RACER Trust
Coldwater Road Facility
Draft Report
March 2024

POST-CLOSURE CARE PLAN

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POST-CLOSURE CARE PLAN

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CERTIFICATION

This section presents the certification statement as required by 40 CFR 270.11.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

On Behalf of RACER Trust

Project Manager – Ramboll Americas Engineering Solutions, Inc.
Clifford S. Yantz
Agent for RACER Trust

March 22, 2024
Date

1. INTRODUCTION

The Site was previously owned by General Motors Corporation (GMC), sold to Peregrine U.S., Inc., returned to GMC, who then transferred ownership to its wholly owned subsidiary Remediation and Liability Management Company, Inc. (REALM). Both GMC and REALM filed for bankruptcy protection in 2009 and changed their name to Motors Liquidation Company (MLC). As a result of bankruptcy proceedings, Revitalizing Auto Communities Environmental Response (RACER) Trust was created under the Environmental Response Trust Consent Decree and Settlement Agreement ("Settlement Agreement") among MLC and its affiliated debtors, fourteen States, the St Regis Mohawk Tribe and EPLET, LLC (not individually but solely in its representative capacity as Administrative Trustee of the "Environmental Response Trust" established thereby), notice of which was published in the Federal Register (75 Fed. Reg. 66390 (Oct. 28, 2010)). Pursuant to the Settlement Agreement, MLC transferred ownership of real property to RACER Trust. RACER Trust created a wholly owned subsidiary, RACER Properties LLC, to take ownership of properties in Michigan as trusts cannot own property in Michigan. RACER Trust and RACER Properties LLC are hereinafter collectively referred to as RACER. RACER will be responsible for future Post-Closure Care efforts at the Coldwater Road Landfill Facility. Throughout the remainder of this report, RACER will be used to indicate the current ownership of the property, even if referring to a time when historical ownership may have included a predecessor, except in the appendices and exhibits where historical references and documents cannot be altered in this manner.

The former address, 1245 East Coldwater Road, was associated with the manufacturing plant. The Coldwater Road Landfill Facility address is 6220 Horton Street, Flint, Michigan. The Site Location Map, **Figure 1** identifies the location of the Coldwater Road Landfill Facility. The approximate property line of the Coldwater Road Landfill Facility is shown on the Site Plan **Figure 2**.

This Plan, which is periodically updated to provide site information, clarify operations and maintenance activities/procedures, etc., describes the post-closure activities to be followed by RACER for the on-site hazardous waste landfill, Resource Conservation and Recovery Act of 1976 (RCRA) units, solid waste management units, and other corrective action areas, referred to as "units" at the Coldwater Road Landfill Facility. The Remaining Materials Area (RMA) is one of these units (see **Figure 2**), where nickel impacted soils were closed in place, as further described in Section 3.1. A Site Layout Plan identifying the former locations of these closed units is provided as **Figure 3**.

This report amends the Michigan Department of Environmental, Great Lakes, and Energy (EGLE), Materials Management Division, formerly the Michigan Department of Environmental Quality Waste and Hazardous Materials Division (MDEQ)-approved August 24, 1994 Post-Closure Care Plan, which was revised in:

- October 1998 to include information regarding the operation of the leachate accumulation facility, conditions of the landfill, and certified closed units at the site. Upon approval of this revised Plan by the EGLE, this document will be filed on-site

- May 2004 to update information regarding the conditions of the landfill, certified closed units at the site, cessation of mowing of the landfill to reduce deer activity on the landfill cap, and financial assurance information
- May 2006 to revise the statistical analysis utilized for the landfill and to update site information and the financial assurance information
- May 2008 to revise the method for dewatering the vaults on site and to update site information and financial assurance information
- May 2009 to clarify the operations and maintenance activities for the site and to update facility contact information (EGLE did not approve)
- February 2011 to clarify the operations and maintenance activities for the site and to update facility contact information (EGLE did not approve)
- September 2011 to update facility contact information (EGLE did not approve)
- December 2013 to update and clarify the operations and maintenance activities for the site and to update facility contact information.
- October 2014 to revise the frequency of vault dewatering depending on the volumes removed from the individual vaults and to revise the frequency of Drift aquifer monitoring well and leachate sump sampling from semi-annual to annual.
- January 2017 to include the establishment benchmarks on the Site to be utilized to determine the top of casing and locations of monitoring wells (and other features) at the Site.
- November 2018 to revise the method of monitoring well installation and abandonment to allow the use of a bentonite slurry with more than 20% solids in addition to the already approved neat cement grout for well sealing or abandonment.
- March 2024 to revise the frequency of vault dewatering depending on the volumes removed from the individual vaults, to revise the site/landfill cap inspection and the progress report submittal frequencies from quarterly to semi-annually.

The post-closure care requirements were initiated on March 15, 1995 (EGLE approval date of the August 24, 1994 Plan) and will be conducted for 30 years from that date.

1.1 Post-closure Contact (40 CFR 264.1118(b)(3) and R299.9613(1)

Mr. Brendan Mullen is the RACER contact during the post-closure period. Mr. Mullen's work address and phone numbers are:

RACER Trust
Project Manager: Brendan Mullen

RACER Trust
P.O. BOX 43859
Detroit, MI 48243

Phone: (313) 486-2908
Cell: (201) 247-4890

2. POST-CLOSURE SECURITY (40 CFR 264.117(B)(1) AND (2) AND R299.9613(1)

The Coldwater Road Landfill Facility is enclosed within a locked chain link fence (see **Figure 2**) and access may only be gained by entering the locked gates at the corner of Morris Hills Parkway and Horton Street, two along Stanley Road, or two along N Saginaw Road. The fence has signage at each gate and approximately every 100-ft on the perimeter fence indicating the property is private and trespassing is prohibited. Security inspections are performed by the Operation & Maintenance (O&M) contractor each time the site is visited. The leachate accumulation facility has a keyed lock and a padlock on the access door and the overhead door is locked and may only be opened from the inside of the leachate accumulation facility.

3. LANDFILL SYSTEM DESIGN DESCRIPTION (40 CFR 264.118(A) AND 299.9619(6)(C)

The landfill incorporates the following design features:

- The landfill is situated on a minimum of 10 ft of clay soil having a minimum permeability of 10-6 cm/sec
- The bottom liner system consists of two, 60 mil high density polyethylene (HDPE) liners, separated by 5 ft of compacted clay having a minimum permeability of 10-7 cm/sec. Each liner consists of a 60 ml HDPE layer, a geonet layer, and a filter fabric layer
- The cap system consists of 3 ft of 10-7 minimum permeability clay, a 60 ml HDPE liner, a geonet, and filter fabric layer. The side slopes contain a bonded geonet and textured HDPE liner, while the top consists of smooth HDPE and separate geonet and filter fabric. The entire cap is covered by 18 in of Class II sand and 6 in of topsoil planted with grass
- The landfill contains six cells, (A) through (F) as shown on **Figure 4**. Each of the landfill cells has a leak detection vault and a leachate collection sump. The leachate collection sumps are equipped with a pump and a leak detection system for the connecting pipes that convey leachate to the on-site leachate accumulation building
- The leak detection alarm system is included in an auto-dial system with automatic notification to the O&M contractor and the appropriate chain-of-command. The landfill and force main leak detection system control panel was transferred to the leachate accumulation facility
- A leachate accumulation facility was constructed to temporarily store landfill leachate and water removed from the leak detection vaults (see **Figure 5**). Leachate and water from the leak detection vaults is removed monthly or bi-monthly for Vaults B and E and quarterly for Vaults A, C, D, and F. Beginning in July 2010, liquids from the leak detection vaults are containerized and transported to the leachate accumulation tank. Prior to July 2010, liquids from the leak detection vaults were pumped to the leachate collection sumps and then automatically pumped to the accumulation facility. Liquids stored in the leachate accumulation tank are discharged to the sanitary sewer in accordance with a sewer user permit (no. 6-08-04-GML1 and subsequent new or revised permit as required) issued by the City of Flint Department of Public Works and Utilities and by the Beecher Metropolitan District
- The leachate accumulation tank is a 15,000 gal aboveground, fiberglass tank contained within a concrete secondary containment unit, housed inside the heated leachate accumulation facility. The volume of liquid pumped to the tank is measured by a totalizing flow meter. The liquid level in the tank is monitored by an ultrasonic level meter and a single point high level alarm. The high-level alarm will shut down the influent pumps and trigger an alarm. The secondary containment system is sloped to a sump, which is equipped with a single point high level alarm and automatic influent shut-off
- Each time maintenance personnel are on-site, an inspection of the accumulation tank system and accumulation tank secondary containment system will be performed
- A berm and ditch were designed and constructed around the perimeter of the southern and eastern sides of the landfill to reduce runoff onto the adjacent property. The ditch along the east side of the landfill is sloped such that overland flow from the landfill discharges to a catch basin located at the north end of the landfill. The ditch along the south side of the landfill,

including a portion of the ditch on the east side of the landfill, is sloped to discharge overland flow from the landfill to the railroad drainage swale at the southwest corner of the landfill

- In 2002, a drainage tile was installed underneath the rip rap in the ditch that minimizes the potential for ponding and/or erosional impacts caused by vegetative growth and sediments within the ditch. Beginning in 2011, the rip rap from the swale will be removed in areas where sediment has collected and is supporting vegetation, to allow the swale to simply be a vegetated drainage ditch, rather than a rip rap lined drainage ditch
- Because runoff from the 1996 spring thaw eroded portions of the access road at the base of the landfill, and to minimize the retention of water in the drainage swale at the base of the landfill, six additional culverts were installed under the access road to provide control of surface runoff as shown on **Figure 4**. The culverts are 18 in diameter and are approximately 22 to 32 ft in length. The culverts are placed at locations to provide drainage directly away from the landfill on the east and west sides of the landfill. Beginning in 2008, the culverts have been cleaned periodically on an as needed basis to reduce blockages
- Drainage at the RMA is achieved by grading which directs runoff to a sedimentation basin and then west to a 10-ft wide drainage swale constructed west of the RMA. This drainage swale, depicted on **Figure 6**, then directs flow north to the onsite ponds northwest of the RMA
- Site access is limited to authorized personnel by the installation of a chain-link fence surrounding the Coldwater Road Landfill Facility and locked entry gates
- In February of 2000, the former (Quincy) air compressor was replaced with an oil-less Becker Rotary Vane air compressor and an air dryer. The new system provides a source of clean dry air to purge the force main interstitial space to keep the accumulation of condensation from causing an alarm condition
- In February of 2000, cracks in the Leachate Accumulation building were discovered and observed to be leaking groundwater into the containment area. The cracks were repaired by routing a notch to a minimum depth of 0.25 in. The notches were filled with an epoxy gel and after curing were painted over with the same material used on the original wall. The containment area of the Leachate Accumulation building is inspected for cracks during each site visit and repaired as needed
- Mowing the landfill has been eliminated as approved by the EGLE in a letter dated February 4, 2003. Growth has been vigorous and appears to have reduced deer activity on the landfill cap. Additional discussion on the cap vegetation is included in Section 6. Based on the approval of the Final Closure Certification Documentation for closure of the RCRA, regulated units, Solid Waste Management Units, Corrective Action Areas and the RMA, Notice of Approved Environmental Remediation and Declaration of Restrictive Covenant forms were recorded with the Genesee County Register of Deeds on June 24, 2005. In accordance with the Declaration of Restrictive Covenant form, an EGLE-approved permanent marker plaque was installed just inside the Horton Street gate on August 23, 2005. RACER will maintain the area around the permanent marker to prevent vegetative growth from obscuring the brass plaque
- In May 2006, the boot seals for access piping and/or leachate connection piping for Vault C were observed in poor condition during the LDS study/evaluation, and were sealed and repaired. "Ponding" of water within the gravel and sand filled portions of the force main trench in close proximity to the liner penetrations and edge of the liner system was also observed. Therefore, a drain was installed to allow accumulated water within the force main backfill to drain away from the liner and LDS to reduce the amount of water within the LDS vaults.

Although no ponded water was observed on the east side of Cell A, a drain was installed in May 2006 as a precaution and another drain was also installed in May 2006 on the west side of Cell F to drain the force main

- In September 2006, additional drains were installed near the vault piping penetrations for Vaults B and E, and between Cells B and C to drain the force main in these cells. In addition, the boot seals for access piping and/or leachate connection piping for Vault B were observed in poor condition and were sealed and repaired. The boot for Vault E piping was observed in good condition, which did not require further sealing
- In March 2007, two drains at low points of elevation in the force main were installed to further reduce the capacity of the force main trench to act as a preferred pathway for infiltrating precipitation along the west edge of the landfill in Cell E. Two additional drains were installed on the east side of the landfill one in each of Cells D and Cell E in areas where water ponded at low points in the access road around the landfill. The access road was also re-graded to provide better surface drainage
- In November of 2010, the leak detection system (LDS) Vault E liner was exposed and repaired to reduce the amount of infiltration water entering Vault E. An excavation of the western edge of Cell E was conducted to trim, clean and seam the terminal ends of the primary and secondary liners
- In December of 2011, the LDS vault dewatering piping for Vaults A and C through F were replaced because broken sections of the former Schedule 40 polyvinyl chloride (PVC) piping were discovered in the piping for Vaults A and D. The PVC piping was replaced with HDPE piping. The PVC piping in Vault B could not be removed even after several attempts. The PVC piping in Vault B consists of Schedule 80 PVC, which is twice as thick as Schedule 40. Small volumes of water are routinely removed (during most months) from Vault B (see **Table 1**), which indicates that this vaults piping continues to function as designed
- In October 2012, two additional drains were installed on the west side of Cell D to drain water away from the force main. In addition, a new section of PermAlert cable was installed within the force main in October 2012, and additional repairs and testing was conducted in November 2012
- In March 2013, a desiccant air dryer was installed on the air compressor to reduce the moisture level in the compressed air used to dry out the interstitial scape around the force main
- The landfill contains approximately 530,000 cubic yards (yd^3) of stabilized F006 sludges and contaminated soil. Approximately 496,000 yd^3 were treated with lime and fly ash and approximately 34,000 yd^3 were treated with Portland cement and activated carbon.

A gas venting system was not installed as part of closure activities for the hazardous waste landfill. The landfilled wastes are predominantly inorganic and are not biodegradable.

3.1 Remaining Materials Area Design Description

After reaching the maximum capacity of the landfill, several areas of impacted soil remained above the closure criteria (i.e., residential), which were "delisted" from being hazardous waste and were excavated and disposed off site; however, background closure plan criteria were not achieved in an area known as the Remaining Materials Area (RMA, see **Figure 2**). The soil concentrations within the RMA were below the EGLE Residential Direct Contact criteria; however,

the metal concentrations for chromium, copper, nickel, and zinc were above the EGLE Residential Drinking Water Protection criteria at the time of closure (former "Type B" criteria), although only nickel concentrations exceed the current Part 201 generic Nonresidential Drinking Water Protection criterion. Therefore, "hot spots" in the RMA were removed, and the RMA was closed in place via a modification to the closure plan with a soil cover as approved by the EGLE:

- The final grade design for the RMA, see **Figure 6**, included the installation of 6 inches of topsoil over this area seeded with grass
- A sediment pond was originally constructed to collect overland rainwater runoff and allow time for particulate settling prior to discharge to the ponds; however, this pond was filled in 2020/2021 to minimize the infiltration of rainwater runoff/surface water in this area of the Site
- Over land flow from the RMA discharges to a rock-lined drainage swale (shown on **Figure 6**) and then to the ponds.

4. INSPECTION PLAN (40 CFR 264.118(A), 264.228(B), 264.228(C)(1)(II), 264.258(B), 264.258(C)(1)(II), 264.310(B), AND R299.9613(1))

Inspection of the closed hazardous waste landfill and the RMA will be performed semi-annually by qualified personnel. A thorough walking inspection will be made over each landfill cell (A-F), the berm surrounding the landfill and the RMA. The potential areas of concern (erosion, depressions, cracks, burrowing animals, etc.) for the landfill cap and RMA will be marked if identified during the walking inspection. The Coldwater Road Landfill Facility monitoring well network, described in Chapter 5, will be inspected during semi-annual well sampling activities.

Semi-annual inspections of the closed landfill and RMA will be sufficient based on on-site caretaking activities discussed in Section 4.3. At the time of the landfill and RMA inspection, a record will be made in an inspection log, which is contained in **Appendix A**. Recorded information will include: date and time of inspection, item inspected, notation of observations made, and signature of inspector. Problems observed during the inspection will be recorded and brought to the attention of the post-closure contact. Also, an inspection of potential damage to the landfill or RMA caused by burrowing animals will be performed during each inspection and animal control will be performed on an "as needed" basis. Each animal burrow on the landfill and its spoils will be inspected to look for evidence of geonet, geotextile and/or liner materials and clay to verify that the liner system and clay cap system have not been impacted. In addition, the approximate depth, diameter and general configuration of the burrow will be noted in the inspection log or daily field notes, and the burrow will be photographically documented before and after it is filled and repaired. Furthermore, the location of each animal burrow will be determined using a handheld global positioning system (GPS) unit, and these locations will be placed on a figure for inclusion in the quarterly report. The results of the animal burrow inspections will be attached to the quarterly report covering the time frame when the burrows were repaired. Information regarding potential corrective actions will also be placed on the inspection logs which documents that, if necessary, corrective action has been implemented and when the corrective action was completed. Copies of inspection logs will be kept on file for 3 years from the date of inspection.

The conditions of the drainage swale, culverts and ditches around the landfill will be inspected and noted on the inspection log. The drainage swale west of the RMA to the ponds will be inspected for potential obstructions. The sloped grade of the RMA will be inspected as well as the sedimentation basin which collects overland flow in this area for erosional damage.

Inspections of the landfill leachate accumulation tank will be performed while personnel are on-site during a response to an alarm condition or at other times while on-site performing other activities. At a minimum, these inspections will be performed semi-annually.

Results of the semi-annual inspections will be presented annually in the Landfill Inspection Summary Report.

4.1 Leak Detection System Inspections

Also included in the semi-annual landfill inspection will be elements of the leak detection monitoring system and leachate collection sumps. The leak detection system operates using pulsed cable-radar technology to detect leaks. The system sends low voltage pulses on a cable and monitors reflections received at the panel. It then electronically divides the cable into short increments and measures the reflections from each. It stores the measured values in memory during the reference procedure in a permanent record called the master map. When in monitor mode it compares the current condition with the master map. Significant changes from the master, for instance when the cable gets wet, cause the system to enter the alarm mode. There are three essential inspections that will be performed on a yearly basis under post-closure care: alarm test, cable test, and battery test. The system inspection is documented in the Landfill Inspection Log (**Appendix A**).

The alarm will be tested by disconnecting the sensor cable. The system should show a fault in the cable and activate the alarm. The cable will be reconnected and the alarm will reset after several seconds. This procedure can be repeated for each cable.

The cable test consists of wetting a short length of cable to activate the alarm. This test can be accomplished by wetting a section of the cable stored in the pull ports. The cable will be dried after the test.

The system requires no maintenance other than replacing the battery for the clock. The battery runs the clock up to 1 year when the power fails. To check the condition of the battery, the power will be turned off, the processor card removed, and the battery jumper removed (the battery jumper plug connects the battery to the clock). If the voltage across the terminals is less than 3.6VDC, the battery will be replaced.

The auto-dial system will be tested at the unit by pressing the "test" button on the unit. A positive test will be indicated by hearing the dialing and pickup of the security company, at which point you may answer the line and confirm the test.

4.2 Operations and Maintenance Plan

An Operation and Maintenance (O&M) Plan for the leachate accumulation facility was prepared by Ramboll Americas Engineering Solutions, Inc. (Ramboll, formerly O'Brien & Gere, Engineers, Inc. [OBG]) in August 1998 and was revised in October 1999 and May 2008 to assist caretaking personnel with troubleshooting the system. The O&M Plan includes manufacturer's instructions/cut sheets on several pieces of equipment. A copy of the O&M Plan is maintained on file inside the leachate accumulation building. The O&M Plan also outlines the scheduled maintenance of the system, inspections which are to be performed on the leachate tank and system, and the tests performed to assess the integrity of the system and tank.

4.3 Leak Detection Vaults and Leachate Collection Sump Pumping

The leak detection vaults are pumped monthly or bi-monthly for Vaults B and E and quarterly for Vaults A, C, D, and F by means of a portable trash pump. Beginning in July 2010, the liquids are containerized within a 500-gallon plastic aboveground storage tank (AST) that is permanently attached to a trailer, and transported to the on-site leachate accumulation facility. The liquids are then pumped into the leachate accumulation tank. Prior to July 2010, the liquids were

pumped into the leachate collection sumps, from which they were automatically pumped to the leachate accumulation facility. Also, the inspector(s) identifies whether restrictions in the lines were found and make necessary notes. The estimated quantities of liquids pumped from the leak detection vaults are also noted. A table showing previous volumes of leak detection water and landfill leachate removed is included as **Table 1**.

It is anticipated that the leak detection vaults will continue to collect liquids for an extended period of time. The leak detection system provided by Perm-Alert contains probes that are intended to indicate when liquids are present in the vaults. However, these probes were not installed since liquids will be present in the vaults for an extended period of time and will therefore require pumping. It is anticipated that the probes would become damaged during the routine pumping activities. When the vaults consistently do not require pumping the probes may be installed.

4.4 Leak Detection and Leachate Collection Liquids Management

The following sections describe the methods by which leak detection vaults and leachate collection sumps are sampled, the frequency and content of the reported results and the waste management of these liquids.

4.4.1 Leak Detection Vault and Leachate Collection Sump Sampling and Analysis

In accordance with the EGLE approved Post-Closure Care Plan, the liquid in the leak detection vaults and leachate collection sumps is currently sampled and analyzed semi-annually, but is subject to change with EGLE approval. Leak detection vault samples are collected directly from the purge port on the dewatering or sampling pump and placed into laboratory supplied containers. Physical parameters field-recorded at the time of sampling include pH (standard units), specific conductivity (micro-siemens), and temperature (degrees centigrade). Samples from the leak detection vaults are lab-analyzed for the presence of dissolved metals (chromium, copper, nickel and zinc), total suspended solids (TSS), and total organic carbon (TOC).

Samples collected from the leachate collection sumps are collected using tubing and a peristaltic pump. Physical parameters field-recorded at the time of sampling include pH (standard units), specific conductivity (micro-siemens), and temperature (degrees centigrade). Samples from the leachate collection sumps are lab-analyzed for the presence of dissolved metals (chromium, copper, nickel and zinc), total suspended solids (TSS), and total organic carbon (TOC) each sampling event. Also, samples from the leachate collection sumps are analyzed for volatile organic compounds (VOCs) on an annual basis. A table summarizing the analytical methods and method detection limits for the leak detection vault samples and leachate collection sump samples is included as **Table 2**.

4.4.2 Leak Detection Vault and Leachate Collection Sump Reporting and Data Evaluation

A semi-annual report summarizing the sampling and analysis of the leak detection vaults and leachate collection sumps, when sampled, is submitted to the EGLE by September 1st and March 1st. The semi-annual report includes the following:

- A brief discussion of the sampling event and the analytical results
- A table summarizing historical physical parameters and laboratory analytical results (VOC results will be included reported annually)
- A statistical evaluation of the leak detection vault data
- Figures identifying the site location and site layout
- A copy of the analytical laboratory data sheets
- A certification statement as required by 40 CFR 270.11.

Statistical analysis of the leak detection vault data is accomplished using Shewhart control charts. The use of control charts for RCRA monitoring is an alternative approved by the United State Environmental Protection Agency (USEPA) in the following documents:

- USEPA. 1989. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance. Office of Solid Waste. Document # EPA/530-SW-89-026
- USEPA. 1992. Statistical Training Course for Groundwater Monitoring Data Analysis. Office of Solid Waste. Document # EPA/530-R-93-003
- USEPA. 1992. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance. Office of Solid Waste

In accordance with these documents, a background analytical data set for each leak detection vault was developed using the first eight sampling events. However, assigning a constant value (i.e., one half the detection limit) to non-detects in the baseline data set compromises the underlying assumptions of the control charts, therefore, non-detect background data for the vaults were replaced using a bounding method or randomized replacement method as described in our April 21, 2006 letter to EGLE (**Exhibit 1**), which was approved by the EGLE in their May 19, 2006 response letter (**Exhibit 2**). In general, this involves randomly selecting a number between zero and the detection limit 10,000 times for each non-detect background result and utilizing the mean of the randomized values to replace the non-detect value.

Leak detection parameters to undergo statistical analysis include pH, specific conductance and dissolved copper, nickel, chromium, and zinc.

Originally the methodology discussed and recommended in the paper by Sparks and Flatman (1991) was used to set up and operate the control charts. This procedure involved the simultaneous use of Shewhart and cumulative sum (CUSUM) charts. The Shewhart charts detect medium to large shifts in the mean of a random Gaussian process. The CUSUM charts detect small shifts in the mean of a Gaussian process. However, the CUSUM control charts are no longer plotted because the high sensitivity of the CUSUM control charts causes too many false positive outcomes, which persist for long periods of time. The Shewhart control charts allow the detection of changes in indicator parameters that are tailored to the individual differences seen in each parameter at each leak detection vault.

Shewhart charts are fairly robust with respect to the assumption of normality (Gaussian distribution) if the data comes from sampling a random quantity that has a symmetric distribution.

It is assumed that the analytical data from the leak detection vaults is normally distributed. However, environmental data are frequently non-normally distributed and control charts that are produced under the assumption of normality are still a useful tool when the data has a non-normal distribution (Gilbert, 1987). Control charts are not used to make precise probability statements, but are used as a guide for when investigative action needs to be taken. Therefore, use of a symmetrizing transformation, such as the log or square root, on the original data is unnecessary. 1

As recommended in the USEPA guidance, the Shewhart charts will use 4.5 limits and the two-in-a-row rule. The limits for pH differences will be two-sided; all other parameters will have one-sided limits. The two-in-a-row rule used in this application specifies that if a chart control limit is exceeded, the leak detection vault in question will be re-sampled. A critical exceedance will be deemed to have occurred if the 4.5 limit is also exceeded on the resample. This is also consistent with requirements using the standard statistical evaluation methods. This provides reasonable protection against outliers due to trace level analytical chemistry errors. Occasional large errors in trace level analysis of environmental samples are possible. Furthermore, outliers as identified utilizing the Grubbs test, or other appropriate test, may be removed from the data if a valid demonstration as to why a datum is an outlier can be made and is approved for removal by the EGLE. A request to remove an outlier will be made to the EGLE prior to its removal, and the EGLE will evaluate the request and either approve or deny the removal of the outlier.

Following each semi-annual sampling event, the monitoring data will be entered into Microsoft® Excel spreadsheet. RACER will use this software to perform the computations and to produce the plots. Each plot will include a print out of chart parameters used in its construction and will both highlight and list points that trigger an out-of-control indication.

A decision tree (**Exhibit 3**) was developed to guide the evaluation of the leak detection vault data to avoid unnecessary re-sampling events, while maintaining the essential purpose of the monitoring program – identifying potential leaks from the landfill. The decision tree will guide the evaluation of the monitoring data, EGLE notification and re-sampling events.

If there is a Shewhart control limit exceedance (*i.e.*, an out-of-control parameter) and this is not an historical exceedance of the control limit, then the EGLE will be notified immediately and the vault will be re-sampled for the parameter exceeding the control limit. If the Shewhart control limit is not exceeded, or the exceedance is a historical (*i.e.*, continuing) exceedance caused by an earlier result, then the data will be plotted as discussed below.

The data will also be plotted on a simple chart to visually identify whether an increasing trend is observable, and a comparison of the four metals monitored on a semi-annual basis will be made to see if more than one metal concentration is increasing in a similar pattern or spiked in concentration at the same time. If both of the above evaluations result in a null (*i.e.*, negative) hypothesis (no exceedances and no spikes or trends), then the semi-annual or annual monitoring report(s) will be submitted to the EGLE with a discussion of the statistical and graphical analysis used to conclude that no impact to groundwater (*i.e.*, leak from the landfill) has occurred, and routine semi-annual monitoring will continue for that monitoring point (*i.e.*, vault).

[1] Gilbert, Richard O. 1987. *Statistical Methods for Environmental Pollution Monitoring*. Van Nostrand Reinhold Company Limited, New York, New York.

If two or more metals spiked at the same time at a concentration greater than their respective mean concentrations (as calculated on the statistical analysis spreadsheets), plus one standard deviation (*i.e.*, a spike is confirmed), or there is a consistent observable increasing trend in the data over a four sampling event period, then the semi-annual or annual monitoring report containing the confirmed spike or consistent trend will be submitted to the EGLE with a summary of the preliminary evaluation and a notification that further evaluation will be conducted.

The further evaluation will include plotting all of the indicator parameter data (i.e., pH, conductivity, temperature, chromium, copper nickel and zinc) for the vault in question and the associated sump in linear and log scales so a detailed comparison of the concentrations can be evaluated. The concentrations of the different parameters will be compared and contrasted for the vault data, then the sump data and finally between the vault and sump data to evaluate whether spikes and/or trends in the data are observable such as a matching rise or fall in parameter concentrations or spikes in vault and sump data. In addition, an evaluation of the amount of leachate that would be required to be released from the primary liner to produce the metals concentrations observed in the vaults will also be conducted. However, re-sampling will not be conducted.

If upon further evaluation the detection indicates a potential leak from the landfill, then the EGLE will be immediately notified and the results of the further evaluation will be summarized in a letter report and submitted to the EGLE within 60 days following the submittal of the corresponding semi-annual or annual monitoring report containing the exceedance, and the leak detection system will be further evaluated and corrective measures may need to be taken. In addition, a Work Plan will be prepared to evaluate liner integrity or other options as appropriate. This Work Plan will be prepared and submitted to the EGLE within 60 days of confirmation of the potential leak from the landfill. Following completion of the investigation or corrective actions, a Professional Engineer certified report will be submitted to the EGLE.

If the further evaluation does not indicate a leak from the landfill, then the results of the further evaluation will be summarized in a letter report and submitted to the EGLE within 60 days following the submittal of the corresponding semi-annual or annual monitoring report containing the exceedance and routine semi-annual monitoring will be continued.

4.4.3 Leak Detection Vault and Leachate Collection Sump Liquids Management

The liquid from the landfill leachate collection sumps and from the leak detection vaults accumulates in an above ground storage tank located in the accumulation facility. Based on the applicable provisions of 40 CFR 265, Subpart J, RACER currently manages the accumulated liquid as a hazardous waste and the storage tank as a hazardous waste tank even though the liquid remains characteristically non-hazardous.

The leachate accumulation tank is a 15,000 gal aboveground, fiberglass tank contained within a concrete secondary containment unit, housed inside a heated building. The volume of liquid pumped to the tank is measured by a totalizing flowmeter. The liquid level in the tank is monitored by an ultrasonic level meter and a single point high level alarm. The secondary containment system is sloped to a sump that is equipped with a single point high level alarm and automatic influent shut-off. In accordance with discharge permit no. 6-08-04-04-GML1 issued

by the City of Flint Department of Public Works Water Pollution Control Department and Beecher Metropolitan District, liquid in the tank is discharged to the sanitary sewer inlet by manually opening a discharge valve on the bottom of the tank. Per the sewer user permit, discharge to the sewer is limited to 5,000 gal per day at a maximum rate of 30 gal per min. Current permit user conditions are subject to future revisions based on potential renewal of the permit or at the discretion of the City of Flint Department of Public Works Water Pollution Control Department and Beecher Metropolitan District.

Management of the hazardous waste liquid includes:

- Manual monthly or less frequent pumping, containerization and transportation of the water in the leak detection vaults into the leachate accumulation tank
- Automatic monitoring of liquid levels in the storage tank
- Semi-annual written reports to the EGLE which report the volumes of liquids removed from the leak detection vaults and leachate sumps
- Documentation of analytical results of the leak detection water and leachate will be reported semi-annually. These reports are submitted to the EGLE
- Documentation of volumes and dates of liquid discharged to the sanitary sewer, sampling and analysis of collected liquids with quarterly reporting to the City of Flint Water Pollution Control Department and Beecher Metropolitan District
- Routine inspections of the storage tank system and secondary containment system. System inspections are documented in the Field Inspection Form and Landfill Inspection Log (**Appendix A**).

Samples from the leachate accumulation tank are collected quarterly using a bomb sampler lowered into the tank. Samples are placed directly into laboratory supplied containers and placed in a cooler with ice and shipped under chain-of-custody (COC) documentation to an analytical laboratory. These samples are analyzed for the presence of total metals (arsenic, chromium, copper, mercury, nickel and zinc), TSS, biochemical oxygen demand (BOD), amenable cyanide, total phosphorus, fats, oil & grease (FOG), and ammonia-nitrogen. These results are evaluated against the sewer user permit and are reported quarterly to the City of Flint Water Pollution Control Department and the Beecher Metropolitan District.

4.5 Wetland Inspections

In accordance with the Consent Order, a wetlands consultant was subcontracted to perform bi-annual inspections and annual reporting to the EGLE of the new wetlands along the northern property boundary through the year 1999. The inspections consisted of a survey and sampling of flora and fauna species, approximate numbers, surface water elevations and general quality, and other issues potentially effecting the future of the wetlands area. The fifth and final Wetland Mitigation Monitoring Report was submitted to the EGLE on December 20, 1999. It is noted that the wetlands were modified in 2018/2019 and 2020/2021 pursuant to permits approved by the EGLE Water Resources Division.

5. POST-CLOSURE GROUNDWATER MONITORING PLAN

A post-closure groundwater monitoring program will be conducted at the site to monitor the effectiveness of the landfill closure. The landfill monitoring program will meet the requirements of Michigan's Hazardous Waste Regulations (R299.9612).

This Chapter outlines the same procedures for post-closure groundwater monitoring as provided in the August 24, 1994 Post-Closure Care Plan, as modified by:

- The modifications to the August 24, 1994 Post-Closure Care Plan as listed in the EGLE March 15, 1995 approval letter have been incorporated into this Plan
- A discussion regarding the decommissioning of the two wells associated with the RMA
- Well decommissioning procedures have been added
- A modification to the May 2004 Post-Closure Care Plan which includes: replacing groundwater sampling of well B-19A with B-19AR; abandoning well B-23D and replacing it with well B-23DR, then adding new well location B-27; abandoning well B-24 and replacing it with well B-24R; and adding well installation methods to include the use of Rotosonic® drilling methods
- A modification to the May 2004 Post-Closure Care Plan, which includes the elimination of CUSUM control charts, randomization of background data, the implementation of a decision tree to guide the evaluation of the monitoring well data, and the implementation of low-flow sampling techniques for groundwater monitoring
- A modification to the May 2006 Post-Closure Care Plan, which includes abandoning wells B-14, B-29, and B-30 and utilization of B-28 to monitor the Perched Zone along the southern portion of the landfill, and the periodic redevelopment of monitoring wells on an as needed basis, as approved by the EGLE in their letter dated April 9, 2008
- A modification to the July 2008 Post-Closure Care Plan, which includes updating the site ownership and contact information; the landfill design/construction information (to include drain installation and other noteworthy repairs since 2008); the swale maintenance procedure; the animal burrow inspection, maintenance and reporting procedure; the financial assurance mechanism for the facility; the landfill inspection and groundwater sampling logs; and the COC form. Furthermore, copies of the available monitoring well boring and construction logs for the wells in the post-closure monitoring program, and a copy of the Notice Regarding Statutory Obligations Applicable to Property (Rule 525 Notice) are also provide.
- A modification to the November 2018 Post-Closure Care Plan which includes: abandoning monitoring well B-2D and replacing it with monitoring well OBG MW-16D.

5.1 Monitoring Well Network

As required by 40 CFR Section 264.95 and the Michigan Hazardous Waste Regulations, a detection-monitoring program must focus on the uppermost aquifer. The uppermost aquifer at the Coldwater Road Landfill Facility has been defined in previous studies as the "Drift aquifer" (Hydro-Search, 1991). In addition, detection monitoring must include any other saturated zone that represents a potential pathway for contaminant migration, which may provide for early warning of failure of the leachate containment system.

Previous studies also identified a perched water zone at the site. Therefore, the detection-monitoring program must also include monitoring of the Perched Zone in addition to the Drift aquifer. Since groundwater flow directions in the Perched Zone are different from that of the Drift aquifer, the proposed monitoring well network is discussed separately for each. A table summarizing the monitoring wells included in the post-closure monitoring program is included as **Table 3**. **Appendix B** contains the available monitoring well boring and construction logs for the monitoring wells included in the post-closure monitoring program.

5.1.1 Perched Zone Monitoring Network

Groundwater within the Perched Zone has been shown in previous annual groundwater monitoring reports to flow in a westerly direction. To monitor this zone, a total of six monitoring wells will be used. Specifically, existing well B-9 will be used as the background monitoring point and existing wells B-7, B-18A, B-19AR (replaces well B-19A), B-24r (replaces B-24) and B-28 (replaces B-14) will be monitored (see **Figure 7** for well locations). The Perched Zone monitoring network provides adequate aerial coverage and will provide the data necessary for detection monitoring and reporting requirements.

Based on the elevations of the screened interval at monitoring well B-19A (797.97-802.97 ft AMSL), it appears this screen is not installed at an optimal depth to detect a potential leak from the landfill (landfill bottom elevation approximately 802 ft AMSL). Therefore, requests that future groundwater monitoring include sampling of newly installed monitoring well B-19AR (screen elevation 766.48-776.48 ft AMSL) in lieu of well B-19A were submitted to the EGLE on January 5, 2006 and April 21, 2006. These requests were approved by the EGLE in their May 19, 2006 letter.

Monitoring well B-28 was installed in November 2005 to evaluate zinc concentrations in the B-14 area. B-28 is closer to the landfill and screened at a shallower depth than B-14 and better represents the groundwater quality adjacent to the landfill. Therefore, both wells were sampled during the 2006 and 2007 sampling events and B-28 replaced B-14 in the monitoring well network and B-14 was abandoned in May 2008. Monitoring wells B-29 and B-30, which were also installed in November 2005 and sampled during the 2006 and 2007 sampling events to assess zinc concentrations in the B-14 area were also abandoned in 2008. The existing wells were abandoned and the new wells were installed in accordance with the methods described in this Plan.

5.1.2 Drift Aquifer Monitoring Network

Groundwater flow within the Drift aquifer has been shown to be toward the south-southeast. To monitor the Drift aquifer, a total of five monitoring wells will be used. Specifically, well B-2D will be used as the upgradient monitoring point and wells B-20D, B-21D, B-22D, and B-27D (replaces B-23 and B-23Dr) will be used as downgradient monitoring points (see **Figure 7**). The Drift aquifer monitoring well network provides adequate aerial coverage and the data necessary for detection monitoring and reporting requirements.

Based on intermittent lack of water observed in monitoring wells B-23D and B-24 preventing the consistent collection of groundwater samples for analysis and in accordance with the EGLE-approved December 14, 2004 Work Plan, two existing monitoring wells (B23D and B24) were abandoned and replaced with new monitoring wells (B-23Dr and B-24r). The existing wells were

abandoned and the new wells were installed in accordance with the methods described in this Plan.

Furthermore, B-27D was installed in response to the EGLE's August 10, 2005 letter and later discussions with the EGLE regarding the appropriateness of monitoring well B-23Dr for monitoring the Drift aquifer at the site because it is screened about 22 ft lower than B-23, which was often dry. B-27D was installed about 2.5 ft lower than B-23 (*i.e.*, about 20 ft higher than B-23Dr). Both B-23Dr and B-27D were sampled during the 2006 and 2007 sampling events and the data for B-27D and B-23Dr was compared during this time. Therefore, B-27D was added to the monitoring well network and B-23Dr will only be sampled if B-27D is dry.

5.1.3 RMA Monitoring Wells

Monitoring wells MW-25 and MW-26 were installed to monitor groundwater downgradient of the RMA. The wells were monitored for four quarters as requested by the EGLE and have been abandoned. The wells were abandoned in accordance with Section 5.1.5.

5.1.4 Monitoring Well Installation Specifications

If required to install additional wells at the Coldwater Road Landfill Facility in the future, the following well installation protocols will be used. Wells will be installed in accordance with Part 111 Rule 299.9612 (1) (b), the methods outlined in this Plan, or per an approved work plan. EGLE approval is required prior to monitoring well installation.

Prior to drilling a well, the drill rig, and drillers tools will be thoroughly decontaminated using a portable steam cleaner. Drilling and sampling will be completed utilizing either the hollow stem auger or Rotosonic® drilling method. Soil samples will be collected using either a split spoon sampler at 2-ft intervals or a 5-ft continuous core split barrel for hollow stem auguring methods or 10-ft sampler for Rotosonic® drilling methods. The soils will be visually logged using the USCS soil classification system. Cuttings will be spread on the ground surface around the well.

Monitoring wells will be constructed using 2-in diameter, flush-threaded PVC casing. The screen length will be up to 5 ft with continuous slot openings of 0.010 in and a PVC plug on the bottom of the screen. The annular space around the screen will be back-filled with silt free silica sand (WB 40 grade) to a height no more than 2 ft above the top of the screen. A minimum 2-ft thick seal of hydrated bentonite will be placed above the sand pack. The remaining annular space will be filled with a neat cement grout or bentonite slurry with more than 20% solids placed with a tremie pipe. The PVC riser will be covered with a lockable, watertight PVC cap. A 4-in diameter galvanized steel, locking, protective casing will be installed at the surface with a concrete anchor and runoff diversion apron.

Once installed, the grout will be allowed a minimum of 24 hr to cure after which time the well will be developed. Well development will be performed using the pump and surge method. A minimum of five casing volumes will be removed from the well or until the well is pumped to dryness.

5.1.5 Monitoring Well Abandonment Procedures

This procedure will be used for abandoning of monitoring wells at the Coldwater Road Landfill Facility. EGLE approval is required prior to performing monitoring well abandoning. The wells will

be abandoned in accordance with Part 111 Rule 299.9612 (1)(b), methods outlined in this Plan, or per an approved work plan. Two methods may be used in accordance with this Rule to abandon a well. The first method involves over drilling and removal of the well materials and pressure backfilling the open hole with a cement/bentonite grout. The second method involves using a tremie pipe to pressure inject the cement/bentonite grout mixture into the well with the well materials left in place.

The preferred method for abandoning deep double-cased wells is to leave the well materials in place, except for the above ground riser and protective casing, and pressure grouting the well from the bottom to ground surface. The method for abandoning shallow wells will be determined by a geologist. The geologist will review monitoring well construction details and soil boring logs to assess whether the well intersects more than one water-bearing unit. The well will either be over drilled, well materials removed and filled with a neat cement grout or bentonite slurry with more than 20% solids, or filled in place with a neat cement grout or bentonite slurry with more than 20% solids. Above ground materials (riser and protective casing) will be removed to approximately 2 ft below grade.

These procedures were implemented to abandon two wells (MW-25 and MW-26) at the conclusion of four quarters of sampling in which analytical data indicated four quarters of results below the groundwater/ surface water interface criteria. The EGLE issued a letter dated September 7, 1999, approving the termination of groundwater sampling of these wells and approved the abandoning of these wells. The wells were abandoned in accordance with the above discussion for shallow wells by removing well materials and cement/grouting the hole.

These procedures were also implemented in the abandonment of monitoring wells B-14, B-29 and B-30 as approved by the EGLE in their letter dated April 9, 2008. Monitoring well B-14 was over-drilled and the borehole was grouted because of the longer than normal sand pack. Wells B-29 and B-30 were pressure grouted in place.

5.1.6 Benchmark and Monitoring Well Top of Casing Surveying

The top of casing elevations will be established by a licensed land surveyor for new monitoring wells installed in accordance with Section 5.1.4 following installation and prior to their use for the construction of groundwater contour maps for the site. As part of this surveying effort the benchmark or benchmarks (a.k.a., witnesses) utilized to provide control for the top of casing elevation survey will be inspected and surveyed.

In addition, the benchmark(s) and the top of casing elevations for the wells that are part of the groundwater monitoring program, which currently include the following 13 wells: OBG MW-16D, B-7, B-9, B-18A, B-19A, B-19Ar, B-20D, B-21D, B-22D, B-23Dr, B-24r, B-27D, and B-28 will be re-surveyed by a licensed land surveyor at a minimum frequency of once every five years. The new top of casing elevations will be utilized in the construction of groundwater contour maps subsequent to the re-surveying event.

5.2 Analytical Procedures and Sampling Frequency

Groundwater sampling is currently conducted semi-annually, but is subject to change with EGLE approval. Groundwater samples will be analyzed for pH, specific conductivity, total organic carbon (TOC), total organic halogen (TOH), and dissolved copper, nickel, zinc, and chromium. In

addition, one set of samples per year will also be analyzed for the standard list of parameters specified in 40 CFR Part 265, which includes; chloride, sodium, dissolved iron and manganese, phenols, sulfate, cyanide, and volatile organic compounds. Analytical methods and sampling frequencies are provided in **Table 4**. Sample handling information is included on **Table 5**.

5.3 Groundwater Sampling Procedures

5.3.1 Groundwater Sampling

Samples will be collected after each well has been purged and field parameters measured. Water sample portions will be filtered and/or preserved in accordance with 40 CFR 136 as promulgated by USEPA on October 26, 1984. The filtered sample portions will be filtered through a disposable 0.45-micron filter in the field. Pre-preserved (with HNO^3) sample containers will be provided by the laboratory for appropriate sample parameter analysis. Purging, field parameter measurements, and sampling procedures are described in detail in the following sections.

5.3.2 Well Purging

The water standing in a well prior to sampling may not be representative of in situ groundwater quality. The "Low Stress/Low Flow" purging and sampling method will be utilized to purge the well to allow representative water from the formation to replace the standing water within the sampling zone of the well (*i.e.*, within the well screen). Purging will be conducted using a submersible or peristaltic pump. During purging, specific conductivity, pH, temperature, oxidation-reduction potential (ORP), dissolved oxygen (DO) and turbidity measurements will be monitored and recorded approximately every 5 minutes to document stable conditions. A steady state flow rate (typically between 100 and 500 ml/minute) should be maintained that results in a drawdown of 0.3 ft or less, and care should be taken to avoid the entrainment of air in the pump intake. Adjustments to the pumping rate and the resulting water level (*i.e.* drawdown) will be recorded after each adjustment.

If drawdowns of 0.3 ft or less cannot be maintained because of the permeability of the formation at a particular well location, "ultra-low flow" purge techniques will be employed. Ultra-low flow purge rates are rates below 100 ml/min. However, if ultra-low flow purging still results in the well purging "dry," the well will be allowed to recharge and the sample will be collected as soon as sufficient water is present to obtain the necessary sample volume.

5.3.3 Field Parameter Measurement

Analyses for specific conductivity, pH, temperature, oxidation-reduction potential (ORP), dissolved oxygen (DO) and turbidity will be completed in the field during purging and prior to sampling of the well using field multi-parameter meters and flow-through cells.
Field meters to be used during purging (*i.e.*, multi-meters capable of measuring specific conductivity, pH, temperature, ORP, DO and possibly turbidity [turbidity may be monitored by a separate meter if necessary]) will be checked for proper calibration and precision using appropriate buffer solutions in accordance with the manufacturers recommendations. The preparation date of standard solutions will be clearly marked on each of the containers to be taken into the field. Calibration records for each meter will be recorded in the dedicated field notebook for the facility. Entries will include problems potentially experienced with the meter, corrective measures taken, battery replacement dates, when the meter was used and the operator.

5.3.4 Procedures for Sampling Wells

Prior to groundwater sampling, an inspection will be performed on each well. The inspection will include:

- Inspecting the concrete pad for cracks
- Inspecting the protective steel cover
- Inspecting the integrity of the PVC well casing (to the extent possible)
- Inspecting the well caps
- Inspecting the well identification markings to confirm they are legible (if illegible, re-mark)
- Inspecting the locks to assess whether they are in good working condition.

Results of the well inspection will be documented on the Groundwater Sampling Log (**Appendix C**) for each well. If the inspection indicates repairs are required, these will be performed prior to the next sampling event. Corrective actions implemented to repair well(s) will also be documented on the Groundwater Sampling Log and/or the field notebook for the facility.

Groundwater purging and sampling data will be recorded on the Groundwater Sampling Log.

The procedure for sampling the monitoring wells is as follows:

1) Sampling equipment will first be decontaminated prior to each use by the following protocol:
   - Scrub equipment thoroughly in a low-sudsing detergent solution (*e.g.*, Alconox). Pump low-sudsing detergent solution through submersible pump for approximately 5 minutes, if utilized
   - Rinse equipment thoroughly with distilled water, and pump distilled water through submersible pump, if utilized
   - Wrap equipment in plastic for handling and/or storage until next use
   - Decontamination of disposable tubing, if used, will not be necessary
2) An electric water level probe will be used to measure the depth from the top of the casing to the top of water to the nearest 0.01-ft. The measurement will be recorded in a dedicated field notebook and Groundwater Sampling Log
3) Measure the depth from the top of casing to the bottom of the well for the initial sampling event
4) Slowly lower the pump and/or tubing into the well positioning the pump intake at the mid-point of the well screen taking care to minimize disturbing the well.
5) Purge the well using low-flow purging techniques utilizing a submersible or peristaltic pump. During purging, measure the specific conductivity, pH, temperature, ORP, DO and turbidity and recorded approximately every 5 minutes to document stable conditions. The parameters will be considered stable once the readings are within ±3 percent for specific

conductivity and temperature, ±0.1 units for pH, ±10 millivolts for ORP, and ±10 percent for DO and turbidity.

6) Verify that drawdowns of 0.3 ft or less are maintained and make adjustments as necessary. Record drawdown measurements and note adjustments in pumping rates as necessary on the Groundwater Sampling Log. If drawdowns of 0.3 ft or less cannot be maintained utilize ultra-low flow purge techniques. However, if ultra-low flow purging still results in the well purging "dry," allowed the well to recharge and the sample will be collected as soon as sufficient water is present to obtain the necessary sample volume.

7) Obtain a sample for chemical analyses immediately upon stabilization of field parameter measurements. Field filter the sample for dissolved metals using a 0.45-micron filter prior to preserving with acid. Samples are to be collected in the order of volatility as follows: TOC/TOX (or VOCs) and dissolved metals.

Either a decontaminated submersible pump or peristaltic pump (for shallow wells only) may be utilized to purge each well. If a submersible pump is utilized in the purging process, then it will be decontaminated prior to and after sampling each well. Sampling equipment must be protected from the ground surface by a clean plastic sheet laid around the work area. Water from purging will not be containerized.

Monitoring wells that consistently have final turbidity values of greater than 10 NTU after low flow sampling for at least three consecutive sampling events will be redeveloped unless previously redeveloped within the last three years. Wells will be redeveloped in accordance with the March 17, 2008 letter to the EGLE as approved via e-mail on March 19, 2008 (**Exhibit 4**).

5.4 Sample Preservation

Sample bottles will be labeled with sample identification, collection date and time, filtration/preservative status. Sample bottles will be filled and capped securely and immediately preserved (if required) and stored at 4 degrees Celsius in a cooler.

The cooler and samples will be prepared for shipment or transport by the following procedure:

1) Prepare cooler(s) for shipment.
   - Tape drain(s) of cooler shut
   - Place mailing label with laboratory address on top of cooler(s).
2) Arrange sample containers in a manner to prevent potential sample container breakage.
3) Confirm the bottle labels are completed correctly. Place clear tape over bottle labels to prevent moisture accumulation from causing the label to peel off.
4) Seal sample containers within plastic zip-lock bags to prevent packing material from contacting samples.
5) Place packing material at the bottom of the cooler to act as a cushion for the sample containers.
6) Fill remaining spaces with packing material.
7) Confirm containers are firmly packed in cooler.

8) If ice is required to preserve the samples, cubes should be repackaged in double zip-lock bags, and placed on top of the packing material.

9) Sign COC form (or obtain signature) and indicate the time and date it was relinquished to Federal Express or other carrier, as appropriate.

10) Separate copies of COC forms. Seal proper copies within a large zip-lock bag and tape to inside lid of cooler. Retain copies of forms in-house.

11) Close lid and latch.

12) Tape cooler shut on both ends, making several complete revolutions with strapping tape.

13) Relinquish to Federal Express or other courier service. Retain airbill receipt for project records (Note: Samples will be shipped for "NEXT DAY" delivery).

If samples are delivered directly to the laboratory by the sampling team, the packaging/shipping requirements may be omitted. COC procedures, however, must be strictly maintained.

5.5 Sample Management and Chain-of-Custody

COC procedures document the history of sample containers and samples from the time of preparation of sample containers through sample collection, shipment, and analysis. A sample is considered in custody if:

- The sample is in the sampler's physical possession
- The sample is secured by the sampler to prevent tampering
- The sample is secured by the sampler employee in an area that is restricted to authorized personnel

To maintain a record of sample collection, transfer between personnel, shipment, and receipt by the laboratory, a COC record will be completed for each sample at each sampling location. Each time the samples are transferred, signatures of the person relinquishing and receiving the samples, as well as the date and time, will be documented. A blank example COC record is provided in **Appendix D**.

Parallel field notebook and COC records will be maintained. Recorded information will include:

- Sampling Location
- Time and Date
- Sampling Method
- Method of Preservation

Additionally, the field notebook will also include information on weather conditions, depth to water, TD of the well, field parameter and instrument calibration records and other useful or pertinent information. The notebook will be kept at the facility or with their designated contractor.

5.6 Quality Assurance/Quality Control (QA/QC) Measures

Field QA/QC procedures will consist of collecting one equipment blank (if equipment is reused) and one duplicate sample (one additional sample from one of the wells) for each sampling event. The duplicate sample will be assigned a separate sample identification and submitted to the laboratory "blind".

The procedure for collecting an equipment blank will be to pass distilled water through the decontaminated sampling device into a laboratory-supplied sample bottles. An equipment blank sample will not be required if disposable sampling equipment is used.

5.7 Reporting Requirements

5.7.1 Submittals

A semi-annual, unless an alternative frequency is approved by EGLE, and annual report will be issued summarizing the monitoring data. Each submittal will consist of:

- Preparation of a potentiometric surface contour map based on representative groundwater surface elevations from each well
- Confirmation of groundwater flow direction(s) from that map
- Documentation of sampling and procedures, COCs and groundwater sampling logs
- Analytical results from laboratory analyses and field measurements
- Statistical testing of pH and specific conductance and dissolved metals as compared with historical measurements. The statistical analysis and control charts will be reported in each report submittal.
- Summary of field and analytical QA/QC data and usability of the data generated.
- Tables summarizing analytical results.

The semi-annual report, unless an alternative frequency is approved by EGLE, will be submitted to the EGLE no later than September 1st and the annual report will be submitted no later than March 1st of the following year. A certification statement in compliance with 40 CFR 270.11 will be included with each report submittal.

5.7.2 Statistical Evaluations

Standard RCRA requirements include performing a statistical evaluation of indicator parameters for each round of sampling to determine if there has been a statistically significant increase (or pH decrease) over background. Statistical evaluations used at this site included both the CABF t-test and the Average Replicate t-test for evaluating changes in indicator parameters. During the interim status detection monitoring, a number of indicator parameters consistently tested positive *(i.e.*, a statistically significant increase over background) for various wells including the background well. Subsequent groundwater quality assessment work showed that the standard statistical evaluation approaches are not appropriate for site conditions, therefore, resulting in a high number of false positives.

To mitigate this problem during post-closure monitoring, RACER will use Shewhart control charts to analyze the detection monitoring groundwater quality data. The use of control charts for RCRA monitoring is an approved alternative by USEPA (USEPA, 1992). Parameters to undergo statistical analysis will be pH, specific conductance and dissolved copper, nickel, chromium, and zinc.

For replacement wells new to the current monitoring well network sampled, a background data-set will be developed. In accordance with USEPA guidance, the background data-set will include 8 quarters of sample analysis for use in subsequent statistical analysis (1992. *USEPA Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance*. Office of Solid Waste.).

However, assigning a constant value (*i.e.*, one half the detection limit) to non-detects in the baseline data set compromises the underlying assumptions of the control charts, therefore, non-detect background data for the vaults were replaced using a bounding method or randomized replacement method as described in our April 21, 2006 letter to EGLE (**Exhibit 1**), which was approved by the EGLE in their May 19, 2006 response letter (**Exhibit 2**). In general, this involves randomly selecting a number between zero and the detection limit 10,000 times for each non-detect background result and utilizing the mean of the randomized values to replace the non-detect value.

Originally (1995) the methodology discussed and recommended in the paper by Sparks and Flatman (1991) was used to set up and operate the control charts. This procedure involves the simultaneous use of Shewhart and CUSUM charts. The Shewhart charts detect medium to large shifts in the mean of a random Gaussian process. The CUSUM charts detect small shifts in the mean of a Gaussian process. However, the CUSUM control charts are no longer plotted because the high sensitivity of the CUSUM control charts causes too many false positive outcomes, which persist for long periods of time. The Shewhart control charts allow the detection of changes in indicator parameters that are tailored to the individual differences seen in each parameter at each leak detection vault.

Shewhart charts are fairly robust with respect to the assumption of normality (Gaussian distribution) if the data comes from sampling a random quantity that has a symmetric distribution.

It is assumed that the analytical data from the monitoring wells is normally distributed. However, environmental data are frequently non-normally distributed and control charts that are produced under the assumption of normality are still a useful tool when the data has a non-normal distribution (Gilbert, 1987). Control charts are not used to make precise probability statements, but are used as a guide for when investigative action needs to be taken; therefore, use of a symmetrizing transformation, such as the log or square root, on the original data is unnecessary.[2]

As recommended in the USEPA guidance, the Shewhart charts will use 4.5 limits and the two-in-a-row rule. The limits for pH differences will be two-sided; all other parameters will have one-

[2] Gilbert, Richard O. 1987. *Statistical Methods for Environmental Pollution Monitoring*. Van Nostrand Reinhold Company Limited, New York, New York.

sided limits. The two-in-a-row rule used in this application specifies that if a chart control limit is exceeded, the monitoring well in question will be re-sampled. A critical exceedance will be deemed to have occurred if the 4.5 limit is also exceeded on the resample. This is also consistent with requirements using the standard statistical evaluation methods. This provides reasonable protection against outliers due to trace level analytical chemistry errors. Occasional large errors in trace level analysis of environmental samples are possible. Furthermore, outliers as identified utilizing the Grubbs test, or other appropriate test, may be removed from the data if a valid demonstration as to why a datum is an outlier can be made and is approved for removal by the EGLE. A request to remove an outlier will be made to the EGLE prior to its removal, and the EGLE will evaluate the request and either approve or deny the removal of the outlier.

Following each semi-annual sampling event, the monitoring well data will be entered into Microsoft® Excel spreadsheet. RACER will use this software to perform the computations and to produce the plots. Each plot will include a print out of chart parameters used in its construction and will both highlight and list points that trigger an out-of-control indication.

A decision tree (**Exhibit 3**) was developed to guide the evaluation of the monitoring well data to avoid unnecessary re-sampling events, while maintaining the essential purpose of the monitoring program – identifying potential leaks from the landfill. The decision tree will guide the evaluation of the monitoring data, EGLE notification and re-sampling events.

If there is a Shewhart control limit exceedance (*i.e.*, an out-of-control parameter) and this is not an historical exceedance of the control limit, then the EGLE will be notified immediately and the well will be re-sampled for the parameter exceeding the control limit. If the Shewhart control limit is not exceeded or the exceedance is a historical (*i.e.*, continuing) exceedance caused by an earlier result, then the data will be plotted as discussed below.

The data will also be plotted on a simple chart to visually identify whether an increasing trend is observable, and a comparison of the four metals monitored on a semi-annual basis will be made to see if more than one metal concentration is increasing in a similar pattern or spiked in concentration at the same time. If both of the above evaluations result in a null (*i.e.*, negative) hypothesis (no exceedances and no spikes or trends), then the semi-annual or annual monitoring report will be submitted to the EGLE with a discussion of the statistical and graphical analysis used to conclude that no impact to groundwater (*i.e.*, leak from the landfill) has occurred, and routine semi-annual monitoring will continue for that monitoring well.

If two or more metals spiked at the same time at a concentration greater than their respective mean concentrations (as calculated on the statistical analysis spreadsheets), plus one standard deviation (*i.e.*, a spike is confirmed), or there is a consistent observable increasing trend in the data over a four sampling event period, then the semi-annual or annual monitoring report containing the confirmed spike or consistent trend will be submitted to the EGLE with a summary of the preliminary evaluation and a notification that further evaluation will be conducted.

The further evaluation will include plotting all of the indicator parameter data (*i.e.*, pH, conductivity, temperature, chromium, copper nickel and zinc) for the monitoring well in question and the associated leak detection vault and sump closest to the well in linear and log scales so a detailed comparison of the concentrations can be evaluated. The concentrations of the different

parameters will be compared and contrasted for the well data, then the vault and sump data and finally between the well and the vault and sump data to evaluate whether spikes and/or trends in the data are observable such as a matching rise or fall in parameter concentrations or spikes in well, vault and sump data. However, re-sampling will not be conducted.

If upon further evaluation the detection indicates a potential leak from the landfill, the EGLE will be immediately notified and the results of the further evaluation will be summarized in a letter report and submitted to the EGLE within 60 days following the submittal of the corresponding semi-annual or annual monitoring report containing the exceedance, and the leak detection system will be further evaluated and corrective measures may need to be taken. In addition, a Work Plan will be prepared to evaluate liner integrity or other options as appropriate. This Work Plan will be prepared and submitted to the EGLE within 60 days of confirmation of the potential leak from the landfill. Following completion of the investigation or corrective actions, a Professional Engineer certified report will be submitted to the EGLE.

If the further evaluation does not indicate a leak from the landfill, then the results of the further evaluation will be summarized in a letter report and submitted to the EGLE within 60 days following the submittal of the corresponding semi-annual or annual monitoring report containing the exceedance and routine semi-annual monitoring will be continued.

6. MAINTENANCE PLAN (40CFR 264.228(B), 264.228(C)(1)(II), 264.258(B), 264.258(C)(1)(II)

As stated in Section 4 of this Plan, inspections of the closed hazardous waste landfill and the RMA will be performed quarterly, by qualified RACER personnel or designee. A thorough walking inspection will be made over each landfill cell (A-F), the berm surrounding the landfill and the RMA.

A natural vegetative cover was allowed to grow on the landfill to overtake the clover which attracts various wildlife for grazing, the main cause of damage to the vegetation and the landfill cover. This approach, on a trial basis, was approved by the EGLE in a letter dated January 24, 2001. As part of the continued operation and maintenance of the landfill cap, brush and woody stemmed weeds will be controlled through regular inspections and selective cutting/removal/herbicide treatment. This should keep this vegetation from establishing a deep root system. Mowing of the landfill vegetative cover will continue along access routes, as well as around the control equipment and leachate accumulation facility. The request to allow the landfill cap to remain in a natural field state on a permanent basis was approved by the EGLE in a letter dated February 4, 2003.

The leak detection system will be monitored as stated in Section 4 of this Plan. Malfunctions will be noted on the inspection log sheet and communicated to the post-closure contact who will dispatch the required personnel for repairs.

Beginning in 2011, the rip rap from the swale will be removed in areas where sediment has collected and is supporting vegetation, to allow the swale to simply be a vegetated drainage ditch, rather than a rip rap lined drainage ditch. Documentation of the repaired areas, including photos, will be provided in the annual inspection reports for the site.

Maintenance activities, if necessary, performed to correct erosion damage, cover settlement, and run-on/run-off structures will be certified by a licensed Professional Engineer. These activities will be performed by either RACER or contracted personnel. The Professional Engineer will prepare a report detailing the corrective action, and this report would be included with the Coldwater Road Landfill Facility annual report submitted to the EGLE.

Pumps and float-switches in the leachate collection sumps will be cleaned and inspected annually. Worn parts will be replaced as necessary. Additional repairs will be conducted on an as-needed basis. Decisions on replacement of pumps will take into account the cost of repairs and the age of the defective pump. Based on prior experience, it is expected that an average of one pump will require replacement every three years. If a pump is to be replaced, a standby pump stored inside the leachate accumulation facility, will be installed and the defective pump will be sent out for repair diagnosis. Should the repair costs exceed new pump costs, a new pump will be purchased. The new pump will be stored inside the leachate accumulation facility and will be considered the standby pump for the next replacement event.

Above ground electrical equipment associated with each cell will be inspected monthly during a dewatering event. Inspections will determine whether the pumps and float-switches operate properly. Repairs to these items will be conducted on an as-needed basis.

7. PERSONNEL TRAINING (40CFR 270.14(B)(12) AND R229.9613(1))

Inspection and routine maintenance procedures will be carried out by qualified personnel.

Groundwater sampling and final cover maintenance will be performed by qualified RACER and/or contractor personnel. It is currently anticipated that post-closure activities will be handled by contract personnel. Required training for contracted personnel will depend upon the activities performed. Personnel which may potentially come in contact with landfill materials or landfill leachate will be required to meet the training requirements of 29 CFR 1910.120 (e) for safety and health at hazardous waste operations.

8. POST-CLOSURE COST ESTIMATE (40CFR 264.144 AND R229.9702)

The Post-Closure Cost Estimate for the landfill is presented in the August 2010 Remediation Cost Estimate Summary (RCES) for the site, which was approved by the EGLEMDEQ at that time. **Table 6** provides a copy of the Post-Closure Cost Estimate, which established the Cost Breakdown for Initial Site Funding Accounts in the Settlement Agreement.

9. SURROUNDING LAND USE

The site is located at the northeast corner of Horton Street and Morris Hills Parkway in Flint, Michigan. A Zoning Map for Genesee Township is included as **Figure 8**. The site is bounded by single-family residential and light industrial property to the north, light industrial property to the south, multiple-family residential property to the east, and single-family residential property to the west.

10. CLIMATE AND PRECIPITATION

The average monthly precipitation levels and average monthly temperatures for Flint, Michigan for the past 50 years site area are provided in **Table 7**, and a wind rose diagram for Genesee County is provided in **Figure 9**.

The site area receives approximately 32 inches of rainfall annually, with August being the wettest (about 3.48 inches of rainfall) and December through February being the driest months of the year (less than 1.95 inches of rainfall during each of these months). The average annual temperature for the site area is approximately 47.7 degrees Fahrenheit with January being the coldest month of the year (average temperature of 23.1 degrees Fahrenheit) and July being the warmest (average temperature of 71.6 degrees Fahrenheit).

The wind rose diagram for the site area indicates that winds are predominantly from the west-southwest followed by southwest and west winds. The strongest winds are gusts of greater than or equal to 22 Knots predominately from the west. Calm conditions (less than 4 Knots) only occur about 19% of the time in the site area with 7 to 11 Knot winds being the most prevalent, occurring about 38% of the time.

11. POST-CLOSURE PROPERTY USE (40CFR 265.117, R299.9601.3)

In accordance with the approved Closure Plan, a notification was placed on the deed of the property that informs future landowners of conditions or considerations of soil restrictions or soil relocation. Such a notification is identified in Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, as a "*Notice of Approved Environmental Remediation*." This notification (EGLE Reference No.: NAER-WHMD-111-05-001) is not a restrictive covenant; however, it is a mechanism that identifies potential site restrictions. This notification was filed with the deed for the purpose of protecting public health, safety and welfare and the environment.

In addition, a Declaration of Restrictive Covenant (DRC - EGLE Reference No.: RC-WHMD-111-05-002) was also placed on the deed of the property pursuant to Part 201 of the NREPA, 1994 PA 451 and the facility's Consent Order to protect public health, safety, and welfare, and the environment by prohibiting or restricting activities that could result in unacceptable exposure to environmental contamination present at the property. The Notice of Approved Environmental Remediation form and Declaration of Restrictive Covenant form were filed with the Genesee County Register of Deeds on June 24, 2005. These forms are included in **Appendix E**. In accordance with the Declaration of Restrictive Covenant form, an EGLE-approved permanent marker plaque was installed just inside the Horton Street gate on August 23, 2005. RACER will maintain the area around the permanent marker to prevent vegetative growth from obscuring the brass plaque.

The Notice of Approved Environmental Remediation form includes language indicating notification and approval is required prior to relocating soils from the RMA.

In addition to the Declaration of Restrictive Covenant, a Notice Regarding Statutory Obligations Applicable to Property was also filed for the site (see **Appendix F**) as required by Rule 525 of Part 111, 1994 P.A. 451, as amended (*a.k.a.*, a Rule 525 Notice). The Rule 525 Notice indicates that the property has been used to manage hazardous waste and is subject to the corrective action requirements of Part 111, 1994 P.A. 451 and the Resource Conservation and Recovery Act (RCRA).

12. AMENDMENT OF POST-CLOSURE CARE PLAN (40CFR 265.118(D))

In the event site conditions differ substantially from those anticipated or if other unforeseen circumstances warrant, this Plan will be modified according to the section of RCRA referenced above.

13. FINANCIAL ASSURANCE MECHANISM FOR POST-CLOSURE (40 CFR 264.145, 264.151, R299.9703, AND R299.9709)

As part of the bankruptcy settlement process that resulted in the Settlement Agreement, EGLEMDEQ approved the creation of RACER with initial site funding account amounts to fund the post-closure care and remaining remediation of the site. These amounts are presented in **Table 6** (as presented in Section 8). Per the Settlement Agreement these funds are designated for use for only the Coldwater Road Landfill site. In addition, the Settlement Agreement included an overall Cushion Funding Account and the ability to transfer funds from other Michigan sites if certain criteria included in the Settlement Agreement were met.

In accordance with the Settlement Agreement and as determined by the Trustee and approved by EGLE in annual budget requests, as of 2022 most landfill post-closure care costs have been paid for from the Long-Term Operation, Maintenance, and Monitoring Property Funding Account (LTOMM Account). Costs related to treatment of PFAS in fluids from the landfill have been paid for from the Reserve Property Funding Account (Reserve Account). **Appendix G** contains the current, as of December 31, 2023, Property Funding Accounts Balance for the site. Per the Settlement Agreement, RACER is required to obtain approval from EGLE of annual budgets needed to complete necessary and required post-closure care.

TABLES

Table 1
Leachate/Leak Detection Monthly Volume Data
RACER Trust
Coldwater Road Landfill Facility
Flint, Michigan

Date 2021	GALLONS LEAK DET A	GALLONS LEAK DET B	GALLONS LEAK DET C	GALLONS LEAK DET D	GALLONS LEAK DET E	GALLONS LEAK DET F	TOTAL LEAK GALLONS	GALLONS WASTE METER	GALLONS WASTE FLOW	MINUTES SUMP A	MINUTES SUMP B	MINUTES SUMP C	MINUTES SUMP D	MINUTES SUMP E	MINUTES SUMP F	TOTAL RUNTIME MIN	DISPOSED OFF SITE GAL	NOTE
19-Jan-23	49	39	36	3	-	-	127	65,388	**1**	11,762.5	13,390.4	24,094.7	14,985.0	6,419.3	8,576.5	-		
TOTAL							**127**	Minutes of operation:		-	-	-	-	-	-			
14-Feb-23	-	-	-	-	-	-	-	65,760	**372**	11,762.5	13,390.4	24,094.8	15,020.5	6,419.3	8,576.5	36		
TOTAL							**-**	Minutes of operation:		-	-	0	36	-	-			
15-Mar-23	79	1,098	31	81	226	4	1,519	66,368	**608**	11,762.5	13,390.4	24,094.8	15,053.1	6,419.3	8,576.5	33	1,067	
TOTAL							**1,519**	Minutes of operation:		-	-	-	33	-	-			
21-Apr-23	-	-	-	-	375	-	375	66,470	**102**	12,601.8	13,983.4	24,094.8	15,319.6	6,419.3	8,576.5	1,699		
TOTAL							**375**	Minutes of operation:		839	593	-	267	-	-			
11-May-23	102	936	29	80	311	-	1,458	66,470	**-**	12,745.8	13,983.4	24,094.8	15,319.6	6,419.3	8,576.5	144		
TOTAL							**1,458**	Minutes of operation:		144	-	-	-	-	-	-		
28-Jun-23	71	164	34	124	393	2	788	68,171	**1,701**	12,803.6	14,009.1	24,094.8	15,345.5	6,419.3	8,576.5	109	5,808	
TOTAL							**788**	Minutes of operation:		58	25.7	-	26	-	-			
14-Jul-23	-	-	-	-	126	-	126	68,367	**196**	12,803.6	14,009.1	24,094.8	15,359.0	6,419.3	8,576.5	14		
TOTAL							**126**	Minutes of operation:		-	-	-	14	-	-			
17-Aug-23	99	144	103	130	226	2	704	69,100	**733**	12,822.7	14,009.1	24,094.8	15,370.9	6,423.5	8,576.9	36	3,503	
TOTAL							**704**	Minutes of operation:		19	-	-	12	4	0			
1-Sep-23	-	-	-	-	-	-	-	70,985	**1,885**	12,822.7	14,120.7	24,094.8	15,411.9	6,423.5	8,576.9	153		
TOTAL							**-**	Minutes of operation:		-	112	-	41	-	-			
18-Oct-23	272	552	247	80	1,084	85	2,320	71,259	**274**	12,822.7	14,120.7	24,094.8	15,411.9	6,432.0	8,576.9	9		
TOTAL							**2,320**	Minutes of operation:		-	-	-	-	9	-			
20-Nov-23	-	406	-	-	693	-	1,099	72,145	**886**	12,853.6	14,152.9	24,094.8	15,444.9	6,432.0	8,576.9	105	5,770	
TOTAL							**1,099**	Minutes of operation:		31	32	-	33	-	-			
20-Dec-23	260	509	38	103	591	340	1,841	72,729	**584**	12,962.1	14,152.9	24,094.8	15,444.9	6,432.0	8,576.9	109		
TOTAL							**1,841**	Minutes of operation:		109	-	-	-	-	-			
	932	3,848	518	601	4,025	433												
							10,357		**7,342**	17,699							**TOTAL DISPOSED OFF SITE -**	16,148

Table 2
Post-Closure Monitoring Program -
Leachate Collection Sump and Leak Detection System Sampling Parameters
RACER Trust
Coldwater Road Landfill Facility
Flint, Michigan

Parameter	Analytical Method	Sampling Schedule
pH	150.1	S
specific conductivity	EPA 120.1	S
Total Organic Carbon	EPA 9060	S
Chromium (dissolved)	EPA 200.8	S
Copper (dissolved)	EPA 200.8	S
Nickel (dissolved)	EPA 200.8	S
Zinc (dissolved)	EPA 200.8	S
Total Suspended Solids	EPA 160.2	S
Volatile Organic Compounds (leachate collection sumps only)	EPA 8260	A

Notes:

The most current USEPA SW-846 analytical methods will be used and the most current MDEQ target detection limits will be used.

S denotes semiannual sampling schedule

A denotes annual sampling schedule

Table 3
Post-Closure Well Monitoring Program
RACER Trust
Coldwater Road Landfill Facility
Flint, Michigan

Well Number	Status	Unit To Be Monitored*	Approximate Screen Interval (Elevation)	Approximate Bottom of Well Elevation
B-7	Existing	Perched Zone	784-789	784
B-9	Existing	Perched Zone	784-789	784
B-18A	Existing	Perched Zone	769-774	769
B-19Ar	Existing	Perched Zone	766-776	766
B-24r	Existing	Perched Zone	788-798	788
B-28	Existing	Perched Zone	787-797	787
B-2D	Abandoned	Perched Zone	730-740	730
OBG MW-16D	Existing	Zone 3 Drift	733-738	733
B-20D	Existing	Zone 3 Drift	725-730	725
B-21D	Existing	Zone 3 Drift	724-729	724
B-22D	Existing	Zone 3 Drift	725-730	725
B-23Dr	Existing	(only if B-27D is dry)	704-714	704
B-27D	Existing	Zone 3 Drift	724-734	724

Notes:

*: Refer to Groundwater Quality Assessment Report issued by HIS dated April 1991 for discussion of geology/hydrogeology and description of units.

Table 4
Post-Closure Monitoring Program -
Groundwater Sampling Parameters
RACER Trust
Coldwater Road Landfill Facility
Flint, Michigan

Parameter	Analytical Method	Sampling Schedule
pH	150.1	S
specific conductivity	EPA 120.1	S
Total Organic carbon	EPA 9060	S
Total Organic Halogen	EPA 9020	S
Copper (dissolved)	EPA 200.8	S
Nickel (dissolved)	EPA 200.8	S
Zinc (dissolved)	EPA 200.8	S
Chromium (dissolved)	EPA 200.8	S
Chloride	EPA 325	A
Sodium	EPA 273.1	A
Iron (dissolved)	EPA 236.1	A
Phenols	EPA 420.2	A
Sulfate	EPA 375.4	A
Manganese (dissolved)	EPA 243.1	A
Cyanide	EPA 335.2	A
Volatile Organic Compounds	EPA 8260	A

Notes:
The most current USEPA SW-846 analytical methods will be used and the most current MDEQ target detection limits will be used.
S denotes semiannual sampling schedule
A denotes annual sampling schedule

Table 5
Groundwater Sample Handling Information
RACER Trust
Coldwater Road Landfill Facility
Flint, Michigan

Type of Analysis	Type and Size of Container	Number of Containers and Sample Volume per Sample	Preservation	Maximum Hold Time
Inorganics* (Copper, Nickel, Zinc, Chromium)	125 ml plastic bottle.	One; bottle is filled 7/8 full	HNO_3 to pH<2 (approximately 1.5 ml Conc. HNO_3 per Liter).	6 months
Total Organic Halogen (TOX)	1 Liter amber glass container.	One; filled with no air space	H_2SO_4 to pH<2.	28 days
Total Organic Carbon (TOC)	40 ml glass container.	Two; filled with no air space	H_2SO_4 to pH<2.	28 days
Chloride	500 ml plastic bottle.	One; bottle is filled 7/8 full	Cool to 4 ^oC	28 days
Sodium	125 ml plastic bottle.	One; bottle is filled 7/8 full	HNO_3 to pH<2.	6 months
Iron*	125 ml plastic bottle.	One; bottle is filled 7/8 full	HNO_3 to pH<2.	6 months
Phenol	125 ml amber glass bottle.	One; bottle is filled 7/8 full	H_2SO_4 to pH<2.	28 days
Sulfate	500 ml plastic bottle.	One; bottle is filled 7/8 full	Cool to 4 ^oC	28 days
Manganese*	125 ml plastic bottle.	One; bottle is filled 7/8 full	HNO_3 to pH<2.	6 months
Cyanide	125 ml plastic bottle.	One; bottle is filled 7/8 full	NaOH to pH>12	14 days
Volatile Organic Compounds	40 ml glass vials.	Three; filled with no air space	HCl to pH>2.	14 days

Notes:
*: Samples are to be field filtered using a 0.45 micron filter.

Table 6
Post-Closure Cost Estimate - Cost Breakdown for Initial Site Funding Accounts
RACER Trust
Coldwater Road Landfill
Flint, Michigan

Coldwater Road Landfill - 11030
Schedule of Cash Flows estimated by MLC

	Remediation Cost Estimate - Settlement Agreement																					
Year	Minimum	Reserve	Long-Term Operation, Monitoring and Maintenance (LTOMM)	Total Costs (NPV) Laddered Rates	Total Cost 2009 Dollars	Contingency Cost	Expected Cost	Continue Ongoing OMM	Contingency	Cell E Leakage Investigation	Contingency	Cell E Repairs and Permit Modification	Contingency	Fe & Mn Delineation	Contingency	Finalize Closure	Contingency	Agency Coord./ Negotiation & Reporting	Contingency	Project Management & Coordination	Contingency	Agency Oversight
2009	$ 29,897	$ -		$ 29,897	$ 29,897	$ 18,569	$ 11,327	$ -	10%	$ -	0%	$ -	0%	$ -	10%	$ -	0%	$ -	10%	$ -	0%	$ 11,327
2010	$ 291,995	$ -		$ 291,995	$ 285,151	$ 22,260	$ 262,891	$ 68,847	10%	$ 14,560	10%	$ 87,250	10%	$ 31,089	10%	$ -	0%	$ 20,855	10%	$ 26,712	0%	$ 13,579
2011	$ 557,282	$ -		$ 557,282	$ 542,125	$ 42,320	$ 499,805	$ 76,728	10%	$ 61,314	10%	$ 187,750	10%	$ 43,268	10%	$ -	0%	$ 54,145	10%	$ 50,785	0%	$ 25,815
2012	$ 197,071	$ -		$ 197,071	$ 193,175	$ 15,080	$ 178,095	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 25,000	10%	$ 18,096	0%	$ 9,199
2013	$ 170,816	$ -		$ 170,816	$ 170,373	$ 13,300	$ 157,073	$ 133,000	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	10%	$ 15,960	0%	$ 8,113
2014	$ 163,899	$ -		$ 163,899	$ 167,555	$ 13,080	$ 154,475	$ 130,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,696	0%	$ 7,979
2015	$ 153,736	$ -		$ 153,736	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2016	$ 149,146	$ -		$ 149,146	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2017	$ 115,382	$ 35,981		$ 151,363	$ 167,555	$ 13,080	$ 154,475	$ 130,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,696	0%	$ 7,979
2018	$ -	$ 149,668		$ 149,668	$ 170,373	$ 13,300	$ 157,073	$ 133,000	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,960	0%	$ 8,113
2019	$ -	$ 137,156		$ 137,156	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2020			$ 139,178	$ 139,178	$ 167,555	$ 13,080	$ 154,475	$ 130,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,696	0%	$ 7,979
2021			$ 130,442	$ 130,442	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2022			$ 126,920	$ 126,920	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2023			$ 135,266	$ 135,266	$ 176,778	$ 13,800	$ 162,978	$ 138,000	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 16,560	0%	$ 8,418
2024			$ 119,616	$ 119,616	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2025			$ 115,861	$ 115,861	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2026			$ 199,346	$ 199,346	$ 286,688	$ 22,380	$ 264,308	$ 130,800	10%	$ -	0%	$ -	0%	$ -	0%	$ 93,000	10%	$ -	0%	$ 26,856	0%	$ 13,652
2027			$ 108,209	$ 108,209	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2028			$ 110,311	$ 110,311	$ 170,373	$ 13,300	$ 157,073	$ 133,000	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,960	0%	$ 8,113
2029			$ 104,449	$ 104,449	$ 167,555	$ 13,080	$ 154,475	$ 130,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,696	0%	$ 7,979
2030			$ 97,782	$ 97,782	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2031			$ 95,152	$ 95,152	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2032			$ 96,248	$ 96,248	$ 167,555	$ 13,080	$ 154,475	$ 130,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,696	0%	$ 7,979
2033			$ 95,185	$ 95,185	$ 170,373	$ 13,300	$ 157,073	$ 133,000	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,960	0%	$ 8,113
2034			$ 87,541	$ 87,541	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2035			$ 88,478	$ 88,478	$ 167,555	$ 13,080	$ 154,475	$ 130,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,696	0%	$ 7,979
2036			$ 82,697	$ 82,697	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2037			$ 80,345	$ 80,345	$ 161,150	$ 12,580	$ 148,570	$ 125,800	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 15,096	0%	$ 7,674
2038			$ 85,606	$ 85,606	$ 176,778	$ 13,800	$ 162,978	$ 138,000	10%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ 16,560	0%	$ 8,418
	$ 1,829,223	$ 322,804	$ 2,098,634	$ 4,250,661	$ 5,472,360	$ 443,430	$ 5,028,930	$ 3,630,375		$ 75,874		$ 275,000		$ 74,357		$ 93,000		$ 100,000		$ 509,833		$ 270,492

Table 7
Average Monthly Precipitation and Temperature
RACER Trust
Coldwater Road Landfill Facility
Flint, Michigan

Monthly Total Precipitation (in)

Year	January	February	March	April	May	June	July	August	September	October	November	December	Annual
1974	2.61	2.16	3.6	3.35	5.5	1.93	1.72	2.75	2.2	1.44	2.78	2.35	32.39
1975	2.89	2.01	2.78	4.31	3.7	4.68	1.92	11.04	3.48	1.37	3.17	4.03	45.38
1976	1.53	2.27	3.66	5.59	4.24	4.11	1.98	0.81	2.66	3.17	1.22	0.92	32.16
1977	0.57	0.7	2.78	3.28	0.95	4.7	1.91	3.15	4.59	2.09	2.67	1.47	28.86
1978	2.02	0.51	1.99	1.03	2.97	1.66	0.73	2.62	4.57	1.51	1.44	2.64	23.69
1979	1.78	0.34	1.58	2.33	1.58	3.96	2.96	2.53	0.32	1.9	3.64	2.3	25.22
1980	1.25	0.88	2.2	3.4	2.35	2.38	5.61	3.28	4.75	2.17	0.66	2.95	31.88
1981	0.59	1.83	0.76	4.32	3.07	2.95	3.93	3.22	7.65	3.09	1.41	1.24	34.06
1982	1.57	0.66	2.49	1.23	2.15	3.24	3.06	3.24	2.76	0.57	4.76	2.75	28.48
1983	1.01	0.91	2.4	3.63	3.76	3.94	2.24	2.26	4.06	2.62	3.46	1.85	32.14
1984	0.56	0.52	2.83	2.85	3.54	0.92	3.48	3.66	2.77	2.61	2.65	3.76	30.15
1985	2.06	3.01	4	3.6	2.81	1.54	2.99	4.33	8.29	3.45	3.16	1.38	40.62
1986	0.7	2.1	1.44	2.68	1.61	5.13	3.12	5.29	10.86	1.96	0.94	1.71	37.54
1987	1.16	0.42	1.45	1.8	2.28	1.6	2.2	5.03	5.57	1.9	3.29	2.54	29.24
1988	1.27	1.52	1.45	2.69	0.34	0.63	3.74	4	3.03	2.76	4.94	1.27	27.64
1989	1.31	0.52	2.11	1.5	3.93	4.9	2.65	5.56	4.33	1.67	2.86	1	32.34
1990	1.84	2.59	1.45	2.1	3.26	3.77	1.8	2.37	3.06	4.06	4.29	2.49	33.08
1991	1.49	0.68	2.87	4.07	3.23	2.91	3.78	3.33	0.63	3.52	3.01	2.15	31.67
1992	1.15	1.59	2.56	3.8	1.64	2.26	9.35	3.5	2.5	2.46	4.05	2.01	36.87
1993	2.8	1.16	1.21	4.55	1.68	5.23	2.32	3.37	4.66	2.21	1.32	0.51	31.02
1994	1.91	0.93	1.7	5.01	0.79	6.52	2.84	3.39	2.81	2.7	3.51	1.75	33.86
1995	2.08	0.72	1.24	2.76	2.23	0.72	2.64	4.83	1.05	2.6	4.22	1.15	26.24
1996	2.07	1.2	1.86	3.15	3.02	3.9	1.94	0.68	2.82	2.79	1.66	2.05	27.14
1997	0.98	3.12	2.39	1.21	3.33	1.57	2.7	2.72	4.31	1.55	1.05	0.77	25.7
1998	3.05	1.67	3.41	1.43	0.99	1.25	1.13	2.62	1.28	2.23	1.58	1.5	22.14
1999	2.89	1.19	0.75	5.06	1.81	3.89	4.13	2.49	2.11	1.39	1.13	1.97	28.81
2000	0.97	1	0.9	2.9	6.34	2.98	8.55	2.87	6.24	1.96	1.96	3.41	40.08
2001	1.03	3.52	0.56	3.24	5.35	3.32	1.61	1.54	3.71	6.59	3.14	1.77	35.38
2002	1.36	1.83	1.61	3.19	3.62	1.48	3.63	1.51	0.29	1.27	1.38	1.08	22.25
2003	0.26	0.6	1.71	2.94	3.35	2.16	1.73	3.79	3.16	2	5.66	2.34	29.7
2004	1.39	0.66	2.36	0.7	8.19	2.63	3.78	2.96	0.76	2.05	2.3	2.15	29.93
2005	2.93	2.45	1.04	1.31	1.4	1.97	5.43	0.93	5.47	0.33	3.93	1.77	28.96
2006	4.02	1.4	2.83	2.18	5.27	3.3	4.26	3.14	3.19	3.59	2.47	2.81	38.46
2007	2.01	0.29	2.49	2.4	4.84	3.48	1.83	5.09	1.46	3.2	1.42	2.43	30.94

2008	2.49	2.35	2	1.6	1.59	4.11	3.56	1.89	8.64	1.26	2.1	2.79	34.38
2009	0.96	2.57	2.71	5.42	2.53	6.57	2.64	5.47	1.18	3.35	0.59	1.41	35.4
2010	0.83	1.37	0.65	3.34	4.23	3.12	2.49	0.32	3.66	2.42	1.67	1.47	25.57
2011	1.25	2.36	3.92	5.47	7.61	2.29	6.43	2.12	2.09	2.52	2.82	2.07	40.95
2012	1.94	1.84	2.03	1.33	7.04	0.83	3.55	3.16	2.58	3.32	0.65	2.58	30.85
2013	3.9	1.56	0.77	6.44	4.09	4.51	1.74	2.58	0.61	2.91	1.67	1.85	32.63
2014	2.53	1.48	1.21	2.48	7.25	2.46	5.76	3.82	3.25	1.85	1.69	1.64	35.42
2015	1.32	0.87	0.92	1.63	3.4	5.46	2.94	2.85	3.51	2.28	2.22	1.9	29.3
2016	1.64	2.21	4.33	2.33	1.72	0.67	1.75	4.9	4.41	3.18	2.01	1.59	30.74
2017	3.13	2.42	3.21	5.19	2.48	2.66	2.72	3.88	0.84	4.69	3.11	1.38	35.71
2018	1.86	4.02	1.11	3.11	3.02	3.37	1.37	7.69	3.36	3.69	1.76	2.11	36.47
2019	1.93	2.37	2.34	3.8	2.81	5.48	1.96	3.15	2.86	6.33	2.07	2.3	37.4
2020	3.36	0.93	2.41	1.7	5.36	2.33	3.74	4.17	3.6	2.71	1.88	1.7	33.89
2021	1.12	1.65	1.83	1.55	1.77	6.4	4.29	5.15	5.62	5.45	1.01	1.81	37.65
2022	0.62	2.36	2.47	1.99	2.47	3.31	1.6	3.34	1.74	2.16	0.55	0.83	23.44
2023	1.45	2.86	3.73	3.61	1.08	2.12	5.03	5.7	1.11	4.05	1.91	2.01	34.66
2024	3.1	0.53	M	M	M	M	M	M	M	M	M	M	M
Mean	1.78	1.58	2.12	3.01	3.27	3.15	3.19	3.48	3.41	2.66	2.38	1.95	31.97

Notes:

M denotes missing data

Table 7
Average Monthly Precipitation and Temperature
RACER Trust
Coldwater Road Landfill Facility
Flint, Michigan

Monthly Mean Average Temperature (F)

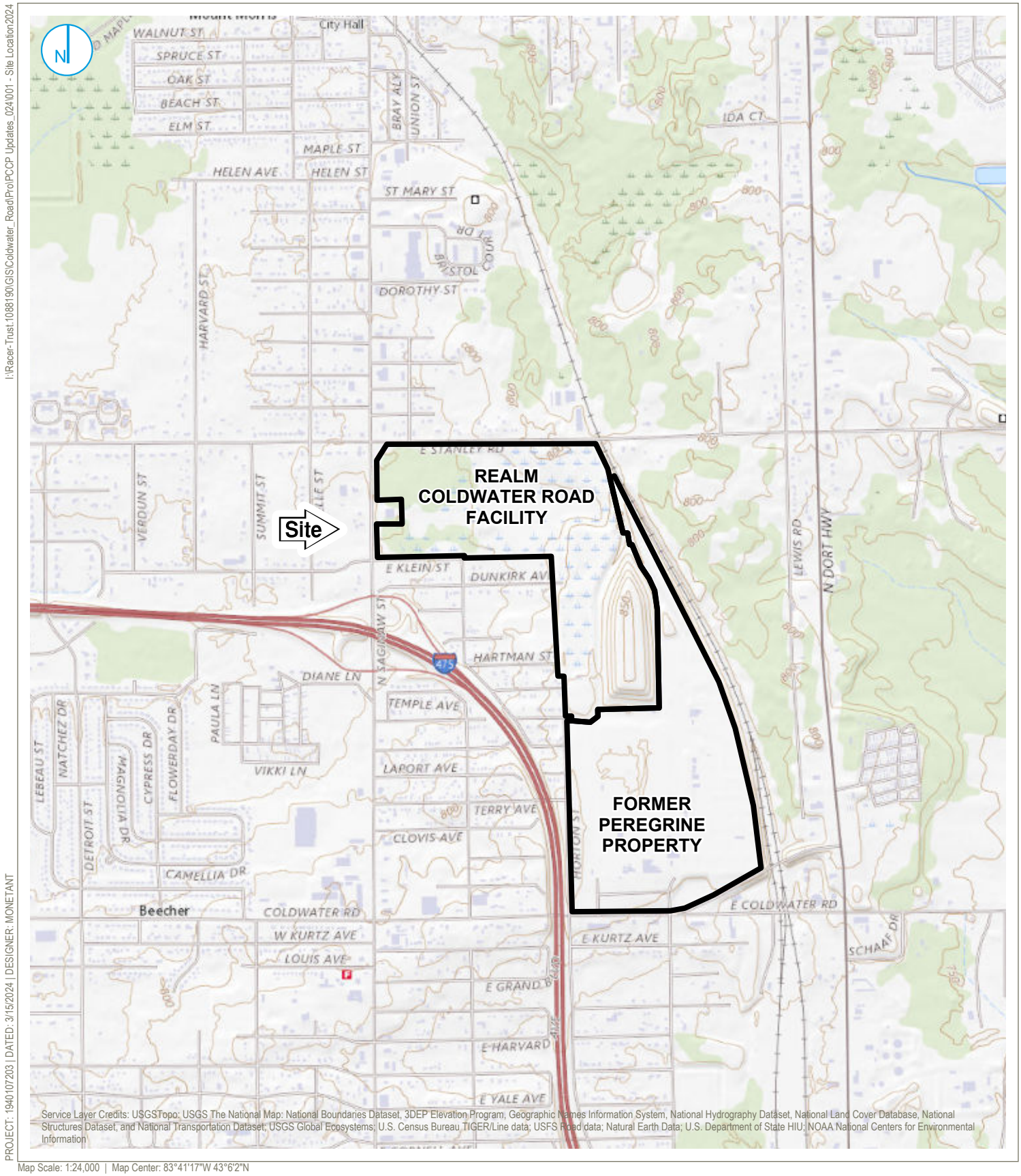
Year	January	February	March	April	May	June	July	August	September	October	November	December	Annual
1974	24.8	20.9	34.9	48.1	53.8	64.9	71.3	69.7	58.9	48.1	40.2	29.2	47.1
1975	28	27.2	30.6	40.2	61.8	67.2	70.5	69.8	57.3	53.6	47.3	28.7	48.5
1976	18.1	31	38.7	48.2	54.5	69.3	71	68.2	60.5	46.8	33.3	17.4	46.4
1977	10.9	22.4	39.2	49.5	62.6	63.1	73.8	68.1	63.6	48.8	41.3	25.8	47.4
1978	18.2	13.4	26.7	43.7	58.7	65.1	69.5	70	65.4	50.3	40.6	26.5	45.7
1979	15.8	12.8	38.1	44.6	56.7	66.6	69.9	66.8	62.7	49.9	39.6	32.1	46.3
1980	23.4	20.3	29.9	44.6	57.6	61.5	70.5	70.5	60.5	44.3	36.2	24.4	45.3
1981	18	28.2	35.6	48.2	54.2	65.9	70.7	68.9	57.7	44.7	38.7	26.1	46.4
1982	16.4	20.2	32.7	43.2	65	62.9	71.3	66.6	61	52.5	41.4	37.2	47.5
1983	27.6	31.8	37.7	43.7	53.5	67.3	74	73.3	64.8	51.5	41.1	20.1	48.9
1984	14.3	31.2	26.8	45.3	51.5	69.2	70	71.8	60.7	54	39.4	33.4	47.3
1985	19.7	22.6	37	51.8	59.3	62.5	70.4	67.2	63.3	51.4	39.8	21.3	47.2
1986	21.6	21.1	35.8	49.4	58.9	64.9	72.2	66.3	63	50.4	35.4	29.8	47.4
1987	24.7	28.7	38.1	49.9	62.7	70.3	75.5	69.3	62.6	45.2	41.6	32.2	50.1
1988	21.9	20.1	34	46.5	60.3	67.7	75.2	72.6	61.1	44.8	41.4	27.3	47.7
1989	30.8	20.7	32.7	43.9	56.2	66.2	71.3	68	59.6	51.2	35.9	16.1	46.1
1990	31.8	26.8	38.1	48.4	55.2	66.8	69.9	69.3	61.5	49.9	42.4	29.8	49.2
1991	21.1	29.2	37.7	50.2	64.2	69.7	71.6	70	59.6	52.8	36.2	29.4	49.3
1992	25.8	29.4	32.9	43.6	57.3	64.2	66.9	65.2	60.1	48.1	38.3	31.5	46.9
1993	26.2	20.5	32.2	45.3	57.9	65.8	72.8	70.4	56.3	47.3	36.8	27	46.5
1994	13.8	18.4	33.5	47.5	55	67.9	70.5	65.9	62.7	51.6	42.5	32	46.8
1995	25.4	20.6	36.1	42.6	56.9	68.3	72.3	74.2	58.5	52	32	23	46.8
1996	21.9	23.7	28.1	42.4	54.8	68.4	67.6	70.1	61.6	50.1	32.6	28.8	45.8
1997	21.2	27.1	34	42.9	48.7	67.1	69.4	65	59.8	48	35.5	29.8	45.7
1998	29.9	34.5	36.4	47.6	62.9	66.8	70.3	70.8	65.3	51.5	41.8	32.3	50.8
1999	20.5	30.9	31	48	59.2	68.5	73	66.4	61.9	48.2	42.8	29.7	48.3
2000	20.6	29.3	41.3	44.8	59.4	66.8	67.5	68.3	60.1	53.5	38.5	16.6	47.2
2001	24.8	27.1	32.5	48.5	59.1	66.7	71	71.4	59.3	50.5	46.6	34.1	49.3
2002	30.9	30	32.4	47.9	53.1	69.2	74.9	70.8	66.6	47.6	37.6	27.7	49.1
2003	19.2	20.5	33.4	45.9	55.3	64.6	70.8	70.9	61.9	49.6	42.5	32.1	47.2
2004	17.2	24.7	39.3	49.9	59.6	66	68.4	65.6	64.2	51	39.9	26.5	47.7
2005	20.9	26.4	29.1	48.3	53.4	71.2	72.2	71.4	65.1	51.8	41.5	24.3	48
2006	32.7	25.2	34.6	48.2	57.8	65.9	71.7	68.8	58.7	46	41.1	35.4	48.8
2007	26.3	17.3	38.5	44.7	59.6	68.8	69.7	71	64.2	57.3	37.1	27.6	48.5

2008	26.2	23.7	33.2	51	54.6	69	70.7	68.6	62.7	47.7	37.3	24.7	47.4
2009	14.5	26.2	35.5	46.5	56.3	64.9	65.6	67.6	62	47.4	42.4	26.8	46.3
2010	22	23.9	38.6	51.6	60.3	68.7	74.2	73.7	61.7	52	40	24.3	49.2
2011	19	23.5	32.2	45.9	59.3	68.5	76.8	70.3	61.8	51.5	43.7	33.3	48.8
2012	29.1	31	49.5	47.3	62.9	69.2	76.1	69.7	61.4	51.1	38.5	33.5	51.6
2013	26.9	24.8	32.1	45.1	61.9	68.7	73	69.6	62.1	52.6	37	25	48.2
2014	15.6	16	26	47.2	59.7	69.1	68.3	71.1	62.3	51.2	35.3	32.8	46.2
2015	20.9	11.3	32.8	48.4	62.9	67.9	71.6	70.6	68	53.8	46	41	49.6
2016	28.1	29.8	41.7	45.9	60.5	69.7	76	75.6	64.8	53.2	44.6	27.8	51.5
2017	28.8	34.4	33.9	51.4	56.5	68.3	70.8	66.9	63.9	54.6	37.6	22.6	49.1
2018	22.5	27.8	31.5	39.1	63.4	68	71.6	71.9	64.8	49.1	33.3	31.3	47.9
2019	20.6	24.7	31.5	46.2	56.7	66.3	75	70.3	66.6	51.5	34.6	34.2	48.2
2020	32	28	40.5	45.6	58.4	71.4	74.7	69.4	59.4	49.2	46.4	33.1	50.7
2021	28.2	20.6	42.8	49.2	57	70.1	71.5	73.5	64.6	58.6	38.2	34.4	50.7
2022	17.6	24.5	36.1	44.1	61.4	67.4	72.1	70.8	63.8	50.8	41.2	31.1	48.4
2023	31.5	30.8	35.3	48.9	57.1	65.9	71.8	67.4	63.8	52.8	39.3	39.2	50.3
2024	27.4	35.5	M	M	M	M	M	M	M	M	M	M	31.5
Mean	23.1	24.9	34.9	46.6	58.1	67.2	71.6	69.6	62.1	50.4	39.5	28.8	47.7

Notes:

M denotes missing data

FIGURES



I:\Racer-Trust.1088190\GIS\Coldwater_Road\Pro\PCCP Updates_024\001 - Site Location2024

PROJECT: 1940107203 | DATED: 3/15/2024 | DESIGNER: MONETANT

Map Scale: 1:24,000 | Map Center: 83°41'17"W 43°6'2"N

KEY MAP (not to scale)

0 1,000 2,000 Feet

SITE LOCATION

FIGURE 01

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

APPROXIMATE COLDWATER ROAD LANDFILL FACILITY

Note
Map uses data from the Michigan center for geographic information.

0 250 500 Feet

SITE PLAN

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 02

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

I:\Racer-Trust.1068190\GIS\Coldwater_Road\Pro\PCOP Updates_20241002 - Site Plan2024

PROJECT: 1940107203 | DATED: 3/14/2024 | DESIGNER: MONETANT

REMAINING MATERIALS AREA

Note
Map uses data from the Michigan center for geographic information.

0 175 350
Feet

SITE LAYOUT PLAN

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 03

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

I:\Racer-Trust.1088190\GIS\Coldwater_Road\Pro\PCCP Updates_20241003 - Site Layout Plan2024
PROJECT: 1940107203 | DATED: 3/14/2024 | DESIGNER: MONETANT

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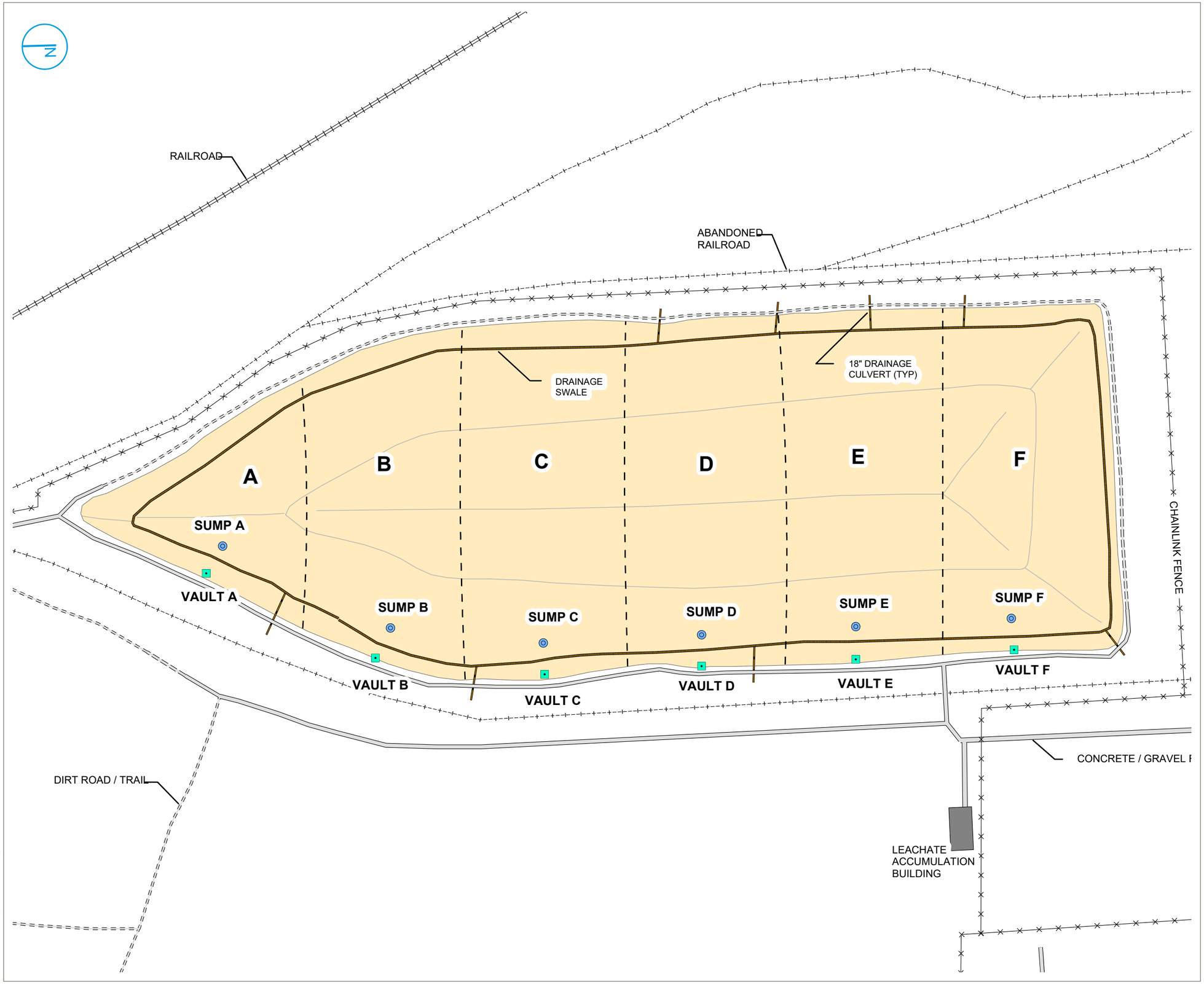


LEACHATE COLLECTION SUMP

ACCESS PORT FOR LEAK DETECTION VAULT

Note

Map uses data from the Michigan center for geographic information.

0 75 150 Feet

LANDFILL SITE PLAN

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

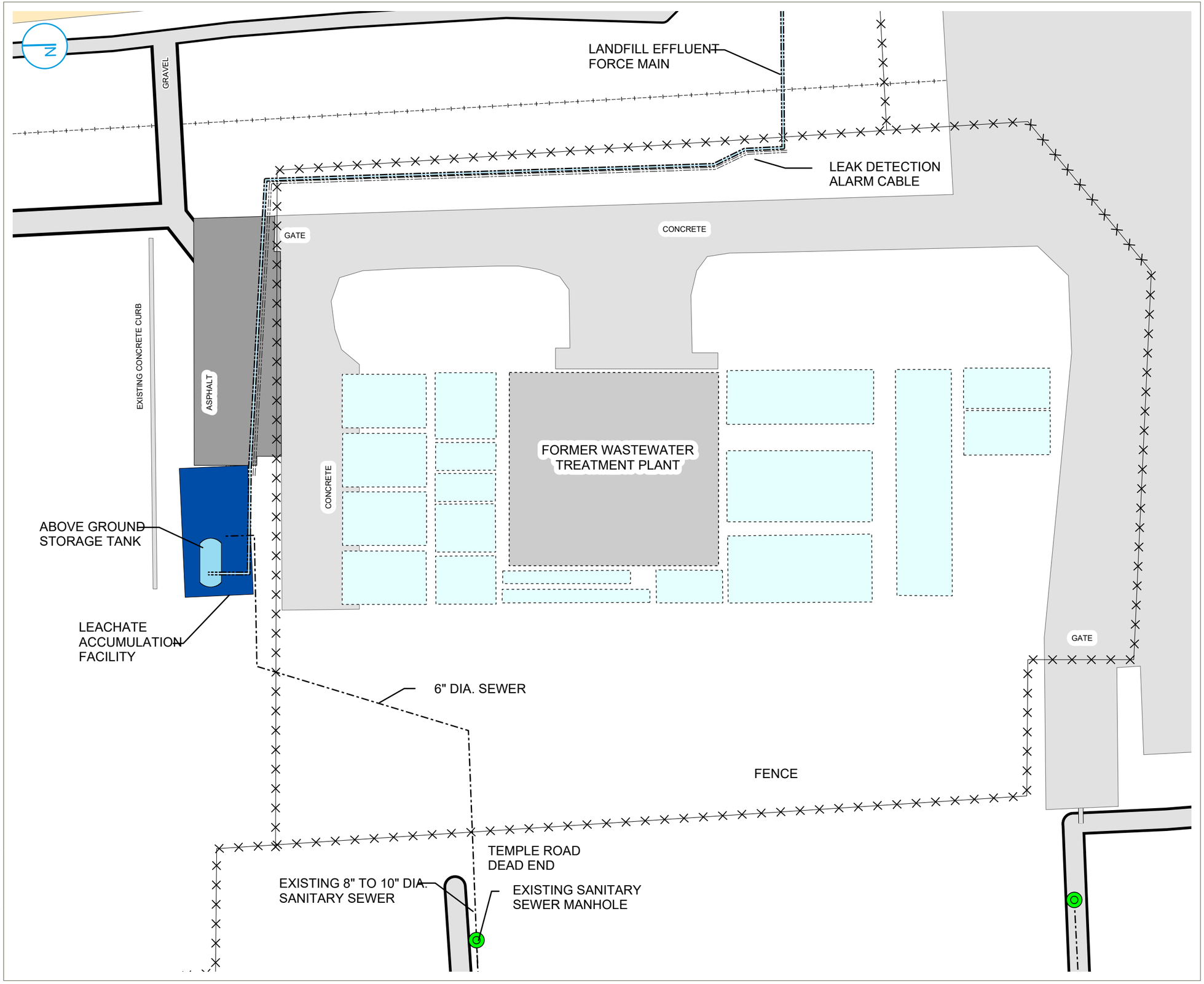
FIGURE 04

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 1940107203 | DATED: 3/14/2024 | DESIGNER: MONETANT

I:\Racer-Trust.1088190\GIS\Coldwater_Road\Pro\PCCP Updates_2024\005 - Landfill Leachate System2024



Note
Map uses data from the Michigan center for geographic information.

0 25 50
Feet

LANDFILL LEACHATE ACCUMULATION SYSTEM

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

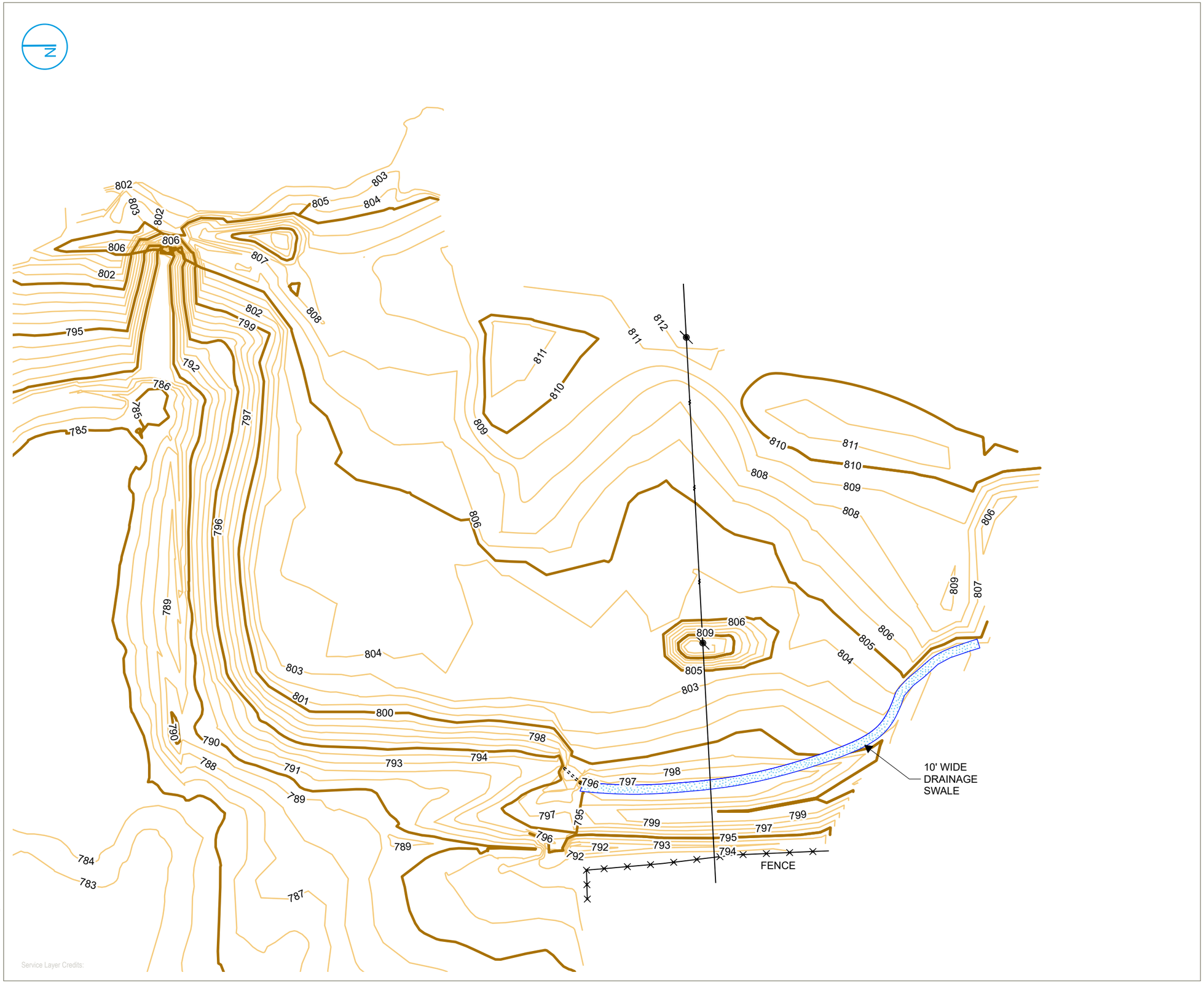
FIGURE 05

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 1940107203 | DATED: 3/15/2024 | DESIGNER: MONETANT

I:\Racer-Trust.1088190\GIS\Coldwater_Road\Pro\PCCP Updates_20241006 - Final Site Grade RMA2024



TELEPHONE POLE
OVERHEAD POWERLINE

Notes

Topographic survey performed by Bartow & King Engineers, Inc. on April 5, 1997 and updates by Nowry & Hale Land Surveying, LLC on March 21, 2022.

0 50 100 Feet

FINAL SITE GRADE - RMA

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 06

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 1940107203 | DATED: 3/20/2024 | DESIGNER: MONETANT

LANDFILL MONITORING WELL / PIEZOMETER

ABANDONED WELL

Note

Map uses data from the Michigan center for geographic information.

0 175 350 Feet

MONITORING WELL LOCATION PLAN

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

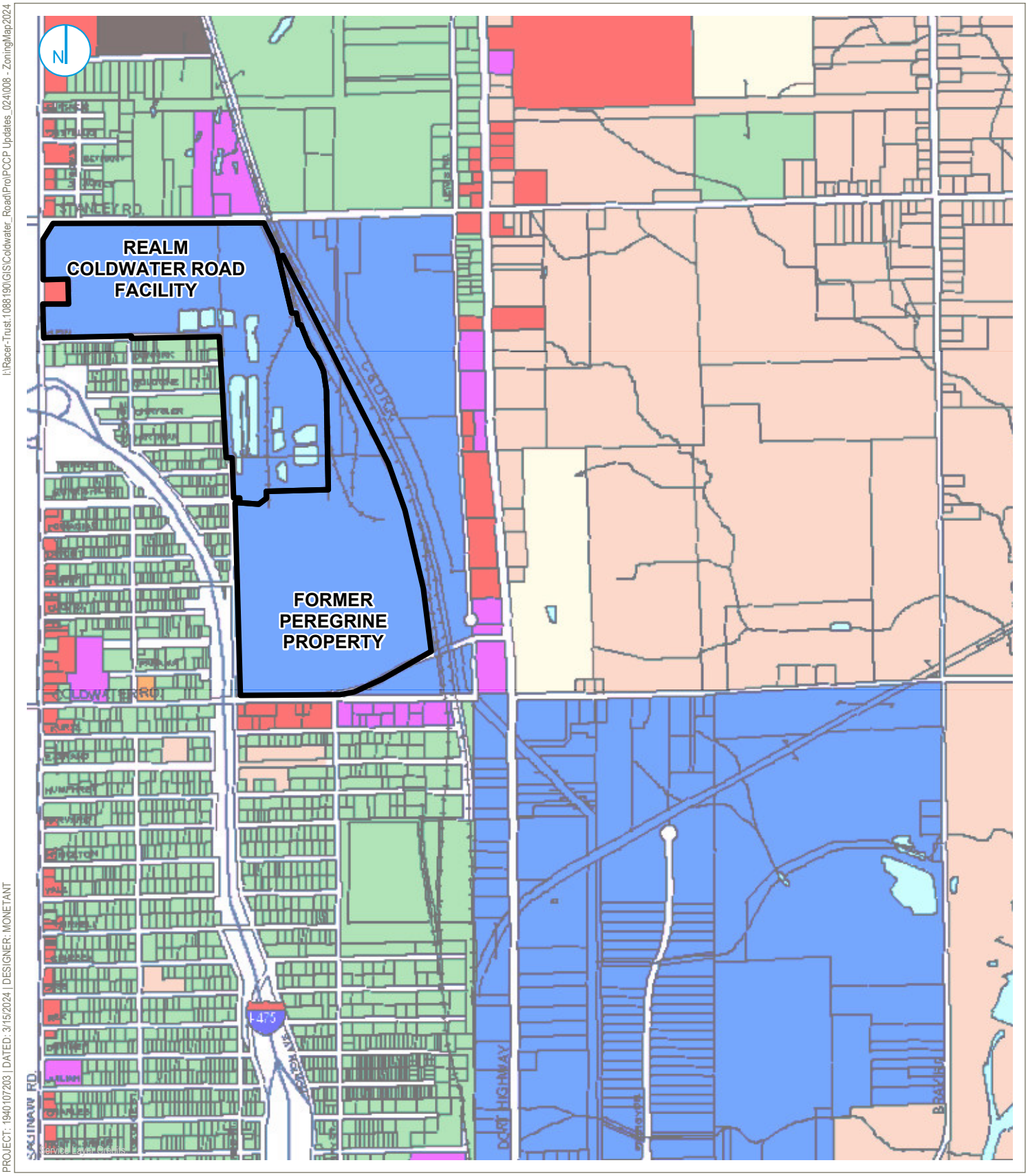
FIGURE 07

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

I:\Racer-Trust.1088190\GIS\Coldwater_Road\Proj\PCCP Updates_2024\007 - MW Location Plan2024

PROJECT: 1940107203 | DATED: 3/14/2024 | DESIGNER: MONETANT



I:\Racer-Trust.1088190\GIS\Coldwater_Road\Pro\PCCP Updates_024\008 - ZoningMap2024

PROJECT: 1940107203 | DATED: 3/15/2024 | DESIGNER: MONETANT

Legend

- A-R Agricultural/Rural Residential
- R-1 Single-Family Residential
- R-2 Single-Family/Two-Family Residential
- R-3 Multiple-Family Residential
- R-4 Manufactured Home Park
- C-1 Neighborhood Commercial
- C-2 Highway Commercial
- I-1 Light Industrial
- I-2 Heavy Industrial

THIS IS TO CERTIFY THAT THIS IS THE OFFICIAL ZONING MAP OF THE CHARTER TOWNSHIP OF GENESEE, STATE OF MICHIGAN.

DATE OF ADOPTION: DECEMBER 10, 2002 EFFECTIVE DATE: JANUARY 1, 2003

SIGNED: SCOTT STREETER, TOWNSHIP SUPERVISOR ATTESTED: CHARLES MARSHALL, TOWNSHIP CLERK

CITY OF FLINT

AMENDMENTS:

DATE: 3/26/03 DATE: 9/26/05 DATE:

DATE: 5/6/03 DATE: DATE:

1000 0 1000 2000 3000 4000 Feet

ZONING MAP
CHARTER TOWNSHIP OF GENESEE, MICHIGAN

WADE TRIM
29251 Harlitine Road
Taylor, MI 48180
734.947.9700

PRINT DATE: 1/7/04/09

0 750 1,500 Feet

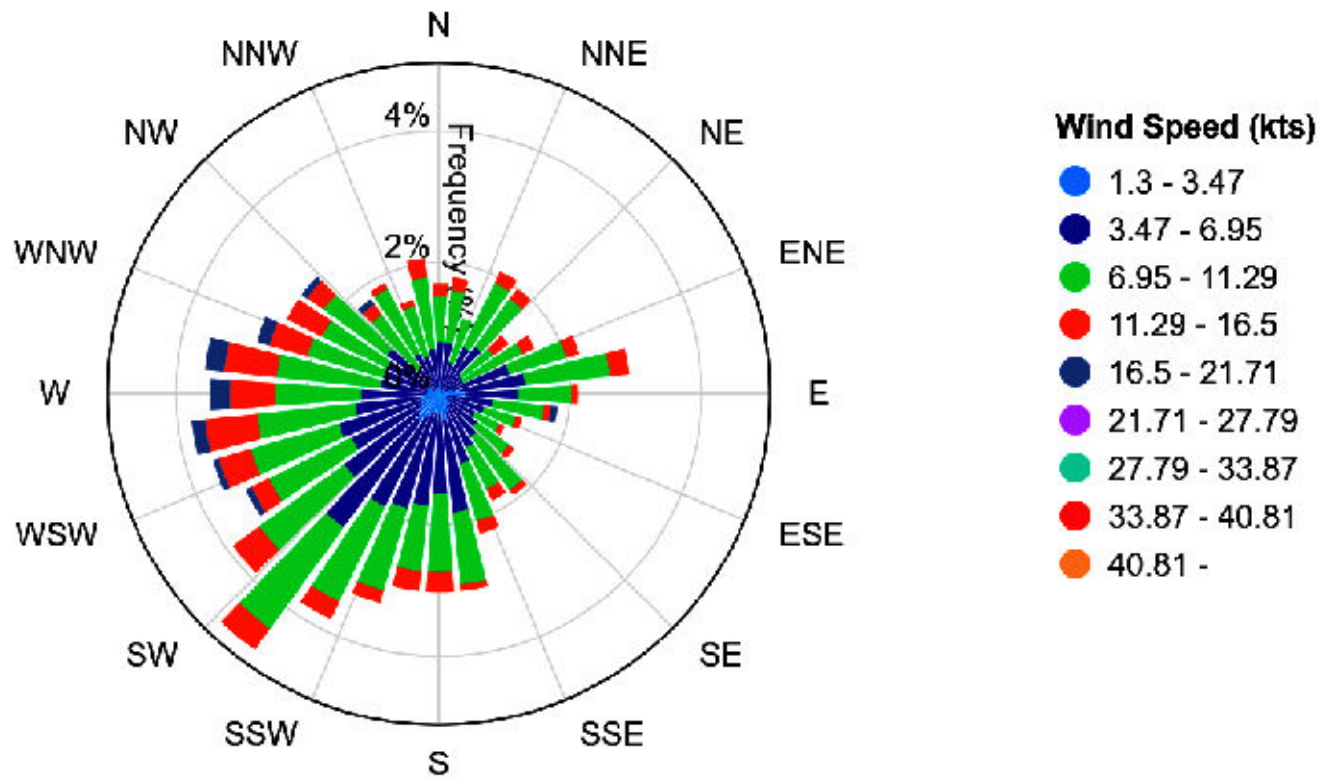
ZONING MAP

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 08

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL



Note
Wind rose obtained from Midwestern Regional Climate Center.

WIND ROSE DIAGRAM
2023

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 09

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

APPENDICES

APPENDIX A
LANDFILL INSPECTION LOG

Quarterly Post Closure Inspection Log Sheet

Coldwater Road Landfill Site – Operations and Maintenance
Flint, Michigan
Project No. 1940107203

Inspector's Name/Title _____

Inspector's Signature/Date/Time _____

Cap and Berm

Inspect the landfill cap and berms for burrowing animals, soil erosion, slope failures, ponding, washouts, and liner damage/exposure. Indicate the presence or absence of each item. Note identified issues on an attached drawing.

Area of Inspection	Animal Burrows?	Soil Erosion	Slope Failures?	Ponding?	Washouts?	Liner damage or exposure?	If yes to any, describe issue, location, and actions taken	Date Corrected
Cell A								
Cell B								
Cell C								
Cell D								
Cell E								
Cell F								
Berms								

Woody Plant Removal Activities

Summarize monthly activities:

_____
_____
_____
_____

Leachate Tank Storage

Inspect for evidence of leakage, and presence of drums, sandbags, shovels at each leachate tank storage location.

Tank

			If yes to any, describe issue, location, and actions taken	Date Corrected
Cracks or holes observed in tank?	No___	Yes___		
Liquid dripping or running from tank?	No___	Yes___		
Staining observed on the tank surface?	No___	Yes___		

Piping

			If yes to any, describe issue, location, and actions taken	Date Corrected
Is piping sagging, cracked or punctured?	No___	Yes___		
Liquid dripping or running from piping?	No___	Yes___		
Is the tank discharge valve open?	No___	Yes___		
Staining observed on the piping surface?	No___	Yes___		

Emergency Response

			If no to any, describe issue, location, and actions taken	Date Corrected
Are drums present in accumulation building?	No___	Yes___		
Are sandbags present in accumulation building?	No___	Yes___		
Are shovels present in accumulation building?	No___	Yes___		

Vegetation

Inspect landfill cap and berm for areas with sparse vegetation, deep-rooted plants and proper height around equipment and access roads. Describe any identified issues and note on an attached drawing. If no issues are found, indicate "none" in the appropriate box.

Cell	Areas with sparse vegetation present?	Deep-rooted plants present?	Do areas around building and equipment need to be mowed?	Do access roads need to be mowed?	If yes, describe issue, and actions taken	Date Corrected
A						
B						
C						
D						
E						
F						
Berms						

Access Roads

Inspect for sufficient gravel and proper drainage. Note identified issues on an attached drawing.

Area	Sufficient gravel present?	Proper drainage present?	If no, describe issue, and actions taken	Date Corrected
Roads located approx. west of landfill				
Roads located approx. east of landfill				
Roads located approx. north of wetlands				
Roads located approx. south of wetlands				
Roads located approx. west of wetlands				
Roads located approx. east of wetlands				

Site Perimeter Fence

Inspect all perimeter fencing and gates for damage or unauthorized entry, and proper warning signs. Note identified issues on an attached drawing.

Area	Any damage present?	Signs of unauthorized entry?	Broken or damaged locks on gates?	"Tresspassing Prohibited" and "Private Property" Signs Missing?	If yes to any, describe issue, and actions taken	Date Corrected
Fences along north property line						
Fences along south property line						
Fences along west property line						
Fences along east property line						

Leachate Collection System

Conduct the alarm test, cable test and battery test on a yearly basis as outlined in Section 4 of the post Closure Care Plan. Inspect the system panel boxes for visible signs of damage.

Alarm Test

1. Disconnect the sensor cable.
2. Reconnect the sensor cable. Alarm will reset.

Cable Test

1. Wet a short length of cable to activate the alarm by wetting a section of the cable stored in the containment vault.
2. Dry the cable after the test.

Alarm Test		Cable Test	
Did the system show a fault in the cable?	Was the alarm activated?	Was the alarm activated?	Any damage noted to system panel boxes?

Battery Test

1. Turn the power off.
2. Remove the processor card.
3. Remove the battery jumper.
4. Is the voltage across the terminals is < 3.6 VDC?
5. If yes, replace the battery.

Describe any issues and actions taken	Date Corrected

Remaining Materials Area

Inspect the soil cover for deep root penetration, burrowing animals, soil erosion, ponding of water and slope failures. Note problems on an attached drawing.

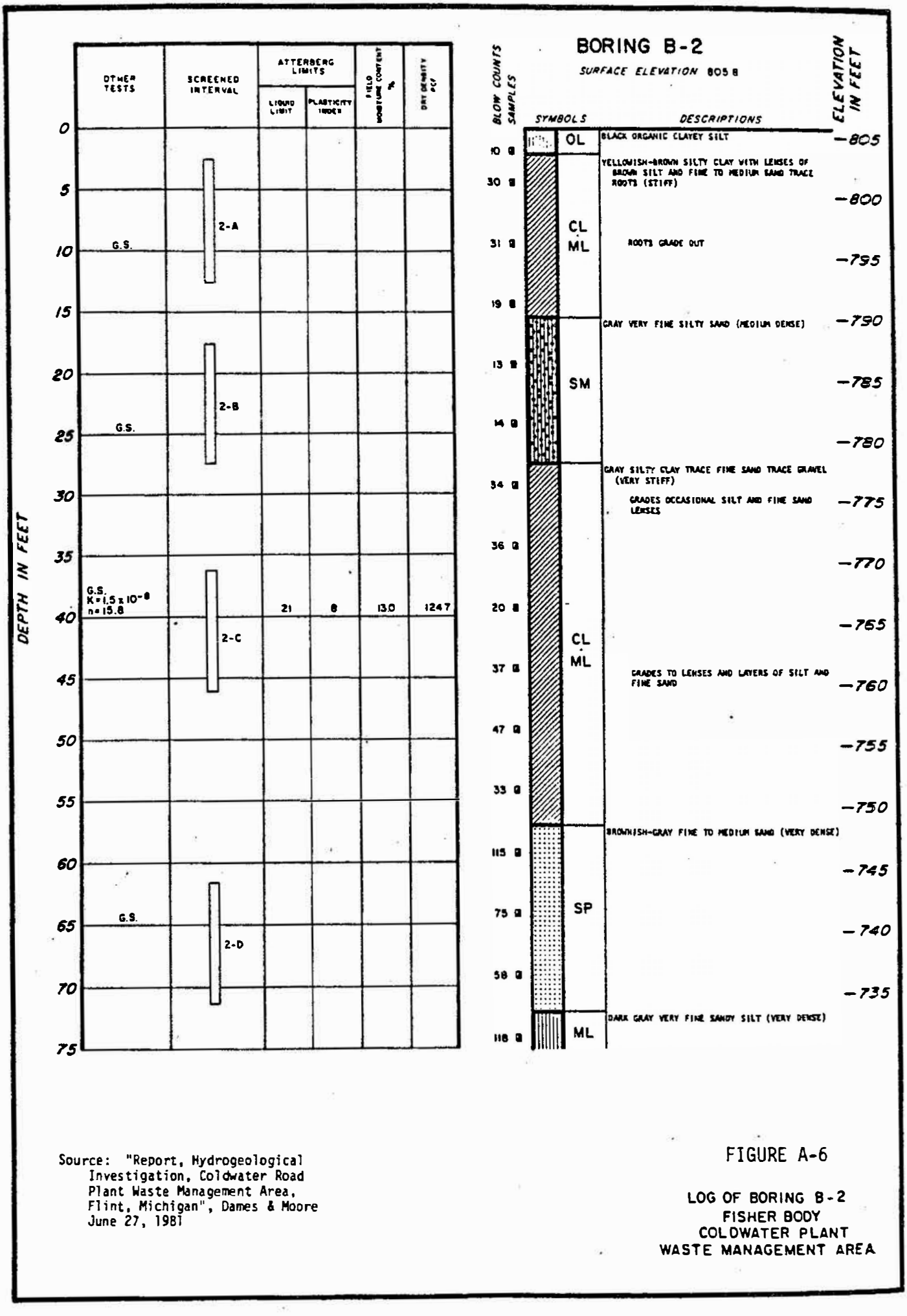
Area of Inspection	Animal Burrows?	Soil Erosion	Slope Failures?	Ponding?	Washouts?	If yes to any, describe issue, location, and actions taken	Date Corrected
RMA							

Drainage Inspections

Inspect the perimeter of the landfill and berm, drainage trenches at the base of the landfill, RMA and wetlands area for potential drainage problems. Check culverts around landfill, western drainage swale and north landfill catch basin for blockage.

Area Inspected	Drainage problem or blockage observed?	Location (note on figure)	Description	Corrective Actions	Date Corrected
Perimeter of landfill and berm					
Drainage trenches at base of landfill					
RMA					
Wetlands area					
Culverts around landfill					
Western drainage swale					
North landfill catch basin					

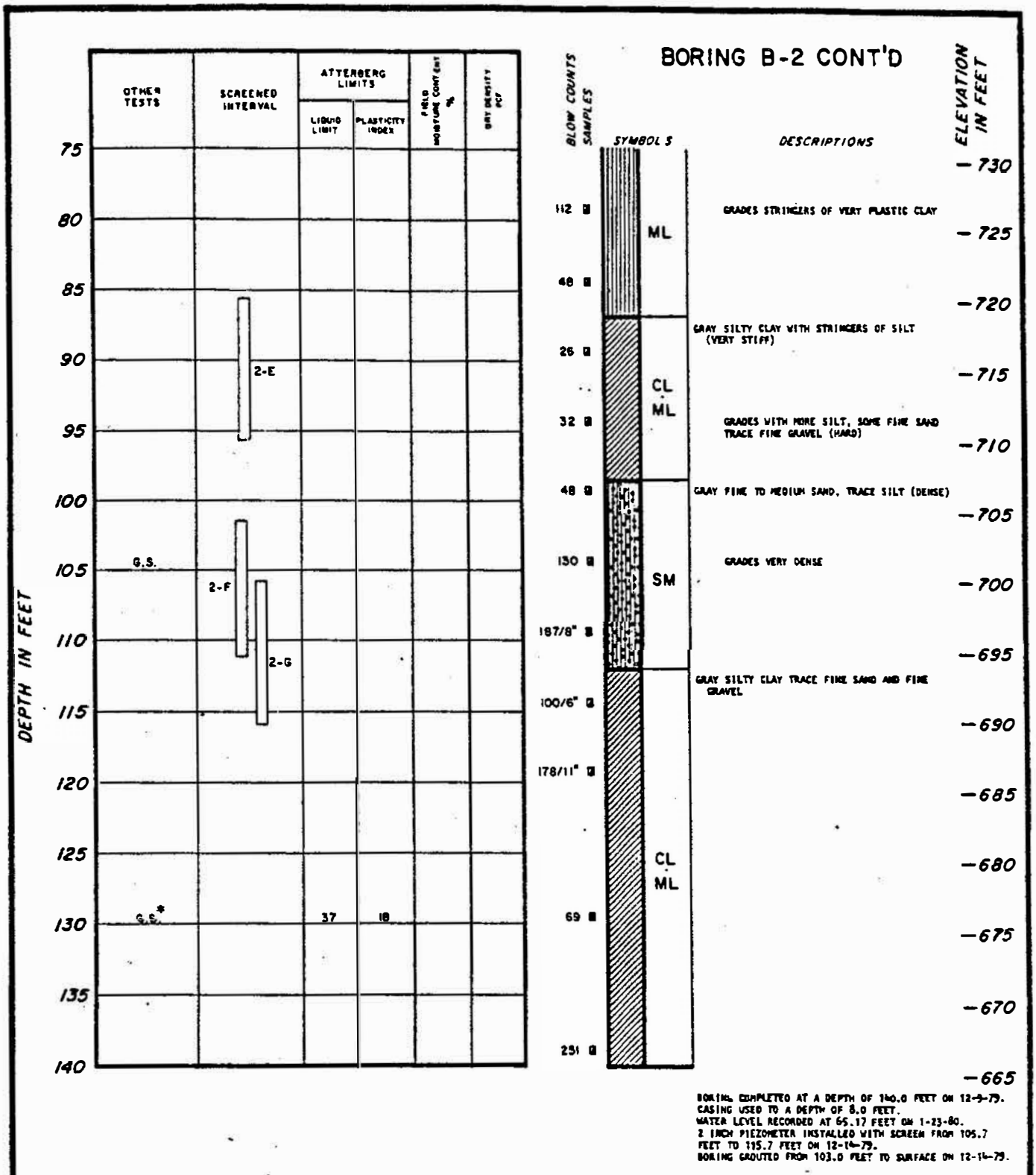
APPENDIX B
POST-CLOSURE MONITORING PROGRAM MONITORING WELL BORING AND WELL CONSTRUCTION LOGS



Source: "Report, Hydrogeological Investigation, Coldwater Road Plant Waste Management Area, Flint, Michigan", Dames & Moore June 27, 1981

FIGURE A-6

LOG OF BORING B-2
FISHER BODY
COLDWATER PLANT
WASTE MANAGEMENT AREA



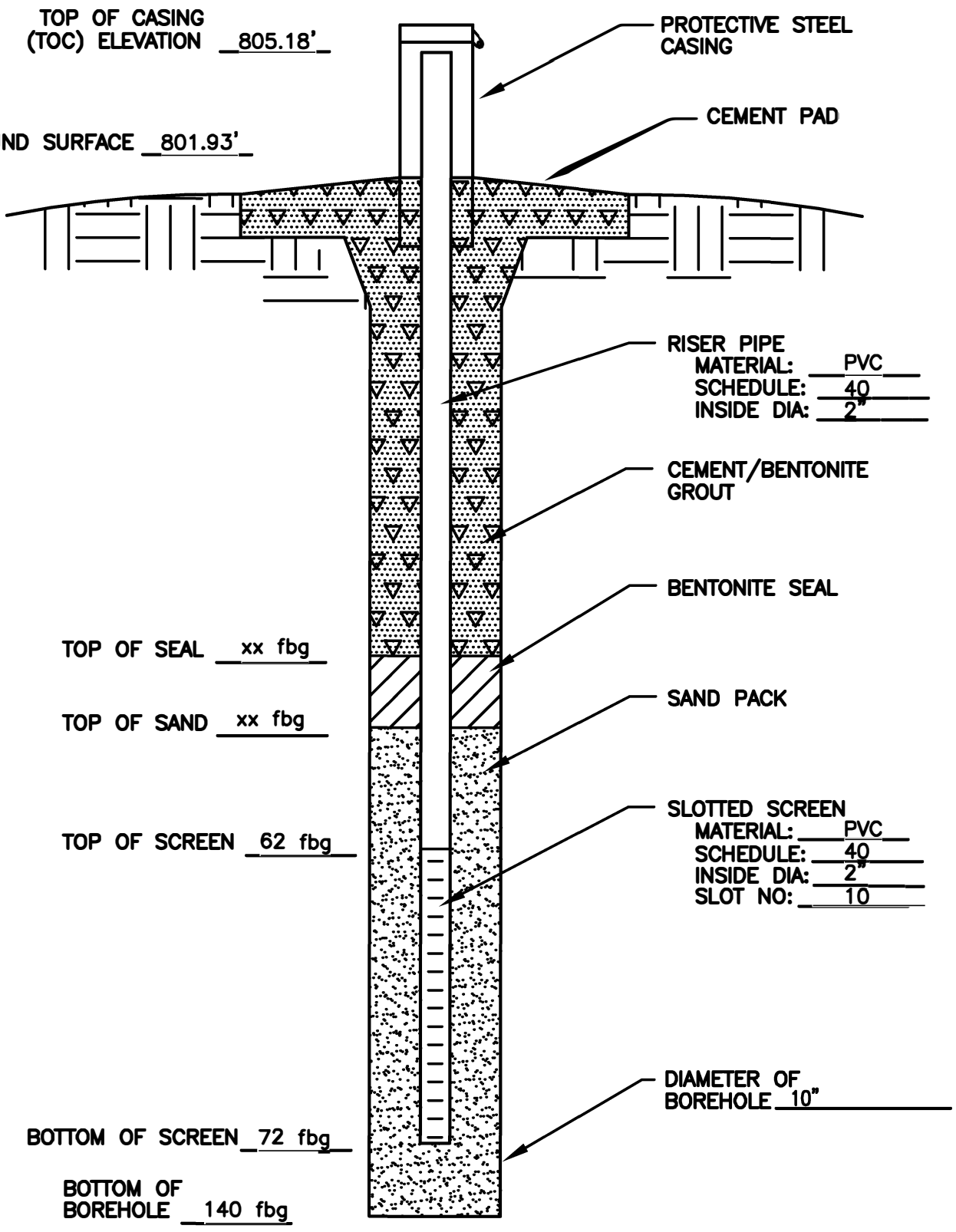
BORING COMPLETED AT A DEPTH OF 140.0 FEET ON 12-9-79.
CASING USED TO A DEPTH OF 8.0 FEET.
WATER LEVEL RECORDED AT 65.17 FEET ON 1-23-80.
2 INCH PIEZOMETER INSTALLED WITH SCREEN FROM 105.7 FEET TO 115.7 FEET ON 12-14-79.
BORING GROUTED FROM 103.0 FEET TO SURFACE ON 12-14-79.

Source: "Report, Hydrogeological Investigation, Coldwater Road Plant Waste Management Area, Flint, Michigan", Dames & Moore, June 27, 1981

FIGURE A-6

LOG OF BORING B-2
FISHER BODY
COLDWATER PLANT
WASTE MANAGEMENT AREA

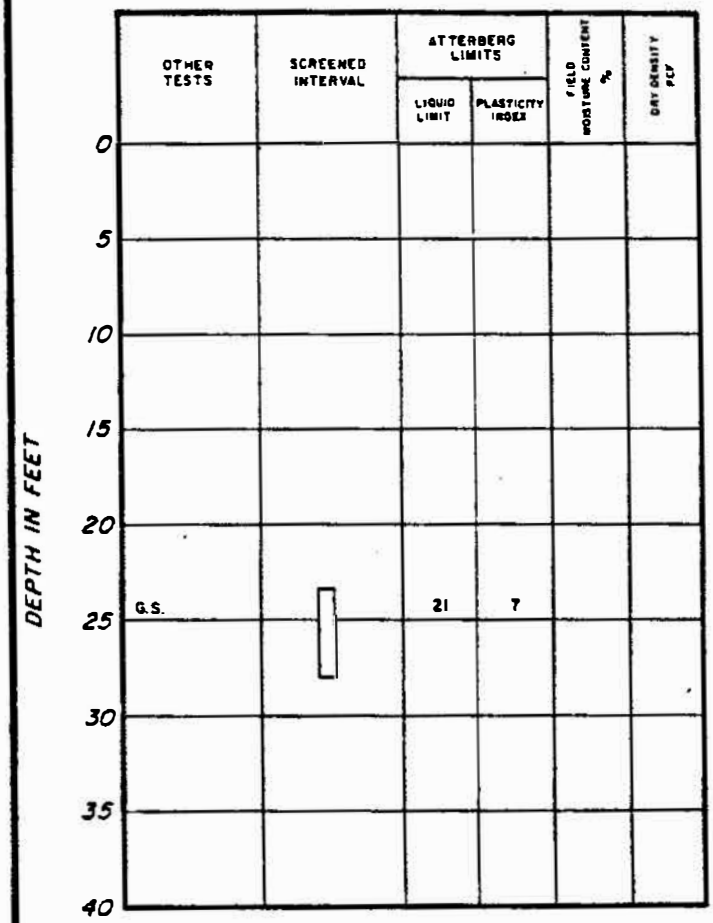
O'BRIEN & GERE
ENGINEERS INC.

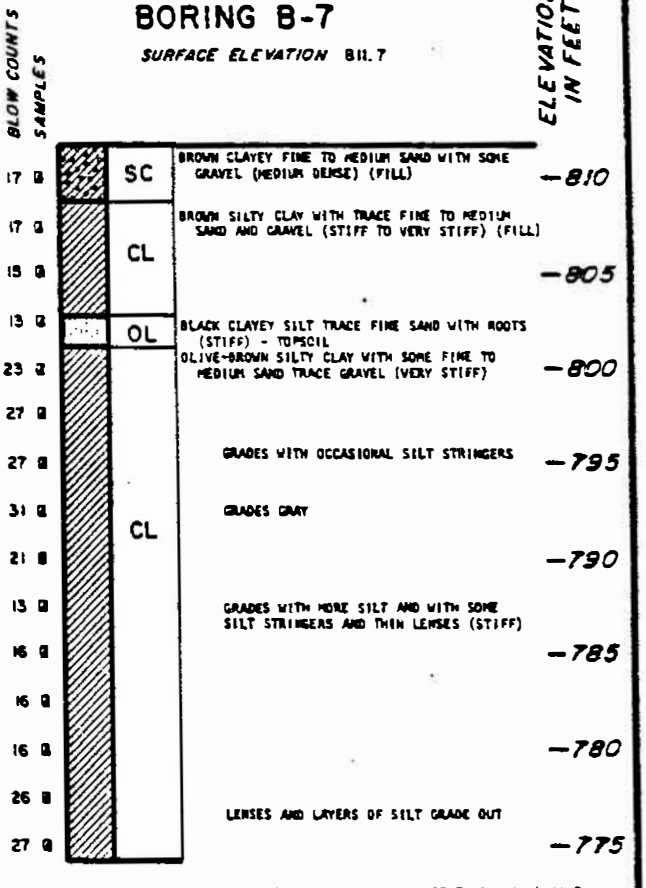


COLDWATER ROAD LANDFILL
FLINT, MICHIGAN
MONITORING WELL B-2D

i\projects\4966\34167\dwg\B23DR.dwg

SOURCE: HYDROGEOLOGIC INVESTIGATION, COLDWATER ROAD PLANT WASTE MANAGEMENT AREA, FLINT, MICHIGAN, DAMES & MOORE, JUNE 27, 1981.





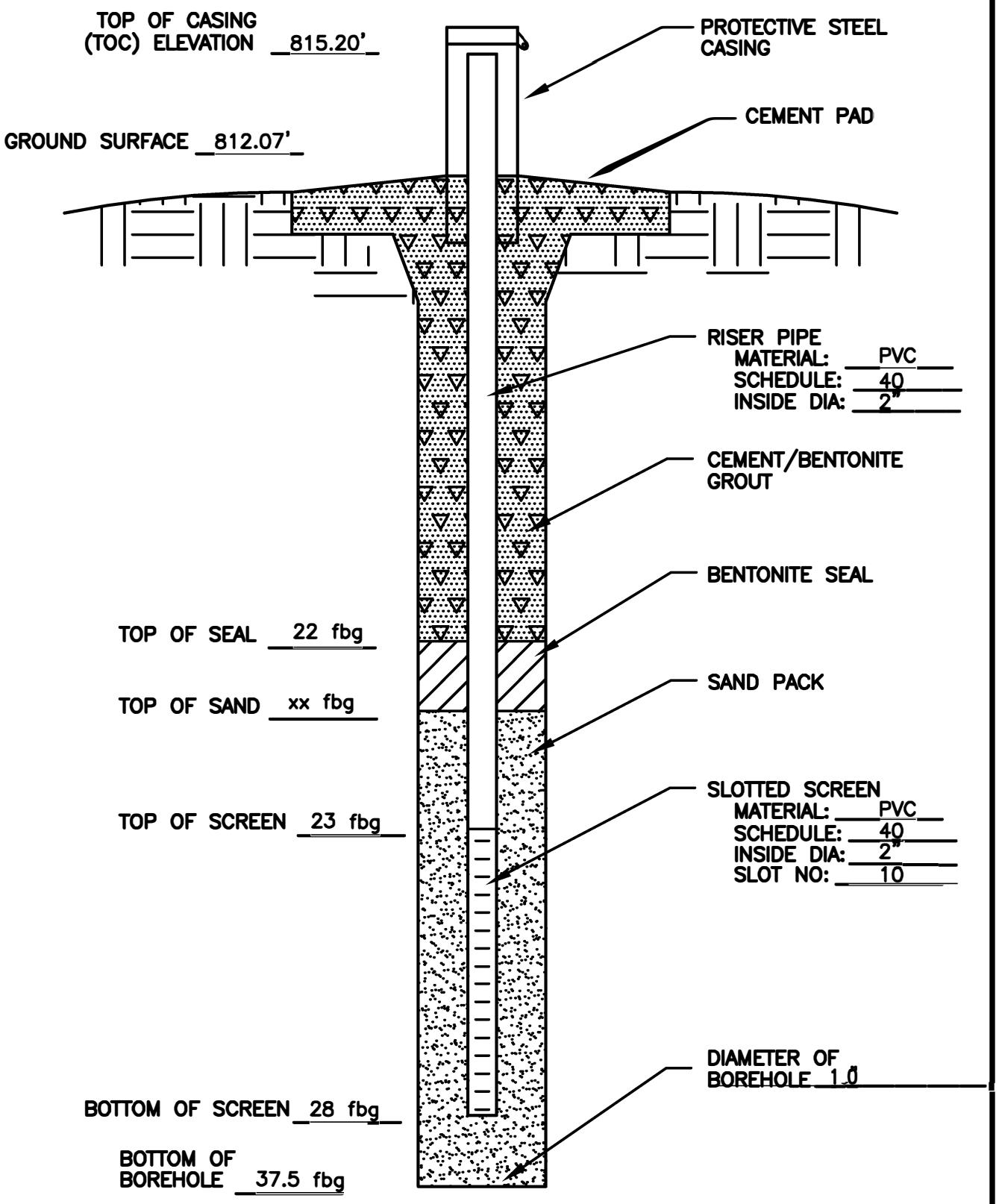
BORING COMPLETED AT A DEPTH OF 37.5 FEET ON 4-22-80.
NO CASING USED.
WATER LEVEL RECORDED AT FEET ON
2 INCH PIEZOMETER INSTALLED WITH SCREEN FROM 23.0 FEET TO 28.0 FEET ON 4-24-80.
BORING GROUTED FROM 22.0 FEET TO SURFACE ON 4-24-80

Source: "Report, Hydrogeological Investigation, Coldwater Road Plant Waste Management Area, Flint, Michigan", Dames & Moore, June 27, 1981

FIGURE A-9

LOG OF BORINGS B-6 & B-7
FISHER BODY
COLDWATER PLANT
WASTE MANAGEMENT AREA

O'BRIEN & GERE
ENGINEERS INC.



COLDWATER ROAD LANDFILL
FLINT, MICHIGAN
MONITORING WELL B-7

SOURCE: HYDROGEOLOGIC INVESTIGATION, COLDWATER ROAD PLANT WASTE MANAGEMENT AREA, FLINT, MICHIGAN, DAMES & MOORE, JUNE 27, 1981.

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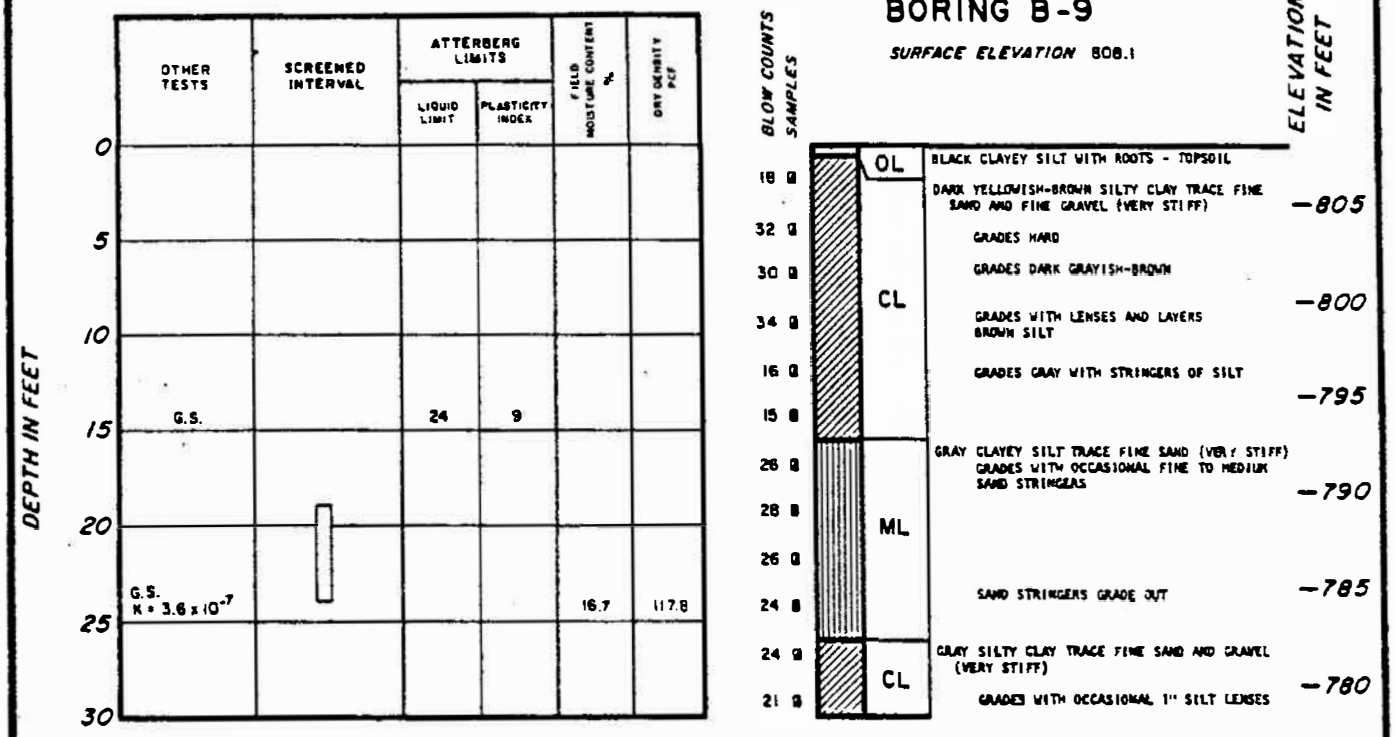
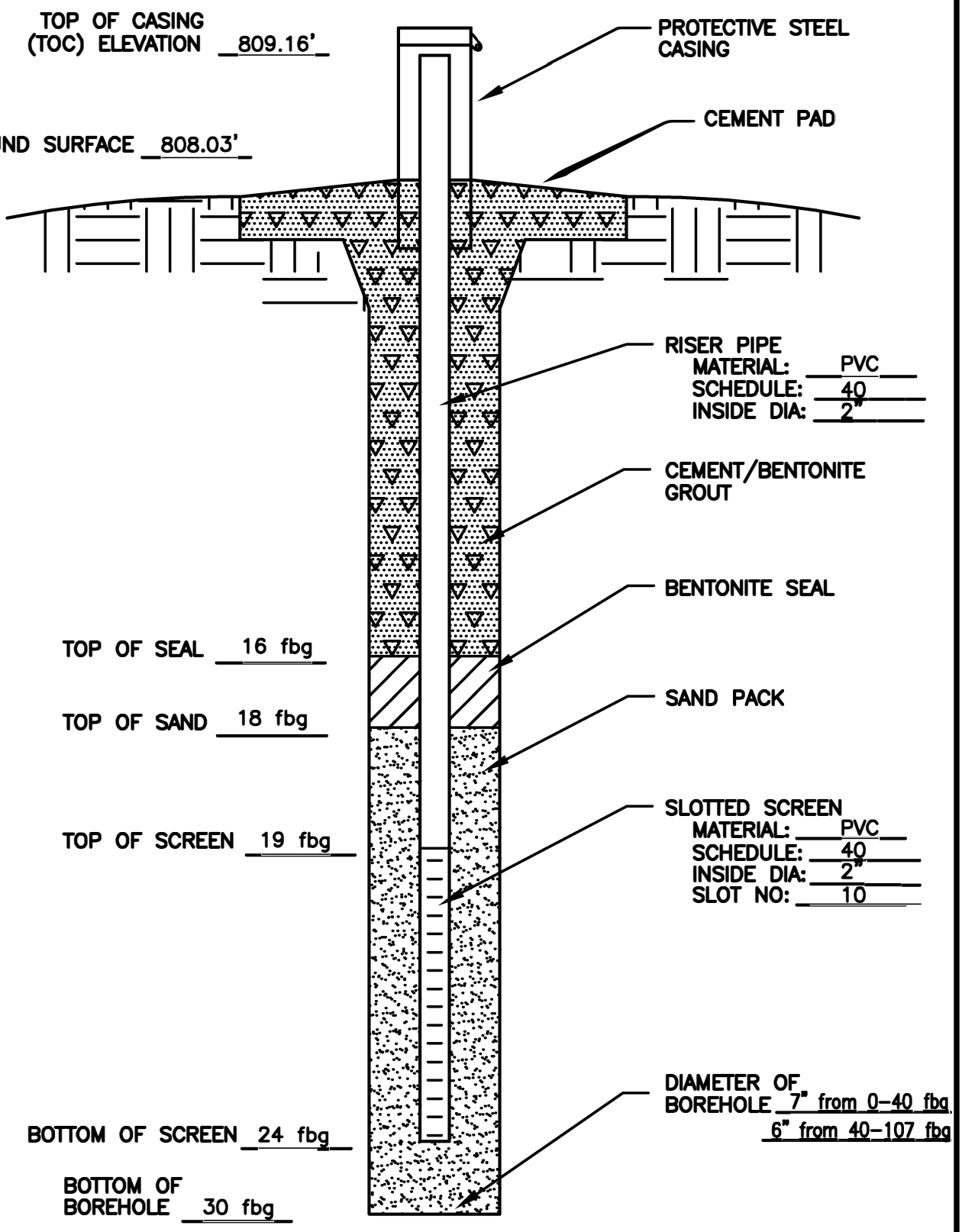


Source: "Report, Hydrogeological Investigation, Coldwater Road Plant Waste Management Area, Flint, Michigan", Dames & Moore, June 27, 1981

FIGURE A-10

LOG OF BORINGS B-8 & B-9
FISHER BODY
COLDWATER PLANT
WASTE MANAGEMENT AREA

O'BRIEN & GERE
ENGINEERS INC.



COLDWATER ROAD LANDFILL
FLINT, MICHIGAN
MONITORING WELL B-9

SOURCE: HYDROGEOLOGIC INVESTIGATION, COLDWATER ROAD PLANT WASTE MANAGEMENT AREA, FLINT, MICHIGAN, DAMES & MOORE, JUNE 27, 1981.

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O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER: MW B-18A SHEET 1 OF 2
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE / DEPTH / ELEVATION NA / NA / NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 2" Splitpoon HAMMER: 140 lbs. FALL: 30"

O'BRIEN & GERE GEOLOGIST: Anthony J. Finch
BORING CO.: Carlo Environmental Technologies
FOREMAN: Paul Libby

BORING LOCATION: West central area of landfill, west of railroad tracks
GROUND ELEVATION: N/A
DATES: STARTED: 4/20/95 ENDED: 4/20/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE DEPTH	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	REMARKS
0	1	0'-2'	3	24"/24"	11	Dark yellowish brown, damp, silty CLAY						
			5									
			6									
			5									
	2	2'-4'	4	24"/24"	9	Moderate yellowish brown, damp, silty CLAY						
			4									
			5									
			6									
	3	4'-6'	3	24"/24"	11	Moderate yellowish brown, damp, silty CLAY						
			5									
5			6									
			7									
	4	6'-8'	4	24"/18"	11	Moderate yellowish brown, damp, silty CLAY						
			5									
			6									
			7									
	5	8'-10'	3	24"/20"	8	Moderate yellowish brown, damp, silty CLAY						
			4									
			4									
			6									
10	6	10'-12'	3	24"/24"	8	Mottled, damp, CLAY, some silt						
			4									
			4									
			4									
	7	12'-14'	4	24"/18"	16	Mottled, damp, CLAY, some silt						
			7									
			9									
			10									
	8	14'-16'	5	24"/18"	17	Yellow, brown, hard, damp, silty CLAY						
			8									
15			9									
			12									
	9	16'-18'	5	24"/18"	13	Yellow, brown, hard, damp, silty CLAY						
			6									
			9									
			11									
	10	18'-20'	5	24"/24"	5	Yellow, brown, hard, damp, silty CLAY						
			6									
			6									
			7									
20	11	20'-22'	4	24"/18"	11	Medium grey, damp, silty CLAY						
			5									
			6									
			7									

Notes:

1. "NA" denotes information not available.
2. Monitoring well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending from 36' to 41'.

O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER MW B-18A SHEET 2 OF 2
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE / DEPTH / ELEVATION NA / NA / NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 24" splitspoon HAMMER: 140 lbs.

O'BRIEN & GERE GEOLOGIST: Anthony J. Finch
BORING CO.: Carlo Environmental Technologies
FOREMAN: Paul Libby

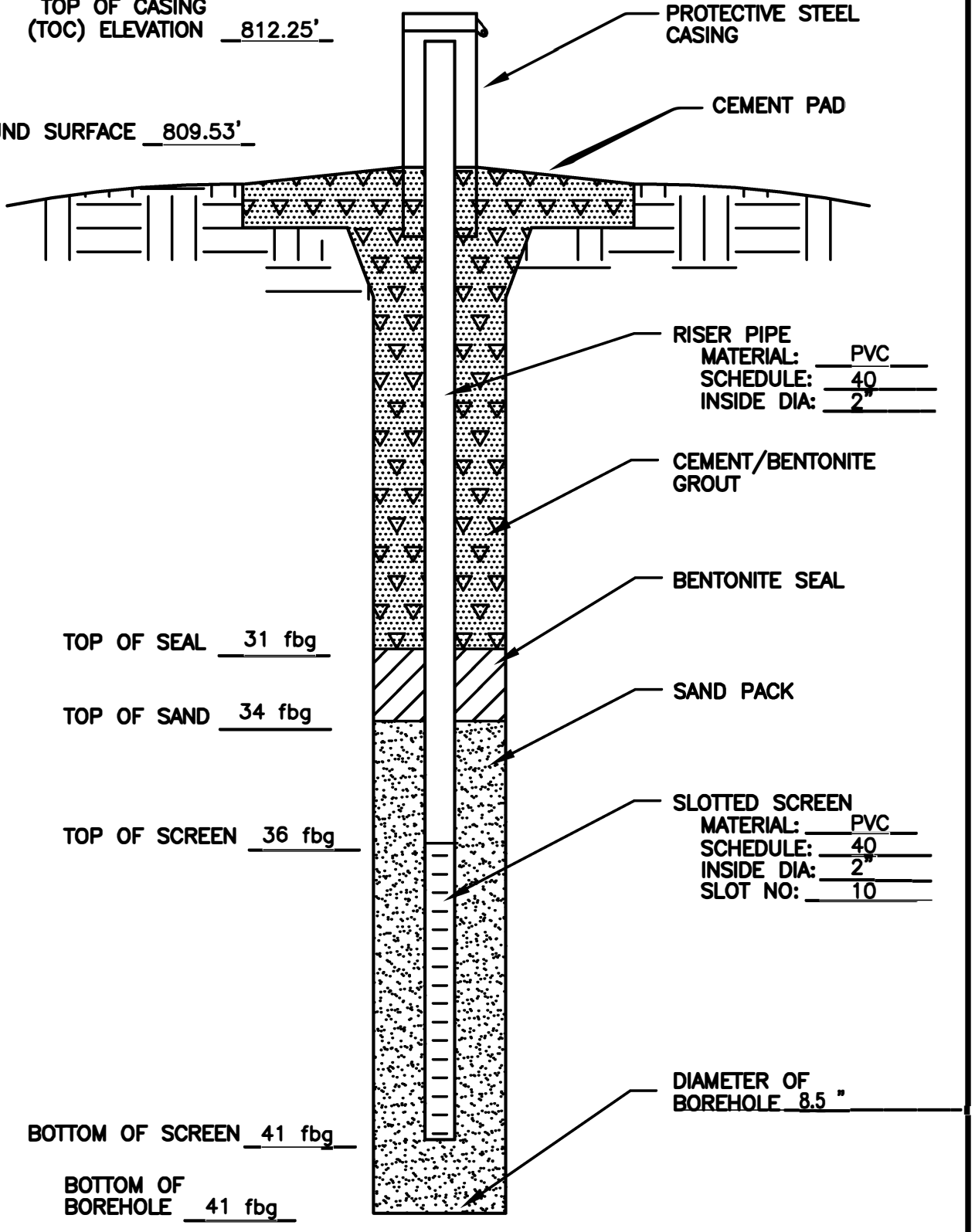
BORING LOCATION: West central area of landfill, west of railroad tracks
GROUND ELEVATION: N/A
DATES: STARTED: 4/20/95 ENDED: 4/20/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE DEPTH	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	R M K S*
		22'-24'	9	24"/12"	24	Medium grey, damp, silty CLAY, trace of fine gravel						
			11									
			13									
			14									
		24'-26'	3	24"/18"	7	Medium grey, damp, silty CLAY, trace of fine gravel						
			3									
25			4									
			4									
		26'-28'	8	24"/24"	21	Medium grey, damp, silty CLAY, trace of fine gravel						
			11									
			10									
			15									
		28'-30'	3	24"/24"	12	Medium grey, damp, silty CLAY, trace of fine gravel						
			5									
			7									
			8									
30		30'-32'	3	24"/24"	8	Medium grey, damp, silty CLAY, trace of fine gravel						
			4									
			4									
			5									
		32'-34'	6	24"/24"	13	Medium grey, damp, silty CLAY, trace of fine gravel						
			7									
			9									
			11									
		34'-36'	3	24"/24"	8	Medium grey, damp, silty CLAY, trace of fine gravel						
			3									
35			5									
			5									
		36'-38'	7	24"/24"	18	Medium grey, damp, silty CLAY, trace of fine gravel, 3" silt lens, 1" silty clay lens						
			8									
			10									
			12									
		38'-40'	1	24"/24"	5	Sandy, wet GRAVEL	38'					
			2									
			3									
			4			Silty, CLAY	39'6"					
40						E.O.B. @ 40 fbg						

Notes:

1. "NA" denotes information not available.
2. Monitoring well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending for 36' to 41'.

O'BRIEN & GERE
ENGINEERS INC.



COLDWATER ROAD LANDFILL
FLINT, MICHIGAN
MONITORING WELL B-18A

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O'BRIEN & GERE ENGINEERS, INC

SOIL BORING LOG

BORING I.D.: B-19AR

PAGE 1 OF 2

CLIENT:	**REALM**
PROJECT NAME:	**Replacement Wells**
PROJECT LOCATION:	**Coldwater Road Landfill**
FILE NO.:	**4966/34167 #4**
BORING COMPANY:	**Prosonic Corporation**
FOREMAN:	**Rodney Parr**
OBG GEOLOGIST:	**Mike Robison**
Boring Location:	NW portion of landfill Replacement well is located to the NW of B-19A
Drilling equipment:	ATV Rotosonic Rig
Sampling equipment:	10 ft length 4-inch diam. core barrel
Borehole Diameter:	6-inch override casing for core barrels
Total Depth:	47 ft below grade
Start date:	3/15/2005
Completion date:	3/15/2005

Surface Elevation (ft MSL): 810.48

Top of Casing Elevation (ft MSL):813.15

Depth to ground water: 27.15' BTOC

LEGEND: / Cement/grout; === Screen; #0 Sand Pack; Riser; Bentonite seal

DEPTH BELOW GRADE	CORE INTERVAL (ft bg)	PENETR/ RECOVERY (ft bg)	SAMPLE DESCRIPTION	STRATUM CHANGE GENERAL DESCRIPT	Equipment Installed	Field Testing PID Headspace	Notes
0	0-7'	7 ft/full	vegetation with topsoil		/		
			mod. yellowish brown (10YR 5/4), damp, silty CLAY with trace 1/4" gravel	6"	/		
1					/		
2					/		
3					/		
4			mod. yellowish brown (10YR 5/4), damp, CLAY with little silt and 1/8" gravel		/		
5					/	0.0	
6					/		
7	7-17'	10 ft/full	medium gray (N5), damp, slightly plastic, CLAY with 1/8" gravel		/		
8					/		
9					/		
10			medium gray (N5), damp, slightly plastic, CLAY with little 1/4" gravel		/		
11					/		
12					/		
13					/		
14					/		
15					/	0.0	
16					/		
17	17-27'	10 ft/full			/		
18					/		
19					/		
20					/		
21					/		
22					/		
23					/		
24					/		
25					/	0.0	
26					/		
27	27-37'	10 ft/full	medium gray (N5), damp, plastic, CLAY with little 1/4" gravel		/		
28					/		
29							
30							
31							
32							
33							
34			medium gray (N5), wet, clayey fine SAND seam (2" SEAM)	34'	===		
			medium gray (N5), damp, slightly plastic, CLAY with trace 1/4" gravel	34'2"	===		
35					===		
36					===		
37	37-47'	10 ft/full	medium gray (N5), wet, fine to coarse SAND with trace clay and gravel	37'	===		
38					===		
39					===		

Notes:

1. Rotosonic rig used for drilling; therefore, no blow counts.
2. No soil samples collected for laboratory submittal.
3. Subsequent to soil sampling activities, an above-grade monitoring well was installed using 2-inch PVC riser flush threaded to a 10 ft length of 0.010 inch slot PVC well screen extending from 34-44 feet below grade.
4. Well is a stickup with protective cover.

O'BRIEN & GERE ENGINEERS, INC

SOIL BORING LOG

BORING I.D.: B-19AR

CLIENT:	**REALM**
PROJECT NAME:	**Replacement Wells**
PROJECT LOCATION:	**Coldwater Road Landfill**
FILE NO.:	**4966/34167 #4**
BORING COMPANY:	**Prosonic Corporation**
FOREMAN:	**Rodney Parr**
OBG GEOLOGIST:	**Mike Robison**
Boring Location:	NW portion of landfill Replacement well is located to the NW of B-19A
Drilling equipment:	ATV Rotosonic Rig
Sampling equipment:	10 ft length 4-inch diam. core barrel
Borehole Diameter:	6-inch override casing for core barrels
Total Depth:	47 ft below grade
Start date:	3/15/2005
Completion date:	3/15/2005

Surface Elevation (ft MSL):810.48
Top of Casing Elevation (ft MSL): 813.15

Depth to ground water: 27.15' BTOC

LEGEND: / Cement/grout; === Screen; #0 Sand Pack; Riser; Bentonite seal

DEPTH BELOW GRADE	CORE INTERVAL (ft bg)	PENETR/ RECOVERY (ft bg)	SAMPLE DESCRIPTION	STRATUM CHANGE GENERAL DESCRIPT	Equipment Installed	Field Testing: PID Headspace	Field Testing: Notes
40							
41			medium gray (N5), hydrated/wet, sandy CLAY	41'			
42			medium gray (N5), moist, CLAY				
43							
44							
45							
46							
47			END OF BORING @ 47 FBG				
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							
64							
65							
66							
67							
68							
69							
70							
71							
72							
73							
74							
75							
76							
77							
78							
79							

Notes:
1. Rotosonic rig used for drilling; therefore, no blow counts.
2. No soil samples collected for laboratory submittal.
3. Subsequent to soil sampling activities, an above-grade monitoring well was installed using 2-inch PVC riser flush threaded to a 10 ft length of 0.010 inch slot PVC well screen extending from 34-44 feet below grade.
4. Well is a stickup with protective cover.

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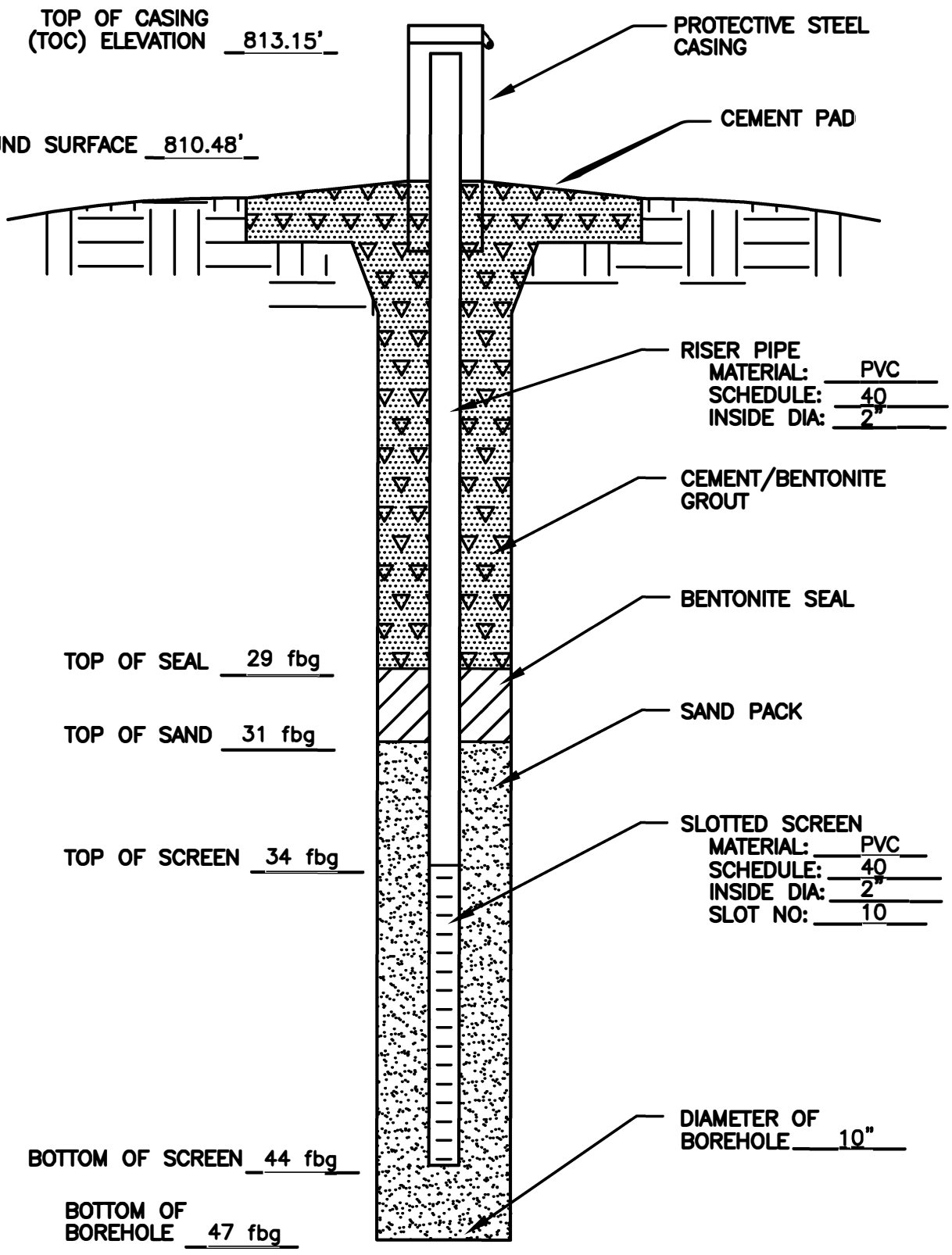

COLDWATER ROAD LANDFILL
FLINT, MICHIGAN
MONITORING WELL B-19AR

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O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER: MW B-20D SHEET 1 OF 4
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE / DEPTH / ELEVATION NA / NA / NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 2" Splitpoon HAMMER: 140 lbs. FALL: 30"
O'BRIEN & GERE GEOLOGIST: Anthony J. Finch BORING CO.: Carlo Environmental Technologies FOREMAN: Paul Libby	BORING LOCATION: Northeast area of landfill GROUND ELEVATION: N/A DATES: STARTED: 4/28/95	ENDED: 5/1/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE DEPTH	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	R M K S*
0	1	0'-2'	10	24"/24"	44	Moderate yellowish brown, damp, silty CLAY						
			21			trace of fine to medium gravel						
			23									
			17									
	2	2'-4'	9	24"/24"	20	Moderate yellowish brown, damp, silty CLAY						
			10			trace of fine to medium gravel						
			10									
			8									
	3	4'-6'	5	24"/24"	16	Mottled, damp, silty CLAY, trace of fine						
			9			to medium gravel						
5			7									
			5									
	4	6'-8'	4	24"/18"	9	Mottled, damp, silty CLAY, trace of fine						
			5			to medium gravel						
			4									
			4									
	5	8'-10'	3	24"/20"	9	Moderate yellowish brown, damp SILT	8'					
			5			some clay, grades to medium grey						
			4									
			4									
10	6	10'-12'	3	24"/24"	8	Moderate yellowish brown, damp SILT,						
			4			some clay, grades to medium grey						
			4									
			5									
	7	12'-14'	4	24"/18"	7	Medium grey, moist SILT, little clay						
			4									
			3									
			6									
	8	14'-16'	3	24"/18"	8	Medium grey, moist SILT, little clay						
			4									
15			4									
			3									
	9	16'-18'	1	24"/18"	3	Soft, medium grey, wet, clayey SILT						
			1									
			2									
			3									
	10	18'-20'	4	24"/24"	13	Medium grey, moist SILT, little clay						
			5									
			8									
			7									
20	11	20'-22'	7	24"/18"	15	Medium grey, moist to wet SILT, trace of clay						
			6									
			9									
			9									

Notes:

1. "NA" denotes information not available.
2. Monitoring well constructed with 10 inch diameter steel casing set to 30 fbg, well constructed of 2 inch diameter, schedule 40 PVC casing with 5 feet of 0.010 inch slot well screen extending from 83' to 88'.

O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER MW B-20D SHEET 2 OF 4
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE DEPTH ELEVATION NA NA NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 24" splitspoon HAMMER: 140 lbs.
O'BRIEN & GERE GEOLOGIST: Anthony J. Finch BORING CO.: Carlo Environmental Technologies FOREMAN: Paul Libby	BORING LOCATION: Northeast area of landfill GROUND ELEVATION: N/A DATES: STARTED: 4/28/95	ENDED: 5/1/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE DEPTH	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	R M K S*
		22'-24'	5	24"/12"	14	Medium grey, wet SILT, trace of clay						
			6									
			8									
			9									
		24'-26'	5	24"/18"	13							
			6			Medium grey, damp, silty, CLAY	24' 6"					
25			7			trace of fine to medium gravel						
			7									
		26'-28'	3	24"/24"	9	Medium grey, damp, silty, CLAY						
			4			trace of fine to medium gravel						
			5									
			7									
		28'-30'	2	24"/24"	11	Medium grey, damp, silty CLAY						
			5			trace of fine to medium gravel						
			6									
			8									
30		30'-32'	2	24"/24"	9	Medium grey, damp, silty CLAY						
			4			trace of fine to medium gravel						
			5									
			7									
		32'-34'	1	24"/24"	7	Medium grey, damp, silty CLAY						
			3			trace of fine to medium gravel						
			4									
			6									
		34'-36'	2	24"/24"	6	Medium grey, damp, silty CLAY						
			3			trace of fine to medium gravel						
35			3									
			6									
		36'-38'	3	24"/24"	7	Medium grey, damp, silty CLAY						
			3			trace of fine to medium gravel						
			4									
			5									
		38'-40'	2	24"/24"	6	Medium grey, damp, silty CLAY						
			2			trace of fine to medium gravel						
			3									
			4									
40		40'-42'	1	24"/24"	5	Medium grey, damp, silty CLAY						
			2			trace of fine to medium gravel						
			3									
			5									
		42'-44'	2	24"/24"	5	Medium grey, damp, silty CLAY						
			2			trace of fine to medium gravel						
			3									
			4									

Notes:

1. "NA" denotes information not available.
2. Monitoring well constructed with 10 inch diameter steel casing set to 30 fbg, well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending from 83' to 88'.

O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER: MW B-20D SHEET 3 OF 4
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE / DEPTH / ELEVATION NA / NA / NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 2" Splitpoon HAMMER: 140 lbs. FALL: 30"

O'BRIEN & GERE GEOLOGIST: Anthony J. Finch
BORING CO.: Carlo Environmental Technologies
FOREMAN: Paul Libby

BORING LOCATION: Northeast area of landfill
GROUND ELEVATION: N/A
DATES: STARTED: 4/28/95 ENDED: 5/1/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	R M K
		44'-46'	1	24"/24"	6	Medium grey, damp, silty CLAY						
			3			trace of fine to medium gravel						
45			3									
			5									
		46'-48'	2	24"/24"	7	Medium grey, damp, silty CLAY						
			3			trace of fine to medium gravel						
			4									
			4									
		48'-50'	2	24"/24"	5	Medium grey, damp, silty CLAY						
			2			trace of fine to medium gravel						
			3									
			5									
50		50'-52'	2	24"/24"	6	Medium grey, damp, silty CLAY						
			2			trace of fine to medium gravel						
			4									
			5									
		52'-54'	2	24"/24"	7	Medium to dark grey, silty, CLAY						
			2			trace of fine to medium gravel						
			5									
			8									
		54'-56'	2	24"/24"	7	Medium to dark grey, silty, CLAY						
			3			trace of fine to medium gravel						
55			4									
			7									
		56'-58'	2	24"/24"	10	Medium to dark grey, silty, CLAY						
			4			trace of fine to medium gravel						
			6									
			8									
		58'-60'	2	24"/24"	11	Medium to dark grey, silty, CLAY						
			4			trace of fine to medium gravel						
			7									
			8									
60		60'-62'	2	24"/24"	10	Medium to dark grey, silty, CLAY						
			4			trace of fine to medium gravel						
			6									
			9									
		62'-64'	2	24"/24"	6	Medium to dark grey, silty, CLAY						
			2			trace of fine to medium gravel						
			4									
			6									
		64'-66'	2	24"/24"	6	Medium to dark grey, silty, CLAY						
			2			trace of fine to medium gravel						
65			4									
			8									

Notes:

1. "NA" denotes information not available.
2. Monitoring well construction with 10 inch diameter steel casing set to 30 fbg, well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending from 83' to 88'.

O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER: MW B-20D SHEET 4 OF 4
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE / DEPTH / ELEVATION NA / NA / NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 2" Splitpoon HAMMER: 140 lbs. FALL: 30"

O'BRIEN & GERE GEOLOGIST: Anthony J. Finch
BORING CO.: Carlo Environmental Technologies
FOREMAN: Paul Libby

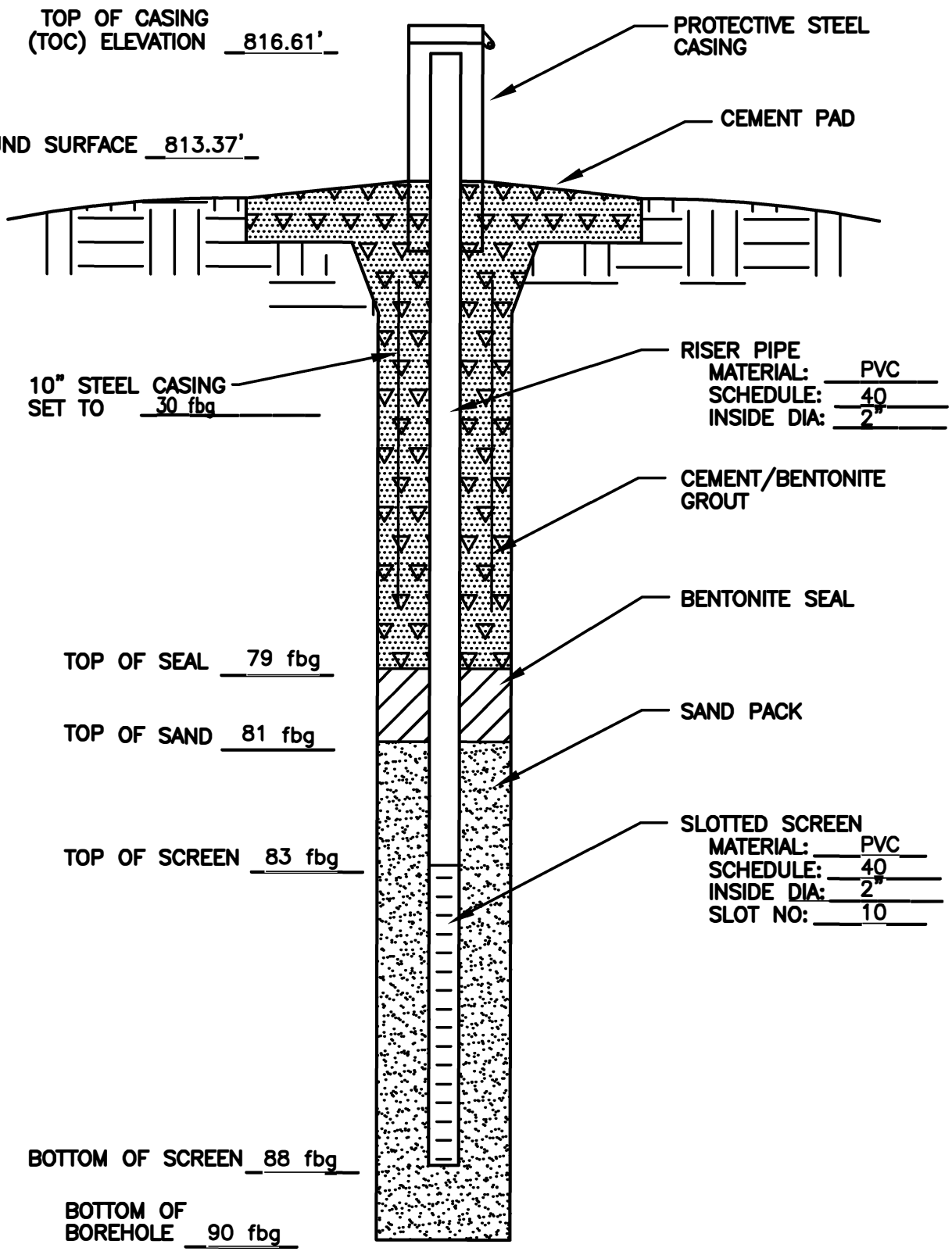
BORING LOCATION: Northeast area of landfill
GROUND ELEVATION: N/A
DATES: STARTED: 4/28/95 ENDED: 5/1/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	R M K
		66'-68'	2	24"/24"	4	Medium to dark grey, silty, CLAY						
			2			trace of fine to medium gravel						
			2									
			3									
		68'-70'	2	24"/20"	5	Dark grey, damp, silty, CLAY						
			2			trace of fine to medium gravel						
			3									
			1									
70		70'-72'	2	24"/24"	7	Dark grey, damp, silty, CLAY						
			3			trace of fine to medium gravel						
			4									
			6									
		72'-74'	2	24"/24"	9	Dark grey, damp, silty, CLAY						
			4			trace of fine to medium gravel						
			5									
			6									
		74'-76'	2	24"/24"	7	Dark grey, damp, silty, CLAY						
			3			trace of fine to medium gravel						
75			4									
			5									
		76'-78'	1	24"/24"	8	Dark grey, damp, silty, CLAY						
			3			trace of fine to medium gravel						
			5									
			7									
		78'-80'	2	24"/24"	8	Dark grey, damp, silty, CLAY						
			4			trace of fine to medium gravel						
			4									
			7									
80		80'-82'	2	24"/24"	12	Dark grey, damp, silty, CLAY						
			5			trace of fine to medium gravel						
			7									
			8									
		82'-84'	2	24"/24"	7	Dark grey, damp, silty, CLAY						
			3			trace of fine to medium gravel						
			4			Moderate brownish grey, wet SILT	83'					
			6			some fine and very fine sand						
		84'-86'	1	24"/24"	13	Moderate brownish grey, wet SILT						
			5			some fine and very fine sand						
85			8									
			5									
		86'-88'	2	24"/24"	7	Moderate brownish grey, wet SILT						
			3			some fine and very fine sand						
			4									
			7									
		88'-90'	4	24"/24"	8	Medium grey, wet SILT, some fine to						
			4			very fine sand						
			4			Medium grey, wet clayey SILT, trace of						
			6			fine to very fine sand						
90						E.O.B. @ 90 fbg						

Notes:

1. "NA" denotes information not available.
2. Monitoring well construction with 10 inch diameter steel casing set to 30 fbg, well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending from 83' to 88'.

O'BRIEN & GERE
ENGINEERS INC.



COLDWATER ROAD LANDFILL
FLINT, MICHIGAN
MONITORING WELL B-20D

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O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER: MW B-21D SHEET 1 OF 4
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE / DEPTH / ELEVATION NA / NA / NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 2" Splitpoon HAMMER: 140 lbs. FALL: 30"

O'BRIEN & GERE GEOLOGIST: Anthony J. Finch
BORING CO.: Carlo Environmental Technologies
FOREMAN: Paul Libby

BORING LOCATION: East central area of landfill
GROUND ELEVATION: NA
DATES: STARTED: 4/26/95 ENDED: 5/2/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE DEPTH	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	REMARKS
0	1	0'-2'	7	24"/24"	16	Moderate yellowish brown, crumbly, dry silty, CLAY						
			8									
			8									
			9									
	2	2'-4'	7	24"/24"	17	Moderate yellowish brown, crumbly, dry silty, CLAY						
			8									
			9									
			10									
	3	4'-6'	7	24"/24"	16	Moderate yellowish brown, crumbly, dry silty, CLAY, grades to silt						
			7									
5			9									
			11			Moderate yellowish brown SILT, damp trace of clay	5'6"					
	4	6'-8'	6	24"/24"	14							
			7									
			7									
			9									
	5	8'-10'	5	24"/24"	16	Moderate yellowish brown SILT, damp trace of clay						
			7									
			9			Moderate yellowish brown, damp SILT, some very fine sand						
			8									
10	6	10'-12'	5	24"/18"	14	Moderate yellowish brown, damp SILT, some very fine sand						
			7									
			7									
			9									
	7	12'-14'	5	24"/18"	18	Moderate yellowish brown, damp SILT, some very fine sand						
			8									
			10									
			9									
	8	14'-16'	6	24"/	15	Moderate yellowish brown, damp SILT, some very fine sand						
			7									
15			8									
			8									
	9	16'-18'	5	24"/18"	13	Moderate yellowish brown, damp SILT, some very fine sand						
			6									
			7									
			7									
	10	18'-20'	6	24"/24"	15	Moderate yellowish brown, damp SILT, some very fine sand						
			7									
			8									
			10									
20	11	20'-22'	6	24"/24"	16	Moderately yellowish brown wet SILT, little very fine sand grades to medium grey						
			7									
			9									
			10									

Notes:

1. "NA" denotes information not available.
2. Monitoring well constructed with 10 inch diameter steel casing set to 30.5 fbg, well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending from 91' to 96'.

O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER MW B-21D SHEET 2 OF 4
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE / DEPTH / ELEVATION NA / NA / NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 24" splitspoon HAMMER: 140 lbs.
O'BRIEN & GERE GEOLOGIST: Anthony J. Finch BORING CO.: Carlo Environmental Technologies FOREMAN: Paul Libby	BORING LOCATION: East central area of landfill GROUND ELEVATION: NA DATES: STARTED: 4/26/95	ENDED: 5/2/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE DEPTH	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	REMARKS
		22'-24'	6	24"/20"	14	Medium grey, wet SILT, little very fine sand						
			7									
			7									
			6									
		24'-26'	7	24"/18"	13	Medium grey, wet SILT, little very fine sand						
			8									
25			5									
			5			Medium grey, damp, silty CLAY	25'6"					
		26'-28'	7	24"/12"	9							
			5			posaible silt lens was wet 26'6" - 27'						
			4			Medium grey, damp silty CLAY,						
			4			trace of fine to medium gravel						
		28'-30'	3	24"/18"	11	Medium grey, damp silty CLAY,						
			5			trace of fine to medium gravel						
			6			two inches of wet sand lens @ 28'8" -28'10"						
			8									
30		30'-32'	2	24"/18"	8	Medium grey, damp silty CLAY,						
			4			trace of fine to medium gravel						
			4									
			6									
		32'-34'	5	24"/24"	16	Medium grey, damp silty CLAY,						
			7			trace of fine to medium gravel						
			9									
			10									
		34'-36'	5	24"/24"	10	Medium grey, damp silty CLAY,						
			4			trace of fine to medium gravel						
35			6									
			7									
		36'-38'	2	24"/24"	6	Medium grey, damp silty CLAY,						
			3			trace of fine to medium gravel						
			3									
			4									
		38'-40'	2	24"/24"	7	Medium grey, damp silty CLAY,						
			3			trace of fine to medium gravel						
			4									
			5									
40		40'-42'	3	24"/24"	7	Medium grey, damp silty CLAY,						
			3			trace of fine to medium gravel						
			4									
			5									
		42'-44'	3	24"/24"	8	Medium grey, damp silty CLAY,						
			3			trace of fine to medium gravel						
			5									
			6									

Notes:

1. "NA" denotes information not available.
2. Monitoring well constructed with 10 inch diameter steel casing set to 30.5 fbg, well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending from 91' to 96'.

O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER: MW B-21D SHEET 3 OF 4
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE: NA DEPTH: NA ELEVATION: NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 2" Splitpoon HAMMER: 140 lbs. FALL: 30"
O'BRIEN & GERE GEOLOGIST: Anthony J. Finch BORING CO.: Carlo Environmental Technologies FOREMAN: Paul Libby	BORING LOCATION: East central area of landfill GROUND ELEVATION: NA DATES: STARTED: 4/26/95	ENDED: 5/2/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	REMK
		44'-46'	2	24"/12"	8	Medium grey, damp silty CLAY, trace of fine to medium gravel						
			3									
45			5									
			6									
		46'-48'	2	24"/24"	7	Medium grey, damp silty CLAY, trace of fine to medium gravel						
			3									
			4									
			6									
		48'-50'	2	24"/24"	8	Medium grey, damp silty CLAY, trace of fine to medium gravel						
			3									
			5									
			6									
50		50'-52'	2	24"/24"	5	Medium grey, damp silty CLAY, trace of fine to medium gravel						
			2									
			3									
			3									
		52'-54'	1	24"/24"	4	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			1									
			3									
			4									
		54'-56'	2	24"/24"	5	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			2									
55			3									
			5									
		56'-58'	1	24"/24"	5	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			2									
			3									
			4									
		58'-60'	2	24"/24"	6	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			2									
			4									
			5									
60		60'-62'	2	24"/24"	8	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			3									
			5									
			7									
		62'-64'	2	24"/24"	9	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			3									
			6									
			6									
		64'-66'	1	24"/24"	7	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			3									
65			4									
			6									

Notes:

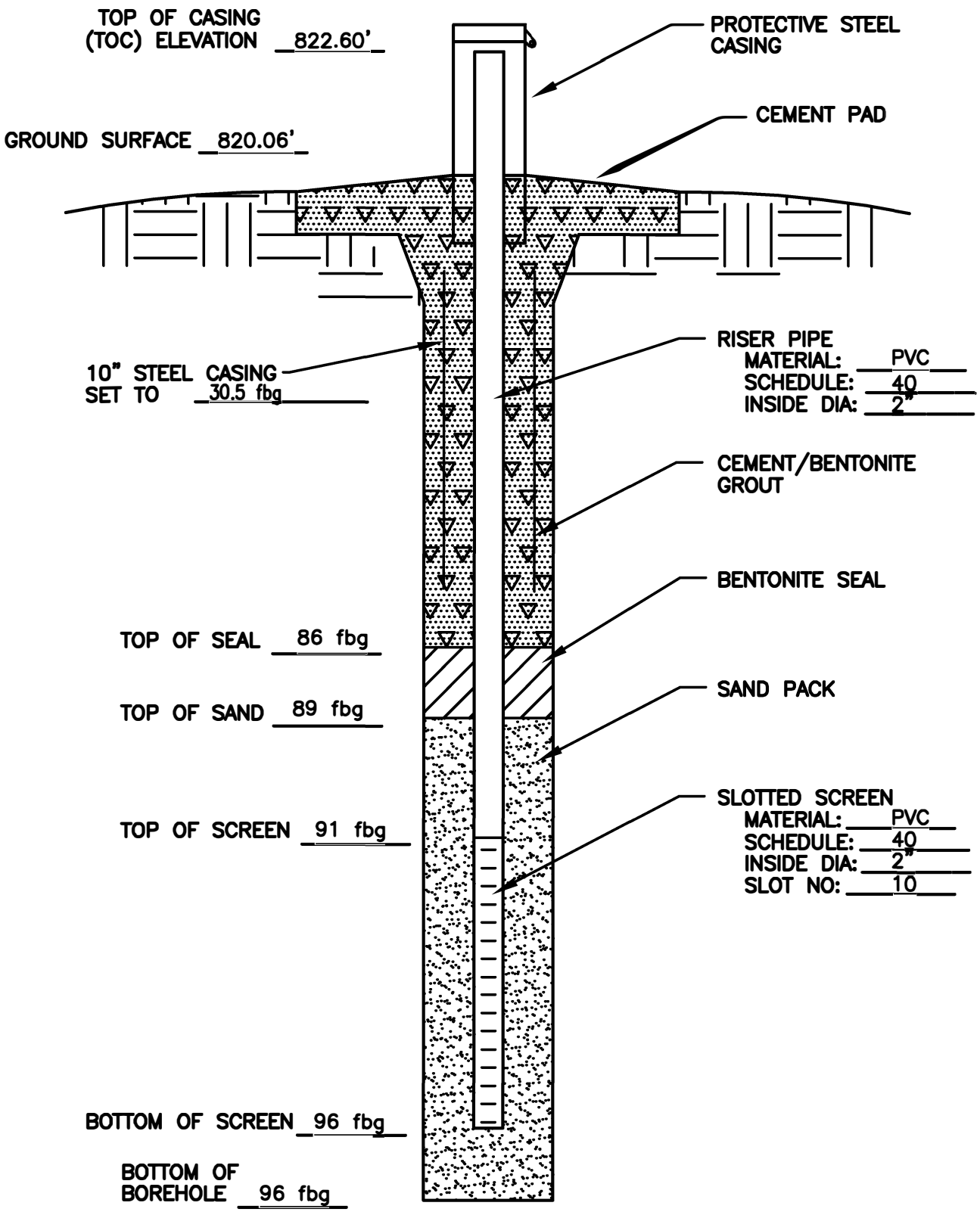
1. "NA" denotes information not available.
2. Monitoring well constructed with 10 inch diameter steel casing set to 30.5 fbg, well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending from 91' to 96'.

O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER: MW B-21D SHEET 4 OF 4
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE / DEPTH / ELEVATION NA / NA / NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 2" Splitpoon HAMMER: 140 lbs. FALL: 30"
O'BRIEN & GERE GEOLOGIST: Anthony J. Finch BORING CO.: Carlo Environmental Technologies FOREMAN: Paul Libby	BORING LOCATION: East central area of landfill GROUND ELEVATION: NA DATES: STARTED: 4/26/95	ENDED: 5/2/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	R M K
		66'-68'	2	24"/24"	6	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			2									
			4									
			5									
		68'-70'	1	24"/24"	9	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			3									
			6									
			7									
70		70'-72'	1	24"/24"	10	Medium to dark grey, damp,silty CLAY trace of fine to medium gravel						
			4									
			6									
			7									
		72'-74'	1	24"/24"	7	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			3									
			4									
			7									
		74'-76'	1	24"/24"	8	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			3									
75			5									
			7									
		76'-78'	2	24"/24"	8	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			3									
			5									
			7									
		78'-80'	4	24"/NR	20	No recovery, drove a rock						
			9									
			11									
			13									
80		80'-82'	3	24"/24"	10	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			4									
			6									
			7									
		82'-84'	1	24"/24"	6	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			2									
			4									
			8									
		84'-86'	2	24"/24"	8	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			3									
85			5									
			7									
		86'-88'	4	24"/24"	13	Medium to dark grey, damp silty CLAY trace of fine to medium gravel						
			6									
			7									
			7									
		88'-90'	3	24"/24"	10							
			4									
			6									
			8									
		90'-92'	2	24"/24"	7							
			3			Medium to dark grey, wet SILT, little clay	91'9"					
			4									
			7									
		92'-94'	3	24"/24"	9							
			4			Medium to dark grey, wet SILT,	93' 3"					
			5			grades to wet fine sand						
			6									

E.O.B. @ 94 fbg

O'BRIEN & GERE
ENGINEERS INC.



COLDWATER ROAD LANDFILL
FLINT, MICHIGAN
MONITORING WELL B-21D

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O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER: MW B-22D SHEET 1 OF 5
General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE: NA DEPTH: NA ELEVATION: NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 2" Splitpoon HAMMER: 140 lbs. FALL: 30"

O'BRIEN & GERE GEOLOGIST: Anthony J. Finch
BORING CO.: Carlo Environmental Technologies
FOREMAN: Paul Libby

BORING LOCATION: Southeast area of landfill
GROUND ELEVATION: N/A
DATES: STARTED: 4/24/95 ENDED: 5/3/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE DEPTH	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	REMARKS
0	1	0'-2'	1	24"/24"	8	Moderate yellowish brown, damp silty CLAY, mottled						
			3									
			5									
			6									
	2	2'-4'	2	24"/24"	8	Moderate yellowish brown, damp silty CLAY, mottled						
			3									
			5									
			6									
	3	4'-6'	3	24"/24"	10	Dark yellowish brown, damp silty CLAY, trace of fine sand						
			3									
5			7									
			7									
	4	6'-8'	2	24"/24"	7	Dark yellowish brown, damp silty CLAY, trace of fine sand						
			2									
			5									
			6									
	5	8'-10'	1	24"/12"	10	Mottled, damp, silty sandy CLAY, little fine gravel						
			2									
			8									
			7									
10	6	10'-12'	2	24"/24"	6	Dark yellowish brown silty SAND, grades to silt	10'					
			3									
			3									
			5									
	7	12'-14'	2	24"/24"	7	Mottled, moist, SILT, little sand	12'					
			3									
			4									
			4									
	8	14'-16'	6	24"/12"	15	Mottled, moist, fine to medium GRAVEL and SAND	14'					
			7									
15			8									
			7									
	9	16'-18'	7	24"/18"	13	Mottled, moist, fine to medium GRAVEL and SAND						
			7			Moderate yellowish brown, wet SILT	16'6"					
			6									
			5									
	10	18'-20'	3	24"/12"	9	Moderate yellowish brown, wet SILT						
			4									
			5									
			5									
20	11	20'-22'	2	24"/18"	10							
			5			Medium grey silty CLAY	20'6"					
			5									
			5									

Notes:

1. "NA" denotes information not available.
2. Monitoring well constructed with 10 inch diameter steel casing set to 32 fbg, well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending from 91' to 96'.

O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER MW B-22D SHEET 2 OF 5
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE / DEPTH / ELEVATION NA / NA / NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 24" splitspoon HAMMER: 140 lbs.
O'BRIEN & GERE GEOLOGIST: Anthony J. Finch BORING CO.: Carlo Environmental Technologies FOREMAN: Paul Libby	BORING LOCATION: Southeast area of landfill GROUND ELEVATION: N/A DATES: STARTED: 4/26/95	ENDED: 5/2/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE DEPTH	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	REMARKS
	12	22'-24'	2	24"/20"	10	Medium grey, damp silty CLAY,						
			4			trace of fine to medium gravel						
			6									
			8									
	13	24'-26'	2	24"/24"	9	Medium grey, damp silty CLAY,						
			3			trace of fine to medium gravel						
25			6									
			7			Medium grey, wet SILT, trace of fine sand	25'6"					
	14	26'-28'	4	24"/24"	9	Medium grey, wet SILT, trace of fine sand						
			4			Medium grey, damp, CLAY, some silt,	26'6"					
			5			trace of fine to medium gravel						
			7									
	15	28'-30'	2	24"/24"	7	Medium grey, damp CLAY, some silt,						
			3			trace of fine to medium gravel						
			4									
			6									
30	16	30'-32'	3	24"/24"	11	Medium grey, damp CLAY, some silt,						
			5			trace of fine to medium gravel						
			6									
			9									
	17	32'-34'	3	24"/24"	10							
			4									
			6									
			8									
	18	34'-36'	2	24"/24"	9							
			4									
35			5									
			7									
	19	36'-38'	2	24"/24"	9							
			4									
			5									
			7									
	20	38'-40'	2	24"/24"	6							
			2									
			4									
			6									
40	21	40'-42'	1	24"/24"	7	Medium grey, damp CLAY, some silt,						
			3			trace of fine to medium gravel						
			4									
			7									
	22	42'-44'	2	24"/24"	5							
			2									
			3									
			5									

Notes:

1. "NA" denotes information not available.
2. Monitoring well constructed with 10 inch diameter steel casing set to 32 fbg, well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending from 91' to 96'.

O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER: MW B-22D SHEET 3 OF 5
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE / DEPTH / ELEVATION NA / NA / NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 2" Splitpoon HAMMER: 140 lbs. FALL: 30"

O'BRIEN & GERE GEOLOGIST: Anthony J. Finch
BORING CO.: Carlo Environmental Technologies
FOREMAN: Paul Libby

BORING LOCATION: Southeast area of landfill
GROUND ELEVATION: N/A
DATES: STARTED: 4/28/95 ENDED: 5/1/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	REMARK
	23	44'-46'	1	24"/24"	7	Medium grey, damp, CLAY, some silt, trace of fine to medium gravel						
			3									
45			4									
			5									
	24	46'-48'	2	24"/24"	8	Medium grey, damp, CLAY, some silt, trace of fine to medium gravel						
			4									
			4									
			6									
	25	48'-50'	2	24"/24"	10	Medium grey, damp, CLAY, some silt, trace of fine to medium gravel						
			4									
			6									
			7									
50	26	50'-52'	2	24"/24"	10	Medium grey, damp, CLAY, some silt, trace of fine to medium gravel						
			4									
			6									
			8									
	27	52'-54'	2	24"/24"	8	Medium grey, damp, CLAY, some silt, trace of fine to medium gravel						
			3									
			5									
			7									
	28	54'-56'	2	24"/24"	10	Medium grey, damp, CLAY, some silt, trace of fine to medium gravel						
			4									
55			6									
			9									
	29	56'-58'	3	24"/24"	9	Medium grey, damp, CLAY, some silt, trace of fine to medium gravel						
			4									
			5									
			7									
	30	58'-60'	2	24"/24"	10	Medium grey, damp, CLAY, some silt, trace of fine to medium gravel						
			4									
			6									
			7									
60	31	60'-62'	2	24"/24"	10	Medium grey, damp, CLAY, some silt, trace of fine to medium gravel						
			4									
			6									
			7									
	32	62'-64'	2	24"/24"	10	Medium grey, damp, CLAY, some silt, trace of fine to medium gravel						
			3									
			7									
			8									
	33	64'-66'	2	24"/24"	9	Medium grey, damp, CLAY, some silt, trace of fine to medium gravel						
			4									
			5									
65			6									

Notes:

1. "NA" denotes information not available.
2. Monitoring well constructed with 10 inch diameter steel casing set to 32 fbg, well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending from 91' to 96'.

O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER: MW B-22D SHEET 4 OF 5
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE / DEPTH / ELEVATION NA / NA / NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 2" Splitpoon HAMMER: 140 lbs. FALL: 30"

O'BRIEN & GERE GEOLOGIST: Anthony J. Finch
BORING CO.: Carlo Environmental Technologies
FOREMAN: Paul Libby

BORING LOCATION: Southeast area of landfill
GROUND ELEVATION: N/A
DATES: STARTED: 4/28/95 ENDED: 5/1/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	SP. COND	PID	REMK
	34	66'-68'	3	24"/24"	9	Medium grey, damp, CLAY, some silt,						
			4			trace of fine to medium gravel						
			5									
			7									
	35	68'-70'	2	24"/24"	9	Medium to dark grey, damp, silty, CLAY						
			4			trace of fine to medium gravel						
			5									
			7									
70	36	70'-72'	4	24"/24"	11	Medium to dark grey, damp, silty, CLAY						
			5			trace of fine to medium gravel						
			6									
			7									
	37	72'-74'	3	24"/24"	10	Medium to dark grey, damp, silty, CLAY						
			4			trace of fine to medium gravel						
			6									
			7									
	38	74'-76'	2	24"/24"	8	Medium to dark grey, damp, silty, CLAY						
			3			trace of fine to medium gravel						
75			5									
			7									
	39	76'-78'	2	24"/24"	7	Medium to dark grey, damp, silty, CLAY						
			3			trace of fine to medium gravel						
			4									
			8									
	40	78'-80'	3	24"/24"	11	Medium to dark grey, damp, silty, CLAY						
			5			trace of fine to medium gravel						
			6									
			9									
80	41	80'-82'	2	24"/24"	11	Medium to dark grey, damp, silty, CLAY						
			4			trace of fine to medium gravel						
			7									
			9									
	42	82'-84'	1	24"/24"	16	Medium to dark grey, damp, silty, CLAY						
			6			trace of fine to medium gravel						
			10			2" damp silt lens						
			11									
	43	84'-86'	2	24"/24"	13	Medium to dark grey, damp, silty, CLAY						
			5			trace of fine to medium gravel						
85			8									
			9									
	44	86'-88'	2	24"/24"	16	Medium to dark grey, damp, silty, CLAY						
			7			trace of fine to medium gravel						
			9									
			9									

Notes:

1. "NA" denotes information not available.
2. Monitoring well constructed with 10 inch diameter steel casing set to 32 fbg, well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending from 91' to 96'.

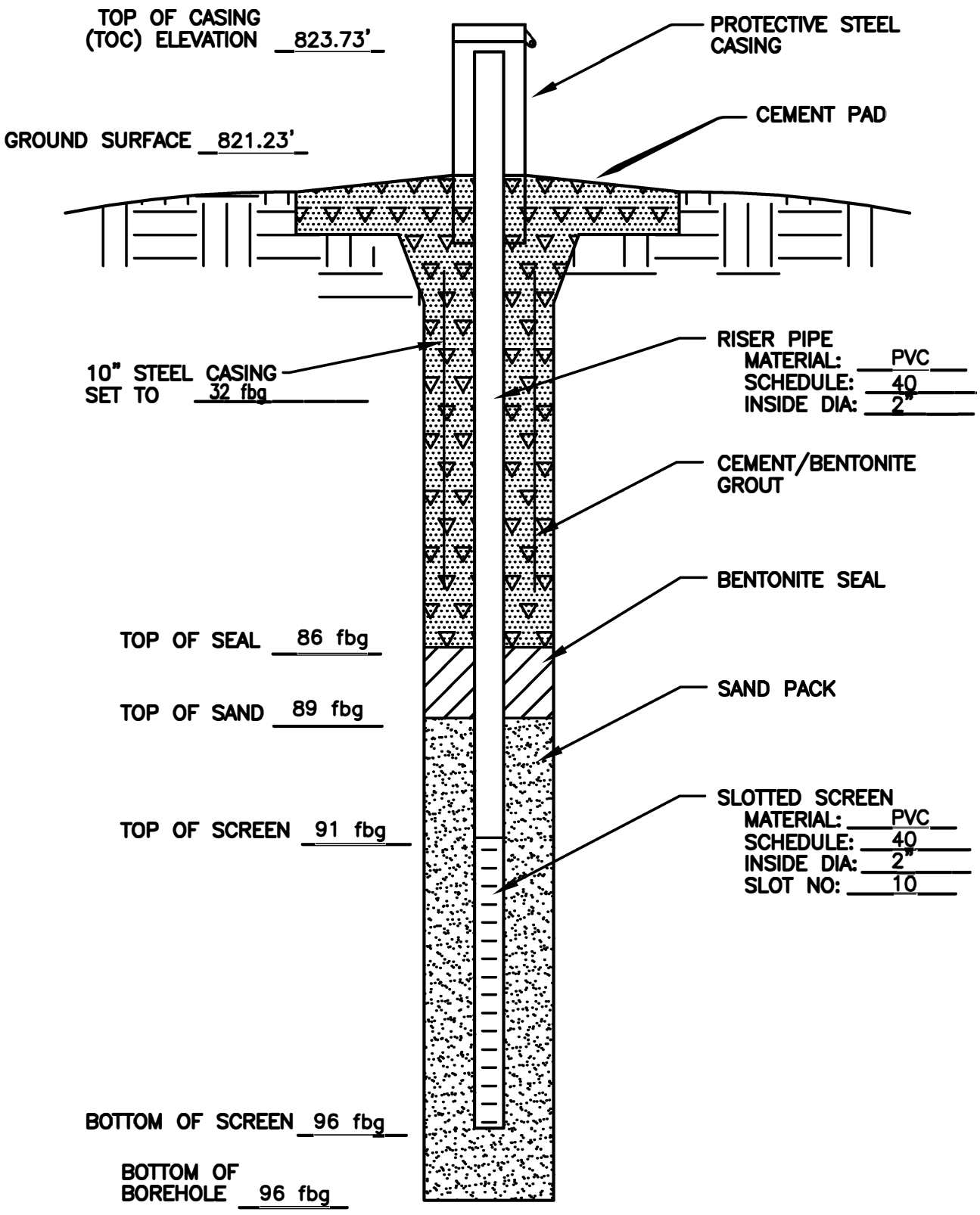
O'BRIEN & GERE ENGINEERS, INC.	SOIL BORING LOG	LOG NUMBER: MW B-22D SHEET 5 OF 5
CLIENT General Motors Corporation PROJECT LOCATION GM Delphi Coldwater Facility Flint, Michigan	GROUND WATER DATE / DEPTH / ELEVATION NA / NA / NA	FILE No.:4144.006 DRILLING METHOD: Hollow stem auger SAMPLER TYPE: 2" Splitpoon HAMMER: 140 lbs. FALL: 30"
O'BRIEN & GERE GEOLOGIST: Anthony J. Finch BORING CO.: Carlo Environmental Technologies FOREMAN: Paul Libby	BORING LOCATION: East side of landfill GROUND ELEVATION: N/A DATES: STARTED: 4/28/95	ENDED: 5/1/95

DEPTH	SAMPLE No.	SAMPLE DEPTH	BLOWS /6"	PENETRATION RECOVERY	"N" VALUE	SAMPLE DESCRIPTION	STRATUM CHANGE	EQUIPMENT INSTALLED	FIELD TESTING SAL. 0/00	FIELD TESTING SP. COND	FIELD TESTING PID	R M K
	45	88'-90'	4	24"/24"	12	Medium grey to dark grey, damp silty CLAY trace of fine to medium gravel						
			5									
			7									
			9									
90	46	90'-92'	5	24"/24"	20							
			8									
			12			Medium grey, wet SILT, some fine to very fine sand	91'					
			13									
	47	92'-94'	2	24"/24"	6	Grades to fine to very fine SAND, some silt	92'					
			3									
			3									
			4									
						E.O.B. @ 94 fbg						

Notes:

1. "NA" denotes information not available.
2. Monitoring well constructed with 10 inch diameter steel casing set to 32 fbg, well constructed of 2 inch diameter, schedule 40 PVC well casing with 5 feet of 0.010 inch slot well screen extending from 91' to 96'.

O'BRIEN & GERE
ENGINEERS INC.



COLDWATER ROAD LANDFILL
FLINT, MICHIGAN
MONITORING WELL B-22D

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O'BRIEN & GERE ENGINEERS, INC

SOIL BORING LOG

BORING I.D.: B-23DR

CLIENT:	REALM
PROJECT NAME:	Replacement Wells
PROJECT LOCATION:	Coldwater Road Landfill
FILE NO.:	4966/34167 #4
BORING COMPANY:	Prosonic Corporation
FOREMAN:	Rodney Parr
OBG GEOLOGIST:	Mike Robison
Boring Location:	S portion of landfill Replacement well is located to the NW of B-23D
Drilling equipment:	ATV Rotosonic Rig
Sampling equipment:	10 ft length 4-inch diam. core barrel
Borehole Diameter:	6-inch override casing for core barrels
Total Depth:	107 ft below grade
Start date:	3/15/2005
Completion date:	3/15/2005
Surface Elevation (ft MSL):	811.31
Top of Casing Elevation (ft MSL):	813.72
Depth to ground water:	86.41' BTOC

LEGEND: / Cement/grout; #0 Sand Pack; Bentonite seal; === Screen; Riser

DEPTH BELOW GRADE	CORE INTERVAL (ft bg)	PENETR/ RECOVERY (ft bg)	SAMPLE DESCRIPTION	STRATUM CHANGE GENERAL DESCRIPT	Equipment Installed	Field Testing: PID Headspace	Notes
0	0-7'	7 ft/full	vegetation with topsoil				
			medium brown, damp, crumbly, silty CLAY with little sand and gravel	6"			
1							
2							
3			medium gray (N5), damp, silty CLAY with little gravel				
4							
5						0.0	
6							
7	7-17'	10 ft/full	medium gray (N5) moist, clayey SILT	7'			
8							
9							
10							
11			medium gray (N5), damp, silty CLAY with little gravel	11'			
12							
13							
14							
15						0.0	
16							
17	17-27'	10 ft/full	medium gray (N5), wet, silty CLAY				
18							
19							
20			medium gray (N5), moist, silty CLAY				
21							
22							
23							
24							
25						0.0	
26							
27	27-37'	10 ft/full	medium gray (N5), moist, silty CLAY with little gravel				
28							
29							
30							
31							
32							
33							
34							
35						0.0	
36							
37	37-47'	10 ft/full	medium gray (N5), damp, silty CLAY with little gravel				
38							
39							

Notes:

1. Rotosonic rig used for drilling; therefore, no blow counts.
2. No soil samples collected for laboratory submittal.
3. Subsequent to soil sampling activities, an above-grade monitoring well was installed using 2-inch PVC riser flush threaded to a 10 ft length of 0.010 inch slot PVC well screen. extending from 97-107 feet below grade.
4. Well is a stickup with protective cover.
5. Ran 7" outer steel override casing to 40 fbg, continued sampling with 6" inner casing.

O'BRIEN & GERE ENGINEERS, INC

SOIL BORING LOG

BORING I.D.: B-23DR

CLIENT:	REALM
PROJECT NAME:	Replacement Wells
PROJECT LOCATION:	Coldwater Road Landfill
FILE NO.:	4966/34167 #4
BORING COMPANY:	Prosonic Corporation
FOREMAN:	Rodney Parr
OBG GEOLOGIST:	Mike Robison
Boring Location:	S portion of landfill Replacement well is located to the NW of B-23D
Drilling equipment:	ATV Rotosonic Rig
Sampling equipment:	10 ft length 4-inch diam. core barrel
Borehole Diameter:	6-inch override casing for core barrels
Total Depth:	44 ft below grade
Start date:	3/15/2005
Completion date:	3/15/2005
Surface Elevation (ft MSL):	811.31
Top of Casing Elevation (ft MSL):	813.72
Depth to ground water:	86.41' BTOC

LEGEND: / Cement/grout; === Screen; #0 Sand Pack; Riser; Bentonite seal

DEPTH BELOW GRADE	CORE INTERVAL (ft bg)	PENETR/ RECOVERY (ft bg)	SAMPLE DESCRIPTION	STRATUM CHANGE GENERAL DESCRIPT	Equipment Installed	Field Testing: PID Headspace	Field Testing: Notes
40					/ /		
					/ /		
41					/ /		
					/ /		
42					/ /		
					/ /		
43					/ /		
					/ /		
44					/ /		
					/ /		
45					/ /	0.0	
					/ /		
46					/ /		
					/ /		
47	47-57'	10 ft/full	medium gray (N5), damp, silty CLAY with 4" gravel		/ /		
					/ /		
48					/ /		
					/ /		
49					/ /		
					/ /		
50					/ /		
					/ /		
51					/ /		
					/ /		
52					/ /		
					/ /		
53					/ /		
					/ /		
54					/ /		
					/ /		
55					/ /	0.0	
					/ /		
56					/ /		
					/ /		
57	57-67'	10 ft/full	medium gray (N5), damp, silty CLAY with 1/4" gravel		/ /		
					/ /		
58					/ /		
					/ /		
59					/ /		
					/ /		
60					/ /		
					/ /		
61					/ /		
					/ /		
62					/ /		
					/ /		
63					/ /		
					/ /		
64					/ /		
					/ /		
65					/ /	0.0	
					/ /		
66					/ /		
					/ /		
67	67-77'	10 ft/full			/ /		
					/ /		
68					/ /		
					/ /		
69					/ /		
					/ /		
70					/ /		
					/ /		
71					/ /		
					/ /		
72					/ /		
					/ /		
73					/ /		
					/ /		
74					/ /		
					/ /		
75					/ /	0.0	
					/ /		
76					/ /		
					/ /		
77	77-87'	10 ft/full			/ /		
					/ /		
78					/ /		
					/ /		
79					/ /		
					/ /		

Notes:

1. Rotosonic rig used for drilling; therefore, no blow counts.
2. No soil samples collected for laboratory submittal.
3. Subsequent to soil sampling activities, an above-grade monitoring well was installed using 2-inch PVC riser flush threaded to a 10 ft length of 0.010 inch slot PVC well screen extending from 97-107 feet below grade.
4. Well is a stickup with protective cover.
5. Ran 7" outer steel override casing to 40 fbg, continued sampling with 6" inner casing.

O'BRIEN & GERE ENGINEERS, INC

SOIL BORING LOG

BORING I.D.: B-23DR

CLIENT:	**REALM**
PROJECT NAME:	**Replacement Wells**
PROJECT LOCATION:	**Coldwater Road Landfill**
FILE NO.:	**4966/34167 #4**
BORING COMPANY:	**Prosonic Corporation**
FOREMAN:	**Rodney Parr**
OBG GEOLOGIST:	**Mike Robison**
Boring Location:	S portion of landfill Replacement well is located to the NW of B-23D
Drilling equipment:	ATV Rotosonic Rig
Sampling equipment:	10 ft length 4-inch diam. core barrel
Borehole Diameter:	6-inch override casing for core barrels (See Note #5 below)
Total Depth:	44 ft below grade
Start date:	3/15/2005
Completion date:	3/15/2005

Surface Elevation (ft MSL): 811.31

Top of Casing Elevation (ft MSL): 813.72

Depth to ground water: 86.41' BTOC

LEGEND: / Cement/grout; #0 Sand Pack; Bentonite seal; === Screen; Riser

DEPTH BELOW GRADE	CORE INTERVAL (ft bg)	PENETR/ RECOVERY (ft bg)	SAMPLE DESCRIPTION	STRATUM CHANGE GENERAL DESCRIPT	Equipment Installed	Field Testing: PID Headspace	Field Testing: Notes
80			medium gray (N5), wet, very fine SAND	80'	/		
81					/		
82					/		
83			medium gray (N5), wet, SILT	83'	/		
84					/		
85			medium gray (N5), moist, silty CLAY	85'	/	0.0	
86					/		
87	87-97'	10 ft/full	medium gray (N5), wet, soft silty CLAY		/		
88					/		
89					/		
90					/		
91							
92							
93							
94							
95							
96							
97	97-107'	10 ft/full			===		
98					===		
99					===		
100			medium gray (N5), wet, fine to coarse SAND	100'	===		
101					===		
102					===		
103					===		
104			medium gray (N5), wet, soft silty CLAY	104'	===		
105					===		
106					===		
107			END OF BORING @ 107 FBG				
108							
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							

Notes:

1. Rotosonic rig used for drilling; therefore, no blow counts.
2. No soil samples collected for laboratory submittal.
3. Subsequent to soil sampling activities, an above-grade monitoring well was installed using 2-inch PVC riser flush threaded to a 10 ft length of 0.010 inch slot PVC well screen extending from 97-107 feet below grade.
4. Well is a stickup with protective cover.
5. Ran 7" outer steel override casing to 40 fbg, continued sampling with 6" inner casing.

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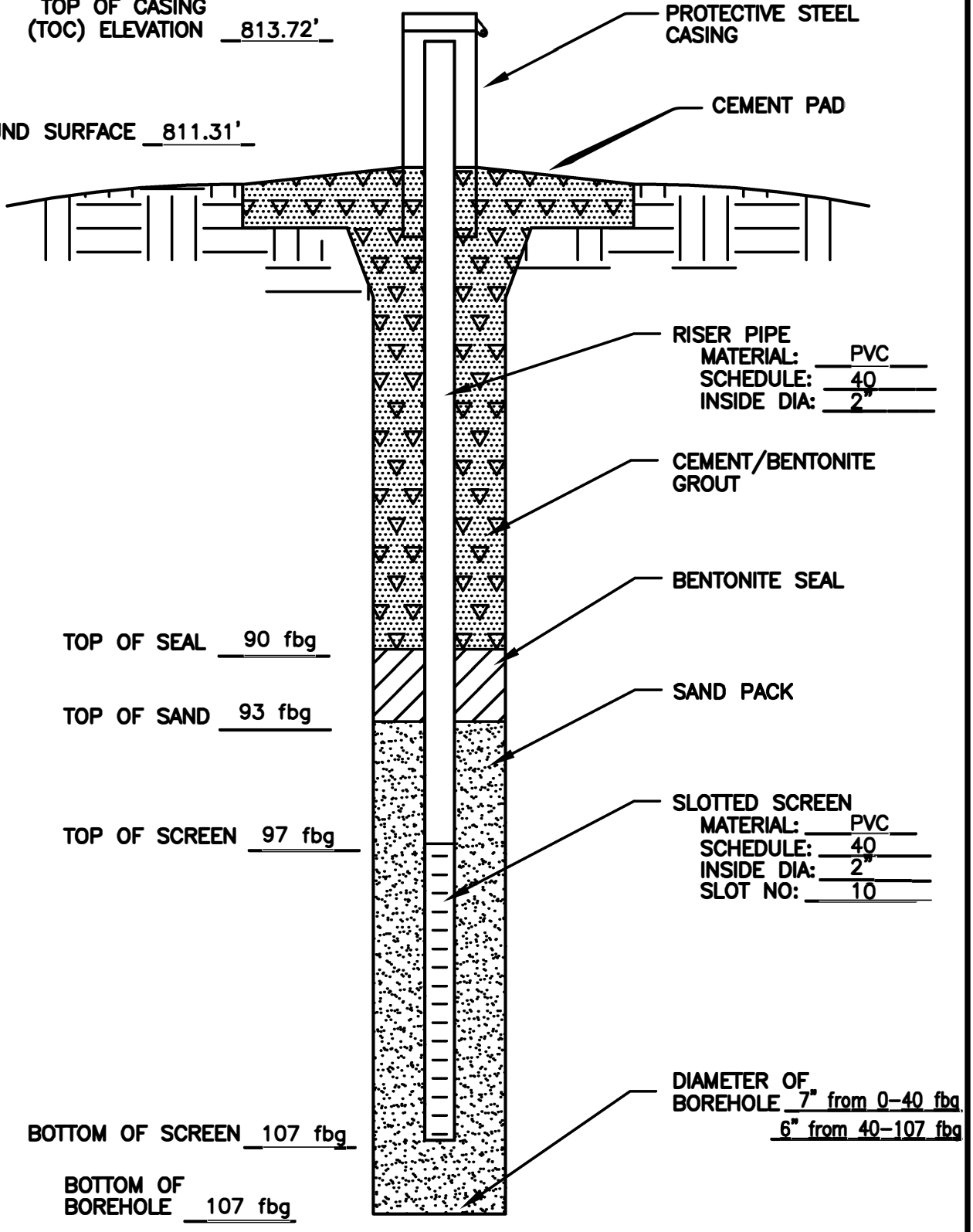
ENGINEERS INC.



COLDWATER ROAD LANDFILL
FLINT, MICHIGAN
MONITORING WELL B-23DR

i\projects\4966\34167\dwg\B23DR.dwg

DRAFT

O'BRIEN & GERE ENGINEERS, INC.

SOIL BORING LOG

BORING I.D.: B-24R

CLIENT:	REALM
PROJECT NAME:	Replacement Wells
PROJECT LOCATION:	Coldwater Road Landfill
FILE NO.:	4966/34167 #4
BORING COMPANY:	Prosonic Corporation
FOREMAN:	Rodney Parr
OBG GEOLOGIST:	Mike Robison
Boring Location:	NE portion of landfill Replacement well is located to the N of B-24
Drilling equipment:	ATV Rotosonic Rig
Sampling equipment:	10 ft length 4-inch diam. core barrel
Borehole Diameter:	6-inch override casing for core barrels
Total Depth:	47 ft below grade
Start date:	3/15/2005
Completion date:	3/15/2005

Surface Elevation (ft MSL):
Top of Casing Elevation (ft MSL):
Northing:
Easting:
Depth to ground water: 11.85' BTOC

LEGEND: Cement/grout, #0 Sand Pack, Bentonite seal, Screen, Riser

DEPTH BELOW GRADE	CORE INTERVAL (ft bg)	PENETR/ RECOVERY (ft bg)	SAMPLE DESCRIPTION	STRATUM CHANGE GENERAL DESCRIPT	Equipment Installed	Field Testing: PID Headspace	Field Testing: Notes
0	0-7'	7 ft/full	vegetation with topsoil				
1			mod. yellowish brown (10YR 5/4) damp, silty CLAY	6"			
2							
3							
4							
5						0.0	
6			mod. yellowish brown (10YR 5/4), moist, very fine SAND to SILT	6'			
7	7-17'	10 ft/full					
8			medium gray (N5), moist, clayey SILT				
9							
10			medium gray (N6), moist, clayey SILT with little sand				
11							
12			medium gray (N5), wet, fine to medium SAND with little silt and clay	12'			
13							
14			medium gray (N5), moist, silty CLAY with 1/4" gravel and little sand	14'			
15						0.0	
16							
17	17-27'	10 ft/full	medium gray (N5), wet, fine to coarse SAND with 5" cobbles and trace clay	17'			
18							
19							
20			medium gray (N5), moist, silty CLAY, 5" cobbles and little 2" gravel	20'			
21							
22							
23							
24							
25							
26							
27	27-37'	10 ft/full	medium gray (N5), wet, SILT with little clay	27'			
28							
29							
30							
31							
32							
33							
34			medium gray (N5), moist, silty CLAY with little 1/4" gravel	34'			
35							
36							
37	37-47'	10 ft/full					
38							
39							

Notes:
1. Rotosonic rig used for drilling; therefore, no blow counts.
2. No soil samples collected for laboratory submittal.
3. Subsequent to soil sampling activities, an above-grade monitoring well was installed using 2-inch PVC riser flush threaded to a 10 ft length of 0.010 inch slot PVC well screen extending from 17-27 feet below grade.
4. Well is a stickup with protective cover.

O'BRIEN & GERE ENGINEERS, INC.

SOIL BORING LOG

DRAFT

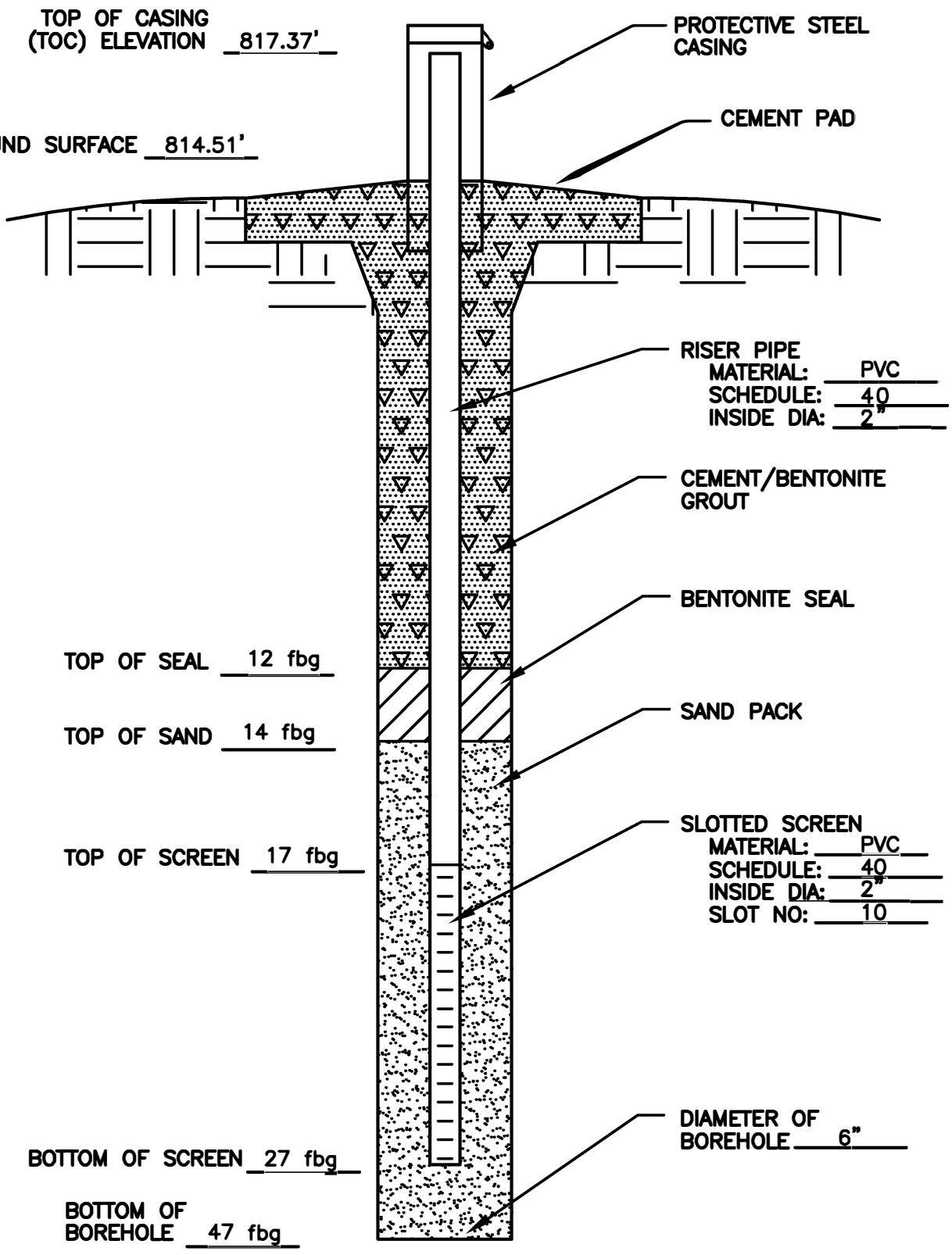
BORING I.D.: B-24R

CLIENT:	REALM
PROJECT NAME:	Replacement Wells
PROJECT LOCATION:	Coldwater Road Landfill
FILE NO.:	4966/34167 #4
BORING COMPANY:	Prosonic Corporation
FOREMAN:	Rodney Parr
OBG GEOLOGIST:	Mike Robison
Boring Location:	NE portion of landfill Replacement well is located to the N of B-24
Drilling equipment:	ATV Rotosonic Rig
Sampling equipment:	10 ft length 4-inch diam. core barrel
Borehole Diameter:	6-inch override casing for core barrels
Total Depth:	47 ft below grade
Start date:	3/15/2005
Completion date:	3/15/2005
Surface Elevation (ft MSL):	
Top of Casing Elevation (ft MSL):	
Northing:	
Easting:	
Depth to ground water:	11.65' BTOC
LEGEND:	Cement/grout, Screen, #0 Sand Pack, Riser, Bentonite seal

DEPTH BELOW GRADE	CORE INTERVAL (ft bg)	PENETR/ RECOVERY (ft bg)	SAMPLE DESCRIPTION	STRATUM CHANGE GENERAL DESCRIPT	Equipment Installed	Field Testing: PID Headspace	Field Testing: Notes
40			medium gray (N5), damp, stiff, CLAY with little 1/4" gravel				
41							
42							
43							
44							
45							
46							
47			END OF BORING @ 47 FBG				
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							
64							
65							
66							
67							
68							
69							
70							
71							
72							
73							
74							
75							
76							
77							
78							
79							

Notes:
1. Rotosonic rig used for drilling; therefore, no blow counts.
2. No soil samples collected for laboratory submittal.
3. Subsequent to soil sampling activities, an above-grade monitoring well was installed using 2-inch PVC riser flush threaded to a 10 ft length of 0.010 inch slot PVC well screen extending from 17-27 feet below grade.
4. Well is a stickup with protective cover.

O'BRIEN & GERE
ENGINEERS INC.



COLDWATER ROAD LANDFILL
FLINT, MICHIGAN
MONITORING WELL B-24R

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O'BRIEN & GERE ENGINEERS, INC.

SOIL BORING LOG

BORING I.D.: B-27D

CLIENT:	**REALM**
PROJECT NAME:	**Zinc Assessment**
PROJECT LOCATION:	**Coldwater Road Landfill**
FILE NO.:	**4966/36295 #4**
BORING COMPANY:	**Mateco**
FOREMAN:	**John Pitsch**
OBG GEOLOGIST:	**Mike Robison**
Boring Location:	South side of landfill, approximately 10 ft east of B-23DR
Drilling equipment:	CME-750 (ATV rig)
Sampling equipment:	2 ft length stainless steel split barrel
Borehole Diameter:	14 inches (grade to 36 fbg); 8 inches (36 to 88 fbg)
Total Depth:	88 fbg
Start date:	11/9/2005
Completion date:	11/14/2005

Surface Elevation (ft MSL):
Top of Casing Elevation (ft MSL):
Depth to ground water: 80.5 fbg (11/16/05)

LEGEND: / Cement/grout; #0 Sand Pack; Bentonite seal; === Screen; Riser

DEPTH BELOW GRADE	CORE INTERVAL (ft bg)	PENETR/ RECOVERY (ft bg)	Blow Counts	SAMPLE DESCRIPTION	STRATUM CHANGE GENERAL DESCRIPT	Equipment Installed	Field Testing: PID Headspace	Field Testing: Notes
24				Augered from surface to 26 fbg (no split barrels collected). Refer to boring log B-23DR for soil descriptions from surface to 26 fbg.				
25								
26	26 - 28	Full	2	medium gray (N5), moist, silty CLAY	26' CL			
			4					
27			4					
			6	medium gray (N5), wet, clayey SILT	27.5' ML			
28	28 - 30	Full	3				0.0	
			4	medium gray (N5), moist, silty CLAY	28.5' CL			
29			6					
			7					
30	30 - 32	Full	3	medium gray (N5), moist, silty CLAY, medium plasticity	30'			
			5					
31			6					
			9					
32	32 - 34	Full	4	medium gray (N5), moist, silty CLAY, trace small gravel	32'		0.0	
			5					
33			6					
			9					
34	34 - 36	Full	3					
			4					
35			6					
			9					
36								
37								
38								
39								
40								
41								
42								
43								
44								
45								
46	46 - 48	Full	4	medium gray (N5), damp, silty CLAY, medium plasticity, trace gravel	46'		0.0	
			6					
47			6					
			9					
48								
49								
50								
51								
52								
53	53-55	Full	5	medium gray (N5), damp, silty CLAY, medium plasticity, trace gravel	53'		0.0	
			7					
54			8					
			9					
55								
56								
57								
58								
59								
60	60 - 62	Full	5	medium gray (N5), damp, silty CLAY, medium plasticity, trace gravel	60'		0.0	
			6					
61			6					
			10					
62								
63								
64								
65								
66								
67	67-69	Full	5	medium gray (N5), damp, silty CLAY, medium plasticity, trace gravel	67'		0.0	
			6					
68			10					
			11					
69								

O'BRIEN & GERE ENGINEERS, INC.

SOIL BORING LOG

BORING I.D.: B-27D

CLIENT:	**REALM**
PROJECT NAME:	**Zinc Assessment**
PROJECT LOCATION:	**Coldwater Road Landfill**
FILE NO.:	**4966/36295 #4**
BORING COMPANY:	**Mateco**
FOREMAN:	**John Pitsch**
OBG GEOLOGIST:	**Mike Robison**
Boring Location:	South side of landfill, approximately 10 ft east of B-23DR
Drilling equipment:	CME-750 (ATV rig)
Sampling equipment:	2 ft length stainless steel split barrel
Borehole Diameter:	14 inches (grade to 36 fbg); 8 inches (36 to 88 fbg)
Total Depth:	88 fbg
Start date:	11/9/2005
Completion date:	11/14/2005

Surface Elevation (ft MSL):
Top of Casing Elevation (ft MSL):
Depth to ground water: 80.5 fbg (11/16/05)

LEGEND: / Cement/grout; === Screen; #0 Sand Pack; Riser; Bentonite seal

DEPTH BELOW GRADE	CORE INTERVAL (ft bg)	PENETR/ RECOVERY (ft bg)	Blow Counts	SAMPLE DESCRIPTION	STRATUM CHANGE GENERAL DESCRIPT	Equipment Installed	Field Testing: PID Headspace	Field Testing: Notes
70						/		
						/		
71						/		
						/		
72	72 - 74	Full	4	medium gray (N5), damp, silty CLAY, medium plasticity, trace gravel	72'		0.0	
			7					
73			9					
			11					
74	74-76	Full	7	medium gray (N5), damp, silty CLAY, medium plasticity, trace gravel	74'		0.0	
			9					
75			12					
			15					
76	76-78	Full	5	medium gray (N5), damp, silty CLAY, medium plasticity, trace gravel	76'		0.0	
			8					
77			13			===		
			16			===		
78	78-80	Full	8	medium gray (N5), damp, silty CLAY, medium plasticity, trace gravel	78'	===		
			10			===		
79			12			===		
			18	medium gray (N5), wet, SILT	79.5' OL	===		
80	80-82	Full	10			===		
			12			===		
81			15			===		
			18			===		
82	82-84	Full	7	medium gray (N5), wet very fine SAND and SILT	82'	===		
			3			===		
83			7			===		
			14			===		
84	84-86	Full	7	medium gray (N5),grey,wet, SILT	84' OL	===		
			11	medium gray (N5), soft, silty CLAY	84.5' CL	===		
85			11	medium gray (N5), wet, SILT	85' OL	===		
			14			===		
86	86-88	Full	5	medium gray (N5), moist, silty CLAY	86' CL	===		
			4			===		
87			5			===		
			7					

Notes:

1. Soil boring augered to 26'; began collecting splitspoons (4.25" augers) at 26 fbg.
2. At 36 fbg, pulled 4.25' augers and advanced 12.25" augers (grade to 36 fbg) to install 10-inch diameter steel casing in borehole. Used tremie-pipe to fill annulus between steel casing and borehole with cement.
3. Subsequent to soil sampling activities, a monitoring well was constructed of 2 inch diameter Schedule 40 PVC flush-threaded to a 10 ft length of No. 10 slot PVC well screen extending from 77 to 87 fbg.
4. Monitoring well B-27 was completed with an approximate 2.5 ft above-grade casing, covered with a steel-protective outer casing.

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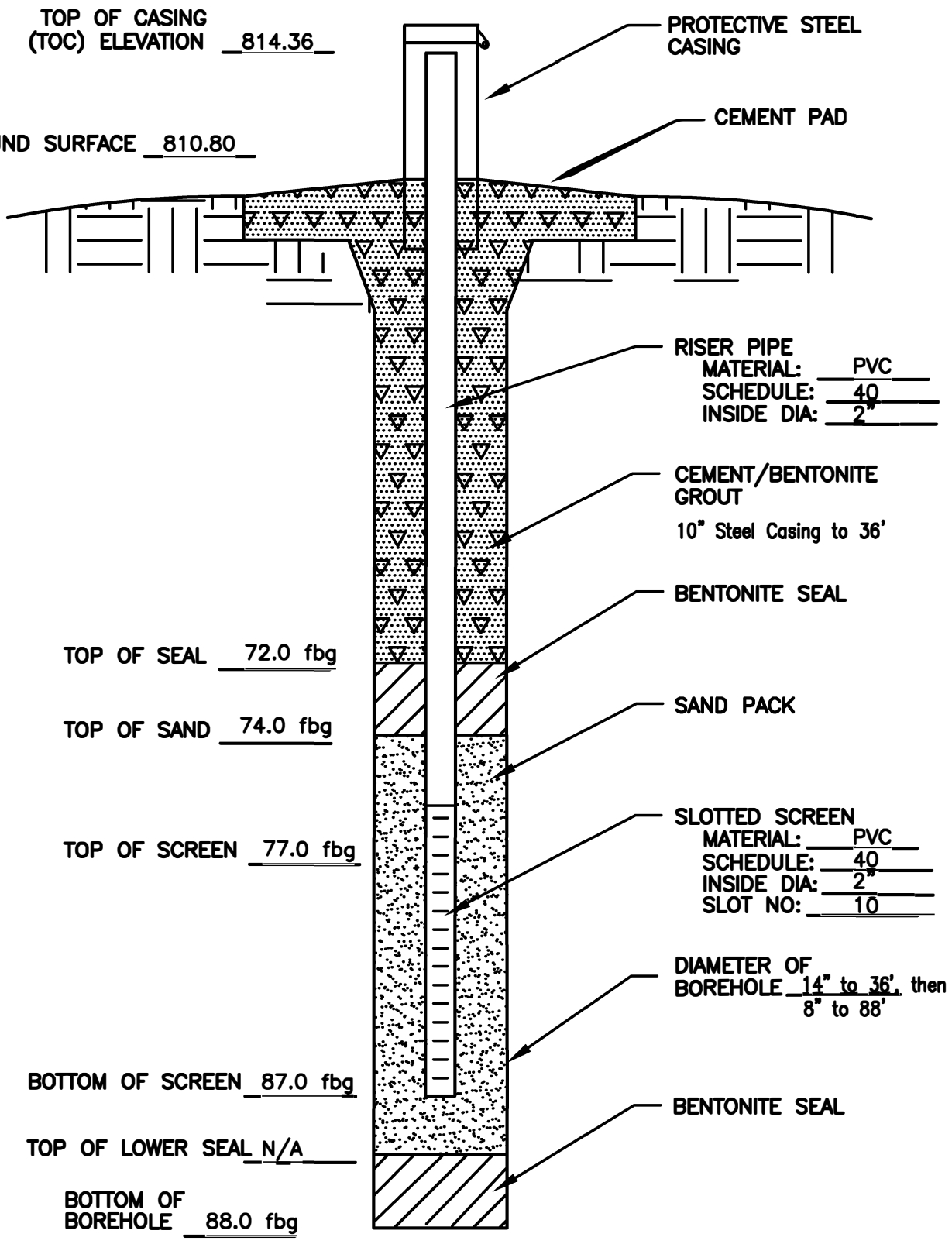

COLDWATER ROAD LANDFILL
FLINT, MICHIGAN
MONITORING WELL B-27D

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O'BRIEN & GERE ENGINEERS, INC

SOIL BORING LOG

BORING I.D.: B-28

PAGE 1 **OF** 1

CLIENT:	REALM
PROJECT NAME:	Zinc Assessment
PROJECT LOCATION:	Coldwater Road Landfill
FILE NO.:	4966/36295 #4
BORING COMPANY:	Mateco
FOREMAN:	John Pitsch
OBG GEOLOGIST:	Mike Robison
Boring Location:	South side of landfill, approx. 35 ft north of B-14
Drilling equipment:	CME-750 (ATV rig)
Sampling equipment:	2 ft length stainless steel split barrel
Borehole Diameter:	8 inches
Total Depth:	40 fbg
Start date:	11/9/2005
Completion date:	11/10/2005
Surface Elevation (ft MSL):	
Top of Casing Elevation (ft MSL):	
Depth to ground water:	

LEGEND: / Cement/grout; #0 Sand Pack; Bentonite seal; === Screen; Riser

DEPTH BELOW GRADE	CORE INTERVAL (ft bg)	PENETR/ RECOVERY (ft bg)	Blow Counts	SAMPLE DESCRIPTION	STRATUM CHANGE GENERAL DESCRIPT	Equipment Installed	Field Testing PID Headspace	Notes
0	0 - 2	Full	3	moderate yellowish brown 10YR 5/4, damp, crumbly, silty CLAY, roots	CL	/		
			5			/		
1			6			/		
			7			/		
2	2 - 4	Full	5			/		
			7			/		
3			9			/		
			10			/		
4	4 - 6	Full	7	moderate yellowish brown 10YR 5/4, w/ grey mottling, damp, stiff silty CLAY, little gravel	4'	/	0.0	
			12			/		
5			13			/		
			17	moderate yellowish brown 10YR 5/4, dry fine SAND	5.5' SP	/		
6	6 - 8	Full	3	medium gray (N5), moist, silty CLAY, medium plasticity, trace gravel	6' CL	/		
			5			/		
7			3			/		
			3			/		
8	8 - 10	Full	4	same as above, soft CLAY	8'	/	0.0	
			3			/		
9			5			/		
			6			/		
10	10 - 12	Full	4	medium gray (N5), wet hydrated silty CLAY, trace gravel	10'	/		
			4			/		
11			6			/		
			8			/		
12	12 - 14	Full	4	same as above, moist	12'	/	0.0	
			6			/		
13			8			/		
			11			/		
14	14 - 16	Full	3			/		
			5			/		
15			5			/		
			10	medium gray (N5), wet hydrated silty CLAY, trace gravel and fine sand	15.5'			
16	16 - 18	Full	4	medium gray (N5), wet, SILT	16' ML		0.0	
			6					
17			8					
			8					
18	18 - 20	Full	4					
			7					
19			8			===		
			8			===		
20	20 - 22	Full	3	medium gray (N5), wet, very fine SAND	20' SP	===	0.0	
			5			===		
21			9			===		
			11	medium gray (N5), wet, SILT	21.5' ML	===		
22	22 - 24	Full	9			===		
			9			===		
23			7			===		
			7	medium gray (N5), damp, silty CLAY, trace gravel	23.5' CL	===		
24	24 - 26	Full	4			===	0.0	
			5			===		
25			7			===		
			11			===		
26	26 - 28	Full	3			===		
			5			===		
27			8	medium gray (N5), moist, silty CLAY with little gravel		===		
			11			===		
28	28 - 30	Full	6			===	0.0	
			7			===		
29			10					
			13					
30	30 - 32	Full	6					
			7					
31			10					
			11					
32	32 - 34	Full	7				0.0	
			9					
33			9					
			12					
34	34 -36	Full	8					
			10					
35			10					
			12					
36	36 - 38	Full	2				0.0	
			4					
37			6	medium gray (N5), damp, silty CLAY with little gravel				
			9					
38	38 - 40	Full	4					
			6					
39			8					
			12				0.0	

Notes: Monitoring well B-28 has an approximate 2.5 ft stick up.

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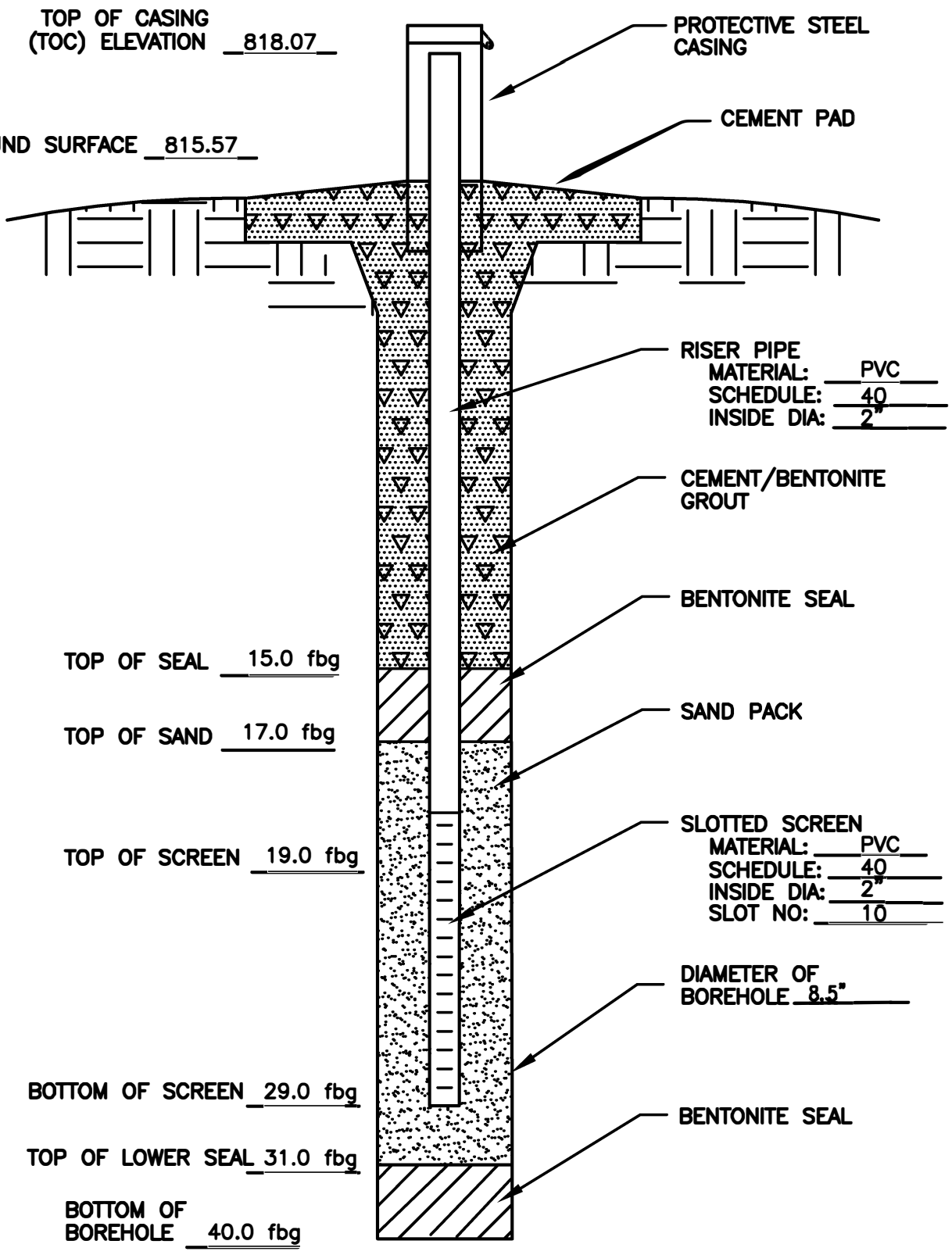

COLDWATER ROAD LANDFILL
FLINT, MICHIGAN
MONITORING WELL B-28

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O'BRIEN & GERE

BORING LOG

OBG_MW-16D

BORING NO. SB-HPT-02

PROJECT:	Coldwater Road Landfill
CLIENT:	RACER Trust
INSPECTOR:	KevinSchneider
DRILLING CONTRACTOR:	
DRILLER:	
PURPOSE:	
DRILLING METHOD:	
DRILL RIG TYPE:	Sonic Rig

	SAMPLE	CORE	CASING
TYPE	---	---	---
DIA.	---	---	---

SHEET 1 OF 4

JOB NO. 48545

GROUND ELEV.

DATUM

DATE STARTED 9/11/2018

DATE FINISHED 9/12/2018

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	REMARKS
				Topsoil 0.2		CL-ML		
				Moist, very soft, brown, silty CLAY, trace gravel, medium plasticity 1.0				
2				Moist, dense, light brown, silty SAND, some gravel		SM		
4				4.0				
				Dry, loose, yellowish brown, very fine SAND, little silt		SP		
6								
8								
10				10.0				
				Moist, dense, light gray, clayey SILT, little sand 11.0		ML		
				Moist, loose, yellowish brown, fine SAND 12.0		SP		
				Moist, loose, light gray, silty CLAY, non-plastic 13.0		CL-ML		
14				Moist, loose, light gray, silty SAND Saturated		SM		
16								
18								
20				Same as above 21.0				
				Moist, medium dense, gray, silty CLAY, some sand, trace gravel, non-plastic		CL-ML		
22								
24								

Notes:

(Continued Next Page)

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

BORING LOG

OBG_MW-16D

BORING NO. SB-HPT-02

PROJECT: Coldwater Road Landfill
CLIENT: RACER Trust
INSPECTOR: KevinSchneider

SHEET 2 OF 4

JOB NO. 48545

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	REMARKS
26				Moist, medium dense, gray, silty CLAY, some sand, trace gravel, non-plastic *(continued)*		CL-ML		
				27.0				
28				Moist, loose, gray, silty SAND, trace gravel		SM		
30				Same as above				
				31.0				
32				Moist, loose, gray, medium SAND		SP		
34								
				35.5				
36				Moist, soft, gray, clayey SILT, non-plastic		ML		
				37.0				
38				Moist, stiff, gray, CLAY, trace coarse gravel, medium plasticity		CL		
40				Same as above				
42								
44								
46								
48								
50				Same as above				
				51.5				
52				Moist, soft, gray, silty CLAY, low plasticity		CL-ML		
54								
56								

(Continued Next Page)

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

BORING LOG

OBG_MW-16D

BORING NO. SB-HPT-02

PROJECT: Coldwater Road Landfill
CLIENT: RACER Trust
INSPECTOR: KevinSchneider

SHEET 3 OF 4

JOB NO. 48545

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	REMARKS
				Moist, soft, gray, silty CLAY, low plasticity *(continued)*				
				57.0				
58				Moist, very stiff, gray, CLAY, trace silt and gravel, non-plastic		CL		
60				60.0				
				Moist, very loose, gray, medium to fine SAND				
62								
64						SP		
66								
68								
70				Same as above				
72								
				73.5				
74				Moist to wet, medium dense, gray, very fine SAND, some silt				
76								
78								
				80.0				
80				Moist, medium dense, gray, fine silty SAND				
82						SM		
84				Same as above				
				85.5				
86				Moist to wet, medium dense, gray, silty CLAY, non-plastic		CL-ML		
				87.0				
				Moist, medium dense, gray, CLAY, low plasticity		CL		

(Continued Next Page)

O'BRIEN & GERE

BORING LOG

OBG_MW-16D

BORING NO. SB-HPT-02

PROJECT: Coldwater Road Landfill
CLIENT: RACER Trust
INSPECTOR: KevinSchneider

SHEET 4 OF 4

JOB NO. 48545

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change		REMARKS
88				Moist, medium dense, gray, CLAY, low plasticity *(continued)*		CL			
90				90.0 End of Borehole at 90.0'.					
92									
94									
96									
98									
100									
102									
104									
106									
108									
110									
112									
114									
116									
118									

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

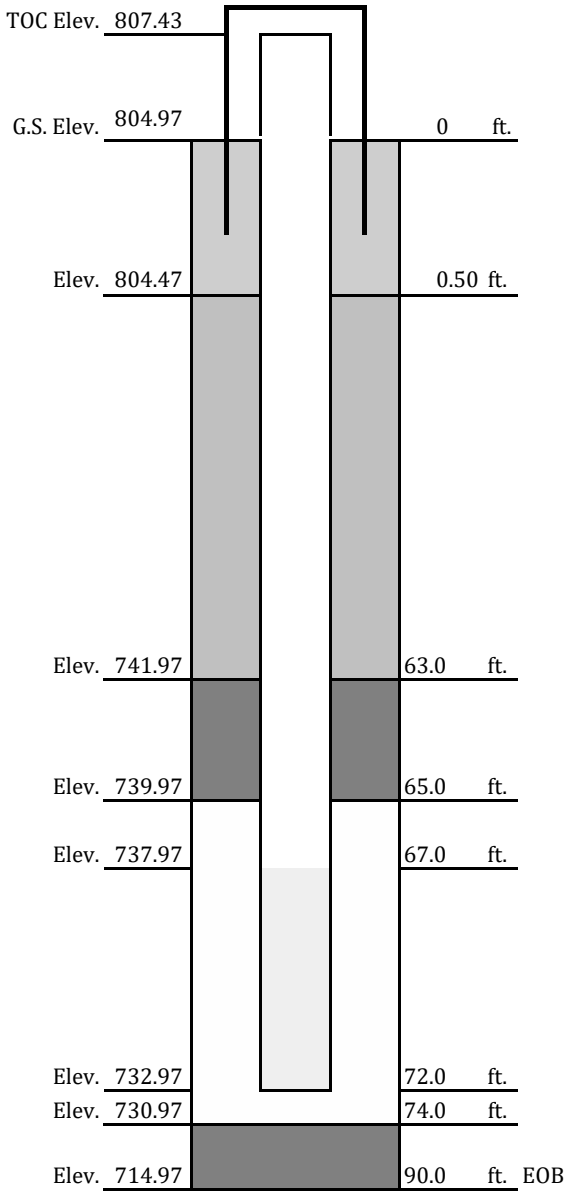
WELL CONSTRUCTION LOG

Well ID: OBG MW-16D

Project: Coldwater Rd Landfill
Location: Flint, MI
Project No.: 68545

Client: RACER Trust
Date Installed: 09/18/18

STICK-UP WELL DETAIL



Inspection Notes:

Inspector: Kyle Schaefer
Drilling Contractor: Stock Drilling
Type of Well: Environmental Monitoring Well

Drilling Method:
Type: Rotosonic
Casing: Stainless Steel Diameter: 6 inch

Protective Casing:
Type: Steel Stick-Up Diameter:

Surface Seal:
Type: Cement Interval: 0 - 0.5 fbg

Isolation Casing:
Casing: Stainless Steel Diameter: 8 inch
Interval: 0 fbg - 40 fbg

Riser Pipe:
Material: Sch. 40 PVC Diameter: 2" ID
Interval: 0 fbg - 67 fbg

Grout
Type: Bentonite Slurry Interval: 0.5 fbg - 63 fbg

Bentonite Seal:
Type: Bentonite Chips Interval: 63 fbg - 65 fbg

Sand Pack:
Type: Silica Sand Interval: 65 fbg - 74 fbg

Screen Material:
Material: Sch. 40 PVC Diameter: 2" ID
Interval: 67 fbg - 72 fbg Slot Size: 0.010

Material Below Sand Pack:
Type: Bentonite Chips Interval: 74 fbg - 90 EOB

Notes:
1. Steel protective casing has cement collar.
2. "NA" indicates not applicable.
3. "fbg" indicates feet below grade.

O'BRIEN & GERE

APPENDIX C
GROUNDWATER SAMPLING LOG

RAMBOLL

Standard Groundwater Sampling Log

Date
Site Name: RACER Coldwater Rd
Location: Flint, MI
Project No.: 1940107203
Personnel

Weather
Well #
Evacuation Method
Sampling Method

Well Information:

Depth of Well * ft.
Depth to Water * ft.
Length of Water Column ft.
Volume of Water in Well gal.(s)
3X Volume of Water in Well gal.(s)

Water Volume /ft. for:	
X	2" Diameter Well = 0.163 X LWC
	4" Diameter Well = 0.653 X LWC
	6" Diameter Well = 1.469 X LWC

Volume removed before sampling gal.(s)
Did well go dry?

* Measurements taken from [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration:

	Calibrated within range
pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

	Drawdown measured (0.3 feet or less)	Temperature Celsius (±3 percent)	Conductivity mS/cm (±3 percent)	Dissolved Oxygen mg/L (±10 percent)	pH (±0.1 pH units)	ORP mV (±10 millivolts)	Turbidity NTUs (±10 percent)
initial							
5 min							
10 min							
15 min							
20 min							
25 min							
30 min							
35 min							
40 min							
45 min							
50 min							
55 min							
60 min							
65 min							
70 min							
75 min							
80 min							
85 min							
90 min							

Water Sample:

Time Collected

Physical Appearance at Start		Physical Appearance at Sampling	
Color		Color	
Odor		Odor	
Turbidity (> 100 NTU)		Turbidity (> 100 NTU)	
Sheen/Free Product		Sheen/Free Product	

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
Semi-Annual Sampling Events Only				
VOCs	2	40 ml Glass	HCL	
Dissolved Metals - Fe, Mn, Na	1	125 ml Plastic	HNO_3	yes
Cyanide	1	125 ml Plastic	NAOH	
Phenols	1	125 ml Plastic	H_2SO_4	
Sulfate, Chlorides, SpC	1	500 ml Plasitc	None	
Semi-Annual and Annual Sampling Events				
Dissolved Metals - Cu, Cr, Ni, Zn	1	125 ml Plastic	HNO_3	yes
TOC	2	40 ml Glass	H_2SO_4	
TOX	1	125 ml Plastic	H_2SO_4	
SpC	1	250 ml Plasitc	None	

Notes:

APPENDIX D
CHAIN-OF-CUSTODY DOCUMENT

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

78888

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME

COMPANY

ADDRESS

CITY | STATE | ZIP CODE

PHONE NO. | FAX NO. | P.O. NO.

E-MAIL ADDRESS | QUOTE NO.

INVOICE TO

CONTACT NAME ☐ SAME

COMPANY

ADDRESS

CITY | STATE | ZIP CODE

PHONE NO. | E-MAIL ADDRESS

PROJECT NO./NAME | SAMPLER(S) - PLEASE PRINT/SIGN NAME

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☐ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other _____

Special Instructions

MERIT LAB NO. FOR LAB USE ONLY	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☐ Sampler DATE TIME

RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME

RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME

RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL _____

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

APPENDIX E
NOTICE OF APPROVED ENVIRONMENTAL REMEDIATION AND DECLARATION OF RESTRICTIVE COVENANT FORMS

Instr:200506240064431 06/24/2005
P:1 of 11 F:$44.00 12:24PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

NOTICE OF MDEQ-APPROVED ENVIRONMENTAL REMEDIATION

MDEQ Reference No.: NAER-WHMD-111-05-001

This Notice of Approved Environmental Remediation (Notice) has been recorded with the Genesee County Register of Deeds for the purpose of protecting public health, safety and welfare and the environment by describing the land-use category that is consistent with the environmental contamination present at the property located at 6220 Horton Street, Genesee Township, Genesee County and legally described in Exhibit 1 attached hereto ("Property"). The Property is associated with Remediation and Liability Management Company, Inc. (REALM) Coldwater Road Landfill MID 005 356 860 for which a Closure Plan designed to meet 40 CFR Part 264 has been conducted. The Closure Plan and Modifications to the Closure Plan that were implemented to address environmental contamination are fully described in the Closure Plan and Post-Closure Plan dated August 1989, 1992 Corrective Action Consent Order (No. 64-05-92) (hereafter referred to as Consent Order), Final Closure Certification Documentation Package Decontamination Pits and Sump, Chromium Reduction Basins at the WWTP dated September 1998, Subsurface Investigation of Decontamination Pits/Sump and Chromium Reduction Basins Report dated June 1999, Final Closure Certification Drum Storage Area and Waste Pile Pad dated June 1999, Final Closure Certification Documentation- Part I dated November 2000, Final Closure Certification Documentation- Part II dated November 2000, Addendum to the June 1999 Closure Certification Report for the Former Drum Storage Area at the REALM Former Peregrine U.S., Inc. Property at the Coldwater Road facility dated January 2005 (these documents hereafter referred to as Closure Documents) and submitted by William J. McFarland. The Michigan Department of Environmental Quality ("MDEQ") approved the Closure Documents as noted above, pursuant to Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), MCL 324.20101 et seq..

The Closure Documents required the recording of this Notice to restrict exposures to hazardous substances located on the Property and to assure that the use of the Property is consistent with the exposure assumptions utilized in the development of cleanup criteria pursuant to the approved Closure Documents. The restrictions contained in this Notice are based upon information available to the MDEQ at the time the closure documents were approved by the MDEQ. Failure of the response activities to achieve and maintain the criteria, exposure controls, and requirements specified in the Closure Documents; future changes in the environmental condition of the Property or changes in the cleanup criteria developed under the Closure Documents; discovery of environmental conditions at the Property that were not accounted for in the MDEQ-approved Closure Documents; or use of the Property in a manner inconsistent with the restrictions described herein may result in this Notice not being protective of public health, safety, and welfare, and the environment and may necessitate further

Quit Claim Deed Instr# 200507020077696

11/7

evaluation of potential risks to the public health, safety, or welfare, or to the environment.

The *"Limits of Land Use Restrictions,"* attached hereto as Exhibit 2, provides a survey of the Property and additional legal descriptions that distinguishes those portions of the Property that are subject to land use restrictions as specified herein.

Definitions

"MDEQ" means the Michigan Department of Environmental Quality, its successor entities, and those persons or entities acting on its behalf.

"Owner" means at any given time the then current title holder of the Property or any portion thereof.

All other terms used in this document which are defined in Part 3, Definitions, of the NREPA; Part 201 of the NREPA; or the Part 201 Administrative Rules ("Part 201 Rules"), 1990 AACS R 299.5101 et seq., shall have the same meaning in this document as in Parts 3 and 201 of the NREPA and the Part 201 Rules, as of the date of filing of this Restrictive Covenant.

Summary of Response Activities

Hazardous substances including listed wastes F001, F003, F006, D001, D002, D003 and D007 were generated and stored on site from 1953 to 1987. Prior to recording of this Notice, response activities have been undertaken to remove and mitigate potential exposures to these wastes.

A hazardous waste landfill was constructed on-site which contains approximately 530,000 cubic yards of these hazardous wastes. The wastes were solidified using lime kiln dust, cement kiln dust, Portland cement or Class F flyash to support handling and transportation to a pugmill unit for final stabilization/solidification treatment. Soils and sludges were then treated with various reagents to meet land disposal treatment standards. The landfill was constructed in accordance with Michigan Act 64 requirements with an original design capacity of 170,000 cubic yards. Due to additional waste volume found in the closure units the landfill capacity was increased with a final closed volume of 530,000 cubic yards. The landfill is constructed with a liner system which includes a secondary 60 mil HDPE liner and leak detection systems, 5 ft thick clay liner, primary 60 mil HDPE liner and leachate collection system. The landfill cap consists of 60 mil HDPE with 3 ft of clay cover. The clay is overlain with 1.5 ft of granular drainage material and 6 inches of topsoil that was seeded to provide a vegetative cover.

At an area known as the Remaining Materials Area (RMA) substantial material was removed, however concentrations of chromium, copper, nickel and zinc still exceeded the closure standard, therefore, the RMA was closed by placement of a soil cover. The soil cover consisted of a minimum of 6 inches of clean topsoil and grass seed was planted to provide a vegetative cover. An additional 46,000 cubic yards of material was delisted, excavated and disposed in a licensed landfill in Utah.

The landfill and RMA, identified in Exhibit 2, may contain hazardous substances in excess of the concentrations developed as the unrestricted residential criteria under Section 20120a(1)(a) or (17) of the NREPA that have not been addressed through the response activities undertaken pursuant to the MDEQ-approved IRDC. The MDEQ recommends that prospective purchasers or users of the Property undertake appropriate due diligence prior to acquiring or using this

Instr:200506240064431 06/24/2005
P:3 of 11 F:$44.00 12:24PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

Property, and undertake appropriate actions to comply with the requirements of Section 20107a of the NREPA.

The Owner also acknowledges that:

1. Surface and subsurface soils found on the Property must be managed in accordance with the requirements of Section 20120c of NREPA and other applicable state and federal laws.

2. Contaminated groundwater is known to be present on areas of the Property. Cleanup criteria applicable to the Property at the time of filing this Notice did not anticipate any below grade structures at the Property. Prior to construction of any below grade structures which will be occupied (e.g., basements) or connected to an occupied building (e.g., crawl spaces, utility and pipe galleries, equipment sumps, etc.) on the Property, an evaluation of the potential for hazardous substances in the groundwater to volatilize into indoor air should be undertaken to assure the protection of persons who may be present in the buildings and compliance with Section 20107a of the NREPA.

Access

The Owner shall grant to the MDEQ and its designated representatives the right to enter the Property at reasonable times for the purpose of determining and monitoring compliance with the Closure Documents, including the right to take samples, inspect the operation and maintenance of the response activities, and inspect any records relating thereto.

Term and Enforcement of Notice

This Notice shall run with the Property and shall be binding all future owners; successors; lessees; or assigns and their authorized agents, employees, or persons acting under their direction and control. This Notice may only be modified or rescinded with the written approval of the MDEQ.

The State of Michigan, through the MDEQ, Waste and Hazardous Materials Division may enforce the restrictions set forth in this Notice by legal action in a court of competent jurisdiction.

Severability

If any provision of this Notice is held to be invalid by any court of competent jurisdiction, the invalidity of such provision shall not affect the validity of any other provisions hereof, and all such other provisions shall continue unimpaired and in full force and effect.

Authority to Execute Notice

The undersigned person executing this Notice is the Owner, or has the express written permission of the Owner, and represents and certifies that he or she is duly authorized and has been empowered to execute and deliver this Notice.

AGREED AND CONSENTED TO BY OWNER:

REALM

By: William J McFarland
Signature

Instr:200506240064431 06/24/2005
P:4 of 11 F:$44.00 12:24PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

Name: William J. McFarland
Type or Print Name

Its: President
Title

Date: 6-17-05

STATE OF MICHIGAN
COUNTY OF Genesee

The foregoing instrument was acknowledged before me this 17 day of June, 200__ by William J. McFarland of REALM , in Pontiac, Michigan, on behalf of the corporation.

Rebecca Lynn Major
Notary Public

REBECCA LYNN NAJOR
Notary Public - Michigan
Macomb County
My Commission Expires
December 09, 2010

IN WITNESS WHEREOF, William J. McFarland has caused this Notice to be executed on this 17 day of June, 2005.

William J. McFarland

By: William J McFarland
Signature

Name: William J. McFarland
Type or print name

Its: President
Title

Date: 6-17-05

STATE OF Michigan
COUNTY OF Genesee

The foregoing instrument was acknowledged before me this 17 day of June, 200__ by William J. McFarland of REALM , in Pontiac, Michigan, on behalf of the corporation.

Rebecca Lynn Najor
Notary Public

REBECCA LYNN NAJOR
Notary Public - Michigan
Macomb County
My Commission Expires
December 09, 2010

PREPARED BY:

TONY FINCH
O'BRIEN + GERE ENGINEERS, INC.
33469 WEST 14 MILE RD, SUITE 150
FARMINGTON HILLS, MI 48331

44.00

Instr:200506240064431 06/24/2005
P:6 of 11 F:$44.00 12:24PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

EXHIBIT 1

LEGAL DECRIPTION AND SURVEY OF PROPERTY
(Attached)

CERTIFICATE OF SURVEY

Being a part of
Section 18, T.8N., R.7E.
Genesee Township, Genesee County, Michigan

Certify to:
General Motors Corporation
a Delaware Corporation

Instr:200506240064431 06/24/2005
P:7 of 11 F:$44.00 12:24PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

Situated in the Township of Genesee, Genesee County, Michigan, described as:

Being all that real property situated in Section 18, Town 8 North, Range 7 East, Genesee Township, Genesee County, State of Michigan and described as follows:

Commencing at the South 1/4 corner of said Section 18 and thence running South 88°30'19" East 50.20 feet along the South line of the Southeast quarter of said Section 18; thence North 00°29'38" East 2169.31 feet to the Point of Beginning; thence North 00°29'38" East, 87.79 feet; thence North 89°36'47" West, 30.00 feet; thence North 00°29'38" East along the vacated centerline of Horton Street (formerly Alfred Street) a distance of 409.70 feet; thence South 89°24'18" West, 40.90 feet; thence North 01°20'14" West along the East line of Buick Subdivision as recorded in plat book 10, page 1 a distance of 1329.30 feet; thence North 88°49'39" West, 993.43 feet; thence North 00°30'24" East, 29.75 feet; thence North 89°09'44" West, 981.68 feet to the East right of way line of Saginaw Highway; thence North 01°33'22" East along the East right of way line of said Saginaw Highway, 376.81 feet; thence South 89°10'38" East, 280.00 feet; thence North 01°33'22" East, 264.00 feet; thence North 89°10'38" West, 280.00 feet; thence along said East right of way line of Saginaw Highway North 01°33'17" East, 438.08 feet; thence North 35°20'14" East, 210.22 feet; thence South 88°00'30" East along the South line of Stanley Road, 1808.31 feet; thence continuing along the South line of said Stanley Road South 89°48'49" East, 468.72 feet to the West right of way line of the CSX Railroad; thence South 25°29'59" East along said West right of way line, 541.14 feet; thence South 13°18'36" East, 234.78 feet; thence South 10°07'00" East, 292.15 feet; thence South 82°24'45" East, 69.33 feet; thence South 16°56'25" East, 224.26 feet; thence South 26°45'51" East, 312.89 feet; thence South 20°25'09" East, 190.42 feet; thence South 08°54'02" East, 114.92 feet; thence South 00°43'40" West, 1175.70 feet; thence North 89°34'30" West, 696.84 feet; thence South 00°27'36" West, 129.91 feet; thence North 89°32'24" West, 170.00 feet; thence North 82°29'52" West, 170.82 feet to the Point of Beginning.
Containing 118.5 acres more or less.
Subject to easements, restrictions, reservations, rights of way, leases and agreements of record if any.

I hereby certify that I have located and mapped the land hereon platted and/or described, on the date noted hereon, that I have complied with the requirements of Act 132, P.A. of 1970 and that the error of closure of the unadjusted field observation is within the limits established for the profession.
There are encroachments as shown.

Signed: Eugene L. Goss
Eugene L. Goss P.S.
Michigan No. 16040

LEGEND

Scale: 1" = 500'
All dimensions are in feet and decimals thereof.
○ 1/2" x 18" steel bar set.
● Indicates corner monuments found unless noted
—— Indicates fence line

W.E. Indicates waters edge
OH Indicates overhead utilities
M Measured
R Recorded
C Computed
⊕ Section Corner

Project No. 971226
Field book no.
Field work by: MEG
Dated: 2-10-98

Drawn by: DJD
Calculated by: DJD
Checked by: ELG
Sheet 1 of 2

Bartow & King Engineers
2500 E. Midland Road, Bay City, Michigan 48706
Tel. (517) 684-8850
Fax. (517) 684-8404

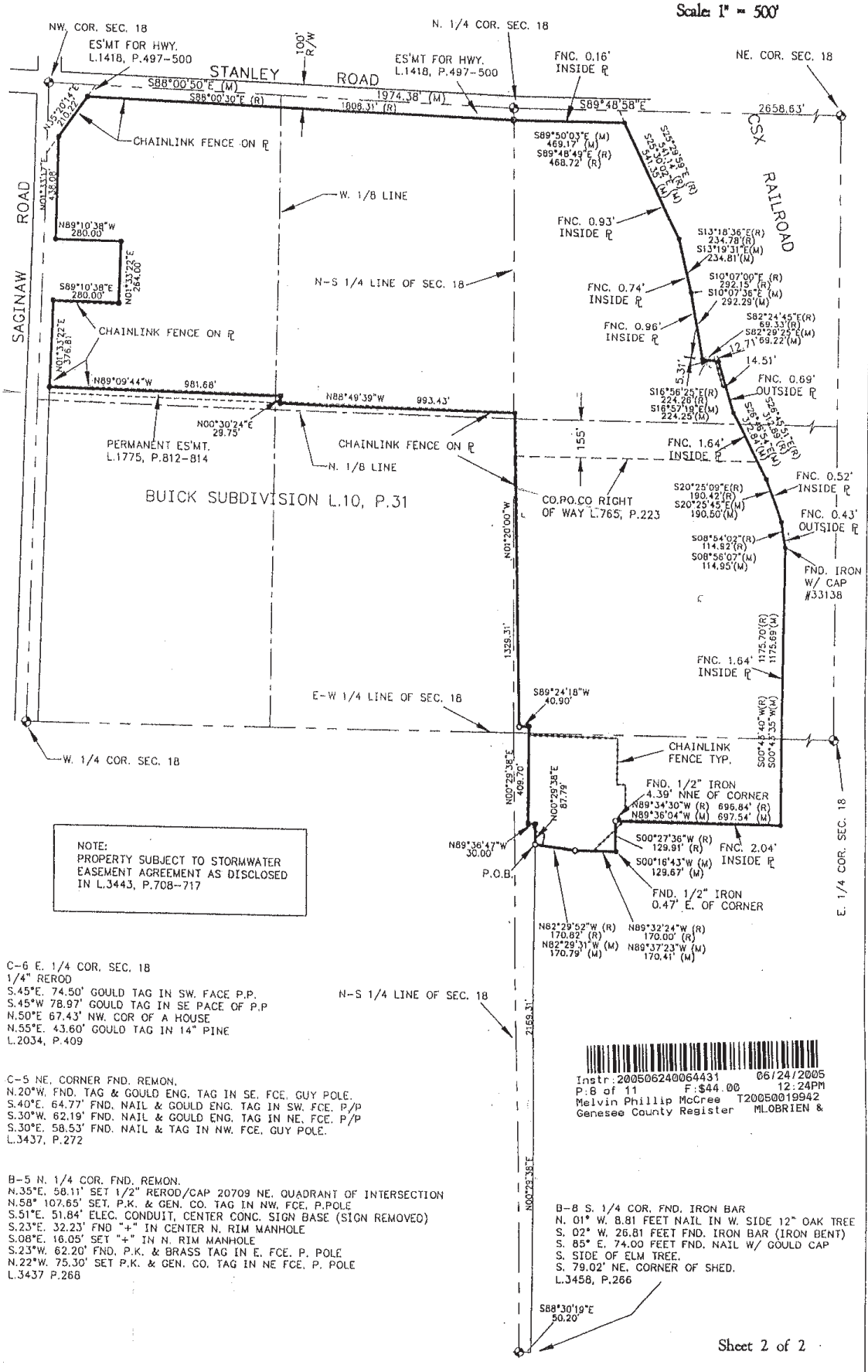
STATE OF MICHIGAN
EUGENE L. GOSS
LAND SURVEYOR
16040
REGISTERED LAND SURVEYOR

CERTIFICATE OF SURVEY

Being a part of
Section 18, T.8N., R.7E.
Genesee Township, Genesee County, Michigan

Certify to:
General Motors Corporation
a Delaware Corporation

Scale: 1" = 500'



NOTE:
PROPERTY SUBJECT TO STORMWATER EASEMENT AGREEMENT AS DISCLOSED IN L.3443, P.708-717

C-6 E. 1/4 COR. SEC. 18
1/4" REROD
S.45°E. 74.50' GOULD TAG IN SW. FACE P.P.
S.45°W 78.97' GOULD TAG IN SE PACE OF P.P
N.50°E 67.43' NW. COR OF A HOUSE
N.55°E. 43.60' GOULD TAG IN 14" PINE
L.2034, P.409

C-5 NE. CORNER FND. REMON.
N.20°W. FND. TAG & GOULD ENG. TAG IN SE. FCE. GUY POLE.
S.40°E. 64.77' FND. NAIL & GOULD ENG. TAG IN SW. FCE. P/P
S.30°W. 62.19' FND. NAIL & GOULD ENG. TAG IN NE. FCE. P/P
S.30°E. 58.53' FND. NAIL & TAG IN NW. FCE. GUY POLE.
L.3437, P.272

B-5 N. 1/4 COR. FND. REMON.
N.35°E. 58.11' SET 1/2" REROD/CAP 20709 NE. QUADRANT OF INTERSECTION
N.58° 107.65' SET, P.K. & GEN. CO. TAG IN NW. FCE. P.POLE
S.51°E. 51.84' ELEC. CONDUIT, CENTER CONC. SIGN BASE (SIGN REMOVED)
S.23°E. 32.23' FND "+" IN CENTER N. RIM MANHOLE
S.08°E. 16.05' SET "+" IN N. RIM MANHOLE
S.23°W. 62.20' FND. P.K. & BRASS TAG IN E. FCE. P. POLE
N.22°W. 75.30' SET P.K. & GEN. CO. TAG IN NE FCE. P. POLE
L.3437 P.268

B-8 S. 1/4 COR. FND. IRON BAR
N. 01° W. 8.81 FEET NAIL IN W. SIDE 12" OAK TREE
S. 02° W. 26.81 FEET FND. IRON BAR (IRON BENT)
S. 85° E. 74.00 FEET FND. NAIL W/ GOULD CAP
S. SIDE OF ELM TREE.
S. 79.02' NE. CORNER OF SHED.
L.3458, P.266

Instr:200506240064431 06/24/2005
P:8 of 11 F:$44.00 12:24PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

Instr:200506240064431 06/24/2005
P:9 of 11 F:$44.00 12:24PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

EXHIBIT 2

LIMITS OF LAND USE RESTRICTIONS
(Attached)

Scale: 1" = 200'

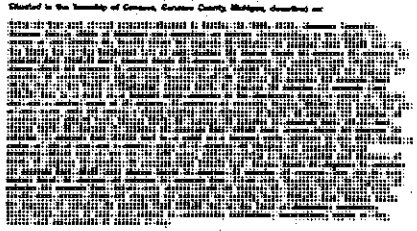
GRAPHIC SCALE

(IN FEET)
1 inch = 200 ft.

PARCEL DESCRIPTIONS

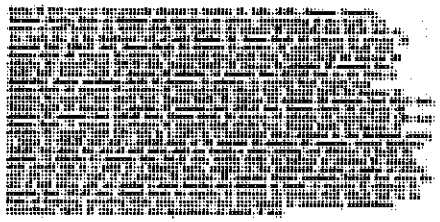
LANDFILL PARCEL DESCRIPTION

Situated in the Township of Genesee, Genesee County, Michigan, described as:



RMA PARCEL DESCRIPTION

Situated in the Township of Genesee, Genesee County, Michigan, described as:



CERTIFICATE OF SURVEY

Being a part of the East 1/2 of Section 18, T.6N., R.7E. Genesee Township, Genesee County, Michigan

Certify to:
General Motors Corporation

I hereby certify that I have located and mapped the land hereon plotted and/or described, on the date noted hereon, that I have complied with the requirements of Act 132, P.A. of 1970 and that the error of closure of the unadjusted field observation is within the limits established for the profession. There are encroachments as shown.

Signed:
Eugene L. Goss P.S.
Michigan No. 16040

LEGEND

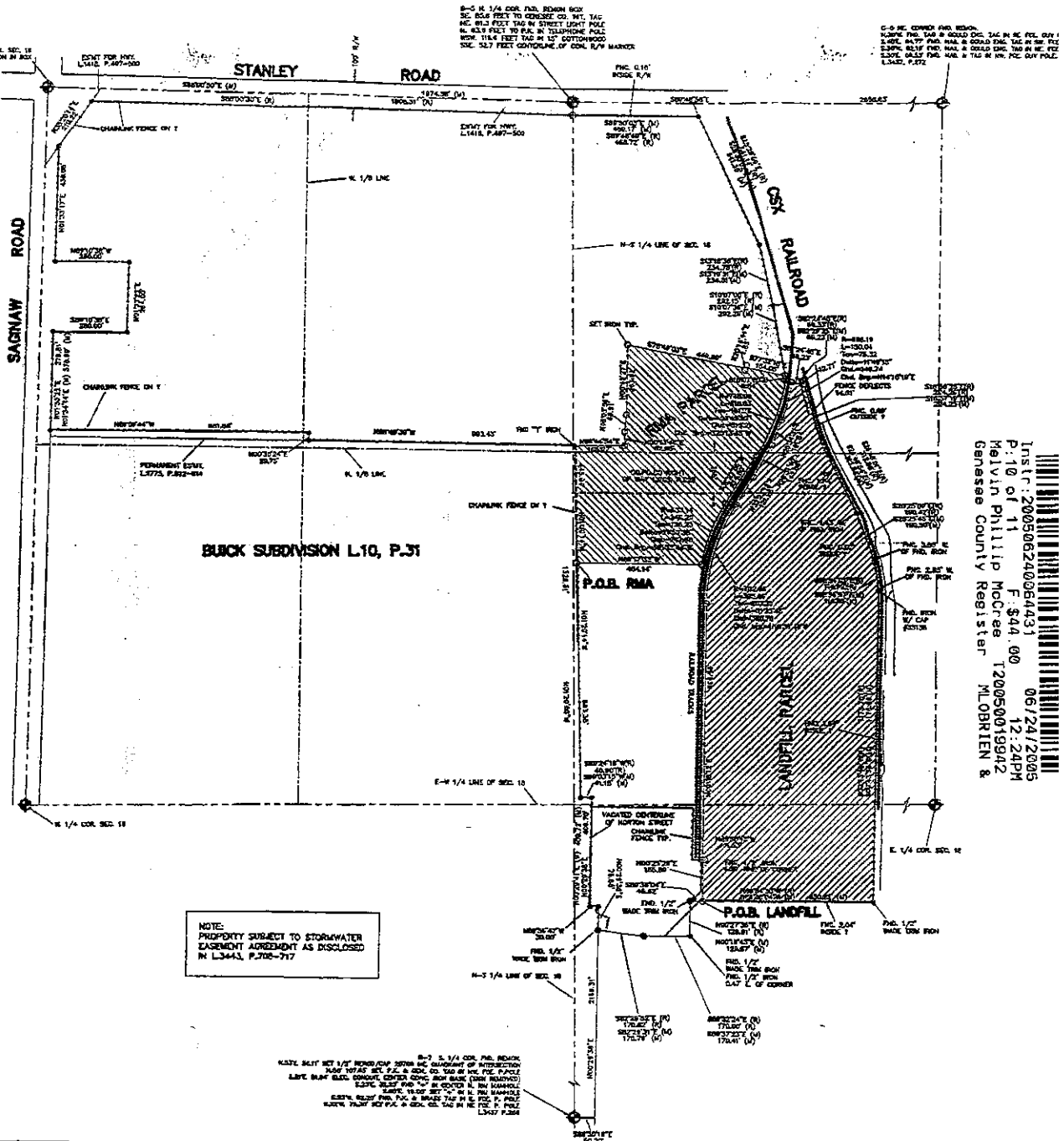
Scale: 1" = 200'
All dimensions are in feet and decimals thereof unless noted otherwise

W.E. Indicates waters edge
O.H. Indicates overhead utilities
M Measured
R Recorded
Indicates corner monuments found unless noted
Computed
Section Corner
Indicates fence line

Project No. 010215
Field book no.
Field work by EG/DJD2
Dated: 04-13-01

Drawn by: DJD
Calculated by: DJD
Checked by: ELG

Bartow & King Engineers
2500 E. Midland Road, Bay City, Michigan 48706
Tel. (517) 684-3850
Fax. (517) 684-8404



CERTIFIED BOUNDARY SURVEY
GENERAL MOTORS LANDFILL & RMA SITE
GENESEE TOWNSHIP, GENESEE COUNTY, MICHIGAN
FOR:
O'BRIEN & GERE ENGINEERS, INC. 39830 GRAND RIVER AVE., SUITE B-2 NOVI, MI 48375

Bartow & King Engineers
2500 E. Midland Road, Bay City, Michigan 48706
Tel. (517) 684-3850
Fax. (517) 684-8404

Date: APRIL 200
Sheet Number: 1 of 1

Instr:200506240064431 06/24/2005
P:11 of 11 F:$44.00 12:24PM
Melvin Phillip McCree T20050019842
Genesee County Register MLOBRIEN &

EXHIBIT 3

DESCRIPTION OF ALLOWABLE USES

The Coldwater Road Landfill site is zoned as an M-2/I-2 (general industrial) by Article XII of the Genesee Township Zoning Ordinance. This designation establishes the use of the site for manufacturing, assembling and fabrication activities including large scale or specialized industrial operations. However, no manufacturing operations are planned for the site and it will remain inactive with operation and maintenance activities performed in accordance with the Post-Closure care Plan. The zoning will not change in the foreseeable future.

The area depicted as the Coldwater Road Landfill in Exhibit 2 has been used to manage hazardous wastes and its use is restricted under 40 CFR 264.117 (c) which is adopted by reference in R 299.11003. Post-closure use of the landfill in which hazardous wastes remain after final closure will never be allowed to disturb the integrity of the final cover, liners or any other components of the containment system, or the function of the facilities monitoring and leachate collection systems, unless the Director finds that the disturbance:

(1) Is necessary to the proposed use of the property, and will not increase the potential hazard to human health or the environment; or
(2) Is necessary to reduce the threat to human health or the environment.

The area depicted as the Remaining Materials Area (RMA) in Exhibit 2 contained materials above the closure standard, however, has been closed by placement of a soil cover. Post-closure use of this area in which impacted soil remains, will not be allowed to disturb the integrity of the final cap, unless the Director finds that the disturbance:

(1) Is necessary to the proposed use of the property, and will not increase the potential hazard to human health or the environment; or
(2) Is necessary to reduce the threat to human health or the environment.

All Post-Closure care activities will be in accordance with the approved Post-Closure Care Plan as specified in 40 CFR 264.118 which is adopted by reference in R 299.11003.

Instr:200506240064432 06/24/2005
P:1 of 18 F:$65.00 12:25PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

DECLARATION OF RESTRICTIVE COVENANT

MDEQ Reference No.: RC-WHMD-111-05-002

This Declaration of Restrictive Covenant ("Restrictive Covenant") has been recorded with the Genesee County Register of Deeds for the purpose of protecting public health, safety, and welfare, and the environment by prohibiting or restricting activities that could result in unacceptable exposure to environmental contamination present at the property located at 6220 Horton Street, Genesee Township, Genesee County and legally described in Exhibit 1 attached hereto ("Property"). The Property includes the Remediation and Liability Management Company, Inc. (REALM) Coldwater Road Landfill MID 005 356 860 for which a remedial action was implemented to satisfy a Closure Plan and a Corrective Action Consent Order (No. 64-05-92) dated October 29, 1992. The remedial actions that have been completed to address environmental contamination are fully described in the: Closure Plan and Post-Closure Plan dated August 1989, Closure Plan Modification dated April 23, 1997, 1992 Corrective Action Consent Order (hereafter referred to as Consent Order), Final Closure Certification Documentation Package Decontamination Pits and Sump, Chromium Reduction Basins at the WWTP dated September 1998, Subsurface Investigation of Decontamination Pits/Sump and Chromium Reduction Basins Report dated June 1999, Final Closure Certification Drum Storage Area and Waste Pile Pad dated June 1999, Final Closure Certification Documentation- Part I and II dated November 2000, Final Closure Certification Documentation- Part II dated November 2000, Addendum to the June 1999 Closure Certification Report for the Former Drum Storage Area at the REALM Former Peregrine U.S., Inc. Property at the Coldwater Road facility dated January 2005 (these documents hereafter referred to as Closure Documents) and submitted by William J. McFarland. The Michigan Department of Environmental Quality ("MDEQ") approved the August 1989 Closure Plan and Post-Closure Care Plan including subsequent submittals, pursuant to the Consent Order and Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), MCL 324.20101 et seq..

The Consent Order required the recording of this Restrictive Covenant with the Genesee County Register of Deeds to: 1) restrict unacceptable exposures to hazardous substances located on the Property; 2) assure that the use of Property is consistent with the exposure assumptions utilized in the development of cleanup criteria pursuant to the Closure Documents and the exposure control measures relied upon in the Closure Documents which include soil cover over the RMA, and maintenance and monitoring of the on-site landfill cap as described in the Post Closure Care Plan dated April 16, 2004; and 3) to prevent damage or disturbance of any element of the response activity constructed on the Property. The restrictions contained in this Restrictive Covenant are based upon information available to the MDEQ at the time the Closure Documents were approved by the MDEQ. Failure of the response activities to achieve and maintain the criteria, exposure controls, and requirements specified in the Closure Documents; future changes in the environmental condition of the Property or changes in the

cleanup criteria developed under the Closure Documents, Part 201, Environmental Remediation, of the NREPA, MCL 324.20101 et seq. and the exposure control measures relied upon in the Closure Documents; the discovery of environmental conditions at the Property that were not accounted for in the Closure Documents; or use of the Property in a manner inconsistent with the restrictions described herein, may result in this Restrictive Covenant not being protective of public health, safety, and welfare, and the environment.

The "Limits of Land Use Restrictions," attached hereto as Exhibit 2, provides the legal descriptions and a survey that distinguishes those portions of the Property that are subject to land use or resource use restrictions as specified herein.

Summary of Response Activities

Hazardous substances including listed wastes F001, F003, F006, D001, D002, D003 and D007 were generated and stored on the Property from 1953 to 1987. Prior to recording of this Restrictive Covenant, response activities have been undertaken to remove and mitigate potential exposures to these wastes.

A hazardous waste landfill was constructed on-site which contains approximately 530,000 cubic yards of these hazardous wastes. The wastes were solidified using lime kiln dust, cement kiln dust, Portland cement or Class F flyash to support handling and transportation to a pugmill unit for final stabilization/solidification treatment. Soils and sludges were then treated with various reagents to meet land disposal treatment standards. The landfill was constructed in accordance with Michigan Act 64 requirements with an original design capacity of 170,000 cubic yards. Due to additional waste volume found in the closure units the landfill capacity was increased with a final closed volume of 530,000 cubic yards. The landfill is constructed with a liner system which includes a secondary 60 mil HDPE liner and leak detection systems, 5 ft thick clay liner, primary 60 mil HDPE liner and leachate collection system. The landfill cap consists of 60 mil HDPE with 3 ft of clay cover. The clay is overlain with 1.5 ft of granular drainage material and 6 inches of topsoil that was seeded.

At an area known as the Remaining Materials Area (RMA) substantial material was removed, however concentrations of chromium, copper, nickel and zinc still exceeded the closure standard, therefore, the RMA was closed by placement of a soil cover. The soil cover consisted of a minimum of 6 inches of clean topsoil and grass seed was planted to provide a vegetative cover. An additional 46,000 cubic yards of material was delisted, excavated and disposed in a licensed landfill in Utah.

These areas of the Property shown on the Survey map in Exhibit 2 may contain hazardous substances in excess of the concentrations developed as the unrestricted residential criteria under Section 20120a(1)(a) or (17) of the NREPA that have not been addressed through the response activities undertaken pursuant to the MDEQ-approved closure documents. The MDEQ recommends that prospective purchasers or users of the Property undertake appropriate due diligence prior to acquiring or using this Property, and undertake appropriate actions to comply with the requirements of Section 20107a of the NREPA.

Definitions

"MDEQ" means the Michigan Department of Environmental Quality, its successor entities, and those persons or entities acting on its behalf.

"Owner" means at any given time the then current title holder of the Property or any portion thereof.

All other terms used in this document which are defined in Part 3, Definitions, of the NREPA; Part 201 of the NREPA; or the Part 201 Administrative Rules ("Part 201 Rules"), 1990 AACS R 299.5101 et seq., shall have the same meaning in this document as in Parts 3 and 201 of the NREPA and the Part 201 Rules, as of the date of filing of this Restrictive Covenant.

NOW THEREFORE,

Declaration of Land Use or Resource Use Restrictions

Pursuant to the Closure Documents, REALM hereby declares and covenants that the Property shall be subject to the following restrictions and conditions:

1. The Owner shall prohibit all uses of the portions of the Property designated in Exhibit 2 as the RMA Parcel and the Landfill Parcel that are not compatible with the category identified in the approved Closure Documents and generally described in the *Description of Allowable Uses*, attached hereto as Exhibit 3. Cleanup criteria for land use-based response activities are located in the Government Documents Section of the State of Michigan Library.

2. The Owner shall prohibit activities on the Property designated in Exhibit 2 that may result in exposures above levels established in the Closure Documents. These prohibited activities include:

   A. Any excavation or other intrusive activity that could affect the integrity of the landfill cap (60 mil HDPE with 3 ft of clay cover, overlain with 1.5 ft of granular drainage material and 6 inches of topsoil) or RMA cap (6 inches of topsoil) within these areas shown on Figure 1 in Exhibit 2.

   B. Any construction of wells or other devices to extract groundwater for consumption, irrigation, dewatering, or any other use, except for wells and devices that are part of an MDEQ-approved response activity.

3. The Owner shall prohibit activities on the Property that may interfere with any element of the Closure Documents, including the performance of operation and maintenance activities, monitoring, or other measures necessary to ensure the effectiveness and integrity of the landfill and RMA cap in the closure documents.

4. Permanent Markers. The Owner shall not remove, cover, obscure, or otherwise alter or interfere with the permanent markers placed at the location depicted on Figure 1 in Exhibit 2. The Owner shall keep vegetation and other materials clear of the permanent markers to assure that the markers are readily visible. REALM shall install one permanent marker at the facility entrance within sixty (60) days of REALM's receipt of the recorded Restrictive Covenant from the Genesee County Register of Deeds.

The permanent marker shall be subject to the approval of the MDEQ and shall consist of a brass plaque mounted on a permanent post. The plaque shall include a brief description of the

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Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

general location and necessity of the exposure barriers and a simple line drawing delineating the extent of the exposure barriers.

"This is a site of environmental contamination. Exposure barriers are in place in the areas illustrated below to prevent contact with contamination that is present in the soil and landfill materials. Soil and landfill materials may not be relocated without further evaluation. Details about these land and resource restrictions can be found at the Genesee County Register of deeds, Liber Page ...."

5. Contaminated Soil Management. The Owner shall manage all soils, media and/or debris located on the Property in accordance with the applicable requirements of Section 20120c of the NREPA; Part 111, Hazardous Waste Management, of the NREPA; Subtitle C of the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901 et seq.; the administrative rules promulgated thereunder; and all other relevant state and federal laws.

6. Access. The Owner shall grant to the MDEQ and its designated representatives the right to enter the Property at reasonable times for the purpose of determining and monitoring compliance with the Closure Documents, including the right to take samples, inspect the operation of the response activities and, inspect any records relating thereto, and to perform any actions necessary to maintain compliance with, Part 201 and the Closure Documents.

7. Notice. The Owner shall provide notice to the MDEQ of the Owner's intent to transfer any interest in the Property at least fourteen (14) business days prior to consummating the conveyance. A conveyance of title, easement, or other interest in the Property shall not be consummated by the Owner without adequate and complete provision for compliance with the terms and conditions of this Restrictive Covenant and the applicable provisions of Section 20116 of the NREPA. The notice required to be made to the MDEQ under this Paragraph shall be made to: Director, MDEQ, P.O. Box 30473, Lansing, Michigan 48909-7973; and shall include a statement that the notice is being made pursuant to the requirements of this Restrictive Covenant, MDEQ Reference Number RC-WHMD-111-05-002. A copy of this Restrictive Covenant shall be provided to all future owners, heirs, successors, lessees, easement holders, assigns, and transferees by the person transferring the interest.

8. Term and Enforcement of Restrictive Covenant. This Restrictive Covenant shall run with the Property and shall be binding on the Owner; future owners; and all current and future successors, lessees, easement holders, their assigns, and their authorized agents, employees, or persons acting under their direction and control. This Restrictive Covenant may only be modified or rescinded with the written approval of the MDEQ.

The State of Michigan, through the MDEQ, Waste and Hazardous Materials Division may enforce the restrictions set forth in this Restrictive Covenant by legal action in a court of competent jurisdiction.

9. Severability. If any provision of this Restrictive Covenant is held to be invalid by any court of competent jurisdiction, the invalidity of such provision shall not affect the validity of any other provisions hereof, and all such other provisions shall continue unimpaired and in full force and effect.

10. Authority to Execute Restrictive Covenant. The undersigned person executing this Restrictive Covenant is the Owner, or has the express written permission of the Owner and all other holders of a legal interest whose interest is materially affected by this Restrictive Covenant as documented and attached hereto as Exhibit 4, and represents and certifies that he or she is duly authorized and has been empowered to execute and deliver this Restrictive Covenant.

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AGREED AND CONSENTED TO BY OWNER:

Instr:200506240064432 06/24/2005
P:6 of 18 F:$65.00 12:25PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

REALM

By: William J McFarland
Signature

Name: William J. McFarland
Print or Type Name

Its: President
Title

STATE OF MICHIGAN
COUNTY OF Genesee

The foregoing instrument was acknowledged before me this June 17, 2005 [*date*] by William J. McFarland on behalf of REALM.

Rebecca Lynn Najor
Notary Public

REBECCA LYNN NAJOR
Notary Public - Michigan
Macomb County
My Commission Expires
December 09, 2010

PREPARED BY:
TONY FINCH
O'BRIEN + GERE ENGINEERS, INC.
33469 WEST 14 MILE ROAD, SUITE 150
FARMINGTON HILLS, MI 48331

65.00

IN WITNESS WHEREOF, William J. McFarland has caused this Restrictive Covenant to be executed on this 17 day of June, 2005.

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Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

William J. McFarland

By: William J. McFarland
Signature

Name: William J. McFarland
Print or Type Name

Its: President
Title

STATE OF Michigan
COUNTY OF Genesee

The foregoing instrument was acknowledged before me this June 17, 2005 [date] by William J. McFarland of REALM, Pontiac, Michigan, on behalf of the corporation.

Rebecca Lynn Major
Notary Public

REBECCA LYNN NAJOR
Notary Public - Michigan
Macomb County
My Commission Expires
December 09, 2010

Instr:200506240064432 06/24/2005
P:8 of 18 F:$65.00 12:25PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

EXHIBIT 1

LEGAL DECRIPTION AND SURVEY OF PROPERTY
(Attached)

CERTIFICATE OF SURVEY

Being a part of
Section 18, T.8N., R.7E.
Genesee Township, Genesee County, Michigan

Certify to:
General Motors Corporation
a Delaware Corporation

Instr:200506240064432 06/24/2005
P:9 of 18 F:$65.00 12:25PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

Situated in the Township of Genesee, Genesee County, Michigan, described as:

Being all that real property situated in Section 18, Town 8 North, Range 7 East, Genesee Township, Genesee County, State of Michigan and described as follows:

Commencing at the South 1/4 corner of said Section 18 and thence running South 88°30'19" East 50.20 feet along the South line of the Southeast quarter of said Section 18; thence North 00°29'38" East 2169.31 feet to the Point of Beginning; thence North 00°29'38" East, 87.79 feet; thence North 89°36'47" West, 30.00 feet; thence North 00°29'38" East along the vacated centerline of Horton Street (formerly Alfred Street) a distance of 409.70 feet; thence South 89°24'18" West, 40.90 feet; thence North 01°20'14" West along the East line of Buick Subdivision as recorded in plat book 10, page 1 a distance of 1329.30 feet; thence North 88°49'39" West, 993.43 feet; thence North 00°30'24" East, 29.75 feet; thence North 89°09'44" West, 981.68 feet to the East right of way line of Saginaw Highway; thence North 01°33'22" East along the East right of way line of said Saginaw Highway, 376.81 feet; thence South 89°10'38" East, 280.00 feet; thence North 01°33'22" East, 264.00 feet; thence North 89°10'38" West, 280.00 feet; thence along said East right of way line of Saginaw Highway North 01°33'17" East, 438.08 feet; thence North 35°20'14" East, 210.22 feet; thence South 88°00'30" East along the South line of Stanley Road, 1808.31 feet; thence continuing along the South line of said Stanley Road South 89°48'49" East, 468.72 feet to the West right of way line of the CSX Railroad; thence South 25°29'59" East along said West right of way line, 541.14 feet; thence South 13°18'36" East, 234.78 feet; thence South 10°07'00" East, 292.15 feet; thence South 82°24'45" East, 69.33 feet; thence South 16°56'25" East, 224.26 feet; thence South 26°45'51" East, 312.89 feet; thence South 20°25'09" East, 190.42 feet; thence South 08°54'02" East, 114.92 feet; thence South 00°43'40" West, 1175.70 feet; thence North 89°34'30" West, 696.84 feet; thence South 00°27'36" West, 129.91 feet; thence North 89°32'24" West, 170.00 feet; thence North 82°29'52" West, 170.82 feet to the Point of Beginning.
Containing 118.5 acres more or less.
Subject to easements, restrictions, reservations, rights of way, leases and agreements of record if any.

I hereby certify that I have located and mapped the land hereon platted and/or described, on the date noted hereon, that I have complied with the requirements of Act 132, P.A. of 1970 and that the error of closure of the unadjusted field observation is within the limits established for the profession.
There are encroachments as shown.

Signed: Eugene L. Goss
Eugene L. Goss P.S.
Michigan No. 16040

LEGEND

Scale: 1" = 500'
All dimensions are in feet and decimals thereof.
O 1/2" x 18" steel bar set.
● Indicates corner monuments found unless noted
—— Indicates fence line

W.E. Indicates waters edge
OH Indicates overhead utilities
M Measured
R Recorded
C Computed
⊕ Section Corner

Bartow & King Engineers
2500 E. Midland Road, Bay City, Michigan 48706
Tel. (517) 684-8850
Fax. (517) 684-8404

STATE OF MICHIGAN
EUGENE L. GOSS
LAND SURVEYOR
16040
REGISTERED LAND SURVEYOR

Project No. 971226
Field book no.
Field work by: MEG
Dated: 2-10-98

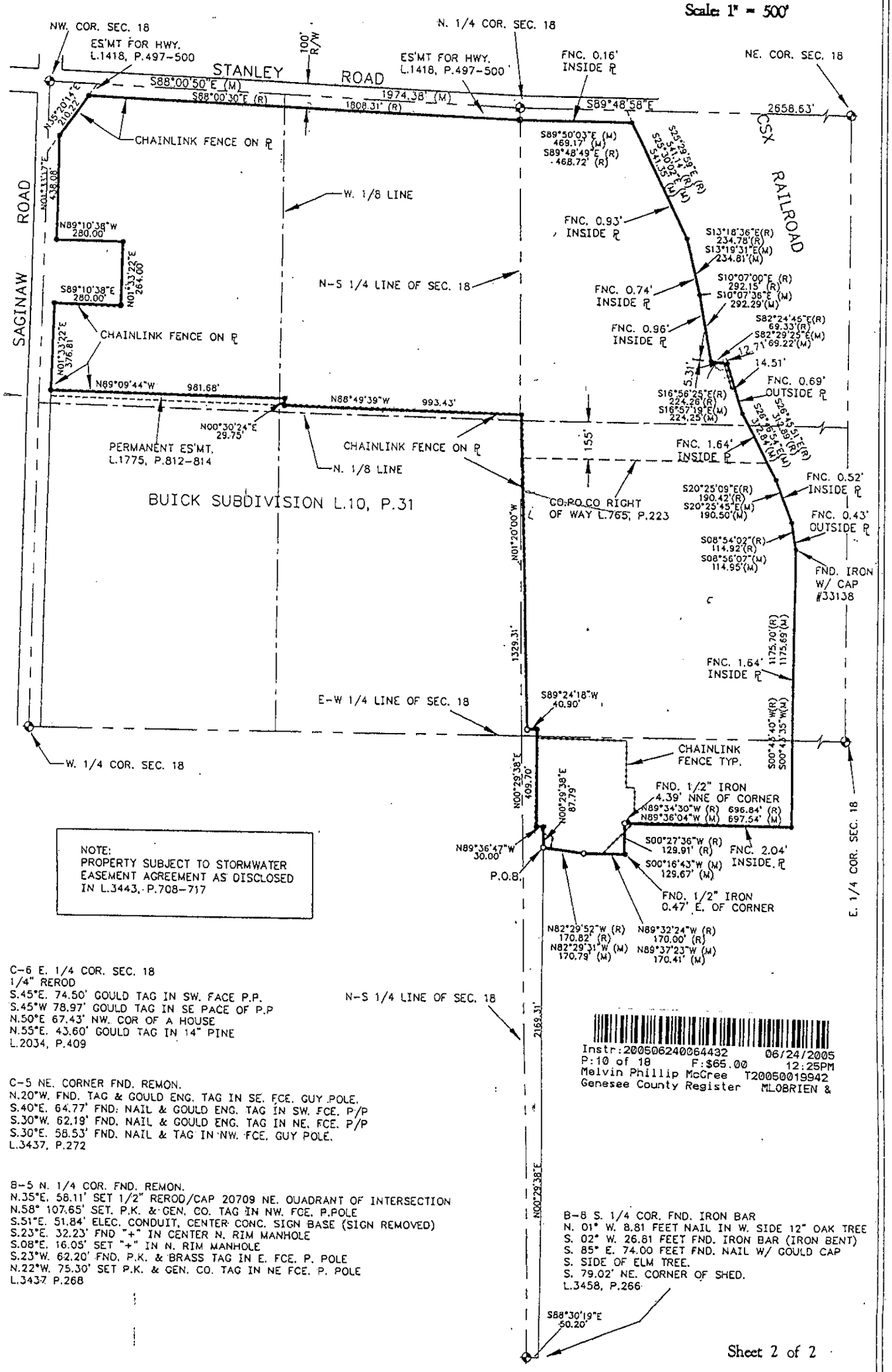
Drawn by: DJD
Calculated by: DJD
Checked by: ELG
Sheet 1 of 2

CERTIFICATE OF SURVEY

Being a part of
Section 18, T.8N., R.7E.
Genesee Township, Genesee County, Michigan

Certify to:
General Motors Corporation
a Delaware Corporation

Scale: 1" = 500'



NOTE:
PROPERTY SUBJECT TO STORMWATER EASEMENT AGREEMENT AS DISCLOSED IN L.3443, P.708-717

C-6 E. 1/4 COR. SEC. 18
1/4" REROD
S.45°E. 74.50' GOULD TAG IN SW. FACE P.P.
S.45°W 78.97' GOULD TAG IN SE PACE OF P.P
N.50°E 67.43' NW. COR OF A HOUSE
N.55°E. 43.60' GOULD TAG IN 14" PINE
L.2034, P.409

C-5 NE. CORNER FND. REMON.
N.20°W. FND. TAG & GOULD ENG. TAG IN SE. FCE. GUY POLE.
S.40°E. 64.77' FND. NAIL & GOULD ENG. TAG IN SW. FCE. P/P
S.30°W. 62.19' FND. NAIL & GOULD ENG. TAG IN NE. FCE. P/P
S.30°E. 58.53' FND. NAIL & TAG IN NW. FCE. GUY POLE.
L.3437, P.272

B-5 N. 1/4 COR. FND. REMON.
N.35°E. 58.11' SET 1/2" REROD/CAP 20709 NE. QUADRANT OF INTERSECTION
N.58° 107.65' SET. P.K. & GEN. CO. TAG IN NW. FCE. P.POLE
S.51°E. 51.84' ELEC. CONDUIT, CENTER CONC. SIGN BASE (SIGN REMOVED)
S.23°E. 32.23' FND "+" IN CENTER N. RIM MANHOLE
S.08°E. 16.05' SET "+" IN N. RIM MANHOLE
S.23°W. 62.20' FND. P.K. & BRASS TAG IN E. FCE. P. POLE
N.22°W. 75.30' SET P.K. & GEN. CO. TAG IN NE FCE. P. POLE
L.3437 P.268

B-8 S. 1/4 COR. FND. IRON BAR
N. 01° W. 8.81 FEET NAIL IN W. SIDE 12" OAK TREE
S. 02° W. 26.81 FEET FND. IRON BAR (IRON BENT)
S. 85° E. 74.00 FEET FND. NAIL W/ GOULD CAP
S. SIDE OF ELM TREE.
S. 79.02' NE. CORNER OF SHED.
L.3458, P.266

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Melvin Phillip McCree T2005001994Z
Genesee County Register MLOBRIEN &

EXHIBIT 2

LIMITS OF LAND OR RESOURCE USE RESTRICTIONS
(Attached)

Scale: 1" = 200'

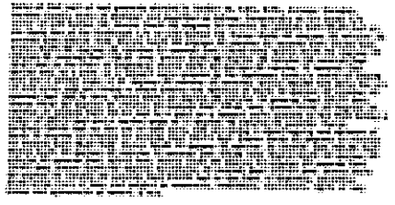
GRAPHIC SCALE

(IN FEET)
1 inch = 200 ft.

PARCEL DESCRIPTIONS

LANDFILL PARCEL DESCRIPTION

Situated in the Township of Genesee, Genesee County, Michigan, described as:



RMA PARCEL DESCRIPTION

Situated in the Township of Genesee, Genesee County, Michigan, described as:

CERTIFICATE OF SURVEY

Being a part of the East 1/2 of Section 18, T.8N., R.7E, Genesee Township, Genesee County, Michigan

Certify to:
General Motors Corporation

I hereby certify that I have located and mapped the land hereon platted and/or described, on the date noted hereon, that I have complied with the requirements of Act 132, P.A. of 1970 and that the error of closure of the unadjusted field observation is within the limits established for the profession.
There are encroachments as shown.

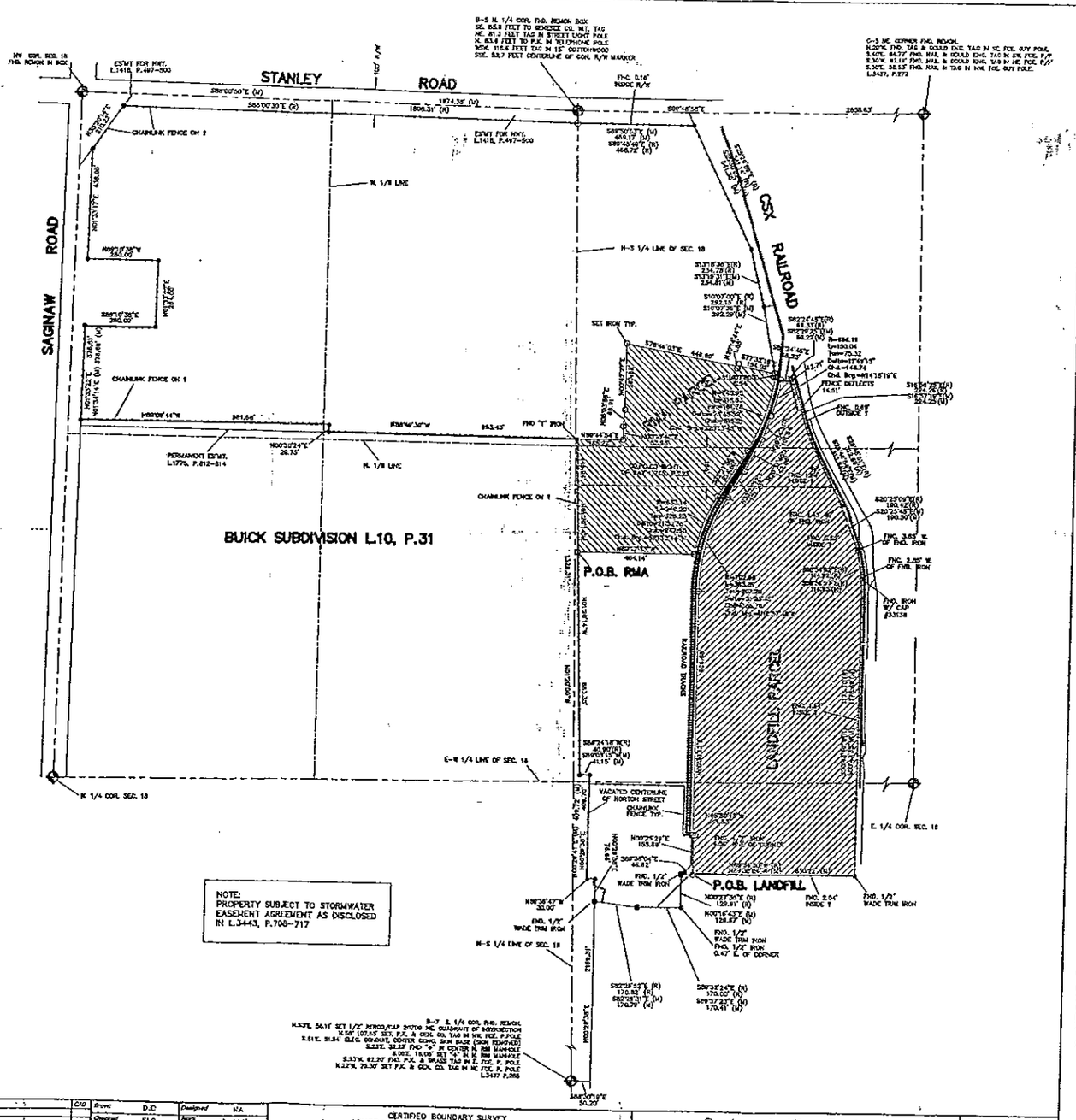
Signed:
Eugene L. Goss P.S.
Michigan No. 16040

LEGEND

Scale: 1" = 200'
All dimensions are in feet and decimals thereof.
W.E. Indicates waters edge
Indicates overhead utilities
M Measured
R Recorded
C Computed
o 1/2" x 18" steel bar set unless noted
• Indicates corner monuments found
Section Corner
Indicates fence line

Project No. 010215
Field book no.
Field work by EG/DJD2
Dated: 04-13-01
Drawn by: DJD
Calculated by: DJD
Checked by: ELG

Bartow & King Engineers
2500 E. Midland Road, Bay City, Michigan 48706
Tel. (517) 684-8850
Fax. (517) 684-8404



NOTE:
PROPERTY SUBJECT TO STORMWATER EASEMENT AGREEMENT AS DISCLOSED IN L.3443, P.708-717

Drawn: DJD	Designed: MA	CERTIFIED BOUNDARY SURVEY GENERAL MOTORS LANDFILL & RMA SITE GENESEE TOWNSHIP, GENESEE COUNTY, MICHIGAN FOR O'BRIEN & GERE ENGINEERS, INC. 39830 GRAND RIVER AVE., SUITE B-2 NOVI, MI 48375	Bartow & King Engineers 2500 E. Midland Road, Bay City, Michigan 48706 Tel. (517) 684-8850 Fax. (517) 684-8404	Date: APRIL 2001
Checked: ELG	Work Scale: 1"=200'			Sheet Number: 1 of 1
Field Survey: DJD2	Date:			
Survey Posted:	Survey Posted:			
Date:	Date:			

BKE Name: LANDFILL Plot Date:

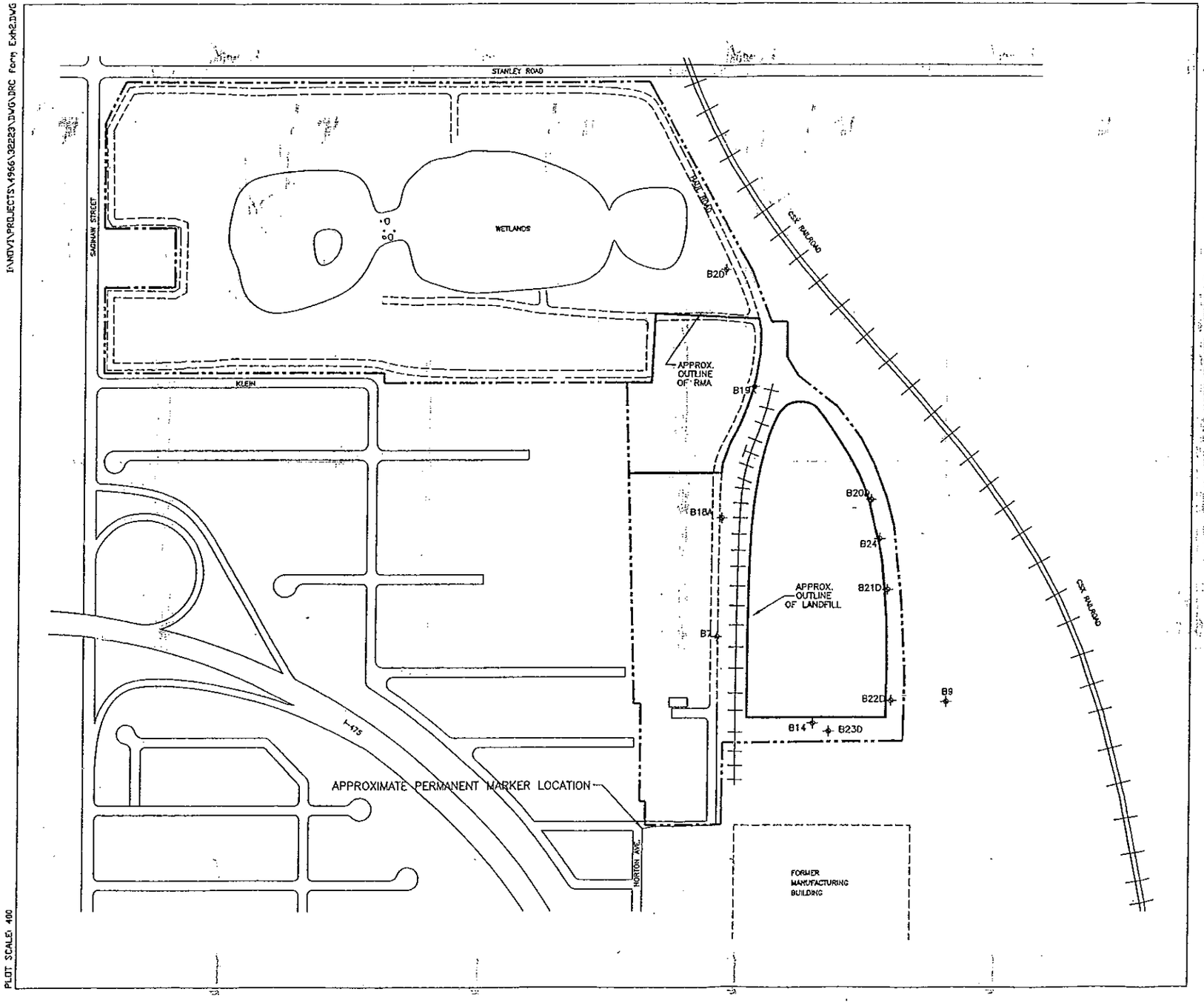
By	Date	Revisions

Instr:200506240064432 06/24/2005
P:11 of 18 F:$65.00 12:25PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

EXHIBIT 2

LIMITS OF LAND OR RESOURCE USE RESTRICTIONS
(Attached)

FIGURE 1



LEGEND

B14 MONITORING WELL LOCATION

PROPERTY LINE

REALM
COLDWATER ROAD
FLINT, MICHIGAN

MONITORING WELL AND PERMANENT MARKER LOCATION

400 0 400

APPROXIMATE SCALE IN FEET
1"=400'

FILE NO. 4966.32223

O'BRIEN & GERE ENGINEERS, INC.

Instr:200506240064432 06/24/2005
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Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

EXHIBIT 3
DESCRIPTION OF ALLOWABLE USES

The Coldwater Road Landfill site is zoned as a M-2/I-2 (general industrial) by Article XII of the Genesee Township Zoning Ordinanace. This designation establishes the use of the site for manufacturing, assembling and fabrication activities including large scale or specialized industrial operations. However, no manufacturing operations are planned for the site and it will remain inactive with operation and maintenanace activities performed in accordance with the Post-Closure Care Plan. The zoning will not change in the foreseeable future.

The site contains a hazardous waste landfill and an area of impact (RMA) which have been capped. These areas are defined in the Notice of Approved Remediation form (NAER) recorded with the Genessee County Register. The use of these areas is restricted as defined in the NAER.

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Genesee County Register MLOBRIEN &

EXHIBIT 4

CONSENT OF EASEMENT HOLDERS
(Attached)

Instr:200506240064432 06/24/2005
P:16 of 18 F:$65.00 12:25PM
Melvin Phillip McCree T20050019942
Genesee County Register MLOBRIEN &

CONSENT OF EASEMENT HOLDER

As evidenced below by my signature, I agree and consent to the recording of the land use and resource use restrictions specified in this Restrictive Covenant.

Genesee County Road Commission

By: _____
Signature

Name: John H. Daly III
Print or Type Name

Its: Manager/Director
Title

STATE OF MICHIGAN
COUNTY OF Genesee

The foregoing instrument was acknowledged before me this 21st day of June 2005 [date] by John H. Daly III as attorney in fact on behalf of the Genesee County Road Commission.

_____
Notary Public

Name (Print/Typed/Stamp): CARRIE L. O'DELL
Notary Public, Genesee County, MI
My Commission Expires Jun. 6, 2009

Commissioned in Genesee County, Michigan

My Commission Expires: 06/06/06

Exhibit 5

Non Consent of Easement Holder

(Attached)

THIS DOCUMENT WAS HAND DELIVERED TO THE CONSUMERS ENERGY OFFICE AT 3201 COURT ST. FLINT, MI (ROBIN HEFLIN REED) BY TONY FINCH ON 6/20/05.

O'BRIEN & GERE

June 16, 2005

NO RETURNED SIGNED CONSENT FORM WAS RECEIVED BY 6/24/05.

Jill Jedele
Consumers Energy
3201 East Court Street
Flint, MI 48501

Re: Declaration of Restrictive Covenant
Signature request

File: 4966/32223#2

Dear Ms. Jedele:

On behalf of General Motors Corporation/REALM, this letter is written to request your notarized signature on the attached Restrictive Covenant Form attached. This form is required to be filed with the Genesee County Register of Deeds by the Michigan Department of Environmental Quality (MDEQ) for the purpose of protecting the public health, safety, and welfare, and the environment by prohibiting activities that could result in unacceptable exposure to environmental contamination present at the property located at 6220 Horton Street, Genessee Township, Michigan. This form has previously been reviewed by the MDEQ Waste and Hazardous Materials Division.

Consumers Energy has been identified as an easement holder for the Property, as defined in the restrictive covenant and therefore, your consent is required in acknowledging the land use and resource use restrictions specified in the attached Restrictive Covenant.

Please return the signed Consent of Easement Holder page by June 22, 2005. If you have any questions please contact me at 248-661-3745.

Very truly yours,

O'BRIEN AND GERE ENGINEERS, INC.

Anthony J. Finch, C.P.G.
Senior Project Geologist

cc: Kurt Blizzard- General Motors Corporation
Scott Cormier- O'Brien and Gere Engineers, Inc.

Melvin Phillip McCree

Genesee County Register of Deeds

CUSTOMER RECEIPT - RECORDING SERVICES

Receipt Number: T20050019942
Date/Time: 06/24/2005 12:24:13
Method Received: Walk-In
Clerk: DEEDS2R

Customer Name : 2

Transaction Detail

Instrument Number	Instrument Type	Remonumentation Fee	Gen. Fee	Equip. Fee	Copy	Cert. Copy	Total Copy Fee	# Pgs	Consideration	Subtotal
200506240064431	MISC DEED	4.00	$35.00	$5.00	N	N	$11.00	11		$55.00

First Party Name
REALM

Second Party Name
NOTICE TO THE PUBLIC

MAILING LABEL
OBRIEN & GERE
ENGINEERS INC
33469 W 14 MILE RD
STE 150
FARMINGTON HILLS MI
48331

Instrument Number	Instrument Type	Remonumentation Fee	Gen. Fee	Equip. Fee	Copy	Cert. Copy	Total Copy Fee	# Pgs	Consideration	Subtotal
200506240064432	MISC DEED	4.00	$56.00	$5.00	N	N	$18.00	18		$83.00

First Party Name
REALM

Second Party Name
NOTICE TO THE PUBLIC

MAILING LABEL
OBRIEN & GERE
ENGINEERS INC
33469 W 14 MILE RD
STE 150
FARMINGTON HILLS MI
48331

Melvin Phillip McCree
Genesee County Register of Deeds

CUSTOMER RECEIPT - RECORDING SERVICES

Receipt Number: **T20050019942**
Date/Time: 06/24/2005 12:24:13
Method Received: Walk-In
Clerk: DEEDS2R

Customer Name : 2

Payment Information

Method of Payment	Payment Control ID	Authorized Agent	Amount
Check	1080		$138.00

AMOUNT PAID:	**$138.00**
LESS AMOUNT DUE:	$138.00
CHANGE RECEIVED:	**$0.00**

APPENDIX F
NOTICE REGARDING STATUTORY OBLIGATIONS APPLICABLE TO PROPERTY (RULE 525 NOTICE)

201001050000403 01/05/2010
P:1 of 3 F:$20.00 9:14AM
Rosalyn Bogardus T20100000143
Genesee County Register MLTITL

GEN. CO. REGISTER OF DEEDS
RECEIVED

2009 DEC 28 A 10:55

NOTICE REGARDING STATUTORY OBLIGATIONS APPLICABLE TO PROPERTY

This notice is filed pursuant to the requirements of the Hazardous Waste Management Program Administrative Rules promulgated by the Michigan Department of Environmental Quality, Waste Management Division under Part 111 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, Rule R299.9525 which became effective September 11, 2000.

REMEDIATION AND LIABILITY MANAGEMENT COMPANY, INC. ("REALM"), a Michigan corporation, whose address is MC 482-C23-C96, 300 Renaissance Center, Detroit, MI 48265, owns the land located in the City of Flint, in Genesee County, **Michigan,** being located in the vicinity of the southeast corner of N Saginaw St and E Stanley Rd and commonly known as N Saginaw St Lot (Tax Parcel ID 11-18-100-002); E Stanley Rd Lot (Coldwater Landfill; Tax Parcel ID 11-18-200-012); and, Harry Street Lot (Tax Parcel ID 11-18-400-007) which is more particularly described in the attached **Exhibit A** (the "Property").

The Property has been used to manage hazardous waste and is subject to the corrective action requirements of Part 111 of Act Number 451 of the Public Acts of 1994 being § 324.101 et. Seq. of the Michigan Complied Laws, and known as the Natural Resources and Environmental Protection Act and the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976, as amended and as further amended by the 1984 Hazardous and Solid Waste Amendments as such Acts and Amendments are reflected in 42 United States Code § 6901 et. seq.

This notice shall continue to apply only for so long as the above referenced provisions of law shall continue to apply to the Property.

REMEDIATION AND LIABILITY MANAGEMENT COMPANY, INC.
a Michigan corporation

By: _____
Signature

Name: John K Blanchard
Its: VP

COMMERCIAL
3067330
Coldwater

EXECUTION RECOMMENDED
WORLDWIDE REAL ESTATE
BY

3/3

STATE OF MICHIGAN)
)
COUNTY OF Wayne)

The foregoing instrument was acknowledged before me in Wayne County, Michigan, this 25th day of February, 2009, by John K Blanchard, the Vice President of Remediation and Liability Management Company, Inc., a Michigan corporation, on behalf of the Corporation.

Notary Public

Print name:
Notary Public, State of Michigan
County of
My commission expires
Acting in the County of

MICHELLE LEE MARIETTA
NOTARY PUBLIC, STATE OF MI
COUNTY OF OAKLAND
MY COMMISSION EXPIRES Sep 11, 2014
ACTING IN COUNTY OF Wayne

Instrument drafted by:
Holly A. Milewski, GM WRE;

Anthony P. Thrubis, Esq.
General Motors Corporation
Mail Code 482-C24-D24
300 Renaissance Center
P.O. Box 300
Detroit, MI 48265-3000

~~When recorded return to:~~

REALM
c/o Worldwide Real Estate
General Motors Corporation
MC 482-B38-C96
200 Renaissance Center
Detroit, MI 48265
Attention: Holly A. Milewski

Return to:
Title Source Inc.
1450 W Long Lake Rd.
Suite 400
Troy, MI 48098

EXHIBIT "A"

PROPERTY – LEGAL DESCRIPTION

Parcel Numbers: 11-18-100-002; 11-18-200-012; and, 11-18-400-007

Address: N Saginaw St; E Stanley Rd; and, Harry St

Legal Description:

Land situated in the Township of Genesee, County of Genesee, State of Mich

Being that real property situated in Section 18, Town 8 North, Range 7 Eas Genesee Township, Genesee County, State of Michigan, and described as foll Commencing at the South 1/4 corner of said Section 18 and thence running S 88 degrees 30 minutes 19 seconds East, 50.20 feet along the South line of Southeast 1/4 of said Section 18; thence North 00 degrees 29 minutes 38 se East, 2,169.31 feet to the Point of Beginning; thence North 00 degrees 29 minutes 38 seconds East, 87.79 feet; thence North 89 degrees 36 minutes 47 seconds West, 30.00 feet; thence North 00 degrees 29 minutes 38 seconds Ea along the vacated centerline of Horton Street (formerly Alfred Street) a distance of 409.70 feet; thence South 89 degrees 24 minutes 16 seconds Wes 40.90 feet; thence North 01 degree 20 minutes 00 seconds West along the Ea line of BUICK SUBDIVISION, as recorded in Plat Book 10, Page 1, a distance 1,329.31 feet; thence North 88 degrees 49 minutes 39 seconds West, 993.43 thence North 00 degrees 30 minutes 24 seconds East, 29.75 feet; thence Nor degrees 09 minutes 44 seconds West, 981.68 feet to the East right of way l of Saginaw Highway; thence North 01 degree 33 minutes 22 seconds East alon East right of way line of said Saginaw Highway, 376.81 feet; thence South degrees 10 minutes 38 seconds East, 280.00 feet; thence North 01 degree 33 minutes 22 seconds East, 264.00 feet; thence North 89 degrees 10 minutes 3 seconds West, 280.00 feet; thence along said East right of way line of Sag Highway, North 01 degree 33 minutes 17 seconds East, 438.08 feet; thence N 35 degrees 20 minutes 14 seconds East, 210.22 feet; thence South 88 degree minutes 30 seconds East, along the South line of Stanley Road, 1,808.31 fe thence continuing along the South line of said Stanley Road, South 89 degr 48 minutes 49 seconds East, 468.72 feet to the West right of way line of t CSX Railroad; thence South 25 degrees 29 minutes 59 seconds East, along sa West right of way line, 541.14 feet; thence South 13 degrees 18 minutes 36 seconds East, 234.78 feet; thence South 10 degrees 07 minutes 00 seconds E 292.15 feet; thence South 82 degrees 24 minutes 45 seconds East, 69.33 fee thence South 16 degrees 56 minutes 25 seconds East, 224.26 feet; thence So 26 degrees 45 minutes 51 seconds East, 312.89 feet; thence South 20 degree minutes 09 seconds East, 190.42 feet; thence South 08 degrees 54 minutes 0 seconds East, 114.92 feet; thence South 00 degrees 43 minutes 40 seconds W 1,175.70 feet; thence North 89 degrees 34 minutes 30 seconds West, 696.84 thence South 00 degrees 27 minutes 36 seconds West, 129.91 feet; thence No 89 degrees 32 minutes 24 seconds West, 170.00 feet; thence North 82 degree minutes 52 seconds West, 170.82 feet to the Point of Beginning.

APPENDIX G
PROPERTY FUNDING ACCOUNTS BALANCES (UPDATED AS OF DECEMBER 31, 2023)

Attachment 2
Table 2-2
Coldwater Road - 11030
Property Funding Accounts Balances

Coldwater Road Landfill - 11030

Coldwater Road Facility - Landfill (11030) and Industrial Land (13270)
(COMBINED TOTAL)

Property Funding Accounts Per Settlement Agreement	1-Jul-2010	1-Apr-2011	31-Dec-2011	31-Dec-2012	31-Dec-2013	31-Dec-2014	31-Dec-2015	31-Dec-2016
Minimum Estimated Property Funding	$ 2,835,215	$ 2,430,725	$ 2,384,434	$ 2,108,984	$ 1,922,037	$ 1,751,219	$ 1,543,146	$ 1,345,538
Reserve Property Funding	$ 500,332	$ 489,825	$ 497,753	$ 506,420	$ 524,319	$ 528,180	$ 530,291	$ 537,238
Long Term OMM Property Funding	$ 2,386,287	$ 2,336,174	$ 2,373,985	$ 2,415,324	$ 2,500,691	$ 2,519,103	$ 2,529,178	$ 2,562,304
Total Property Funding	**$ 5,721,834**	**$ 5,256,724**	**$ 5,256,172**	**$ 5,030,728**	**$ 4,947,047**	**$ 4,798,502**	**$ 4,602,616**	**$ 4,445,080**

Property Funding Accounts Per Settlement Agreement	31-Dec-2017	31-Dec-2018	31-Dec-2019	31-Dec-2020	31-Dec-2021	31-Dec-2022	31-Dec-2023
Minimum Estimated Property Funding	$ 40,360	$ 40,634	$ -	$ -	$ -	$ -	$ -
Reserve Property Funding	$ 1,005,992	$ 903,274	$ 109,072	$ 1,834,736	$ 449,536	$ 1,255,005	$ 1,806,578
Long Term OMM Property Funding	$ 177,528	$ 173,800	$ 2,707,864	$ 2,774,346	$ 2,819,803	$ 2,804,267	$ 2,664,284
Total Property Funding	**$ 1,223,880**	**$ 1,117,708**	**$ 2,816,936**	**$ 4,609,082**	**$ 3,269,339**	**$ 4,059,272**	**$ 4,470,862**

Note: Balances reflect all costs and all income as of the referenced date.

EXHIBITS

EXHIBIT 1
APRIL 21, 2006 GM REVISIONS TO
PCP LETTER

Worldwide Facilities Group
Remediation Team

MC 483-520-190
2000 Centerpoint Parkway
Pontiac, Michigan 48341-3147
Telephone: (248) 753-5776 Fax (248) 753-5829

April 21, 2006

Mr. Richard Conforti, P.E.
Environmental Engineer
Waste and Hazardous Material Division
Department of Environmental Quality
PO Box 30241
Lansing, MI 48909-7741

Re: Revisions to the Post-Closure Care Plan
Coldwater Road Landfill - MID 005 356 860

Dear Mr. Conforti:

REALM proposes the following changes to the Post-Closure Care Plan (PCP) for the Coldwater Road Landfill facility based on the discussions from our April 6, 2006 meeting with MDEQ.

Monitoring Network Changes
We request that the following wells be utilized in the Post-Closure Care monitoring program:

Well Number	Unit To Be Monitored
B-7	Perched Zone
B-9	Perched Zone
B-18A	Perched Zone
B-19Ar	Perched Zone
B-24r	Perched Zone
B-28	Perched Zone
B-2D	Drift Zone
B-20D	Drift Zone
B-21D	Drift Zone
B-22D	Drift Zone
B-23Dr	Drift Zone (only if B-27D is dry)
B-27D	Drift Zone

The following additional monitoring will be conducted following the PCP procedures, but will not be included in the PCP to avoid confusion in the future. Monitoring well B-14 will be monitored for the next two years and monitoring well B-23Dr will be monitored for the next year as we phase out these wells and phase in monitoring wells B-28 and B-27D in their places within the PCP monitoring program. After the additional year or two of monitoring B-14 will be abandoned and monitoring well B-28 will permanently replace B-14 in the monitoring network, and B-23Dr will only be sampled if B-27D is dry.

Furthermore, the newly installed B-14 area zinc assessment monitoring wells B-29 and B-30 will also be monitored semi-annually for the next two years for field parameters and chromium, copper, nickel and zinc to continue to assess and evaluate the B-14 area. After the two year monitoring period, B-29 and B-30 will be abandoned.

Statistical Analysis Changes

We request the implementation of the randomized replacement method for non-detect baseline data for the vaults and monitoring wells at the site. Assigning a constant value (i.e., one half the detection limit) to non-detects in the baseline data set compromises the underlying assumptions of the control charts. Attachment 1 contains a memorandum dated February 17, 2006 that provides a description of the randomized replacement method and provides a few example data sets to illustrate the results of the technique.

We request that outliers be removed from the existing data sets utilizing the Grubbs test (or other appropriate test) as allowed in the U.S. EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 CFR Part 136) and presented in the memorandum contained in Attachment 2 dated February 28, 2006 for a few selected data sets. See the revised control charts for the vaults and for monitoring well B-14 contained in Attachment 3 to see the changes produced by the aforementioned randomized replacement method and the outlier analysis.

Using both the Shewart and CUSUM control charts is somewhat redundant, because they both detect shifts in means. The difference is that the CUSUM chart can detect small shifts in means (0-0.5 standard deviations) whereas the Shewart chart detects larger shifts in means (0.5-2.5 standard deviations). However, the higher sensitivity of the CUSUM chart make it more susceptible to false positive (out-of-control) outcomes. Therefore, we request only using the Shewart control charts to avoid such outcomes and still be able to detect shifts in means.

We also request that the statistical analysis of zinc in B-14 be permanently suspended and we request that B-14 be re-sampled only if the zinc concentration detected in B-14 is greater than the mean plus one standard deviation (i.e., currently 475 ug/L) during any semi-annual sampling event. As discussed in the B-14 Zinc Ground Water

Assessment Report (O'Brien & Gere, February 2006), the control charts will potentially be out of control for decades even if future results were all below detection limits. Therefore, continuing the statistical analysis of zinc in B-14 would produce false positive results causing the re-sampling of this well for zinc for the foreseeable future even though the zinc in B-14 is not attributable to the landfill. Furthermore, the statistical analysis provides no basis for evaluating whether a release from the landfill occurs and therefore does not meet the requirements for leak detection under RCRA.

Decision Tree Implementation

We request the implementation of a decision tree to guide the evaluation of the landfill leak detection system and post-closure ground water monitoring data to avoid unnecessary re-sampling events, while maintaining the essential purpose of the monitoring programs – identifying potential leaks from the landfill. The decision tree (see Figure 1) will be included in the PCP and will guide the evaluation of the monitoring data, MDEQ notification, and re-sampling events.

Following each semi-annual sampling event, the monitoring data will be entered into the statistical analysis spreadsheets and the Shewart chart control limits will be calculated and plotted. If there is a Shewart control limit exceedance (i.e., an out-of-control parameter) and this is not an historical exceedance of the control limit, then the MDEQ will be notified immediately and the vault or monitoring well will be re-sampled for the parameter exceeding the control limit. If the Shewart control limit is not exceeded, or the exceedance is a historical (i.e., continuing) exceedance caused by an earlier result, then the data will be plotted as discussed below.

The data will also be plotted on a simple chart to visually identify whether an increasing trend is observable, and a comparison of the four metals monitored on a semi-annual basis will be made to see if more than one metal concentration is increasing in a similar pattern or spiked in concentration at the same time. If two or more metals spiked at the same time at a concentration greater than their respective mean concentrations (as calculated on the statistical analysis spreadsheets), plus one standard deviation (i.e., a spike is confirmed), or there is a consistent observable increasing trend in the data over a four sampling event period, then the semi-annual or annual monitoring report containing the confirmed spike or consistent trend will be submitted to the MDEQ with a notification that further evaluation will be conducted.

If both of the above analyses result in a null (i.e., negative) hypothesis (no exceedances and no spikes or trends), then the semi-annual or annual monitoring report(s) will be submitted to the MDEQ, and routine semi-annual monitoring will continue for that monitoring point (i.e., well or vault).

The further evaluation will be conducted similar to the data analysis conducted in the B-14 Zinc Ground Water Assessment Report (O'Brien & Gere, February 2006). However, re-sampling will not be conducted. If upon further evaluation the detection indicates a potential leak from the landfill, then the MDEQ will be immediately notified and the results of the further evaluation will be summarized in a letter report and submitted to the MDEQ within 60 days following the submittal of the corresponding semi-annual or annual monitoring report containing the exceedance, and the leak detection system will be further evaluate and corrective measures may need to be taken.

If the further evaluation does not indicate a leak from the landfill, then the results of the further evaluation will be summarized in a letter report and submitted to the MDEQ within 60 days following the submittal of the corresponding semi-annual or annual monitoring report containing the exceedance and routine semi-annual monitoring will be continued.

Leak Detection System Discussion

At our April 6, 2006 meeting, the MDEQ requested GM determine the approximate volume of leachage (based on the concentrations observed in the sumps) that if released from the primary liner would produce the concentrations observed in the vaults. Table 1 summarizes the volume of leachate required to be released from the primary liner to produce the metals concentrations observed in the vaults. The calculations assume there are no initial concentrations in the vaults and all of the concentrations are from leachate. The values were calculated by multiplying the gallons within the vault at the approximate time of sample collection by the vault water concentration, then divided by the corresponding sump water concentration (i.e., simple proportioning). The FALSE statement indicates either the vault or sump had non-detectable concentrations of the metal of interest for that sample. Numerous false statements exist, in fact only two values could be calculated for chromium from all of the sampling conducted in the last 10 years. The calculated leachate volumes range from less than one gallon to more than 1,000 gallons where the values could be calculated. However, the average calculated leachate volumes for the remaining three metals were 36 gallons for copper, 42 gallons for nickel and 51 gallons for zinc. These volumes are conservative because they are based on the assumption that the vault water initially contained no metals. It is likely that if leachate was leaking out of the landfill through the primary liner that the leachate volume would be lower than the calculated volumes if background concentrations were taken into account. In fact, when the highest value is removed and the average volumes for these metals are recalculated, the average volume that would need to leak from the landfill to result in the historic vault metal concentrations reduce to 13 gallons for copper, 27 gallons for nickel and 42 gallons for zinc. Copper is generally found at the highest concentrations within the landfill sumps and is probably the best metal to utilize for this analysis.

Therefore, a leak as little as about 13 gallons of leachate through the primary liner could be detected in the leak detection vaults.

This illustrates that the leak detection system at the landfill is capable of detecting rather small quantities of leakage from the landfill.

After receipt of your comments, GM will incorporate the contents of this letter and your comments into amendments to the Post Closure Plan. GM will submit the Amendments to the Post Closure Plan to MDEQ within one week of receipt of comments.

If you have any questions or concerns, please contact me at (248) 753-5702.

Sincerely,

David Worrell
Project Manager

Enclosure

cc: Clifford Yantz (O'Brien & Gere)

Tables

Table 1
REALM - Coldwater Road Facility
Estimation of Maximum Potential Leachate Leakage Volumes

Vault	Sample Date	Dissolved Metals (ug/L)			
		Cr	Cu	Ni	Zn
A	11-Nov-96	<20	<20	30	60
	9-May-97	<10	<10	71	90
	15-Nov-97	<10	10	125	100
	14-May-98	<10	20	13	200
	13-Nov-98	<10	<10	20	220
	6-May-99	<10	<10	15	20
	22-Oct-99	<10	<10	16	30
	20-Jun-00	<10	<10	12	20
	10-Nov-00	<10	100	10	150
	24-May-01	<10	<10	10	20
	16-Nov-01	<10	<10	15	50
	31-May-02	<10	<10	<5	40
	4-Jun-03	<5	<5	10	<5
	19-Nov-04	6	<5	15	14
	15-Jun-05	<5	<5	13	21
B	15-Nov-97	<10	<10	96	50
	14-May-98	<10	<10	14	30
	13-Nov-98	<10	10	17	80
	6-May-99	<10	10	6	20
	22-Oct-99	<10	<10	16	20
	20-Jun-00	<10	30	9	30
	10-Nov-00	<5	40	14	90
	24-May-01	<10	20	12	40
	16-Nov-01	<10	10	8	60
	31-May-02	<10	<10	<5	20
	12-Dec-02	NS	NS	NS	NS
	4-Jun-03	<5	<5	7	<5
	30-Jun-04	<5	12	7	<5
	19-Nov-04	NS	NS	NS	NS
	15-Jun-05	<5	<5	14	20
	1-Dec-05	**<5**	**<5**	**8**	**50**
C	15-Nov-97	<10	<10	122	50
	14-May-98	<10	<10	23	40
	13-Nov-98	<10	<10	21	30
	19-Mar-99	<10	<10	19	20
	22-Oct-99	<10	<10	18	10
	20-Jun-00	<10	140	19	170
	10-Nov-00	<10	<10	17	40
	24-May-01	<10	<10	17	30
	16-Nov-01	<10	<10	15	60
	31-May-02	<10	<10	14	40
	4-Jun-03	<5	<5	8	<5
	8-Dec-03	<5	11	14	63
	30-Jun-04	<5	<5	12	8
	19-Nov-04	<5	<5	20	6
	15-Jun-05	<5	<5	15	39
	1-Dec-05	**<5**	**<5**	**18**	**15**

Sump	Sample Date	Dissolved Metals (ug/L)			
		Cr	Cu	Ni	Zn
A	11-Nov-96	150	8800	1300	30
	7-May-97	20	2450	422	10
	5-Nov-97	<1	1050	376	20
	5-May-98	40	1380	383	10
	6-Nov-98	40	2950	519	<10
	26-Apr-99	40	2380	375	<10
	22-Oct-99	20	960	155	30
	20-Jun-00	40	1160	187	20
	10-Nov-00	30	1050	174	20
	24-May-01	40	1030	163	20
	16-Nov-01	40	990	160	20
	31-May-02	80	880	127	20
	3-Jun-03	41	1180	156	22
	19-Nov-04	31	492	70	20
	15-Jun-05	215	1930	200	<5
B	5-Nov-97	50	1050	204	10
	5-May-98	280	5600	644	10
	6-Nov-98	100	2690	558	<10
	26-Apr-99	30	500	238	<10
	22-Oct-99	30	750	387	<10
	20-Jun-00	160	1180	160	<10
	10-Nov-00	70	1170	205	<10
	24-May-01	120	1490	225	<10
	16-Nov-01	290	3050	426	<10
	31-May-02	160	1070	154	<10
	12-Dec-03	215	1790	260	27
	3-Jun-03	118	1510	216	<5
	30-Jun-04	508	1880	225	7
	19-Nov-04	148	1100	163	13
	15-Jun-05	324	1050	160	19
	5-Dec-05	**81**	**374**	**56**	**22**
C	5-Nov-97	<10	3150	1320	20
	5-May-98	60	5640	891	10
	6-Nov-98	<10	4660	145	<10
	26-Apr-99	<10	1730	1148	<10
	22-Oct-99	<10	1330	1050	<10
	20-Jun-00	<10	3370	802	<10
	10-Nov-00	<10	620	998	<10
	24-May-01	<10	4950	1110	20
	16-Nov-01	10	5470	1800	10
	31-May-02	<10	2510	612	10
	3-Jun-03	15	4790	1030	8
	8-Dec-03	9	607	708	62
	30-Jun-04	46	2470	539	5
	19-Nov-04	32	3190	874	13
	15-Jun-05	21	2350	505	16
	5-Dec-05	**30**	**1570**	**363**	**12**

Vault Liquid Volume (at time of sampling) (gallons)	Volume of Liquids from Landfill (gallons)			
	Based on: Cr	Cu	Ni	Zn
60	FALSE	FALSE	1.38	FALSE
109	FALSE	FALSE	18.34	FALSE
40	FALSE	0.38	13.30	FALSE
135	FALSE	1.96	4.58	FALSE
31	FALSE	FALSE	1.19	FALSE
126	FALSE	FALSE	5.04	FALSE
49	FALSE	FALSE	5.06	49.00
58	FALSE	FALSE	3.72	58.00
39	FALSE	3.71	2.24	FALSE
116	FALSE	FALSE	7.12	116.00
71	FALSE	FALSE	6.66	FALSE
69	FALSE	FALSE	FALSE	FALSE
214	FALSE	FALSE	13.72	FALSE
30	5.81	FALSE	6.43	21.00
84	FALSE	FALSE	5.46	FALSE
974	FALSE	FALSE	458.35	FALSE
1,105	FALSE	FALSE	24.02	FALSE
129	FALSE	0.48	3.93	FALSE
1,081	FALSE	21.62	27.25	FALSE
46	FALSE	FALSE	1.90	FALSE
263	FALSE	6.69	14.79	FALSE
869	FALSE	29.71	59.35	FALSE
660	FALSE	8.86	35.20	FALSE
748	FALSE	2.45	14.05	FALSE
611	FALSE	FALSE	FALSE	FALSE
33	FALSE	FALSE	FALSE	FALSE
1,427	FALSE	FALSE	46.25	FALSE
1,323	FALSE	8.44	41.16	FALSE
525	FALSE	FALSE	FALSE	FALSE
317	FALSE	FALSE	27.74	FALSE
325	FALSE	FALSE	46.43	FALSE
51	FALSE	FALSE	4.71	FALSE
626	FALSE	FALSE	16.16	FALSE
38	FALSE	FALSE	5.50	FALSE
22	FALSE	FALSE	0.36	FALSE
48	FALSE	FALSE	0.82	FALSE
275	FALSE	11.42	6.51	FALSE
39	FALSE	FALSE	0.66	FALSE
228	FALSE	FALSE	3.49	FALSE
443	FALSE	FALSE	3.69	FALSE
638	FALSE	FALSE	14.59	FALSE
1,454	FALSE	FALSE	11.29	FALSE
705	FALSE	12.78	13.94	FALSE
1,437	FALSE	FALSE	31.99	FALSE
33	FALSE	FALSE	0.76	15.23
1,213	FALSE	FALSE	36.03	FALSE
210	FALSE	FALSE	10.41	FALSE

Table 1
REALM - Coldwater Road Facility
Estimation of Maximum Potential Leachate Leakage Volumes

Vault	Sample Date	Dissolved Metals (ug/L) Cr	Cu	Ni	Zn
D	15-Nov-97	<10	<10	114	30
	14-May-98	<10	30	23	50
	13-Nov-98	<10	<10	20	30
	19-Mar-99	<10	30	20	40
	22-Oct-99	<10	<10	23	20
	20-Jun-00	<10	60	21	70
	10-Nov-00	<10	<10	23	20
	24-May-01	<10	10	18	30
	16-Nov-01	<10	10	17	50
	4-Jun-03	<5	<5	8	<5
	8-Dec-03	8	17	14	63
	15-Jun-05	<5	<5	25	17
	17-Jan-06	**6**	**14**	**37**	**<5**
E	15-Nov-97	<10	<10	116	40
	14-May-98	<10	<10	7	60
	30-Nov-98	10	<10	46	60
	19-Mar-99	<10	20	6	30
	22-Oct-99	<10	<10	6	20
	20-Jun-00	<10	30	<5	30
	10-Nov-00	<10	40	5	60
	12-Mar-01	<10	<10	5	10
	16-Nov-01	<10	10	6	60
	4-Jun-03	<5	6.0	<5	50
	30-Jun-04	<5	<5	6	43
	19-Nov-04	<5	7	22	11
	15-Jun-05	<5	<5	12	31
	1-Dec-05	**<5**	**66**	**<5**	**73**
F	15-Nov-97	<10	<10	93	130
	14-May-98	<10	20	7	130
	30-Nov-98	10	<10	47	30
	19-Mar-99	<10	20	9	20
	22-Oct-99	<10	<10	6	20
	20-Jun-00	<10	40	<5	80
	10-Nov-00	<10	60	5	100
	24-May-01	<10	60	5	100
	16-Nov-01	<10	40	<5	100
	31-May-02	<10	<10	6	20
	4-Jun-03	<5	<5	<5	<5
	30-Jun-04	<5	5	<5	10
	19-Nov-04	<5	<5	15	8
	15-Jun-05	<5	<5	9	17
	14-Feb-06	**–**	**<4**	**–**	**–**

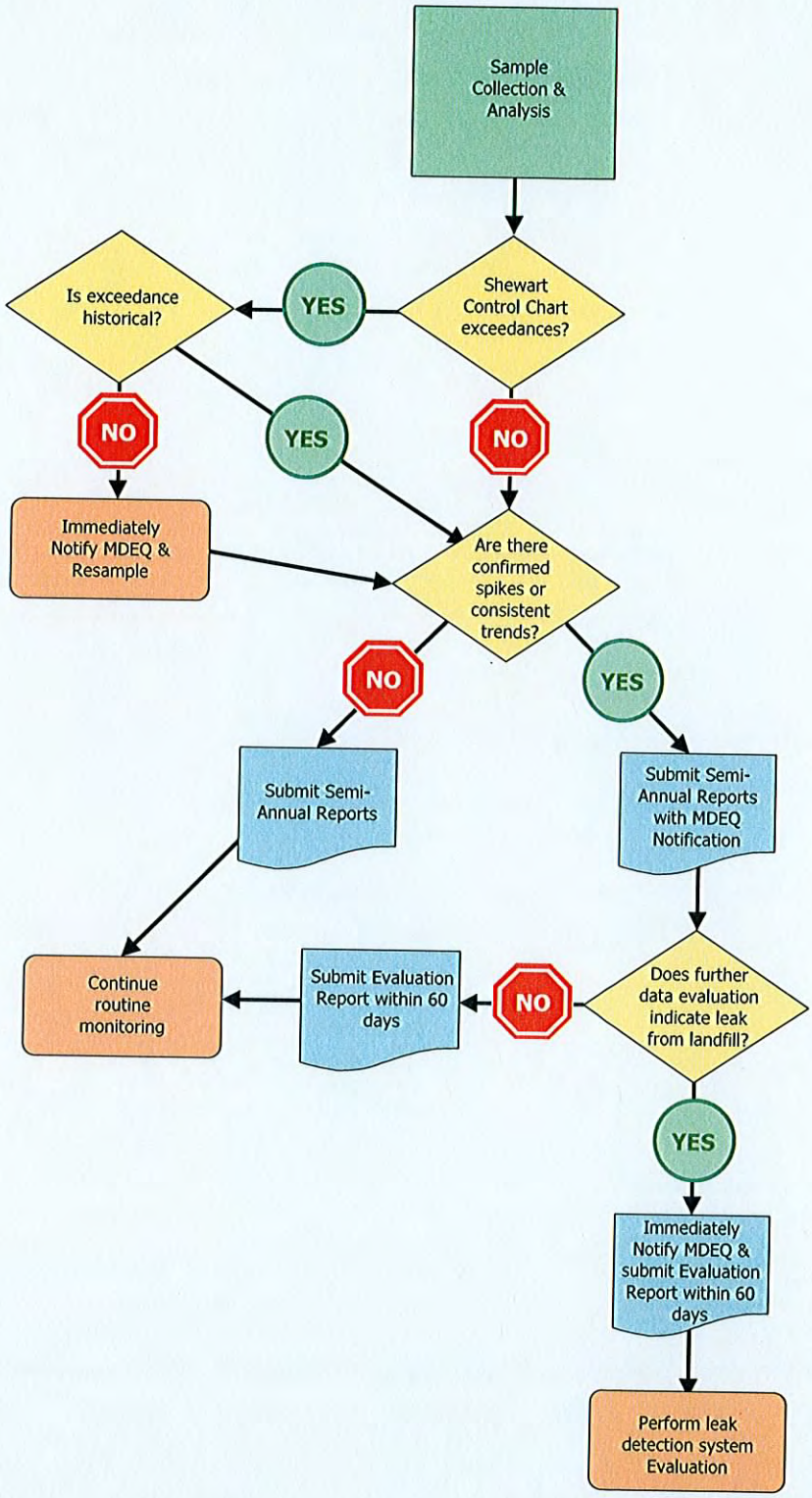
Sump	Sample Date	Dissolved Metals (ug/L) Cr	Cu	Ni	Zn
D	5-Nov-97	20	3000	1020	20
	5-May-98	110	3810	1120	10
	6-Nov-98	10	2530	101	<10
	26-Apr-99	10	770	1013	<10
	22-Oct-99	<10	70	735	<10
	20-Jun-00	<10	430	656	<10
	10-Nov-00	20	760	831	<10
	24-May-01	10	1000	1270	<10
	16-Nov-01	<10	100	414	<10
	3-Jun-03	7	878	540	<5
	8-Dec-03	7	651	423	18
	15-Jun-05	14	737	822	<5
	15-Jun-05	12	724	812	<5
E	5-Nov-97	<10	10	72	30
	5-May-98	<10	20	23	40
	6-Nov-98	<10	60	11	40
	26-Apr-99	<10	30	22	<10
	22-Oct-99	<10	50	10	30
	20-Jun-00	<10	20	<10	20
	10-Nov-00	<10	30	7	20
	24-Feb-01	<10	20	7	20
	16-Nov-01	<10	10	23	30
	3-Jun-03	<5	20	11	7
	30-Jun-04	<5	8	13	33
	19-Nov-04	19	14	16	16
	15-Jun-05	285	1220	337	5
	5-Dec-05	**142**	**514**	**232**	**<5**
F	5-Nov-97	<10	<10	49	40
	5-May-98	<10	<10	6	30
	6-Nov-98	<10	70	7	50
	26-Apr-99	<10	40	27	10
	22-Oct-99	<10	30	6	20
	20-Jun-00	<10	<10	<5	<10
	10-Nov-00	<10	<10	30	30
	24-May-01	<10	20	<10	20
	16-Nov-01	<10	10	8	20
	31-May-02	<10	20	<5	160
	3-Jun-03	<5	12	<5	21
	30-Jun-04	<5	27	13	20
	19-Nov-04	12	8	14	11
	15-Jun-05	<5	9	13	55
	17-Jan-06	**107**	**475**	**124**	**12**

Vault Liquid Volume (at time of sampling) (gallons)	Volume of Liquids from Landfill (gallons) Based on: Cr	Cu	Ni	Zn
68	FALSE	FALSE	7.60	FALSE
108	FALSE	0.85	2.22	FALSE
39	FALSE	FALSE	7.72	FALSE
34	FALSE	1.32	0.67	FALSE
55	FALSE	FALSE	1.72	FALSE
42	FALSE	5.86	1.34	FALSE
52	FALSE	FALSE	1.44	FALSE
66	FALSE	0.66	0.94	FALSE
109	FALSE	10.90	4.48	FALSE
1,161	FALSE	FALSE	17.20	FALSE
431	FALSE	11.25	14.26	FALSE
108	FALSE	FALSE	3.28	FALSE
68	34.00	1.31	3.10	FALSE
117	FALSE	FALSE	FALSE	FALSE
111	FALSE	FALSE	33.78	FALSE
95	FALSE	FALSE	FALSE	FALSE
91	FALSE	60.67	24.82	FALSE
72	FALSE	FALSE	43.20	48.00
34	FALSE	FALSE	FALSE	FALSE
52	FALSE	FALSE	37.14	FALSE
34	FALSE	FALSE	24.29	17.00
61	FALSE	61.00	15.91	FALSE
2,049	FALSE	614.70	FALSE	FALSE
2,352	FALSE	FALSE	1085.54	FALSE
33	FALSE	16.50	FALSE	22.69
809	FALSE	FALSE	28.81	FALSE
104	FALSE	13.35	FALSE	FALSE
85	FALSE	FALSE	FALSE	FALSE
54	FALSE	FALSE	FALSE	FALSE
40	FALSE	FALSE	FALSE	24.00
18	FALSE	9.00	6.00	FALSE
100	FALSE	FALSE	100.00	100.00
12	FALSE	FALSE	FALSE	FALSE
44	FALSE	FALSE	7.33	FALSE
25	FALSE	FALSE	FALSE	FALSE
32	FALSE	FALSE	FALSE	FALSE
43	FALSE	FALSE	FALSE	5.38
2,586	FALSE	FALSE	FALSE	FALSE
107	FALSE	19.81	FALSE	53.50
28	FALSE	FALSE	FALSE	20.36
516	FALSE	FALSE	357.23	159.49
418	FALSE	FALSE	FALSE	FALSE
	AVERAGE:	35.99	42.44	50.69
	AVERAGE (not using highest value)	12.84	26.87	42.32
	AVERAGE (not using two highest values)	10.83	20.33	36.18

Figures

FIGURE 1

DECISION TREE
COLDWATER ROAD LANDFILL FACILITY



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ATTACHMENT 1

February 17, 2006 Baseline Data Memorandum

To: Clifford Yantz *cc:* William Schew
From: Parikhit (Ricky) Sinha
Re: Coldwater Creek Statistical Methods - Baseline data
File:
Date: February 17, 2006

Control charts are statistical tools for determining when a stable system, defined as one with a fixed mean level and a fixed variation, departs from stability. In order for a control chart to be effective, the baseline mean and variance must be well characterized. When the baseline data contains a high percentage of non-detects (data that falls below the analytical reporting limit), the baseline becomes difficult to characterize. Simple substitution of non-detect data by half the reporting limit often leads to multiple baseline data points with the same concentration, resulting in an artificially low baseline standard deviation.

The problem of characterizing data sets with non-detects has been addressed by USEPA (2000, 2002) [1][2]. The most common approach is to use characteristics of detected data to estimate replacement values for the non-detected data (e.g., maximum likelihood estimation, log-probit methods). However, when the percentage of non-detects in the data set is high (e.g., >50%) or the sample size is low (e.g., $n < 5$), these "distributional" approaches are not recommended, due to the low number of detected samples. Instead, non-parametric methods, such as the bounding method, are recommended (see USEPA, 2002).

Bounding methods replace non-detect data with a random value between 0 and the reporting limit. Summary statistics on the randomly replaced data set are recorded and then a new iteration of random replacements are made. This process is repeated to generate a distribution of summary statistics, in contrast to the single set of summary statistics generated by the simple substitution method. An example of the use of the simple substitution and bounding methods with respect to baseline Nickel concentrations in Vault A of the Coldwater Road Landfill is presented in Table 1. Simple substitution of non-detects with half the reporting limit results in a baseline Nickel standard deviation of 14.07 µg/L, whereas the ten bounding iterations results in an average baseline Nickel standard deviation of 15.67 µg/L. In both the simple substitution and the average bounding approach, the baseline Nickel mean concentration is ~24.2 µg/L.

Table 1. Summary statistics for baseline Nickel concentrations (µg/L) in Vault A.

	Mar-95	Jun-95	Aug-95	Nov-95	Mar-96	Jun-96	Aug-96	Nov-96	µ	σ
Conc. (ug/L)	<40	<30	<40	43	46	<20	<20	30		
Simple substitution*	20	15	20	43	46	10	10	30	24.25	**14.07**
Bounding+										
Iteration 1	11.20	6.66	24.80	43	46	2.67	16.84	30	22.65	16.20
Iteration 2	7.72	17.64	21.93	43	46	14.68	3.80	30	23.10	15.49
Iteration 3	21.70	14.87	9.36	43	46	0.39	13.23	30	22.32	16.19
Iteration 4	37.62	10.83	11.68	43	46	4.69	6.41	30	23.78	17.21
Iteration 5	20.96	7.74	38.91	43	46	15.45	9.45	30	26.44	15.18
Iteration 6	24.34	20.34	33.58	43	46	0.60	13.09	30	26.37	15.16
Iteration 7	16.47	26.04	3.30	43	46	6.63	8.43	30	22.48	16.46
Iteration 8	10.31	12.35	25.13	43	46	12.63	17.79	30	24.65	13.99
Iteration 9	4.66	20.27	14.77	43	46	18.31	3.37	30	22.55	16.01

	Mar-95	Jun-95	Aug-95	Nov-95	Mar-96	Jun-96	Aug-96	Nov-96	μ	σ
Iteration 10	32.51	17.77	36.08	43	46	3.75	14.07	30	27.90	14.76
Bounding Average									24.22	**15.67**

*Simple substitution replaces non-detects with half the reporting limit.
+Bounding replaces non-detects with a random value between 0 and the reporting limit.

The difference in the standard deviations derived from the simple substitution and bounding methods can be further illustrated by extending the example in Table 1. Instead of ten bounding iterations, Figure 1 shows the results of ten thousand bounding iterations for baseline Nickel concentrations in Vault A. On average over the ten thousand iterations, the baseline Nickel standard deviation is 15.70 μg/L, whereas the baseline Nickel standard deviation using simple substitution is 14.07 μg/L. This simple substitution baseline standard deviation is only in the 20th percentile of the distribution of standard deviations generated by the bounding method and is therefore a low estimate. Again, the low standard deviations from simple substitution are due to the repetition of values obtained by taking half of the reporting limit (e.g., the value 20 appears twice and the value 10 appears twice in the simple substitution example in Table 1).

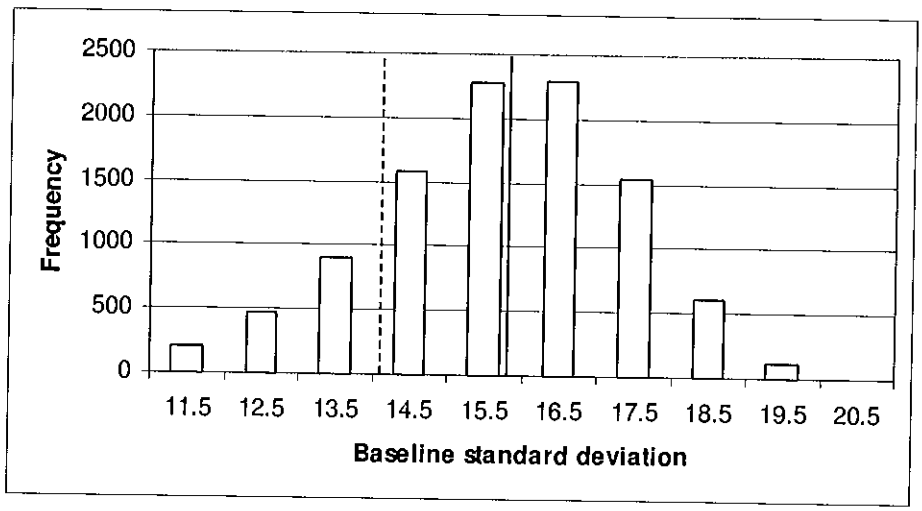


Figure 1. Histogram of baseline standard deviations for Nickel (μg/L) in Vault A for a bounding approach with 10,000 iterations. The dashed line indicates the baseline standard deviation using simple substitution (half the reporting limit) for non-detect data. The solid line indicates the bounding average baseline standard deviation.

Instead of taking a low estimate of the baseline standard deviation obtained from simple substitution, a central estimate of the baseline standard deviation can be taken from the bounding method. When central estimates of means and standard deviations are used to characterize the baseline of a control chart, the control chart may become a more useful tool for detecting departures from stability. Instead of being overly sensitive to minor fluctuations in concentrations (due to an artificially small baseline standard deviation), it will only be out of control for significant departures from the baseline. For example, the control chart for copper in Vault B of the Coldwater Road Landfill reflects an out of control state with respect to the CUSUM limit (Figure 2a). This is due to some relatively high copper samples (30 and 40 μg/L taken in June and November, 2000, respectively) relative to the baseline mean of 6.25 μg/L. However, in the time since these high samples were taken, the more recent copper samples have

averaged 6.77 µg/L, close to the baseline mean. Nevertheless, the CUSUM limit continues to be exceeded. This is due to an artificially small baseline standard deviation (2.31 µg/L) resulting from simple substitution of non-detects in the baseline. When bounding methods are used to obtain an average baseline standard deviation (4.20 µg/L), the CUSUM limit is no longer exceeded (Figure 2b).

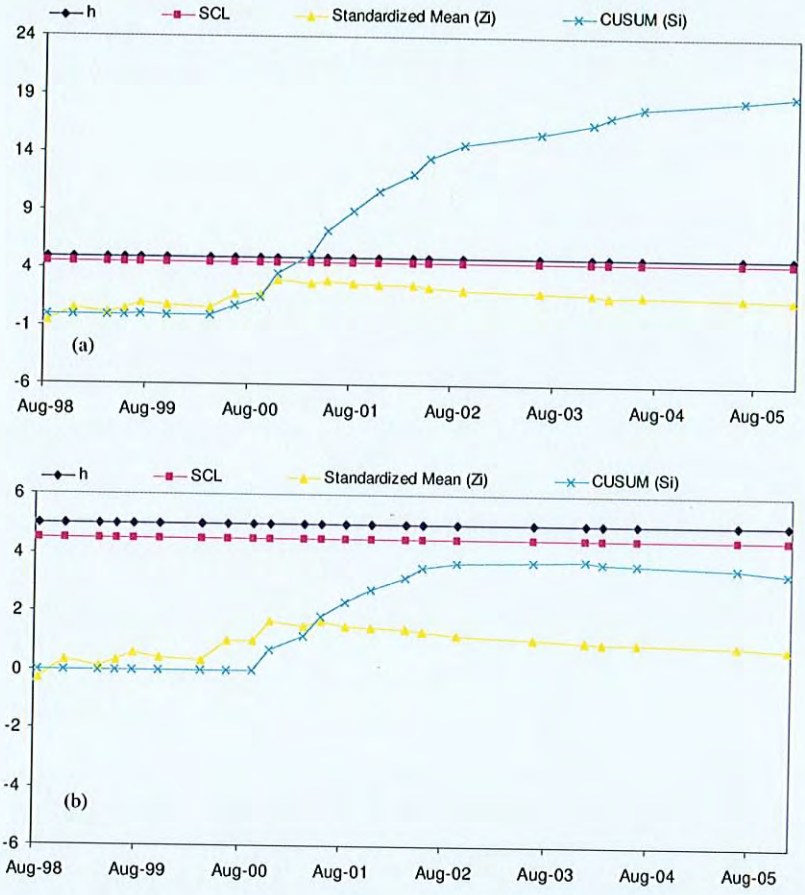


Figure 2. Control charts for copper in Vault B using a baseline obtained by a) simple substitution of non-detects by half the reporting limit and b) average bounding methods. Two control limits are shown in each plot: the standardized mean (Z_i) is compared to the Shewart control limit (SCL), and the cumulative mean difference (CUSUM S_i) is compared to the CUSUM limit (h).

This exercise of using bounding instead of simple substitution to determine the baseline of a control chart can be applied to all constituents that are currently out of control in the Coldwater Road Landfill (see Table 2). In half of these cases, constituents that were out of control using the simple substitution method are no longer out of control when using the bounding method. In the other cases, the constituents remain out of control despite the increase in the baseline standard deviation, because the constituent concentrations are significantly above baseline levels.

Table 2. Comparison of control chart results for selected constituents using simple substitution to replace baseline non-detects and using bounding to replace baseline non-detects.

Constituent	Copper	Copper	Copper	Nickel	Chromium	Zinc
Location	Vault B	Vault D	Vault F	Vault A	B-19A	B-14
Simple substitution						
μ	6.25	7.50	9.38	24.25	3.44	19.38
σ	2.31	2.67	4.96	14.07	1.29	19.72
Out of control?						
Shewart	No	No	No	No	**Yes**	Yes
Cusum	**Yes**	Yes	**Yes**	Yes	No	Yes
Bounding						
Average μ	6.29	7.62	9.50	24.22	3.44	19.44
Average σ	4.20	5.24	6.70	15.67	2.22	20.44
Out of control?						
Shewart	No	No	No	No	**No**	Yes
Cusum	**No**	Yes	**No**	Yes	No	Yes

In summary, the bounding method can be used to provide a more realistic baseline standard deviation than simple substitution for use in control charts containing a high percentage of non-detects in baseline data. The purpose of bounding is to reduce the number of "false positive" out-of-control outcomes in the control charts that result from an artifically low baseline standard deviation.

References

[1] [U.S. EPA] U.S. Environmental Protection Agency. 2000. Guidance for data quality assessment: Practical methods for data analysis. EPA/600/R-96/084. Office of Environmental Information, Washington DC.

[2] [U.S. EPA] U.S. Environmental Protection Agency. 2002. Calculating upper confidence limits for exposure point concentrations at hazardous waste sites. OSWER 9285.6-10. Office of Solid Waste and Emergency Response, Washington DC.

ATTACHMENT 2

February 28, 2006 Outlier Memorandum

To: Clifford Yantz *cc:* William Schew
From: Parikhit (Ricky) Sinha
Re: Coldwater Creek Statistical Methods - Outliers
File:
Date: February 28, 2006

In their Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 CFR Part 136), U.S. EPA (2003) outlines the use of the Grubbs test for detection of outliers:

$$t = \frac{(\mu - x_e)}{\sigma} \qquad \text{Equation 1}$$

if $t > t_{crit}$, then x_e is an outlier

where:
μ is the sample mean
σ is the sample standard deviation
x_e is the most extreme data value (farthest from the sample mean)
t_{crit} is the sample-size dependent critical value for t in the Grubbs Test.

For the three out-of-control constituents at the Coldwater Road Landfill (Copper in Vault D, Nickel in Vault A, Zinc in B-14), the most extreme data value in each data set was evaluated using the Grubbs test. If the extreme value was determined to be an outlier, it was removed from the data set and the Cusum control chart was reassessed (Table 1). The data set for Zinc in B-14 was evaluated using log-transformed data, since the Grubbs test is designed for normally distributed data, and because the data for Zinc in B-14 was determined to be lognormal using the Shapiro-Wilke test.

Table 1. Outlier analysis of selected constituents at the Coldwater Road Landfill.

Location	Vault D	Vault A	B-14
Constituent	Copper	Nickel	Zinc
x_e (µg/L)	60	125	1260
t	3.44	3.46	1.85
t_{crit}	2.76	2.86	2.51
Outlier?	Yes	Yes	No
Cusum in control?	Yes	Yes	N/A

N/A = not applicable

Outliers were detected in the data sets for Copper in Vault D and Nickel in Vault A. When the outliers were removed, Nickel in Vault A and Copper in Vault D were no longer out of control in the Cusum control chart. However, Copper in Vault D was out of control for over six years due to the presence of 3 detections at 30 µg/L in the data set. Following removal of outliers, the Grubbs test was repeated for Copper in Vault D and Nickel in Vault A using the truncated data sets, but no further outliers were detected.

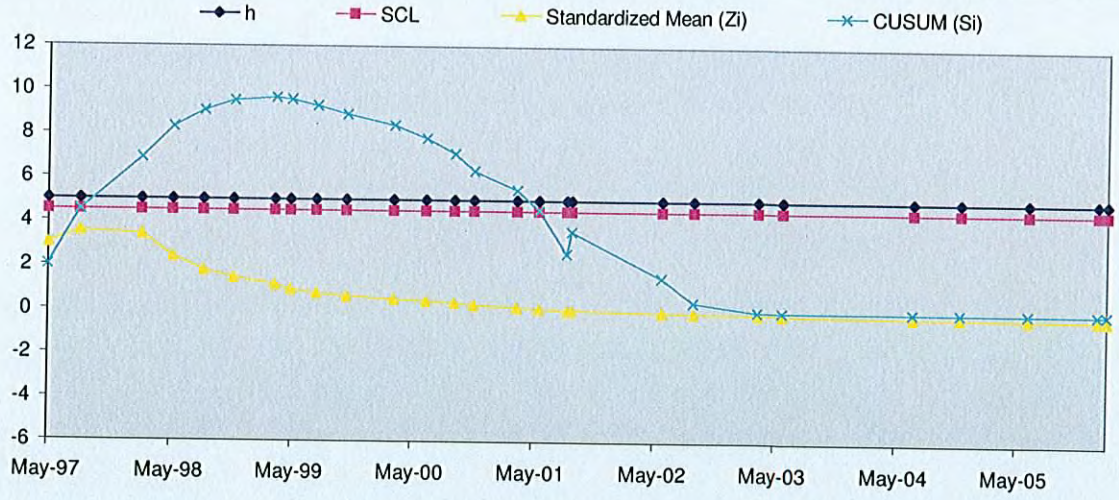
ATTACHMENT 3

Revised Vault and B-14 Control Charts

REALM - COLDWATER ROAD FACILITY
RCRA LANDFILL LEAK DETECTION SYSTEM
COMBINED SHEWART - CUSUM CHART
Vault A - Nickel

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Mar-95	20		
2	Jun-95	15		
3	Aug-95	20		
4	Nov-95	43	24.22	15.67
5	Mar-96	46		
6	Jun-96	10		
7	Aug-96	10		
8	Nov-96	30		

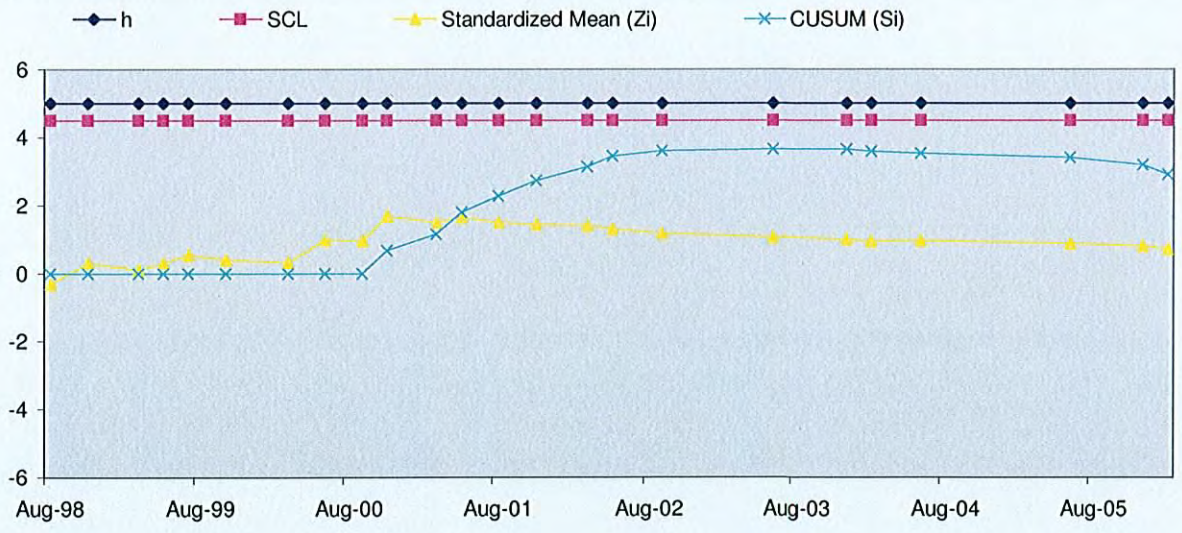
Ti	Date	h	SCL	k	Conc. (Xi)	Mean (Xi)	Standardized Mean (Zi)	(Zi-k)	CUSUM (Si)
9	May-97	5	4.5	1	71	71.00	2.99	1.99	1.99
10	Aug-97	5	4.5	1	88	79.50	3.53	2.53	4.51
12	Feb-98	5	4.5	1	73	77.33	3.39	2.39	6.90
13	May-98	5	4.5	1	15	61.75	2.40	1.40	8.30
14	Aug-98	5	4.5	1	13	52.00	1.77	0.77	9.07
15	Nov-98	5	4.5	1	20	46.67	1.43	0.43	9.50
16	Mar-99	5	4.5	1	14	42.00	1.13	0.13	9.64
17	May-99	5	4.5	1	15	38.63	0.92	-0.08	9.56
18	Jul-99	5	4.5	1	13	35.78	0.74	-0.26	9.29
19	Oct-99	5	4.5	1	16	33.80	0.61	-0.39	8.91
20	Mar-00	5	4.5	1	15	32.09	0.50	-0.50	8.41
21	Jun-00	5	4.5	1	12	30.42	0.40	-0.60	7.80
22	Sep-00	5	4.5	1	14	29.15	0.31	-0.69	7.12
23	Nov-00	5	4.5	1	10	27.79	0.23	-0.77	6.35
24	Mar-01	5	4.5	1	7	26.40	0.14	-0.86	5.48
25	May-01	5	4.5	1	10	25.38	0.07	-0.93	4.56
26	Aug-01	5	4.5	1	14	24.71	0.03	-0.97	3.59
27	Aug-01	5	4.5	1	15	24.17	0.00	-1.00	2.59
28	May-02	5	4.5	1	2.5	23.03	-0.08	-1.08	1.51
29	Sep-02	5	4.5	1	14	22.58	-0.10	-1.10	0.41
30	Mar-03	5	4.5	1	9	21.93	-0.15	-1.15	0.00
31	Jun-03	5	4.5	1	10	21.39	-0.18	-1.18	0.00
32	Jun-04	5	4.5	1	8	20.80	-0.22	-1.22	0.00
33	Nov-04	5	4.5	1	15	20.56	-0.23	-1.23	0.00
34	Jun-05	5	4.5	1	13	20.26	-0.25	-1.25	0.00
35	Jan-06	5	4.5	1	13	19.98	-0.27	-1.27	0.00
36	Feb-06	5	4.5	1	14	19.76	-0.28	-1.28	0.00



REALM - COLDWATER ROAD FACILITY
RCRA LANDFILL LEAK DETECTION SYSTEM
COMBINED SHEWART - CUSUM CHART
Vault B - Copper

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-96	10		
2	Nov-96	10		
3	Feb-97	5		
4	May-97	5	**6.29**	**4.20**
5	Aug-97	5		
6	Nov-97	5		
7	Feb-98	5		
8	May-98	5		

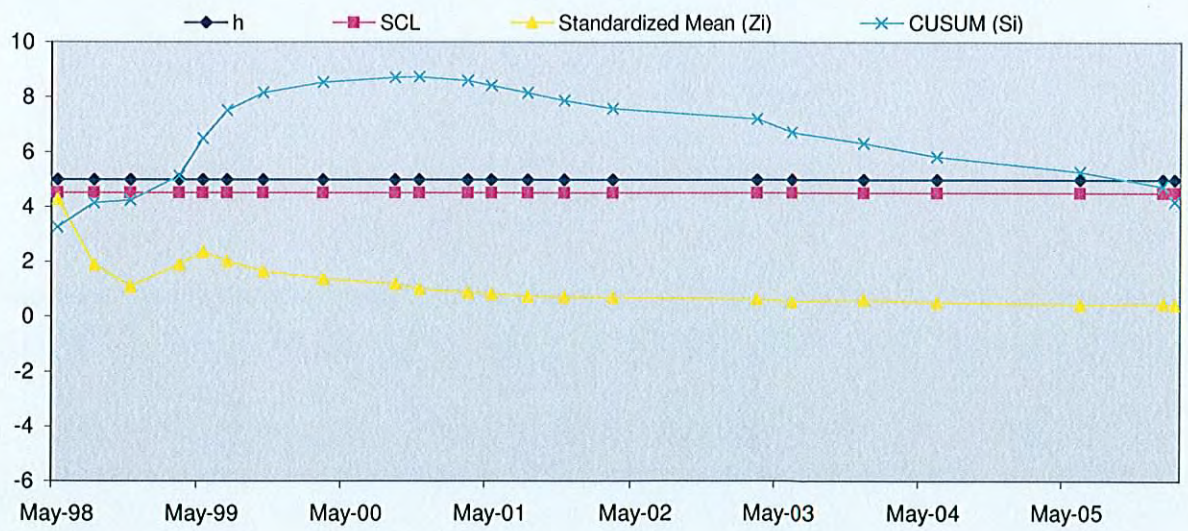
Ti	Date	h	SCL	k	Conc. (Xi)	Mean (Xi)	Standardized Mean (Zi)	(Zi-k)	CUSUM (Si)
9	Aug-98	5	4.5	1	5	5.00	-0.31	-1.31	0.00
10	Nov-98	5	4.5	1	10	7.50	0.29	-0.71	0.00
11	Mar-99	5	4.5	1	5	6.67	0.09	-0.91	0.00
12	May-99	5	4.5	1	10	7.50	0.29	-0.71	0.00
13	Jul-99	5	4.5	1	13	8.60	0.55	-0.45	0.00
14	Oct-99	5	4.5	1	5	8.00	0.41	-0.59	0.00
15	Mar-00	5	4.5	1	5	7.57	0.31	-0.69	0.00
16	Jun-00	5	4.5	1	30	10.38	0.97	-0.03	0.00
17	Sep-00	5	4.5	1	10	10.33	0.96	-0.04	0.00
18	Nov-00	5	4.5	1	40	13.30	1.67	0.67	0.67
19	Mar-01	5	4.5	1	5	12.55	1.49	0.49	1.16
20	May-01	5	4.5	1	20	13.17	1.64	0.64	1.80
21	Aug-01	5	4.5	1	5	12.54	1.49	0.49	2.28
22	Nov-01	5	4.5	1	10	12.36	1.44	0.44	2.73
23	Mar-02	5	4.5	1	10	12.20	1.41	0.41	3.14
24	May-02	5	4.5	1	5	11.75	1.30	0.30	3.44
25	Sep-02	5	4.5	1	2.5	11.21	1.17	0.17	3.61
26	Jun-03	5	4.5	1	2.5	10.72	1.06	0.06	3.66
27	Dec-03	5	4.5	1	6	10.47	1.00	0.00	3.66
28	Feb-04	5	4.5	1	5	10.20	0.93	-0.07	3.59
29	Jun-04	5	4.5	1	12	10.29	0.95	-0.05	3.54
30	Jun-05	5	4.5	1	2.5	9.93	0.87	-0.13	3.41
31	Dec-05	5	4.5	1	2.5	9.61	0.79	-0.21	3.20
32	Feb-06	5	4.5	1	2	9.29	0.71	-0.29	2.91



REALM - COLDWATER ROAD FACILITY
RCRA LANDFILL LEAK DETECTION SYSTEM
COMBINED SHEWART - CUSUM CHART
Vault D - Copper

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Mar-95	10	7.62	5.24
2	Jun-96	10		
3	Aug-96	10		
4	Nov-96	10		
5	May-97	5		
6	Aug-97	5		
7	Nov-97	5		
8	Feb-98	5		

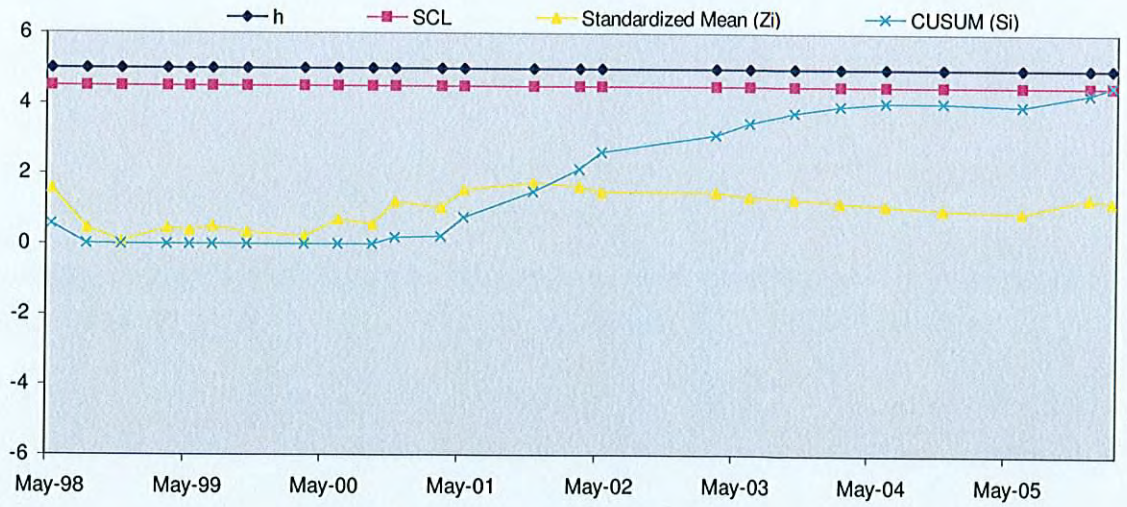
Ti	Date	h	SCL	k	Conc. (Xi)	Mean (Xi)	Standardized Mean (Zi)	(Zi-k)	CUSUM (Si)
9	May-98	5	4.5	1	30	30.00	4.27	3.27	3.27
10	Aug-98	5	4.5	1	5	17.50	1.89	0.89	4.16
11	Nov-98	5	4.5	1	5	13.33	1.09	0.09	4.25
12	Mar-99	5	4.5	1	30	17.50	1.89	0.89	5.13
13	May-99	5	4.5	1	30	20.00	2.36	1.36	6.49
14	Jul-99	5	4.5	1	9	18.17	2.01	1.01	7.51
15	Oct-99	5	4.5	1	5	16.29	1.65	0.65	8.16
16	Mar-00	5	4.5	1	5	14.88	1.38	0.38	8.55
18	Sep-00	5	4.5	1	5	13.78	1.18	0.18	8.72
19	Nov-00	5	4.5	1	5	12.90	1.01	0.01	8.73
20	Mar-01	5	4.5	1	5	12.18	0.87	-0.13	8.60
21	May-01	5	4.5	1	10	12.00	0.84	-0.16	8.44
22	Aug-01	5	4.5	1	5	11.46	0.73	-0.27	8.17
23	Nov-01	5	4.5	1	10	11.36	0.71	-0.29	7.88
24	Mar-02	5	4.5	1	10	11.27	0.70	-0.30	7.58
25	Mar-03	5	4.5	1	5	10.88	0.62	-0.38	7.20
26	Jun-03	5	4.5	1	2.5	10.38	0.53	-0.47	6.73
27	Dec-03	5	4.5	1	17	10.75	0.60	-0.40	6.32
28	Jun-04	5	4.5	1	2.5	10.32	0.51	-0.49	5.84
29	Jun-05	5	4.5	1	2.5	9.93	0.44	-0.56	5.28
30	Jan-06	5	4.5	1	14	10.12	0.48	-0.52	4.75
31	Feb-06	5	4.5	1	5	9.89	0.43	-0.57	4.19



REALM - COLDWATER ROAD FACILITY
RCRA LANDFILL LEAK DETECTION SYSTEM
COMBINED SHEWART - CUSUM CHART
Vault F - Copper

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	10	9.50	6.70
2	Aug-95	10		
3	Jun-96	10		
4	Aug-96	20		
5	Nov-96	10		
6	Aug-97	5		
7	Nov-97	5		
8	Feb-98	5		

Ti	Date	h	SCL	k	Conc. (Xi)	Mean (Xi)	Standardized Mean (Zi)	(Zi-k)	CUSUM (Si)
9	May-98	5	4.5	1	20	20.00	1.57	0.57	0.57
10	Aug-98	5	4.5	1	5	12.50	0.45	-0.55	0.01
11	Nov-98	5	4.5	1	5	10.00	0.07	-0.93	0.00
12	Mar-99	5	4.5	1	20	12.50	0.45	-0.55	0.00
13	May-99	5	4.5	1	10	12.00	0.37	-0.63	0.00
14	Jul-99	5	4.5	1	17	12.83	0.50	-0.50	0.00
15	Oct-99	5	4.5	1	5	11.71	0.33	-0.67	0.00
16	Mar-00	5	4.5	1	5	10.88	0.21	-0.79	0.00
17	Jun-00	5	4.5	1	40	14.11	0.69	-0.31	0.00
18	Sep-00	5	4.5	1	5	13.20	0.55	-0.45	0.00
19	Nov-00	5	4.5	1	60	17.45	1.19	0.19	0.19
20	Mar-01	5	4.5	1	5	16.42	1.03	0.03	0.22
21	May-01	5	4.5	1	60	19.77	1.53	0.53	0.75
22	Nov-01	5	4.5	1	40	21.21	1.75	0.75	1.50
23	Mar-02	5	4.5	1	10	20.47	1.64	0.64	2.14
24	May-02	5	4.5	1	5	19.50	1.49	0.49	2.63
25	Mar-03	5	4.5	1	19	19.47	1.49	0.49	3.12
26	Jun-03	5	4.5	1	2.5	18.53	1.35	0.35	3.47
27	Oct-03	5	4.5	1	11	18.13	1.29	0.29	3.75
28	Feb-04	5	4.5	1	5	17.48	1.19	0.19	3.94
29	Jun-04	5	4.5	1	5	16.88	1.10	0.10	4.05
30	Nov-04	5	4.5	1	2.5	16.23	1.00	0.00	4.05
31	Jun-05	5	4.5	1	2.5	15.63	0.91	-0.09	3.96
32	Dec-05	5	4.5	1	83	18.44	1.33	0.33	4.30
33	Feb-06	5	4.5	1	2	17.78	1.24	0.24	4.53



REALM - COLDWATER ROAD FACILITY
RCRA GROUNDWATER DETECTION MONITORING SYSTEM
COMBINED SHEWART - CUSUM CHART
B-14 Zn - Random

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	10	19.44	20.44
2	Aug-95	10		
3	Feb-96	10		
4	Jun-96	10		
5	Aug-96	60		
6	Nov-96	40		
7	May-97	5		
8	Nov-97	10		

Ti	Date	h	SCL	k	Conc. (Xi)	Mean (Xi)	Standardized Mean (Zi)	(Zi-k)	CUSUM (Si)
9	May-98	5	4.5	1	5.0	5.00	-0.71	-1.7064579	0.00
10	Nov-98	5	4.5	1	10.0	7.50	-0.58	-1.5841487	0.00
11	Apr-99	5	4.5	1	30.0	15.00	-0.22	-1.2172211	0.00
12	Apr-00	5	4.5	1	960.0	251.25	11.34	10.340998	10.34
13	May-01	5	4.5	1	380	277.00	12.60	11.6007828	21.94
14	Oct-01	5	4.5	1	90	245.83	11.08	10.0759948	32.02
15	May-02	5	4.5	1	60.0	219.29	9.78	8.77718759	40.79
16	Nov-02	5	4.5	1	31.0	195.75	8.63	7.62573386	48.42
17	Jun-03	5	4.5	1	54.0	180.00	7.86	6.85518591	55.28
18	Jun-04	5	4.5	1	26.0	164.60	7.10	6.10176125	61.38
19	Dec-04	5	4.5	1	1260.0	264.18	11.97	10.9736702	72.35
20	Feb-05	5	4.5	1	160.0	255.50	11.55	10.5489237	82.90
21	Jun-05	5	4.5	1	40.0	238.92	10.74	9.73791961	92.64
22	Nov-05	5	4.5	1	289.0	242.50	10.91	9.91291585	102.55
23	Dec-05	5	4.5	1	30.0	228.33	10.22	9.2198304	111.77
24	Feb-06	5	4.5	1	100.0	220.31	9.83	8.82742172	120.60

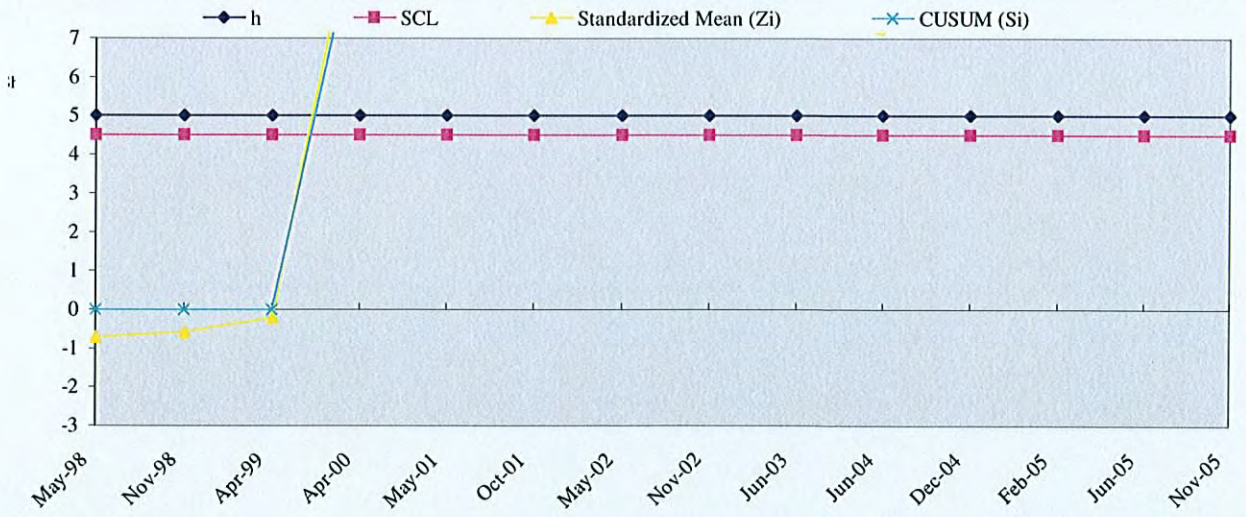


EXHIBIT 2
MAY 19, 2006 EGLE REVISIONS TO PCP LETTER

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

May 19, 2006

CERTIFIED MAIL

Mr. David W. Worrell, P.E.
Worldwide Facilities Group Remediation Team
Environmental Services
General Motors Corporation
2000 Centerpoint Parkway MC 483-520-190
Pontiac, Michigan 48341-3147

Dear Mr. Worrell:

SUBJECT: Revisions to the Postclosure Plan (PCP); Remediation and Liability Management Company, Inc. (REALM); Coldwater Road Landfill; MID 005 356 860

The Department of Environmental Quality (DEQ), Waste and Hazardous Materials Division (WHMD), has reviewed your April 21, 2006, letter proposing revisions to the PCP for the Coldwater Road Landfill.

Based on this review, the proposed revisions to the PCP are approved with the following comments that must be incorporated into the revised PCP.

Monitoring Network Changes

The WHMD agrees that data from monitoring well B-23Dr will be collected for two years and compared to data from monitoring well B-27D. If the data are comparable, than B-27D will be added to the monitoring program and B-23Dr will only be sampled to compensate in the event that B-27D is dry. The PCP revisions must be further revised to reflect that B-23Dr will be sampled for two years and the data will be submitted to the WHMD for comparison with B-27D data.

Statistical Analysis Changes

The request to remove outliers from the existing data sets utilizing the Grubbs test, or other appropriate test, must also include justification for removal of the outliers (e.g., lab error, sampling error, etc.) The Grubbs or other appropriate test may be used to identify an outlier in a data set, but may not in itself justify the removal of the outlier. An identified outlier may be a member of a different population, potentially landfill leachate, that the monitoring system is designed to detect. Without valid demonstration as to why a datum is an outlier, it is inappropriate to remove that datum. The PCP revisions must include an opportunity for the WHMD to review any request to remove an outlier from a data set; upon approval of the request the outlier may be removed.

Decision Tree Implementation

1. The PCP revisions must include a statement that a discussion of the statistical and graphical analysis used to make the conclusion that no impact to groundwater has occurred will be included in the semiannual and/or annual groundwater monitoring report(s).

2. The PCP revisions must include the specific detailed steps that will be conducted in the "further evaluation" of the data referenced in the first paragraph of page 4. The reference to the fact that the analysis "will be conducted similar to the data analysis conducted in the B-14 Zinc Groundwater Assessment Report" is not adequate for the purposes of the PCP.

Should you have any questions, please contact me.

Sincerely,

Richard A. Conforti, Jr., P.E.
Hazardous Waste Management Unit
Hazardous Waste Section
Waste and Hazardous Materials Division
517-241-2108

cc: Mr. Jack Schinderle/HWS-C&E file, DEQ
Mr. John McCabe/Mr. Joe Rogers, DEQ
Mr. William Yocum, DEQ

EXHIBIT 3
DECISION TREE

FIGURE 1

DECISION TREE
COLDWATER ROAD LANDFILL FACILITY

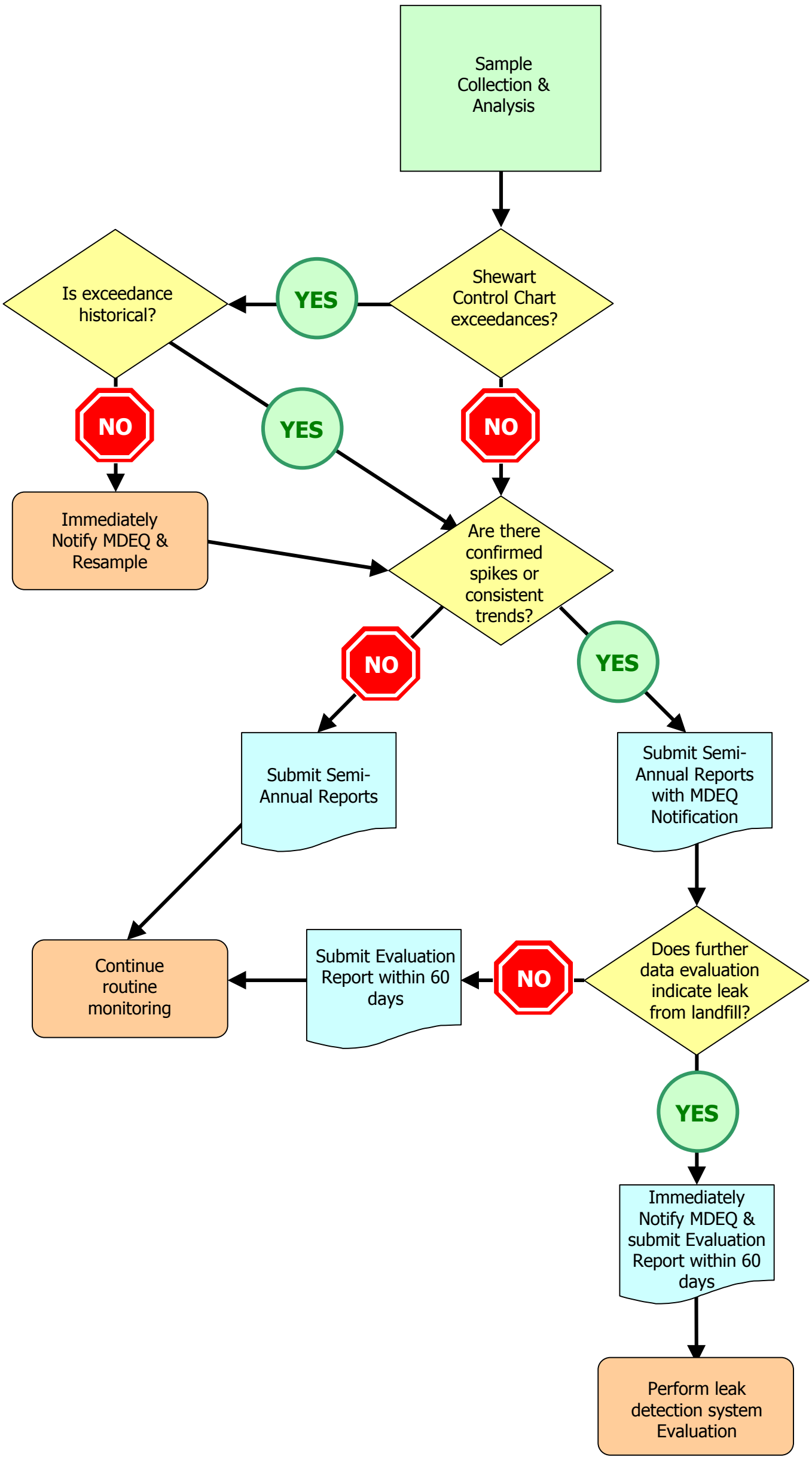


EXHIBIT 4
MARCH 17, 2008 RESPONSE TO EGLE
O&M INSPECTION REPORT LETTER
DATED FEBRUARY 5, 2008

4966/39196 #5
CC: Site

MAR 21 RECD

Worldwide Facilities Group
Environmental Services
Remediation Team

March 17, 2008

Mr. John McCabe
Environmental Quality Analyst
MDEQ - Waste & Hazardous Materials Division
525 West Allegan Street
Constitution Hall, Atrium North
Lansing, MI 48933

Subject: *Response to MDEQ Operation and Maintenance (O&M) Inspection Report Letter dated February 5, 2008.*
Coldwater Road Landfill
1245 East Coldwater Road, Flint, MI
MID 005 356 860 / Consent Order No. 64-05-92

Dear Mr. McCabe:

The following provides General Motors' (GM) response to the Michigan Department of Environmental Quality (MDEQ) Operation and Maintenance (O&M) Inspection Report letter dated February 5, 2008 concerning elevated turbidity values in a number of monitoring wells at the site. Our response is in the form of a proposed scope of work (or Work Plan) as requested by the MDEQ, and consistent with our conference call discussion on March 3, 2008.

GM proposes to redevelop the following monitoring wells that contained final turbidity values greater than ten nephelometric turbidity units (NTU) during the most recent semi-annual sampling event conducted in November 2007:

B-2D	B-7	B-19AR
B-20D	B-21D	B-22D
B-23DR	B-27	B-28

Redevelopment will be conducted by surging each well with a surge block, followed by purging the well with a submersible pump to remove fines drawn into the well during surging. It is anticipated that each well will be surged for approximately 10 to 15 minutes at a time and then purged for 10 to 15 minutes. This process will be repeated until the purge water produced from the well has a turbidity of less than 10 NTU, or until six cycles (approximately 2 hours) of surging and purging has been completed. If the

turbidity remains above 10 NTU, then redevelopment will continue utilizing a submersible pump to both surge and purge the well by periodically moving the pump quickly up and down within the well screened zone while continuing to purge until one of the following occurs:

- the purge water produced from the well has a turbidity of less than 10 NTU,
- the well is purged dry and allowed to recover three times (for low yielding wells), or
- a total of 10 well volumes have been removed (for wells that substantially recover [within 75%] in less than two hours).

Redevelopment may be conducted over consecutive days if necessary.

The equipment utilized during redevelopment will be decontaminated prior to and between usage. The purge water will not be containerized and will be discharged to the ground surface.

We anticipate implementing the redevelopment work at the end of May 2008 to minimize rutting and allow at least two weeks stabilization prior to conducting the next semi-annual sampling event.

As part of this scope of work, the Post Closure Care Plan (PCCP) will be amended to include criteria for redevelopment of monitoring wells that consistently have final turbidity values of greater than 10 NTU after low-flow sampling for at least three consecutive sampling events. Monitoring wells that meet this criteria will be redeveloped, unless previously redeveloped within the last three years.

Please call me at (248) 753-5796 if you have any questions.

Sincerely,

Ann Langenstein
Project Manager
General Motors Corporation

cc: Ms. Jean Caufield – GM/REALM
Mr. Richard Conforti – MDEQ WHMD
Mr. Clifford Yantz – O'Brien & Gere