5RS				0.6
6RS				0.1
7RS				0.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-E-1S
DATE COMPLETED: September 25, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	TOP OF CASING GROUND SURFACE	704.34 701.66					
0	ML-SILTS, with sands, loose, non-plastic, fine grained - light brown, trace coarse sands and fine gravels at 1.5ft BGS - brownish orange, oxidation at 3.0ft BGS - light brown at 5.0ft BGS		CONCRETE SEAL BENTONITE CHIPS	1HA			
5	SM-SILTY SANDS, trace coarse, loose, poorly graded, fine grained sands, tan/beige, moist	695.66	8" BOREHOLE				
10	- very moist to saturated at 10.0ft BGS - saturated, brown, trace coarse sands the fine gravels, fine to medium grained at 10.5ft BGS - fine grained, trace coarse sands/fine gravels at 12.5ft BGS		2" PVC WELL CASING SAND PACK	2HA 3HA			
15	- no coarse sands/fine gravels, very fine to fine grained at 16.0ft BGS		2" PVC WELL SCREEN	4HA			
20	END OF BOREHOLE @ 19.0ft BGS	681.66					
25							
30							
35							
40							
45							
50							

WELL DETAILS
Screened interval:
692.66 to 682.66ft AMSL
9.00 to 19.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
694.66 to 682.66ft AMSL
7.00 to 19.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-E-2D
DATE COMPLETED: October 9, 2002
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	701.89 700.26						
0	ML-SILTS, with sands, trace vegetation (roots), trace coarse sands and gravels, loose, non plastic, fine grained, dark brown, moist - brownish orange, oxidation at 1.5ft BGS	697.26	8" BOREHOLE	1RS 0-2'				1.1
5	SM-SILTY SANDS, trace fine gravels, loose, poorly graded, fine to coarse grained, light brown, moist - increased silts, fine grained, tan/beige at 5.0ft BGS		BENTONITE GROUT					
10	- trace coarse sands and fine gravels, very moist at 7.0ft BGS - brown, saturated at 8.0ft BGS		2" PVC WELL CASING	2RS 6-8'				0.7
				3RS				0.0
15	- gray at 17.0ft BGS			4RS				0.0
20			SAND PACK					
25	ML/SM-SILTS AND SILTY SANDS, loose to compact, poorly graded, non plastic, fine grained, gray, saturated	677.26	2" PVC WELL SCREEN	5RS				0.0
30	CL-SILTY CLAYS, firm to stiff, low plasticity, competent, gray, moist	672.76		6RS				0.0
35			BENTONITE CHIPS	7RS				0.0
	END OF BOREHOLE @ 36.0ft BGS	664.26						
40								
45								
50								

WELL DETAILS
Screened interval:
682.26 to 672.26ft AMSL
18.00 to 28.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
684.26 to 670.26ft AMSL
16.00 to 30.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-E-2S
DATE COMPLETED: October 9, 2002
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	702.76 700.07						
0	ML-SILTS, with sands, trace vegetation (roots), trace coarse sands and gravels, loose, non plastic, fine grained, dark brown, moist		BENTONITE CHIPS	1RS				1.1
5	SM-SILTY SANDS, trace fine gravels, loose, poorly graded, fine to coarse grained, light brown, moist - increase silts, fine grained, tan/beige at 5.0ft BGS - trace coarse sands and fine gravels, very moist at 7.0ft BGS - brown, saturated at 8.0ft BGS	697.07	2" PVC WELL CASING 8-1/2" BOREHOLE	2RS				0.7
10			SAND PACK					
15			2" PVC WELL SCREEN	3RS				0.0
	END OF BOREHOLE @ 16.0ft BGS	684.07						
20			WELL DETAILS Screened interval: 694.07 to 684.07ft AMSL 6.00 to 16.00ft BGS Length: 10ft Diameter: 2in Slot Size: 0.010 Material: PVC Sand Pack: 696.07 to 684.07ft AMSL 4.00 to 16.00ft BGS Material: Silica Sand					
25								
30								
35								
40								
45								
50								

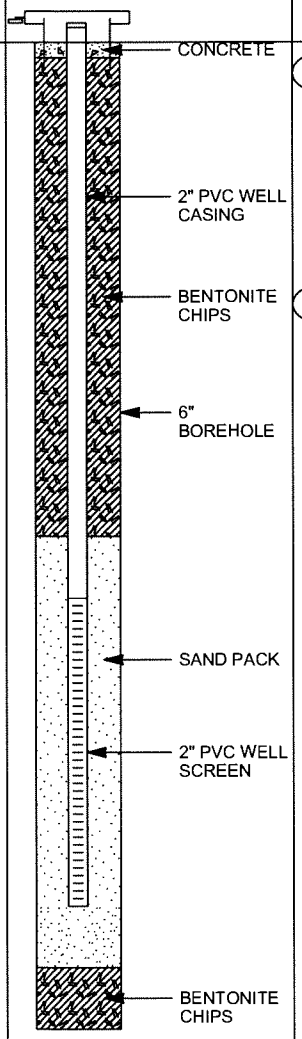
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-E-3D
DATE COMPLETED: March 5, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	702.44
	GROUND SURFACE	699.36
0	SM-SILTY SANDS, trace fine subrounded gravel, loose, fine to coarse grained, poorly graded, dark brown, moist, trace rootlets	
2	- fine and coarse grained, light brown at 2.0ft BGS	
4	- fine to coarse grained, orange brown, oxidation at 3.5ft BGS	
6	- brown at 4.0ft BGS	694.11
	SM/ML-SILTS AND SANDS, compact, fine grained, poorly graded, non-plastic, brown and orange mottled, moist, oxidation	693.61
8	SM-SILTY SANDS, trace fine subrounded gravel, loose, fine to coarse grained, poorly graded, brown, moist	
10	- fine grained, tan/beige at 8.0ft BGS	
12	- brown, very moist at 9.5ft BGS	
	- fine to medium grained, saturated at 10.0ft BGS	
14	- fine grained at 11.0ft BGS	
	- fine to medium grained at 12.5ft BGS	
16	- fine to coarse grained, orange, oxidation at 14.0ft BGS	
18	- fine grained, brown at 15.5ft BGS	
	- gray at 16.3ft BGS	
20		
22		
24	- trace silty clay nodules at 24.0ft BGS	
26		
28	CL-SILTY CLAYS, trace fine subrounded gravels, firm, low to medium plasticity, gray, moist	671.86
30		
32	END OF BOREHOLE @ 32.0ft BGS	667.36
34		
36		
38		
40		
42		
44		



WELL DETAILS
Screened interval:
681.36 to 671.36ft AMSL
18.00 to 28.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
683.36 to 669.36ft AMSL
16.00 to 30.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'				2.4
2RS				2.9
3RS				1.8
4RS 8-10'				1.4
5RS				0.9
6RS				1.9
7RS				2.0
8RS				0.8
9RS				0.3
10RS				0.1
11RS				0.1
12RS				0.1
13RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

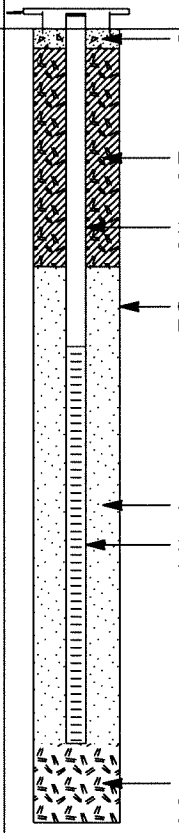
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-E-3S
DATE COMPLETED: March 5, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER GROUND SURFACE	702.45 699.31
0	SM-SILTY SANDS, trace fine subrounded gravel, loose, fine to coarse grained, poorly graded, dark brown, moist, trace rootlets	
2	- fine to coarse grained, light brown at 2.0ft BGS	
4	- fine to coarse grained, orange brown, oxidation at 3.5ft BGS - brown at 4.0ft BGS	
6	SM/ML-SILTS AND SANDS, compact, fine grained, poorly graded, non-plastic, brown and orange mottled, moist, oxidation	694.06 693.56
8	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine to coarse grained, poorly graded, brown, moist - fine grained, tan/beige at 8.0ft BGS	
10	- brown, very moist at 9.5ft BGS - fine to medium grained, saturated at 10.0ft BGS	
12	- fine grained at 11.0ft BGS - fine to medium grained at 12.5ft BGS	
14	- fine to coarse grained, orange, oxidation at 14.0ft BGS	
16	- fine grained, brown - gray at 16.25ft BGS at 15.5ft BGS	
18		
20	END OF BOREHOLE @ 20.0ft BGS	679.31
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
691.31 to 681.31ft AMSL
8.00 to 18.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
693.31 to 681.31ft AMSL
6.00 to 18.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS				2.4
2RS				2.9
3RS				1.8
4RS				1.4
5RS				0.9
6RS				1.9
7RS				20
8RS				0.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

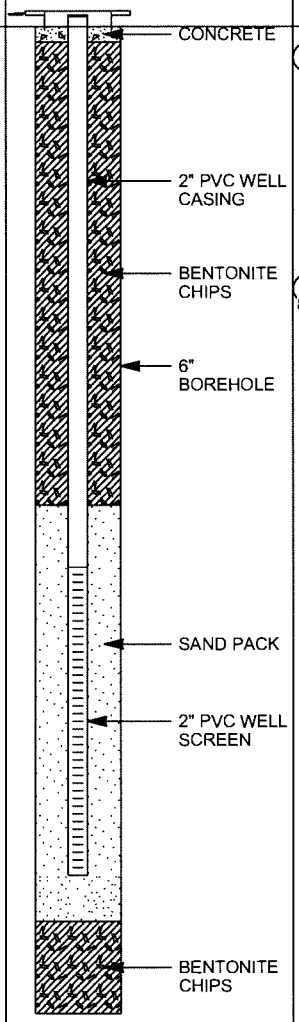
OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-E-4D
DATE COMPLETED: March 5, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	702.44
	GROUND SURFACE	699.36
0	SM-SILTY SANDS (FILL), trace fine subrounded gravel, loose, fine grained, poorly graded, dark brown, moist, trace rootlets	
2	- light brown at 1.5ft BGS	
4		
6	FILL, RED BRICK AND WOOD DEBRIS	693.36
		692.61
8	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, light brown, moist	
10	- very moist at 10.0ft BGS	
		688.86
12	SM/ML-SILTS AND SANDS, compact, fine grained, poorly graded, non-plastic, brown, very moist to saturated	688.36
14	SM-SILTY SANDS, trace fine subrounded gravel, loose, fine grained, poorly graded, brown, saturated	
16	- gray at 16.25ft BGS	
18		
20		
22		
24		
26	- compact, trace silty clay nodules at 26.0ft BGS	
		672.36
28	CL-SILTY CLAYS, trace fine subrounded gravels, firm, low to medium plasticity, gray, moist	
30		
32	END OF BOREHOLE @ 32.0ft BGS	667.36
34		
36		
38		
40		
42		
44		



WELL DETAILS
Screened interval:
681.86 to 671.86ft AMSL
17.50 to 27.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
683.86 to 670.36ft AMSL
15.50 to 29.00ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'				2.8
2RS				3.0
3RS				3.2
4RS 8.5-10.5'				2.5
5RS				1.8
6RS				1.3
7RS				1.5
8RS				1.0
9RS				1.2
10RS				1.0
11RS				0.8
12RS				0.2
13RS				0.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (◯)

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

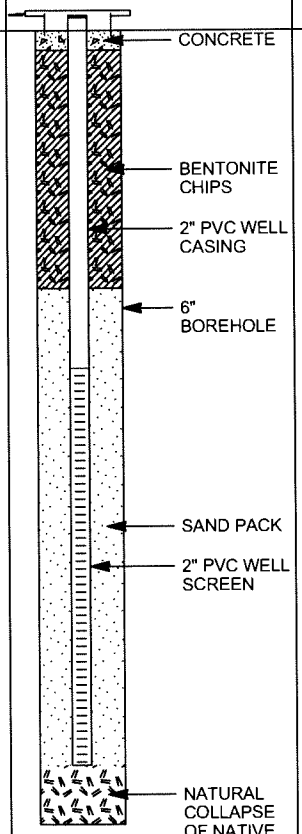
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-E-4S
DATE COMPLETED: March 5, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	702.48
	GROUND SURFACE	699.53
0	SM-SILTY SAND (FILL), trace fine subrounded gravel, loose, fine grained, poorly graded, dark brown, moist, trace rootlets	
2	- light brown at 1.5ft BGS	
4		
6	FILL, RED BRICK AND WOOD DEBRIS	693.53
	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, light brown, moist	692.78
8		
10	- very moist at 10.0ft BGS	
	SM/ML-SILTS AND SANDS, compact, fine grained, poorly graded, non-plastic, brown, very moist to saturated	689.03 688.53
12	SM-SILTY SANDS, trace fine subrounded gravel, loose, fine grained, poorly graded, brown, saturated	
14		
16	- gray at 16.5ft BGS	
18		
20	END OF BOREHOLE @ 20.0ft BGS	679.53
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
691.03 to 681.03ft AMSL
8.50 to 18.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
693.03 to 681.03ft AMSL
6.50 to 18.50ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS				2.8
2RS				3.0
3RS				3.2
4RS				2.5
5RS				1.8
6RS				1.3
7RS				1.5
8RS				1.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-MW.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-1S
DATE COMPLETED: September 25, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	709.88 706.43						
0	SP-SANDS, with silts, trace fine subrounded gravel, trace vegetation, loose, poorly graded, fine grained, dark brown, moist		CONCRETE SEAL					
2	- no vegetation, brown with slight orange hue at 0.8ft BGS		MEDIUM BENTONITE CHIPS	1AL (0-2')				0.0
4								
6			8-1/2" BOREHOLE	2AL				0.0
8	- beige at 8.5ft BGS		2" PVC WELL CASING					
10				3AL (10-12')				0.0
12	- wet at 12.0ft BGS		SAND PACK					
14				4AL				0.0
16			2" PVC WELL SCREEN					
18								
20	END OF BOREHOLE @ 20.0ft BGS	686.43						
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
696.43 to 686.43ft AMSL
10.00 to 20.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
698.43 to 686.43ft AMSL
8.00 to 20.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-2S
DATE COMPLETED: September 25, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	709.26 706.24						
2	SP-SANDS, with silts, trace vegetation (rootlets), trace fine gravel, loose, poorly graded, fine grained dark brown, moist - no vegetation, beige at 0.5ft BGS		CONCRETE SEAL BENTONITE CHIPS	1AL 0-2'		85		1.1
4								
6			8-1/2" BOREHOLE	2AL		25		1.2
8			2" PVC WELL CASING					
10				3AL 10-12'		50		0.6
12	- wet at 12.0ft BGS		SAND PACK					
14								
16			2" PVC WELL SCREEN					
18								
20	END OF BOREHOLE @ 20.0ft BGS	686.24						
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
696.24 to 686.24ft AMSL
10.00 to 20.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
698.24 to 686.24ft AMSL
8.00 to 20.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-3S
DATE COMPLETED: September 25, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	708.69 705.66						
0	SP-SANDS, with silts, trace vegetation (grass and rootlets), trace fine subrounded gravel, loose, poorly graded, fine grained, dark brown, moist - no vegetation at 0.3ft BGS - very dark brown/black at 1.0ft BGS - brown/beige at 1.2ft BGS		CONCRETE SEAL	1AL 0-2'		100		0.0
4			MEDIUM BENTONITE CHIPS					
6			8-1/2" BOREHOLE	2AL		75		0.0
8			2" PVC WELL CASING					
10	- wet at 10.0ft BGS			3AL 8-10'		75		0.0
12	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, brown, wet	694.16	SAND PACK					
14								
16			2" PVC WELL SCREEN					
18	END OF BOREHOLE @ 18.0ft BGS	687.66						
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
697.66 to 687.66ft AMSL
8.00 to 18.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
699.66 to 687.66ft AMSL
6.00 to 18.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1AL)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-4D
DATE COMPLETED: October 8, 2002
DRILLING METHOD: 4x6 ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	703.32 700.60						
0	ML-SILTS, with sands, trace vegetation (rootlets), loose, non-plastic, fine grained, dark brown, damp to moist	698.10	CONCRETE SEAL	1RS 0-2'				0.7
5	SM-SILTY SANDS, trace coarse sands to fine gravels, loose, poorly graded, fine grained, tan/beige, moist, trace oxidation - very moist to saturated, gray at 8.0ft BGS		6" BOREHOLE 2" PVC WELL CASING	2RS 6-8'				1.1
10	SP-SANDS, trace silts and gravels (to 2"), loose, poorly graded, fine grained, gray, saturated	691.10 688.60	BENTONITE CHIPS	3RS				2.9
15	SM-SILTY SANDS, loose, compact, poorly graded, fine grained, gray, saturated - orange at 15.0ft BGS - gray at 16.0ft BGS	683.60		4RS				0.8
20	SM/ML-SILTS AND SILTY SANDS, compact, poorly graded, very fine grained, gray, saturated		SAND PACK	5RS				0.7
25	ML-SANDY SILTS, trace silty clay, compact, non-plastic, very fine grained, gray, saturated,	677.60 673.10	2" PVC WELL SCREEN	6RS				0.2
30	CL-SILTY CLAYS, firm, low plasticity, damp to moist, gray, competent			7RS				0.0
35	- stiff to very stiff, trace coarse sands, fine gravels at 34.0ft BGS			8RS				0.0
40			BENTONITE	9RS				0.0
45				10RS				0.0
50	END OF BOREHOLE @ 50.0ft BGS	650.60						
55								
60								

WELL DETAILS
Screened interval:
682.60 to 672.60ft AMSL
18.00 to 28.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
684.60 to 650.60ft AMSL
16.00 to 50.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-4S
DATE COMPLETED: October 8, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	TOP OF CASING GROUND SURFACE	703.41 700.70					
0	ML-SILTS, with sands, trace vegetation (rootlets), loose, non-plastic, fine grained, dark brown, damp to moist	698.20	CONCRETE SEAL	1HA 0-2'			
5	SM-SILTY SANDS, trace coarse sands to fine gravels, loose, poorly graded, fine grained, tan/beige, moist, trace oxidation - very moist to saturated, gray at 8.0ft BGS		BENTONITE CHIPS 2" PVC WELL CASING	2HA 6-8'			
10	SP-SANDS, trace silts and gravels (to 2"), loose, poorly graded, fine grained, gray, saturated	691.20 688.70	8-1/2" BOREHOLE	3HA			
15	SM-SILTY SANDS, loose, compact, poorly graded, fine grained, gray, saturated - orange at 15.0ft BGS - gray at 16.0ft BGS			4HA			
20	END OF BOREHOLE @ 17.0ft BGS	683.70					
25							
30							
35							
40							
45							
50							
55							
60							

WELL DETAILS
Screened interval:
693.70 to 683.70ft AMSL
7.00 to 17.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
695.70 to 683.70ft AMSL
5.00 to 17.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

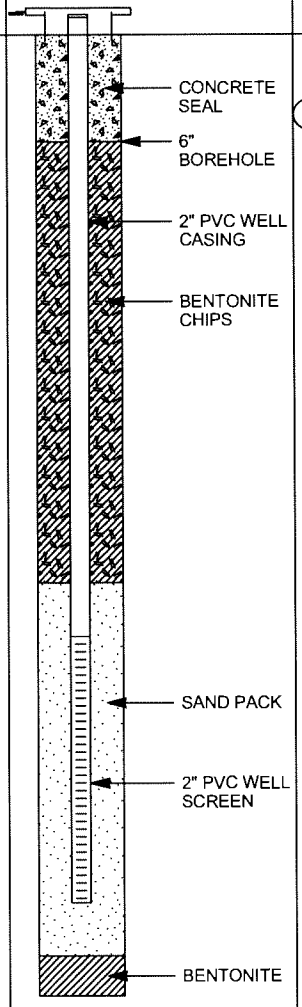
OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-5D
DATE COMPLETED: October 2, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	706.60
	GROUND SURFACE	704.50
0	ML-SILTS, with sands, loose, fine grained, trace coarse sands and fine gravels, non-plastic, dark brown, trace vegetation, moist	
	- trace fine gravels, brownish orange, oxidation at 3.0ft BGS	700.50
5	SM-SILTY SANDS, trace fine gravels, loose, poorly graded, fine grained and coarse grained, tan/beige, moist, poorly graded	697.00
10	SP-SANDS, trace silts and gravels (fine), loose, poorly graded, loose, fine to coarse grained, brown, moist - very moist, brown, gray at 10.0ft BGS - saturated gray at 11.0ft BGS - fine and coarse grained, trace fine gravels at 12.0ft BGS	
15		687.50
20	SM-SILTY SANDS, trace fine gravels, loose, compact, poorly graded, fine to medium grained, gray, saturated - fine grained to very fine grained at 21.0ft BGS	
25		677.50
30	ML-SANDY SILTS, trace silty clay, compact, non-plastic, very fine grained, gray, saturated, trace silty clay inclusions	
35	CL-SILTY CLAYS, firm, low plasticity, gray, moist	672.50
	END OF BOREHOLE @ 36.0ft BGS	668.50
40		
45		
50		



WELL DETAILS
Screened interval:
682.00 to 672.00ft AMSL
22.50 to 32.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
684.00 to 670.00ft AMSL
20.50 to 34.50ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1RS 0-2'				2.9
2RS 9-11'				0.2
3RS				1.0
4RS				0.6
5RS				0.7
6RS				0.1
7RS				0.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1RS)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-5S
DATE COMPLETED: October 8, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	TOP OF CASING GROUND SURFACE	706.13 704.42					
	ML-SILTS, with sands, loose, fine grained, trace coarse sands and fine gravels, non-plastic, dark brown, trace vegetation, moist - trace fine gravels, brownish orange, oxidation at 3.0ft BGS		CONCRETE SEAL 8-1/2" BOREHOLE	1HA			
5	SM-SILTY SANDS, trace fine gravels, loose, poorly graded, fine grained and coarse grained, tan/beige, moist, poorly graded	700.42	BENTONITE CHIPS				
	SP-SANDS, trace silts and gravels (fine), loose, poorly graded, loose, fine to coarse grained, brown, moist - very moist, brown, gray at 10.0ft BGS - saturated gray at 11.0ft BGS - fine and coarse grained, trace fine gravels at 12.0ft BGS	696.92	2" PVC WELL CASING	2HA			
10							
15			SAND PACK	3HA			
			2" PVC WELL SCREEN				
	SM-SILTY SANDS, trace fine gravels, loose, compact, poorly graded, fine to medium grained, gray, saturated	687.42		4HA			
20	END OF BOREHOLE @ 20.0ft BGS	684.42					
25							
30							
35							
40							
45							
50							

WELL DETAILS
Screened interval:
694.42 to 684.42ft AMSL
10.00 to 20.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
696.42 to 684.42ft AMSL
8.00 to 20.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MI

HOLE DESIGNATION: MW-S-7S
DATE COMPLETED: March 4, 2003
DRILLING METHOD: 4.25" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DIETNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	708.97 705.90						
0	SM-SILTY SANDS (FILL), trace topsoil and rootlets, compact, fine grained, poorly graded, dark brown, moist		CONCRETE SEAL					
2	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, light brown, moist	704.10	BENTONITE CHIPS	1AL 0-2'		100		0.0
4	- trace fine grained rounded gravels at 3.5 BGS		2" PVC WELL SCREEN					
6				2AL		100		0.0
8								
10								
12	- wet at 13.0 ft BGS			3AL 11-13'		100		0.0
14	- fine grained at 14.5 ft BGS		SAND PACK					
16			2" PVC WELL SCREEN					
18	- medium to coarse grained at 17.0 ft BGS - fine to medium grained at 17.5 ft BGS			4AL		100		0.0
20								
22	END OF BOREHOLE @ 21.0ft BGS	684.90						
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
694.90 to 684.90ft AMSL
11.00 to 21.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
696.90 to 684.90ft AMSL
9.00 to 21.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-FRANS.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-8D
DATE COMPLETED: February 27, 2003
DRILLING METHOD: HOLLOW STEM AUGER
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	707.96 704.82						
0	SM-SILTY SANDS, trace clays and fine subrounded gravels, loose, fine to coarse gravel, poorly graded, dark brown, moist, trace rootlets		CONCRETE SEAL	1AL 0-2'				4.6
2	- with silts, trace fine subrounded gravels, fine grained, brown, moist at 2.5ft BGS		6" BOREHOLE	2AL				5.2
4								
6	- trace red brick debris at 6.5ft BGS		BENTONITE CHIPS	3AL				5.5
8	- very moist at 8.0ft BGS		2" PVC WELL CASING	4AL 7-9'				4.2
	- saturated at 9.0ft BGS							
10				5AL				3.1
12								
			SAND PACK	6AL				3.0
14								
16			2" PVC WELL SCREEN	7AL				2.8
	- light gray at 17.0ft BGS							
18	- gray at 18.0ft BGS			8AL				2.8
20								
				9AL				0.1
22								
	CL-SILTY CLAYS, trace fine subrounded gravels, firm to stiff, low to medium plasticity, gray, moist	681.82		10AL				0.1
24								
26			BENTONITE CHIPS	11AL				0.0
	END OF BOREHOLE @ 27.0ft BGS	677.82						
28								
30								
32								
34								

WELL DETAILS
Screened interval:
691.32 to 681.32ft AMSL
13.50 to 23.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
693.32 to 679.82ft AMSL
11.50 to 25.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-8S
DATE COMPLETED: February 27, 2003
DRILLING METHOD: HOLLOW STEM AUGER
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	708.24 705.04						
0	SM-SILTY SANDS, trace clays and fine subrounded gravels, loose, fine to coarse gravel, poorly graded, dark brown, moist, trace rootlets		CONCRETE SEAL	1AL				4.6
2	- with silts, trace fine subrounded gravels, fine grained, brown, moist at 2.5ft BGS		8-1/2" BOREHOLE	2AL				5.2
4								
6	- trace red brick debris at 6.5ft BGS		BENTONITE CHIPS	3AL				5.5
8	- very moist at 8.0ft BGS - saturated at 9.0ft BGS		2" PVC WELL CASING	4AL				4.2
10				5AL				3.1
12			SAND PACK	6AL				3.0
14								
16	- light gray at 17.0ft BGS		2" PVC WELL SCREEN	7AL				2.8
18	- gray at 18.0ft BGS			8AL				2.8
	END OF BOREHOLE @ 19.0ft BGS	686.04						
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
696.04 to 686.04ft AMSL
9.00 to 19.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
698.04 to 686.04ft AMSL
7.00 to 19.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

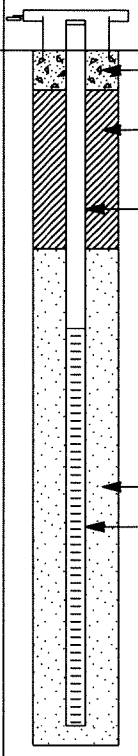
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MI

HOLE DESIGNATION: MW-S-9S
DATE COMPLETED: March 4, 2003
DRILLING METHOD: 4.25" HSA/DIRECT PUSH
FIELD PERSONNEL: D. DIETNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	704.34
2	SM-SILTY SANDS (FILL), trace coarse grained round gravels, trace topsoil and rootlets, compact, fine grained, poorly graded, dark brown, moist	
	- 1/2" lens silty sands at 0.8 ft BGS	
	- 2 1/2" lens silty sand, gravels at 1.1 ft BGS	701.24
4	- 1" wood debris at 2.9 ft BGS	
	SP-SANDS, trace silts, compact, fine to medium grained, poorly graded, medium brown, moist	
6	- trace coarse grained rounded gravels at 5.7 ft BGS	
8		
	- wet at 9.5 ft BGS	
10		
12		
14	- gray at 14.0 ft BGS	
	- fine grained at 15.5 ft BGS	
16	- fine to medium grained at 16.0 ft BGS	
	- fine grained at 16.5 ft BGS	
18	END OF BOREHOLE @ 17.5ft BGS	686.84
20		
22		
24		
26		
28		
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
697.34 to 687.34ft AMSL
7.00 to 17.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
699.34 to 686.84ft AMSL
5.00 to 17.50ft BGS
Material: SAND

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL 0-2'		100		0.0
2AL 7.5-9.5'		100		0.0
3AL		100		0.0
4AL		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607-FRANS.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-10D
DATE COMPLETED: February 24, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	706.31 703.42						
0	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, brown, moist, trace oxidation		CONCRETE SEAL	1AL 0-2'				0.0
2			BENTONITE CHIPS	2AL				0.0
4								
6			2" PVC WELL CASING	3AL				1.4
8				4AL 9-11'				0.3
10	- very moist at 10.0ft BGS		6" BOREHOLE					
	- saturated at 11.0ft BGS			5AL				0.0
12								
	- light gray at 13.0ft BGS			6AL				0.0
14								
16	- gray at 16.0ft BGS			7AL				0.0
18				8AL				0.0
20								
			SAND PACK	9AL				0.0
22								
				10AL				0.0
24			2" PVC WELL SCREEN					
		677.92						
26	CL-SILTY CLAYS, trace fine subrounded gravels, firm to stiff, low to medium plasticity, gray, moist			11AL				0.0
		676.42						
28	END OF BOREHOLE @ 27.0ft BGS							
30								
32								
34								

WELL DETAILS
Screened interval:
687.92 to 677.92ft AMSL
15.50 to 25.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
690.42 to 676.42ft AMSL
13.00 to 27.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-10S
DATE COMPLETED: February 27, 2003
DRILLING METHOD: HOLLOW STEM AUGER
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	706.33 703.15						
0	SM-SILTY SANDS, trace fine subrounded gravels, loose, fine grained, poorly graded, brown, moist, trace oxidation		CONCRETE SEAL	1AL				0.0
2			BENTONITE CHIPS	2AL				0.0
4								
6			2" PVC WELL CASING	3AL				1.4
8				4AL				0.3
10	- very moist at 10.0ft BGS		8-1/2" BOREHOLE					
	- saturated at 11.0ft BGS			5AL				0.0
12	- light gray at 13.0ft BGS			6AL				0.0
14			SAND PACK					
16	- gray at 16.0ft BGS		2" PVC WELL SCREEN	7AL				0.0
18	END OF BOREHOLE @ 17.5ft BGS	685.65						
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
695.65 to 685.65ft AMSL
7.50 to 17.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
697.65 to 685.65ft AMSL
5.50 to 17.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

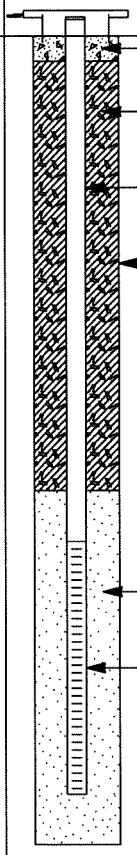
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-11D
DATE COMPLETED: February 25, 2003
DRILLING METHOD: ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	706.40
	GROUND SURFACE	703.29
0	SM-SILTY SANDS, trace clays and fine subrounded gravels, loose, fine to medium grained, poorly graded, orange brown, moist	
	- light brown at 4.0ft BGS	
5	- orange brown at 5.0ft BGS	
	- trace coarse sands and fine subrounded gravels, fine grained at 7.0ft BGS	
10	- very moist, fine to medium grained, brown at 10.0ft BGS	
	- saturated, trace fine to medium subrounded gravels at 10.5ft BGS	
	- fine grained at 13.0ft BGS	
15	- gray at 14.0ft BGS	
20		
25	SM/ML-SANDS AND SILTS, compact, fine grained, poorly grained, nonplastic, gray, saturated	678.29
30	CL-SILTY CLAYS, trace fine subrounded gravels, firm to stiff, low to medium plasticity, gray, moist	673.79
	END OF BOREHOLE @ 32.0ft BGS	671.29
35		
40		
45		
50		

MONITORING WELL



WELL DETAILS
Screened interval:
683.29 to 673.29ft AMSL
20.00 to 30.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
685.29 to 671.29ft AMSL
18.00 to 32.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1AL 0-2'				0.5
2AL				0.2
3AL 9-11'				0.3
4AL				0.3
5AL				0.0
6AL				0.0
7AL				0.0
8AL				0.0
9AL				0.0
10AL				0.0
11AL				0.0
12AL				0.0
13AL				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-S-11S
DATE COMPLETED: February 27, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	706.04 702.96						
0	SM-SILTY SANDS, trace clays and fine subrounded gravels, loose, fine to medium grained, poorly graded, orange brown, moist		CONCRETE SEAL	1AL				0.5
2			BENTONITE CHIPS	2AL				0.2
4	- light brown at 4.0ft BGS - orange brown at 5.0ft BGS			3AL				0.3
6			2" PVC WELL CASING					
8	- trace coarse sands and fine subrounded gravels, fine grained at 7.0ft BGS		8-1/2" BOREHOLE	4AL				0.3
10	- saturated, trace fine to medium subrounded gravels at 10.5ft BGS			5AL				0.0
12	- fine grained at 13.0ft BGS			6AL				0.0
14	- gray at 14.0ft BGS		SAND PACK					
16			2" PVC WELL SCREEN	7AL				0.0
18				8AL				0.0
19	END OF BOREHOLE @ 19.0ft BGS	683.96						
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
693.96 to 683.96ft AMSL
9.00 to 19.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
695.96 to 683.96ft AMSL
7.00 to 19.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

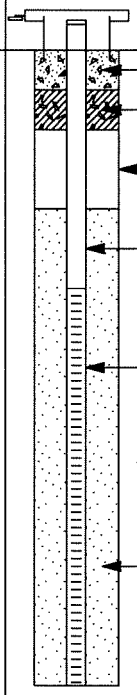
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-W-1S
DATE COMPLETED: October 10, 2002
DRILLING METHOD:
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	ML-SITS AND SANDS, loose, fine grained, non plastic, dark brown, moist, trace fine gravels, vegetation/roots	
3.00	CL-CLAYEY SANDS, trace silts, loose, poorly graded, fine grained, low plsaticity, dark brown and orange mottled, moist, oxidation	3.00
4.00	SM-SILTY SANDS, loose, poorly graded, fine grained, trace coarse sands, light brown, moist - brown at 6.0ft BGS - very moist - saturated at 7.0ft BGS - saturated, brown-gray at 8.0ft BGS - gray at 9.0ft BGS	4.00
16.00	END OF BOREHOLE @ 16.0ft BGS	16.00

MONITORING WELL



WELL DETAILS
Screened interval:
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
4.00 to 16.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1		100		0.0
2		100		0.0
3		100		0.0
4		100		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

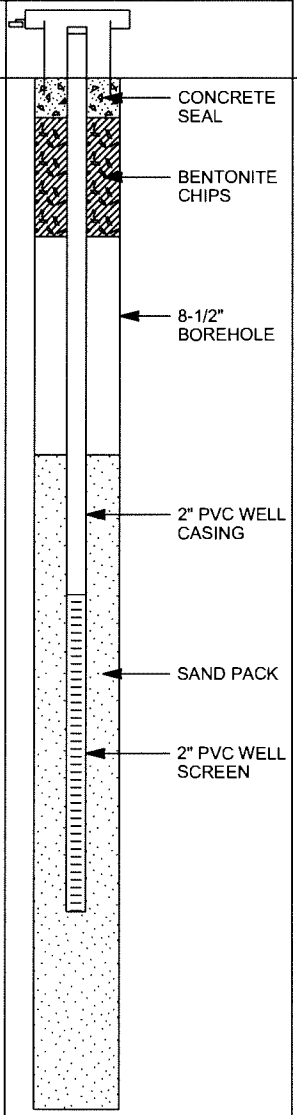
OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-W-1D
DATE COMPLETED: October 10, 2002
DRILLING METHOD:
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0	ML-SITS AND SANDS, loose, fine grained, non plastic, dark brown, moist, trace fine gravels, vegetation/roots	
3.00	CL-CLAYEY SANDS, trace silts, loose, poorly graded, fine grained, low plsaticity, dark brown and orange mottled, moist, oxidation	3.00
4.00	SM-SILTY SANDS, loose, poorly graded, fine grained, trace coarse sands, light brown, moist - brown at 6.0ft BGS - very moist - saturated at 7.0ft BGS - saturated, brown-gray at 8.0ft BGS - gray at 9.0ft BGS	4.00
14.50	ML-SILTS AND SANDS, loose to compact, very fine to fine grained, non plastic, gray, saturated	14.50
20.50	ML/CL-SILTY CLAYS, trace coarse sands, firm, trace plasticity, gray, moist - firm to stiff at 23.0ft BGS	20.50
26.00	END OF BOREHOLE @ 26.0ft BGS	26.00



WELL DETAILS
Screened interval:
11.00 to 21.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
9.50 to 26.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1		100		1.7
2		100		1.2
3		100		0.7
4		100		0.3
5		100		0.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-W-2D
DATE COMPLETED: October 10, 2002
DRILLING METHOD: 4X6 ROTOSONIC
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	707.90 705.63						
0-4	ML-SILTS, with sands, trace fine gravels, loose, non-plastic, fine grained, dark brown, moist, vegetation (rootlets) - orange, oxidation at 1.0ft BGS		CONCRETE SEAL BENTONITE CHIPS 8-1/2" BOREHOLE 2" PVC WELL CASING	1RS 0-2'				0.3
4-18	SM-SILTY SANDS, loose, fine grained, poorly graded, trace coarse sands, tan/beige, moist - very moist at 7.5ft BGS - saturated at 8.5ft BGS	702.63		2RS 6-8'				0.6
			SAND PACK	3RS				1.3
			2" PVC WELL SCREEN					
18-20	ML-SILTS, with sands and clays, compact/firm, very low to non-plastic, fine grained, gray, saturated	687.63		4RS				0.1
20-34	CL-SILTY CLAYS, trace coarse sands and fine gravels, competent, firm to stiff, low plasticity, gray, moist, - stiff to very stiff at 24.0ft BGS	684.63		5RS 26-28'				0.0
				6RS				0.0
			BENTONITE	7RS				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (box)

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: MW-W-2S
DATE COMPLETED: October 9, 2002
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	708.23 705.70						
0	ML-SILTS, with sands, trace vegetation, loose, fine grained, dark brown, moist		CONCRETE SEAL					
2			BENTONITE CHIPS	1AL 0-2'		95		0.0
4	SM-SILTY SANDS, loose, fine grained, trace coarse sands, tan/beige, moist	702.70	8-1/2" BOREHOLE					
6			2" PVC WELL CASING					
8	- very moist at 7.5ft BGS - wet at 8.5ft BGS		SAND PACK	2AL				0.0
10			2" PVC WELL SCREEN					
12								
14								
16								
	END OF BOREHOLE @ 16.5ft BGS	689.20						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
699.20 to 689.20ft AMSL
6.50 to 16.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
701.20 to 689.20ft AMSL
4.50 to 16.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/16/03

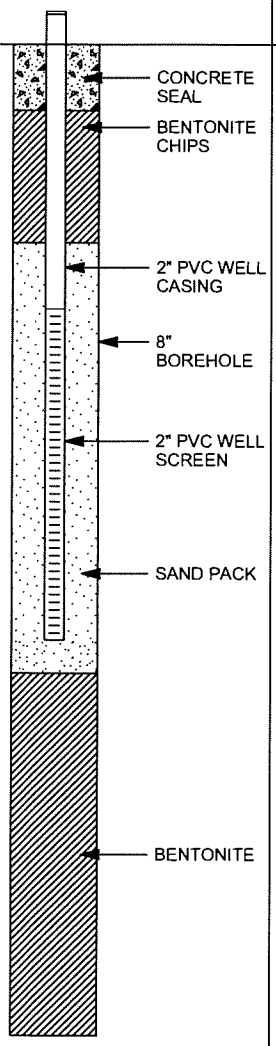
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: PZ-BG-1
DATE COMPLETED: October 16, 2002
DRILLING METHOD: 8-1/4" HSA
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	705.52
	GROUND SURFACE	703.31
0	SP-SANDS, with silts, trace fine gravels, loose, fine grained, poorly graded, brown, moist, trace vegetation	
2	- light brown, trace oxidation at 0.5ft BGS	
4	- tan/beige at 4.0ft BGS	
6	SP-SANDS, trace fine gravels and silts, fine to medium grained, poorly graded, loose, light brown, moist	697.31
8		
10	SP-SANDS, with silts, compacte, fine grained, poorly graded, brown, very moist	693.81
12	- saturated at 10.0ft BGS	
14	- very fine grained to fine grained at 14.0ft BGS	
16		
18	- fine grained, brown/gray at 17.5ft BGS - gray at 18.0ft BGS	
20		
22		
24	- very fine grained to fine grained at 23.5ft BGS	
26		
28	CL-SILTY CLAYS, firm, low plasticity, gray, moist, competent	676.31
30	END OF BOREHOLE @ 30.0ft BGS	673.31
32		
34		
36		
38		
40		

PIEZOMETER WELL



WELL DETAILS
Screened interval:
695.31 to 685.31ft AMSL
8.00 to 18.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
684.31 to 673.31ft AMSL
19.00 to 30.00ft BGS
Material: Bentonite Chips
Sand Pack:
697.31 to 684.31ft AMSL
6.00 to 19.00ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1HA		80		0.1
2HA		90		0.2
3HA		66		0.0
4HA		75		0.0
5HA		75		0.0
6HA		66		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

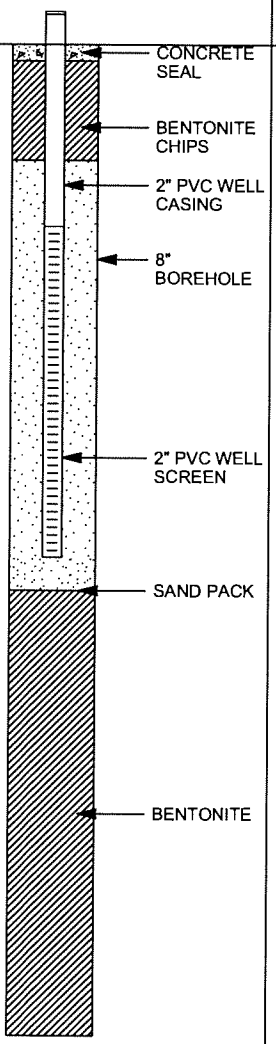
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: PZ-BG-2
DATE COMPLETED: October 16, 2002
DRILLING METHOD: 8-1/4" HSA
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF RISER	705.13
	GROUND SURFACE	702.45
0	SP-SANDS, with silts, trace fine gravels, loose, fine grained, poorly graded, brown, moist, trace vegetation, trace oxidation	
2	- dark brown at 2.5ft BGS	
4	- brown at 2.8ft BGS	
		698.45
	SP-CLAYEY SANDS, trace fine gravels, compact, fine grained, poorly graded, low plasticity, brown, moist, trace oxidation	697.45
6		
	SP-SANDS, with silts, trace fine gravels, loose, fine grained, poorly graded, brown, moist, trace oxidation	695.45
8		
	SM-SILTY SANDS, trace fine gravels, loose, fine grained, poorly graded, medium brown, moist	
10	- brown and gray mottled, staurated at 7.5ft BGS	
12	- gray at 8.0ft BGS	
	- very fine grained to fine grained at 13.0ft BGS	
14	- fine grained at 14.0ft BGS	
16		
18	- very fine grained to fine grained at 18.5ft BGS	
20	- fine grained at 20.5ft BGS	
22		
24	- very fine grained to fine grained at 23.5ft BGS	
26		
28	CL-SILTY CLAYS, firm, stiff, low plasticity, gray, moist, competent	674.95
30	END OF BOREHOLE @ 30.0ft BGS	672.45
32		
34		
36		
38		
40		

PIEZOMETER WELL



WELL DETAILS
Screened interval:
696.95 to 686.95ft AMSL
5.50 to 15.50ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
685.95 to 672.45ft AMSL
16.50 to 30.00ft BGS
Material: Bentonite Chips
Sand Pack:
698.95 to 685.95ft AMSL
3.50 to 16.50ft BGS
Material: Silica Sand

SAMPLE NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
1HA		80		0.0
2HA		80		0.0
3HA		75		0.0
4HA		66		0.0
5HA		66		0.0
6HA		66		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: PZ-BG-3
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	701.48 700.25						
0	SP-SANDS, trace silts (topsoil), trace rootlets, compact, fine grained, poorly graded, dark brown, dry		BENTONITE CHIPS					
2			1" PVC WELL CASING	1MC		90		--
4	- topsoil not present, orange-brown at 3.3ft BGS							
	- with silts at 5.0ft BGS		2-1/4" BOREHOLE					
6	- trace silts at 6.5ft BGS							
8	- wet at 7.9ft BGS - light brown at 8.2ft BGS		SAND PACK	2MC		100		--
10			1" PVC WELL SCREEN					
12	- fine grained at 11.7ft BGS			3MC		100		--
14	- coarse grained, gray at 14.2ft BGS - fine grained at 14.8ft BGS	685.25						
16	END OF BOREHOLE @ 16.0ft BGS							
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
694.25 to 684.25ft AMSL
6.00 to 16.00ft BGS
Length: 10ft
Diameter: 1in
Slot Size: 0.01
Material: PVC
Sand Pack:
698.25 to 684.25ft AMSL
2.00 to 16.00ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: PZ-BG-4
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	TOP OF RISER GROUND SURFACE	702.51 699.90					
0	GM-SILTY SANDS, gravels (FILL), loose, medium grained angular, poorly graded, brown, dry		BENTONITE CHIPS				
2	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist	697.70	1" PVC WELL CASING	1MC		90	
4			2-1/4" BOREHOLE				
6	SM-SILTY SANDS, trace organic material (topsoil), compact, fine grained, poorly graded, dark gray and black, moist	694.40					
8	SP-SANDS, trace silts (natural), trace fine grained rounded gravels, compact, fine grained, poorly graded, brown, very moist	692.10	SAND PACK	2MC		90	
10	-wet at 8.0ft BGS - medium grained at 9.7ft BGS		1" PVC WELL SCREEN				
12				3MC		0	
14							
16	END OF BOREHOLE @ 15.0ft BGS	684.90					
18							
20							
22							
24							
26							
28							
30							
32							
34							

WELL DETAILS
Screened interval:
694.90 to 684.90ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 1in
Slot Size: 0.01
Material: PVC
Sand Pack:
697.90 to 684.90ft AMSL
2.00 to 15.00ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: PZ-BG-5
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE
	TOP OF RISER GROUND SURFACE	700.78 699.55					
0	SM-SILTY SANDS, (natural), loose, fine grained, poorly graded, brown, dry		BENTONITE CHIPS				
2							
	SP-SANDS, with silts, compact, fine grained, poorly graded, light brown, dry	697.05	1" PVC WELL CASING	1MC		80	
4	- orange-brown, moist at 3.5ft BGS - light brown at 4.2ft BGS		2-1/4" BOREHOLE				
6	- orange-brown at 6.4ft BGS - gray, wet at 7.0ft BGS						
8			SAND PACK	2MC		70	
10			1" PVC WELL SCREEN				
12				3MC		40	
14							
	END OF BOREHOLE @ 15.0ft BGS	684.55					
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

WELL DETAILS
Screened interval:
694.55 to 684.55ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 1in
Slot Size: 0.01
Material: PVC
Sand Pack:
697.55 to 684.55ft AMSL
2.00 to 15.00ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: PZ-BG-6
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	701.26 699.68						
0	SM-SILTY SANDS, with organics (topsoil), loose, fine grained, poorly graded, light brown, dry		BENTONITE CHIPS					
2		697.28	1" PVC WELL CASING	1MC		80		--
4	SP-SANDS, with silts (natural), compact, fine grained, poorly graded, light brown, dry - orange-brown, moist at 3.4ft BGS - light brown at 4.0ft BGS		2-1/4" BOREHOLE					
6								
8	- gray, wet at 6.9ft BGS		SAND PACK	2MC		100		--
10			1" PVC WELL SCREEN					
12				3MC		40		--
14								
16	END OF BOREHOLE @ 15.0ft BGS	684.68						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
694.68 to 684.68ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 1in
Slot Size: 0.01
Material: PVC
Sand Pack:
697.68 to 684.68ft AMSL
2.00 to 15.00ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: PZ-BG-7
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	702.53 700.50						
0	GM-SILTY GRAVEL, with sand, trace concrete, trace slag (FILL), loose, fine grained, poorly graded		BENTONITE CHIPS					
2	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist	698.80	1" PVC WELL CASING	1MC		90		--
4			2-1/4" BOREHOLE					
6								
8	- wet at 7.5ft BGS - gray at 8.0ft BGS		SAND PACK	2MC		100		--
10			1" PVC WELL SCREEN					
12				3MC		100		--
14								
15	END OF BOREHOLE @ 15.0ft BGS	685.50						
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
695.50 to 685.50ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 1in
Slot Size: 0.01
Material: PVC
Sand Pack:
698.50 to 685.50ft AMSL
2.00 to 15.00ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES ROAD SITE
PROJECT NUMBER: 12607
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: PZ-BG-8
DATE COMPLETED: July 18, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: DAN DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	701.97 700.38						
0	SP-SANDS, trace silts (FILL), loose, fine grained, poorly graded, light brown, dry		BENTONITE CHIPS					
2	- trace fine grained rounded gravels at 2.1ft BGS		1" PVC WELL CASING	1MC		100		--
4	- sands with silts, dark brown, moist at 2.9ft BGS - light brown at 4.6ft BGS							
	SP-SANDS, trace silts (natural), compact, fine grained, poorly graded, light brown, moist	695.38	2-1/4" BOREHOLE					
6	- orange-brown at 6.4ft BGS - medium brown at 6.6ft BGS							
8	- wet at 7.5ft BGS - medium grained at 8.4ft BGS		SAND PACK	2MC		100		--
10	- 1" orange oxidation at 9.4ft BGS		1" PVC WELL SCREEN					
12	- fine grained at 11.2ft BGS			3MC		100		--
14	- coarse grained at 13.7ft BGS - fine grained at 14.8ft BGS	685.38						
16	END OF BOREHOLE @ 15.0ft BGS							
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
695.38 to 685.38ft AMSL
5.00 to 15.00ft BGS
Length: 10ft
Diameter: 1in
Slot Size: 0.01
Material: PVC
Sand Pack:
699.38 to 685.38ft AMSL
1.00 to 15.00ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-16.GPJ CRA_CORP.GDT 12/30/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES RD
PROJECT NUMBER: 12607-230
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: TMW1-03
DATE COMPLETED: August 29, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, loose, poorly graded, fine grained, light brown, moist			0-2'				0.7
2				2-4' 1AL		60		1.4
4			BENTONITE CHIPS	4-6'				1.5
6	- very moist at 5.0ft BGS			6-8'				1.2
8	- with fine subangular gravels, with medium grains at 7.5ft BGS		2" PVC WELL CASING	2AL 8-10'		60		1.3
10	- trace gravels, trace coarse subrounded, white grains, wet at 10.0ft BGS		2-1/4" BOREHOLE	10-12'				2.8
12	- no coarse grains, trace medium grains at 12.5ft BGS		SILICA SAND	12-15' 3AL		70		1.3
14								
	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, wet	14.75						
16	SP-SANDS, trace silts, compact, poorly graded, fine grained, traced medium and coarse grains, brown, wet	15.00	2" PVC WELL SCREEN	15-17.5'				1
18				4AL 17.5-20'		70		0.9
20	END OF BOREHOLE @ 20.0ft BGS	20.00	SAND AND NATURAL COLLAPSE					
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
8.00 to 18.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
6.00 to 20.00ft BGS
Material: SILICA SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-230-WINDSOR.GPJ CRA_CORP.GDT 12/16/03

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 13000 ECKLES RD
PROJECT NUMBER: 12607-230
CLIENT: REALM
LOCATION: LIVONIA, MICHIGAN

HOLE DESIGNATION: TMW2-03
DATE COMPLETED: August 29, 2003
DRILLING METHOD: 4-1/4" HSA
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE "N" VALUE	SAMPLE PID (ppm)
0	SP-SANDS, trace silts, trace vegetation (grass), loose, poorly graded, fine grained, brown, damp			0-2'				0.4
2	- no vegetation at 0.3ft BGS		BENTONITE CHIPS	2-4' 1AL		60		0.3
4	- orangy-brown, moist at 4.8ft BGS			4-6'				0.4
6	- brown, with medium grains, trace coarse grains, very moist at 5.3ft BGS		2" PVC WELL CASING	6-8'				0.7
8	- trace medium grains, no coarse grains at 7.5ft BGS - with medium and coarse grains at 8.0ft BGS			2AL 8-10'		60		1.2
10	- wet at 10.0ft BGS		2-1/4" BOREHOLE	10-12'				0.8
12				12-15' 3AL		75		0.8
14			SILICA SAND					
15	- trace medium and coarse grains at 15.0ft BGS			15-17.5'				0.8
16			2" PVC WELL SCREEN					
17	- 2" layer with coarse and medium grains at 17.5ft BGS			4AL 17.5-20'		75		1.0
18								
20	END OF BOREHOLE @ 20.0ft BGS	20.00	SAND AND NATURAL COLLAPSE					
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
8.00 to 18.00ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Sand Pack:
6.00 to 20.00ft BGS
Material: SILICA SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 12607-230-WINDSOR.GPJ CRA_CORP.GDT 12/16/03

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