General Motors Corporation
Worldwide Facilities Group
Environmental & Regulatory Support
Remediation Team

16 August 1996

Mr. Alan J. Howard, Chief
Environmental Response Division
Department of Environmental Quality
Knapps Centre
P.O. Box 30426
Lansing, MI 48909-7926

Re: Linden Road Site
Flint Township
Genesee County, Michigan

Dear Mr. Howard:

General Motors (GM) has received review comments from the Michigan Department of Environmental Quality (MDEQ) by letter dated 19 July 1996, on the January 1996 Remedial Action Plan related to the Linden Road Site, Flint Township, Michigan. Subsequently, a meeting between the MDEQ, GM, and Roy F. Weston, Inc. (WESTON®)was held on 8 August 1996 in Flint, Michigan to discuss the MDEQ's comments in detail. Based on the 19 July 1996 MDEQ letter and the 8 August 1996 meeting discussions, the following responses to the MDEQ's comments were prepared by WESTON on behalf of GM.

The MDEQ's comments followed by GM's responses are presented below. The comments and responses are presented in the same sequence as presented in the 19 July 1996 review comment letter.

Comment 1: *The Remedial Investigation (RI) for the site is incomplete. The following items must be addressed to complete the RI for the site:*

a. *Further characterization of the groundwater is necessary both within the interior of the landfill and downgradient of the landfill. All groundwater sampling conducted to date has been along the perimeter of the landfill with no information regarding the groundwater quality within the landfill itself. A limited assessment of groundwater quality within the interior of the landfill is necessary to ascertain what cleanup objectives can be met (i.e., whether criteria can be satisfied at appropriate compliance points). The MDEQ recommends the installation of no less than five additional monitoring wells in the interior of the landfill to characterize groundwater quality. These wells may also be used in calculating groundwater flow direction and/or long-term monitoring of groundwater quality.*

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In addition, there are an inadequate number of downgradient monitoring wells for the shallow aquifer. With the site being 40 acres in size, fill material randomly disposed of across the site, groundwater flow direction varying between the northeast and southeast, and the existing monitoring wells approximately 600 feet apart, additional wells should be installed to more adequately monitor groundwater quality moving off-site.

Response: The Remedial Action Plan (RAP) identified limited land/resource use with land and groundwater use restrictions. Additionally, groundwater cleanup objectives need to be met only at the downgradient portion of the site boundary. Considering these factors, groundwater monitoring wells were installed previously only along the perimeter of the site, as approved by the MDEQ.

Given the length of time since disposal at the site ceased, we would have expected to detect contamination in the downgradient monitoring wells if significant contamination was present in the groundwater within the interior of the site.

As discussed during the meeting between the MDEQ, GM, and WESTON on 8 August 1996, five groundwater samples will be collected and analyzed from the shallow water-bearing zone at various locations representative of the interior of the site. The samples will be collected using a truck-mounted geoprobe sampler. A brief sampling plan discussing the above sampling effort is presented as Attachment A. Upon receiving approval of this sampling plan from the MDEQ, GM will implement the sampling and report the findings to the MDEQ in an addendum to the RAP.

Groundwater flow directions were determined previously during each round of groundwater sampling. The latest determination of groundwater flow direction was performed subsequent to the installation of additional monitoring wells along the western boundary, and the findings were submitted to the MDEQ in a letter report dated 3 May 1995.

GM agrees that the installation of additional downgradient monitoring wells may be appropriate to adequately monitor the shallow water-bearing zone in the long term. GM proposes to install two shallow monitoring wells at the locations shown in Figure 1. The establishment of and justification for the detailed groundwater monitoring program would be documented within the Groundwater Monitoring Plan. Upon the installation of additional monitoring wells along the downgradient site boundary, as stated above, an additional round of water level measurements will be recorded and a groundwater potentiometric surface map indicating groundwater flow direction will be prepared and submitted to the MDEQ. An Operations and Maintenance (O&M) Plan would be submitted concurrently with the Final Design Submittal, as indicated in Subsection 5.5 of the RAP.

b. *The waste boundaries must be defined to the north and south of the site to determine if fill material and any associated contamination exists off-site. If any contamination associated with activities at, or released from, the Linden Road Landfill exists off-site, the RAP must include a proposal for remedial action for those areas. Please be advised that the "Dye Road Dump" site located to the west will be addressed separately; therefore, the extent of waste material on or extending onto that property will not need to be addressed as part of the RAP for this site.*

Response: As shown in Figure 7-1 of the IRME and the SIR (WESTON, 1992) waste boundaries have already been defined to the north, east, and south of the site. The waste thickness isopach map was generated from the data gathered during the excavation of test pits and the drilling of auger probes, and soil borings, and the installation of monitoring wells, and piezometers. Geological logs that were prepared based on subsurface conditions observed during the above activities were included with the appendices of the WESTON 1992 report. Therefore, GM believes additional waste delineation activities are not necessary.

c. *The RI should include an evaluation of the presence of methane to determine whether any controls are required as part of the final remedy.*

Response: Section 4.2.2 of the IRME and the SIR (WESTON, 1992) included an evaluation of the presence of methane during a soil gas survey. The screening results of the flame ionization detector (FID) and the photo-ionization detector (PID) indicated the possible presence of methane. However, combustible gas indicators (CGI) used for air monitoring during investigative and excavation activities did not indicate evidence of explosive atmospheres that may result from the presence of methane. CGI readings were consistently at background levels (<1). It should be noted that there is no evidence that biodegradable municipal waste that could generate methane was placed at this site. This condition further reduces any concern regarding the potential in long-term or significant methane generation. During site investigations and subsequent interim removal actions, no evidence of methane pockets or venting was observed.

The institutional controls described in the RAP for the site will include provisions for a mandatory methane assessment to precede and support any below-grade construction. This provision will also be addressed in the above-referenced addendum to the RAP.

d. *An assessment must be conducted along the storm drain which runs along the south part of the landfill to evaluate the possible migration of contaminants into the drain. If the potential exists for contamination to migrate or to have migrated into the drain, water and/or sediment samples should be collected to evaluate the effects of the landfill on the drain.*

Response: GM will attempt to obtain and evaluate engineering plans to determine the exact depth and location of the storm sewer. An assessment will be conducted to determine the potential for the migration of constituents into the storm sewer. This assessment will include the collection analysis of water and/or sediment samples. A brief sampling plan for this effort will be forwarded to the MDEQ for approval prior to sampling. To mitigate the potential for standing water to infiltrate through potential waste material into the storm sewer, the area would be regraded to promote positive surface drainage to the storm sewer catch basin. This issue would be examined in detail within the Prefinal Design Report.

e. *The RI should address the statement found on page 2-4 of WESTON's Phase I Environmental Assessment, dated February 1990 which states that the former gravel pit was excavated to a depth of approximately 40 feet. Could this former excavation act as a conduit for contamination to migrate vertically to a deeper groundwater? Please explain.*

Response: The reference regarding the former gravel pit that was excavated to a depth of approximately 40 feet was based on a review of background information available at the time of the Phase I investigation. This information was determined to be incorrect, based on subsequent investigations conducted by WESTON.

Based on the MDEQ's concern regarding this issue, WESTON retrieved and reviewed its earlier aerial photograph analysis contained in the report dated February 1990. The earliest aerial photo of the landfill area was taken in 1941, only two years after the reported cessation of the sand and gravel recovery operations (circa 1939). The 1941 photo did not reveal remnants of extensive or deep depressions that would have been associated with 40-foot-deep excavations. Remnants of such activities would have likely remained and been recognizable in the 1941 photo, but no such remnants were seen.

Furthermore, all auger probes and soil borings drilled during past investigations indicate that the waste material present at the site is underlain by an 8-to-13-foot thick silty clay confining unit that extends throughout the site. The maximum depth to this confining unit is approximately 15 feet below ground surface (bgs). In addition, Section 9.0.of the IRME and the SIR (WESTON, 1992) concluded:

> "Analysis of groundwater samples from monitoring wells installed in the first water-bearing zone below the confining layer indicate that groundwater in this deeper zone is unaffected by the landfill waste. The confining layer provides a barrier to vertical migration of contaminants from the shallow water-bearing zone."

Comment 2: *The RAP must include a specific end use or uses for the property so that existing and future exposure potential can be evaluated. The MDEQ cannot approve the RAP for a generalized limited resource/land use category without knowing of future use of the property. In addition, the MDEQ cannot adequately review the proposed site preparation, site grading, soil cover, or the drainage/stormwater management plans without knowing the future end use of the property.*

Response: GM intends to reuse this site for limited recreational use, and this end use will be consistent with the limited recreational use provisions governing the remedial action. This end use is consistent with the current zoning designation residential and recreational (R1B) for this property. As indicated on Page 4-2 of the RAP, GM will also evaluate cleanup of a 300-foot-wide zone along Linden Road to meet the commercial Subcategory III criteria.

Comment 3: *Documentation must be submitted indicating that the current zoning of the property is consistent with the categorical criteria being proposed or that the governing zoning authority intends to change the zoning designation, if generic commercial or industrial criteria are proposed for closure.*

Response: As shown in the attached zoning map (Figure 2), the Linden Road property is designated as R1B (residential and recreational).

Comment 4: *The RAP must address all pertinent exposure pathways and include an explanation on how the RAP will be protective of the proposed end use for the property, including how the RAP will be protective of any future construction activities at the site, unless construction activities are precluded through a restrictive covenant.*

Response: Table 1 summarizes all pertinent exposure pathways and explains how the RAP will be protective of the proposed end use of the property.

TABLE 1

PROTECTIVENESS OF PROPOSED REMEDY
(SOIL COVER PLUS INSTITUTIONAL CONTROLS)

Medium	Exposure Route	Receptor	
		Recreational User	Construction Worker
Soil	Direct contact	Soil cover precludes this exposure route.	Exposure potential during intrusive activities only. Institutional controls will be implemented to limit exposure.
	Inhalation of VOCs	No significant exposure based on current physical characteristics of site. Soil cover will also decrease exposure.	Exposure potential during intrusive activities only. Institutional controls will be implemented to limit exposure.
Groundwater	Direct contact	No potential for exposure. No wells permitted.	Exposure will be evaluated with respect to MDEQ interim groundwater contact criteria. Institutional controls will be implemented to limit exposure.
	Inhalation of VOCs	No potential for exposure. No wells permitted.	Exposure will be evaluated with respect to MDEQ interim criteria for inhalation exposure to groundwater VOCs. Institutional controls will be implemented to limit exposure.

VOCs - Volatile organic compounds.

Comment 5: *The RAP should include an evaluation on how the proposed soil cover will be protective for the proposed end use for the property. Why was a soil cover system selected over an Act 64 or Act 641 cap?*

Response: Prior to 1969, the site was operated for several decades as a dump. Disposal activities occurred prior to the enactment of Act 641 (now Act 451, Part 115) or Act 64 (now Act 451, Part 111). In addition, as described in WESTON's letter report dated 20 December 1993 entitled "Interim Remedial Measures Removal Action" (WESTON, December 1993), a relatively small volume of hazardous waste which was identified during the Interim Remedial Measures Evaluation phase, was removed and disposed of off-site. As explained on Page 4-7 of the RAP, the soil cover will provide a suitable barrier to public contact of the soils throughout the site, thereby addressing the only potential future exposure pathway. Since the waste material is not a significant source of contamination to the shallow groundwater, as documented by the groundwater analytical results, and groundwater use will be precluded in the future in any event, it is not necessary to provide an impermeable barrier within the cover design, such as those described in Part 115 and Part 111. The proposed cover system within the RAP addresses the main concern at the site, which is direct contact with the subsurface soil by the public. In addition, placement of a soil cover was determined to be the most cost-effective alternative that is protective of human health and the environment as well as the easiest to implement.

Comment 6: *The RAP should include a health and safety plan (HASP) for remedial action and operation and maintenance activities. Air monitoring along the perimeter of the landfill should be included in the HASP for any remedial activities which may potentially cause volatile organic compounds (VOCs) or fugitive dust to be emitted from the landfill.*

Response: The design specifications will include an outline and the requirements of the Construction Health and Safety Plan (CHASP). The CHASP will be prepared by the construction contractor and will be approved prior to the start of construction. The MDEQ will have the opportunity to review the CHASP prior to implementation of the final remedy. Air monitoring for VOCs and fugitive dust would be an integral part of the CHASP.

Comment 7: *The RAP must include a legally enforceable agreement with the MDEQ that includes the provisions for the following:*

a. *Land-use or resource use restrictions that are applicable to the closure of the site. These include, but are not limited to: groundwater use restrictions from both the upper water table zone and restrictions on drilling through the waste material to deeper aquifers, and restrictions on subsurface soil excavation activities.*

Response: The approach for implementing deed restrictions would be included within the prefinal design; upon approval of the final design documents, the deed restrictions would be implemented. GM is committed to implementing deed restrictions.

b. *Long-term monitoring of the integrity of the cap and of groundwater quality. In addition, provisions should be included to address any future migration of contamination off-site. Please note that the proposed plan to only monitor for VOCs and to monitor for a period until the groundwater criteria has been met for just two consecutive sampling events are unacceptable. The department will make a*

determination as to the parameters for groundwater monitoring and length of monitoring upon completion of the RI.

Response: As indicated in Section 5 of the RAP, both an O&M Plan and a Groundwater Monitoring Plan will be prepared and submitted with the Final Design Submittal. An outline of the components of this plan was included in the RAP. GM is committed to providing the detail plan with the design submittal.

In the RAP, GM has proposed that VOCs be used as indicator parameters for groundwater contamination, since the majority of the detected constituents are VOCs. However, GM understands the MDEQ would determine the parameters for groundwater monitoring and the length of monitoring. GM assumes that MDEQ's decision will be made following review of the Groundwater Monitoring Plan.

c. *An operation and maintenance plan to maintain the integrity of the remedial action, once implemented. The details of this plan will be established after further information about the scope of the remedy has been provided to MDEQ.*

Response: Section 5 of the RAP provides an outline of the monitoring and maintenance activities that would be conducted at the Linden Road Site. A detailed O&M Plan would be submitted to MDEQ for review and approval concurrently with the Final Design Submittal. GM has committed to providing this document, as indicated in the RAP and in this response letter.

d. *A financial assurance mechanism acceptable to the department to pay for monitoring, operation and maintenance, oversight, and any other costs necessary to assure the effectiveness and integrity of the proposed remedial action.*

Response: GM will submit with the Prefinal Design Submittal copies of an acceptable financial assurance mechanism to cover the cost of monitoring, O&M, oversight, and any other costs necessary to ensure the effectiveness and integrity of the proposed remedial action. A detailed cost estimate will also be submitted with the Prefinal Design Submittal to support the amount provided in the financial assurance documents.

The following comments and responses refer to the 24 April 1996 Interoffice Communication from Dr. Linda D. Larsen included as an attachment to the MDEQ letter dated 19 July 1996.

General Comment: *I have reviewed the document referenced above and, in general, it is well done. I am concerned, however, that the remedial action plan (RAP) does not specify the land use category under which this facility will be closed. Given the elevated levels of soil constituents, a limited closure is clearly warranted in the absence of remedial action to reduce contaminants to acceptable levels. The consultants acknowledge that a limited closure is necessary but fail to specify the category of land use (i.e., residential, industrial, commercial, etc.). Lead has been detected in soils ranging from 2,130 to 414,000 mg/kg per Table 6-5. These extremely high levels of lead may pose unacceptable risks to children should the facility be developed in the future for residential or recreational use. The 2.5 feet of clean cover proposed in the RAP may not provide sufficient assurance that children will not make direct contact with the underlying contaminants. It*

would be preferable to know the intended future use of the site in order to assess the protectiveness of the proposed remedy.

Response: As stated previously, GM intends to specify recreational use (under the limited recreational category) for the site, although GM may later petition for changing portions of the site along Linden Road to be modified for commercial use. Deed restrictions and other restrictions limiting intrusive activities will be addressed in an addendum to the RAP.

GM believes that placement of a 2.5-foot-thick soil cover is adequate to protect any potential direct contact with the subsurface contaminants in a limited recreational use scenario. In addition to the proposed deed restrictions and restrictions prohibiting intrusive activities, the O&M Plan will ensure the integrity of the proposed cover will be maintained throughout the length of the monitoring period.

As a point of clarification, the lead values reported by the MDEQ in this comment are in error. As presented in Table 6-5 of Appendix B, lead was detected in surface soil (0 to 3 feet) at levels ranging from 19.5 to 2,720 mg/kg. Lead was detected in near-surface soil (3 to 10 feet) at levels ranging from 8.5 to 115,000 mg/kg (Table 6-5 of Appendix B).

Comment 1 - 3.1.1 Average On-Site Soil Concentrations: *It is not MDEQ's current protocol to "assume by default a lognormal distribution." ERD toxicologists recommend statistical analysis to determine the underlying distribution of a dataset before transformation of the data. Several "goodness of fit" tests such as the W-test are available to make this determination. ERD toxicologists also recommend plotting the detected concentrations on a site map to assess the possibility of spatial correlation of the data.*

Response: WESTON believes that the assumption of a default lognormal data distribution was the MDEQ (Michigan Department of Natural Resources [MDNR]) protocol when this document was prepared. As recently as July 1995, WESTON, while working for the MDNR, was directed by the MDNR to assume a default lognormal data distribution for a risk assessment the agency prepared for the Point Mouillee Shooting Range. This directive was not considered unusual by WESTON since it was consistent with the United States Environmental Protection Agency's (U.S. EPA) policy contained in Supplemental Guidance to RAGS: Calculating the Concentration Term (Publication 9285.7-081, 1992), and since it was also consistent with the generally acknowledged finding of lognormal distributions of environmental data. While the MDEQ's current protocol may have changed with respect to this issue, WESTON does not feel that assumptions regarding the data distribution type will have any impact on the selection of a protective remedy.

The detected constituent concentrations were not placed on a site map. Based on the random nature of the historical waste disposal at the site, no contaminant distribution patterns can be expected that could aid in assessing the possibility of spacial correlation of data.

Comment 2 - 3.1.2 Comparison to Generic MDEQ Cleanup Criteria: *I cannot locate a detailed statistical analysis of the data either in this section, the associated tables, or Appendix A. Specifically, information concerning standard deviations, coefficients of variance, etc., have not*

been presented. This information is necessary, in addition to that mentioned above, to determine the appropriateness of the statistical analysis.

Response: The statistical information requested in this comment (standard deviations, coefficients of variance, etc.) was not presented because WESTON did not question the appropriateness of the assumed data distribution. The assumptions regarding the data distribution type are not expected to have any impact on the selection of a protective remedy.

Comment 3 - 3.1.3.1 Inhalation: *It would be helpful to know the intended use of the facility in order to assess the possibility of unacceptable future risks due to the inhalation pathway. The RAP indicates that organic vapors were detected during excavation and soil boring activities. This suggests that vapor intrusion into buildings may be a concern should the property be developed in the future to include basements or other subsurface structures. This also indicates some concern for unacceptable exposures to construction workers during future development. If land use restriction will prevent these exposures, this should be stated in the RAP.*

Response: Institutional controls for the site will preclude basements or other subsurface structures. Potential inhalation exposures to construction workers during site development will be addressed in the revised RAP.

Comment 4 - 3.1.3.2 Dermal Toxicity: *Calculation of soil saturation levels is appropriate only for compounds which are liquids under ambient conditions. Therefore, the argument that PCBs, PAHs, and arsenic (all solids) do not pose dermal hazards because these compounds are present at levels which do not exceed soil saturation is not tenable. Please have the consultants address this issue.*

Response: The soil saturation level is a summary calculation of the amount of a chemical that can be dissolved in soil moisture, vaporized in soil air, and bound to soil particles. This calculation is typically used for organic chemicals when binding to soil particles is estimated by measuring total organic carbon. When the soil level of an organic chemical exceeds its soil saturation level, there is an indication that the chemical may be present in a free phase, although maybe only at a microscopic level. The free phase may be liquid or solid, depending on the relationship between the melting point of the chemical in question and the ambient temperature. WESTON believes that, in general, organic chemicals that do not exceed their soil saturation levels (i.e., no free phase exists) do not pose a potentially significant dermal absorption issue because a nonaqueous phase for dermal contact is absent. Nevertheless, placement of the proposed soil cover system will mitigate the threat posed by this exposure pathway.

Arsenic, on the other hand, is an inorganic chemical at this site and is not addressed by the above argument. Even though information is limited on the rate and extent of the dermal absorption of metals in soil across the skin, most scientists believe this pathway is likely to be minor, at least in comparison to the amount of exposure that occurs by soil ingestion. Most metals tend to bind to soil, reducing the likelihood that they would desorb from the soil and cross the skin. Moreover, ionic species such as metals have a relatively low tendency to cross the skin even when contact does occur.

Based on these considerations, dermal uptake poses minimal additional risks beyond those included in the MDEQ's generic cleanup criteria, based on direct contact.

Comment 5 - 3.2 Groundwater: *ERD toxicologists do not recommend statistical analysis of groundwater data in the absence of a demonstration that the wells sampled represent the center of the contaminant plume. In addition, as indicated above, there is the potential for vapor intrusion of volatile organic compounds present in the groundwater into future construction. Construction worker contact with the shallow groundwater is also a direct contact and inhalation concern. ERD toxicologists have recently developed interim guidance and criteria protective of these exposures. Please have the consultants address these issues. However, if land use restrictions will prevent these exposures, it should be stated in this section.*

Response: As stated previously, institutional controls for the site will restrict the installation and construction of other subsurface structures. Potential direct contact with groundwater and inhalation exposures to construction workers during site development will be addressed in the revised RAP.

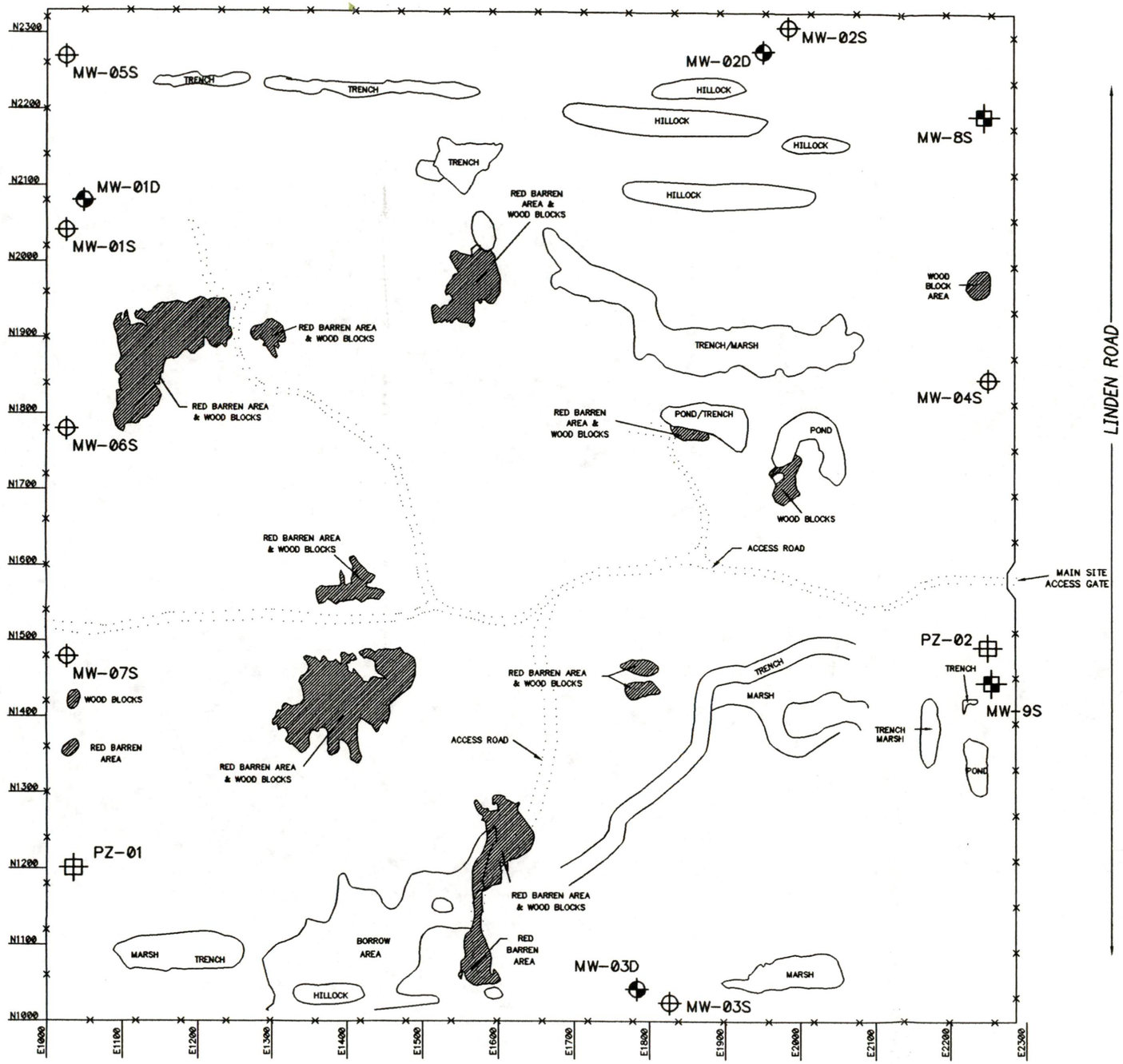
Upon receiving MDEQ's approval, GM will implement the groundwater sampling activities described herein. As recommended by MDEQ, findings of the proposed sampling investigation will be submitted to MDEQ as an addendum to the RAP.

If you have any questions, please call me at (810) 236-0300.

Very truly yours,

Robert S. Metcalf, P.E.
Project Manager

cc: Mr. E. Van Riper, MDEQ
Dr. L. Larsen, MDEQ
Mr. E. Peterson, GM
Mr. S. Babusukumar, WESTON



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SCALE

LEGEND

- MW-04S — SHALLOW MONITORING WELL LOCATION
- MW-02D — DEEP MONITORING WELL LOCATION
- PZ-02 — PIEZOMETER LOCATION
- MW-9S — PROPOSED ADDITIONAL MONITORING WELL LOCATION

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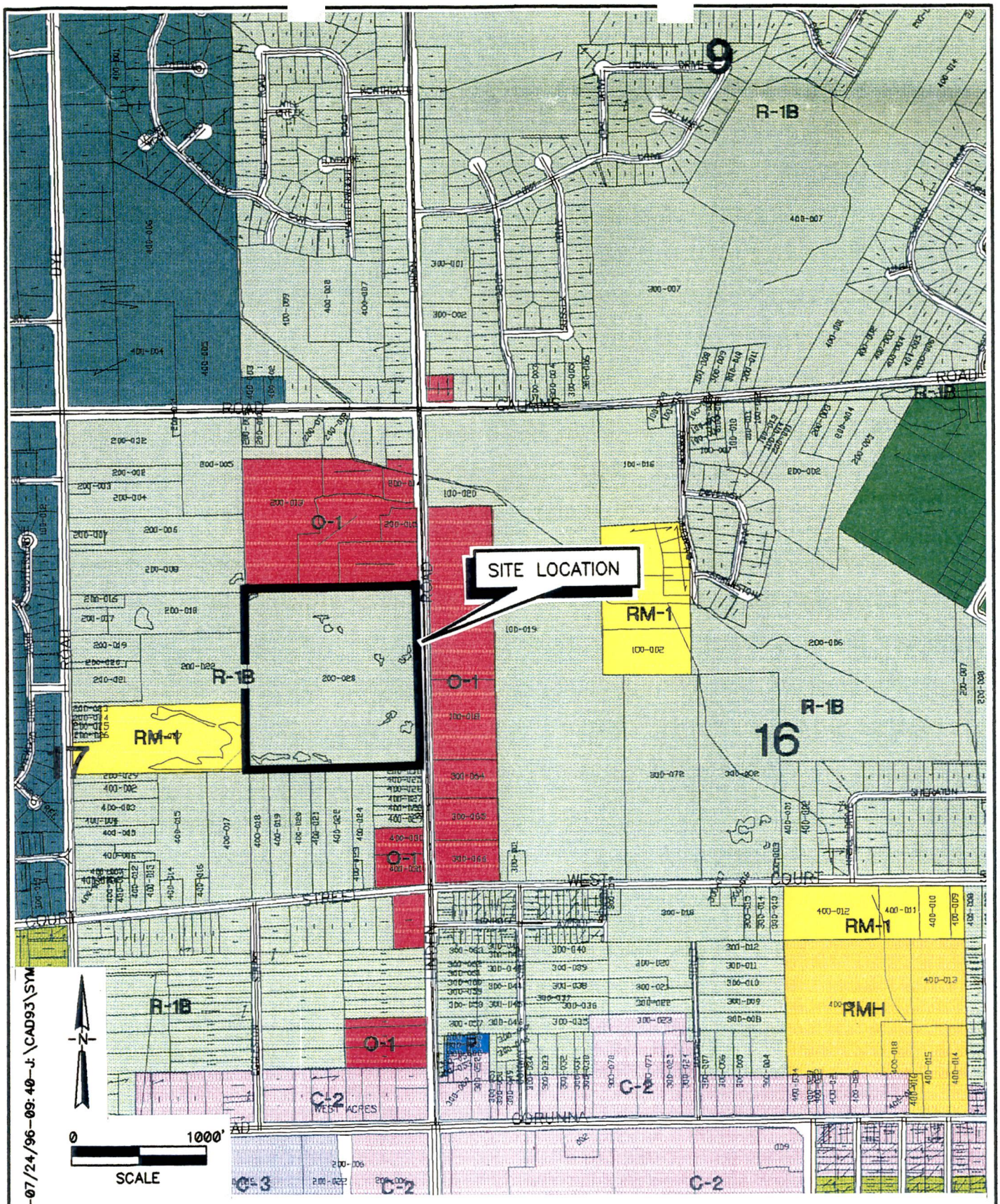
FIGURE 1

WESTON MANAGERS DESIGNERS/CONSULTANTS
Three Hawthorn Parkway
Vernon Hills, Illinois
60061

MONITORING WELL & PIEZOMETER LOCATIONS
LINDEN ROAD LANDFILL SITE
Flint, Michigan



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SOURCE: FLINT TOWNSHIP ZONING MAP

FIGURE 2

WESTON MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

ZONING MAP

LINDEN ROAD SITE
Flint, Michigan

ATTACHMENT A

SAMPLING AND ANALYSIS PLAN
GEOPROBE SAMPLING OF SHALLOW GROUNDWATER
LINDEN ROAD SITE
FLINT, MICHIGAN
AUGUST 1996

INTRODUCTION

As agreed to between the Michigan Department of Environmental Quality (MDEQ) and General Motors (GM), a total of five investigative groundwater samples will be collected and analyzed from five different locations within the interior of the Linden Road site. To date, groundwater at the site has been evaluated by utilizing the monitoring wells that are present along the perimeter of the site. The purpose of the current sampling effort is to supplement the existing groundwater quality, particularly that from the interior of the site. Because the shallow water-bearing zone is thin and has a low yield, it is possible that the groundwater may not be present in quantities necessary for laboratory analyses at one or more of the proposed locations. If a sufficient amount of water is not extracted within a reasonable amount of time (one to two hours) of pumping at a location, the sampling effort at that location will be terminated.

PROCEDURE

Roy F. Weston, Inc. (WESTON®) on behalf of GM, will conduct one round of shallow groundwater sampling using a geoprobe unit at five locations within the site. The attached Figure A-1 shows the proposed locations for this sampling effort. These locations were selected to be representative of the interior of the site. The locations were also based on their ease of accessibility, and are within the depth range that the geoprobe could retrieve samples efficiently.

The geoprobe system will be mounted on a 1-ton four-wheel drive pickup chassis (or equivalent) for the sampling effort described herein. Sampling will be accomplished by driving 1-inch-diameter hollow steel rods equipped with various attachments to the depth of the shallow water-bearing zone.

Groundwater samples will be collected as grab samples, using the following procedures:

- The probes will consist of 2-foot-long lead rods equipped with 0.0020-inch machine slots and will be driven to the desired sampling depth.
- Groundwater will be allowed to seep into the rod string.
- Groundwater sampling will be accomplished using a peristaltic pump.
- Groundwater will be transferred immediately to appropriate laboratory sample containers.

A single groundwater sample will be collected from each of the five geoprobe sampling locations (GP-1, GP-2, GP-3, GP-4, and GP-5) shown in Figure 1. In addition to the above investigative samples, two quality assurance samples, including a field duplicate and a trip blank, will be retained for analysis.

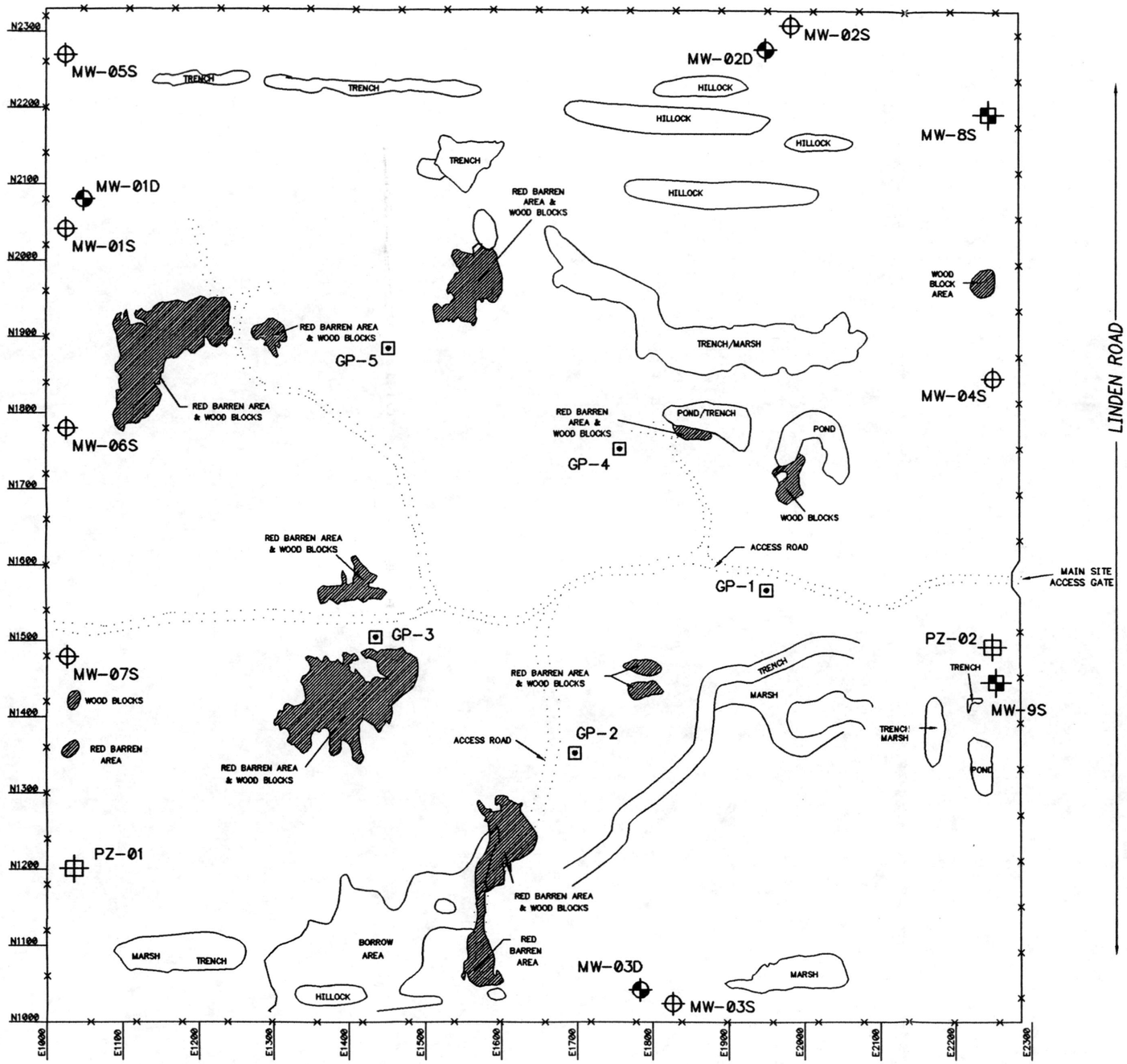
All site health and safety and sample handling protocols will be in accordance with those described in the Site Investigation Work Plan (WESTON, 1990).

LABORATORY ANALYSIS

The five investigative samples and the two quality assurance samples will be analyzed for volatile organic compounds (VOCs). Samples will be analyzed by an approved laboratory using United States Environmental Protection Agency (U.S. EPA) Method SW 846/8260. The laboratory analytical results will be validated by a WESTON chemist following U.S. EPA validation guidelines.

REPORTING

The findings of the investigation will be summarized and incorporated as part of an addendum to the Remedial Action Plan submitted to MDEQ.



LINDEN ROAD

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SCALE

LEGEND

- MW-04S — SHALLOW MONITORING WELL LOCATION
- MW-02D — DEEP MONITORING WELL LOCATION
- PZ-02 — PIEZOMETER LOCATION
- MW-9S — PROPOSED ADDITIONAL MONITORING WELL LOCATION
- GP-1 — PROPOSED (GEOPROBE) GROUNDWATER SAMPLE LOCATION

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FIGURE A-1

WESTON MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

PROPOSED GROUNDWATER SAMPLING LOCATIONS

LINDEN ROAD LANDFILL SITE
Flint, Michigan