

Remedial Action Plan for a Limited Residential Closure

*Windiate Park
Flint, Michigan*

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Shane Noreen
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February 1996



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1. Introduction

This Report is the final Remedial Action Plan (RAP) for the Windiate Park (Park) property located in Flint, Michigan. This RAP is one of two RAPs that will address the environmental conditions in the Windiate Park/Dixieland Subdivision. This RAP addresses the property within the limits of the Park. A RAP for residential areas outside the Park is under development.

The remedial program was performed in three phases: the Remedial Investigation (RI), the Feasibility Study (FS), and the Remedial Action Plan (RAP). The RI served as the mechanism to collect data to characterize site conditions, identify the nature and extent of environmental impact, including Substances of Potential Concern (SOPCs) and assess risk to human health. In addition to the risk assessment prepared as part of the Remedial Investigation/Feasibility Study (RI/FS) Report, a health survey and a blood lead level survey were performed by the Michigan Department of Public Health and the Genesee County Health Department for local residents. A copy of the health survey is included as Appendix A and the summaries of the blood lead data are included as Appendix B. The results of these surveys report geometric mean blood lead levels below the reference level of 10 $\mu\text{g}/\text{dl}$ and no direct link between health problems and the SOPCs in Windiate Park. The FS served as the mechanism for the development, screening, and detailed evaluation of remedial action alternatives.

This RAP serves to present and document the final remedy proposed to be implemented for a "Limited Residential (with recreational deed restrictions)" closure upon Michigan Department of Environmental Quality (MDEQ) approval.

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1.1. General

This RAP identifies the final remedy to address the environmental conditions at the Park. The focus of the remedy is on the fill material within the limits of the Park which may contain benzo(a)anthracene, benzo(a)pyrene, lead, and arsenic above the Generic Residential Direct Contact Values and Site Specific Background Value for arsenic.

This RAP was completed based on the findings of the RI, which included a human health risk assessment and FS conducted for the Park property as well as discussions with and presentations to the MDEQ. Results of a blood lead level survey and a health survey for local residents were also reviewed in the RI/FS Report. The RI/FS Report was submitted to the MDEQ.

This RAP was prepared in accordance with Section 20120a of the 1995 amendments to Part 201 of the Natural Resources and Environmental Protection Act, "NREPA" 1994 PA 451 administered by the MDEQ.

1.2. Description of Remedial Action Plan

The remedial action for the Park consists of the following elements:

- An interim remedial measure (IRM) consisting of a soil cover over the Park has been previously implemented. Placement of topsoil and sod, which will complete the IRM, will be completed in the spring of 1996. This IRM is consistent with and has been incorporated into the final recommended remedial action;
- Implementation of deed restrictions at the property; and
- Performance of routine maintenance activities associated with the existing soil cover implemented as an IRM.

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2. Site Specifics

2.1. Site Description

Windiate Park is owned by the City of Flint. It is bordered by Milton Drive to the northwest, residential properties to the west, south and east and by Pengelly Road to the north. The Park is located within Section 29 and 30 of Township 7 North, Range 7 East in the City of Flint, Genesee County, Michigan. A Site Location Map is shown on Figure 1.

The Park is approximately 7.5 acres in size, is covered by grass vegetation and is utilized for recreational purposes. Former structures within the Park included a baseball field with a fenced backstop in the southern area of the Park and various children's playground equipment in the northern area of the Park. Bordering the Park are residential properties which are not considered to be part of the Park. A Site Plan of the Park area and adjacent residential properties is shown on Figure 2.

The surface topography of the Park, prior to placement of an IRM soil cover by General Motors Corporation (GM) and the City of Flint in 1995-1996 included generally flat low lying areas with increasing elevation towards the residential dwellings in the southern, southwestern and northeastern sections. In general, the Park is low in relation to the surrounding adjacent properties. The elevation of the Park has increased due to the installation of the IRM soil cover; however, the general topography has remained similar. Topsoil and sod will be placed in the Park as part of the soil cover.

Access to the Park is obtained at Lowell Boulevard to the south of the Park and directly from Milton Drive and Pengelly Road to the north.

2.2. Site History

Based on the review of historical aerial photographs, the Park has always been open, vacant space. One house existed adjacent to the Park in the 1920s and the Park appeared to have consisted of low lying wetland areas. The location of this house was in the vicinity of the current 428 Shelly Lane residence. Intermittent construction of additional houses occurred during the 1930s and 1940s along the west side of Windiate Park on Milton adjacent to Shelly Lane and north along Milton. Construction of houses adjacent to the Park began in the early 1950's starting on the southwest side (4317 Milton Drive location) and proceeding around the perimeter of the Park. The Park property was developed as a park in approximately 1954 according to records at the City of Flint offices.

In the late 1940's and early 1950's, fill materials (ostensibly from a number of sources) were deposited in the Park. Following the filling, the Park consisted of low lying areas which were subject to frequent flooding. Flooding of the Park area continued during heavy rain events until a new storm sewer (referred to as the Schram Drain on Figure 2) was installed by the Genesee County Drain Commission in 1990.

Following the results of the RI activities, a soil cover (between 1 ft to 5 ft thick) was installed over the surface of the Park in 1995-1996 as part of an IRM. This soil cover was installed based on agreement with the MDEQ and in association with the City of Flint.

2.3. Nature and Extent of Fill Material and Related Substances

The RI/FS Report details the investigatory activities implemented to generate the data for this section.

The fill material, which was vertically and horizontally assessed during the RI, extends to a depth of approximately 13 ft below grade (fbg), prior to the installation of the soil cover, with an average thickness of 4 ft. Fill material extends outside the boundary of the Park to the south and west. Figure 3 identifies the horizontal extent and Figure 4 identifies the vertical extent of fill material.

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Subsurface concentrations of volatile organic compounds (VOCs) in the fill material are below Generic Residential Direct Contact Values. Ground water and soil vapor testing indicated there were no impacts from VOCs. Concentrations of lead, arsenic, and semi-volatile organic compounds (SVOCs) (benzo(a)anthracene and benzo(a) pyrene) above Generic Residential Direct Contact Values and Site Specific Background Values (arsenic only) were detected in subsurface fill materials at several locations. However, ground water sampling in the Park has not detected substances above the Generic Residential Health Based Criteria.

2.4. Property Zoning

The Park is in an area of Flint that is zoned for single family residential. This zoning designation allows for and includes areas such as the Park that are used and designated for recreational purposes. In accordance with Section 20120a (6) a property for which a RAP is proposed must have zoning that is consistent with the categorical criteria (i.e., limited residential with recreational deed restrictions) being proposed. Deed restrictions will be implemented as outlined in Section 4 for continued use of the property as a "Park".

2.5. Future Use

The City of Flint is currently preparing plans for the enhancement of the Park which are consistent with the intended future recreational use of the Park. The local residents are providing input regarding the proposed Park enhancement program.

Park enhancements considered include the installation of walking paths, basketball courts, picnic areas, child play areas and trees/shrubs. These future enhancements will be consistent with the soil cover program and will function in a manner which will not adversely affect maintenance of the integrity of the soil cover.

3. Remedial Action

3.1. General

The remedial action for the Park consists of the following elements:

- An interim remedial measure (IRM) consisting of a soil cover over the Park has been previously implemented. Placement of topsoil and sod, which will complete the IRM, will be completed in the spring of 1996. This IRM is consistent with and has been incorporated into the final recommended remedial action.
- Implementation of deed restrictions at the property; and
- Performance of routine maintenance activities associated with the existing soil cover implemented as an IRM.

The objective of this RAP is to identify the final remedy to be implemented at the Park to achieve a "limited residential" closure of this property with deed restrictions for recreational use in accordance with Section 20120a of Part 201 of NREPA. The remedy selected was based on the detailed analysis of remedial alternatives presented in the FS.

This section describes the construction of the soil cover IRM and compliance with the MDEQ criteria for closure as a "limited residential" site. Section 4 of this RAP outlines the proposed deed restrictions and Section 5 describes the maintenance activities to be implemented in the future.

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3.2. Changes to the RAP

If significant changes to site conditions are discovered (or unanticipated conditions arise which would result in exposure to the underlying fill material), this RAP will be modified to address these conditions. Modifications to this RAP will be submitted to the MDEQ for approval prior to implementation. Additionally, proposed changes to this RAP will be outlined and submitted to the MDEQ prior to implementation.

3.3. Soil Cover Construction Activities

The soil cover was installed as an IRM to allow unrestricted use of the Park while a final remedy was being prepared. The soil cover prevents recreational users from potential exposure to substances in the fill material. A conceptual design of the soil cover was submitted to the MDEQ for their review. The correspondence from the MDEQ agreeing to the concept of the soil cover IRM is included as Appendix C. A minimum of 12 inches of soil cover and topsoil was placed in areas where surface soil samples (prior to placement of the soil cover) were below Generic Residential Direct Contact Values. A minimum of 24 inches of soil was placed in areas of the Park where surface soil samples identified lead concentrations exceeding the Generic Residential Direct Contact Value for that substance. Figure 5 identifies the approximate design thickness of the soil cover across the Park. To allow for proper drainage to the catch basins connected to the Schram Drain in the Park, some areas received over 4 ft of soil cover.

The materials used in the construction of the soil cover were obtained from an off-site borrow area. The soil cover material is characterized as a silty sand and the topsoil is characterized as an organic, fertile, and granular soil. To confirm that soil from the off-site source was not impacted, samples were collected and submitted to an analytical laboratory for analysis. One sample of the topsoil and one sample of the silty sand were analyzed for the waste characterization parameters specified in 40 CFR 261.20 through 261.24 and total Michigan "10" metals, since these substances are naturally occurring. Four additional samples of the topsoil were analyzed for Michigan "10" metals as these substances are naturally

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occurring elements. Based on concurrence from the MDEQ as noted in the November 3, 1995 correspondence, the topsoil and silty sand materials were utilized at the Park. The laboratory analytical data sheets are included as Appendix D. The MDEQ correspondence letter is included as Appendix E.

During installation of the soil cover, elevations were taken along a 50 ft grid to document compliance with the design parameters. The materials were placed in maximum 12 inch lifts, then compacted to achieve the design density (85% to 90% of the Standard Proctor Compaction as determined by ASTM standards). The compaction was field tested in accordance with ASTM standards. The existing ground water monitoring wells, catch basins, and manholes in the Park were raised to match the final elevation of the soil cover.

After the 1996 spring thaw, the topsoil will be graded to meet the design final grades. Sod will then be placed over the topsoil to obtain adequate vegetative cover. Drawings identifying the final elevation of the soil cover will be prepared following completion and copies will be submitted to the City of Flint and the MDEQ.

3.4. Attainment of Closure Criteria

Based on numerous investigations in the Park described in detail in the RI/FS Report, benzo(a)anthracene, benzo(a)pyrene, lead, and arsenic were detected in the material underlying the soil cover. Ground water investigations conducted at the Park demonstrated that the fill material has not impacted the ground water. No substances were detected in the ground water at concentrations exceeding Generic Residential Health Based Drinking Water Criteria.

In accordance with Section 20120a of Part 201 of PA 451, to obtain closure of a site the substance levels remaining in the soil must be protective considering migration and exposure pathways pertinent to the site. In general, the potential migration and exposure pathways include; leaching of substances from soil to ground water, migration of substances in soil to surface water, inhalation of substances, direct contact with substances and ingestion of substances.

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The following paragraphs discuss in detail how these closure criteria are attained.

3.4.1. Leaching of Substances to Ground Water

Ground water investigations (discussed in Sections 5.4 and 6.3 of the RI/FS Report) demonstrated that although the fill material has been in place for 40 to 50 years under shallow water table conditions, no substances were detected in the ground water at concentrations exceeding Generic Residential Health Based Drinking Water Criteria. Based on these investigations, it is evident that substances in the material underlying the soil cover have not leached to ground water and therefore it is unlikely they will leach to ground water in significant concentrations in the future. Therefore, this migration pathway is not a concern for the Park.

3.4.2. Migration of Substances to Surface Water

Since surface water does not exist at the Park, the potential for migration to surface water does not exist. The potential for substances to enter the Schram Drain via precipitation runoff does not exist due to the presence of the soil cover, which eliminates the migration pathway to surface water. Infiltration of ground water into the Schram Drain may occur as outlined in Section 5.9 of the RI/FS Report; however, ground water analytical data is below the Generic Residential Ground Water/Surface Water Interface Values. Therefore, this migration pathway is not a concern for the Park.

3.4.3. Inhalation of Substances

As identified in Section 8 of the RI/FS Report, the soil cover and absence of VOCs in soil vapor support the conclusion that the air exposure pathway is classified as incomplete (no physical means by which humans may be exposed to SOPCs). The RI/FS Report concluded that there is no significant risk to human health via the air exposure pathway.

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3.4.4. Ingestion and Direct Contact

Although benzo(a)anthracene, benzo(a)pyrene, arsenic, and lead, are present in the fill material at concentrations exceeding Generic Residential Direct Contact Values or the Site Specific Background Value (arsenic only), the presence of the soil cover eliminates the potential for ingestion and direct contact, thereby eliminating this exposure pathway.

3.4.5. Summary of Closure Criteria Attainment

Based on these analyses, the closure criteria are achieved with the presence of the soil cover. Additionally, the implementation of deed restrictions at the Park and the performance of maintenance on the soil cover are incorporated. These measures prevent uncontrolled excavation activities and provide for reparation of potential damages to the soil cover.

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4. Deed Restrictions

4.1. Land Use Restrictions

A functional feature of the final remedial action for the Park is the implementation of land use restrictions. In accordance with Rule 299.5719, the land use restrictions will be detailed in a restrictive covenant recorded by the City of Flint and approved by MDEQ that will include:

- Restrictions on site activities which may potentially affect the integrity of the soil cover or interfere with maintenance activities;
- A requirement to provide notice to the MDEQ of the intent to convey property, such as; conveyance of title, easement or other;
- Permission for the MDEQ to access the Park and to inspect records;
- Descriptions of applicable land use or resource criteria use restrictions, including:
 - the prohibition of uncontrolled excavation or other activities which may potentially damage the soil cover; and
 - the notification of the MDEQ prior to performing sampling and analysis of impacted materials in the event transportation and/or disposal is performed.
- Notice that the property will be restricted to recreational use.

The deed restrictions will be implemented indefinitely. Modifications to the deed restrictions will be submitted to the MDEQ for approval.

4.2. Agreement Between Involved Parties for RAP Implementation

Windiate Park is currently owned by the City of Flint. Implementation of this RAP will be in accordance with the agreement between GM and the City of Flint included as Appendix F. Pursuant to this agreement and particularly paragraph 5, the City of Flint will enter into a restrictive covenant which will be recorded with the Register of Deeds for Genesee County. The City of Flint will provide continued financial responsibility for future maintenance activities.

The Genesee County Drain Commission controls an easement for the Schram Drain that crosses the Park. General Motors Corporation and the City of Flint have an access agreement with the County Drain Commission for potential future repairs of the Schram Drain. This agreement is included as Appendix G.

Other potentially responsible parties or involved entities may be identified in the future. It is anticipated that other involved entities will enter into similar agreements with GM and the City of Flint. The MDEQ will be notified if this occurs in a manner which affects the RAP.

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5. Maintenance Plan

The soil cover will be preserved with the performance of maintenance activities in accordance with Rule 517. Maintenance activities at the Park will be performed by the City of Flint for the purposes of maintaining the appearance of the Park and the soil cover. Maintenance activities will initially include quarterly inspections for the first 3 years after installation of the cover. Inspections will be performed annually thereafter unless conditions indicate a more frequent rate is necessary. The inspections will be performed to observe the soil cover for evidence of erosion, settlement, subsidence, burrowing animals, bare patches, or other damage to the soil cover. Repairs to the soil cover could include replacement or addition of topsoil or vegetation. The equipment and materials that may be required for these maintenance activities include a manual compactor, seeder, topsoil, fertilizer, and grass seed or sod.

Regular maintenance activities also include vegetation care such as mowing, hedging, and fertilizing. These maintenance activities will be implemented at least twice a year to maintain the aesthetic quality of the Park. Monitoring inspections will include checklists to be completed by the City of Flint inspector. An example checklist is included as Appendix H.

Maintenance activities will be conducted by personnel from the City of Flint Parks and Recreation Department. The City of Flint office responsible for maintenance administrative activities is the Deputy City Administrator. Current Deputy Administrator to contact for information is:

Mr. Hans Kuhlmann
Deputy City Administrator
City of Flint
120 East Fifth Street
Flint, MI 48502
(810) 766-7135

Repairs that are beyond the capability of the City of Flint will be subcontracted to a qualified contractor.

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6. Schedule of Implementation

The remedial action for the Park is currently underway with the installation of the soil cover. The soil cover was installed between October 1995 and December 1995. Top soil and sod placement will be completed in April 1996. Following completion, the construction contractor will water the sod to promote adequate growth.

At the completion of the soil cover installation in April 1996 the following inspection schedule will be implemented by the City of Flint:

Table 6-1. Inspection Schedule

1996-1997	1997-1998	1999
August 1	August 1	August 1
November 1	November 1	
February 1	February 1	
May 1	May 1	

Inspections after the year 1999 will be performed on an annual level, or more frequently if conditions indicate a more frequent rate is necessary. Routine landscape care will be performed regularly during the spring, summer, and fall months.

Copies of the completed checklists and repair documentation will be submitted to the MDEQ annually or more frequently, if necessary.

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7. Summary of the Remedial Action Plan

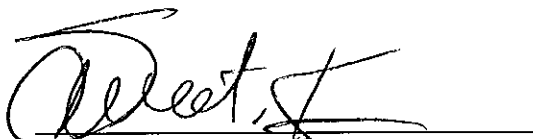
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- Implementation of deed restrictions at the property; and
- Performance of routine maintenance activities associated with the existing soil cover implemented as an IRM.

The implementation of these elements will serve as a final remedy for Windiate Park. In addition to addressing the environmental conditions, this remedy enhances the Park and makes it more attractive for use by the residents in the community. With the performance of routine maintenance on the soil cover, the Park will maintain its attractiveness in the future.

Respectfully submitted,

O'BRIEN & GERE ENGINEERS, INC.



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Vice President

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Jeffrey S. Ralson

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FIGURES

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LEGEND



4102

APPROXIMATE EXTENT
OF THE PARK

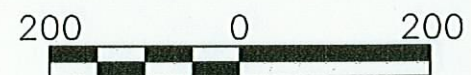
PROPERTY ADDRESS



STORM LINE

WINDIATE PARK AREA
FLINT, MICHIGAN

SITE PLAN

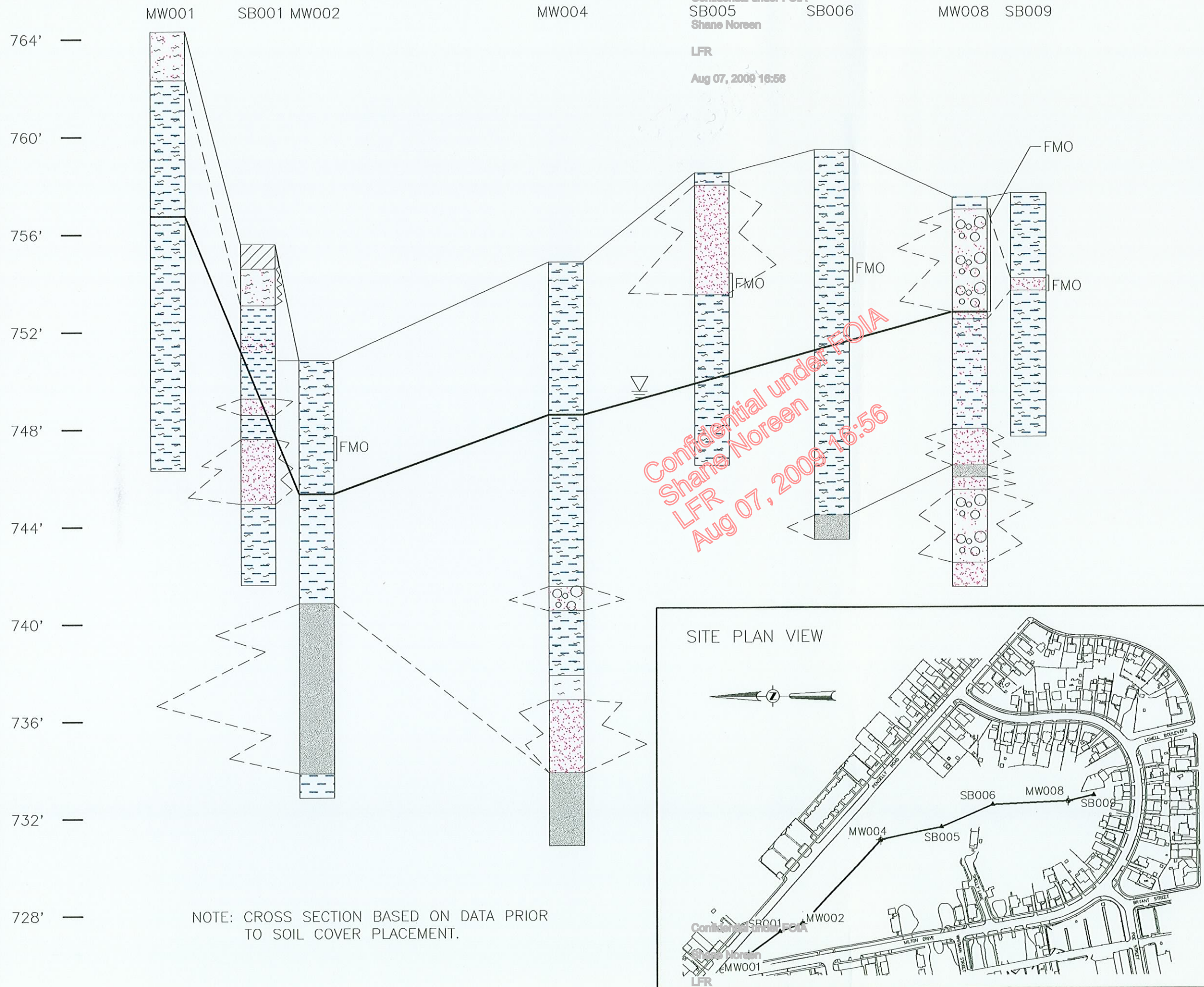


APPROXIMATE SCALE IN FEET

FILE NO. 6009-004-082

NOTE: PROPERTY LINES ARE APPROXIMATE BASED ON CITY OF
FLINT TAX ASSESSOR MAP 1966 COMPOSITE OF SECTION 29 & 30
T7N R7E BY GENESEE COUNTY METROPOLITAN PLANNING COMMISSION.

FIGURE 4

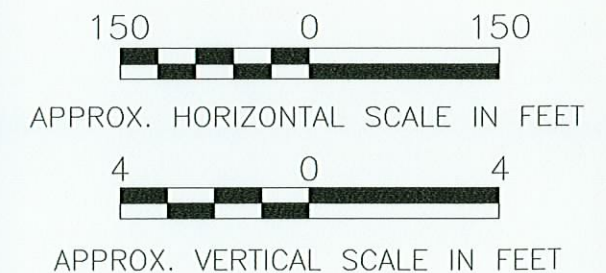


LEGEND

- SANDY SILT/
SILTY SAND
- SILTY CLAY/
CLAYEY SILT
- TOPSOIL
- CLAY
- SAND
- GRAVEL
- SANDY CLAY
- MARL
- APPARENT GROUND
WATER TABLE
- FMO FILL MATERIAL
OBSERVED

WINDIATE PARK AREA
FLINT, MICHIGAN

**GEOLOGIC
CROSS SECTION
A - A'**



FILE NO. 6009-007-109

LEGEND

— 0 —
PROPOSED
DEPTH OF SOIL
COVER
CONTOUR (FT)

WINDIATE PARK AREA
FLINT, MICHIGAN

PROPOSED
DEPTH OF SOIL
COVER PLAN

150 0 150
APPROXIMATE SCALE IN FEET

FILE NO. 6009-007-110

NOTE:

THIS PLAN IS SHOWN FOR CLARITY ONLY.
USE GRADING PLAN G-2 FOR PROPOSED
GRADING.

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APPENDICES

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APPENDIX A
Initial Report on the Windiate Park Health Survey

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INITIAL REPORT ON THE WINDIATE PARK HEALTH SURVEY

by

Kenneth R. Wilcox, M.D., Dr. P.H.
Chief, Division of Epidemiology
State Epidemiologist

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Submitted by

The Michigan Department of Public Health
Office of Policy, Planning and Evaluation
3423 North Martin Luther King Jr., Boulevard
P.O. Box 30195
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INITIAL REPORT ON THE WINDIATE PARK HEALTH SURVEY

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PURPOSES OF THE SURVEY:

(1) To obtain a more comprehensive record of the health complaints of Windiate residents.

Prior to the survey, the available information on health conditions were individual anecdotes of illnesses and conditions. These are difficult to relate to environmental contamination without information about the occurrence of the illnesses in the population as a whole.

(2) To make an initial assessment of whether there was a significant risk of health problems associated with environmental contamination in the neighborhood.

If illnesses were the result of environmental contamination, an increase in those illnesses should show up in the group of people who had similar exposures as opposed to an unexposed group.

SURVEY METHODS:

(1) The survey used a questionnaire in personal interviews with current and former residents of Windiate Park and with a comparison neighborhood in Flint that was chosen to be as similar to Windiate Park as possible except for the presence of known chemical contamination. All present residents in the designated area of Windiate were invited to participate. A random sample of the households in the comparison neighborhood were asked to participate.

(2) The survey and interviews were carried out by the Project for Urban and Regional Affairs (PURA) at the Flint Branch of the University of Michigan.

(3) The responses of the persons interviewed were the sole basis of the study. No medical records were consulted.

(4) Those considered residents of the Windiate Park neighborhood for purposes of comparison were made up of three groups: (a) current residents of Windiate Park living in the area designated for the survey, (b) former residents of Windiate Park identified by current residents, and (c) two households in the comparison neighborhood who had previously lived in Windiate Park.

(5) The rates of illnesses or symptoms reported by Windiate Park residents were compared to the rates of the same reported illnesses and symptoms by residents of the

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comparison neighborhood. The measure used to judge excesses was the percent of the condition for Windlate divided by the per cent for the comparison neighborhood, the relative risk.

(6) The criteria for a significant excess of an illness or symptom were: (a) A rate in Windlate that was at least 1.3 times the rate in the comparison neighborhood, and (b) the confidence limits (95%) could not include a relative risk of 1.0. These are standard criteria for epidemiological studies.

RESULTS:

- (1) There were 277 persons interviewed who had at some time lived ("ever lived") in Windlate Park and 253 persons who had "never lived" in Windlate Park.
- (2) The pregnancy outcomes for women in Windlate Park were normal, including rates of miscarriages, stillbirths and birth defects.
- (3) The condition and symptoms included in the survey with the percentages and relative risks in each group are attached to this report as tables.

The following conditions were not found significantly more often in persons who had ever lived in Windlate Park compared to the other neighborhood surveyed.

Symptoms diagnosed by a doctor:

Thyroid disease
Emphysema
Stroke
Hay fever
Eczema
Diabetes
Chronic Bronchitis
Gallstones
Other heart problems
Hypertension
Heart attack
Arthritis
Seizures
Urinary tract diseases
Tumors
Hepatitis
Neurologic Disease
Kidney disease

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Symptoms, went to a doctor for treatment:

Joint pains
Chest pains
Bleeding gums
Rash
Tingling
Fainting
Numbness
Dizziness
Eye irritation
Fatigue
Trouble sleeping

Symptoms, may or may not have visited a doctor:

Fainting
Joint pains
Eye irritation
Chest pain
Numbness
Bleeding gums

(4) The following conditions were found significantly more often in persons who had ever lived in Windlate Park.

Symptoms diagnosed by a doctor:

Bowel problems
Asthma
Anxiety
Ulcer
Weakness
Tremors

Symptoms, went to a doctor for treatment:

Headaches
Poor coordination
Nasal irritation
Vomiting

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Symptoms, may or may not have visited a doctor:

Rash
Tingling
Fatigue
Trouble sleeping
Dizziness
Headaches
Poor coordination
Nasal irritation
Vomiting

(5) The significantly higher rates of illness in the Windiate neighborhood could not be shown to be related to stress because of learning of the contamination, smoking, or alcohol use.

(6) The illnesses and symptoms found in significant excess are not usually associated with exposure to the chemicals found in elevated levels in Windiate Park. The primary chemicals of concern are arsenic, lead, and two organic compounds, benzo(a)anthracene and benzo(a)pyrene.

Arsenic. The levels of arsenic in the environment are not high enough to suggest the possibility of acute arsenic poisoning. Chronic arsenic poisoning is usually characterized by skin lesions or rash, neurologic damage and cancer, particularly in the skin. None of those problems were reported in excess in the Windiate population.

Lead. The lead levels in the soil are not as high as those that have been shown to result in acute poisoning. Chronic lead poisoning usually causes anemia and neurologic damage, which were not reported in excess in Windiate persons. The direct testing of residents did not reveal blood lead levels of concern. There was only one level of 13 $\mu\text{g}/\text{dl}$ and one of 11 $\mu\text{g}/\text{dl}$, and the rest were below the level of concern for young children, 10 $\mu\text{g}/\text{dl}$. The Windiate Park residents are not suffering from lead poisoning.

Benzo(a)anthracene and Benzo(a)pyrene. Our main concern for these two chemicals is cancer. The levels of these compounds found in the water were at a low level and it would take a large intake (2 gallons per day for 70 years) to cause an effect. The Windiate group did not show an excess of cancer.

(7) Some differences in illness experience could be due to environmental influences other than ground contamination or from other exposures that are different from the comparison group, such as work exposure. This survey is not able to confirm that this is occurring.

SUMMARIZED FINDINGS:

A household survey of present and former Windlate Park residents and a comparison group was done. The findings in summary are:

(1) For life threatening illnesses, present and former residents of Windlate Park did not have significantly different rates of occurrence.

(2) For some symptoms and illnesses that are generally not life threatening, present and former residents of Windlate Park did have significantly higher rates of occurrence than the comparison neighborhood.

(3) The symptoms and illnesses reported in excess in the survey are not usually associated with the chemicals that have been found in Windlate Park. The survey results cannot explain the symptom and illness differences in these neighborhoods.

CONCLUSION:

The health survey of Windlate Park residents showed that there is a higher than expected rate of some illnesses and symptoms. No apparent reason for the excess occurrence was found from the survey. Exposure to known environmental contamination in the area could not be directly related to the excess illnesses. Any further exploration of illnesses in the community would need to involve evaluations of medical records.

ACKNOWLEDGEMENTS:

The help of Dr. Bruce Chin of the University of Michigan, staff of the Genesee County Health Department and Michigan Department of Public Health staff in reviewing this study is deeply appreciated.

The General Motors Corporation provided funds for this study but was not involved in any way in the conduct or analysis of the study.

Confidential under FOIA

Shane Noreen

LFR

Aug 07, 2009 16:56

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Shane Noreen
LFR
Aug 07, 2009 16:56

APPENDIX B

Blood Lead Level Survey Data

Confidential under FOIA

Shane Noreen

LFR

Aug 07, 2009 16:56

GENESEE COUNTY HEALTH DEPARTMENT BLOOD LEAD DATA

Blood Lead Level (ug/dl)	Number of Individuals with Blood Lead Level
0	2
2	192
3	105
4	55
5	28
6	12
7	7
8	5
11	1
13	1

- Notes: 1) 408 total individuals in the survey per the October 11, 1995 fax transmission from the Genesee County Health Department
- 2) 43 of total are assumed to be children (<6 yrs. of age) based on November 28, 1995 fax transmission from the Genesee County Health Department

wp-2:bldPb/vl

Shane Noreen

LFR

Aug 07, 2009 16:56

FAX TRANSMISSION

GENESEE COUNTY HEALTH DEPARTMENT

630 SOUTH SAGINAW STREET

FLINT, MI 48502-1540

(810) 257-3129

FAX: (810) 257-3125

To: Bob Metcalf

Date: November 28, 1995

Fax #: 236-7391

Pages: One, including this cover sheet.

From: John Pettit

Subject: Windiate Blood Leads

COMMENTS:

The following is the list of 44 blood lead levels for the children less than six years old. Call me if you have any questions.

2	3	5
2	3	5
2	3	5
2	3	5
2	3	5
2	3	5
2	4	6
2	4	6
2	4	6
2	4	7
2	4	7
2	4	7
2	4	8
3	4	11
3	4	

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Aug 07, 2009 16:56

FROM GENESEE COUNTY HEALTH DEPARTMENT

NOV-28-1995 09:31

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Aug 07, 2009 16:56

APPENDIX C

MDEQ Correspondence Letter (September 25, 1995)

Confidential under FOIA

Shane Noreen

LFR

Aug 07, 2009 16:56

DEPARTMENT OF NATURAL RESOURCES

ROLAND HARMES, Director

Shiawassee District Headquarters

10650 Bennett Dr., Morrice, MI 48857-9792

September 25, 1995

Mr. Robert Metcalf
General Motors Corporation
CLCD North
902 E. Hamilton Ave.
Flint, MI 48550-8504

Dear Mr. Metcalf:

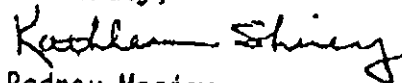
SUBJECT: Windiate Park/Dixieland Subdivision Landfill, Flint, Genesee County

This letter is written in response to a request by General Motors Corporation (GM) and the City of Flint to the Michigan Department of Natural Resources (MDNR) to construct a soil cap over the park area of the Windiate Park/Dixieland Subdivision Landfill. The cap is being proposed as an interim response measure to minimize any potential direct contact threat of hazardous substances in the park area of the landfill.

While the MDNR cannot grant final approval of the cap until the Remedial Investigation (RI) is complete and a remedial action plan (RAP) is submitted and approved by the department, the concept of the proposed cap has been reviewed and the MDNR is in agreement that the proposed cap appears to be consistent with the likely remedial action for the site. Please be advised that as further information becomes available, the cap may require modification. Please also note that a final RAP for the site must be prepared to meet all relevant requirements under Part 201 of the Natural Resources and Environmental Protection Act, P.A. 451 of 1994 and must address the entire site of contamination, including any contamination emanating from it.

If you have any questions or would like to discuss this matter further, please contact Mr. Eric Van Riper at 517-625-4621.

Sincerely,



for Rodney Mosier
Shiawassee District Supervisor
Environmental Response Division
517-625-4615

cc: Mr. Eric Van Riper, MDNR
Mr. John Pettit, Genesee County Health Department
Mr. James Bedford, Michigan Department of Public Health
Mr. Robert Metcalf, GM
Mr. Kevin Lavalley, Gault Davison, P.C.

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Aug 07, 2009 16:56

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Aug 07, 2009 16:56

APPENDIX D
Soil Cover Material Laboratory Reports

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Aug 07, 2009 16:56

Shane Noreen

LFR

Thermo Analytical, Inc.
387 Airport Industrial Drive
Ypsilanti, MI 48198-7812

Young's Environmental Cleanup
G-5305 N. Dort Highway
Flint, MI 48505

Attn: Stephanie Herriman

Purchase Order: 5127

Invoice Number: 88062

Order #: E5-10-073

Date: 10/20/95 09:27

Work ID: Windiate-City of Flint

Date Received: 10/12/95

Date Completed: 10/18/95

Client Code: YOUNGS_F

SAMPLE IDENTIFICATION

Sample Number	Sample Description
02	Sand - Aldridge

Sample Number	Sample Description
03	Top Soil - Modern

SR=See attached report ND=Nondetected, detection limit in ().
< = Analyte was not detected at or above specified detection
limit in (). N/A=Not applicable. **Average of duplicate runs.
** = Higher detection limit due to matrix effects.

Jeffrey B. Radin
Certified By
Jeffrey B. Radin

TMA
Thermo Analytical

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LFR

Aug 07, 2009 16:56

Shane Noreen

Order # E5-10-073
10/20/95 09:27Thermo Analytical, Inc.
TEST RESULTS BY SAMPLE
Aug 07, 2009 16:56

Page 2

Sample: 02A Sand

Collected: 10/11/95

Test Description	Result	Limit	Units	Analyzed	By
Ignitability in Solid	>120		C	10/13/95	CP
Percent Solids	96*		%	10/13/95	JE
Reactivity in Solid	No		yes/no	10/13/95	JB
TCLP Extraction	10/13/95		date complete		AH
pH in Solid	8.6*		soil pH in H2O	10/12/95	YL

Sample: 02B Sand

Collected: 10/11/95

TCLPEXTRACT

Test Description	Result	Limit	Units	Analyzed	By
Arsenic in Water	<0.002	0.002	mg/L	10/16/95	SL
Barium in Water	0.28	0.0005	mg/L	10/16/95	SL
Cadmium in Water	0.0021	0.0005	mg/L	10/16/95	SL
Chromium in Water	0.001	0.001	mg/L	10/16/95	SL
Copper in Water	<0.001	0.001	mg/L	10/16/95	SL
Lead in Water	0.003	0.001	mg/L	10/16/95	SL
Mercury in Water	<0.0002	0.0002	mg/L	10/16/95	SL
Prep for ICAP - Water	10/13/95		date complete		AH
Selenium in Water	<0.002	0.002	mg/L	10/16/95	SL
Silver in Water	<0.001	0.001	mg/L	10/16/95	SL
Zinc in Water	0.049	0.001	mg/L	10/16/95	SL

Sample: 02C Sand

Collected: 10/11/95

TCLPEXTRACT

Test Description	Result	Limit	Units	Analyzed	By
Endrin	<0.30	0.30	ug/L	10/16/95	DB
Lindane in Water	<0.30	0.30	ug/L	10/16/95	DB
Methoxychlor	<3.0	3.0	ug/L	10/16/95	DB
Toxaphene	<20	20	ug/L	10/16/95	DB

Sample: 02D Sand

Collected: 10/11/95

Test Description	Result	Limit	Units	Analyzed	By
Arsenic in Solid	2.8	0.200	mg/Kg	10/18/95	SL
Barium in Solid	7.0	0.050	mg/Kg	10/18/95	SL
Cadmium in Solid	0.84	0.050	mg/Kg	10/18/95	SL
Chromium in Solid	4.3	0.100	mg/Kg	10/18/95	SL
Copper in Solid	4.7	0.100	mg/Kg	10/18/95	SL
Lead in Solid	3.5	0.100	mg/Kg	10/18/95	SL
Mercury in Solid	<0.021*	0.021	mg/Kg	10/18/95	AH
Prep for ICAP-Solid	10/18/95		date complete		LD
Selenium in Solid	<0.200	0.200	mg/Kg	10/18/95	SL
Silver in Solid	3.6	0.100	mg/Kg	10/18/95	SL
Zinc in Solid	17	0.100	mg/Kg	10/18/95	SL

Sample: 03A Top Soil

Collected: 10/10/95

Test Description	Result	Limit	Units	Analyzed	By
Acidity	No		Yes/No	10/12/95	YL

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Thermo Analytical

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Order # E5-10-073
10/20/95 09:27Thermo Analytical, Inc.
TEST RESULTS BY SAMPLE
Aug 07, 2009 16:56

Page 3

Test Description	Result	Limit	Units	Analyzed	By
Ignitability in Solid	>120				
Percent Solids	87*		C	10/13/95	CP
Reactivity in Solid	No		%	10/13/95	JE
TCLP Extraction	10/13/95		yes/no	10/13/95	JB
Texture	Fine		date complete		AH
pH in Solid	8.0		Fine, Med, Coarse	10/13/95	JB
			soil pH in H2O	10/12/95	YL

Sample: 03B Top Soil

Collected: 10/10/95

TCLPEXTRACT

Test Description	Result	Limit	Units	Analyzed	By
Arsenic in Water	<0.002	0.002	mg/L	10/16/95	SL
Barium in Water	0.55	0.0005	mg/L	10/16/95	SL
Cadmium in Water	0.0009	0.0003	mg/L	10/16/95	SL
Chromium in Water	0.002	0.001	mg/L	10/16/95	SL
Copper in Water	<0.001	0.001	mg/L	10/16/95	SL
Lead in Water	0.002	0.001	mg/L	10/16/95	SL
Mercury in Water	<0.0002	0.0002	mg/L	10/16/95	SL
Prep for ICAP - Water	10/13/95		mg/L	10/13/95	AH
Selenium in Water	0.006	0.002	date complete		LD
Silver in Water	<0.001	0.001	mg/L	10/16/95	SL
Zinc in Water	0.058	0.001	mg/L	10/16/95	SL
			mg/L	10/16/95	SL

Sample: 03D Top Soil

Collected: 10/10/95

TCLPEXTRACT

Test Description	Result	Limit	Units	Analyzed	By
Endrin	<0.30	0.30	ug/L	10/16/95	DB
Lindane in Water	<0.30	0.30	ug/L	10/16/95	DB
Methoxychlor	<3.0	3.0	ug/L	10/16/95	DB
Toxaphene	<20	20	ug/L	10/16/95	DB

Sample: 03E Top Soil

Collected: 10/10/95

Test Description	Result	Limit	Units	Analyzed	By
Arsenic in Solid	6.4	0.200	mg/Kg	10/18/95	SL
Barium in Solid	71	0.050	mg/Kg	10/18/95	SL
Cadmium in Solid	3.1	0.050	mg/Kg	10/18/95	SL
Chromium in Solid	16	0.100	mg/Kg	10/18/95	SL
Copper in Solid	13	0.100	mg/Kg	10/18/95	SL
Lead in Solid	20	0.100	mg/Kg	10/18/95	SL
Mercury in Solid	0.035	0.023	mg/Kg	10/18/95	SL
Prep for ICAP-Solid	10/18/95		mg/Kg	10/18/95	AH
Selenium in Solid	<0.200	0.200	date complete		LD
Silver in Solid	6.7	0.100	mg/Kg	10/18/95	SL
Zinc in Solid	45	0.100	mg/Kg	10/18/95	SL
			mg/Kg	10/18/95	SL

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Order # E5-10-073
10/20/95 09:27

Thermo Analytical, Inc.
TEST RESULTS BY SAMPLE
Aug 07, 2009 16:56

Page 4

Sample Description: Sand
Test Description: TCLP Herbicide
Collected: 10/11/95 10:00

Lab No: 02C
Method:
Category: TCLPEXTRACT
Test Code: TCHERR

PARAMETER	RESULT
2,4-D	<8.0
2,4,5-TP	<8.0

Notes and Definitions for this Report:

EXTRACTED 10/13/95
DATE RUN 10/16/95
ANALYST SJ
UNITS UG/L

Sample Description: Top Soil
Test Description: TCLP Herbicide
Collected: 10/10/95 11:30

Lab No: 02D
Method:
Category: TCLPEXTRACT
Test Code: TCHERR

PARAMETER	RESULT
2,4-D	<8.0
2,4,5-TP	<8.0

Notes and Definitions for this Report:

EXTRACTED 10/13/95
DATE RUN 10/16/95
ANALYST SJ
UNITS UG/L

TMA
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Order # E5-10-073
10/20/95 09:27

Shane Noreen
Thermo Analytical, Inc.
TEST METHODOLOGIES
Aug 07, 2009 16:56

Page 5

Method 9040, SW-846 "Test Methods for Evaluating Solid Waste" Third Edition.
Method 7471, SW-846 "Test Methods for Evaluating Solid Waste", Third Edition.
Method 245.1, EPA-600 "Methods for Chemical Analysis of Water and Wastes".
Method 200.7, EPA-600 "Methods for Chemical Analysis of Water and Wastes".
Method 200.7, EPA-600 "Methods for Chemical Analysis of Water and Wastes".
Method 200.7, EPA-600 "Methods for Chemical Analysis of Water and Wastes".
Method 200.7, EPA-600/4-79-020 "Methods for Chemical Analysis of Water and Wastes", USEPA-EMSL Cincinnati; March 1983.
Method 200.7, EPA-600/4-79-020 "Methods for Chemical Analysis of Water and Wastes", USEPA-EMSL Cincinnati; March, 1983.
Method 200.7, EPA-600 "Methods for Chemical Analysis of Water and Wastes"
Method 6010, SW-846 " Test Methods for Evaluating Solid Waste" Third Edition
Method 200.7, EPA-600 "Methods for Chemical Analysis of Water and Wastes".
Method 6010, SW-846 " Test Methods for Evaluating Solid Waste" Third Edition
Method 6010, SW-846 " Test Methods for Evaluating Solid Waste" Third Edition
Method 6010, SW-846 "Test Methods for Evaluating Solid Waste".
Method 6010, SW-846 " Test Methods for Evaluating Solid Waste" Third Edition
Method 6010, SW-846 "Test Methods for Evaluating Solid Wastes", Third Edition.
Method 6010, SW-846 "Test Methods for Evaluating Solid Waste".
Method 6010, SW-846 " Test Methods for Evaluating Solid Waste" Third Edition



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Shane Noreen

LFR

Thermo Analytical, Inc.
 387 Airport Industrial Drive
 Ypsilanti, MI 48198-7812

Young's Environmental Cleanup
 G-5305 N. Dort Highway
 Flint, MI 48505

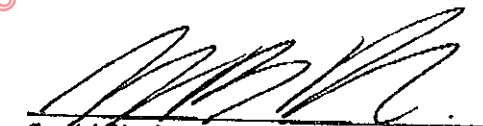
Attn: Stephanie Herriman
 Invoice Number:

Order #: E5-10-107
 Date: 10/24/95 13:27
 Work ID: Windiate-City of Flint
 Date Received: 10/19/95
 Date Completed: 10/24/95
 Client Code: YOUNGS_F

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	Sand	02	Soil

SR=See attached report ND=Nondetected, detection limit in ().
 < = Analyte was not detected at or above specified detection limit in (). N/A=Not applicable. **Average of duplicate runs.
 ** = Higher detection limit due to matrix effects.


 Certified By
 Jeffrey B. Radin

TMA
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10/27/95 16:56

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Order # E5-10-107
10/24/95 13:27

Thermo Analytical, Inc.
TEST RESULTS BY SAMPLE
Aug 07, 2009 16:56

Page 2

Sample: 01A Sand

Collected:

Test Description
TCLP Extraction

Result
10/20/95

Limit

Units Analyzed By
data complete 10/24/95 JR

Sample: 02A Soil

Collected:

Test Description
TCLP Extraction

Result
10/20/95

Limit

Units Analyzed By
date complete 10/24/95 JR

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387 Airport Industrial Drive, Ypsilanti, MI 48198-7812

LFR

(313) 622-3104

Fax: (313) 662-2244

Aug 07, 2009 16:56

Order # E5-10-107
10/24/95 13:27

Shane Noreen
Thermo Analytical, Inc.
TEST RESULTS BY SAMPLE

Page 3

Sample Description: Sand
Test Description: TCLP Volatiles

Lab No: 01A
Method:

Test Code: TCVOAS

PARAMETER	RESULT
BENZENE	<5.0
CARBON TETRACHLORIDE	<5.0
CHLOROBENZENE	<5.0
CHLOROFORM	<5.0
1,2-DICHLOROETHANE	<5.0
1,1-DICHLOROETHYLENE	<5.0
METHYL ETHYL KETONE	<10
VINYL CHLORIDE	<10
TETRACHLORORHTHYLENE	<5.0
TRICHLOROETHYLENE	<5.0

Notes and Definitions for this Report:

DATE RUN 10/23/95
ANALYST RP
UNITS mg/L

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LFR
Aug 07, 2009 16:56

TMA
Thermo Analytical

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LFR

(212) 677-3104

Rev. (212) 667-3244

Aug 07, 2009 16:56

Order # E5-10-107
10/24/95 13:27

Shane Noreen
Thermo Analytical, Inc.
TEST RESULTS BY SAMPLE
Aug 07, 2009 16:56

Page 4

Sample Description: Soil
Test Description: TCLP Volatiles

Lab No: 002A
Method:

Test Code: TCVOAS

PARAMETER	RESULT
BENZENE	<5.0
CARBON TETRACHLORIDE	<5.0
CHLOROBENZENE	<5.0
CHLOROFORM	<5.0
1,2-DICHLOROETHANE	<5.0
1,1-DICHLOROETHYLENE	<5.0
METHYL ETHYL KETONE	<10
VINYL CHLORIDE	<10
TETRACHLOROTHYLENE	<5.0
TRICHLOROETHYLENE	<5.0

Notes and Definitions for this Report:

DATE RUN 10/23/95
ANALYST RP
UNITS MG/L

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LFR
Aug 07, 2009 16:56

TMA
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Aug 07, 2009 16:56

Sample 02 - Sand

YOUNG'S ENVIRONMENTAL

<u>PARAMETER</u>	<u>MEASURED CONCENTRATION</u>	<u>METHOD OF ANALYSIS</u>	<u>DETECTION LIMIT</u>
TCLP(SEMIVOLATILES)			
Total Cresols	<0.300 mg/L	8270	0.300 mg/L
2,4-Dinitrotoluene	<0.050 mg/L	8270	0.050 mg/L
Hexachlorobenzene	<0.050 mg/L	8270	0.050 mg/L
Hexachloro-1,3-butadiene	<0.100 mg/L	8270	0.100 mg/L
Hexachloroethane	<0.100 mg/L	8270	0.100 mg/L
Nitrobenzene	<0.100 mg/L	8270	0.100 mg/L
Pentachlorophenol	<1.000 mg/L	8270	1.000 mg/L
Pyridine	<1.000 mg/L	8270	1.000 mg/L
2,4,5-Trichlorophenol	<0.300 mg/L	8270	0.300 mg/L
2,4,6-Trichlorophenol	<0.300 mg/L	8270	0.300 mg/L

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Aug 07, 2009 16:56

Sample 03 - Top Soil

YOUNG'S ENVIRONMENTAL

PARAMETER	MEASURED CONCENTRATION	METHOD OF ANALYSIS	DETECTION LIMIT
TCLP(SEMIVOLATILES)			
Total Cresols	<0.300 mg/L	8270	0.300 mg/L
2,4-Dinitrotoluene	<0.050 mg/L	8270	0.050 mg/L
Hexachlorobenzene	<0.050 mg/L	8270	0.050 mg/L
Hexachloro-1,3-butadiene	<0.100 mg/L	8270	0.100 mg/L
Hexachloroethane	<0.100 mg/L	8270	0.100 mg/L
Nitrobenzene	<0.100 mg/L	8270	0.100 mg/L
Pentachlorophenol	<1.000 mg/L	8270	1.000 mg/L
Pyridine	<1.000 mg/L	8270	1.000 mg/L
2,4,5-Trichlorophenol	<0.300 mg/L	8270	0.300 mg/L
2,4,6-Trichlorophenol	<0.300 mg/L	8270	0.300 mg/L

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Thermo Analytical, Inc.
387 Airport Industrial Drive
Ypsilanti, MI 48198-7812

FEB 7 1996

Young's Environmental Cleanup
G-5305 N. Dort Highway
Flint, MI 48505

Attn: Stephanie Herriman

Order #: E5-10-133
Date: 10/27/95 15:21
Work ID: City of Flint-Windiate
Date Received: 10/25/95
Date Completed: 10/27/95

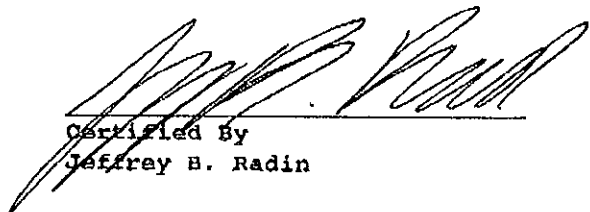
Purchase Order: 5127-
Invoice Number:

Client Code: YOUNGS_F

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	Top Soil #1	03	Top soil #3
02	Top Soil #2	04	Top Soil #4

SR=See attached report ND=Nondetected, detection limit in ().
< = Analyte was not detected at or above specified detection limit in (). N/A=Not applicable. **Average of duplicate runs.
** = Higher detection limit due to matrix effects.


Certified By
Jeffrey B. Radin

TMA
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Order # E5-10-133

10/27/95 15:21

Thermo Analytical, Inc.

TEST RESULTS BY SAMPLE

Page 2

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Sample: 01A Top Soil #1

Collected: 10/24/95

Test Description	Result	Limit	Units	Analyzed	By
Arsenic in Solid	4.3	0.200	mg/Kg	10/27/95	SL
Barium in Solid	45	0.050	mg/Kg	10/27/95	SL
Cadmium in Solid	1.8	0.050	mg/Kg	10/27/95	SL
Chromium in Solid	9.9	0.100	mg/Kg	10/27/95	SL
Copper in Solid	7.8	0.100	mg/Kg	10/27/95	SL
Lead in Solid	14	0.100	mg/Kg	10/27/95	SL
Mercury in Solid	<0.022	0.022	mg/Kg	10/27/95	SL
Prep for ICAP-Solid	10/26/95			date complete	LD
Selenium in Solid	<0.20	0.200	mg/Kg	10/27/95	SL
Silver in Solid	2.0	0.100	mg/Kg	10/27/95	SL
Zinc in Solid	29	0.100	mg/Kg	10/27/95	SL

Sample: 02A Top Soil #2

Collected: 10/24/95

Test Description	Result	Limit	Units	Analyzed	By
Arsenic in Solid	3.7	0.200	mg/Kg	10/27/95	SL
Barium in Solid	45	0.050	mg/Kg	10/27/95	SL
Cadmium in Solid	1.7	0.050	mg/Kg	10/27/95	SL
Chromium in Solid	10	0.100	mg/Kg	10/27/95	SL
Copper in Solid	8.7	0.100	mg/Kg	10/27/95	SL
Lead in Solid	13	0.100	mg/Kg	10/27/95	SL
Mercury in Solid	<0.023*	0.023	mg/Kg	10/27/95	SL
Prep for ICAP-Solid	10/26/95			date complete	LD
Selenium in Solid	<0.20	0.200	mg/Kg	10/27/95	SL
Silver in Solid	1.5	0.100	mg/Kg	10/27/95	SL
Zinc in Solid	28	0.100	mg/Kg	10/27/95	SL

Sample: 03A Top Soil #3

Collected: 10/24/95

Test Description	Result	Limit	Units	Analyzed	By
Arsenic in Solid	5.0	0.200	mg/Kg	10/27/95	SL
Barium in Solid	47	0.050	mg/Kg	10/27/95	SL
Cadmium in Solid	2.3	0.050	mg/Kg	10/27/95	SL
Chromium in Solid	11	0.100	mg/Kg	10/27/95	SL
Copper in Solid	8.5	0.100	mg/Kg	10/27/95	SL
Lead in Solid	16	0.100	mg/Kg	10/27/95	SL
Mercury in Solid	<0.023	0.023	mg/Kg	10/27/95	SL
Prep for ICAP-Solid	10/26/95			date complete	LD
Selenium in Solid	<0.20	0.200	mg/Kg	10/27/95	SL
Silver in Solid	0.66	0.100	mg/Kg	10/27/95	SL
Zinc in Solid	33	0.100	mg/Kg	10/27/95	SL

Sample: 04A Top Soil #4

Collected: 10/24/95

Test Description	Result	Limit	Units	Analyzed	By
Arsenic in Solid	4.7	0.200	mg/Kg	10/27/95	SL
Barium in Solid	53	0.050	mg/Kg	10/27/95	SL
Cadmium in Solid	2.1	0.050	mg/Kg	10/27/95	SL

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Thermo Analytical, Inc.
TEST RESULTS BY SAMPLE

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Test Description	Result	Limit	Units	Analyzed	By
Chromium in Solid	11	0.100	mg/Kg	10/27/95	SL
Copper in Solid	8.5	0.100	mg/Kg	10/27/95	SL
Lead in Solid	73	0.100	mg/Kg	10/27/95	SL
Mercury in Solid	<0.022	0.022	mg/Kg	10/26/95	AH
Prep for ICAP-Solid	10/26/95		date complete		LD
Selenium in Solid	<0.20	0.200	mg/Kg	10/27/95	SL
Silver in Solid	1.3	0.100	mg/Kg	10/27/95	SL
Zinc in Solid	31	0.100	mg/Kg	10/27/95	SL

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TEST METHODOLOGIES

Page 4

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Method 7471, SW-846 "Test Methods for Evaluating Solid Waste", Third Edition.
Method 6010, SW-846 " Test Methods for Evaluating Solid Waste" Third Edition
Method 6010, SW-846 " Test Methods for Evaluating Solid Waste" Third Edition
Method 6010, SW-846 "Test Methods for Evaluating Solid Waste".
Method 6010, SW-846 " Test Methods for Evaluating Solid Waste" Third Edition
Method 6010, SW-846 "Test Methods for Evaluating Solid Wastes", Third Edition.
Method 6010, SW-846 "Test Methods for Evaluating Solid Waste".
Method 6010, SW-846 " Test Methods for Evaluating Solid Waste" Third Edition

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(313) 622-3104

Fax: (313) 622-3344

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YOUNG'S ENVIRONMENTAL CLEANUP, INC. G-5305 N. DORT HWY., FLINT, MI 48505				CHAIN OF CUSTODY RECORD			
COMPANY NAME: City of Flint - Winderline				PHONE: (810) 789-7155 FAX (810) 789-3606			
ADDRESS:				SAMPLED BY: Tony Kade			
				PROJECT NAME			
ATTN:				REPORT TO:			
ITEM NO.	SAMPLE IDENTIFICATION	DATE COLLECTED	TIME	SAMPLE TYPE	NO./TYPE CONTAINER	REQUESTED ANALYSES	
	Top Soil (#1)	10/24/05	11 ⁰⁰	Soil	1 qt	10 DNK (total) Metals	
	Top Soil (#2)					11 " "	
	Top Soil (#3)					11 " "	
	Top Soil (#4)					11 " "	
						10/24/05 - Chemmo	
						RUSH!!!	
						AO #5307-	
RELINQUISHED BY: Tony Kade				DATE: 10-24-05	TIME: 11 ⁰⁰	RECEIVED BY: Stephen M. Johnson	
RELINQUISHED BY: Stephen M. Johnson				DATE: 10/25/05	TIME: 12 ⁰⁰	RECEIVED BY: [Signature]	
RELINQUISHED BY:				DATE:	TIME:	RECEIVED BY: [Signature]	

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APPENDIX E

MDEQ Correspondence Letter (November 3, 1995)

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Aug 07, 2006 10:00 AM
STATE OF MICHIGAN



JOHN ENGLER, Governor
DEPARTMENT OF ENVIRONMENTAL QUALITY
HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48209-7973
RUSSELL J. HARDING, Director

REPLY TO:
SHAWASSEE DISTRICT HEADQUARTERS
10850 S BENNETT
MORRISSE MI 48867-0702

November 3, 1995

Mr. Robert Metcalf
General Motors Corporation
CLCD North
902 E. Hamilton Ave.
Flint, MI 48550-8504

Dear Mr. Metcalf:

SUBJECT: Windiate Park/Dixieland Subdivision Landfill, Flint, Genesee County

The Michigan Department of Environmental Quality (MDEQ) has reviewed the analytical results for the silty sand and topsoil to be used as a protective cap for the Windiate Park/Dixieland Subdivision landfill. Specifically, one soil sample was collected from the silty sand and five samples were collected from the topsoil. All samples were analyzed for the Michigan ten metals. In addition, one sample from the silty sand and one sample from the topsoil were also analyzed for TCLP metals.

While the MDEQ cannot make a determination as to the adequacy of all the material to be used, the results of the samples submitted do indicate the soil to be below the soil direct contact criteria and protective of groundwater for the Michigan ten metals.

If you have any questions or would like to discuss this matter further, please contact Mr. Eric Van Riper at 517-625-4621.

Sincerely,

Rodney Mosier
(for) Rodney Mosier
Shiawassee District Supervisor
Environmental Response Division
517-625-4615

cc: Mr. Eric Van Riper, MDEQ
Mr. Kevin Lavalie, Gault Davison, P.C.

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Fax: 1-517-625-5000

Aug 07, 2006 10:00 AM

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APPENDIX F

GM - City of Flint Remediation Agreement and Covenant Not to Sue

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Aug 07, 2009 16:56
REMEDIATION AGREEMENT AND COVENANT NOT TO SUE
FOR WINDIATE PARK

This Remediation Agreement and Covenant Not to Sue is executed on this date of Oct. 26, 1995, between the CITY OF FLINT (the "City") and the GENERAL MOTORS CORPORATION ("GM"). The City and GM shall collectively be referred to as the "Parties." This Agreement is made in reference to the following facts:

A. The City is the owner of property located between Pengally Street and Milton Drive in Flint, Michigan, commonly known as the Windiate Park (the "Park") the legal description of which is attached as Exhibit A.

B. Recent investigation has revealed that a landfill was formerly located in the Park.

C. Response activities have documented environmental impacts as a result of the presence of the landfill in the Park.

D. The Parties have a shared interest in having the Park fully remediated in a manner acceptable to the Michigan Department of Natural Resources and its successor, the Michigan Department of Environmental Quality (collectively, the "MDEQ").

E. It is the mutual intent of the Parties to expedite response activity necessary to remediate the Park.

F. GM, with the approval of the City, has proposed placement of a soil cap on the affected areas of the Park. This soil cap may become part of the final remedy.

THEREFORE, in consideration of the mutual promises and

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covenants made in this Agreement, the Parties agree as follows:

1. GM will undertake at its expense the preparation and execution of a Remedial Action Plan ("RAP") for the Park consistent with the requirements of the Michigan Environmental Response Act, MCLA §§ 20101-20142 (Part 201) for submittal to the MDEQ for approval. This RAP may include placement of a permanent soil cap over the affected areas, but GM may proceed with placement of the soil cap prior to submission or approval of the RAP. The Parties acknowledge and agree that placement of the soil cap prior to submission or approval of the RAP does not constitute a warranty or representation of any kind that the work performed will result in the achievement of the remedial criteria as established by law.

2. The contents of the RAP and the choice of remedial action and cleanup criteria proposed therein shall be determined at the sole discretion of GM with reasonable opportunity for comment by the City. It is the intent of this Agreement that GM shall have full control over preparation of the RAP, and remedial selection and implementation, consistent with the current and projected use of the property for a park.

3. A Park Committee composed of interested area residents and representatives of GM and the City will be formed to coordinate preparation of a park renovation plan. The City will pay reasonable costs associated with preparation of the plan. If the park renovation plan is acceptable to the City and GM, GM will pay reasonable costs associated with implementation of the approved renovation project. The City will maintain at its expense the Park

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and all related amenities in the future unless otherwise provided for in this Agreement.

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4. The City will consent to and cooperate with GM in obtaining necessary state, federal and local governmental authorizations and permits necessary to implement the RAP. To the extent administratively possible, this consent includes issuance of all authorizations or permits necessary from the City free of cost to implement the RAP.

5. The City will fully cooperate with GM to obtain approval from the MDEQ of the RAP, including authorizing and implementing reasonable land use or exposure controls consistent with the current and projected use of the Park as a park, including title and/or deed restrictions, and zoning restrictions and/or variances consistent with the cleanup criteria proposed by GM and approved by the MDEQ, including, but not limited to, limitations on future use of the Park to uses that would not jeopardize the integrity of the soil cap, the erection and operation of monitoring and treatment wells, capping, and placement of permanent markers.

6. The City will provide the following in-kind services, at its sole expense, upon request by GM:

- A. The use of a survey crew as necessary to define private property boundaries inside and around the Park;
 - B. Curb removal and replacement;
 - C. GM will be responsible for tree removal and rubbish removal contemplated under the scope of this agreement.
- The City will match the monies spent by GM for tree

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removal and rubbish removal, up to the amount of \$25,000.00, and said funds will be used for tree replacement and/or other Park amenities;

D. Grass cutting and general Park maintenance and care before and after completion of the RAP;

E. Installation of fencing during construction to prevent trespassing, vandalism, and potential exposure to construction and remediation hazards. This does not constitute a warranty or a guarantee that the such fencing will prevent trespassing, vandalism, and potential exposure to construction and remediation hazards;

F. Raising the four catch basins and sanitary manholes inside the Park to ensure proper drainage following placement of the soil cap;

G. Raising fire hydrants to the proper grade during construction of the soil cap;

H. Repair, replacement, and installation of sidewalks following completion of the soil cap;

I. To the extent allowed by law, use, at no cost to GM, of storm and/or sanitary sewers to dispose of surface or groundwater;

J. Purchase and installation of appropriate Park signage;

K. Daily street cleaning during construction; and

L. A water supply, to be used for dust suppression and

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equipment cleansing.

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7. The City will allocate \$50,000 over a two year period for a park project to be used for maintenance of Park amenities, mowing and for regular cap maintenance. Regular cap maintenance will consist of visual inspections, mowing, reseeding as necessary and filling in settled areas. The City will be responsible in perpetuity for the regular maintenance of the cap upon its completion.

8. To ensure that the foregoing services are provided on a timely basis, the City will designate David Ready as project coordinator for the City. GM will coordinate its activities with Mr. Ready to schedule the services listed in paragraph six of this Agreement.

9. The City does hereby grant GM access to the Park in perpetuity for the purpose of performing the RAP, monitoring the remedy, placement of the soil cap, long term operation and maintenance of the remedy and remediating any adjoining properties. In addition to the provisions of this agreement, such access shall be conducted pursuant to the following:

- A. GM will make all reasonable efforts to avoid damage to any asphalt or concrete surface;
- B. GM will cause any area of the Park which it disturbs after the soil cap is in place to be restored as close as reasonably possible to its condition which existed immediately prior to the activity causing the

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disturbance;

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C. Unless the Parties agree in writing, upon permission of the MDEQ, GM shall forthwith close and remove any monitoring wells and plug the well holes. The removal of the monitoring wells and the plugging of any well holes shall be done in accordance with all applicable requirements of federal, state and local statutes, ordinances, rules and regulations and City construction specifications;

D. In all undertakings by either Party to procure any samples from the Park, the other Parties representative shall have the right upon notice to representatives of the Party procuring the samples, to obtain a split sample of such sampling. The Party seeking to split the samples will provide sampling containers for its samples and will be solely responsible for any tests conducted on those samples; and

E. Both Parties agree to deliver to the other, a copy of all data generated under the scope of this Agreement within five (5) business days after its validation by any applicable quality control process.

10. The parties understand and agree that this Agreement (or actions referred to in or required by this Agreement) is not, and shall not be construed as, an admission by either of the Parties of any liability, wrongdoing, or violation of local, state or federal law.

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11. (a) Subject to paragraph 19, and except as provided in subparagraph (b) below, each of the Parties, on behalf of it and its respective departments, agencies, successors, predecessors, subsidiaries, assigns, agents, employees, officers and directors, does hereby release and covenant not to sue the other from and with respect to all claims related to the existence of contamination in the Park, or associated with the remediation of the Park.

(b) Except for claims for damages or injuries caused by performance of any work under this Agreement, this release does not encompass contribution or indemnification actions between the parties arising from claims brought by third parties against GM or the City, and in that regard each of the Parties hereby waives any defenses it may have against the other Party based on any alleged failure to comply with or under the Contribution Among Joint Tortfeasors Act, MCLA 600.2925 a-d. Nothing in this section, 11(b), shall abrogate the indemnification rights of the Parties under paragraph 19.

12. GM shall be responsible for the timely performance of the RAP including, but not limited to, the design, construction, monitoring, oversight, execution of all security bonds, performance bonds, or any other "financial mechanisms" required by the MDEQ to ensure performance of the RAP except as otherwise provided in this Agreement.

13. This Agreement shall apply to and shall be binding upon the City, its successors and assigns, and upon GM, its successors and assigns. No change or changes in the ownership or corporate

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status of GM shall in any way alter GM's responsibilities under this Agreement. GM shall remain and be responsible for compliance with this Agreement and for insuring that its contractors, subcontractors, laboratories and consultants perform all work in conformance with the terms and conditions of this Agreement.

14. The signatories to this Agreement certify that they are authorized to execute and legally bind the Parties they represent.

15. In the event that either Party discovers the existence of groundwater contamination in excess of Generic Residential Cleanup Criteria, as promulgated under Part 201 of the Natural Resource and Environmental Protection Act, 1994 PA 451, off-site and caused by migration of hazardous substances located in the Park, the Party who discovers the existence of groundwater contamination shall immediately notify the herein designated Official of the other Party of the existence and location of such environmental contamination.

16. Upon written request by a designated representative of the City, GM will provide the City with copies of all non-privileged documents generally designated for which the City can show a demonstrable need and within GM's possession or control relating to the implementation of the cap and other response activities conducted on the Park pursuant to this Agreement.

17. GM and the City will provide each other, or their designated representatives, with copies of all correspondence, analytical reports, work plans, or RAP's provided to the MDEQ as related to the Park. GM will notify the MDEQ to put Kevin Lavalley,

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as representative of the City, on the meeting list for all future meetings between the MDEQ and GM involving the Park.

18. The City and GM shall initially negotiate informally any dispute that arises under this Agreement. Such informal negotiation shall end ten days after GM or the City advises the other in writing that the dispute still exists unless the Parties agree otherwise in writing. If GM and the City cannot informally resolve a dispute under this Agreement, then either of the Parties may request arbitration.

19. With respect to the scope of this Agreement, GM is solely responsible for the safe performance of its employees, agents, contractors and any persons acting on its behalf in any activities performed pursuant to this Agreement. In this regard, GM shall indemnify and hold harmless the City, its successors and assigns, from any and all claims or causes of action arising from any negligence, recklessness or intentional misconduct by GM, its contractors or its agents in the construction of the soil cap or execution of the RAP, to the extent such claims or causes of action do not result from any negligence, recklessness or intentional misconduct by the City, its contractors or its agent, or do not result from the performance of the services described in paragraph 6 and 7 above.

With respect to the scope of this Agreement, the City is solely responsible for the safe performance of its employees, agents, contractors and any persons acting on its behalf in any activities performed pursuant to this Agreement. In this regard,

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the City shall indemnify and hold harmless GM, its successors and assigns, from any and all claims or causes of action arising from any negligence, recklessness or intentional misconduct by the City, its contractors or its agents in the performance of the services described in paragraph 6 and 7 above, to the extent such claims or causes of action do not result from any negligence, recklessness or intentional misconduct by GM, its contractors or its agents.

20. Neither the City nor GM waive any claims or rights they may have against any person or entity not a party to this Agreement, each expressly reserving the right to assert any and all claims each Party may have against any other party not a party to this Agreement.

21. All notices required or desired to be given hereunder shall be sent by first class mail,

if to GM, to:

James P. Walle
General Motors Building-12th floor
3044 West Grand Boulevard
MC 482-112-149
Detroit, MI 48202

if to the City, to:

Chief Legal Officer
City Attorney's Office
City Hall
1101 S. Saginaw St.
Flint, MI 48502

Any notice required or desired to be given hereunder may also be delivered personally by one party hereto to the other, in which case receipt is effective upon completion of such delivery.

22. Neither the terms of this Agreement nor the performance of any actions thereunder is intended to directly or indirectly

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benefit any person or entity not a party to the Agreement and no interest or right is conferred upon any third party by the Agreement.

23. GM will be solely responsible for the proper disposal of any hazardous waste removed by GM from the Park, if any, including manifesting and disclosure requirements, relating to placement of the soil cap.

24. In performance of any task included under the scope of this Agreement, each consultant or contractor hired by GM shall maintain a policy of general comprehensive liability insurance in such amounts as GM agrees to be proper but in no event less than \$1,000,000.

25. In performance of all activities under the scope of this Agreement, GM hereby designates Bob Metcalf as project coordinator with whom representatives of the City can make immediate contact if such a need arises.

26. Any contract GM enters into with a consultant, contractor or subcontractor employed for the performance and the implementation of any activity under the scope of this Agreement shall require that the consultant, contractor or subcontractor comply with all laws, including (but not limited to) applicable health and safety laws and regulations as well as the health and safety plan prepared for this project by General Motors.

27. This Agreement shall be modified only upon the written agreement of GM as evidenced by signature of GM legal counsel and of the City by signature of legal counsel for the City or a duly

PRESENTED: OCT 23 '95

Shane Noreen

LFR

ADOPTED: OCT 23 '95

Resolution Authorizing Remediation Agreement and Covenant Not to Sue
between the City of Flint and General Motors Corporation
for Windiate Park

BY THE MAYOR:

WHEREAS, the City of Flint owns Windiate Park located between Pengally Street and Milton Drive in the City of Flint, and

WHEREAS, recent investigation by the City, GM and the State of Michigan revealed the presence of contaminated soils on the site requiring remediation activities, and

WHEREAS, GM, with City approval, has approved proposed placement of a soil cap on affected areas of the Park as an interim step to protect area residents, and the State of Michigan is considering this as a possible final remediation, subject to public hearings and approvals by the Michigan Department of Environmental Quality, and

WHEREAS, representatives of the City and GM have negotiated a proposed agreement to establish the rights and responsibilities of the parties in connection with going forward with the Remedial Action Plan, (while protecting the legal position and defenses each may have) to allow the Remedial Action Plan to be implemented forthwith,

NOW, THEREFORE, BE IT RESOLVED, that the appropriate City officials are hereby authorized to enter into the Remediation Agreement and Covenant Not to Sue for Windiate Park.

APPROVED AS TO FORM:



Michael T. Joliat
Chief Legal Officer

APPROVED BY
CITY CCUNCIL

m1023.13

OCT 23 1995



Shane Noreen

authorized representative of the City.

28. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

THE CITY OF FLINT

By Woodrow Stanley
Its _____

GENERAL MOTORS CORPORATION

By _____
Its _____

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Aug 07, 2009 16:56

Louis K. Hawkins
City Clerk

APPROVED AS TO FORM

Michael T. Joliat
City Attorney

authorized representative of the City.

Shane Noreen

LFR

Aug 07, 2009 16:56

28. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

THE CITY OF FLINT

By _____

Its _____

GENERAL MOTORS CORPORATION

By William J. MacLeland

Its Manager, Remediation Projects

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APPROVED AS TO FORM

Michael T. Joliat
City Attorney

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APPENDIX G

GM - Genesee County Drain Commission Consent Agreement

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CONSENT AGREEMENT

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THIS CONSENT AGREEMENT is made between General Motors Corporation a Delaware corporation, ("GM") whose address is 3044 West Grand Boulevard, Detroit, Michigan and Genesee County Drain Commission ("County"), whose address is 932 Beach Street, Flint, Michigan.

RECITALS

A. The City of Flint ("City") with offices at 1101 South Saginaw Street, Flint, Michigan, is the owner of a certain parcel of property located in the City of Flint, State of Michigan ("Property"), as more particularly described on Exhibit A attached hereto and by reference made a part hereof.

B. City has granted permission to GM to enter onto the Property in order to conduct activities in furtherance of an environmental remediation plan to address surface and subsurface contamination on the Property.

C. City conveyed to County a Release of Right of Way ("Release"), dated July 30, 1990, and recorded at Deed Liber 2401, Page 118, Genesee County Records, pursuant to which County has the right to construct and maintain a certain drain on a portion of the Property ("Easement Area"), as more particularly described on Exhibit B attached hereto and by reference made a part hereof, together with rights appurtenant to the construction and maintenance of such drain.

D. GM desires to place approximately one-to-four feet of sand and topsoil and to plant sod on the surface of the Property (the "Covered Area"), to raise the elevation of catch basins and manholes located in the Easement Area, and to conduct certain other related activities in furtherance of its remediation activity.

NOW, THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the parties hereby agree as follows:

1. County consents to GM and City, their representatives, agents, employees, consultants, contractors and subcontractors, entering upon the Easement Area and conducting the following activities: (i) raising the elevation of any catch basins and any manholes located in the Easement Area; (ii) raising the elevation of the Easement Area approximately one-to-four feet by placing sand, topsoil and planting sod on the surface of the Covered Area; (iii) conducting from time to time surface and subsurface soil testing of the Covered Area; (iv) repairing and maintaining the sand, topsoil and sod; and (v) entering other portions of the Easement Area, in addition to the Covered Area, to the extent that entering such other portions of the Easement Area is reasonably necessary to exercise GM's or City's rights under this Consent Agreement. The parties understand and agree that GM or City may also need to perform certain other work on the Easement Area in addition to the work described herein, and that if it becomes necessary for

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Shane Noreen

GM or City to do such additional work, County consents thereto so long as such other work does not interfere with the easement rights granted to County pursuant to the Release.

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2. Following the placement of sand and topsoil and the planting of sod on the Covered Area, if County conducts any excavation of, or earth moving activities on, any portion of the Covered Area, County shall notify GM and City prior to conducting such excavation or earth moving activities and shall restore the sand, topsoil and ground cover to the condition existing prior to such excavation or earth moving activities and in conformance with the original specifications for the remediation activities, a copy of which specifications has been delivered by General Motors to County. County shall conduct any such excavation or earth moving activities in accordance with applicable laws.

3. Any notice required to be given under this Consent Agreement must be in writing and shall be deemed to have been given upon receipt by the addressee, and shall be sent by United States certified mail, return receipt requested, postage prepaid or by a nationally recognized overnight delivery service to the following addresses:

If to General Motors:

James P. Walle, Esq.
Office of the General Counsel
General Motors Corporation
New Center One Building
3031 West Grand Boulevard
Detroit, Michigan 48232

If to City:

If to County:

Genesee County Drain Commissioner
Anthony Ragnone
4610 Beecher Road
Flint, Michigan
48532

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4. This Consent Agreement shall be effective from the date of County's signature.

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The parties or their duly authorized representatives have signed this Consent Agreement on the date specified below.

By: [Signature]
On behalf of
GENESEE COUNTY DRAIN
COMMISSION
JEFFREY WRIGHT

By: [Signature]
On behalf of
GENERAL MOTORS CORPORATION, a
Delaware corporation

Title: DEPUTY COMMISSIONER

Title: Manager, Remediation Projects

Date: 1-24-96

Date: 1-31-96

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LFR **EXHIBIT A**

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Legal Description

A parcel of land located in the City of Flint, Genesee County, Michigan, described as:

The Common of "Dixie Land", as contained in Plat Liber 11, Page 7, Genesee County Records; and

Lot 139 to 142, inclusive, and Lots 475 to 485, inclusive, of "Dixie Land", according to the recorded plat thereof, as recorded in Plat Liber 11, Pages 5 and 6, Genesee County records.

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LFR **EXHIBIT B**

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Easement Area

Property located in the City of Flint, Genesee County, Michigan, described as:

A parcel of land 30' wide described as beginning at the Northerly corner of lot 475; then Northwesterly 50 feet along the Southwesterly line of Pengelly Road; then Southwesterly at right angles 30 feet; then Southeasterly parallel to Pengelly Road to lot 475; then Northeasterly 30 feet to the point of beginning. Also 10 feet each side of a line beginning on the Southwesterly line of lot 481 which is Northeasterly 5 feet from the Southwesterly corner of lot 481, then South 14° 13' 00" East 645 feet; then South 28° 43' 00" East 210 feet to a point on the North line of Milton Drive which is 25 feet Westerly of the Southeasterly corner of lot 173, not including that part lying in lot 173.

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APPENDIX H
Windiate Park Maintenance Checklist

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WINDIATE PARK MAINTENANCE CHECKLIST

Date of Inspection: _____ Weather Conditions (temperature, wind speed, precipitation, sunny, cloudy): _____

Inspected By: _____ (Print name) _____ (Signature)

Inspect the following items:

Comments:

Grass layer (bare patches, diseased/dead patches)

Soil cover (areas of erosion, settlement, burrowing animals)

Trees/shrubs (diseased/dead)

Catch basins/manholes (integrity, condition of soil/grass surrounding)

Walking paths (cracks, buckling)

Other observations

Corrective measures to be taken:

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