Photograph Number	Photograph	Caption
001		Photograph of the front of the Property (facing South)
002		Photograph shows the electrical easement on the west side of the Property.

003		Photograph of the drainage ditch on the south side of the Property.
004		Photograph shows the wetland.

005		Photograph shows the ethane pipeline substation.
006		Photograph shows the east-west gravel drive looking west.

007		Photograph of the concrete slab on the east side of the Property.
008		Photograph of the bulging 55-gallon drum observed on the east side of the Property.

009		Photograph shows some of the building rubble on the east side of the Property.
010		Photograph shows the uneven ground and potential landfilling area south of the gravel drive.
011		Photograph shows some of the concrete and metal in the potential landfilling area.

Appendix F

Prior Reports

This document was scanned as it was received –

Illegible/difficult to view pages/tables/figures

Duplicate pages, out of order pages/missing pages

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY – REMEDIATION DIVISION
PO BOX 30426, LANSING, MICHIGAN 48909-7926, Phone 517-373-9837, Fax 517-373-2637

FOR DEQ USE ONLY
BEA SUBMITTAL # BEA201405883 LV

Baseline Environmental Assessment Submittal Form

This form is for submittal of a Baseline Environmental Assessment (BEA), as defined by the Environmental Remediation, Part 201 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and the Part 201 Rules promulgated thereunder, for the purpose of establishing an exemption to liability pursuant to Section 20126(1)(c) for a new owner or operator of property that is a facility as defined by Section 20101(1)(r). The BEA report must be conducted either prior to or within 45 days after becoming the owner or operator, whichever is earliest. This form and the BEA report must be submitted to the DEQ within 6 months of becoming the owner or operator whichever is earliest. A separate BEA is required for each legal entity that is or will be a new owner or operator of the property. To maintain the exemption to liability, the owner and operator must also disclose the BEA to any subsequent purchaser or transferee before conveying interest in the property pursuant to Section 20126(1)(c) and Rule 919. An owner or operator of a facility also has due care obligations under Section 20107a with respect to any existing contamination to prevent unacceptable exposure; prevent exacerbation; take reasonable precautions; provide reasonable cooperation, assistance, and access to authorized persons taking response activities at the property; comply with land and resource use restrictions associated with response activities; not impede the effectiveness or integrity of land and resource use restrictions implemented at the property, and comply with the Part 10 Rules. Documentation of due care evaluations and response activities needs to be available, but not submitted, to the DEQ within 8 months of becoming the owner or operator of a facility.

Submitter Information

Name of legal entity that will own or operate the property:
Sunoco Logistics Partners, L.P.
Address: 7155 Inkster Road
City: Taylor State: MI Zip: 48180
Contact person (Name & Title): Justin Minter, Emergency Response Manager

Telephone:409-377-0054 E-Mail:jdminter@sunocologistics.com

Contact for BEA questions if different from submitter
Name & Title: Robert Elliott, Senior Project Manager
Company: Groundwater & Environmental Services, Inc.

Address: 10381 Citation Drive, Suite 500
City: Brighton State: MI Zip: 48116
Telephone: 800-368-0337 E-Mail: relliott@gesonline.com

Property Information

Street Address of Property: 1406 Avon Road

City: Rochester Hills State: MI Zip: 48307
Property Tax ID (include all applicable IDs):
70-15-24-100-020
Address according to tax records, if different than above (include all applicable addresses):

City: State: Zip:

Status of submitter relative to the property (check all that apply):

	Former	Current	Prospective
Owner	☐	☐	☒
Operator	☐	☐	☒

County: Oakland

City/Village/Township: Rochester Hills

Town: 3N Range: 11E Section: 24
Quarter: Quarter-Quarter:

Decimal Degrees Latitude: 42.6670000
Decimal Degrees Longitude: West 83.10580000

Reference point for latitude and longitude:
Center of site ☐ Main/front door ☐
Front gate/main entrance ☐ Other ☒

Collection method:
Survey ☐ GPS ☒ Interpolation ☐

Applicable Dates (provide date for all that are relevant): MM/DD/YYYY

Date All Appropriate Inquiry (AAI) Report or Phase I Environmental Assessment Report completed: 07/26/2013

Date Baseline Environmental Assessment Report conducted: 09/27/2013

Date submitter first became the owner: 10/07/2013

Date submitter first became the operator (if prior to ownership): NA

Anticipated date of becoming the owner for prospective owners: NA

Anticipated date of becoming the operator for prospective operators: 10/07/2013

If former owner or operator of this property, prior dates of being the owner or operator: NA

Source of contamination at the property (check all that are known to apply):

Facility regulated under Part 201, other source, or source unknown Part 201 Site ID, if known:	☒
Leaking Underground Storage Tank regulated pursuant to Part 213 Part 211/213. Facility ID, if known:	☐
Oil or gas production and development regulated pursuant to Part 615 or 625	☐
Licensed landfill regulated pursuant to Part 115	☐

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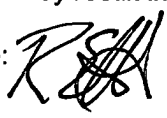
JAN 29 2014
REMEDIATION DIVISION
SOUTHEAST MICHIGAN

Licensed hazardous waste treatment, storage, or disposal facility regulated pursuant to Part 111	☐

Check the appropriate response to each of the following questions:	YES	NO
1. Is the property at which the BEA was conducted a "facility" as defined by Section 20101?	☒	☐
2. Is the All Appropriate Inquiry (AAI) compliant with 40 CFR 312, or is the Phase I Environmental Assessment compliant with ASTM E1527-05?	☒	☐
3. Was the BEA, including the AAI, sampling, and analyses, conducted either prior to or within 45 days of the date of becoming the owner, operator, or of foreclosure, whichever is earliest, or within the alternate time-frames provided in Part 201 Rule 903(8) for submitters involved in oil and gas development under Part 615 or 625 property, or Rule 903(9) for property acquired through condemnation procedures?	☒	☐
4. Is this BEA being submitted to the department within 6 months of the submitter first becoming the owner or operator, or foreclosing?	☒	☐
5. Does the BEA provide sufficient rationale to demonstrate that the data are reliable and relevant to define conditions at the property at the time of purchase, occupancy, or foreclosure, even if the BEA relies on studies of data prepared by others or conducted for other purposes?	☒	☐
6. Does this BEA contain the legal description of the property addressed by the BEA?	☒	☐
7. Does this BEA contain the environmental analytical results, a scaled map showing the sample locations, and the basis for the determination that the property is a facility as defined by Section 20101(1)(f)?	☒	☐

Environmental Consultant Signature:

To the best of my knowledge and belief, this BEA and all related materials are true, accurate, and complete. The All Appropriate Inquiry (AAI) was conducted in conformance with the scope and limitations of the All Appropriate Inquiry Rule, 40 CFR 312 or a Phase I Environmental Site Assessment (Phase I) was conducted in conformance with the scope and limitations of the ASTM E1527-05. The property is a facility as defined by Section 20101(1)(r) and I have provided the sampling and analyses that support that determination. Any exceptions to, or deletions from, the All Appropriate Inquiry Rule or ASTM E1527-05 are described in the BEA report. I understand that intentionally submitting false information in a BEA is a felony and may result in fines of up to $25,000 for each violation.

Signature: 

Date: 1-28-14

Printed Name: Robert Elliott

Company: Groundwater & Environmental Services, Inc.

Mailing Address: 10381 Citation Drive, Suite 500 City: Brighton State: MI Zip: 48116

Telephone: 800-368-0337 E-Mail: relliott@gesonline.com

Submitter Signature:

To the best of my knowledge and belief, this BEA and all related materials are true, accurate, and complete. I understand that intentionally submitting false information in a BEA is a felony and may result in fines of up to $25,000 for each violation.

Signature: Justin D Minter Date: 27-Jan-2014

Printed Name: Justin Minter

Title and Relationship of signatory to submitter: Emergency Response Manager, Sunoco Logistics Partners L.P.

Address:15645 W. Port Arthur Rd. City: Beaumont State: TX Zip: 77705

Telephone:409.377.0054 E-Mail: jdminter@sunocologistics.com

Submit the BEA report and this form to the DEQ District Office for the county in which the property is located.
A district map is located at www.michigan.gov/bea or www.michigan.gov/deqrrd.

EQP 4025 (April 2011)

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY – REMEDIATION DIVISION
PO BOX 30426, LANSING, MICHIGAN 48909-7926, Phone 517-373-9837, Fax 517-373-2637

CONTENTS OF BEA REPORT

1. Introduction and Discussion:
    a. Owner/operator information (name, address, etc.).
    b. Intended use of property (i.e., residential, institutional, industrial, gas station, commercial, etc.).
    c. Executive summary of All Appropriate Inquiry (AAI) if available or a short summary of the findings and opinions of the AAI and the conditions indicative of releases or threatened releases of hazardous substances; or recognized environmental conditions identified in a Phase I Environmental Assessment.
    d. Any exceptions to, or deletions from, the All Appropriate Inquiry Rule 40 CFR 312 or ASTM E1527-05.
    e. Discussion of data gaps identified in the AAI or Phase I and how they affect this BEA.
    f. Discussion of the sampling completed, including the purpose and methods. If the data was not collected by the submitter or environmental professional, the demonstration that the data are reliable and relevant to define the conditions at the property.
    g. The general location(s) of the known contamination on the property including the environmental media affected.
    h. The basis for the conclusion that the property is a facility.

2. Property Information
    a. Legal description of property.
    b. Survey map(s) (not aerial photos) accurately depicting the property boundaries, property tax ID(s), and, if applicable, parcel boundaries. If a legal description simply references a lot or plat, include a copy of the subdivision plat showing this property. A legal boundary survey by a licensed surveyor is required if the property covered by the BEA is greater or less than the legal property description(s). A legal survey is highly recommended when the property description is complex, has recently changed, multiple parcels are included in one BEA, or other situations where the exact property the BEA covers may be an issue when relying on the BEA for liability protection in the future.
    c. Scaled site map(s) with site structures, sample locations and depths, and detected contaminant concentrations.
    d. Scaled area map showing property in relation to surrounding area (such as topographic or aerial maps).
    e. Property location: Street/City/State/Zip.
    f. Spatial data required on form: County; City/Village/Township that is the governmental unit with jurisdiction; Town, Range, Section, Quarter and Quarter-Quarter Section; latitude and longitude coordinates including the information on how those were obtained.

3. Facility Status

   a. Table listing the hazardous substances, CAS Number, concentrations, sample location(s) and depths, and media affected, that are known to exceed residential criteria at the property.
   b. Laboratory analytical data sheets and chain-of-custody documents.

4. Identification of the author of the BEA
   a. Name, qualifications as an environmental professional, company, contact information, etc.

5. All Appropriate Inquiry Report or ASTM Phase I Environmental Site Assessment
   a. The report must consider hazardous substances as defined by Section 20101(1)(x).

6. References (other than those already included in the AAI or Phase I Environmental Assessment).

Please note that for submittal to the DEQ, it is not necessary to re-copy entire DEQ files that already exist in the district offices unless it is part of the AAI or Phase I document. Copying of pertinent information and a reference to the location of the complete information in the DEQ file is acceptable. Example: include data tables in the BEA and provide the file name, report, and date of the supporting analytical report if it is known to be in the DEQ file.

AT THE REQUEST OF EGLE, THIS ATTACHMENT HAS BEEN DELETED TO REDUCE REPORT SIZE.

STATE OF MICHIGAN TRANSMITTAL

TO:

1 Paul Owens

2 DEQ-RD

3 Warren

4

FOR ACTION AS INDICATED

☐ SIGNATURE	☐ REPLY—MY SIGNATURE	☐ NOTE AND FORWARD
☐ APPROVAL	☐ REPLY—COPY TO ME	☐ NOTE AND FILE
☐ ACTION	☐ PLEASE SUMMARIZE	☐ NOTE AND RETURN
☐ COMMENTS	☐ PLEASE INVESTIGATE	☐ PLEASE PHONE ME
☐ INFORMATION	☐ FORWARDED PER REQUEST	☐ PLEASE SEE ME

REMARKS:

Paul, This one's yours!

FROM Rhonda Kla

DATE 9-21-11

FORM 10575 3

989-894-6248

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: Rhonda Klann, Supervisor
Remediation Division, Saginaw Bay District Office

FROM: Joseph Walczak, Brownfield Assessment Program Manager
Remediation Division, Superfund Section

DWD for Joe Walczak

DATE: September 15, 2011

SUBJECT: Brownfield Redevelopment Assessment Report for the Tree Farm Property, Rochester Hills, Michigan MIB000000166

I have enclosed, for your files, one copy of the Brownfield Redevelopment Assessment Report for the Tree Farm Property in Rochester Hills, Michigan. Please forward this report to appropriate staff.

I have forwarded a copy of the report to Ms. Karen Ramsey, Legal Projects Specialist, at the city of Highland Park for their files.

If you have any questions concerning this report, please contact me at 517-335-2151.

Enclosure
cc: Teresa Ducsay, MDEQ
Site File

BROWNFIELD REDEVELOPMENT ASSESSMENT REPORT

FOR

TREE FARM

1406 EAST AVON ROAD
ROCHESTER HILLS, MICHIGAN 48307

MIB000000166

SEPTEMBER 01, 2011

REPORT PREPARED BY: Teresa Ducsay DATE: 09-01-11

Teresa Ducsay, Investigation Team Leader
Site Assessment and Site Management Unit

REVIEWED AND APPROVED BY: DWDevantier DATE: 9-14-2011

Daria W. Devantier, Unit Chief
Site Assessment and Site Management Unit

Michigan Department of Environmental Quality
Remediation Division
Superfund Section
P.O. Box 30426
Lansing, Michigan 48909

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APPENDICES

EXECUTIVE SUMMARY

The Michigan Department of Environmental Quality (MDEQ) conducts Brownfield Redevelopment Assessments (BFRAs) to assist local communities with redevelopment projects by providing environmental assessment information. BFRAs are conducted by the MDEQ to satisfy the Site Specific Assessment task of its 128(a) Brownfield Cooperative Agreement with the United States Environmental Protection Agency. The BFRAs provide information on brownfield properties where potential environmental contamination may be acting as an impediment to future redevelopment activities. They also provide information to determine if a property is a facility as defined in Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 201) and provide recommendations for addressing issues during redevelopment. A facility is defined as any area, place, or property that contains a hazardous substance at a concentration that exceeds Generic Residential Cleanup Criteria established in Section 20120a(1)(a) or (17) of Part 201. File and data searches and environmental sample collection and analyses are used to obtain the needed information to make the determination and recommendations. This report presents the findings of the Tree Farm property BFRA.

This BFRA report is written for the purpose of providing information on the property that will encourage redevelopment in a way that ensures protection of the public health, safety, welfare, and the environment. This information is intended for use by the local unit of government, the MDEQ, potential developers, and any other stakeholders who may become involved in the future redevelopment of the property. The report includes a summary of the property background, assessment procedures, results, conclusions, and recommendations. The conclusion as to whether the property is a facility as defined in Part 201 is made by comparison of sample concentrations of hazardous substances to the Generic Residential Cleanup Criteria established under Part 201. This report also compares the sample concentrations to other Generic Nonresidential Cleanup Criteria to provide additional information to promote appropriate redevelopment activities.

On January 25, 2011, a request and application were submitted to the MDEQ by Mr. William Ford, a City Attorney and Chief of Staff for the city of Highland Park to request a BFRA of the Tree Farm property. The property is owned by the city of Highland Park and is located at 1406 East Avon Road in Rochester Hills, Michigan. The property meets the definition of a brownfield based on its potential for being contaminated due to buried waste present on the property. Previous uses of the property include a tree farm according to the city of Highland Park. Based on historical plat maps obtained, the city of Highland Park has owned the property since about 1947. The 1925 plat map of the parcel listed Robert Lowe as the owner of the property.

The request by Mr. William Ford resulted in the MDEQ conducting a BFRA of the property. This BFRA included file and historic information searches, a reconnaissance inspection of the property, a geophysical survey of subsurface conditions, the collection

of surficial soil, subsurface soil, surface water, and sediment samples, Global Positioning System (GPS) data collection of sample locations and property features, and the collection of site feature photographs.

The reconnaissance inspection was conducted on March 28, 2011, and included the team leader, a geologist, and a representative from the gas company to locate the high pressure gas line that runs through the property. The geophysical survey, specifically an electromagnetic (EM) survey with an EM61, was completed during the week of April 11, 2011, to aid in designing the field sampling plan. The field sampling event was conducted on April 26 and 27, 2011, and included the collection of fifteen surficial soil, fifteen soil boring, four surface water, and four sediment samples. Photographs of general property conditions were taken along with GPS data to determine sample and feature locations.

Analysis of the soil samples detected the presence of antimony, arsenic, barium, benzo(b)fluoranthene, benzo(a)pyrene, cadmium, chromium (total), cobalt, copper, cyanide, fluoranthene, iron, lead, manganese, mercury, molybdenum, phenanthrene, selenium, silver, trichloroethylene, vanadium, and zinc at concentrations greater than the Generic Residential Cleanup Criteria. The contaminants in the surficial soils on the Tree Farm property include: arsenic, benzo(b)fluoranthene, benzo(a)pyrene, and lead at concentrations above Part 201 Soil Residential Direct Contact Criteria; chromium (total) at a concentration above Part 201 Residential Particulate Soil Inhalation Criteria; antimony, arsenic, chromium (total), cobalt, iron, lead, manganese, molybdenum, and vanadium at concentrations exceeding Part 201 Soil Residential Drinking Water Protection Criteria; and arsenic, barium, cadmium, chromium (total), cobalt, copper, cyanide, fluoranthene, manganese, mercury, phenanthrene, selenium, silver, and zinc at concentrations exceeding Part 201 Soil Groundwater Surface Water Interface (GSI) Protection Criteria. The contaminants in the deep soils on the Tree Farm property include: arsenic, benzo(a)pyrene, and lead at concentrations above Part 201 Soil Residential Direct Contact Criteria; antimony, arsenic, cadmium, chromium (total), cobalt, iron, lead, manganese, molybdenum, and trichloroethylene at concentrations exceeding Part 201 Soil Residential Drinking Water Protection Criteria; and arsenic, barium, cadmium, chromium (total), cobalt, copper, cyanide, fluoranthene, lead, manganese, mercury, phenanthrene, selenium, silver, and zinc at concentrations exceeding Part 201 Soil GSI Protection Criteria. Due to the elevated levels of contaminants above Part 201 Generic Residential Cleanup Criteria, MDEQ staff has determined that the Tree Farm property does meet the definition of a facility as defined in Part 201.

Based on the findings of the BFRA, MDEQ staff recommends that the following issues should be addressed before or during the redevelopment of the Tree Farm property:

Action should be taken to abate the potential threat caused by the presence of contaminants exceeding Residential Cleanup Criteria in the soils by mitigation of these contaminants or restricting access to the contaminated areas. Arsenic, benzo(b)fluoranthene, benzo(a)pyrene, and lead were detected in the soil samples

at concentrations which exceed the Residential Direct Contact Criteria and chromium (total) was detected at a concentration above Part 201 Residential Particulate Soil Inhalation Criteria. In some cases, further evaluation of certain inorganic analytes found at levels above default background levels may show that some of these inorganic analytes may be naturally occurring at those levels, thereby eliminating the need for mitigation. The full extent of the contamination should be determined and appropriate precautions implemented to prevent exposure during redevelopment.

The "due care" obligations must be met as specified in Section 7a of Part 201 during redevelopment activities. These obligations include not exacerbating the existing contamination; assure there are no unacceptable exposures, and taking reasonable precautions against the reasonably foreseeable activities of third parties.

Further information concerning Part 201 Cleanup Criteria, due care provisions, and remedial and/or removal activities may be obtained from the MDEQ Remediation Division, Southeast Michigan District Office at 586-753-3700.

INTRODUCTION

The Michigan Department of Environmental Quality (MDEQ) was contracted via a cooperative agreement (CA) with the United States Environmental Protection Agency (U.S. EPA) to conduct Brownfield Redevelopment Assessments (BFRAs). BFRAs are performed to fulfill the Site Specific Assessment (SSA) task in the Section 128(a) CA. The Section 128(a) CA was entered into between the MDEQ and the U.S. EPA as a result of the "Small Business Liability Relief and Brownfield Revitalization Act" amendments to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Title 42 of the United States Code, Section 9601). A BFRA was requested for the Tree Farm property by Mr. William Ford, for the city of Highland Park, to assist in their redevelopment plans for the property.

A Brownfield property is a real property, usually an abandoned, idled, or under-utilized industrial or commercial property, or a portion thereof, where the presence or potential presence of a hazardous substance, pollutant, or contaminant may be acting as an impediment to expansion, redevelopment, or reuse of the property. Properties targeted for the SSA task are those brownfield properties that have an active potential for expansion, redevelopment, or reuse.

BFRAs are intended to provide information on such properties where potential environmental contamination may be acting as an impediment to future redevelopment activities. MDEQ staff conducts environmental investigations of brownfield properties to determine the types and locations of past and present activities, potential relevant migration pathways of concern, types and concentrations of potential contaminants, and the need for remedial and/or removal actions on the property. These findings are summarized in this BFRA report along with the determination of whether the property meets the definition of a facility as defined in Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 201). A facility is an area that contains a hazardous substance at a concentration that exceeds Residential Cleanup Criteria established in Section 20120a(1)(a) or (17) of Part 201.

As part of the BFRA, property specific exposure pathways are evaluated for potential exposure routes and relevancy with regard to Part 201. These pathways are evaluated to determine the potential risks posed by elevated levels of hazardous substances in those pathways. As stated in Part 201, a relevant pathway means an exposure pathway that is reasonable and relevant because there is a reasonable potential for exposure to a hazardous substance to occur to a human or non-human receptor from a source or release of a hazardous substance. The components of an exposure pathway are a source or release of a hazardous substance, an exposure point, an exposure route, and, if the exposure point is not the source or point of release, a transport medium. The existence of an exposure control measure, exposure barrier or other

similar feature, such as a municipal water supply, does not automatically make an exposure pathway irrelevant.

A BFRA of the Tree Farm property was conducted in accordance with the CA with the U.S. EPA. The BFRA included file and information searches, a reconnaissance inspection of the property, a geophysical survey of subsurface conditions, the collection of surficial soil, subsurface soil, surface water, and sediment samples, Global Positioning System (GPS) data collection of sample locations and property features, the collection of site feature photographs, data evaluation, and the compilation of all this data into this report.

PROPERTY BACKGROUND

Property Description

The Tree Farm property is located at 1406 East Avon Road, Rochester Hills, Michigan, Oakland County, Township 3 North, Range 11 East, Section 24. It should be noted that Avon Township in Oakland County became the city of Rochester Hills on November 20, 1984. The latitude is 42°40'01" north and the longitude is 83°06'24" west. The property encompasses approximately 43.3 acres and is an irregular shaped parcel. The property includes a smaller parcel (0.73 acres) along with a larger parcel (42.57 acres). The common address for the large parcel is 1406 East Avon Road, while the smaller parcel does not have a common address. The property is located in a rural area with residential and commercial properties in the area. The Southeast Oakland County Resource Recovery Authority is adjacent to the parcel to the east, there are residential properties boarding the parcel to the south and west, and a residential property located at the northeast corner of the property adjacent to the entrance drive. The property is bordered on the north by East Avon Road with a large mobile home park across the street, located on the north side of East Avon Road. See Figure 1 for the Property Location map.

Property History

A variety of current and historical information and databases, including property file information, historical aerial photographs, Sanborn® maps, and the Polk's City Directory were used to identify previous uses of the property. A major portion of this historical informational search included procuring much of this information from Environmental Data Resources Inc.'s (EDR) historical data packages. These EDR historical reports are provided in Appendix A.

According to the BFRA application information received for the Tree Farm property from the city of Highland Park, the historical use of the property is unknown. The application described the current use of the property as vacant and unoccupied.

Historical aerial photos of the property indicated disturbed/barren soil areas in 1975 and 1980, which may indicate either dumping and/or digging activities occurred during these time periods. There appears to be some buildings present on the property in the 1937, 1940, and 1949 aerial photos. There is a very large building (possibly a barn) with a very small building adjacent to it, located on the east side of the property with a long entrance drive; this appears to be located on the smaller of the two parcels. There is a shorter drive to buildings (possibly a house and/or a garage) on the west side of the property. The 1956 and 1957 aerial photos have additional roads going south along the western boundary of the property and east-west across the middle of the property; and the large building/ barn is no longer visible (only the building footprint), but there is a large area of

surface disturbance near the southeast corner of the parcel along the Honeywell Ditch. Most of the roads/drives on the property are no longer visible in the 1961 and 1964 aerial photos except for the drive along the east side of the property and no surface disturbance is visible. The 1967 aerial photo is similar, but even the small building on the east side of the property is not visible. The 1972 aerial photo has two large areas of surface disturbance and two small ones.

Based on the historical Utica Quadrangle topographic map from 1968 there appears to be a power line and/or pipeline that runs through the property and an unimproved road runs south near the east side of the property into the location of the former large building. The Utica Quadrangle topographic map photorevised in 1973 and 1983 extends the unimproved road west across the property.

The 1966 plat map of the property listed the owner as Highland Park City. The 1947 plat map lists the owner of the property as city of Highland Park (43.3 acres) and the small parcel is not separated out. The Land Ownership Atlas of Avon Township from 1925 listed Robert Lowe as the owner of property encompassing 44 acres. The Land Ownership Atlas of Avon Township from 1908 listed Mrs. S. K. Shaff as the owner of the property encompassing 46 acres. The Land Ownership Atlas of Avon Township from 1886 listed E. Pearsall as the owner of the property encompassing 55 acres. The Land Ownership Atlas of Avon Township from 1872 listed W. M. Bronson as the owner of the property encompassing 42 acres.

Previous uses of the property include a tree farm, according to the city of Highland Park, and a woodfill area based on a map obtained from the Stan's Trucking Incorporated Landfill site file in the MDEQ, Remediation Division, Superfund Section. The map has identified the Tree Farm property as the Highland Park Woodfill and has a 'received' date stamp of November 30, 1981. Based on historical plat maps of the parcel, the city of Highland Park has owned the property since about 1947.

A BFRA was requested for the Tree Farm property by Mr. William Ford, for the city of Highland Park, to assist in their redevelopment plans for the property. This request resulted in the investigation of this property under the BFRA program. The property has the potential for being contaminated based on physical indicators of buried waste being present, such as buried debris protruding through the ground surface and uprooted trees with waste present in the roots and soil. Previous uses of the property include a tree farm and a woodfill area. Redevelopment plans for the Tree Farm property are dependent upon the results of this investigation as the expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. The Tree Farm property is located in a rural area with both residential and commercial properties in the area.

PROCEDURES AND RESULTS

Reconnaissance Inspection Observations

A BFRA property reconnaissance was conducted at the Tree Farm property on March 28, 2011. The purpose of the reconnaissance was to gather information to be used in development of the BFRA sampling plan, to determine appropriate health and safety requirements, and to determine potential sampling locations. The team documented the features, known and potential source areas, and debris types located throughout the property and identified the environmental concerns associated with each area of concern. During this inspection, a representative from the gas company located an underground high pressure gas line that runs through the property.

Known/suspected areas of potential concern included the following based on the field observations from the property reconnaissance:

- Potentially impacted soils indicated by disturbed soils in historical aerial photos;
- Debris present - concrete rubble, asphalt pieces, household appliances, tires, and a rusty drum exposed along the edge of an apparent fill area;
- 55-gallon oil drum that appears to have leaked onto the ground surface;
- Uprooted trees with waste (glass, metal, etc.) bound into the roots and soil.

On April 25, 2011, a sampling inspection reconnaissance was conducted at the Tree Farm property for the purpose of locating the actual sample locations prior to collection of the samples. This reconnaissance was also conducted to determine whether there were any changes in the conditions or features of the property.

Based on the reconnaissance of the Tree Farm property, there is debris present (household appliances, tires, concrete rubble) and uprooted trees with waste bound into the roots and soil in areas that appeared to have surface disturbance in the 2005 aerial photo. There is an area in the northeast corner of the parcel which has rows of trees and depressions/divots where trees were removed (an indication of a tree farm). There remains a large building footprint and two openings to an underground concrete vault (likely a septic tank) on the east side of the property. Also, there is a 55-gallon oil drum that appears to have leaked near the building footprint. There is a buried gas pipeline and an electrical power line that run diagonally through the property from near the southwest corner to the northeast corner of the parcel. Near the middle of the property, the pipeline shifts away from the power line, from a northeasterly direction to a northerly direction, to a marker located adjacent to Avon Road. The Honeywell Ditch runs along

the southeast corner of the property and there is an approximately 24 inch clay pipe discharging into the ditch with a steady flow of water. The parcel is not fenced, but vehicular access to the property is restricted by a locked gate at the entrance drive off Avon Road. Historical aerial photos of the parcel indicated areas of surface disturbed on the property, which may be an indication that dumping or digging activities had occurred at the property.

See Figure 2 for the Property Features map. Photographs of the Tree Farm property were taken during the BFRA and are provided in Appendix B.

Geophysical Survey Results

A MDEQ geologist conducted a geophysical survey of the property during the week of April 11, 2011. The subsurface investigation was conducted with an electromagnetic (EM) survey utilizing a Geonics EM61-Mark 2 unit, and completed prior to the field sampling, to aid in the determination of sampling locations. Physical conditions of the Tree Farm property suggested the possibility of subsurface structures in two large fill areas with debris protruding through the ground surface and exposed debris along the bank of the two fill areas.

The survey results indicated the presence of a significant amount of buried metal across the western fill area with numerous larger objects detected across the area. The survey results for the eastern fill area indicate that the most of the buried metal is located in the northeast portion of this area and the area appears to have received more construction debris as concrete and rebar were observed. The geophysical survey report and figures are provided in Appendix C.

Sampling Procedures

The field sampling event was conducted on April 26 and 27, 2011, and included the collection of 15 surficial soil, 15 soil boring, and 4 surface water/sediment samples from suspected areas of contamination at the Tree Farm property. The sample locations were surveyed in utilizing a Trimble model GeoXH GPS unit.

The samples were collected in order to:

- Determine the concentrations of U.S. EPA Target Compound List compounds (organic compounds) and Target Analyte List analytes (inorganic elements) which may be present at the property.

- Identify potential contamination in shallow and subsurface soils and surface water/sediment on the property.

- Identify potential contaminant source areas.

- Ascertain potential contaminant migration pathways from possible source areas.

- Identify health and safety concerns, including threats posed to nearby residential populations, future workers or occupants, or natural resources associated with the different sample media.

- Evaluate and determine whether the Tree Farm property is a facility in accordance with the definition found in Part 201, Section 20101(o).

Standard MDEQ sample collection, preservation, and decontamination procedures, as outlined in the work plan, were followed for all samples. Sample collection and preservation followed the MDEQ Remediation and Redevelopment Division (RRD) Operational Memorandum 2, Attachments 4-6. Soil samples analyzed for volatile organic compounds (VOCs) were field preserved with methanol. Soil samples collected for other analyses were not chemically preserved. Water samples analyzed for VOCs were field preserved with hydrochloric acid. Water samples analyzed for semi-volatile organic (SVOC)/pesticide/polychlorinated biphenyl (PCB) compounds were not field preserved. Water samples analyzed for total metals were field preserved with nitric acid to a hydrogen ionization potential (pH) of less than two and water samples analyzed for amenable cyanide were field preserved with sodium hydroxide to a pH of more than twelve.

The MDEQ quality assurance/quality control procedures as outlined in the Quality Assurance Project Plan for Site Assessment and Brownfield Activities were followed (MDEQ, 2003). Upon collection of the samples, all samples were labeled and placed in insulated sample shipment coolers. The interior of the shipment coolers were kept at a temperature of approximately 4° Celsius with ice and delivered to the MDEQ Environmental Laboratory. Samples were transported by the Team Leader to the MDEQ Environmental Laboratory for analysis.

Sample Analysis

Soil and water samples were analyzed for organic compounds and inorganic analytes, consistent with the MDEQ RRD Operational Memorandum 2, Attachment 1, by the MDEQ Environmental Laboratory utilizing the following methods:

Compound/Analyte	Analytical Method	
	Soil	Water
Volatile Organics	8260	8260
Semi-volatile Organics	8270	8270
Pesticides	8081	8081
PCBs	8082	8082
Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc	6020	6020
Cyanide	ASTM D 751	ASTM D 751
Iron	6010	6010
Mercury	7471	7470

It should be noted that with regard to the chromium analyses, the samples were analyzed for total chromium only. Upon analysis, laboratory results were sent to the Team Leader and processed for this report. Laboratory analytical data for all the sample analyses are provided in Appendix D.

Sample Analytical Results Compared to Criteria

Contaminant concentrations in samples exceeding the Generic Cleanup Criteria (Criteria) promulgated pursuant to Part 201 are noted in the attached summary tables and will be described in the following sections. The current Part 201 Criteria are provided in Appendix E. Sample contaminant concentrations were rounded to two significant figures whenever laboratory results were reported in more than two significant figures. This is to allow for comparison of laboratory results to Criteria, which are presented in two significant figures. RRD Operational Memorandum 1 states that Criteria "should be compared to analytical data presented in two significant figures."

The attached summary tables show all sample Criteria exceedances. However, not all Criteria may be applicable. An applicable criterion is a cleanup criterion for a relevant pathway. A pathway that is not relevant will not have applicable Criteria. A pathway evaluation will be completed in the Discussion section. If an exposure pathway is not listed below, it means that no exceedances of Criteria in that pathway were found.

As noted above regarding the chromium analyses, only total chromium was analyzed. Per Part 201 rules, the total chromium concentrations are compared to the hexavalent chromium criterion. The default values for hardness and pH were used to determine the "G" footnoted Groundwater Surface Water Interface (GSI) Criteria. These are a hardness value of 150 and a pH of 7.

Background samples for the surficial soil and soil boring samples were collected from an area near the northwest corner of the Tree Farm property that seemed undisturbed or impacted by waste disposal. However, they were not collected in a statistical manner to determine a property specific background, but to determine the potential for migration of contaminants on to the property and the potential for naturally occurring elevated levels of contaminants. Any sample concentrations of naturally occurring inorganic analytes above Criteria but equal to or below statewide default background levels are not considered exceedances of Part 201 Criteria in this report.

Surficial Soil Samples

The intent of the surficial soil sampling was to identify potentially contaminated surficial soil or source areas, to determine the potential for possible contaminant migration, and to determine health and safety concerns, including threats posed to nearby residential populations, future workers or occupants, and resources associated with the surficial soils at the property. To accomplish this sampling task, 15 surficial soil samples were collected during the BFRA. All samples were collected using stainless steel trowels from depths ranging from 0 to 10 inches below the ground surface according to the procedures outlined in the work plan.

See Figure 3 for a map showing surficial soil sample locations. For a description of the surficial soil sample locations and the sample characteristics, refer to Table 1. Table 2 provides a summary of the surficial soil sample analytical results that exceed Part 201 Criteria and lists the Criteria exceedances.

Analysis of the surficial soil samples collected during the BFRA detected the presence of organic compounds and inorganic analytes at concentrations above Part 201 Criteria. The following lists the Criteria exceedances for surficial soil samples and the compounds/analytes and samples with concentrations in excess of Criteria. The full extent of the contaminants in the surficial soils was not delineated during the BFRA of the Tree Farm property.

Exceedances above the Soil Residential Drinking Water Protection Criteria:

These Criteria represent concentrations of hazardous substances in soils that may leach from the soil into groundwater at concentrations in the groundwater exceeding generic Residential Drinking Water Criteria.

Antimony was detected in SS-06 at a concentration of 8.1 parts per million (ppm) and SS-07 at a concentration of 8.6 ppm, which exceed the 4.3 ppm Criterion.

Arsenic was detected in SS-04 at a concentration of 12 ppm, SS-06 at a concentration of 15 ppm, SS-07 at a concentration of 15 ppm, SS-09 at a concentration of 12 ppm, and SS-11 at a concentration of 7.0 ppm, which exceed the 4.6 ppm Criterion and the statewide default background level of 5.8 ppm.

Chromium (total) was detected in SS-06 at a concentration of 31 ppm, SS-07 at a concentration of 390 ppm, SS-12 at a concentration of 33 ppm, SS-14 at a concentration of 86 ppm, and SS-15 at a concentration of 34 ppm, which exceed the 30 ppm Criterion.

Cobalt was detected in SS-06 at a concentration of 8.1 ppm, SS-07 at a concentration of 65 ppm, SS-10 at a concentration of 7.6 ppm, and SS-11 at a concentration of 9.1 ppm, which exceed the 0.8 ppm Criterion and the statewide default background level of 6.8 ppm.

Iron was detected in SS-02 at a concentration of 16,000 ppm, SS-02-DUP at a concentration of 16,000 ppm, SS-04 at a concentration of 13,000 ppm, SS-05 at a concentration of 17,000 ppm, SS-06 at a concentration of 27,000 ppm, SS-07 at a concentration of 56,000 ppm, SS-08 at a concentration of 16,000 ppm, SS-09 at a concentration of 15,000 ppm, SS-10 at a concentration of 19,000 ppm, SS-11 at a concentration of 26,000 ppm, SS-12 at a concentration of 16,000 ppm, SS-13 at a concentration of 17,000 ppm, SS-14 at a concentration of 30,000 ppm, and SS-15 at a concentration of 24,000 ppm, which exceed the 6.0 ppm Criterion and the statewide default background level of 12,000 ppm.

Lead was detected in SS-06 at a concentration of 900 ppm and SS-07 at a concentration of 1,400 ppm, which exceed the 700 ppm Criterion and the statewide default background level of 21 ppm.

Manganese was detected in SS-07 at a concentration of 510 ppm, SS-10 at a concentration of 450 ppm, SS-11 at a concentration of 940 ppm, SS-12 at a concentration of 720 ppm, SS-14 at a concentration of 1,600 ppm, and SS-15 at a concentration of 720 ppm, which exceed the 1 ppm Criterion and the statewide default background level of 440 ppm.

Molybdenum was detected in SS-06 at a concentration of 6.9 ppm, SS-07 at a concentration of 33 ppm, SS-09 at a concentration of 1.7 ppm, SS-10 at a concentration of 1.6 ppm, and SS-15 at a concentration of 1.6 ppm, which exceed the 1.5 ppm Criterion.

Vanadium was detected in SS-14 at a concentration of 83 ppm, which exceeds the 72 ppm Criterion.

Exceedances above the Soil Nonresidential Drinking Water Protection Criteria:

These Criteria represent concentrations of hazardous substances in soils that may leach from the soil into groundwater at concentrations in the groundwater exceeding generic Residential Drinking Water Criteria.

Antimony was detected in SS-06 at a concentration of 8.1 parts per million (ppm) and SS-07 at a concentration of 8.6 ppm, which exceed the 4.3 ppm Criterion.

Arsenic was detected in SS-04 at a concentration of 12 ppm, SS-06 at a concentration of 15 ppm, SS-07 at a concentration of 15 ppm, SS-09 at a concentration of 12 ppm, and SS-11 at a concentration of 7.0 ppm, which exceed the 4.6 ppm Criterion and the statewide default background level of 5.8 ppm.

Chromium (total) was detected in SS-06 at a concentration of 31 ppm, SS-07 at a concentration of 390 ppm, SS-12 at a concentration of 33 ppm, SS-14 at a concentration of 86 ppm, and SS-15 at a concentration of 34 ppm, which exceed the 30 ppm Criterion.

Cobalt was detected in SS-06 at a concentration of 8.1 ppm, SS-07 at a concentration of 65 ppm, SS-10 at a concentration of 7.6 ppm, and SS-11 at a concentration of 9.1 ppm, which exceed the 2.0 ppm Criterion and the statewide default background level of 6.8 ppm.

Iron was detected in SS-02 at a concentration of 16,000 ppm, SS-02-DUP at a concentration of 16,000 ppm, SS-04 at a concentration of 13,000 ppm, SS-05 at a concentration of 17,000 ppm, SS-06 at a concentration of 27,000 ppm, SS-07 at a concentration of 56,000 ppm, SS-08 at a concentration of 16,000 ppm, SS-09 at a concentration of 15,000 ppm, SS-10 at a concentration of 19,000 ppm, SS-11 at a concentration of 26,000 ppm, SS-12 at a concentration of 16,000 ppm, SS-13 at a concentration of 17,000 ppm, SS-14 at a concentration of 30,000 ppm, and SS-15 at a concentration of 24,000 ppm, which exceed the 6.0 ppm Criterion and the statewide default background level of 12,000 ppm.

Lead was detected in SS-06 at a concentration of 900 ppm and SS-07 at a concentration of 1,400 ppm, which exceed the 700 ppm Criterion and the statewide default background level of 21 ppm.

Manganese was detected in SS-07 at a concentration of 510 ppm, SS-10 at a concentration of 450 ppm, SS-11 at a concentration of 940 ppm, SS-12 at a concentration of 720 ppm, SS-14 at a concentration of 1,600 ppm, and SS-15 at a concentration of 720 ppm, which exceed the 1 ppm Criterion and the statewide default background level of 440 ppm.

Molybdenum was detected in SS-06 at a concentration of 6.9 ppm and SS-07 at a concentration of 33 ppm, which exceed the 4.2 ppm Criterion.

Exceedances above the Soil Groundwater Surface Water Interface Protection Criteria:

These Criteria represent concentrations of hazardous substances in soils that may leach from the soil into groundwater at concentrations in the groundwater exceeding generic Groundwater Surface Water Interface Criteria.

Arsenic was detected in SS-04 at a concentration of 12 ppm, SS-06 at a concentration of 15 ppm, SS-07 at a concentration of 15 ppm, SS-09 at a concentration of 12 ppm, and SS-11 at a concentration of 7.0 ppm, which exceed the 4.6 ppm Criterion and the statewide default background level of 5.8 ppm.

Barium was detected in SS-06 at a concentration of 790 ppm and SS-07 at a concentration of 830 ppm, which exceed the 440 ppm Criterion and the statewide default background level of 75 ppm.

Cadmium was detected in SS-07 at a concentration of 4.6 ppm, which exceeds the 3.6 ppm Criterion and the statewide default background level of 1.2 ppm.

Chromium (total) was detected in SS-01 at a concentration of 9.1 ppm, SS-02 at a concentration of 13 ppm, SS-02-DUP at a concentration of 14 ppm, SS-03 at a concentration of 11 ppm, SS-04 at a concentration of 17 ppm, SS-05 at a concentration of 14 ppm, SS-06 at a concentration of 31 ppm, SS-07 at a concentration of 390 ppm, SS-08 at a concentration of 17 ppm, SS-09 at a concentration of 18 ppm, SS-10 at a concentration of 16 ppm, SS-11 at a concentration of 26 ppm, SS-12 at a concentration of 33 ppm, SS-13 at a concentration of 21 ppm, SS-14 at a concentration of 86 ppm, and SS-15 at a concentration of 34 ppm, which exceed the 3.3 ppm Criterion.

Cobalt was detected in SS-06 at a concentration of 8.1 ppm, SS-07 at a concentration of 65 ppm, SS-10 at a concentration of 7.6 ppm, and SS-11 at a concentration of 9.1 ppm, which exceed the 2.0 ppm Criterion and the statewide default background level of 6.8 ppm.

Copper was detected in SS-06 at a concentration of 120 ppm and SS-07 at a concentration of 160 ppm, which exceed the 75 ppm Criterion and the statewide default background level of 32 ppm.

Cyanide was detected in SS-06 at a concentration of 1.0 ppm and SS-07 at a concentration of 4.0 ppm, which exceed the 0.1 ppm Criterion and the statewide default background level of 0.39 ppm.

Fluoranthene was detected in SS-06 at a concentration of 26,000 parts per billion (ppb) and SS-07 at a concentration of 32,000 ppb, which exceed the 5,500 ppb Criterion.

Manganese was detected in SS-07 at a concentration of 510 ppm, SS-10 at a concentration of 450 ppm, SS-11 at a concentration of 940 ppm, SS-12 at a concentration of 720 ppm, SS-14 at a concentration of 1,600 ppm, and SS-15 at a concentration of 720 ppm, which exceed the 56 ppm Criterion and the statewide default background level of 440 ppm.

Mercury was detected in SS-06 at a concentration of 0.37 ppm, SS-07 at a concentration of 0.50 ppm, and SS-09 at a concentration of 0.17 ppm, which exceed the 0.05 ppm Criterion and the statewide default background level of 0.13 ppm.

Phenanthrene was detected in SS-06 at a concentration of 21,000 ppb and SS-07 at a concentration of 15,000 ppb, which exceed the 2,100 ppb Criterion.

Selenium was detected in SS-04 at a concentration of 0.75 ppm, SS-07 at a concentration of 1.7 ppm, and SS-09 at a concentration of 0.75 ppm, which exceed the 0.4 ppm Criterion and the statewide default background level of 0.41 ppm.

Silver was detected in SS-07 at a concentration of 1.9 ppm, which exceeds the 0.1 ppm Criterion and the statewide default background level of 1 ppm.

Zinc was detected in SS-05 at a concentration of 210 ppm, SS-06 at a concentration of 1,400 ppm, and SS-07 at a concentration of 760 ppm, which exceed the 170 ppm Criterion and the statewide default background level of 47 ppm.

Exceedances above the Residential Particulate Soil Inhalation Criteria:

These Criteria represent concentrations of hazardous substances in soils at Residential locations considered to be hazardous through particulate inhalation of the soil.

Chromium (total) was detected in SS-07 at a concentration of 390 ppm, which exceeds the 260 ppm Criterion.

Exceedances above the Nonresidential Particulate Soil Inhalation Criteria:

These Criteria represent concentrations of hazardous substances in soils at Nonresidential locations considered to be hazardous through particulate inhalation of the soil.

Chromium (total) was detected in SS-07 at a concentration of 390 ppm, which exceeds the 240 ppm Criterion.

Manganese was detected in SS-14 at a concentration of 1,600 ppm, which exceeds the 1,500 ppm Criterion and the statewide default background level of 440 ppm.

Exceedances above the Soil Residential Direct Contact Criteria:

These Criteria represent concentrations of hazardous substances in soils at Residential locations considered to be hazardous through dermal contact and ingestion of the soil.

Arsenic was detected in SS-04 at a concentration of 12 ppm, SS-06 at a concentration of 15 ppm, SS-07 at a concentration of 15 ppm, and SS-09 at a concentration of 12 ppm, which exceed the 7.6 ppm Criterion and the statewide default background level of 5.8 ppm.

Benzo(b)fluoranthene was detected in SS-07 at a concentration of 25,000 ppb, which exceeds the 20,000 ppb Criterion.

Benzo(a)pyrene was detected in SS-07 at a concentration of 17,000 ppb, which exceeds the 2,000 ppb Criterion.

Lead was detected in SS-06 at a concentration of 900 ppm and SS-07 at a concentration of 1,400 ppm, which exceed the 400 ppm Criterion and the statewide default background level of 21 ppm.

Exceedances above the Soil Nonresidential Direct Contact Criteria:

These Criteria represent concentrations of hazardous substances in soils at Nonresidential locations considered to be hazardous through dermal contact and ingestion of the soil.

Benzo(a)pyrene was detected in SS-07 at a concentration of 17,000 ppb, which exceeds the 8,000 ppb Criterion.

Lead was detected in SS-07 at a concentration of 1,400 ppm, which exceeds the 900 ppm Criterion and the statewide default background level of 21 ppm.

Soil Boring Samples

The intent of the soil boring sampling was to identify potential contamination in the deep soils, to determine if any downward migration of contamination has occurred from probable source areas, and to determine potential health and safety concerns, including threats posed to nearby residential populations, future workers or occupants, or resources associated with the deep soils at the property. To accomplish this sampling task, 15 soil boring samples were collected from 15 separate boring locations during the BFRA. All samples were collected utilizing a Geoprobe® rig with a high density polyethylene lined Macro-Core® sampler from depths ranging from 0 to 15 feet below the ground surface according to the procedures outlined in the work plan. These procedures included screening the core with a photoionization detector to help determine the presence of volatile organic compounds and potential sampling points within the cores. All soil boring boreholes were properly abandoned following an approved standard operating procedure. This procedure entailed slowly filling the abandoned borehole with bentonite chips to within six inches of the surface then topping off the borehole with immediate surrounding material.

See Figure 4 for a map showing soil boring sample locations. A description of the soil boring locations, lithology, and sample characteristics can be found in Table 3. Table 4 provides a summary of the soil boring sample analytical results that exceed Part 201 Criteria and lists the Criteria exceedances.

Analysis of the soil boring samples collected during the BFRA detected the presence of organic compounds and inorganic analytes at concentrations above Part 201 Criteria. The following lists the Criteria exceedances for soil boring samples and the compounds/ analytes and samples with concentrations in excess of Criteria. The full extent of the contaminants in the deep soils was not delineated during the BFRA of the Tree Farm property.

Exceedances above the Soil Residential Drinking Water Protection Criteria:

These Criteria represent concentrations of hazardous substances in soils that may leach from the soil into groundwater at concentrations in the groundwater exceeding generic Residential Drinking Water Criteria.

Antimony was detected in SB-06 at a concentration of 6.1 ppm and SB-07 at a concentration of 25 ppm, which exceed the 4.3 ppm Criterion.

Arsenic was detected in SB-04 at a concentration of 7.2 ppm, SB-05 at a concentration of 7.5 ppm, SB-06 at a concentration of 15 ppm, and SB-07 at a concentration of 31 ppm, which exceed the 4.6 ppm Criterion and the statewide default background level of 5.8 ppm.

Cadmium was detected in SB-06 at a concentration of 8.4 ppm and SB-07 at a concentration of 14 ppm, which exceed the 6.0 ppm Criterion and the statewide default background level of 1.2 ppm.

Chromium (total) was detected in SB-06 at a concentration of 47 ppm, SB-07 at a concentration of 100 ppm, and SB-14 at a concentration of 33 ppm, which exceed the 30 ppm Criterion.

Cobalt was detected in SB-07 at a concentration of 11 ppm, which exceeds the 0.8 ppm Criterion and the statewide default background level of 6.8 ppm.

Iron was detected in SB-05 at a concentration of 19,000 ppm, SB-06 at a concentration of 45,000 ppm, SB-07 at a concentration of 120,000 ppm, SB-08 at a concentration of 15,000 ppm, SB-09 at a concentration of 13,000 ppm, SB-10 at a concentration of 17,000 ppm, SB-12 at a concentration of 14,000 ppm, SB-14 at a concentration of 19,000 ppm, and SB-15 at a concentration of 20,000 ppm, which exceed the 6.0 ppm Criterion and the statewide default background level of 12,000 ppm.

Lead was detected in SB-06 at a concentration of 840 ppm and SB-07 at a concentration of 4,200 ppm, which exceed the 700 ppm Criterion and the statewide default background level of 21 ppm.

Manganese was detected in SB-04 at a concentration of 530 ppm, SB-07 at a concentration of 650 ppm, SB-14 at a concentration of 810 ppm, and SB-15 at a concentration of 720 ppm, which exceed the 1.0 ppm Criterion and the statewide default background level of 440 ppm.

Molybdenum was detected in SB-05 at a concentration of 2.2 ppm, SB-06 at a concentration of 9.5 ppm, SB-07 at a concentration of 8.7 ppm, and SB-15 at a concentration of 1.6 ppm, which exceed the 1.5 ppm Criterion.

Trichloroethylene was detected in SB-06 at a concentration of 260 ppb, which exceeds the 100 ppb Criterion.

Exceedances above the Soil Nonresidential Drinking Water Protection Criteria:

These Criteria represent concentrations of hazardous substances in soils that may leach from the soil into groundwater at concentrations in the groundwater exceeding generic Nonresidential Drinking Water Protection Criteria.

Antimony was detected in SB-06 at a concentration of 6.1 ppm and SB-07 at a concentration of 25 ppm, which exceed the 4.3 ppm Criterion.

Arsenic was detected in SB-04 at a concentration of 7.2 ppm, SB-05 at a concentration of 7.5 ppm, SB-06 at a concentration of 15 ppm, and SB-07 at a concentration of 31 ppm, which exceed the 4.6 ppm Criterion and the statewide default background level of 5.8 ppm.

Cadmium was detected in SB-06 at a concentration of 8.4 ppm and SB-07 at a concentration of 14 ppm, which exceed the 6.0 ppm Criterion and the statewide default background level of 1.2 ppm.

Chromium (total) was detected in SB-06 at a concentration of 47 ppm, SB-07 at a concentration of 100 ppm, and SB-14 at a concentration of 33 ppm, which exceed the 30 ppm Criterion.

Cobalt was detected in SB-07 at a concentration of 11 ppm, which exceeds the 2.0 ppm Criterion and the statewide default background level of 6.8 ppm.

Iron was detected in SB-05 at a concentration of 19,000 ppm, SB-06 at a concentration of 45,000 ppm, SB-07 at a concentration of 120,000 ppm, SB-08 at a concentration of 15,000 ppm, SB-09 at a concentration of 13,000 ppm, SB-10 at a concentration of 17,000 ppm, SB-12 at a concentration of 14,000 ppm, SB-14 at a concentration of 19,000 ppm, and SB-15 at a concentration of 20,000 ppm, which exceed the 6.0 ppm Criterion and the statewide default background level of 12,000 ppm.

Lead was detected in SB-06 at a concentration of 840 ppm and SB-07 at a concentration of 4,200 ppm, which exceed the 700 ppm Criterion and the statewide default background level of 21 ppm.

Manganese was detected in SB-04 at a concentration of 530 ppm, SB-07 at a concentration of 650 ppm, SB-14 at a concentration of 810 ppm, and SB-15 at a concentration of 720 ppm, which exceed the 1.0 ppm Criterion and the statewide default background level of 440 ppm.

Molybdenum was detected in SB-06 at a concentration of 9.5 ppm and SB-07 at a concentration of 8.7 ppm, which exceed the 4.2 ppm Criterion.

Trichloroethylene was detected in SB-06 at a concentration of 260 ppb, which exceeds the 100 ppb Criterion.

Exceedances above the Soil Groundwater Surface Water Interface Protection Criteria:

These Criteria represent concentrations of hazardous substances in soils that may leach from the soil into groundwater at concentrations in the groundwater exceeding generic Groundwater Surface Water Interface Criteria.

Arsenic was detected in SB-04 at a concentration of 7.2 ppm, SB-05 at a concentration of 7.5 ppm, SB-06 at a concentration of 15 ppm, and SB-07 at a concentration of 31 ppm, which exceed the 4.6 ppm Criterion and the statewide default background level of 5.8 ppm.

Barium was detected in SB-07 at a concentration of 950 ppm, which exceeds the 440 ppm Criterion and the statewide default background level of 75 ppm.

Cadmium was detected in SB-06 at a concentration of 8.4 ppm and SB-07 at a concentration of 14 ppm, which exceed the 3.6 ppm Criterion and the statewide default background level of 1.2 ppm.

Chromium (total) was detected in SB-01 at a concentration of 4.7 ppm, SB-02 at a concentration of 10 ppm, SB-03 at a concentration of 8.9 ppm, SB-04 at a concentration of 8.3 ppm, SB-05 at a concentration of 16 ppm, SB-06 at a concentration of 47 ppm, SB-07 at a concentration of 100 ppm, SB-08 at a concentration of 9.9 ppm, SB-09 at a concentration of 12 ppm, SB-10 at a concentration of 15 ppm, SB-11 at a concentration of 8.9 ppm, SB-12 at a concentration of 19 ppm, SB-13 at a concentration of 7.3 ppm, SB-14 at a concentration of 33 ppm, and SB-15 at a concentration of 29 ppm, which exceed the 3.3 ppm Criterion.

Cobalt was detected in SB-07 at a concentration of 11 ppm, which exceeds the 2.0 ppm Criterion and the statewide default background level of 6.8 ppm.

Copper was detected in SB-06 at a concentration of 240 ppm and SB-07 at a concentration of 450 ppm, which exceed the 75 ppm Criterion and the statewide default background level of 32 ppm.

Cyanide was detected in SB-06 at a concentration of 0.8 ppm, SB-07 at a concentration of 0.7 ppm, SB-12 at a concentration of 0.4 ppm, and SB-13 at a concentration of

0.4 ppm, which exceed the 0.1 ppm Criterion and the statewide default background level of 0.39 ppm.

Fluoranthene was detected in SB-06 at a concentration of 19,000 ppb and SB-07 at a concentration of 17,000 ppb, which exceed the 5,500 ppb Criterion.

Lead was detected in SB-07 at a concentration of 4,200 ppm, which exceeds the 2,800 ppm Criterion and the statewide default background level of 21 ppm.

Manganese was detected in SB-04 at a concentration of 530 ppm, SB-07 at a concentration of 650 ppm, SB-14 at a concentration of 810 ppm, and SB-15 at a concentration of 720 ppm, which exceed the 56 ppm Criterion and the statewide default background level of 440 ppm.

Mercury was detected in SB-06 at a concentration of 0.16 ppm and SB-07 at a concentration of 1.2 ppm, which exceed the 0.05 ppm Criterion and the statewide default background level of 0.13 ppm.

Phenanthrene was detected in SB-06 at a concentration of 11,000 ppb and SB-07 at a concentration of 9,900 ppb, which exceed the 2,100 ppb Criterion.

Selenium was detected in SB-06 at a concentration of 1.8 ppm and SB-07 at a concentration of 2.2 ppm, which exceed the 0.4 ppm Criterion and the statewide default background level of 0.41 ppm.

Silver was detected in SB-06 at a concentration of 1.1 ppm and SB-07 at a concentration of 3.3 ppm, which exceed the 0.1 ppm Criterion and the statewide default background level of 1.0 ppm.

Zinc was detected in SB-06 at a concentration of 600 ppm and SB-07 at a concentration of 1,300 ppm, which exceed the 170 ppm Criterion and the statewide default background level of 47 ppm.

Exceedances above the Soil Residential Direct Contact Criteria:

These Criteria represent concentrations of hazardous substances in soils at Residential locations considered to be hazardous through dermal contact and ingestion of the soil.

Arsenic was detected in SB-06 at a concentration of 15 ppm and SB-07 at a concentration of 31 ppm, which exceed the 7.6 ppm Criterion and the statewide default background level of 5.8 ppm.

Benzo(a)pyrene was detected in SB-06 at a concentration of 6,700 ppm and SB-07 at a concentration of 11,000 ppb, which exceed the 2,000 ppb Criterion.

Lead was detected in SB-06 at a concentration of 840 ppm and SB-07 at a concentration of 4,200 ppm, which exceed the 400 ppm Criterion and the statewide default background level of 21 ppm.

Exceedances above the Soil Nonresidential Direct Contact Criteria:

These Criteria represent concentrations of hazardous substances in soils at Nonresidential locations considered to be hazardous through dermal contact and ingestion of the soil.

Benzo(a)pyrene was detected in SB-07 at a concentration of 11,000 ppb, which exceeds the 8,000 ppb Criterion.

Lead was detected in SB-07 at a concentration of 4,200 ppm, which exceeds the 900 ppm Criterion and the statewide default background level of 21 ppm.

Surface Water Samples

The intent of the surface water sampling was to identify potential contamination in the surface water, to determine whether contaminants had migrated from the property into the Honeywell Ditch and/or surface drainage area on the property; and to determine potential health and safety concerns, including threats posed to nearby residential populations, future workers or occupants, or resources associated with the surface water in the area of the property. To accomplish this sampling task, four surface water samples (plus one duplicate sample) were collected from the Honeywell Ditch, a discharge pipe flowing into the Honeywell Ditch, and the surface drainage between the two fill areas, according to the procedures outlined in the work plan. Samplers collected samples from the most downstream location first, and then moved upstream. This was done to eliminate the possibility of contaminating the downstream sample locations by the migration of disturbed sediments from the upstream sampling locations.

The background sample, SW-01, was collected from the Honeywell Ditch, upstream of the fill areas on the Tree Farm property. SW-02 and SW-02-DUP were collected from the water flowing out of a 2-foot diameter, clay, discharge pipe located along the north bank of the Honeywell Ditch on the Tree Farm property. SW-03 was collected from the Honeywell Ditch, downstream of the discharge pipe, near the southeast corner of the property. SW-04 was collected from the surface drainage between the two fill areas. Surface water sample locations are shown in Figure 5.

Surface water samples, SW-01, SW-03, and SW-04, were collected by completely immersing the sample bottles into the water, while SW-02 and SB-02 DUP were collected from the flowing water out of the discharge pipe. The metals analysis samples

were not field filtered, and all inorganic and volatile samples were properly preserved and placed on ice in the sampling coolers. Each water sample was collected before the sediment sample at each location to minimize disturbing the water quality. During sampling, the temperature, pH, conductivity, oxidation reduction potential, and total dissolved solids were measured. A description of the surface water sample locations and sample characteristics are found in Table 5.

The laboratory results for surface water samples collected during the BFRA were compared to two of Part 201 Criteria for groundwater, specifically the Groundwater Surface Water Interface (GSI) Criteria and the Groundwater Contact Criteria. No surface water contaminant concentrations exceeded these Groundwater Criteria. The full extent of any possible contaminants in the surface water was not delineated during the BFRA of the Tree Farm property.

Sediment Samples

The intent of the sediment sampling was to identify potential contamination in the sediment, to determine whether contaminants had migrated from the property into the Honeywell Ditch and/or surface drainage area on the property; and to determine potential health and safety concerns, including threats posed to nearby residential populations, future workers or occupants, or resources associated with the sediments in the area of the property. To accomplish this sampling task, four sediment samples were collected from the Honeywell Ditch, at the discharge pipe which flows into the Honeywell Ditch, and the surface drainage between the two fill areas, according to the procedures outlined in the work plan. Samplers collected samples from the most downstream location first, and then moved upstream. This was done to eliminate the possibility of contaminating the downstream sample locations by the migration of disturbed sediments from the upstream sampling locations.

The background sample, SD-01 was collected from the Honeywell Ditch, upstream of the fill areas on the Tree Farm property. SD-02 was collected at the base of the discharge pipe located along the north bank of the Honeywell Ditch that flows from the Tree Farm property. SD-03 was collected from the Honeywell Ditch, downstream of the discharge pipe, near the southeast corner of the property. SD-04 was collected from the surface drainage between the two fill areas. Sediment sample locations are shown in Figure 5.

Field staff collected samples with a 2-inch diameter high density polyethylene Macro-Core® liner or a stainless steel spoon. Staff pushed the Macro-Core® liner into a sampling location or in the case of sample SD-02, collected the sample with a stainless steel spoon. After pulling the corer out of the sediment and dislodging the sample into a disposable aluminum pan, staff examined the sample and logged its attributes on a field data sheet. Samples were collected in accordance with procedures described in the

work plan for the Tree Farm property. A description of the sediment sample locations and sample characteristics are found in Table 7.

Analysis of the sediment samples collected during the BFRA detected the presence of one inorganic analyte and two pesticides compounds at concentrations exceeding Part 201 Sediment Screening Levels. These exceedances occurred only in sample SD-04, in the surface drainage area between the two fill areas. Since the MDEQ has not yet established generic Sediment Cleanup Criteria, only screening values and regional background values are used in this evaluation. Table 8 provides a summary of the sediment sample analytical results that exceeded Part 201 Sediment Screening Levels or Part 201 Soil Criteria (GSI Protection and Direct Contact) used as screening levels. Shaded cells in the table indicate those screening levels exceeded by the sample concentrations".

The MDEQ's sediments characterization guidance noted above bases some of its screening levels on a U.S. EPA guide for assessing sediment contamination, which includes recommendations for the use of sediment background values. That guide states that exceedances of sediment quality guidelines provide evidence for contamination, but "it should be recognized that all or a portion of the exceedances may be associated with elevated background concentrations."

Only sediment sample SD-04 contained hazardous substances exceeding Part 201 Sediment Screening Levels or Part 201 Soil Criteria used as screening levels. However, hazardous substance concentrations exceeding screening levels are not considered Cleanup Criteria and such results can only be used in a subjective manner. Screening level exceedances cannot be used to determine facility status, for example. Nevertheless, two pesticide compounds and the inorganic analyte arsenic exceeded the screening levels as follows:

- 4-4'-DDD detected above screening levels at a concentration of 49 ppb.
- 4-4'-DDE detected above screening levels at a concentration of 56 ppb.
- Arsenic detected above screening levels at a concentration of 11 ppm.

DISCUSSION

MDEQ staff conducted a BFRA of the Tree Farm property in accordance with the CA with the U.S. EPA and according to the approved work plan. The BFRA included file and information searches, reconnaissance inspections of the property, a geophysical survey of subsurface conditions, the collection and analyses of surficial soil, subsurface soil, surface water, and sediment samples, GPS data collection of sample locations and property features, and the collection of site feature photographs, data evaluation, and the compilation of all this data into this report.

Analysis of the soil samples collected during the BFRA of the Tree Farm property detected the presence of antimony, arsenic, barium, benzo(b)fluoranthene, benzo(a)pyrene, cadmium, chromium (total), cobalt, copper, cyanide, fluoranthene, iron, lead, manganese, mercury, molybdenum, phenanthrene, selenium, silver, trichloroethylene, vanadium, and zinc at concentrations greater than the Generic Residential Cleanup Criteria. Because these contaminants were detected at concentrations in excess of Generic Residential Cleanup Criteria, the Tree Farm property does meet the definition of a facility under Part 201.

The contaminants in the surficial soils on the Tree Farm property include: arsenic, benzo(b)fluoranthene, benzo(a)pyrene, and lead at concentrations above Part 201 Soil Residential Direct Contact Criteria; chromium (total) at a concentration above Part 201 Residential Particulate Soil Inhalation Criteria; antimony, arsenic, chromium (total), cobalt, iron, lead, manganese, molybdenum, and vanadium at concentrations exceeding Part 201 Soil Residential Drinking Water Protection Criteria; and arsenic, barium, cadmium, chromium (total), cobalt, copper, cyanide, fluoranthene, manganese, mercury, phenanthrene, selenium, silver, and zinc at concentrations exceeding Part 201 Soil GSI Protection Criteria.

Arsenic was detected in SS-04, SS-06, SS-07, and SS-09 at concentrations that range from 12 to 15 ppm, benzo(b)fluoranthene was detected in SS-07 at a concentration of 25,000 ppb, benzo(a)pyrene was detected in SS-07 at a concentration of 17,000 ppb, lead was detected in SS-06 and SS-07, at the concentrations of 900 ppm and 1,400 ppm, respectively, which all exceed their Direct Contact Criteria. Both SS-06 and SS-07 were collected in the area of the property that contained uprooted trees revealing waste entangled in the roots and soil. This area is noted on Figure 2, the Property Features map, and the Surficial Soil Sample Locations are noted on Figure 3. Chromium (total) was detected in all of the surficial soil samples with a concentration range of 9.1 ppm to 390 ppm. The highest concentration of chromium (total) was detected in SS-07 at a concentration of 390 ppm, which exceeds the Residential and Nonresidential Particulate Soil Inhalation Criteria.

The contaminants in the deep soils on the Tree Farm property include: arsenic, benzo(a)pyrene, and lead at concentrations above Part 201 Soil Residential Direct Contact Criteria; antimony, arsenic, cadmium, chromium (total), cobalt, iron, lead, manganese, molybdenum, and trichloroethylene at concentrations exceeding Part 201 Soil Residential Drinking Water Protection Criteria; and arsenic, barium, cadmium, chromium (total), cobalt, copper, cyanide, fluoranthene, lead, manganese, mercury, phenanthrene, selenium, silver, and zinc at concentrations exceeding Part 201 Soil GSI Protection Criteria. Arsenic was detected in SB-06 and SB-07 at the concentrations of 15 ppm and 31 ppm, respectively; benzo(a)pyrene was detected in SB-06 and SB-07 at the concentrations of 6,700 ppb and 11,000 ppb, and lead was detected in SB-06 and SB-07, at the concentrations of 840 ppm and 4,200 ppm, respectively, which all exceed their Direct Contact Criteria. Chromium (total) was detected in SB-06, SB-07, and SB-14 at concentration ranges of 33 ppm to 100 ppm, with the highest concentrations detected in SB-06 and SB-07. Both SB-06 and SB-07 were collected in the area of the property that contained uprooted trees revealing waste entangled in the roots and soil. The area of uprooted trees is noted on Figure 2, the Property Features map, and the Soil Boring Sample Locations are noted on Figure 4.

Analysis of the surface water samples collected during the BFRA of the Tree Farm property were compared to two of Part 201 Criteria for groundwater, specifically the Groundwater Surface Water Interface (GSI) Criteria and the Groundwater Contact Criteria, but no surface water contaminant concentrations exceeded these Groundwater Criteria.

Analysis of the sediment samples collected during the BFRA of the Tree Farm property detected the presence of 4-4'-DDD, 4-4'-DDE, and arsenic at concentrations exceeding sediment screening levels. These contaminants were detected in SD-04, which was collected from the surface drainage area between the two large fill areas on the south side of the Tree Farm property.

Based on the findings of the BFRA investigation, the following issues should be addressed before or during the redevelopment of the Tree Farm property:

- Action should be taken to abate the potential threat caused by the presence of contaminants exceeding Residential Cleanup Criteria in the soils by mitigation of these contaminants or restricting access to the contaminated areas. Arsenic, benzo(b)fluoranthene, benzo(a)pyrene, and lead were detected in the surficial soil samples at concentrations which exceed the Residential Direct Contact Criteria. The extent of these contaminants should be determined and proper action should be taken to mitigate the soils. In some cases, further evaluation of certain inorganic analytes found at levels above default background levels may show that some of the inorganic analytes may be naturally occurring at those levels, thereby eliminating the need for mitigation.

- Contaminants were detected in the shallow and deep soil samples that exceeded both the Drinking Water Protection Criteria and the GSI Protection Criteria. Future redevelopment activities should be conducted in a manner that will not cause additional or adverse leaching of the contaminants in the soils into the groundwater.

- Due to the concentration of chromium (total) detected in the surficial soils at levels above Part 201 Residential Particulate Soil Inhalation Criteria, specific dust control methods should be instituted during redevelopment so that health and safety concerns related to ingestion or inhalation of dust containing contaminants are controlled.

- A more detailed study of the background levels of naturally occurring inorganic analytes in the area may be conducted to determine whether these levels on the property are of concern and if a site-specific background should be substituted for the calculated Cleanup Criteria.

- The contaminants of concern should be considered with respect to responsibilities that may exist under Part 201. The nature of any response activity that may be required is dependent on the intended use of the property and the party's liability under Part 201. A person who is liable for the contamination is required to achieve cleanup of the property consistent with the Cleanup Criteria. The relevant Criteria are a function of the intended property use, such as residential, commercial, or industrial. A non-liable developer is not required to implement a cleanup to achieve the appropriate Cleanup Criteria. However, a non-liable party must comply with the "due care" obligations specified in Section 7a of Part 201. These obligations include not exacerbating the existing contamination, exercising due care to assure there are not unacceptable exposures, and taking reasonable precautions against the reasonably foreseeable activities of third parties.

- Further information concerning Part 201 Cleanup Criteria, due care provisions, Southeast Michigan District Office at 586-753-3700.

BIBLIOGRAPHY

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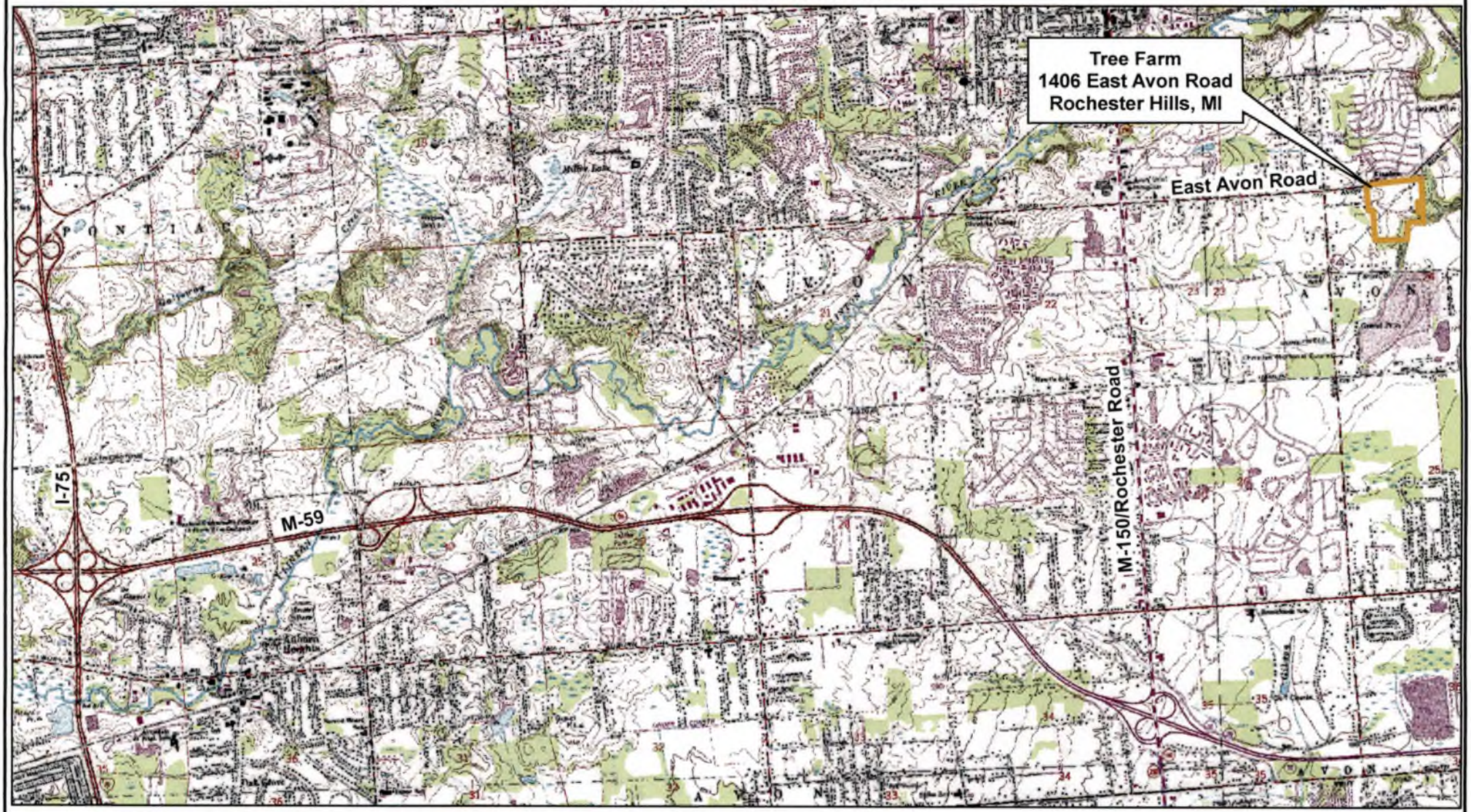
9. United States Geological Survey, Topographic Maps, 7.5 minute quadrangles: Utica, 1968, Photorevised 1973, and Photorevised 1983.

Figures

FIGURES

FIG RE 1
PROPERTY LOCATION



Tree Farm
1406 East Avon Road
Rochester Hills, MI 48307
T3N R11E Section 24
Oakland County
MIB000000166
Parcel Numbers:
70-15-24-100-20
70-15-24-100-21

Directions to Property:
From Lansing take I-69 east to
I-75 (Exit 133), go south to
M-59 (Exit 77A), go east to
M-150 North/Rochester Road (Exit 46),
Turn left and go north to East Avon Road,
Turn right and go east to Tree Farm Property
Located on the right (south) side of road.
1406 East Avon Road, Rochester Hills, MI

0 0.5 1 Miles

N
W E
S

Compiled by: Teresa Ducsay - June 2011
Source: Michigan Geographic Data Library

FIGURE 2
PROPERTY FEATURES

Legend

- Buried Pipeline
- Power Line
- Historical Areas of Surface Disturbance
- Property Boundary

Tree Farm
1406 East Avon Road
Rochester Hills, MI 48307
T3N R11E Section 24
Oakland County
MIB000000166

0 100 200 400 600 Feet

N
W E
S

Compiled by: Teresa Ducsay - June 2011
Sources: Michigan Geographic Data Library and Global Positioning System Data

FIGURE 3
SURFICIAL SOIL SAMPLE LOCATIONS

Tree Farm
1406 East Avon Road
ochester Hills, MI 48307
T3N R11E Section 24
Oakland County
MIB000000166

Legend

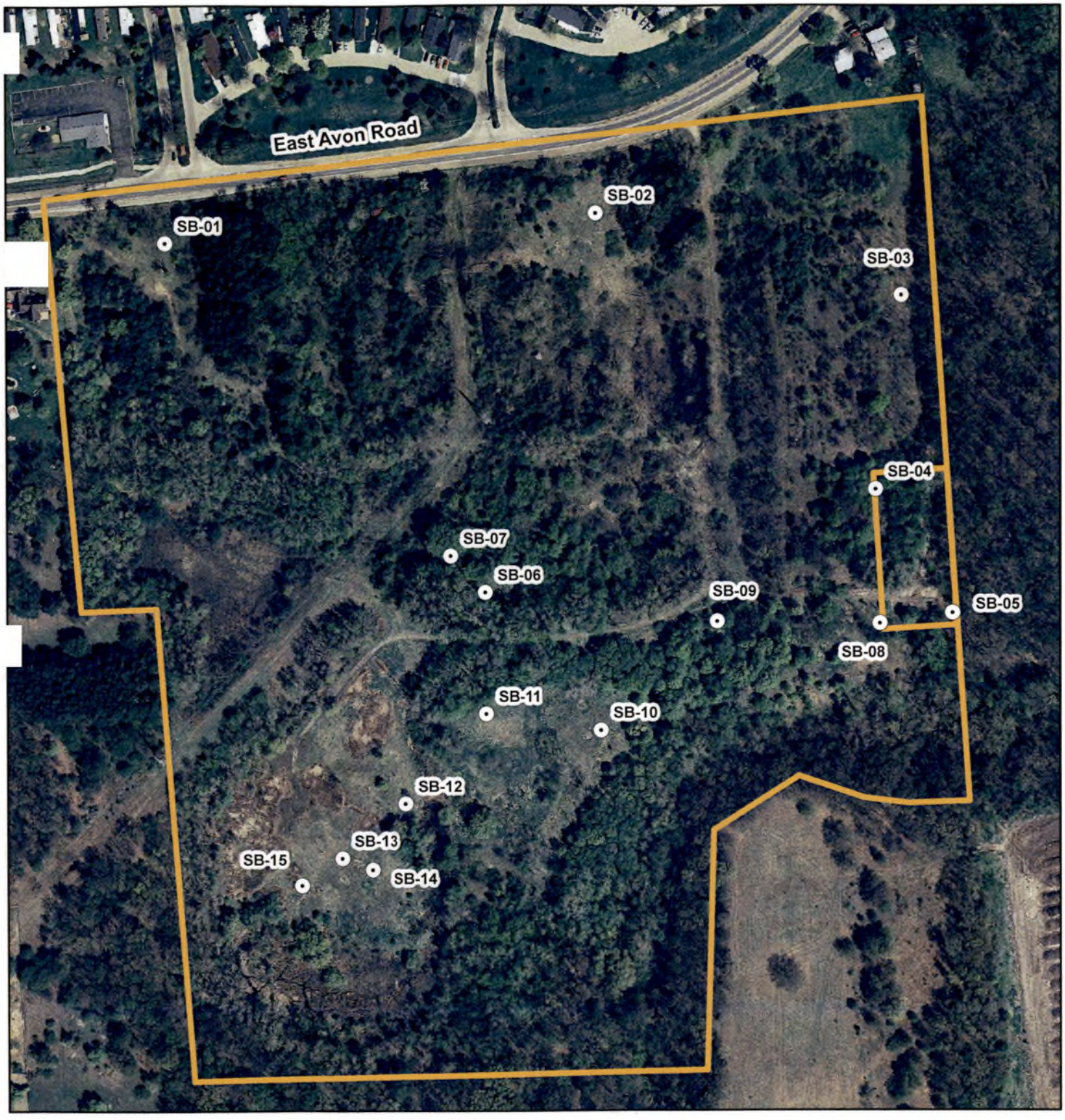
- SS-01 - Surficial Soil 01
- Property Boundary

0 100 200 400 600 Feet

N W E S

Compiled by: Teresa Ducsay - June 2011
Sources: Michigan Geographic Data Library and Global Positioning System Data

FIGURE 4
SOIL BORING SAMPLE LOCATIONS



Tree Farm
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Rochester Hills, MI 48307
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Oakland County
MIB000000166

Legend

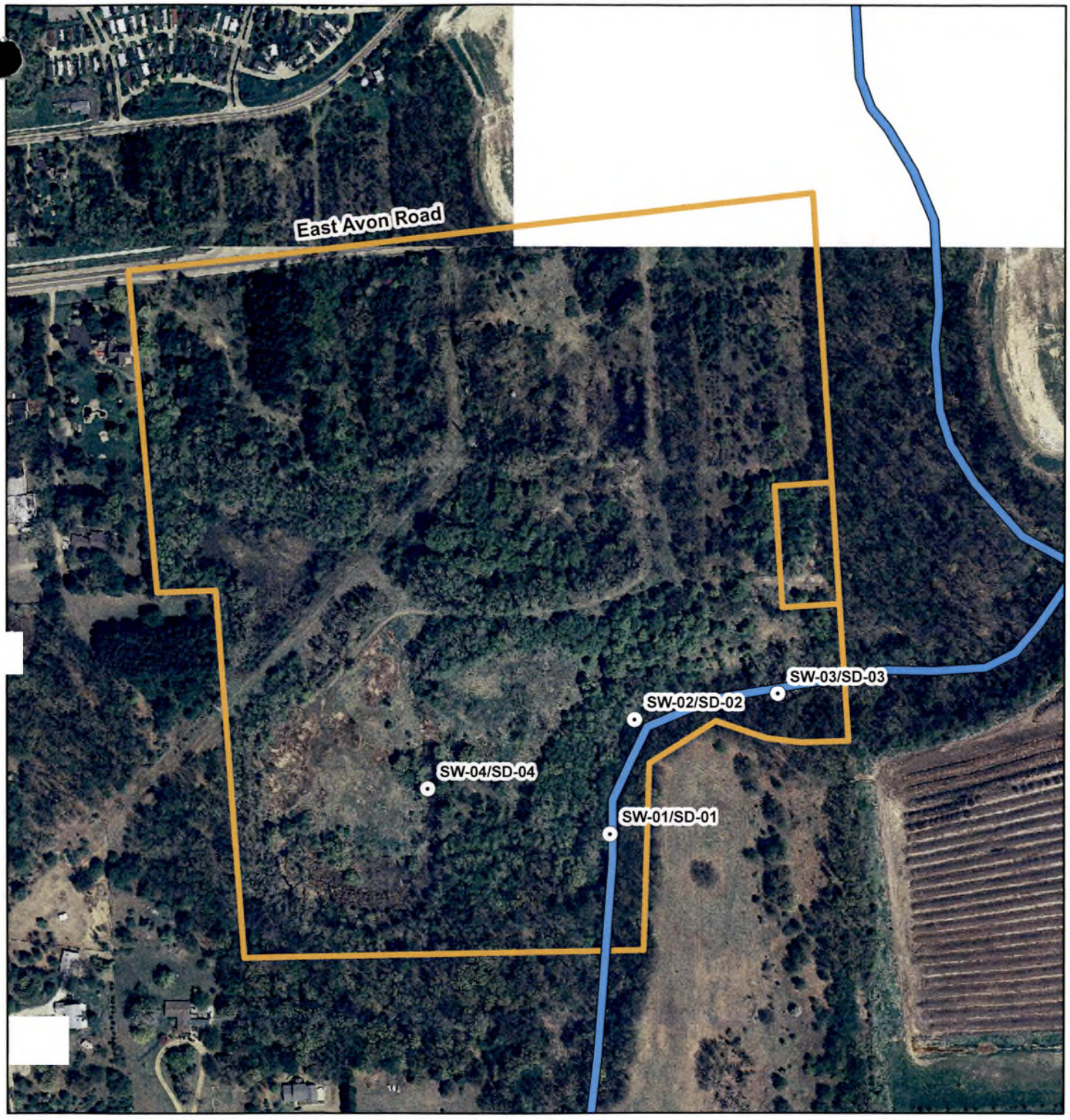
- SB-01 - Soil Boring 01
- Property Boundary

0 100 200 400 600 Feet

N W E S

Compiled by: Teresa Ducsay - June 2011
Sources: Michigan Geographic Data Library and Global Positioning System Data

FIGURE 5
SURFACE WATER/SEDIMENT SAMPLE LOCATIONS



Legend

- ⊙ SW-01/SD-01 - Surface Water 01/ Sediment 01
- Honeywell Ditch
- Property Boundary

Tree Farm
1406 East Avon Road
Rochester Hills, MI 48307
T3N R11E Section 24
Oakland County
MIB000000166

0 150 300 600 Feet

N W E S

Compiled by: Teresa Ducsay - June 2011
Sources: Michigan Geographic Data Library and Global Positioning System Data

TABLES

Tree Farm
1406 East Avd[illegible]d
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 1

SURFICIAL SOIL SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		DEPTH	DESCRIPTION	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting			
SS-01	239255.33	736836.63	0-10 in.	Moist, tannish-brown, fine sand with roots.	Shallow grab sample. VOA portion of sample collected at 5-6 in. Remaining sample portion taken from 0-10 in.
SS-02 / SS-02 DUP	239281.79	737157.81	0-4 in. 4 in.+	Very moist, fine sand, some silt, roots, glass. Wet plastic; refusal; difficult to go deeper.	Shallow grab sample. VOA portion of sample collected at 3-4 in. Remaining sample portion taken from 0-4 in. Duplicate sample taken at this location.
SS-03	239225.69	737198.66	0-1 in. 1-8 in.	Root zone. Wet, brown, clayey, fine sand with some fine gravel and roots.	Shallow grab sample. VOA portion of sample collected at 3-4 in. Remaining sample portion taken from 1-8 in. Matrix spike/matrix spike duplicate taken at this sample location.
SS-04	239131.36	737214.42	0-10 in.	Moist, dark brown, silty, fine to medium sand, some fine gravel, some fine roots.	Shallow grab sample. VOA portion of sample collected at 5-6 in. Remaining sample portion taken from 0-10 in.

TABLE 1

SURFICIAL SOIL SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		DEPTH	DESCRIPTION	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting			
SS-05	239089.16	737194.76	0-4 in. 4 in. + (refusal)	Moist, brown, fine to coarse sand, some silt and gravel, some roots, scrap metal, and wire. Moist, brown, fine to coarse gravel and fine to coarse sand; refusal.	Shallow grab sample. VOA portion of sample collected at 2-3 in. Remaining sample portion taken from 0-4 in. Collected near a 55-gallon oil drum located on the east side of the property.
SS-06	239077.86	737000.18	0-8 in.	Dry, dark brown, silty, fine sand; lots of fine gravel, broken clay tile and glass, bones (stained reddish), slag; strong odor.	Shallow grab sample. VOA portion of sample collected at 6-7 in. Remaining sample portion taken from 0-8 in.
SS-07	239096.55	736976.99	0-8 in.	Moist, dark brown, silty, fine sand with broken glass, scrap metal, wire, and concrete. Note: slag in area of fallen tree and odor.	Shallow grab sample. VOA portion of sample collected at 6-8 in. Remaining sample portion taken from 0-8 in.
SS-08	239033.71	737169.55	0-3 in. 3-8 in.	Moist, brown, clayey, fine sand, fine roots. Moist, light brown silt and fine sand.	Shallow grab sample. VOA portion of sample collected at 3-5 in. Remaining sample portion taken from 0-8 in.

TABLE 1

SURFICIAL SOIL SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		DEPTH	DESCRIPTION	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting			
SS-09	239055.44	737119.74	0-1 in. 1-10 in.	Topsoil. Moist, dark brown, sandy loam lots of organics roots, occasional ¼ to ½ in. gravel, wood chips.	Shallow grab sample. VOA portion of sample collected at 5-6 in. Remaining sample portion taken from 1-10 in.
SS-10	239008.26	737056.70	0-1 in. 1-4 in. 4-8 in.	Sod, root zone. Moist, brown, clayey, silty, fine sand, trace fine to coarse gravel. Moist, light brown, clayey, fine sand.	Shallow grab sample. VOA portion of sample collected at 3-4 in. Remaining sample portion taken from 1-8 in.
SS-11	239013.48	736995.26	0-1 in. 1-3 in. 3-6 in.	Root zone. Moist, brown, silty clay with some fine sand and coarse gravel. Moist, light brown, silty clay with fine sand, at 5+inches hard packed gravel and scrap metal.	Shallow grab sample. VOA portion of sample collected at 3-4 in. Remaining sample portion taken from 1-6 in.
SS-12	238966.12	736960.57	0-10 in.	Moist, brown, fine sand, some gravel, some roots.	Shallow grab sample. VOA portion of sample collected at 6-7 in. Remaining sample portion taken from 0-10 in.

TABLE 1

SURFICIAL SOIL SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		DEPTH	DESCRIPTION	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting			
SS-13	238942.47	736924.39	0-1 in. 1-4 in. 4-6 in.	Root zone, some soil. Very moist, brown, clayey, fine sand with some silt, fine gravel, roots, and trace coarse gravel. Very moist, brown, clayey, fine sand lots of fine gravel.	Shallow grab sample. VOA portion of sample collected at 3-4 in. Remaining sample portion taken from 1-6 in.
SS-14	238945.56	736964.27	0-10 in.	Moist, brown, fine sand, some silt and fine gravel.	Shallow grab sample. VOA portion of sample collected at 5-6 in. Remaining sample portion taken from 0-10 in.
SS-15	238914.36	736895.69	0-8 in.	Moist, brown, clayey, fine sand, some fine gravel and roots.	Shallow grab sample. VOA portion of sample collected at 4-5 in. Remaining sample portion taken from 0-8 in.

Location Coordinates: Michigan GeoRef, North American Datum 1983, Meters

Tree Farm
1406 East Avon Road
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 2

SURFICIAL SOIL SAMPLE DATA SUMMARY

					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-01	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.																	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.																	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Arsenic	1.8		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	27		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Cadmium (B)	0.35		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**9.1**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	1.9		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	5.4		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Cyanide (P,R)	0.2		0.39	4.0		4.0		0.1		250		250		12		250	
	Iron (B)	4,900		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	21		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	200		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Mercury [Total] (B,Z)	0.08		0.13	1.7		1.7		0.05	M	20,000		8,800		160		580	
	Nickel (B)	5.3		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Silver (B)	0.13		1.0	4.5		13		0.1	M	6,700		2,900		2,500		9,000	
	Vanadium	6.2			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	33		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

µg/kg = microgram/kilogram mg/kg = milligram/kilogram
Qualifier definitions in Appendix D. Footnote definitions in Appendix E.
Shaded Criteria indicate an exceedance.
A blank Default Background column means that value has not been determined.

Tree Farm
1406 East Avon Road
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 2

SURFICIAL SOIL SAMPLE DATA SUMMARY

					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-02	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.																	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	4-4'-DDD	13			NLL		NLL		NLL		44,000,000		56,000,000		95,000		400,000	
	4-4'-DDE	18			NLL		NLL		NLL		32,000,000		40,000,000		45,000		190,000	
	4-4'-DDT	150			NLL		NLL		NLL		32,000,000		40,000,000		57,000		280,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.60			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	4.2		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	34		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.30			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	0.57		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**13**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	3.9		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	12		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Cyanide (P,R)	0.2		0.39	4.0		4.0		0.1		250		250		12		250	
	Iron (B)	**16,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	35		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	280		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Nickel (B)	8.5		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	0.35		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Silver (B)	0.33		1.0	4.5		13		0.1	M	6,700		2,900		2,500		9,000	
	Vanadium	17			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	74		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

µg/kg = microgram/kilogram mg/kg = milligram/kilogram
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1406 East Avon Road
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 2

SURFICIAL SOIL SAMPLE DATA SUMMARY

					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-02-DUP	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.																	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	4-4'-DDE	7.9			NLL		NLL		NLL		32,000,000		40,000,000		45,000		190,000	
	4-4'-DDT	8.8			NLL		NLL		NLL		32,000,000		40,000,000		57,000		280,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.39			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	3.8		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	34		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.31			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	0.54		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**14**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	3.3		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	13		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Cyanide (P,R)	0.2		0.39	4.0		4.0		0.1		250		250		12		250	
	Iron (B)	**16,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	42		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	210		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Nickel (B)	8.9		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	0.36		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Silver (B)	0.39		1.0	4.5		13		0.1	M	6,700		2,900		2,500		9,000	
	Vanadium	15			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	75		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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TABLE 2

SURFICIAL SOIL SAMPLE DATA SUMMARY

					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-03	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.																	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.																	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Arsenic	3.0		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	31		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.31			51		51		85	G	1,300		590		410		1,600	
	Chromium [Total] (H)	**11**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	3.2		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	6.8		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Iron (B)	11,000		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	12		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	270		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Nickel (B)	6.7		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	0.34		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Vanadium	14			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	26		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-04	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Benzo(a)anthracene (Q)	830			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Benzo(b)fluoranthene (Q)	1,700			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Benzo(k)fluoranthene (Q)	560			NLL		NLL		NLL		ID		ID		200,000		800,000	
	Benzo(a)pyrene (Q)	1,100			NLL		NLL		NLL		1,500,000		1,900,000		2,000		8,000	
	Chrysene (Q)	1,100			NLL		NLL		NLL		ID		ID		2,000,000		8,000,000	
	Phenanthrene	270			56,000		160,000		2,100		6,700,000		2,900,000		1,600,000		5,200,000	
	Pyrene	1,100			480,000		480,000		ID		6,700,000,000		2,900,000,000		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	4-4'-DDD	150			NLL		NLL		NLL		44,000,000		56,000,000		95,000		400,000	
	4-4'-DDE	1,600			NLL		NLL		NLL		32,000,000		40,000,000		45,000		190,000	
	4-4'-DDT	640			NLL		NLL		NLL		32,000,000		40,000,000		57,000		280,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	1.1			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	**12**		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	64		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.45			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	0.67		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**17**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	4.2		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	28		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Cyanide (P,R)	0.2		0.39	4.0		4.0		0.1		250		250		12		250	
	Iron (B)	**13,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	180		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	250		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Mercury [Total] (B,Z)	0.11		0.13	1.7		1.7		0.05	M	20,000		8,800		160		580	
	Molybdenum (B)	1.2			1.5		4.2		64	X	ID		ID		2,600		9,600	
	Nickel (B)	13		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	**0.75**		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Silver (B)	0.14		1.0	4.5		13		0.1	M	6,700		2,900		2,500		9,000	
	Vanadium	16			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	130		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-05	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Pyrene	370			480,000		480,000		ID		6,700,000,000		2,900,000,000		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.																	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.83			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	3.4		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	86		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.45			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	0.60		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**14**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	3.4		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	56		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Cyanide (P,R)	**0.3**		0.39	4.0		4.0		0.1		250		250		12		250	
	Iron (B)	17,000		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	220		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	230		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Nickel (B)	10		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	0.36		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Silver (B)	0.14		1.0	4.5		13		0.1	M	6,700		2,900		2,500		9,000	
	Vanadium	11			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	**210**		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-06	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Benzo(a)anthracene (Q)	15,000			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Benzo(b)fluoranthene (Q)	18,000			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Chrysene (Q)	16,000			NLL		NLL		NLL		ID		ID		2,000,000		8,000,000	
	Fluoranthene	**26,000**			730,000		730,000		5,500		9,300,000,000		4,100,000,000		46,000,000		130,000,000	
	Phenanthrene	**21,000**			56,000		160,000		2,100		6,700,000		2,900,000		1,600,000		5,200,000	
	Pyrene	36,000			480,000		480,000		ID		6,700,000,000		2,900,000,000		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	4-4'-DDD	2,800			NLL		NLL		NLL		44,000,000		56,000,000		95,000		400,000	
	4-4'-DDE	1,500			NLL		NLL		NLL		32,000,000		40,000,000		45,000		190,000	
	4-4'-DDT	14,000			NLL		NLL		NLL		32,000,000		40,000,000		57,000		280,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	**8.1**			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	**15**		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	**790**		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	1.1			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	3.2		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**31**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	**8.1**		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	**120**		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Cyanide (P,R)	**1.0**		0.39	4.0		4.0		0.1		250		250		12		250	
	Iron (B)	**27,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	**900**		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	380		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Mercury [Total] (B,Z)	**0.37**		0.13	1.7		1.7		0.05	M	20,000		8,800		160		580	
	Molybdenum (B)	**6.9**			1.5		4.2		64	X	ID		ID		2,600		9,600	
	Nickel (B)	38		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	0.36		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Silver (B)	0.14		1.0	4.5		13		0.1	M	6,700		2,900		2,500		9,000	
	Vanadium	17			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	**1,400**		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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Tree Farm
1406 East Avon Road
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 2

SURFICIAL SOIL SAMPLE DATA SUMMARY

					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-07	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Anthracene	3,100			41,000		41,000		ID		67,000,000,000		29,000,000,000		230,000,000		730,000,000	
	Benzo(a)anthracene (Q)	17,000			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Benzo(b)fluoranthene (Q)	**25,000**			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Benzo(k)fluoranthene (Q)	8,200			NLL		NLL		NLL		ID		ID		200,000		800,000	
	Benzo(a)pyrene (Q)	**17,000**			NLL		NLL		NLL		1,500,000		1,900,000		2,000		8,000	
	Chrysene (Q)	19,000			NLL		NLL		NLL		ID		ID		2,000,000		8,000,000	
	Fluoranthene	**32,000**			730,000		730,000		5,500		9,300,000,000		4,100,000,000		46,000,000		130,000,000	
	Indeno(1,2,3-cd)pyrene (Q)	8,300			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Phenanthrene	**15,000**			56,000		160,000		2,100		6,700,000		2,900,000		1,600,000		5,200,000	
	Pyrene	30,000			480,000		480,000		ID		6,700,000,000		2,900,000,000		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	4-4'-DDD	1,800			NLL		NLL		NLL		44,000,000		56,000,000		95,000		400,000	
	4-4'-DDE	1,800			NLL		NLL		NLL		32,000,000		40,000,000		45,000		190,000	
	4-4'-DDT	7,800			NLL		NLL		NLL		32,000,000		40,000,000		57,000		280,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	**8.6**			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	**15**		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	**830**		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.69			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	**4.6**		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**390**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	**65**		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	**160**		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Cyanide (P,R)	**4.0**		0.39	4.0		4.0		0.1		250		250		12		250	
	Iron (B)	**56,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	**1,400**		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	**510**		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Mercury [Total] (B,Z)	**0.50**		0.13	1.7		1.7		0.05	M	20,000		8,800		160		580	
	Molybdenum (B)	**33**			1.5		4.2		64	X	ID		ID		2,600		9,600	
	Nickel (B)	50		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	**1.7**		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Silver (B)	**1.9**		1.0	4.5		13		0.1	M	6,700		2,900		2,500		9,000	
	Vanadium	15			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	**760**		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

µg/kg = microgram/kilogram mg/kg = milligram/kilogram
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TABLE 2

SURFICIAL SOIL SAMPLE DATA SUMMARY

					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-08	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Fluoranthene	250			730,000		730,000		5,500		9,300,000,000		4,100,000,000		46,000,000		130,000,000	
	Pyrene	450			480,000		480,000		ID		6,700,000,000		2,900,000,000		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	4-4'-DDD	36			NLL		NLL		NLL		44,000,000		56,000,000		95,000		400,000	
	4-4'-DDE	74			NLL		NLL		NLL		32,000,000		40,000,000		45,000		190,000	
	4-4'-DDT	86			NLL		NLL		NLL		32,000,000		40,000,000		57,000		280,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.38			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	5.4		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	55		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.46			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	0.38		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**17**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	6.3		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	14		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Iron (B)	**16,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	41		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	290		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Molybdenum (B)	1.5			1.5		4.2		64	X	ID		ID		2,600		9,600	
	Nickel (B)	16		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	0.29		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Vanadium	19			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	60		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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TABLE 2

SURFICIAL SOIL SAMPLE DATA SUMMARY

					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-09	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Benzo(a)anthracene (Q)	1,100			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Benzo(b)fluoranthene (Q)	1,900			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Benzo(k)fluoranthene (Q)	660			NLL		NLL		NLL		ID		ID		200,000		800,000	
	Benzo(a)pyrene (Q)	1,000			NLL		NLL		NLL		1,500,000		1,900,000		2,000		8,000	
	Chrysene (Q)	1,200			NLL		NLL		NLL		ID		ID		2,000,000		8,000,000	
	Fluoranthene	1,600			730,000		730,000		5,500		9,300,000,000		4,100,000,000		46,000,000		130,000,000	
	Phenanthrene	700			56,000		160,000		2,100		6,700,000		2,900,000		1,600,000		5,200,000	
	Pyrene	2,900			480,000		480,000		ID		6,700,000,000		2,900,000,000		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	4-4'-DDD	3,300			NLL		NLL		NLL		44,000,000		56,000,000		95,000		400,000	
	4-4'-DDE	13,000			NLL		NLL		NLL		32,000,000		40,000,000		45,000		190,000	
	4-4'-DDT	12,000			NLL		NLL		NLL		32,000,000		40,000,000		57,000		280,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	1.9			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	**12**		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	85		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.52			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	0.78		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**18**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	4.3		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	36		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Cyanide (P,R)	0.2		0.39	4.0		4.0		0.1		250		250		12		250	
	Iron (B)	**15,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	230		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	250		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Mercury [Total] (B,Z)	**0.17**		0.13	1.7		1.7		0.05	M	20,000		8,800		160		580	
	Molybdenum (B)	**1.7**			1.5		4.2		64	X	ID		ID		2,600		9,600	
	Nickel (B)	15		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	**0.75**		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Silver (B)	0.26		1.0	4.5		13		0.1	M	6,700		2,900		2,500		9,000	
	Vanadium	18			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	130		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-10	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Fluoranthene	260			730,000		730,000		5,500		9,300,000,000		4,100,000,000		46,000,000		130,000,000	
	Pyrene	420			480,000		480,000		ID		6,700,000,000		2,900,000,000		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	4-4'-DDD	40			NLL		NLL		NLL		44,000,000		56,000,000		95,000		400,000	
	4-4'-DDE	84			NLL		NLL		NLL		32,000,000		40,000,000		45,000		190,000	
	4-4'-DDT	150			NLL		NLL		NLL		32,000,000		40,000,000		57,000		280,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.48			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	5.5		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	53		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.5			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	0.23		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**16**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	**7.6**		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	15		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Cyanide (P,R)			0.39	4.0		4.0		0.1		250		250		12		250	
	Iron (B)	**19,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	21		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Lead (Fine fraction)				NA		NA		NA		100,000		44,000		400		900	DD
	Lead (Coarse fraction)				NA		NA		NA		NA		44,000		400		900	DD
	Manganese (B)	**450**		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Molybdenum (B)	**1.6**			1.5		4.2		64	X	ID		ID		2,600		9,600	
	Nickel (B)	19		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	0.26		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Vanadium	20			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	47		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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SS-11	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.																	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.																	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	4.1			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	**7.0**		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	57		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.61			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	0.25		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**26**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	**9.1**		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	16		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Iron (B)	**26,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	12		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	**940**		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Molybdenum (B)	1.5			1.5		4.2		64	X	ID		ID		2,600		9,600	
	Nickel (B)	23		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	0.21		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Vanadium	32			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	46		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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Tree Farm
1406 East Avon Road
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 2

SURFICIAL SOIL SAMPLE DATA SUMMARY

					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-12	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Benzo(a)anthracene (Q)	250			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Chrysene (Q)	250			NLL		NLL		NLL		ID		ID		2,000,000		8,000,000	
	Fluoranthene	460			730,000		730,000		5,500		9,300,000,000		4,100,000,000		46,000,000		130,000,000	
	Phenanthrene	240			56,000		160,000		2,100		6,700,000		2,900,000		1,600,000		5,200,000	
	Pyrene	340			480,000		480,000		ID		6,700,000,000		2,900,000,000		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Chlordane (J)	13			NLL		NLL		NLL		31,000,000		21,000,000		31,000		150,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.32			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	4.7		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	30		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.32			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	0.25		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**33**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	5.0		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	14		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Iron (B)	**16,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	22		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	**720**		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Molybdenum (B)	1.0			1.5		4.2		64	X	ID		ID		2,600		9,600	
	Nickel (B)	14		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	0.24		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Vanadium	20			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	58		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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TABLE 2

SURFICIAL SOIL SAMPLE DATA SUMMARY

					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-13	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.																	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.																	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.37			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	5.1		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	36		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.38			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	0.26		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**21**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	5.3		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	12		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Iron (B)	**17,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	17		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	440		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Molybdenum (B)	1.0			1.5		4.2		64	X	ID		ID		2,600		9,600	
	Nickel (B)	12		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	0.24		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Vanadium	22			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	62		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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TABLE 2

SURFICIAL SOIL SAMPLE DATA SUMMARY

					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-14	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Anthracene	520			41,000		41,000		ID		67,000,000,000		29,000,000,000		230,000,000		730,000,000	
	Benzo(a)anthracene (Q)	1,700			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Benzo(b)fluoranthene (Q)	2,100			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Benzo(k)fluoranthene (Q)	700			NLL		NLL		NLL		ID		ID		200,000		800,000	
	Benzo(a)pyrene (Q)	1,500			NLL		NLL		NLL		1,500,000		1,900,000		2,000		8,000	
	Chrysene (Q)	1,700			NLL		NLL		NLL		ID		ID		2,000,000		8,000,000	
	Fluoranthene	3,200			730,000		730,000		5,500		9,300,000,000		4,100,000,000		46,000,000		130,000,000	
	Fluorene	270			390,000		890,000		5,300		9,300,000,000		4,100,000,000		27,000,000		87,000,000	
	Indeno(1,2,3-cd)pyrene (Q)	640			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Phenanthrene	2,100			56,000		160,000		2,100		6,700,000		2,900,000		1,600,000		5,200,000	
	Pyrene	3,200			480,000		480,000		ID		6,700,000,000		2,900,000,000		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.																	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.69			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	4.9		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	47		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.42			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	0.33		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**86**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	4.9		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	13		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Iron (B)	**30,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	50		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	**1,600**		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Molybdenum (B)	1.2			1.5		4.2		64	X	ID		ID		2,600		9,600	
	Nickel (B)	13		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Vanadium	**83**			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	68		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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					Groundwater Protection						Ambient Air (Y)				Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers /	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Particulate Soil Inhalation Criteria	Footnotes	Nonresidential Particulate Soil Inhalation Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SS-15	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.																	
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Anthracene				41,000		41,000		ID		67,000,000,000		29,000,000,000		230,000,000		730,000,000	
	Benzo(a)anthracene (Q)	580			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Benzo(b)fluoranthene (Q)	740			NLL		NLL		NLL		ID		ID		20,000		80,000	
	Benzo(k)fluoranthene (Q)				NLL		NLL		NLL		ID		ID		200,000		800,000	
	Benzo(g,h,i)perylene				NLL		NLL		NLL		800,000,000		350,000,000		2,500,000		7,000,000	
	Benzo(a)pyrene (Q)	530			NLL		NLL		NLL		1,500,000		1,900,000		2,000		8,000	
	Chrysene (Q)	640			NLL		NLL		NLL		ID		ID		2,000,000		8,000,000	
	Fluoranthene	1,300			730,000		730,000		5,500		9,300,000,000		4,100,000,000		46,000,000		130,000,000	
	Fluorene				390,000		890,000		5,300		9,300,000,000		4,100,000,000		27,000,000		87,000,000	
	Indeno(1,2,3-cd)pyrene (Q)				NLL		NLL		NLL		ID		ID		20,000		80,000	
	Phenanthrene	1,200			56,000		160,000		2,100		6,700,000		2,900,000		1,600,000		5,200,000	
	Pyrene	1,400			480,000		480,000		ID		6,700,000,000		2,900,000,000		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	4-4'-DDD				NLL		NLL		NLL		44,000,000		56,000,000		95,000		400,000	
	4-4'-DDE				NLL		NLL		NLL		32,000,000		40,000,000		45,000		190,000	
	4-4'-DDT				NLL		NLL		NLL		32,000,000		40,000,000		57,000		280,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.37			4.3		4.3		94	X	13,000		5,900		180		670	
	Arsenic	5.6		5.8	4.6		4.6		4.6		720		910		7.6		37	
	Barium (B)	42		75	1,300		1,300		440	G	330,000		150,000		37,000		130,000	
	Beryllium	0.44			51		51		85	G	1,300		590		410		1,600	
	Cadmium (B)	0.26		1.2	6.0		6.0		3.6	G,X	1,700		2,200		550		2,100	
	Chromium [Total] (H)	**34**																
	Chromium [VI]				30		30		3.3		260		240		2,500		9,200	
	Cobalt	6.3		6.8	0.8		2.0		2.0		13,000		5,900		2,600		9,000	
	Copper (B)	15		32	5,800		5,800		75	G	130,000		59,000		20,000		73,000	
	Iron (B)	**24,000**		12,000	6.0		6.0		NA		ID		ID		160,000		580,000	
	Lead (B)	33		21	700		700		2,800	G,X	100,000		44,000		400		900	DD
	Manganese (B)	**720**		440	1.0		1.0		56	G,X	3,300		1,500		25,000		90,000	
	Molybdenum (B)	**1.6**			1.5		4.2		64	X	ID		ID		2,600		9,600	
	Nickel (B)	16		20	100		100		76	G	13,000		16,000		40,000		150,000	
	Selenium (B)	0.27		0.41	4.0		4.0		0.4		130,000		59,000		2,600		9,600	
	Vanadium	36			72		990		190		ID		ID		750	DD	5,500	DD
	Zinc (B)	75		47	2,400		5,000		170	G	ID		ID		170,000		630,000	

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Rochester Hill[illegible]igan
April 26 and 27, 2011

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-01	239255.13	736836.16	Hand auger	NA	0-24 in.	Moist, light brown, fine sand.	Hand auger; no PID reading.
				NA	24-54 in.	Moist, light tan, fine sand.	Deep grab sample. VOA portion of sample collected at 54 in. Remaining sample portion taken from 48-54 in.

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-02/ SB-02 DUP	239270.44	737054.69	0-4 ft.	38 in.	0-7 in.	Damp, black, organic top soil with grass, roots, and fine gravel.	Deep grab sample.
					7-11 in.	Damp, brown, fine to medium sand.	VOA portion of sample collected at 15 in. of 4-8 ft. core.
					11-13 in.	Wet, brown, fine to medium sand with fine gravel, roots, and vegetative roots scattered through zone.	
					13-23 in.	Wet, medium brown, very fine to medium sand, continued plant roots.	Remaining sample portion taken from 8-18 in. of 4-8 ft. core.
					23-33 in.	Moist, brown, fine to medium sand.	
					33-38 in.	Wet, tan, fine to coarse sand.	
						PID = 0.0 ppm	
			4-8 ft.	48 in.	0-18 in.	Wet, brown, fine to coarse sand.	
					18-22 in.	Saturated, brown with red iron staining, very, very fine sand with fine gravel.	
					22-26 in.	Wet, brown, very fine to medium sand.	
					26-31 in.	Moist, brown, fine sand with 60% fine gravel.	
					31-35 in.	Moist medium brown-gray, fine sand with gravel.	
					35-37 in.	Moist, brown, very fine to coarse sand.	
					37-48 in.	Wet, gravel-brown, fine to coarse sand with 50% gravel up to ¾ diameter.	
						PID = 0.0 ppm	

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-03	239228.58	737209.22	0-4 ft.	35 in.	0-7 in. 7-18 in. 18-35 in.	Wet, dark gray, sand and silt, plant roots. Moist, medium brown, fine sand. Wet, medium brown-tan, very fine sand grading to fine to coarse sand. PID = 0.0 ppm	Deep grab sample. VOA portion of sample collected at 5 in. of 4-6 ft. core.
			4-6 ft.	26 in.	0-6 in. 6-9 in. 9-26 in.	Very moist, brown, fine to coarse sand. Very moist , medium gray-brown, fine to very coarse sand and gravel. Wet, medium gray-brown, fine to very coarse sand and gravel with gray, fine silt at base, clean. PID = 0.0 ppm	Remaining sample portion taken from 0-20 in. of 4-6 ft. core.

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-04	239130.23	737195.92	0-4 ft.	36 in.	0-13 in. 13-16 in. 16-36 in.	Wet, very dark gray, fine sand and silt, occasional gravel up to ½ inch diameter. Damp, medium brown, very fine to fine sand. Saturated, medium brown, very fine sand to gravel up to ¾ inches. PID = 0.0 ppm	Deep grab sample. VOA portion of sample collected at 15 in. of 4-7 ft. core.
			4-7 ft.	48 in.	0-12 in. 12-16 in. 16-26 in. 26-48 in.	Slough. Saturated, gray-brown, coarse sand and gravel. Very moist, medium gray-brown, very, very, fine sand and silt. Very moist, gray, very, very, fine sand and silt, clean. PID = 0.0 ppm	Remaining sample portion taken from 7-17 in. of 4-7 ft. core.

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-05	239067.53	737234.76	0-4 ft.	28 in.	0-4 in. 4-10 in. 10-12 in. 12-15 in. 15-28 in.	Damp, black, leaf/loam grading to gray silt/fine sand, gray/brown. Damp, gray-brown, silty sand, very fine sand. Damp, gray-black, silty sand, organic material. Damp, transition from gray-brown to light red-brown, silty sand . Moist, red-brown sand, trace fine sand, clean. PID = 0.0 ppm	Deep grab sample. VOA portion of sample collected at 16 in. of 8-12 ft. core. Remaining sample portion taken from 14-22 in. of 8-12 ft. core.
			4-8 ft.	0 in.		Two inch cobble blocked core barrel; no soil recovery.	
			8-12 ft.	22 in.	0-11 in. 11-14 in. 14-22 in.	Moist, light brown, silty, very fine sand. Moist, brown, organic plant material. Moist, light brown, silty, very fine sand, trace clay, clay increasing with depth. PID = 0.0 ppm	
			12-15 ft.	36 in.	0-18 in. 18-36 in.	Damp, light brown, silty, very fine sand. Damp, gray, very fine sand and silt. PID = 0.0 ppm	

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-06	239078.13	736998.26	Hand auger	NA	0-42 in.	Moist, blackish-brown, some rusty brown, silty, fine to medium sand with lots of debris (glass, metal, slag, concrete, some plastic).	Hand auger; no PID reading. Deep grab sample. VOA portion of sample collected at 42 in. Remaining sample portion taken from 36-42 in.

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-07	239096.61	736980.83	Hand auger	NA	0-16 in.	Moist, blackish-brown, silty, fine to medium sand with lots of debris (metal , glass, fabric, rubber, slag).	Hand auger; no PID reading. Deep grab sample. VOA portion of sample collected at 40 in. Remaining sample portion taken from 36-42 in.
				NA	16-48 in.	Wet, blackish-brown, silty, fine to medium sand with lots of debris (metal, glass, fabric, rubber, slag).	
				NA	48-54 in.	Wet, light brown, fine sand.	

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-08	239062.34	737197.99	0-4 ft.	33 in.	0-3 in. 3-13 in. 13-19 in. 19-33 in.	Moist, dark brown, silty sand, topsoil. Moist, mixed brown/dark brown/ grayish-brown, silty sand, trace gravel, some debris (glass). Moist, dark brown, silty, fine sand. Moist, brown, fine to medium sand with some silt and trace gravel. PID = 0.0 ppm	Deep grab sample. VOA portion of sample collected at 5 in. of 4-8 ft. core. Remaining sample portion taken from 4-13 in. of 4-8 ft. core.
			4-8 ft.	36 in.	0-2 in. 2-5 in. 5-17 in. 17-36 in.	Slough. Wet, brown, fine to coarse sand with trace silt. Moist, variegated silt with trace fine sand. Moist, brown silt with trace fine sand and very moist, sandy silt lense at 25 inches. PID = 0.0 ppm	
			8-12 ft.	48 in.	0-14 in. 14-48 in.	Slough. Moist, brown silt, trace very fine sand. PID = 0.0 ppm	

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-09	239063.30	737115.44	0-4 ft.	35 in.	0-14 in. 14-22 in. 22-35 in.	Moist, blackish-brown, silty, fine sand with some clay and trace gravel, some metal debris/slag at 12-14 inches. Very moist, grayish-brown, silty sand with some gravel. Very moist, brown, silty, fine sand. PID = 0.0 ppm	Deep grab sample. VOA portion of sample collected at 21 in. of 4-8 ft. core. Remaining sample portion taken from 16-22 in. of 4-8 ft. core.
			4-8 ft.	47 in.	0-2 in. 2-7 in. 7-16 in. 16-22 in. 22-47 in.	Slough Very moist, brown, silty, fine sand. Very moist, brown, silty, fine sand with little clay. Very moist, brown, silty, fine sand with little clay and some gravel. Moist, brown silt with trace fine sand. PID = 0.0 ppm	
			8-11 ft.	48 in.	0-30 in. 30-48 in.	Slough. Moist, brown to gray silt with trace fine sand. PID = 0.0 ppm	

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-10	239008.05	737056.92	0-4 ft.	48 in.	0-4 in. 4-13 in. 13-15 in. 15-48 in.	Damp, gray to brown, fine sand, silt; grass and surface vegetation. Dry, gray, stiff, silty clay. Damp, gray-brown, fine gravel. Slightly damp, gray-brown, fine, silty sand, trace fine gravel, stiff. PID = 0.0 ppm	Deep grab sample. VOA portion of sample collected at 3 in. of 4-7 ft. core. Remaining sample portion taken from 0-11 in. of 4-7 ft. core.
			4-7 ft.	36 in.	0-27 in. 27-31 in. 31-32 in. 32-36 in.	Damp, dark gray-brown, fine, silty sand, trace clay, stiff. Damp, gray-brown, fine to very fine sand and silt with one inch rock at 27-28 inches. Damp, gray-brown with black, carbonaceous staining on ¼ inch gravel. Damp, gray-brown, trace red staining, fine sand and silt with clay, scattered gravel up to ¾ inch. PID = 0.0 ppm	

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-11	239016.31	736998.64	0-4 ft.	36 in.	0-2 in. 2-22 in. 22-23 in. 23-24 in. 24-29 in. 29-36 in.	Topsoil with grass. Slightly damp, gray-brown, very fine silt and sand with scattered gravel up to ½ inch diameter. Rock 2 inch. Wood. Slightly damp, dark gray-brown, very fine sand, silt, and clay, stiff. Decomposing wood. PID = 0.0 ppm	Deep grab sample. VOA portion of sample collected at 29 in. of 4-7 ft. core. Remaining sample portion taken from 22-32 in. of 4-7 ft. core.
			4-7 ft.	32 in.	0-4 in. 4-9 in. 9-26 in. 26-32 in.	Wood, decaying wood, likely slough. Damp, light tan, fine sand, occasional gravel. Damp, light tan to reddish brown with trace dark gray staining, fine sand. Damp, brown/gray-brown, fine sand with trace fine to medium gravel. PID = 0.0 ppm	

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-12	238970.75	736957.72	0-4 ft.	48 in.	0-1 in. 1-48 in.	Topsoil, grass roots. Slightly damp, gray-brown, fine to very fine sand with silt and clay; scattered gravel through out core up to ½ inch diameter. PID = 0.0 ppm	Deep grab sample. VOA portion of sample collected at 24 in. of 4-7 ft. core.
			4-7 ft.	36 in.	0-7 in. 7-22 in. 22-25 in. 25-33 in. 33-36 in.	Damp, gray-brown, very fine sand and silt, trace clay. Damp, light gray-brown, very fine sand and silt, trace fine gravel. Wet, dark gray, fine sand and gravel. Damp, gray, very, very fine sand, silt, and clay. Damp, gray, fine sand and silt. PID = 0.0 ppm	Remaining sample portion taken from 18-28 in. of 4-7 ft. core.

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-13	238943.00	736925.05	0-4 ft.	42 in.	0-3 in.	Damp, grass and vegetation, gray-brown, silty sand mix.	Deep grab sample.
					3-7 in.	Damp, gray-brown, very fine silt, fine gravel (pea-size), mixed with clay.	VOA portion of sample collected at 20 in. of 4-7 ft. core.
					7-10 in.	Moist, gray-brown, very fine silt and sand, trace gravel.	
					10-21 in.	Wet, brown, fine sand with very fine gravel increasing sand grain size with depth, mixed with plant matter and very fine gravel.	Remaining sample portion taken from 20-30 in. of 4-7 ft. core.
					21-24 in.	Wet, black, carbonaceous, decaying plant material.	
					24-25 in.	Wet, gray-brown, fine to medium sand with gravel, trace black carbonaceous material.	
					25-31in.	Damp, very light tan, very fine sand and silt, clean.	
					31-35 in.	Damp, gray-brown, very fine sand and silt, some clay, trace fine gravel.	
					35-42 in.	Damp, gray-brown, mixed with black, fine sand, silt, and clay, increasing gray clay with depth, some gravel up to ¾ inch. PID = 0.0 ppm	

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-13 cont.	238943.00	736925.05	4-7 ft.	36 in.	0-10 in. 10-15 in. 15-25 in. 25-36 in.	Slough. Moist, gray, fine sand and silt, trace coarse sand. Moist, gray-brown, fine to medium sand, trace fine gravel. Moist to wet, gray-brown, very fine to medium sand, trace coarse sand and fine gravel. PID = 0.0 ppm	
SB-14	238937.21	736940.72	0-4 ft.	36 in.	0-2 in. 2-5 in. 5-10 in. 10-12 in. 12-15 in. 15-18 in. 18-22 in. 22-28 in. 28-31 in. 31-36 in.	Fill, grass/soil. Damp, gray-brown, sandy silt. Dry, firm, gray-brown, grading to dark gray brown at 10 inches, very fine sand and silt. Dry, dark, gray-brown, silty, clayey, fine sand. Dry, decomposing wood. Damp, dark gray-brown, silty, clayey, fine sand. Damp, light gray, very fine and silt, trace fine gravel. Damp, light gray, very fine and silt, less gravel. Dry, gray, fine sand, black, carbonaceous material. Moist, gray, silt and clay. PID = 0.0 ppm	Deep grab sample. VOA portion of sample collected at 13 in. of 4-7 ft. core. Remaining sample portion taken from 10-20 in. of 4-7 ft. core.
			4-7 ft.	32 in.	0-10 in. 10-28 in. 28-32 in.	Slough. Moist, gray, very fine sand and silt with some very fine gravel (gravel increasing in size with depth). Wood. PID = 0.0 ppm	

TABLE 3

SOIL BORING LITHOLOY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL	RECOVERY	UNIT THICKNESS	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB-15	238929.32	736904.50	0-4 ft.	30 in.	0-2 in. 2-13 in. 13-16 in. 16-30 in.	Rock. Very moist, gray-brown silt with occasional fine to coarse gravel. Damp, brown, firm, silty sand, trace gravel. Moist, brown, silty sand, fine to pea-size gravel. PID = 0.0 ppm	Deep grab sample. VOA portion of sample collected at 10 in. of 4-8 ft. core. Remaining sample portion taken from 0-10 in. of 4-8 ft. core.
			4-8 ft.	48 in.	0-13 in. 13-24 in. 24-27 in. 27-37 in. 37-48 in.	Wet, brown, fine, silty sand, with pea-size gravel. Moist, gray-brown, very fine, silty sand, trace clay. Damp, gray-brown firm, very, very fine, silty sand, trace gravel. Dry, gray-brown, firm, fine silt with gravel. Damp, dark brown to black, very fine, silty sand with organic material; chunks of wood. PID = 0.0 ppm	
			8-10 ft.	44 in.	0-26 in. 26-42 in. 42-44 in.	Slough. Damp, light gray-brown, very fine sand and silt, clean. Damp, gray, silt, like till. PID = 0.0 ppm	

Location Coordinates: Michigan GeoRef, North American Datum 1983, Meters

*PID reading units are parts per million (ppm)

Tree Farm
1406 East Avon Road
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-01	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.													
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.													
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Arsenic	1.7		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	6.9		75	1,300		1,300		440	G	37,000		130,000	
	Chromium [Total] (H)	**4.7**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	1.8		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	3.0		32	5,800		5,800		75	G	20,000		73,000	
	Iron (B)	4,700		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	2.5		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	64		440	1.0		1.0		56	G,X	25,000		90,000	
	Vanadium	6.9			72		990		190		750	DD	5,500	DD
	Zinc (B)	11		47	2,400		5,000		170	G	170,000		630,000	

µg/kg = microgram/kilogram mg/kg = milligram/kilogram
Qualifier definitions in Appendix D. Footnote definitions in Appendix E.
Shaded Criteria indicate an exceedance.
A blank Default Background column means that value has not been determined.

Tree Farm
1406 East Avon Road
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-02	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.													
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.													
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Arsenic	2.7		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	17		75	1,300		1,300		440	G	37,000		130,000	
	Beryllium	0.22			51		51		85	G	410		1,600	
	Chromium [Total] (H)	**10**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	2.4		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	8.1		32	5,800		5,800		75	G	20,000		73,000	
	Iron (B)	9,000		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	3.1		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	120		440	1.0		1.0		56	G,X	25,000		90,000	
	Nickel (B)	9.2		20	100		100		76	G	40,000		150,000	
	Vanadium	11			72		990		190		750	DD	5,500	DD
	Zinc (B)	17		47	2,400		5,000		170	G	170,000		630,000	

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Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-03	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.													
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.													
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Arsenic	4.6		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	13		75	1,300		1,300		440	G	37,000		130,000	
	Chromium [Total] (H)	**8.9**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	3.6		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	8.4		32	5,800		5,800		75	G	20,000		73,000	
	Iron (B)	9,600		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	4.6		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	310		440	1.0		1.0		56	G,X	25,000		90,000	
	Nickel (B)	11		20	100		100		76	G	40,000		150,000	
	Vanadium	12			72		990		190		750	DD	5,500	DD
	Zinc (B)	20		47	2,400		5,000		170	G	170,000		630,000	

µg/kg = microgram/kilogram mg/kg = milligram/kilogram
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TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-04	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.													
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.													
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.37			4.3		4.3		94	X	180		670	
	Arsenic	**7.2**		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	42		75	1,300		1,300		440	G	37,000		130,000	
	Chromium [Total] (H)	**8.3**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	4.1		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	10		32	5,800		5,800		75	G	20,000		73,000	
	Iron (B)	12,000		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	4.5		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	**530**		440	1.0		1.0		56	G,X	25,000		90,000	
	Nickel (B)	11		20	100		100		76	G	40,000		150,000	
	Vanadium	12			72		990		190		750	DD	5,500	DD
	Zinc (B)	24		47	2,400		5,000		170	G	170,000		630,000	

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Tree Farm
1406 East Avon Road
Rochester Hills, Michigan
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TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-05	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.													
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.													
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Arsenic	**7.5**		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	26		75	1,300		1,300		440	G	37,000		130,000	
	Beryllium	0.38			51		51		85	G	410		1,600	
	Chromium [Total] (H)	**16**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	5.1		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	14		32	5,800		5,800		75	G	20,000		73,000	
	Iron (B)	**19,000**		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	8.4		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	250		440	1.0		1.0		56	G,X	25,000		90,000	
	Molybdenum (B)	**2.2**			1.5		4.2		64	X	2,600		9,600	
	Nickel (B)	13		20	100		100		76	G	40,000		150,000	
	Vanadium	20			72		990		190		750	DD	5,500	DD
	Zinc (B)	33		47	2,400		5,000		170	G	170,000		630,000	

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TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-06	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Trichloroethylene	**260**			100		100		4,000	X	500,000	C,D D	500,000	C,D D
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Acenaphthene	480			300,000		880,000		8,700		41,000,000		130,000,000	
	Acenaphthylene	130			5,900		17,000		ID		1,600,000		5,200,000	
	Anthracene	2,200			41,000		41,000		ID		230,000,000		730,000,000	
	Benzo(a)anthracene (Q)	7,600			NLL		NLL		NLL		20,000		80,000	
	Benzo(b)fluoranthene (Q)	10,000			NLL		NLL		NLL		20,000		80,000	
	Benzo(k)fluoranthene (Q)	3,000			NLL		NLL		NLL		200,000		800,000	
	Benzo(g,h,i)perylene	2,900			NLL		NLL		NLL		2,500,000		7,000,000	
	Benzo(a)pyrene (Q)	**6,700**			NLL		NLL		NLL		2,000		8,000	
	Carbazole	650			9,400		39,000		1,100		530,000		2,400,000	
	Chrysene (Q)	7,700			NLL		NLL		NLL		2,000,000		8,000,000	
	Dibenzo(a,h)anthracene (Q)	1,200			NLL		NLL		NLL		2,000		8,000	
	Dibenzofuran	470			ID		ID		1,700		ID		ID	
	Fluoranthene	**19,000**			730,000		730,000		5,500		46,000,000		130,000,000	
	Fluorene	1,000			390,000		890,000		5,300		27,000,000		87,000,000	
	Indeno(1,2,3-cd)pyrene (Q)	4,400			NLL		NLL		NLL		20,000		80,000	
	Naphthalene	240			35,000		100,000		730		16,000,000		52,000,000	
	Phenanthrene	**11,000**			56,000		160,000		2,100		1,600,000		5,200,000	
	Pyrene	16,000			480,000		480,000		ID		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	4-4'-DDD	850			NLL		NLL		NLL		95,000		400,000	
	4-4'-DDE	320			NLL		NLL		NLL		45,000		190,000	
	4-4'-DDT	560			NLL		NLL		NLL		57,000		280,000	

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TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-06 Cont.	*INORGANICS*	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	**6.1**			4.3		4.3		94	X	180		670	
	Arsenic	**15**		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	410		75	1,300		1,300		440	G	37,000		130,000	
	Beryllium	0.93			51		51		85	G	410		1,600	
	Cadmium (B)	**8.4**		1.2	6.0		6.0		3.6	G,X	550		2,100	
	Chromium [Total] (H)	**47**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	4.1		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	**240**		32	5,800		5,800		75	G	20,000		73,000	
	Cyanide (P,R)	**0.8**		0.39	4.0		4.0		0.1		12		250	
	Iron (B)	**45,000**		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	**840**		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	350		440	1.0		1.0		56	G,X	25,000		90,000	
	Mercury [Total] (B,Z)	**0.16**		0.13	1.7		1.7		0.05	M	160		580	
	Molybdenum (B)	**9.5**			1.5		4.2		64	X	2,600		9,600	
	Nickel (B)	25		20	100		100		76	G	40,000		150,000	
	Selenium (B)	**1.8**		0.41	4.0		4.0		0.4		2,600		9,600	
	Silver (B)	**1.1**		1.0	4.5		13		0.1	M	2,500		9,000	
	Vanadium	23			72		990		190		750	DD	5,500	DD
	Zinc (B)	**600**		47	2,400		5,000		170	G	170,000		630,000	

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TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Groundwater Protection: Residential Drinking Water Protection Criteria	Footnotes	Groundwater Protection: Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Protection: Groundwater Surface Water Interface Protection Criteria	Footnotes	Direct Contact: Residential Direct Contact Criteria	Footnotes	Direct Contact: Nonresidential Direct Contact Criteria	Footnotes
SB-07	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Acenaphthene	580			300,000		880,000		8,700		41,000,000		130,000,000	
	Acenaphthylene	300			5,900		17,000		ID		1,600,000		5,200,000	
	Anthracene	2,200			41,000		41,000		ID		230,000,000		730,000,000	
	Benzo(a)anthracene (Q)	11,000			NLL		NLL		NLL		20,000		80,000	
	Benzo(b)fluoranthene (Q)	16,000			NLL		NLL		NLL		20,000		80,000	
	Benzo(a)pyrene (Q)	**11,000**			NLL		NLL		NLL		2,000		8,000	
	Carbazole	850			9,400		39,000		1,100		530,000		2,400,000	
	Chrysene (Q)	13,000			NLL		NLL		NLL		2,000,000		8,000,000	
	Fluoranthene	**17,000**			730,000		730,000		5,500		46,000,000		130,000,000	
	Fluorene	950			390,000		890,000		5,300		27,000,000		87,000,000	
	Naphthalene	720			35,000		100,000		730		16,000,000		52,000,000	
	Phenanthrene	**9,900**			56,000		160,000		2,100		1,600,000		5,200,000	
	Pyrene	19,000			480,000		480,000		ID		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Chlordane (J)	2,600			NLL		NLL		NLL		31,000		150,000	
	4-4'-DDD	5,400			NLL		NLL		NLL		95,000		400,000	
	4-4'-DDE	1,900			NLL		NLL		NLL		45,000		190,000	
	4-4'-DDT	2,600			NLL		NLL		NLL		57,000		280,000	

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TABLE 4

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					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-07 Cont.	*INORGANICS*	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	**25**			4.3		4.3		94	X	180		670	
	Arsenic	**31**		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	**950**		75	1,300		1,300		440	G	37,000		130,000	
	Beryllium	0.61			51		51		85	G	410		1,600	
	Cadmium (B)	**14**		1.2	6.0		6.0		3.6	G,X	550		2,100	
	Chromium [Total] (H)	**100**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	**11**		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	**450**		32	5,800		5,800		75	G	20,000		73,000	
	Cyanide (P,R)	**0.7**		0.39	4.0		4.0		0.1		12		250	
	Iron (B)	**120,000**		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	**4,200**		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	**650**		440	1.0		1.0		56	G,X	25,000		90,000	
	Mercury [Total] (B,Z)	**1.2**		0.13	1.7		1.7		0.05	M	160		580	
	Molybdenum (B)	**8.7**			1.5		4.2		64	X	2,600		9,600	
	Nickel (B)	53		20	100		100		76	G	40,000		150,000	
	Selenium (B)	**2.2**		0.41	4.0		4.0		0.4		2,600		9,600	
	Silver (B)	**3.3**		1.0	4.5		13		0.1	M	2,500		9,000	
	Vanadium	12			72		990		190		750	DD	5,500	DD
	Zinc (B)	**1,300**		47	2,400		5,000		170	G	170,000		630,000	

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TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-08	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.													
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.													
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.33			4.3		4.3		94	X	180		670	
	Arsenic	5.6		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	22		75	1,300		1,300		440	G	37,000		130,000	
	Beryllium	0.27			51		51		85	G	410		1,600	
	Chromium [Total] (H)	**9.9**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	4.8		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	12		32	5,800		5,800		75	G	20,000		73,000	
	Iron (B)	**15,000**		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	4.9		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	190		440	1.0		1.0		56	G,X	25,000		90,000	
	Nickel (B)	11		20	100		100		76	G	40,000		150,000	
	Vanadium	16			72		990		190		750	DD	5,500	DD
	Zinc (B)	29		47	2,400		5,000		170	G	170,000		630,000	

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SB-09	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.													
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Chlordane (J)				NLL		NLL		NLL		31,000		150,000	
	4-4'-DDD	12			NLL		NLL		NLL		95,000		400,000	
	4-4'-DDE	420			NLL		NLL		NLL		45,000		190,000	
	4-4'-DDT	160			NLL		NLL		NLL		57,000		280,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Arsenic	5.8		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	24		75	1,300		1,300		440	G	37,000		130,000	
	Beryllium	0.29			51		51		85	G	410		1,600	
	Chromium [Total] (H)	**12**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	4.1		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	12		32	5,800		5,800		75	G	20,000		73,000	
	Iron (B)	**13,000**		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	5.9		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	350		440	1.0		1.0		56	G,X	25,000		90,000	
	Nickel (B)	12		20	100		100		76	G	40,000		150,000	
	Vanadium	17			72		990		190		750	DD	5,500	DD
	Zinc (B)	29		47	2,400		5,000		170	G	170,000		630,000	

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SB-10	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Anthracene	120			41,000		41,000		ID		230,000,000		730,000,000	
	Benzo(a)anthracene (Q)	560			NLL		NLL		NLL		20,000		80,000	
	Benzo(b)fluoranthene (Q)	740			NLL		NLL		NLL		20,000		80,000	
	Benzo(k)fluoranthene (Q)	290			NLL		NLL		NLL		200,000		800,000	
	Benzo(a)pyrene (Q)	520			NLL		NLL		NLL		2,000		8,000	
	Chrysene (Q)	640			NLL		NLL		NLL		2,000,000		8,000,000	
	Fluoranthene	1,400			730,000		730,000		5,500		46,000,000		130,000,000	
	Phenanthrene	830			56,000		160,000		2,100		1,600,000		5,200,000	
	Pyrene	1,100			480,000		480,000		ID		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.													
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Arsenic	4.4		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	44		75	1,300		1,300		440	G	37,000		130,000	
	Beryllium	0.44			51		51		85	G	410		1,600	
	Cadmium (B)	0.21		1.2	6.0		6.0		3.6	G,X	550		2,100	
	Chromium [Total] (H)	**15**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	5.8		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	11		32	5,800		5,800		75	G	20,000		73,000	
	Iron (B)	**17,000**		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	11		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	360		440	1.0		1.0		56	G,X	25,000		90,000	
	Molybdenum (B)	1.2			1.5		4.2		64	X	2,600		9,600	
	Nickel (B)	12		20	100		100		76	G	40,000		150,000	
	Selenium (B)	0.28		0.41	4.0		4.0		0.4		2,600		9,600	
	Vanadium	20			72		990		190		750	DD	5,500	DD
	Zinc (B)	33		47	2,400		5,000		170	G	170,000		630,000	

µg/kg = microgram/kilogram mg/kg = milligram/kilogram
Qualifier definitions in Appendix D. Footnote definitions in Appendix E.
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1406 East Avon Road
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-11	***VOLATILES***	(µg/kg)		(µg/kg)	(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	(µg/kg)		(µg/kg)	(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)	
	Fluoranthene	140			730,000		730,000		5,500		46,000,000		130,000,000	
	Pyrene	140			480,000		480,000		ID		29,000,000		84,000,000	
	PESTICIDES/PCBS	(µg/kg)		(µg/kg)	(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)	
	No pesticide/PCB compounds detected above reporting limits.													
	INORGANICS	(mg/kg)		(mg/kg)	(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
	Arsenic	1.7		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	15		75	1,300		1,300		440	G	37,000		130,000	
	Chromium [Total] (H)	**8.9**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	2.7		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	4.6		32	5,800		5,800		75	G	20,000		73,000	
	Iron (B)	7,900		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	4.4		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	61		440	1.0		1.0		56	G,X	25,000		90,000	
	Nickel (B)	6.6		20	100		100		76	G	40,000		150,000	
	Vanadium	12			72		990		190		750	DD	5,500	DD
	Zinc (B)	17		47	2,400		5,000		170	G	170,000		630,000	

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Qualifier definitions in Appendix D. Footnote definitions in Appendix E.
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TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-12	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Benzo(a)anthracene (Q)	300			NLL		NLL		NLL		20,000		80,000	
	Benzo(b)fluoranthene (Q)	490			NLL		NLL		NLL		20,000		80,000	
	Chrysene (Q)	400			NLL		NLL		NLL		2,000,000		8,000,000	
	Fluoranthene	730			730,000		730,000		5,500		46,000,000		130,000,000	
	Phenanthrene	400			56,000		160,000		2,100		1,600,000		5,200,000	
	Pyrene	640			480,000		480,000		ID		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.													
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Arsenic	4.9		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	37		75	1,300		1,300		440	G	37,000		130,000	
	Beryllium	0.31			51		51		85	G	410		1,600	
	Cadmium (B)	0.22		1.2	6.0		6.0		3.6	G,X	550		2,100	
	Chromium [Total] (H)	**19**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	4.7		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	14		32	5,800		5,800		75	G	20,000		73,000	
	Cyanide (P,R)	**0.4**		0.39	4.0		4.0		0.1		12		250	
	Iron (B)	**14,000**		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	50		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	400		440	1.0		1.0		56	G,X	25,000		90,000	
	Nickel (B)	12		20	100		100		76	G	40,000		150,000	
	Vanadium	16			72		990		190		750	DD	5,500	DD
	Zinc (B)	54		47	2,400		5,000		170	G	170,000		630,000	

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TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Groundwater Protection: Residential Drinking Water Protection Criteria	Footnotes	Groundwater Protection: Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Protection: Groundwater Surface Water Interface Protection Criteria	Footnotes	Direct Contact: Residential Direct Contact Criteria	Footnotes	Direct Contact: Nonresidential Direct Contact Criteria	Footnotes
SB-13	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Chrysene (Q)	95			NLL		NLL		NLL		2,000,000		8,000,000	
	Fluoranthene	170			730,000		730,000		5,500		46,000,000		130,000,000	
	Phenanthrene	100			56,000		160,000		2,100		1,600,000		5,200,000	
	Pyrene	150			480,000		480,000		ID		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.													
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.3			4.3		4.3		94	X	180		670	
	Arsenic	3.3		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	13		75	1,300		1,300		440	G	37,000		130,000	
	Chromium [Total] (H)	**7.3**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	3.0		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	7.5		32	5,800		5,800		75	G	20,000		73,000	
	Cyanide (P,R)	**0.4**		0.39	4.0		4.0		0.1		12		250	
	Iron (B)	7,600		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	8.0		21	700		700		2,800	G,X	400		900	DD
	Manganese (B)	230		440	1.0		1.0		56	G,X	25,000		90,000	
	Nickel (B)	8.1		20	100		100		76	G	40,000		150,000	
	Vanadium	8.8			72		990		190		750	DD	5,500	DD
	Zinc (B)	25		47	2,400		5,000		170	G	170,000		630,000	

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Rochester Hills, Michigan
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TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-14	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Benzo(a)anthracene (Q)	200			NLL		NLL		NLL		20,000		80,000	
	Chrysene (Q)	250			NLL		NLL		NLL		2,000,000		8,000,000	
	Fluoranthene	490			730,000		730,000		5,500		46,000,000		130,000,000	
	Phenanthrene	310			56,000		160,000		2,100		1,600,000		5,200,000	
	Pyrene	530			480,000		480,000		ID		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Chlordane (J)	8.6			NLL		NLL		NLL		31,000		150,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.35			4.3		4.3		94	X	180		670	
	Arsenic	5.1		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	32		75	1,300		1,300		440	G	37,000		130,000	
	Beryllium	0.34			51		51		85	G	410		1,600	
	Chromium [Total] (H)	**33**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	5.5		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	12		32	5,800		5,800		75	G	20,000		73,000	
	Iron (B)	**19,000**		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	13		21	700		700		2,800	G,X	400		900	DD
	Lead (Fine fraction)				NA		NA		NA		400		900	DD
	Lead (Coarse fraction)				NA		NA		NA		400		900	DD
	Manganese (B)	**810**		440	1.0		1.0		56	G,X	25,000		90,000	
	Molybdenum (B)	1.5			1.5		4.2		64	X	2,600		9,600	
	Nickel (B)	14		20	100		100		76	G	40,000		150,000	
	Selenium (B)	0.21		0.41	4.0		4.0		0.4		2,600		9,600	
	Vanadium	23			72		990		190		750	DD	5,500	DD
	Zinc (B)	45		47	2,400		5,000		170	G	170,000		630,000	

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Rochester Hills, Michigan
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TABLE 4

SOIL BORING SAMPLE DATA SUMMARY

					Groundwater Protection						Direct Contact			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Footnotes	Nonresidential Drinking Water Protection Criteria	Footnotes	Groundwater Surface Water Interface Protection Criteria	Footnotes	Residential Direct Contact Criteria	Footnotes	Nonresidential Direct Contact Criteria	Footnotes
SB-15	***VOLATILES***	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.													
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	Fluoranthene	280			730,000		730,000		5,500		46,000,000		130,000,000	
	Pyrene	310			480,000		480,000		ID		29,000,000		84,000,000	
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.													
	INORGANICS	*(mg/kg)*		*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
	Antimony	0.39			4.3		4.3		94	X	180		670	
	Arsenic	5.8		5.8	4.6		4.6		4.6		7.6		37	
	Barium (B)	43		75	1,300		1,300		440	G	37,000		130,000	
	Beryllium	0.45			51		51		85	G	410		1,600	
	Cadmium (B)	0.21		1.2	6.0		6.0		3.6	G,X	550		2,100	
	Chromium [Total] (H)	**29**												
	Chromium [VI]				30		30		3.3		2,500		9,200	
	Cobalt	6.4		6.8	0.8		2.0		2.0		2,600		9,000	
	Copper (B)	18		32	5,800		5,800		75	G	20,000		73,000	
	Iron (B)	**20,000**		12,000	6.0		6.0		NA		160,000		580,000	
	Lead (B)	16		21	700		700		2,800	G,X	400		900	DD
	Lead (Fine fraction)				NA		NA		NA		400		900	DD
	Lead (Coarse fraction)				NA		NA		NA		400		900	DD
	Manganese (B)	**720**		440	1.0		1.0		56	G,X	25,000		90,000	
	Molybdenum (B)	**1.6**			1.5		4.2		64	X	2,600		9,600	
	Nickel (B)	21		20	100		100		76	G	40,000		150,000	
	Selenium (B)	0.21		0.41	4.0		4.0		0.4		2,600		9,600	
	Vanadium	23			72		990		190		750	DD	5,500	DD
	Zinc (B)	58		47	2,400		5,000		170	G	170,000		630,000	

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TABLE 5

SURFACE WATER SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		SAMPLE DESCRIPTION	DEPTH OF WATER AT SAMPLE LOCATION	PHYSICAL PARAMETERS	COMMENTS
	Northing	Easting				
SW-01	238910.94	737088.07	Slightly turbid.	5 in.; collected sample at 2 in.	Cond = 817 pH = 7.72 T = 16.3 ORP = -275 TDS = 541	Sample collected from the Honeywell Ditch by submerging the bottles.
SW-02 (DUP)	238985.76	737104.11	Slightly turbid.	1 in.	Cond = 1210 pH = 6.79 T = 7.0 ORP = -37 TDS = 827	Sample collected from a 2 ft. diameter, clay discharge pipe along the north bank of the Honeywell Ditch on the Tree Farm property by placing bottles beneath discharge flow.
SW-03	239002.81	737196.90	Turbid.	18 in.	Cond = 709 pH = 7.25 T = 14.9 ORP = -172 TDS = 475	Sample collected from the Honeywell Ditch by submerging the bottles. Matrix spike/matrix spike duplicate taken at this sample location.
SW-04	238940.37	736969.74	Clear.	4 in.	Cond = 1270 pH = 7.1 T = 17.7 ORP = 112 TDS = 860	Sample collected from a surface drainage area in a ravine between two large fill areas by submerging the bottles.

Location Coordinates: Michigan Georef NAD 1983 meters

Cond = Conductivity (µs/cm)
pH = Hydrogen Ionization Potential
T = Temperature (°C)
ORP = Oxidation Reduction Potential (millivolts)
TDS = Total Dissolved Solids (ppm – parts per million)

TABLE 6

Tree Farm
1406 East Avon
Rochester Hills, Michigan
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SURFACE WATER SAMPLE DATA SUMMARY

Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Groundwater Surface Water Interface Criteria	Footnotes	Groundwater Contact Criteria	Footnotes
SW-01	***VOLATILES***	*(µg/l)*		*(µg/l)*		*(µg/l)*	
	No volatile organic compounds detected above reporting limits.						
	SEMI-VOLATILES	*(µg/l)*		*(µg/l)*		*(µg/l)*	
	No semi-volatile organic compounds detected above reporting limits.						
	PESTICIDES/PCBS	*(µg/l)*		*(µg/l)*		*(µg/l)*	
	No pesticide/PCB compounds detected above reporting limits.						
	INORGANICS	*(µg/l)*		*(µg/l)*		*(µg/l)*	
	Barium (B)	32		670	G	14,000,000	
	Copper (B)	2.9		13	G	7,400,000	
	Iron (B)	386		NA		58,000,000	
	Manganese (B)	42		2,800	G,X	9,100,000	
	Nickel (B)	2.1		73	G	74,000,000	

µg/l = microgram/liter
Qualifier definitions in Appendix D. Footnote definitions in Appendix E.
Shaded Criteria indicate an exceedance.

TABLE 6

Tree Farm
1406 East Avon
Rochester Hills, Michigan
April 26 and 27, 2011

SURFACE WATER SAMPLE DATA SUMMARY

Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Groundwater Surface Water Interface Criteria	Footnotes	Groundwater Contact Criteria	Footnotes
SW-02	***VOLATILES***	(µg/l)		(µg/l)		(µg/l)	
	No volatile organic compounds detected above reporting limits.						
	SEMI-VOLATILES	(µg/l)		(µg/l)		(µg/l)	
	No semi-volatile organic compounds detected above reporting limits.						
	PESTICIDES/PCBS	(µg/l)		(µg/l)		(µg/l)	
	No pesticide/PCB compounds detected above reporting limits.						
	INORGANICS	(µg/l)		(µg/l)		(µg/l)	
	Antimony	1		130	X	68,000	
	Arsenic	1.7		10		4,300	
	Barium (B)	84		670	G	14,000,000	
	Copper (B)	6		13	G	7,400,000	
	Iron (B)	2,600		NA		58,000,000	
	Lead (B)	1.7		16	G,X	ID	
	Manganese (B)	200		2,800	G,X	9,100,000	
	Nickel (B)	4.7		73	G	74,000,000	
	Vanadium	2.6		12		970,000	
	Zinc (B)	45		170	G	110,000,000	

µg/l = microgram/liter
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Tree Farm
1406 East Avon
Rochester Hills, Michigan
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TABLE 6

SURFACE WATER SAMPLE DATA SUMMARY

Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Groundwater Surface Water Interface Criteria	Footnotes	Groundwater Contact Criteria	Footnotes
SW-02-DUP	*VOLATILES*	*(µg/l)*		*(µg/l)*		*(µg/l)*	
	No volatile organic compounds detected above reporting limits.						
	SEMI-VOLATILES	*(µg/l)*		*(µg/l)*		*(µg/l)*	
	No semi-volatile organic compounds detected above reporting limits.						
	PESTICIDES/PCBS	*(µg/l)*		*(µg/l)*		*(µg/l)*	
	No pesticide/PCB compounds detected above reporting limits.						
	INORGANICS	*(µg/l)*		*(µg/l)*		*(µg/l)*	
	Arsenic	1.7		10		4,300	
	Barium (B)	84		670	G	14,000,000	
	Copper (B)	5.9		13	G	7,400,000	
	Iron (B)	2,600		NA		58,000,000	
	Lead (B)	1.7		16	G,X	ID	
	Manganese (B)	200		2,800	G,X	9,100,000	
	Nickel (B)	4.6		73	G	74,000,000	
	Vanadium	2.5		12		970,000	
	Zinc (B)	43		170	G	110,000,000	

µg/l = microgram/liter
Qualifier definitions in Appendix D. Footnote definitions in Appendix E.
Shaded Criteria indicate an exceedance.

Tree Farm
1406 East Avon
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 6

SURFACE WATER SAMPLE DATA SUMMARY

Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Groundwater Surface Water Interface Criteria	Footnotes	Groundwater Contact Criteria	Footnotes
SW-03	***VOLATILES***	*(µg/l)*		*(µg/l)*		*(µg/l)*	
	No volatile organic compounds detected above reporting limits.						
	SEMI-VOLATILES	*(µg/l)*		*(µg/l)*		*(µg/l)*	
	No semi-volatile organic compounds detected above reporting limits.						
	PESTICIDES/PCBS	*(µg/l)*		*(µg/l)*		*(µg/l)*	
	No pesticide/PCB compounds detected above reporting limits.						
	INORGANICS	*(µg/l)*		*(µg/l)*		*(µg/l)*	
	Arsenic	1		10		4,300	
	Barium (B)	32		670	G	14,000,000	
	Chromium [Total] (H)	1.6					
	Chromium [VI]			11		460,000	
	Copper (B)	3.8		13	G	7,400,000	
	Iron (B)	730		NA		58,000,000	
	Manganese (B)	64		2,800	G,X	9,100,000	
	Nickel (B)	2.5		73	G	74,000,000	

µg/l = microgram/liter
Qualifier definitions in Appendix D. Footnote definitions in Appendix E.
Shaded Criteria indicate an exceedance.

Tree Farm
1406 East Avon
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 6

SURFACE WATER SAMPLE DATA SUMMARY

Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	Groundwater Surface Water Interface Criteria	Footnotes	Groundwater Contact Criteria	Footnotes
SW-04	***VOLATILES***	(µg/l)		(µg/l)		(µg/l)	
	No volatile organic compounds detected above reporting limits.						
	SEMI-VOLATILES	(µg/l)		(µg/l)		(µg/l)	
	No semi-volatile organic compounds detected above reporting limits.						
	PESTICIDES/PCBS	(µg/l)		(µg/l)		(µg/l)	
	No pesticide/PCB compounds detected above reporting limits.						
	INORGANICS	(µg/l)		(µg/l)		(µg/l)	
	Arsenic	1.5		10		4,300	
	Barium (B)	67		670	G	14,000,000	
	Copper (B)	2.6		13	G	7,400,000	
	Iron (B)	250		NA		58,000,000	
	Manganese (B)	140		2,800	G,X	9,100,000	
	Nickel (B)	5.3		73	G	74,000,000	

µg/l = microgram/liter
Qualifier definitions in Appendix D. Footnote definitions in Appendix E.
Shaded Criteria indicate an exceedance.

Tree Farm
1406 East Avon
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 7

SEDIMENT SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		DEPTH OF WATER AT SAMPLE LOCATION	DEPTH OF SAMPLE	DESCRIPTION	COMMENTS
	Northing	Easting				
SD-01	238912.28	737086.72	5 in.	0-6 in. VOA 4-6 in.	0-4 in. - Wet, tan, medium sand, leaf litter. 4-6 in. - Wet, gray, medium sand, leaf litter.	Sample collected from the Honeywell Drain. Used 4 ft. length, 2 in. diameter, Geoprobe® macro-core liner to collect sediment.
SD-02	238985.78	737103.94	2 in.	0-3 in. VOA 2-3 in.	0-3 in. - Wet, tan, fine to coarse medium sand with fine gravel.	Sample collected at the base of the discharge flow from a 2 ft. diameter, clay discharge pipe along the north bank of the Honeywell Drain on the Tree Farm property. Used stainless steel spoon to collect sediment.
SD-03	239004.12	737197.36	12 in.	0-10 in. VOA 5-6 in.	0-6 in. - Wet, tan, fine sand with some black silt. 6-10 in. - Wet, blackish-brown, medium sand, some silt, trace fine gravel.	Sample collected from the Honeywell Drain. Used 4 ft. length, 2 in. diameter, Geoprobe® macro-core liner to collect sediment.
SD-04	238940.38	736969.10	4 in.	0-7 in. VOA 6-7 in.	0-6 in. - Wet, brown, silty, fine to medium sand, fine gravel. 6-7 in. - Wet, tan, medium sand.	Sample collected from a surface drainage area in a ravine between two large fill areas. Used 4 ft. length, 2 in. diameter, Geoprobe® macro-core liner to collect sediment.

Tree Farm
1406 East Avon
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 8

SEDIMENT SAMPLE DATA SUMMARY

				PART 201 SEDIMENT SCREENING LEVELS					Part 201 Soil Criteria			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	USEPA Region 5 RCRA Ecological Sceening Levels	Footnotes	Threshold Effect Level (Smith et. al. 1996)	Lowest Effect Level (Persud et. al. 1993)	Minimal Effect Level (EC & MENVIQ 1992)	Soil Groundwater Surface Water Interface Protection Criteria	Footnotes	Soil Residential Direct Contact Criteria	Footnotes
SD-01	***VOLATILES***	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.											
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.											
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.											
	INORGANICS	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*		*(mg/kg)*	
	Arsenic	2.2		9.79	u	5.9	6	7	4.6		7.6	
	Barium (B)	11		NG		NG	NG	NG	440	G	37,000	
	Chromium [Total] (H)	**5.2**										
	Chromium [VI]			NG		NG	NG	NG	3.3		2,500	
	Cobalt	2.0		50		NG	NG	NG	2.0		2,600	
	Copper (B)	4.4		31.6	u	35.7	16	28	75	G	20,000	
	Cyanide (P,R)	0.2		0.0001	t	NG	NG	NG	0.1		12	
	Iron (B)	5,800		NG		NG	NG	NG	NA		160,000	
	Lead (B)	3.9		35.8	u	35	31	42	2,800	G,X	400	
	Manganese (B)	160		NG		NG	NG	NG	56	G,X	25,000	
	Nickel (B)	4.4		22.7	u	18	16	35	76	G	40,000	
	Vanadium	6.9		NG		NG	NG	NG	190		750	DD
	Zinc (B)	22		121	u	123	120	150	170	G	170,000	

µg/kg = microgram/kilogram mg/kg = milligram/kilogram
Qualifier definitions in Appendix D. Footnote definitions in Appendix E.
Shaded Criteria indicate an exceedance.
A blank Default Background column means that value has not been determined.

Tree Farm
1406 East Avon
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 8

SEDIMENT SAMPLE DATA SUMMARY

				PART 201 SEDIMENT SCREENING LEVELS					Part 201 Soil Criteria			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	USEPA Region 5 RCRA Ecological Sceening Levels	Footnotes	Threshold Effect Level (Smith et. al. 1996)	Lowest Effect Level (Persud et. al. 1993)	Minimal Effect Level (EC & MENVIQ 1992)	Soil Groundwater Surface Water Interface Protection Criteria	Footnotes	Soil Residential Direct Contact Criteria	Footnotes
SD-02	***VOLATILES***	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.											
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.											
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.											
	INORGANICS	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*		*(mg/kg)*	
	Antimony	0.39		NG		NG	NG	NG	94	X	180	
	Arsenic	**6.6**		9.79	u	5.9	6	7	4.6		7.6	
	Barium (B)	63		NG		NG	NG	NG	440	G	37,000	
	Cadmium (B)	0.22		0.99	u	0.596	0.6	0.9	3.6	G,X	550	
	Chromium [Total] (H)	**4.8**										
	Chromium [VI]			NG		NG	NG	NG	3.3		2,500	
	Cobalt	2.5		50		NG	NG	NG	2.0		2,600	
	Copper (B)	6.3		31.6	u	35.7	16	28	75	G	20,000	
	Cyanide (P,R)	0.2		0.0001	t	NG	NG	NG	0.1		12	
	Iron (B)	25,000		NG		NG	NG	NG	NA		160,000	
	Lead (B)	10		35.8	u	35	31	42	2,800	G,X	400	
	Manganese (B)	450		NG		NG	NG	NG	56	G,X	25,000	
	Nickel (B)	4.1		22.7	u	18	16	35	0.05	M	40,000	
	Selenium (B)	0.29		NG		NG	NG	NG	76	G	2,600	
	Vanadium	8.6		NG		NG	NG	NG	190		750	DD
	Zinc (B)	54		121	u	123	120	150	170	G	170,000	

µg/kg = microgram/kilogram mg/kg = milligram/kilogram
Qualifier definitions in Appendix D. Footnote definitions in Appendix E.
Shaded Criteria indicate an exceedance.
A blank Default Background column means that value has not been determined.

Tree Farm
1406 East Avon
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 8

SEDIMENT SAMPLE DATA SUMMARY

				PART 201 SEDIMENT SCREENING LEVELS					Part 201 Soil Criteria			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	USEPA Region 5 RCRA Ecological Sceening Levels	Footnotes	Threshold Effect Level (Smith et. al. 1996)	Lowest Effect Level (Persud et. al. 1993)	Minimal Effect Level (EC & MENVIQ 1992)	Soil Groundwater Surface Water Interface Protection Criteria	Footnotes	Soil Residential Direct Contact Criteria	Footnotes
SD-03	***VOLATILES***	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.											
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.											
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*	
	No pesticide/PCB compounds detected above reporting limits.											
	INORGANICS	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*		*(mg/kg)*	
	Arsenic	2.2		9.79	u	5.9	6	7	4.6		7.6	
	Barium (B)	13		NG		NG	NG	NG	440	G	37,000	
	Chromium [Total] (H)	**5.4**										
	Chromium [VI]			NG		NG	NG	NG	3.3		2,500	
	Cobalt	2.3		50		NG	NG	NG	2.0		2,600	
	Copper (B)	5.4		31.6	u	35.7	16	28	75	G	20,000	
	Cyanide (P,R)	0.2		0.0001	t	NG	NG	NG	0.1		12	
	Iron (B)	6,000		NG		NG	NG	NG	NA		160,000	
	Lead (B)	5.3		35.8	u	35	31	42	2,800	G,X	400	
	Manganese (B)	140		NG		NG	NG	NG	56	G,X	25,000	
	Nickel (B)	5.1		22.7	u	18	16	35	76	G	40,000	
	Vanadium	8.4		NG		NG	NG	NG	190		750	DD
	Zinc (B)	25		121	u	123	120	150	170	G	170,000	

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Tree Farm
1406 East Avon
Rochester Hills, Michigan
April 26 and 27, 2011

TABLE 8

SEDIMENT SAMPLE DATA SUMMARY

				PART 201 SEDIMENT SCREENING LEVELS					Part 201 Soil Criteria			
Sample Number	Hazardous Substance (Footnotes)	Sample Concentration	Qualifiers	USEPA Region 5 RCRA Ecological Sceening Levels	Footnotes	Threshold Effect Level (Smith et. al. 1996)	Lowest Effect Level (Persud et. al. 1993)	Minimal Effect Level (EC & MENVIQ 1992)	Soil Groundwater Surface Water Interface Protection Criteria	Footnotes	Soil Residential Direct Contact Criteria	Footnotes
SD-04	***VOLATILES***	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*	
	No volatile organic compounds detected above reporting limits.											
	SEMI-VOLATILES	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*	
	No semi-volatile organic compounds detected above reporting limits.											
	PESTICIDES/PCBS	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*	
	4-4'-DDD	**49**		4.88	uz	3.54	8	10	NLL		95,000	
	4-4'-DDE	**56**		3.16	u	1.42	5	7	NLL		45,000	
	INORGANICS	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*		*(mg/kg)*	
	Antimony	0.38		NG		NG	NG	NG	94	X	180	
	Arsenic	**11**		9.79	u	5.9	6	7	4.6		7.6	
	Barium (B)	55		NG		NG	NG	NG	440	G	37,000	
	Beryllium	0.36		NG		NG	NG	NG	85	G	410	
	Cadmium (B)	0.30		0.99	u	0.596	0.6	0.9	3.6	G,X	550	
	Chromium [Total] (H)	**15**										
	Chromium [VI]			NG		NG	NG	NG	3.3		2,500	
	Cobalt	6.2		50		NG	NG	NG	2.0		2,600	
	Copper (B)	16		31.6	u	35.7	16	28	75	G	20,000	
	Cyanide (P,R)	0.2		0.0001	t	NG	NG	NG	0.1		12	
	Iron (B)	22,000		NG		NG	NG	NG	NA		160,000	
	Lead (B)	23		35.8	u	35	31	42	2,800	G,X	400	
	Manganese (B)	510		NG		NG	NG	NG	56	G,X	25,000	
	Nickel (B)	15		22.7	u	18	16	35	0.05	M	40,000	
	Selenium (B)	0.44		NG		NG	NG	NG	76	G	2,600	
	Vanadium	18		NG		NG	NG	NG	190		750	DD
	Zinc (B)	67		121	u	123	120	150	170	G	170,000	

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Appendix A

Historical Data Searches

Tree Farm
1406 East Avon Road
Rochester, MI 48307

Inquiry Number: 3013112.2s
March 14, 2011

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

AT THE REQUEST OF EGLE, THIS ATTACHMENT HAS BEEN DELETED TO REDUCE REPORT SIZE.

Tree Farm
1406 East Avon Road
Rochester, MI 48307

Inquiry Number: 3011544.5
March 15, 2011

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

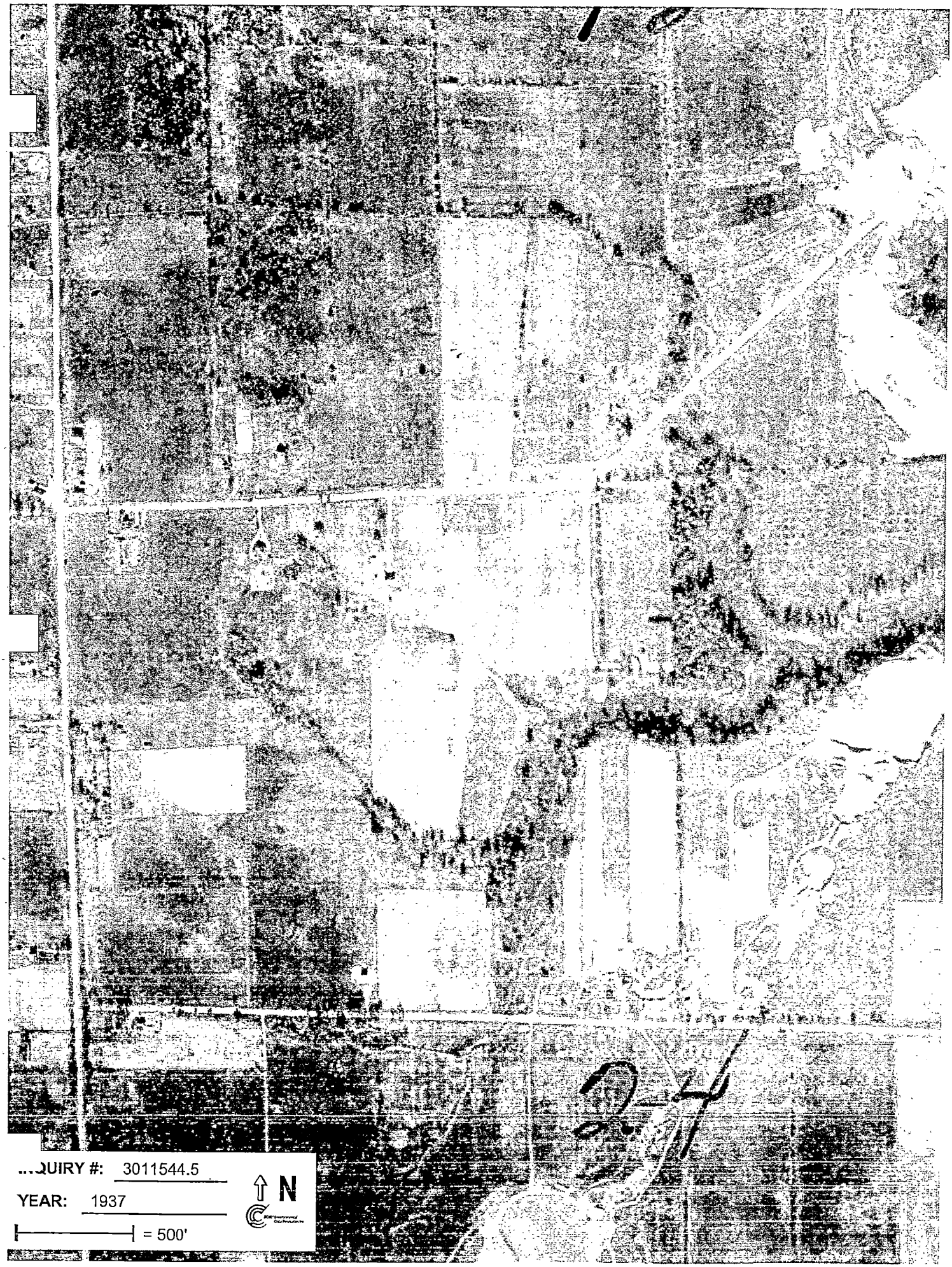
Date EDR Searched Historical Sources:

Aerial Photography March 15, 2011

Target Property:

1406 East Avon Road
Rochester, MI 48307

Year	*Scale*	*Details*	*Source*
1937	Aerial Photograph. Scale: 1"=500'	Flight Year: 1937	AAA
1940	Aerial Photograph. Scale: 1"=500'	Flight Year: 1940	AAA
1949	Aerial Photograph. Scale: 1"=500'	Flight Year: 1949	Detroit Edison
1957	Aerial Photograph. Scale: 1"=500'	Flight Year: 1957	CSS
1961	Aerial Photograph. Scale: 1"=500'	Flight Year: 1961	Detroit Edison
1967	Aerial Photograph. Scale: 1"=500'	Flight Year: 1967	Detroit Edison
1972	Aerial Photograph. Scale: 1"=600'	Flight Year: 1972	ASCS
1980	Aerial Photograph. Scale: 1"=500'	Flight Year: 1980	SEMCOG
1994	Aerial Photograph. Scale: 1"=600'	Flight Year: 1994	NAPP
2000	Aerial Photograph. Scale: 1"=500'	Flight Year: 2000	SEMCOG
2005	Aerial Photograph. Scale: 1"=604'	Flight Year: 2005	EDR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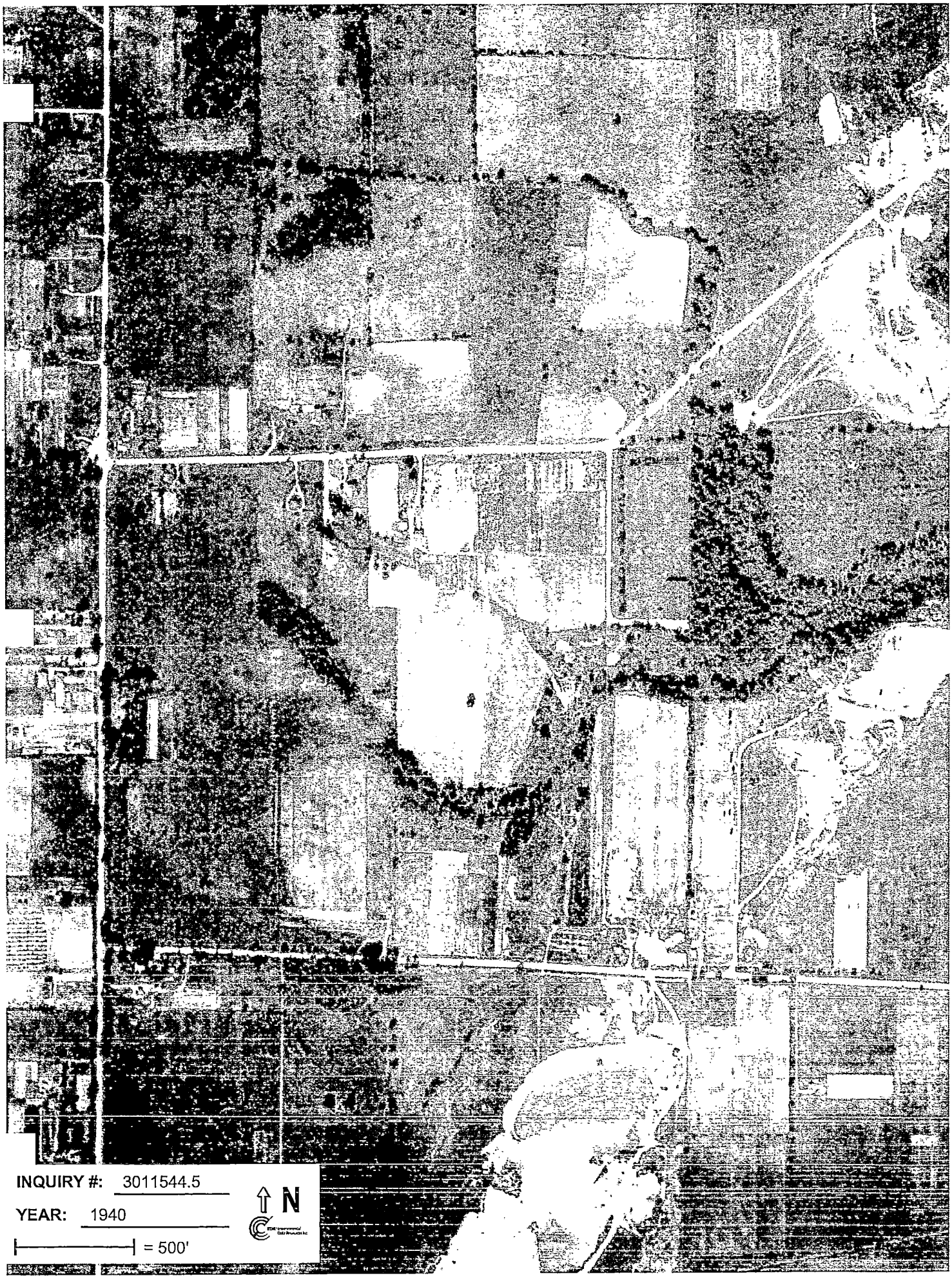
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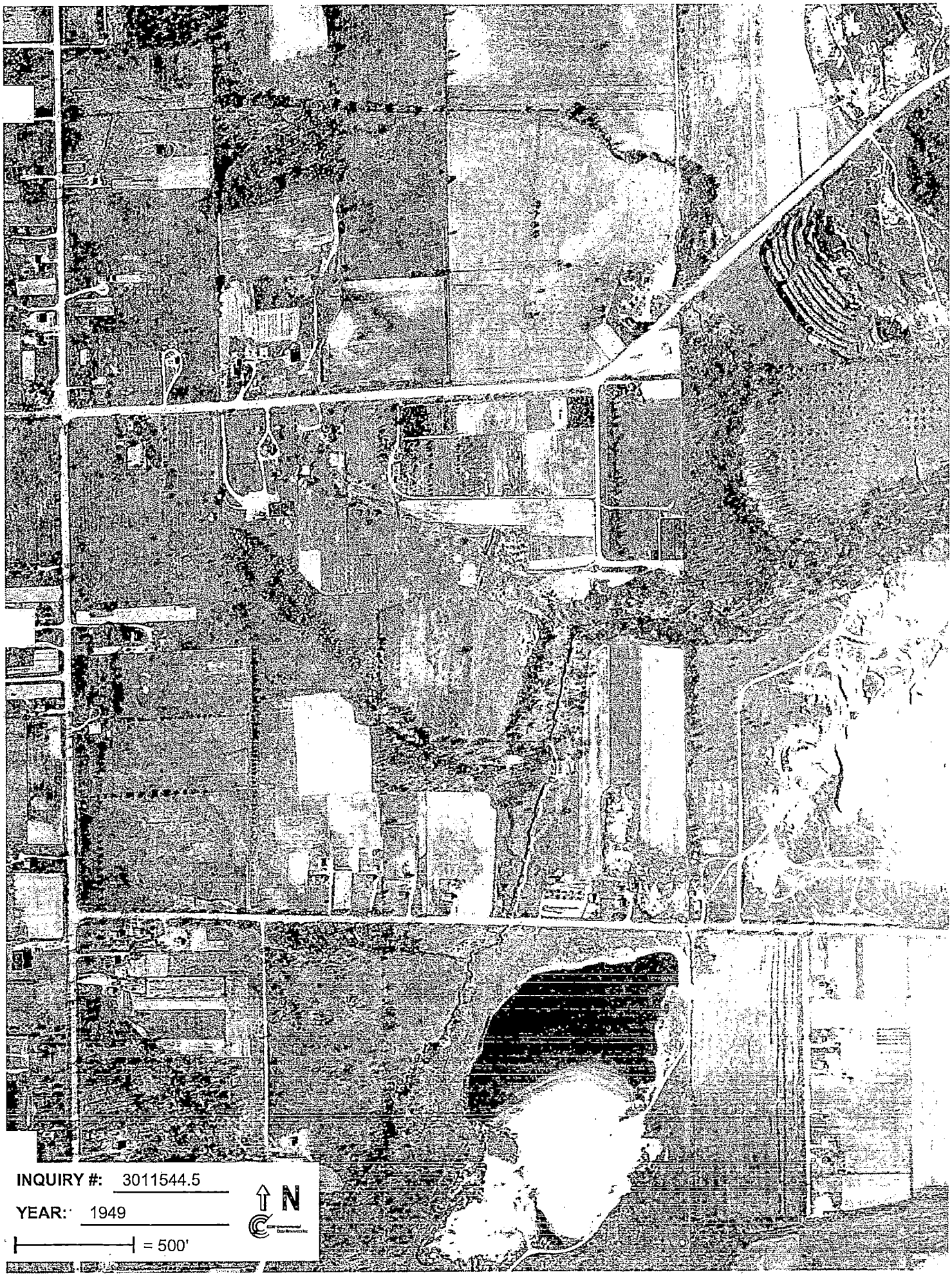
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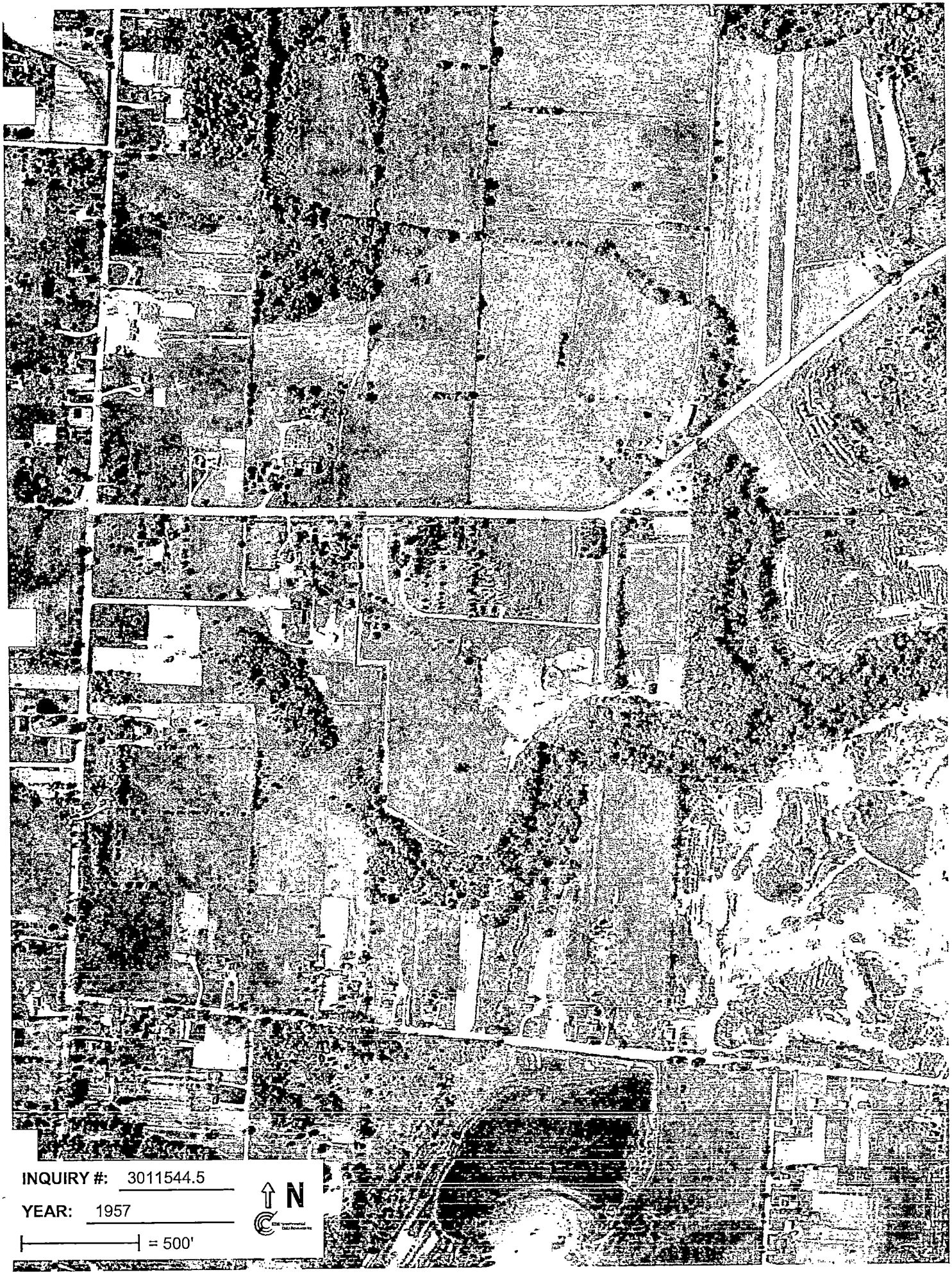
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INQUIRY #: 3011544.5

YEAR: 1967

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= 500'


INQUIRY #: 3011544.5
YEAR: 1972
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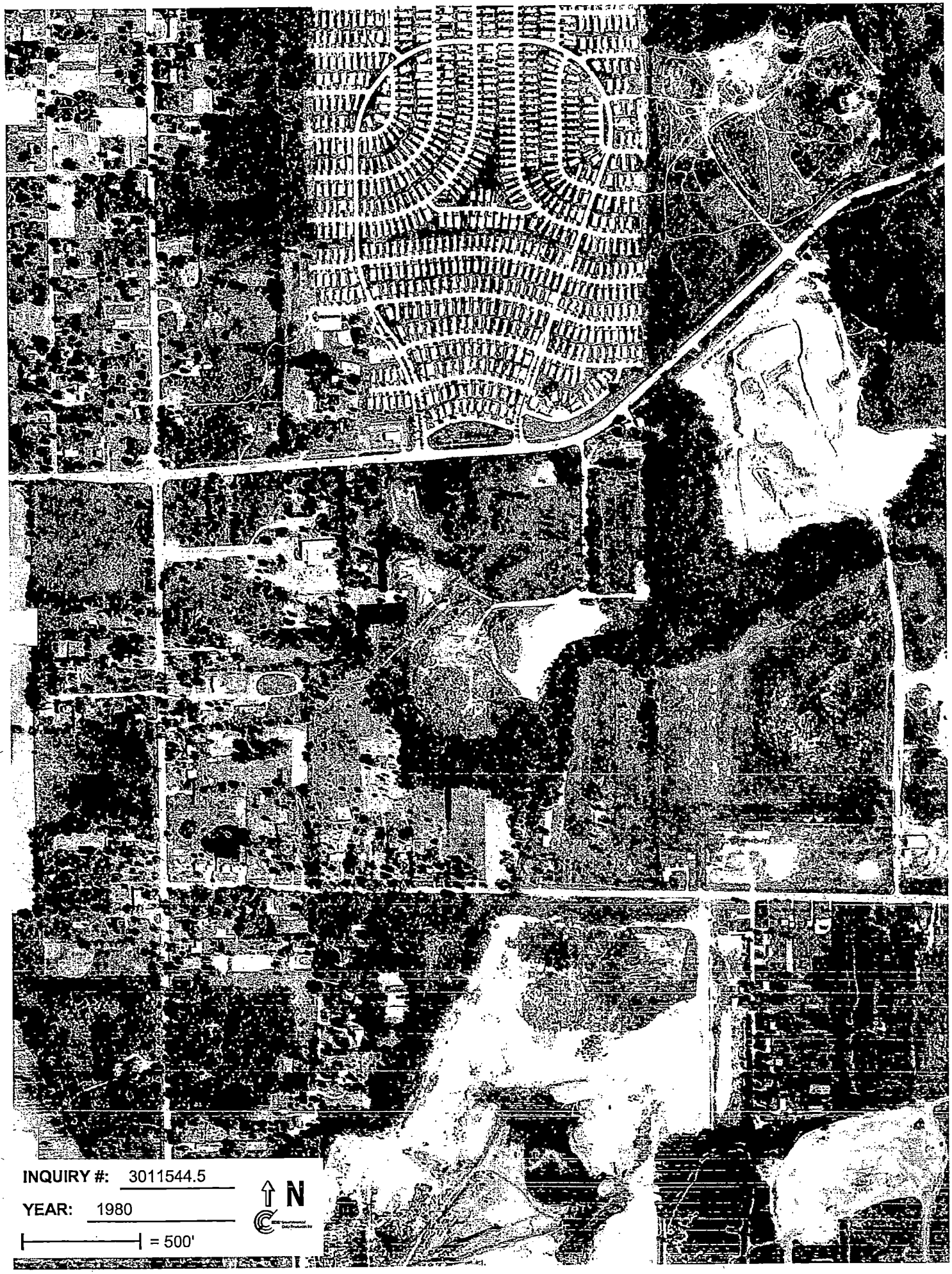
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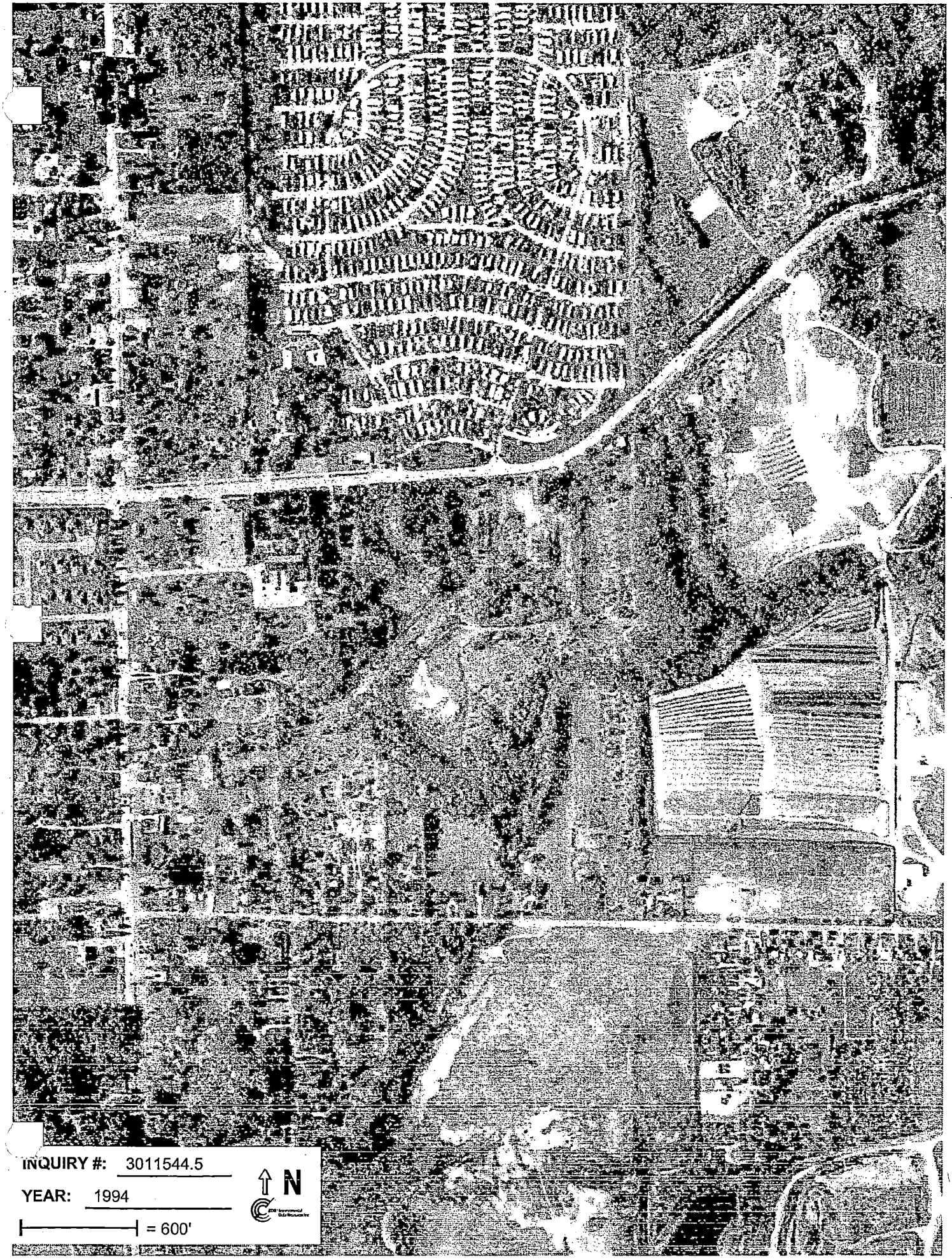
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INQUIRY #: 3011544.5
YEAR: 2000
= 500'
N

Tree Farm
1406 East Avon Road
Rochester, MI 48307

Inquiry Number: 3011544.3
March 14, 2011

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

3/14/11

Site Name:
Tree Farm
1406 East Avon Road
Rochester, MI 48307

Client Name:
MDEQ/RRD/Superfund
P525 West Allegan, South
Lansing, MI 48933

EDR® Environmental Data Resources Inc

EDR Inquiry # 3011544.3

Contact: Teresa Ducsay

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by MDEQ/RRD/Superfund were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Tree Farm
Address: 1406 East Avon Road
City, State, Zip: Rochester, MI 48307
Cross Street:
P.O. # NA
Project: Tree Farm
Certification # B034-4900-807B

Sanborn® Library search results
Certification # B034-4900-807B

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Tree Farm
1406 East Avon Road
Rochester, MI 48307

Inquiry Number: 3011544.4
March 11, 2011

EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

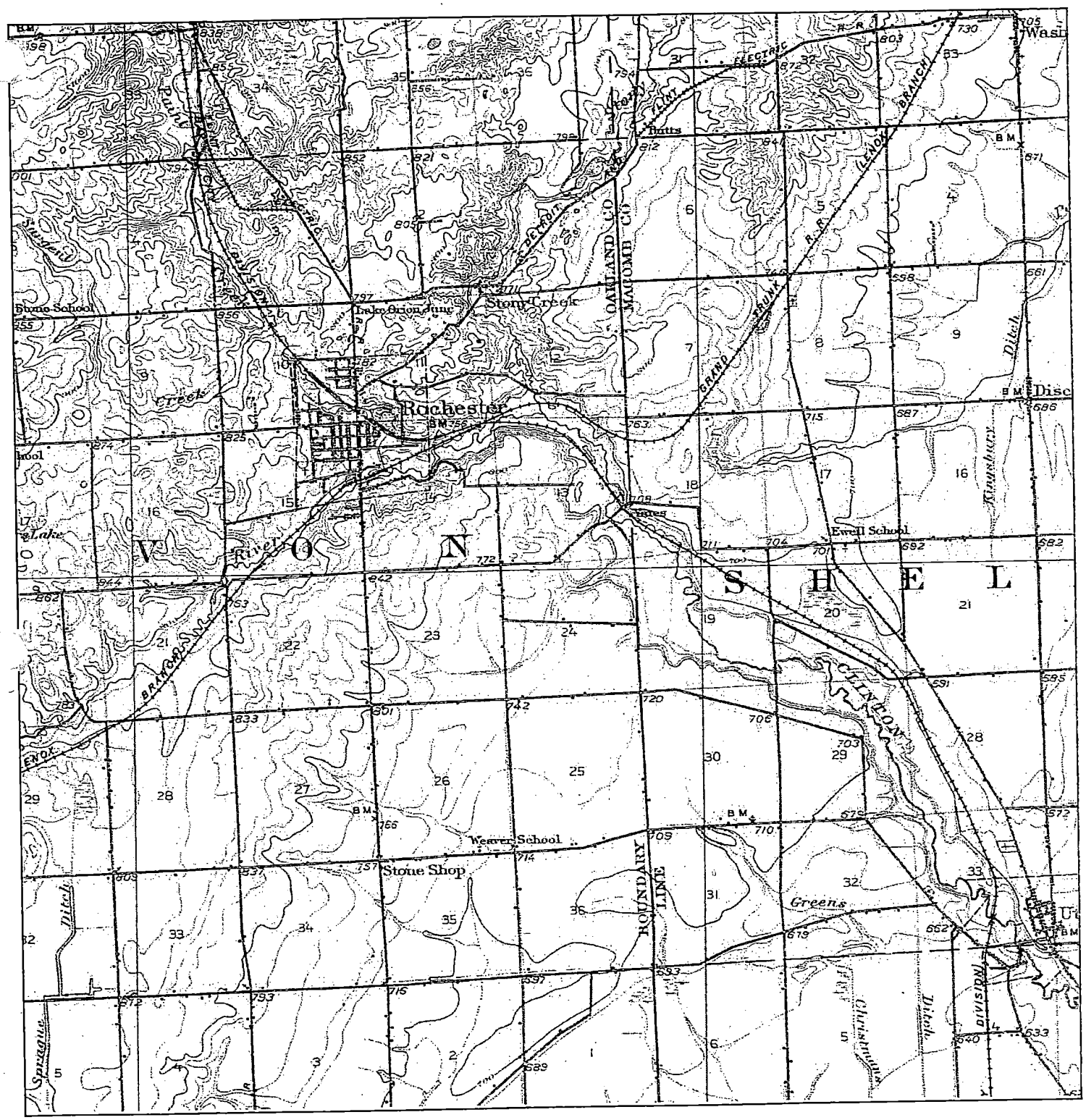
440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

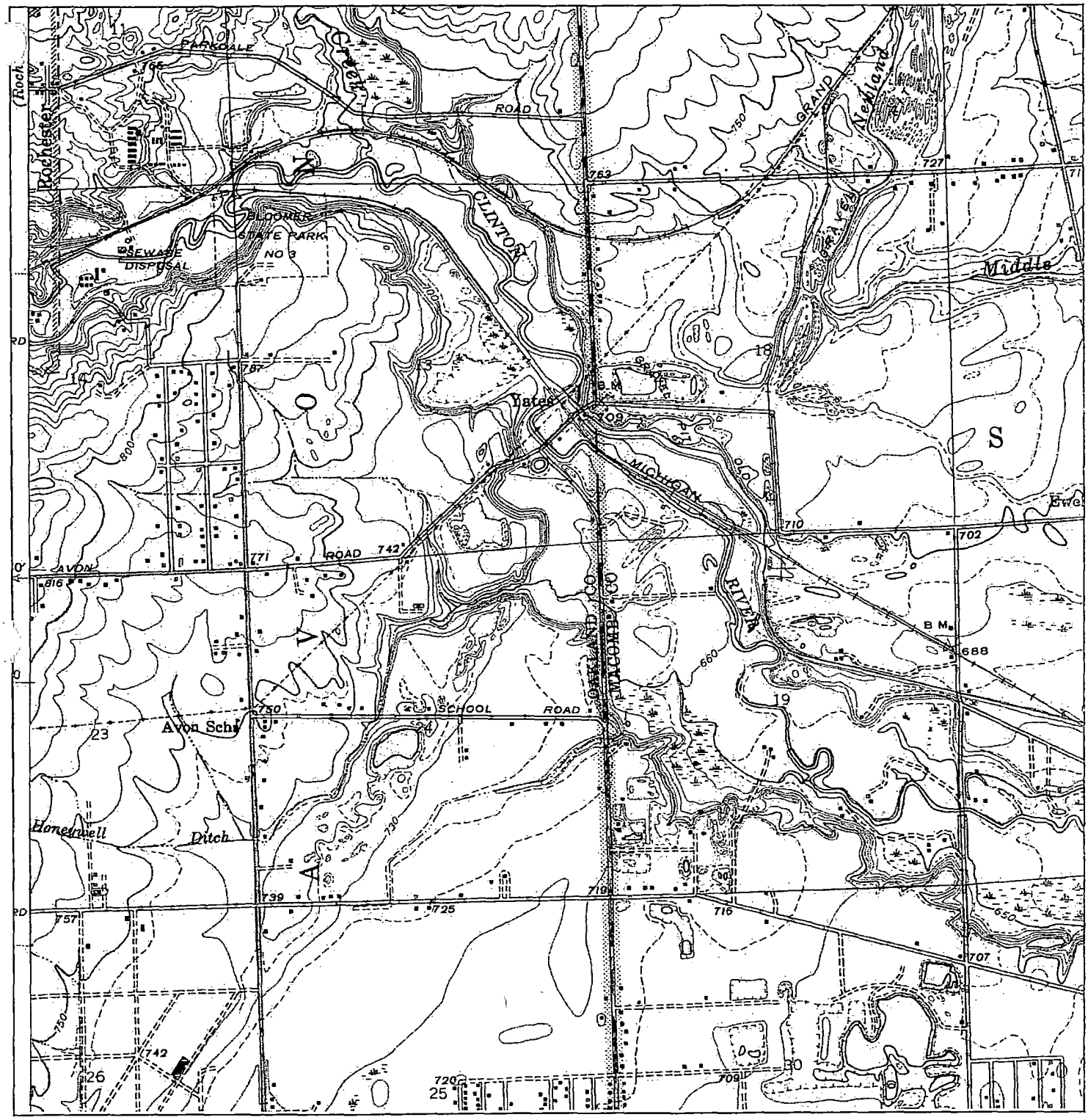
Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Historical Topographic Map



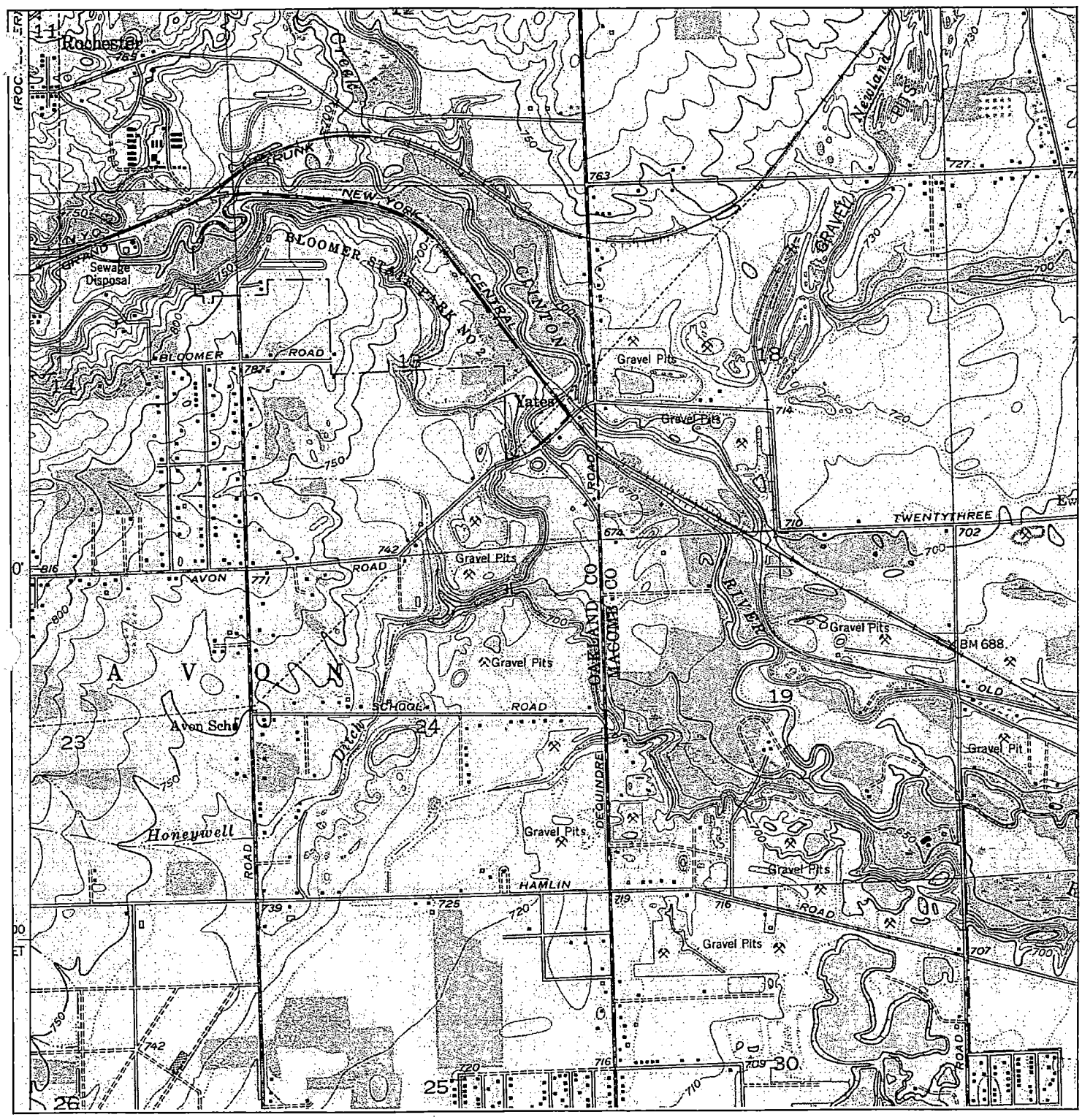
N	TARGET QUAD NAME: ROCHESTER MAP YEAR: 1908 SERIES: 15 SCALE: 1:62500	SITE NAME: Tree Farm ADDRESS: 1406 East Avon Road Rochester, MI 48307 LAT/LONG: 42.6671 / -83.106	CLIENT: MDEQ/RRD/Superfund CONTACT: Teresa Ducsay INQUIRY#: 3011544.4 RESEARCH DATE: 03/11/2011

Historical Topographic Map



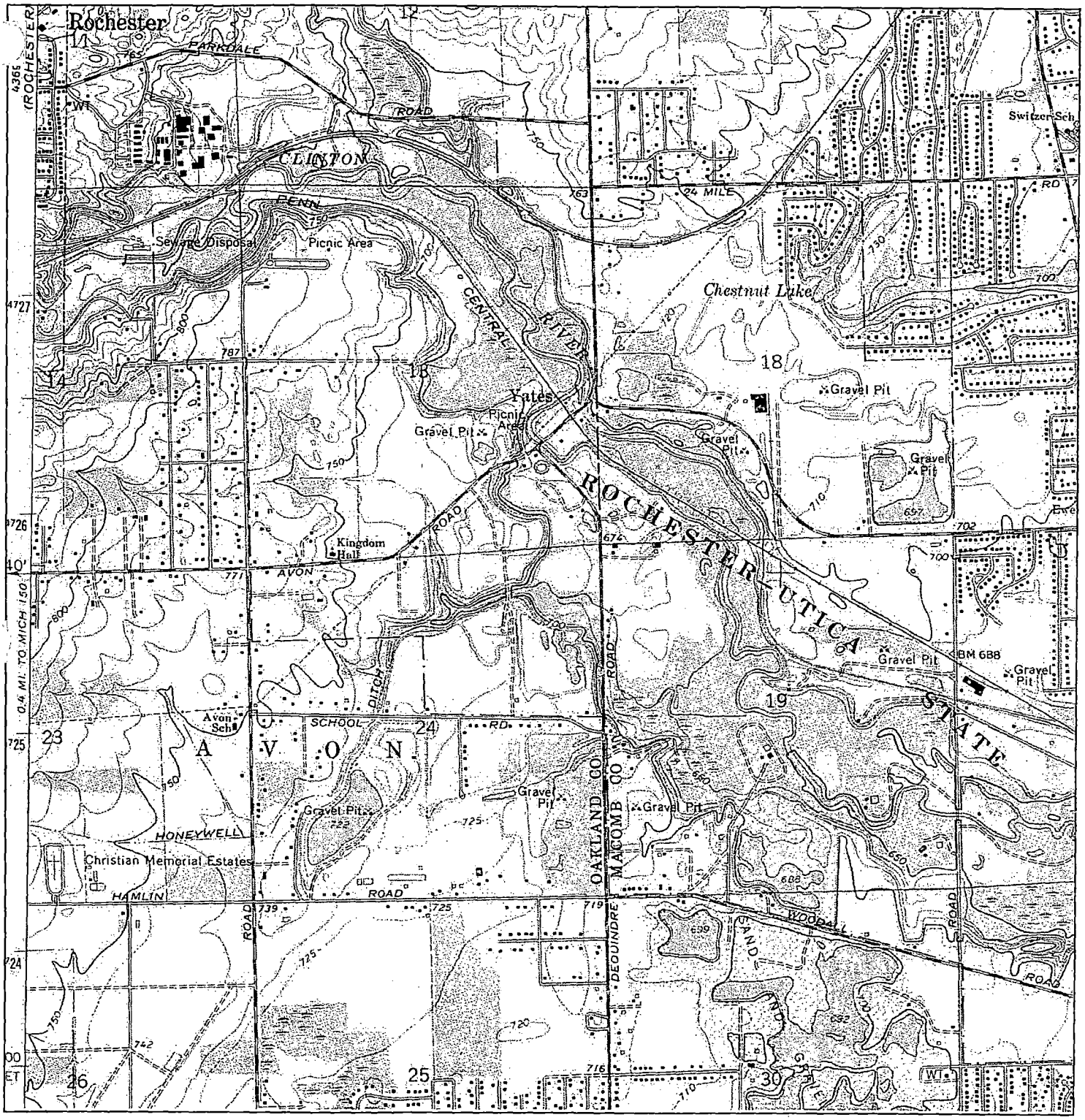
N	TARGET QUAD NAME: UTICA MAP YEAR: 1946 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Tree Farm ADDRESS: 1406 East Avon Road Rochester, MI 48307 LAT/LONG: 42.6671 / -83.106	CLIENT: MDEQ/RRD/Superfund CONTACT: Teresa Ducsay INQUIRY#: 3011544.4 RESEARCH DATE: 03/11/2011

Historical Topographic Map



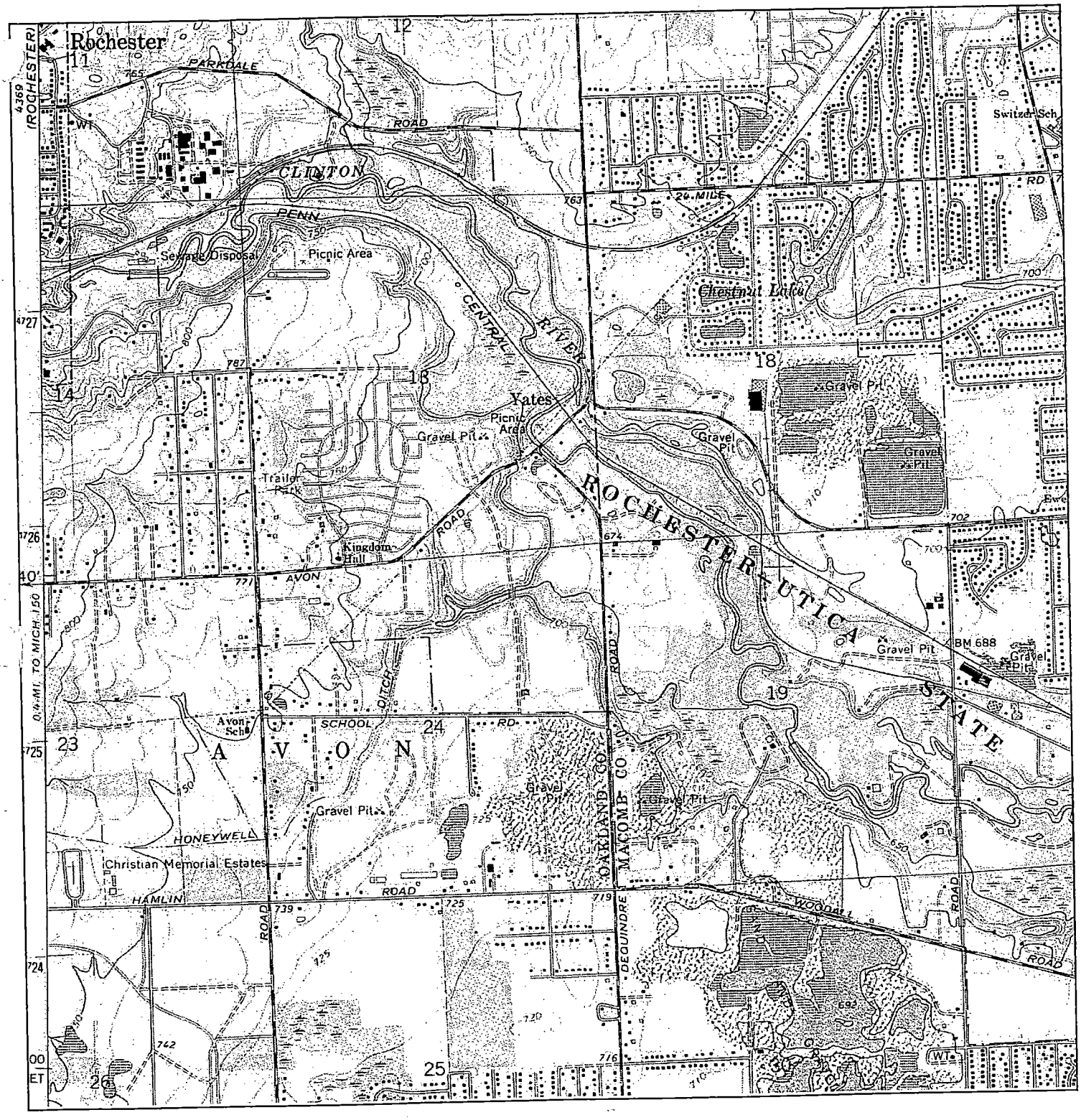
N	TARGET QUAD NAME: UTICA MAP YEAR: 1952 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Tree Farm ADDRESS: 1406 East Avon Road Rochester, MI 48307 LAT/LONG: 42.6671 / -83.106	CLIENT: MDEQ/RRD/Superfund CONTACT: Teresa Ducsay INQUIRY#: 3011544.4 RESEARCH DATE: 03/11/2011

Historical Topographic Map



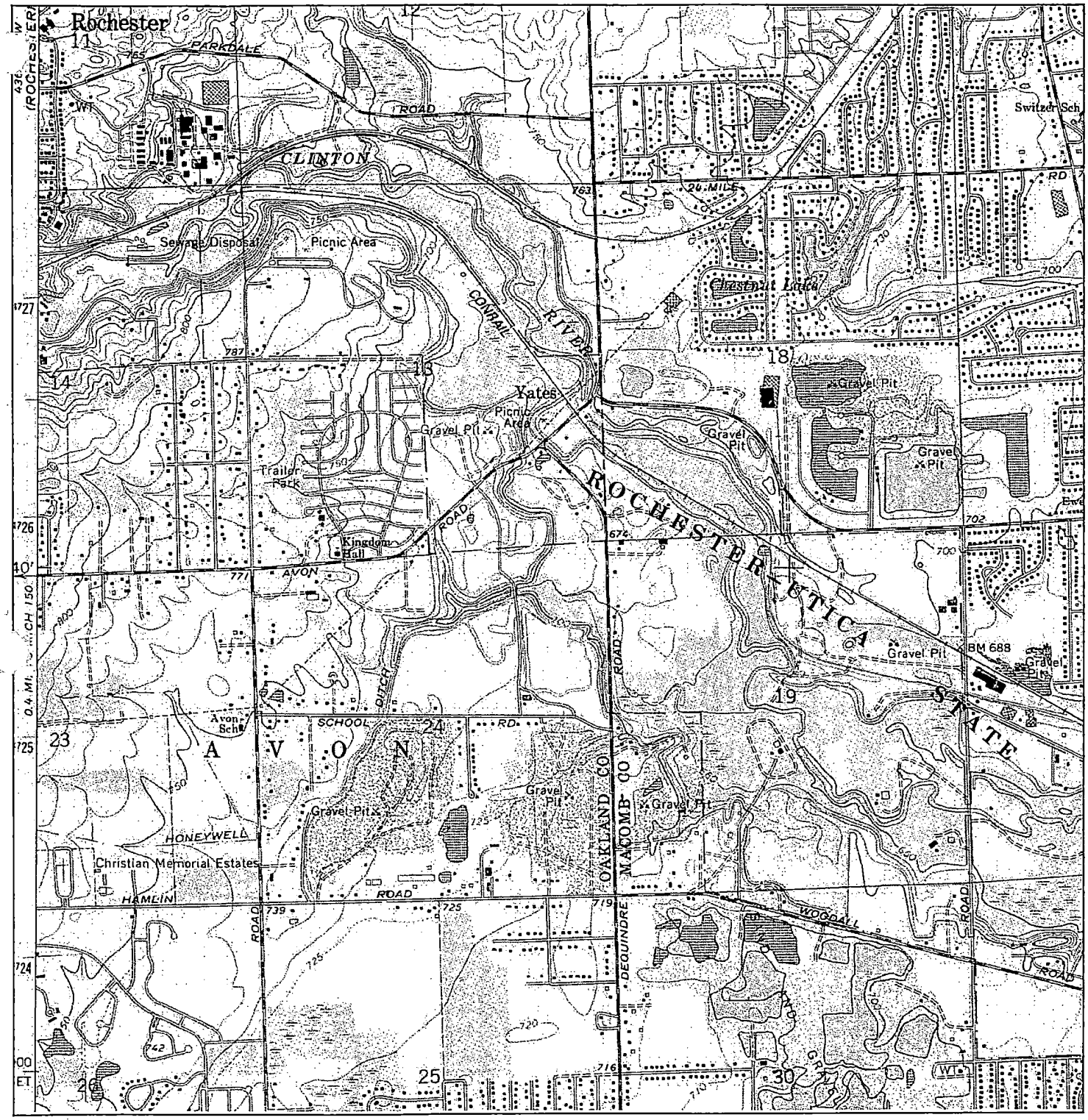
N	TARGET QUAD		SITE NAME:	Tree Farm	CLIENT:	MDEQ/RRD/Superfund
	NAME:	UTICA	ADDRESS:	1406 East Avon Road	CONTACT:	Teresa Ducsay
	MAP YEAR:	1968		Rochester, MI 48307	INQUIRY#:	3011544.4
			LAT/LONG:	42.6671 / -83.106	RESEARCH DATE:	03/11/2011
	SERIES:	7.5				
	SCALE:	1:24000				

Historical Topographic Map



N	TARGET QUAD	SITE NAME: Tree Farm	CLIENT: MDEQ/RRD/Superfund
↑	NAME: UTICA	ADDRESS: 1406 East Avon Road	CONTACT: Teresa Ducsay
	MAP YEAR: 1973	Rochester, MI 48307	INQUIRY#: 3011544.4
	PHOTOREVISED:1968	LAT/LONG: 42.6671 / -83.106	RESEARCH DATE: 03/11/2011
	SERIES: 7.5		
	SCALE: 1:24000		

Historical Topographic Map



N	TARGET QUAD NAME: UTICA MAP YEAR: 1983 PHOTOREVISED:1968 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Tree Farm ADDRESS: 1406 East Avon Road Rochester, MI 48307 LAT/LONG: 42.6671 / -83.106	CLIENT: MDEQ/RRD/Superfund CONTACT: Teresa Ducsay INQUIRY#: 3011544.4 RESEARCH DATE: 03/11/2011

Appendix B

BFRA Property Photographs

FIELD PHOTOGRAPHY LOG SHEET

PROPERTY NAME: TREE FARM
U.S. EPA ID #: MIB000000166

DATE: 03/28/2011

DIRECTION OF PHOTOGRAPH: SE

DESCRIPTION: View of entrance to the Tree Farm property with sign for address number '1406'.

DATE: 03/28/2011

DIRECTION OF PHOTOGRAPH: S

DESCRIPTION: View of entrance drive leading south into the Tree Farm property; lots vegetative cover and trees.

FIELD PHOTOGRAPHY LOG SHEET

PROPERTY NAME: TREE FARM
U.S. EPA ID #: MIB000000166

DATE: 03/28/2011

DIRECTION OF PHOTOGRAPH: SW

DESCRIPTION: View of sign posted near entrance of the Tree Farm property..

DATE: 03/28/2011

DIRECTION OF PHOTOGRAPH: SW

DESCRIPTION: View of above ground power line that runs diagonally through the Tree Farm property