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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - UNDERGROUND STORAGE TANK DIVISION

DEQ

LEAKING UNDERGROUND STORAGE TANK INITIAL ASSESSMENT REPORT

INSTRUCTIONS: COMPLETION OF THIS REPORT WITH ALL APPLICABLE INFORMATION IS MANDATORY. Complete this form with all applicable information. The Certified Underground Storage Tank Professional (CP) MUST sign below. Failure to submit a report within the stated time period may result in Administrative Penalties as provided for in Part 213, Section 21321 of Act 451, P.A. 1994 as amended.

FACILITY NAME: TC REALTY, INC. CMI-Tech Ctr.	FACILITY ID NUMBER: 0-006304
ADDRESS: 1600 W. EIGHT MILE ROAD, FERNDALE, MI COUNTY: OAKLAND	MERA SITE ID NUMBER:
DATE(S) RELEASE DISCOVERED: MARCH 28, 1996	CONFIRMED RELEASE NUMBER(S): C-185-96
O/O NAME: AS ABOVE	MUSTFA CLAIM NUMBER: NA
O/O ADDRESS: AS ABOVE	
CONTACT PERSON: Mr. JEFF NORTON	PHONE NUMBER: (810) 399-9600

ANSWER ALL QUESTIONS. (DO NOT LEAVE BLANKS):

1. Has the UST been emptied? ____ Yes _X_ No (If no, explain why): Operator error during dispensing of gasoline into UST and access port bulkhead boot failure, UST system passes tightness testing.

2. Free product present: a. Currently? ____ YES _X_ NO If YES, total gallons recovered since last report:

   b. Previously? ____ YES _X_ NO If YES, total gallons recovered to date:

3. Have vapors been identified in any confined spaces (basement, sewers)? ____ YES _X_ NO

4. State the number of homes where drinking water is or was affected as a result of a release from this facility: NONE

5. Estimated distance and direction from point of release to nearest:

   a. Private well: NA b. Municipal well: NA c. Surface water/wetland: > 2 miles

6. Since last report: a. cubic yards of soil remediated: 90 b. gallons of groundwater remediated: NONE

7. Totals to date: a. cubic yards of soil remediated: 90 b. gallons of groundwater remediated: NONE

8. Michigan RBCA Site Classification (1-4): _4_

CERTIFICATION OF REPORT COMPLETION

I, the undersigned CP, hereby attest to the best of my knowledge and belief that the statements in this document and all attachments are true, accurate and complete. I certify that it was submitted to the USTD on July 2, 1996.
(date submitted-Required)

Stephen H. Manz 7-2-96
CP Original Signature - Required Date

JOEL E. GAGNON
PRINT QC Project Manager's Name

STEPHEN H. MANZ
Stephen H. Manz
PRINT CP's Name

SWANSON ENVIRONMENTAL, INC.
CONSULTANT

24156 HAGGERTY ROAD, FARMINGTON HILLS, MI 48335
ADDRESS

(810) 478-2700
PHONE NO.

(810) 478-3819
FAX NO.

RECEIVED JUL 1996 DNR-SOUTHEAST MI DISTRICT

PLEASE RETURN THIS COMPLETED REPORT AND ASSOCIATED ATTACHMENTS TO THE APPROPRIATE USTD DISTRICT OFFICE, LISTED ON THE BACK OF THIS PAGE.

UNDERGROUND STORAGE TANK DIVISION OFFICES AND LOCATIONS

Determine in which county the UST release occurred. Return all completed forms and associated reports to the USTD office listed next to that county in the following table. Addresses for the USTD offices are listed below.

COUNTY	USTD OFFICE	COUNTY	USTD OFFICE	COUNTY	USTD OFFICE	COUNTY	USTD OFFICE
Alcona	Grayling	Dickinson	Marquette	Lake	Grayling	Oceana	Grand Rapids
Alger	Marquette	Eaton	Shiawassee	Lapeer	Shiawassee	Ogemaw	Grayling
Allegan	Plainwell	Emmet	Grayling	Leelanau	Grayling	Ontonagon	Marquette
Alpena	Grayling	Genesee	Shiawassee	Lenawee	Jackson	Osceola	Grayling
Antrim	Grayling	Gladwin	Grayling	Livingston	Shiawassee	Oscoda	Grayling
Arenac	Grayling	Gogebic	Marquette	Luce	Marquette	Otsego	Grayling
Baraga	Marquette	Grand Traverse	Grayling	Mackinac	Marquette	Ottawa	Grand Rapids
Barry	Plainwell	Gratiot	Shiawassee	Macomb	SE Michigan	Presque Isle	Grayling
Bay	Saginaw-Bay	Hillsdale	Jackson	Manistee	Grayling	Roscommon	Grayling
Benzie	Grayling	Houghton	Marquette	Marquette	Marquette	Saginaw	Saginaw-Bay
Berrien	Plainwell	Huron	Saginaw-Bay	Mason	Grayling	Sanilac	Saginaw-Bay
Branch	Jackson	Ingham	Shiawassee	Mecosta	Grand Rapids	Schoolcraft	Marquette
Calhoun	Jackson	Ionia	Grand Rapids	Menominee	Marquette	Shiawassee	Shiawassee
Cass	Plainwell	Iosco	Grayling	Midland	Saginaw-Bay	St Clair	SE Michigan
Charlevoix	Grayling	Iron	Marquette	Missaukee	Grayling	St Joseph	Plainwell
Cheboygan	Grayling	Isabella	Saginaw-Bay	Monroe	SE Michigan	Tuscola	Saginaw-Bay
Chippewa	Marquette	Jackson	Jackson	Montcalm	Grand Rapids	Van Buren	Plainwell
Clare	Grayling	Kalamazoo	Plainwell	Montmorency	Grayling	Washtenaw	Jackson
Clinton	Shiawassee	Kalkaska	Grayling	Muskegon	Grand Rapids	Wayne	SE Michigan
Crawford	Grayling	Kent	Grand Rapids	Newaygo	Grand Rapids	Wexford	Grayling
Delta	Marquette	Keweenaw	Marquette	Oakland	SE Michigan		

CADILLAC OFFICE ROUTE #1 8015 MACKINAW TRAIL CADILLAC MI 49601 616-775-9727 (PHONE) 616-775-9671 (FAX)	**JACKSON OFFICE** 301 E LOUIS GLICK HIGHWAY JACKSON MI 49201 517-780-7900 (PHONE) 517-780-7855 (FAX)	**SAGINAW BAY OFFICE** 503 N EUCLID AVE SUITE 9 BAY CITY MI 48706 517-684-9141 (PHONE) 517-684-9799 (FAX)
GAYLORD OFFICE P0 BOX 667 GAYLORD MI 49735 517-732-3541 (PHONE) 517-732-0794 (FAX)	**MARQUETTE OFFICE** 1990 US 41 SOUTH MARQUETTE MI 49855 906-228-6561 (PHONE) 906-228-5245 (FAX)	**SHIAWASSEE OFFICE** 10650 BENNETT DR MORRICE MI 48857-9792 517-625-4600 (PHONE) 517-625-5000 (FAX)
GRAND RAPIDS OFFICE 350 OTTAWA ST NW GRAND RAPIDS MI 49503 616-456-5071 (PHONE) 616-456-1239 (FAX)	**PLAINWELL OFFICE** 1342 SR-89 SUITE B PLAINWELL MI 49080-1915 616-692-2120 (PHONE) 616-692-3050 (FAX)	**SE MICHIGAN OFFICE** 38980 SEVEN MILE RD LIVONIA MI 48152 313-953-0241 (PHONE) 313-953-0243 (FAX)
GRAYLING OFFICE 1955 NORTH I-75 BL GRAYLING MI 49738 517-348-6371 (PHONE) 517-348-8825 (FAX)		

TABLE OF CONTENTS

LIST OF ATTACHMENTS

(Include as Required and Check Box if Attached)

Attachments 1, 2, 3, 4, 5, 9, 10 11, 12, 13, 14, 15, 16, 20, 21, 22, 23, 27, 28, and 29 are to be submitted if applicable.

Attachments 6, 7, 8, 17, 18, 19, 24, 25, and 26 are found in the back of this document and should be completed and submitted when necessary.

ATTACHMENT NUMBER	DESCRIPTION
1. ☐	Site Map Showing Extent of Remaining Free Product
2. ☐	Free Product Recovery System Schematic
3. ☒	Area Map Showing Site Boundaries in Relation to Nearby Area
4. ☒	Site Map Highlighting Principal Physical Features and Sampling Locations
5. ☐	Schedule for Delineation of Off-Site Soil Impacts
6. ☒	Field Screening Results Table for Soils
7. ☒	Laboratory Results Table for Soils
8. ☒	Tier I RBSL / Tier II SSTL Comparison Table for Soils
9. ☒	Site Map Showing Soil Sampling Locations, Maximum Contaminant Concentrations, and Sampling Depths
10. ☒	Site Map(s) Showing Vertical and Horizontal Distribution of Contaminants in Soil
11. ☒	Cross Sections Showing the Vertical and Horizontal Distribution of Soil Contaminants
12. ☒	Soil Boring Logs
13. ☒	Well Construction Diagrams
14. ☒	Groundwater Flow Map Showing Water Level Measurement Locations
15. ☐	Description of Hydrogeologic Factors That Could Influence Groundwater Flow
16. ☐	Schedule for Delineation of Off-Site Groundwater Impacts
17. ☐	Field Screening Results Table for Groundwater
18. ☒	Laboratory Results Table for Groundwater (Including Time Series Presentation)
19. ☒	Tier I RBSL / Tier II SSTL Comparison Table for Groundwater
20. ☒	Site Map Showing Groundwater Sampling Locations and Maximum Contaminant Concentrations
21. ☐	Cross Sections Showing the Vertical and Horizontal Distribution of Groundwater Contaminants
22. ☐	Presentation of Time Series Groundwater Results
23. ☐	Schedule for Delineation of Off-Site Impacts in Other Media
24. ☐	Field Screening Results Tables for Other Media
25. ☐	Laboratory Results Tables for Other Media
26. ☐	Tier I RBSL / Tier II SSTL Comparison Tables for Other Media
27. ☐	Site Map Showing Sampling Locations and Maximum Contaminant Concentrations for Other Media
28. ☐	Calculations Supporting the Tier II SSTLs and Evaluation
29. ☒	Work Plan for Further Site Characterization and Assessment Activity

1.0 IMMEDIATE RESPONSE TO SPILLS AND RELEASES

1.1 REPORTING AND RESPONSE TO RELEASES

A. Date and Time Release Discovered: 3 / 28 / 96 18:00 PM

B. Date and Time Release Reported: 3 / 29 / 96 16:43 PM

C. From what portion of the underground storage tank system did the release occur or is the release believed to have likely occurred?

- ☐ Piping
- ☐ Underground storage tank
- X☐ Overfill of underground storage tank (delivery of fuel from supplier)
- X☐ Other *(Specify):* Failure of access port/ secondary containment chamber piping boots.

D. Briefly describe how the release was discovered: SEI was retained by T.C. Realty, Inc. to investigate the possibility of a release of fuel from the secondary containment chambers of the USTs after fuel and water was noticed in same. SEI collected a groundwater sample from the monitor well for the UST system and shallow soil samples surrounding the two containment chambers. The samples exhibited olfactory and PID evidence of contamination and a suspected release was reported on 3/29/96. Groundwater and soil samples were submitted for laboratory analysis. Laboratory results (BTEX & MTBE) for the groundwater and soil samples confirmed the release on 4/3/96.

E. Has there been tank tightness testing performed in response to this release? (*If data is not available, answer "No".*) X☐ Yes ☐ No

If "Yes", complete questions F, G and H; otherwise skip to question I.

F. Date of the testing: 4 / 8 / 96

G. Method of testing: ALERT 1000-X (USTs) and 1050-X (piping) completed by NDE Environmental Precision Tank Testing Services.

H. Results of the testing: North and south USTs and fuel lines tested tight.

I. List the underground storage tanks at this facility and identify the tank(s) associated with this release by placing an "X" in the "LUST" column. (*Complete the last two columns for the LUST entries only*):

1.1 REPORTING AND RESPONSE TO RELEASES (Continued)

TANK ID NUMBER	CONTENTS (Regulated Substances) - Specify grade if gasoline -		LUST?	HAS THE TANK BEEN EMPTIED?	HAS THE TANK BEEN REMOVED?
(As Registered)	At Time of Release	Previous Contents	(Yes or No)	(Yes/Date or No [See J below])	(Yes/Date or No [See J below])
1	UNLEADED PREMIUM	SAME	Y	NO	NO
2	UNLEADED PREMIUM	SAME	Y	NO	NO

J. If "No" was specified in either of the last two columns for any leaking underground storage tank, provide an explanation below: Release occurred as a result of operator error during dispensing of gasoline into the UST and because of the failure of access port bulkhead rubber boots. Subsequent tightness testing confirmed the integrity of the USTs and product lines.

K. What initial response actions were performed at this site?

PURPOSE OF INITIAL RESPONSE ACTIONS	WERE ACTIONS TAKEN? (Yes/Date or No)	IF "Yes", DESCRIBE THE ACTIONS TAKEN AND THEIR RESULTS. IF "No", INDICATE WHY NOT.
To identify and mitigate fire, explosion and vapor hazards (e.g., relating to free product, vapors in nearby buildings) [324.21307(2)(a)] [324.21307(2)(c)(iii)]	YES 4/2/96	PID MEASUREMENTS IN UTILITY TUNNEL BENEATH BUILDING TO EAST OF UST -- NOTHING DETECTED.
To prevent further release and migration into the soil or groundwater, including removing product from the UST [324.21307(2)(b)] [324.21307(2)(c)(i) and (ii)]	YES 4/10-12/96	REMOVAL AND OFF-SITE DISPOSAL OF ACCESSIBLE GASOLINE - IMPACTED SOIL ABOVE AND ADJACENT TO UST's (90CY TOTAL)
To excavate and contain, treat, or dispose of visibly contaminated soil above the water table that are likely to cause a fire hazard or spread and increase the cost of corrective action [324.21307(2)(d)]	YES 4/10-12/96	SAME AS ABOVE.

REPORTING AND RESPONSE TO RELEASES (Continued)

PURPOSE OF INITIAL RESPONSE ACTIONS	WERE ACTIONS TAKEN? (Yes/Date or No)	IF "Yes", DESCRIBE THE ACTIONS TAKEN AND THEIR RESULTS. IF "No", INDICATE WHY NOT.
To abate an immediate threat to public health, safety, or welfare, or the environment [324.21307(2)(e)]	YES 4/10-12/96	REMOVAL AND OFF-SITE DISPOSAL OF ACCESSIBLE GASOLINE - IMPACTED SOILS ABOVE AND ADJACENT TO UST's

L. Has free product ever been discovered as a result of the release? ☐ Yes X☐ No

NOTE: If "No", skip to Section 2.0; if "Yes", complete questions "M" through "S":

M. Date and Time Free Product Was Discovered: _____/_____/_____ _____ AM / PM
N. Date and Time Free Product Fax Transmittal Sheet Submitted: _____/_____/_____ _____ AM / PM
O. Has there ever been free product in the on-site or off-site soils? ☐ Yes ☐ No
P. Is there currently free product in the on-site or off-site soils? ☐ Yes ☐ No
Q. Is there currently free product in or around buried underground utilities? ☐ Yes ☐ No
R. Has there ever been free product on/in the groundwater? ☐ Yes ☐ No
S. Is there currently free product on/in the groundwater? ☐ Yes ☐ No

1.2 REPORTING AND RESPONSE TO RELEASES INVOLVING FREE PRODUCT

A. What initial response actions were performed at this site to address the presence of free product?

PURPOSE OF INITIAL RESPONSE ACTIONS	WERE ACTIONS TAKEN? (Yes/Date or No)	IF "Yes", DESCRIBE THE ACTIONS TAKEN AND THEIR RESULTS. IF "No", INDICATE WHY NOT.
To identify the presence of free product [324.21307(2)(c)]		
To recover free product in a manner that minimizes the spread of contamination into previously uncontaminated zones [324.21307(2)(c)(i)]		
To utilize recovery and disposal techniques appropriate to site conditions [324.21307(2)(c)(i)]		

1.2 REPORTING AND RESPONSE TO RELEASES INVOLVING FREE PRODUCT (Continued)

PURPOSE OF INITIAL RESPONSE ACTIONS	WERE ACTIONS TAKEN? (Yes/Date or No)	IF "Yes", DESCRIBE THE ACTIONS TAKEN AND THEIR RESULTS. IF "No", INDICATE WHY NOT.
To properly treat recovery by-products as required by law (identify the type of treatment applied and the expected effluent quality) [324.21307(2)(c)(i)]		
To properly discharge recovery by-products as required by law (identify the location of all on-site and off-site discharge points and all steps taken to obtain necessary permit) [324.21307(2)(c)(iv)		
To properly dispose of recovery by-products as required by law [324.21307(2)(c)(i)]		
To handle any flammable products in a safe and competent manner to prevent fires and explosions [324.21307(2)(c)(iii)]		

B. Complete the following table relating to free product recovery:

LOCATION OF OBSERVED FREE PRODUCT (Specify ID No.)	THICKNESS OF FREE PRODUCT OBSERVED (nearest 1/8")	TYPE OF FREE PRODUCT OBSERVED	LNAPL OR DNAPL*?	QUANTITY OF FREE PRODUCT RECOVERED (gallons)
IN WELLS				
IN BOREHOLES				
IN EXCAVATIONS				
OTHER LOCATIONS (Specify)				
TOTAL FREE PRODUCT RECOVERED TO DATE				

*LNAPL = Light Non-Aqueous Phase Liquid; DNAPL = Dense Non-Aqueous Phase Liquid

1.2 REPORTING AND RESPONSE TO RELEASES INVOLVING FREE PRODUCT (Continued)

C. Has the extent of any remaining free product been defined? ☐ Yes ☐ No

D. If "Yes", include the extent of the remaining free product on the site map included as Attachment 1.

E. Describe the free product recovery system that was or is being used ☐ or is proposed ☐ *(Include a schematic as Attachment 2 if appropriate)*: _____

_____

_____

F. If "proposed", what is the planned installation date? _____/_____/_____

G. Has the recovered free product been properly disposed? ☐ Yes ☐ No

H. If "No", provide an explanation: _____

_____

_____

I. Provide the name of the person or persons responsible for implementing the free product removal measures:

Company Name _____
Company Address _____
_____
_____
Company Telephone No. ___(_____)_____
Contact Person _____
Contact Telephone No. ___(_____)_____

2.0 SITE CHARACTERIZATION INFORMATION

2.1 SITE AND AREA MAPS

A. Attach an area map (Attachment 3) and a site map (Attachment No. 4), drawn to scale, which include the following if applicable. *(If it is not possible to include all required information on one map, additional maps may be used. Use of multiple maps should be minimized.)*

- Site boundaries in relation to the surrounding area and the nearest major roads (area map)
- Location of each underground storage tank and associated piping in the leaking underground storage tank system (*prior to excavation if tanks have been removed*)
- Location of the release and the component of the underground storage tank system from which the release occurred
- Location of any other existing and former underground storage tanks at the site
- Approximate location of fill ports, dispensers, and other pertinent system component
- Location of nearby buildings, roadways, paved areas, or other structures
- Location of nearby surface waters or wetlands
- Location and possible depth of nearby underground sewers and utility lines
- Location of all wells on-site and off-site within 100 feet of the property line
- Soil, groundwater, surface water, sediment or air sample locations, as applicable

2.2 SOIL CONDITIONS AND CHARACTERISTICS

A. Is soil contamination present? X☐ Yes ☐ No

If "Yes", complete this Section; if "No", skip to Section 2.3.

B. Total volume of soil remediated or disposed to date: 90 yds^3

C. Describe any soil remediation or disposal activities performed to date: All impacted vadose zone soil that could be removed without jeopardizing the integrity of the USTs was excavated, transported off-site, and disposed of at the BFI Arbor Hills landfill. An estimated volume of 5 cubic yards of impacted, vadose zone soil remained at the eastern ends of the USTs. Impacted, saturated zone soil also remained below the water table at the eastern ends of the USTs.

D. Describe steps that have been taken, or will be taken, to secure access to off-site properties, including easements and right-of-ways, to complete the delineation of the extent of the off-site impact of the release to soil:

STEPS TAKEN OR PLANNED TO SECURE ACCESS TO OFF-SITE PROPERTIES	OFF-SITE PROPERTY OWNER'S NAME	OFF-SITE PROPERTY OWNER'S ADDRESS
N/A	N/A	N/A

2.2 SOIL CONDITIONS AND CHARACTERISTICS (Continued)

E. Provide the schedule for completing the delineation of the extent of the off-site impact of the release to soil (*indicate here or include as Attachment No. 5*): N/A

F. Attach Field Screening Results (Attachment No. 6) and Laboratory Results (Attachment No. 7) tables showing the results of all soil sampling performed to date for the listed parameters. *(NOTE: The USTD may request copies of the laboratory data sheets, chain-of-custody forms, and all available QA/QC information.)*

G. Provide in the Comparison Table for Soils (Attachment No. 8) the maximum contaminant concentrations detected to date in all soils for each listed parameter. *(NOTE: Enter "ND" with the appropriate method detection limit when the parameter was not detected, and enter "NA" when the chemical was not analyzed. In areas where remediation has occurred, do not include sample results for areas where the soil has been subsequently removed or the characteristics of the soil left in place have been altered due to the remediation.)*

H. Show the maximum concentrations, sample depths, and estimated horizontal extent of contamination in relation to the soil sampling locations on the site map included as Attachment No. 9.

I. Describe the estimated vertical extent and distribution of the soil contaminants using depth-coded site maps (Attachment No. 10), cross sections (Attachment No. 11), and/or boring logs (Attachment No. 12): A small volume (approximately 5 cubic yards) of impacted vadose zone soil occurs at the eastern ends of the USTs from a depth of 6.5 feet to the water table (approximately 9.5 feet). All other impacted vadose zone soil was removed.

J. If there is known soil contamination not related to the release, complete the following:

ON-SITE CONTAMINANTS NOT RELATED TO THE RELEASE	SOURCE OF THIS CONTAMINATION (If Known)	LOCATION OF THIS CONTAMINATION
BTEX, PNAs	FUEL OIL USTs	120 FEET EAST OF USTs

2.3 GROUNDWATER CONDITIONS AND CHARACTERISTICS

A. Has groundwater been encountered at the site? X☐ Yes ☐ No

B. If "No", provide the total depth investigated and the date of investigation:
Depth of Investigation: _____ ft BGS
Date of Investigation: _____/_____/_____

If "No", skip to Section 2.4; if "Yes", continue with Section 2.3.

C. Is the groundwater potable? ☐ Yes X☐ No
D. Is the groundwater currently a source of drinking water? ☐ Yes X☐ No
E. Is groundwater being used for a purpose other than potable drinking use? ☐ Yes X☐ No
F. Is more than one groundwater unit present beneath the site? ☐ Yes X☐ No
Based on Ethyl Corporations investigation and report. See attached generalized stratigraphic column in Attachment No. 12.

☐ Unknown

Hydrogeologic Characteristics (*if appropriate and where available*):

G. Average depth to groundwater (as measured in site well(s)): 10.0 ft BGS
H. Depth to bottom of water-bearing layer: 20 ft BGS
I. Depth to a potable groundwater unit: NA ft BGS
J. Attach copies of boring logs (Attachment No. 12) and well construction diagrams (Attachment No. 13) for all monitoring wells.

Groundwater Flow Rate and Direction:

K. Predominant soil type in water-bearing stratum (*e.g., sand, silt*): Fine-medium sand
L. Effective porosity of water-bearing stratum: 0.25 $cm^{3\ void}/cm^{3\ soil}$
M. Hydraulic conductivity (☐ measured x☐ estimated): 8×10^{-4} cm/sec
N. Lateral hydraulic flow gradient (attach a site map with groundwater flow direction and elevation data as Attachment No. 14 - USGS datum preferred): 0.013 ft/ft to EAST (direction)
O. Effective groundwater flow rate: 70 ft/yr

P. Identify hydrogeologic conditions that could influence flow direction *(describe here or attach description as Attachment No. 15):* _____

Q. Is there any indication of a vertical flow gradient? ☐ Yes X☐ No
R. If "Yes", describe: _____

2.3 GROUNDWATER CONDITIONS AND CHARACTERISTICS (Continued)

S. Has the groundwater quality been affected by the release? X☐ Yes ☐ No

If "No", skip to Section 2.4; if "Yes", continue with Section 2.3.

T. Has the groundwater quality in more than one groundwater unit been affected by the release? ☐ Yes X☐ No

U. Describe any groundwater remediation activities performed to date: NONE

V. Total volume of groundwater remediated to date: 0 gallons

W. Does the known plume currently extend off-site? ☐ Yes X☐ No ☐ Unknown

X. Describe steps that have been taken, or will be taken, to secure access to off-site properties, including easements and right-of-ways, for the purpose of completing the delineation of the extent of the release to groundwater:

STEPS TAKEN OR PLANNED TO SECURE ACCESS TO OFF-SITE PROPERTIES	OFF-SITE PROPERTY OWNER'S NAME	OFF-SITE PROPERTY OWNER'S ADDRESS
N/A	N/A	N/A

Y. Provide the schedule for completing the delineation of the extent of the off-site impact of the release to groundwater *(indicate here or include as Attachment No. 16):*

Z. Attach Field Screening Results (Attachment No. 17) and Laboratory Results (Attachment No. 18) tables showing the results of all groundwater sampling performed to date for the listed parameters. *(NOTE: The USTD may request copies of the laboratory data sheets, chain-of-custody forms, and all available QA/QC information.)*

2.3 GROUNDWATER CONDITIONS AND CHARACTERISTICS

AA. Provide in the Comparison Table for Groundwater (Attachment No. 19) the maximum contaminant concentrations detected to date in the on-site or off-site groundwater for each listed parameter. *(NOTE: Enter "ND" with the appropriate method detection limit when the parameter was not detected, and enter "NA" when the chemical was not analyzed.)*

BB. Show the maximum concentrations and the estimated aerial horizontal extent of the contaminated plume in relation to the groundwater sampling locations on the site map and include as Attachment No. 20.

CC. Describe the estimated vertical extent and distribution of the groundwater contaminants using depth-coded cross sections (Attachment No. 21) that show screened intervals of the monitoring wells. Cross sections locations should be included on the site map: _____

_____

_____

_____

DD. Were multiple groundwater sampling events conducted at the site? X☐ Yes ☐ No

EE. If "Yes", include a chronological summary of the results for each sampling location using the data tables provided in Attachment No. 18 and include as Attachment No. 22.

2.4 CONDITIONS AND CHARACTERISTICS IN OTHER ENVIRONMENTAL MEDIA

A. Is contamination present in any environmental media other than soil or groundwater?

☐ Yes X☐ No

NOTE: If "Yes", complete this Section; if "No", skip to Section 3.0.

B. What other environmental media were investigated as part of this corrective action? (*Check all that apply*):

☐ Air
☐ Surface Water
☐ Sediments
☐ Biota
☐ Other (*Specify*):_____

NOTE: For each environmental media checked, answer questions "C" through "K".

C. Total volume of each of the other specified media remediated or disposed to date (*Specify units*):_____

2.4 CONDITIONS AND CHARACTERISTICS IN OTHER ENVIRONMENTAL MEDIA (Continued)

D. Describe any remediation, treatment or disposal activities performed to date relative to each of the other specified media: _____

_____

_____

_____

_____

_____

_____

E. Describe steps that have been taken, or will be taken, to secure access to off-site properties, including easements and right-of-ways, to complete the delineation of the extent of the off-site impact of the release to the other specified environmental media:

STEPS TAKEN OR PLANNED TO SECURE ACCESS TO OFF-SITE PROPERTIES	OFF-SITE PROPERTY OWNER'S NAME	OFF-SITE PROPERTY OWNER'S ADDRESS

F. Provide the schedule for completing the delineation of the extent of the off-site impact of the release to the other specified environmental media (*indicate here or include as AttachmentNo.23*):

_____

_____

_____

G. Attach Field Screening Results (Attachment No. 24) and Laboratory Results (Attachment No. 25) tables showing the results of all sampling performed to date for the listed parameters in the other specified environmental media. *(NOTE: The USTD may request copies of the laboratory data sheets, chain-of-custody forms, and all available QA/QC information.*

H. Provide in the Comparison Table for Other Environmental Media (Attachment No. 26) the maximum contaminant concentrations detected to date in each other specified environmental media for each listed parameter. *(NOTE: Enter "ND" with the appropriate method detection limit when the parameter was not detected, and enter "NA" when the chemical was not analyzed. In areas where remediation has occurred, do not include sample results for areas where the material has been subsequently removed or the characteristics of the material left in place have been altered due to the remediation.)*

2.4 CONDITIONS AND CHARACTERISTICS IN OTHER ENVIRONMENTAL MEDIA (Continued)

I. Show the maximum concentrations, sample depths, and estimated extent of contamination in the other specified environmental media *(as appropriate)* in relation to the sampling locations on the site map included as Attachment No. 27.

J. Describe the extent and distribution of the contaminants in the other specified media:_____

_____

_____

_____

_____

K. If there is known contamination in the other specified media not related to the release, complete the following:

ON-SITE CONTAMINANTS NOT RELATED TO THE RELEASE	SOURCE OF THIS CONTAMINATION (If Known)	LOCATION OF THIS CONTAMINATION

3.0 SITE CLASSIFICATION

A. Indicate the current Site Classification Level *(See Attachment No. 10 of the "Guidance Document for Risk-Based Corrective Action at Leaking Underground Storage Tanks"):*

- ☐ Class 1: Immediate threat to human health, safety, or sensitive environmental receptors
- ☐ Class 2: Short-term threat to human health, safety, or sensitive environmental receptors
- ☐ Class 3: Long-term threat to human health, safety, or sensitive environmental receptors
- X☐ Class 4: No demonstrable long-term threat to human health, safety, or sensitive environmental receptors

NOTE: Regardless of the classification level, all reports must be submitted within the legislative time frame unless an alternate schedule is approved in writing by the USTD.

3.0 SITE CLASSIFICATION (Continued)

B. If "Class 1" is checked above, complete the following table using the instructions contained in the heading as it applies to each of the conditions or scenarios described:

CHECK BOX IF CONDITION IS CURRENTLY PRESENT	**DATE OF CLASSIFICATION**
IDENTIFY THE EVIDENCE USED TO CONFIRM THAT THE CONDITION IS OR IS NOT PRESENT AND, IF PRESENT, DESCRIBE ALL ACTIONS THAT ARE CURRENTLY BEING PERFORMED TO MITIGATE THE CONDITION	
☐ Explosive levels or concentrations of vapors that could cause acute health effects are present in a residence or facility	_____/_____/_____
☐ Explosive levels of vapors are present in subsurface utility system(s), but no building or residences are impacted	_____/_____/_____
☐ Free product is present	_____/_____/_____
☐ An active public or private water supply well, public water supply line, or public surface water intake is impacted or immediately threatened	_____/_____/_____
☐ Ambient vapor/particulate concentrations exceed concentrations of concern from an acute exposure, or safety viewpoint	_____/_____/_____
☐ Sensitive habitat or sensitive resources (sport fish, economically important species, threatened and endangered species, surface water, wetlands, etc.) are impacted and affected	_____/_____/_____

3.0 SITE CLASSIFICATION (Continued)

C. If "Class 2", "Class 3", or "Class 4" is checked above, complete the following table with respect to the current site classification level using the criteria and prescribed scenarios presented in Attachment No. 10 of the "Guidance Document for Risk-Based Corrective Action at Leaking Underground Storage Tanks":

IDENTIFY THE CURRENT CONDITION(S) THAT LED TO THE CLASSIFICATION	IDENTIFY THE PRESCRIBED INITIAL RESPONSE ACTION AND THE DATE THE ACTION WAS IMPLEMENTED
Water- bearing unit is a non-potable aquifer in an area supplied by municipal water.	Followed satutory reporting requirements.
All impacted soil < 6.5 feet bgs has been excavated and disposed of off-site.	Excavated and disposed of the majority of and most impacted of the vadose zone soil.
No known aquifer occurs below the site.	
Groundwater in a non-potable aquifer has been impacted. Extent has been defined and is limited to the site.	

4.0 RESULTS OF THE TIER I OR TIER II EVALUATION

4.1 EXPOSURE PATHWAY CHARACTERIZATION

A. Check all that apply to this site:

Potential Source(s):

- X☐ Impacted Soils
- X☐ Dissolved Groundwater Plume
- ☐ Free Phase Liquid Plume
- ☐ Impacted Sediments or Surface Water
- ☐ Other *(Specify)*: _____

Potential Transport Mechanism(s)

- X☐ Wind Erosion and Atmospheric Dispersion
- X☐ Volatilization and Atmospheric Dispersion
- X☐ Volatilization and Enclosed-Space Accumulation
- X☐ Leaching and Groundwater Transport
- ☐ Mobile Free-Liquid Migration
- ☐ Stormwater/Surface Water Transport
- X☐ Utility Corridors
- ☐ Other *(Specify)*: _____

Potential Exposure Routes(s)

- X Soil Ingestion
- X Direct Contact of Soil with Skin
- X Inhalation of Airborne Particulates
- X Inhalation of Volatiles
- ☐ Potable Water Use
- X Use of Non-Potable Water
- ☐ Other *(Specify)*: _____

Potential Receptor(s)

- ☐ Resident
- X Commercial Worker III*
- ☐ Commercial Worker IV*
- X Industrial Worker
- X Construction Worker
- ☐ Sensitive Habitat
- X Structures
- X Utilities
- ☐ Surface Waters
- ☐ Water Supply Wells
- ☐ Other *(Specify)*: _____

* As defined in Attachment No. 11 to the "Guidance Document for Risk-Based Corrective Action at Leaking Underground Storage Tanks"

NOTE: A pathway must include three necessary elements:

1) a source (e.g., contamination);

2) a mechanism by which the contamination can become available to result in exposures at the source or via migration to other locations (e.g., free product and contaminated groundwater movement along a buried utility corridor); and

3) an individual who may come into contact, ingest, or inhale the contamination at the point of exposure (e.g., a utility maintenance worker digging to repair the line).

Examples of a complete pathway include:

1. *inhalation of impacted soils by an on-site construction worker*
2. *impacted soils leaching into potable ground water and being used by a nearby resident for drinking and bathing*
3. *inhalation of vapors resulting from the migration of free product by a neighboring industrial worker*
4. *impacted groundwater discharging to wetlands*

B. List the most plausible potential residential exposure pathway(s) for the site: NONE

_____

_____

4.1 EXPOSURE PATHWAY CHARACTERIZATION (Continued)

C. List the most plausible potential commercial exposure pathway(s) for the site: Inhalation of vapors from impacted subsurface soil and groundwater which might accumulate within adjacent building(s).

D. List the most plausible potential industrial exposure pathway(s) for the site: _____
AS ABOVE

E. List the most plausible potential sensitive habitat exposure pathway(s) for the site: NONE

4.2 OPTIONAL TIER II EVALUATION

A. Has a site-specific Tier II evaluation been conducted for this Initial Assessment Report?
☐ Yes X☐ No

B. If "Yes", identify and justify where alternate assumptions or site-specific information was used in place of the default assumptions as defined in Attachment No. 11 of "Guidance Document For Risk-Based Corrective Action At Leaking Underground Storage Tanks":

ASSUMPTION	DEFAULT USTD TIER I SELECTION	ALTERNATE SELECTION	JUSTIFICATION OR BASIS FOR SUBSTITUTION *(Attach sheets if needed)*

C. Include the calculations supporting the development of Tier II SSTLs as Attachment No. 28.

4.3 IDENTIFICATION OF TIER I RISK-BASED SCREENING LEVELS OR TIER II SITE-SPECIFIC TARGET LEVELS AND COMPARISON TO SITE DATA

A. For each contaminated medium, complete a Tier I RBSL / Tier II SSTL Comparison Table (Attachment No. 8 for soil, Attachment No. 19 for groundwater or Attachment No. 26 for other media, as appropriate) by:

Checking the box associated with the applicable land use scenario;

- Checking the boxes associated with the contaminants currently present at the site;
- Entering the current maximum detected on-site or off-site concentration for each selected contaminant, along with the corresponding sample identification number and date of sampling;
- Entering the lowest applicable RBSL value for soil or groundwater from the Tier I Look-Up Tables (*refer to Attachment No. 11 of the "Guidance Document For Risk-Based Corrective Action At Leaking Underground Storage Tanks"*) for the specific exposure routes present and environmental medium being considered or a corresponding optional Tier II SSTL. [*NOTE: Include the exposure route code that identifies the basis for each applicable criterion noted. For example, 12 ug/kg (A) for a cleanup goal based on the direct contact with soil exposure route, and 12 ug/kg (B) for a cleanup goal based on the soil leaching to groundwater exposure route*];
- Comparing the contaminant-specific maximum concentration to the corresponding RBSL or SSTL criterion; and Identifying and recording whether or not there is an exceedence of the RBSL or the SSTL.

B. Tier I RBSL / Tier II SSTL Comparison Tables are attached for the following: *(Check all that apply)*

	ENVIRONMENTAL MEDIUM		
LAND USE	**SOIL**	**GROUNDWATER**	**OTHER** *(Specify)*
Residential	☐	☐	
Commercial III	☐	☐	
Commercial IV	☐	☐	
Industrial	☐X	☐X	

4.4 PROPOSED FOLLOW-UP ACTIVITIES

A. Based on the results of the Tier I or optional Tier II evaluation, indicate the follow-up activities proposed for the site:

☐ Site conditions do not exceed Tier I RBSLs or Tier II SSTLs	Proceed with site closure
☐ Site conditions exceed some or all Tier I RBSLs or Tier II SSTLs	Propose interim corrective action and subsequent reevaluation of the site **(Complete Section 5.0)**
☐ Site conditions exceed some or all Tier I RBSLs or Tier II SSTLs	Propose final corrective action to achieve Tier I RBSLs or Tier II SSTLs **(Complete Section 5.0)**
☐X Site conditions exceed some or all Tier I RBSLs or Tier II SSTLs	Perform further site-specific Tier II or Tier III evaluation to establish alternative SSTLs that meet the target risk goals **(Complete Section 5.0)**

4.4 PROPOSED FOLLOW-UP ACTIVITIES (Continued)

B. Provide justification for the option chosen *(attach additional sheets, if needed):* _____

_____

_____

_____

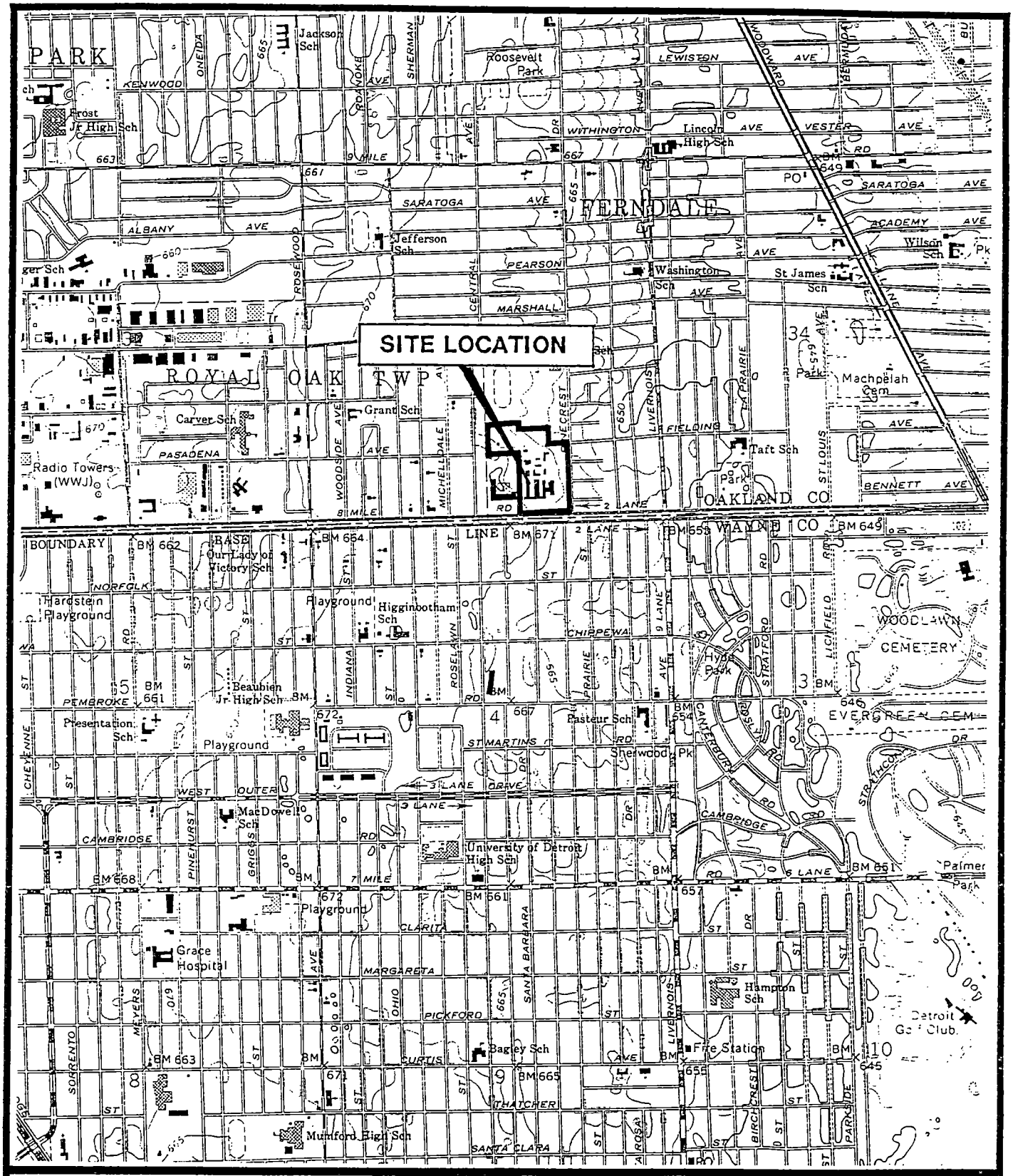
_____

_____

5.0 WORK PLAN FOR FURTHER SITE CHARACTERIZATION AND ASSESSMENT ACTIVITY

If an interim or final corrective action or a further Tier II evaluation is proposed, additional on-site or off-site characterization work may be required to obtain the information needed to establish alternate protective clean-up levels or to select and implement a cost-effective corrective action program. In these cases, a Work Plan must be developed to describe the proposed additional site characterization activities.

A. Provide a brief Work Plan and implementation schedule (Attachment No. 29) that describes the proposed site characterization activities to be performed to determine the horizontal and vertical extent of contamination, and establish the site conditions needed to prepare a Corrective Action Plan.



SOURCE: BASED ON U.S.G.S. 7.5 MINUTE TOPOGRAPHIC MAP, ROYAL OAK, MICHIGAN QUADRANGLE, 1968, PHOTOREVISED 1981.

LEGEND

APPROXIMATE PROPERTY LINE

0 2000

FEET

NORTH

SWANSON ENVIRONMENTAL INC.

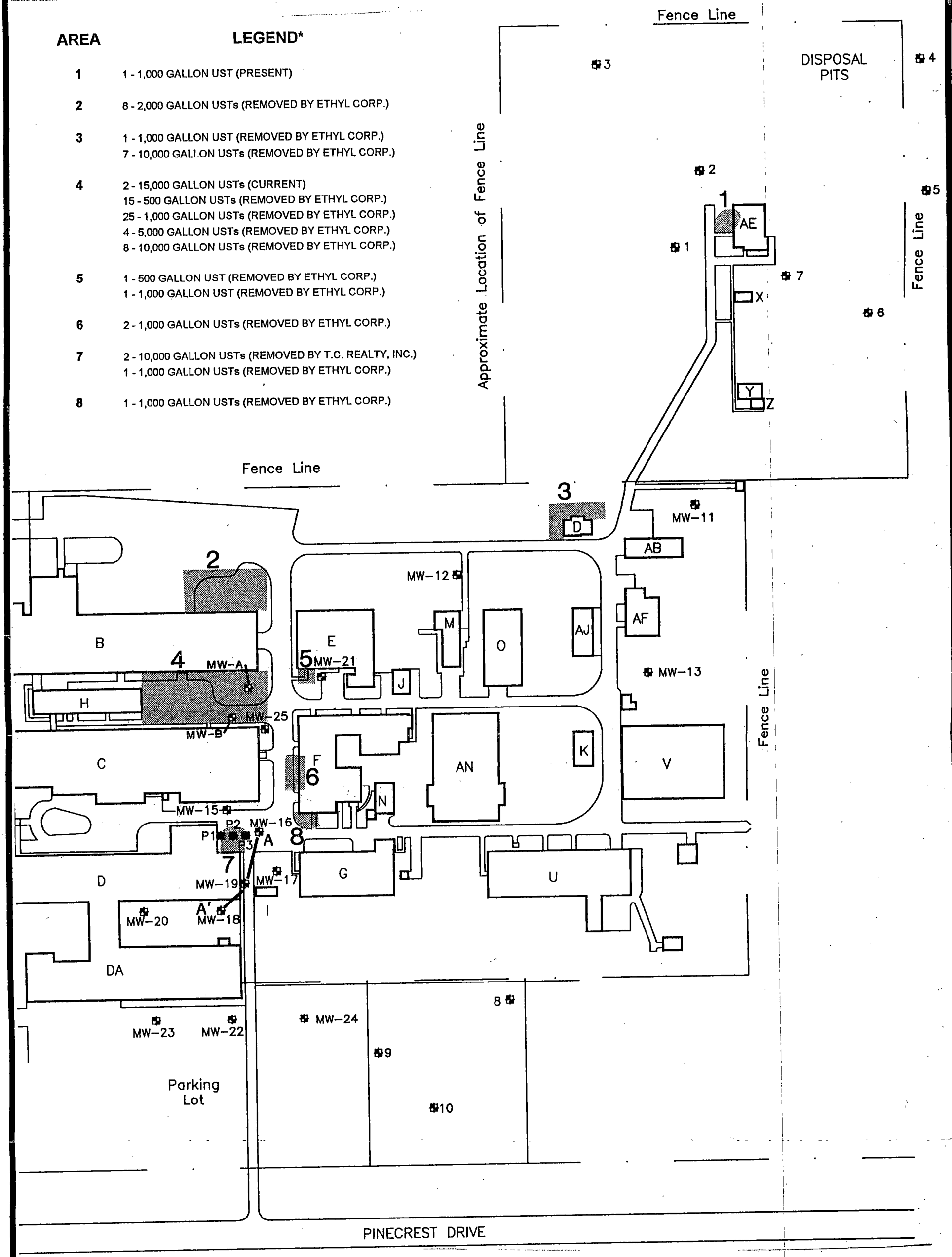
ATTACHMENT 3

AREA MAP

1600 WEST 8 MILE ROAD
FERNDALE, MICHIGAN

scale	1" = 2000'	date drawn	5/11/93
drawn by	JZB	job no.	MH 7838

AREA	LEGEND*
1	1 - 1,000 GALLON UST (PRESENT)
2	8 - 2,000 GALLON USTs (REMOVED BY ETHYL CORP.)
3	1 - 1,000 GALLON UST (REMOVED BY ETHYL CORP.) 7 - 10,000 GALLON USTs (REMOVED BY ETHYL CORP.)
4	2 - 15,000 GALLON USTs (CURRENT) 15 - 500 GALLON USTs (REMOVED BY ETHYL CORP.) 25 - 1,000 GALLON USTs (REMOVED BY ETHYL CORP.) 4 - 5,000 GALLON USTs (REMOVED BY ETHYL CORP.) 8 - 10,000 GALLON USTs (REMOVED BY ETHYL CORP.)
5	1 - 500 GALLON UST (REMOVED BY ETHYL CORP.) 1 - 1,000 GALLON UST (REMOVED BY ETHYL CORP.)
6	2 - 1,000 GALLON USTs (REMOVED BY ETHYL CORP.)
7	2 - 10,000 GALLON USTs (REMOVED BY T.C. REALTY, INC.) 1 - 1,000 GALLON USTs (REMOVED BY ETHYL CORP.)
8	1 - 1,000 GALLON USTs (REMOVED BY ETHYL CORP.)



*NOTE: The list of former and existing USTs located at the site is to TC Realty, Inc.'s best knowledge, information and belief and after receiving information from the former property owner, Ethyl Corporation.

0 NORTH 100 FEET

LEGEND

APPROXIMATE LOCATION OF FORMER/CURRENT UST(S)

A ——— A' CROSS SECTION LOCATION

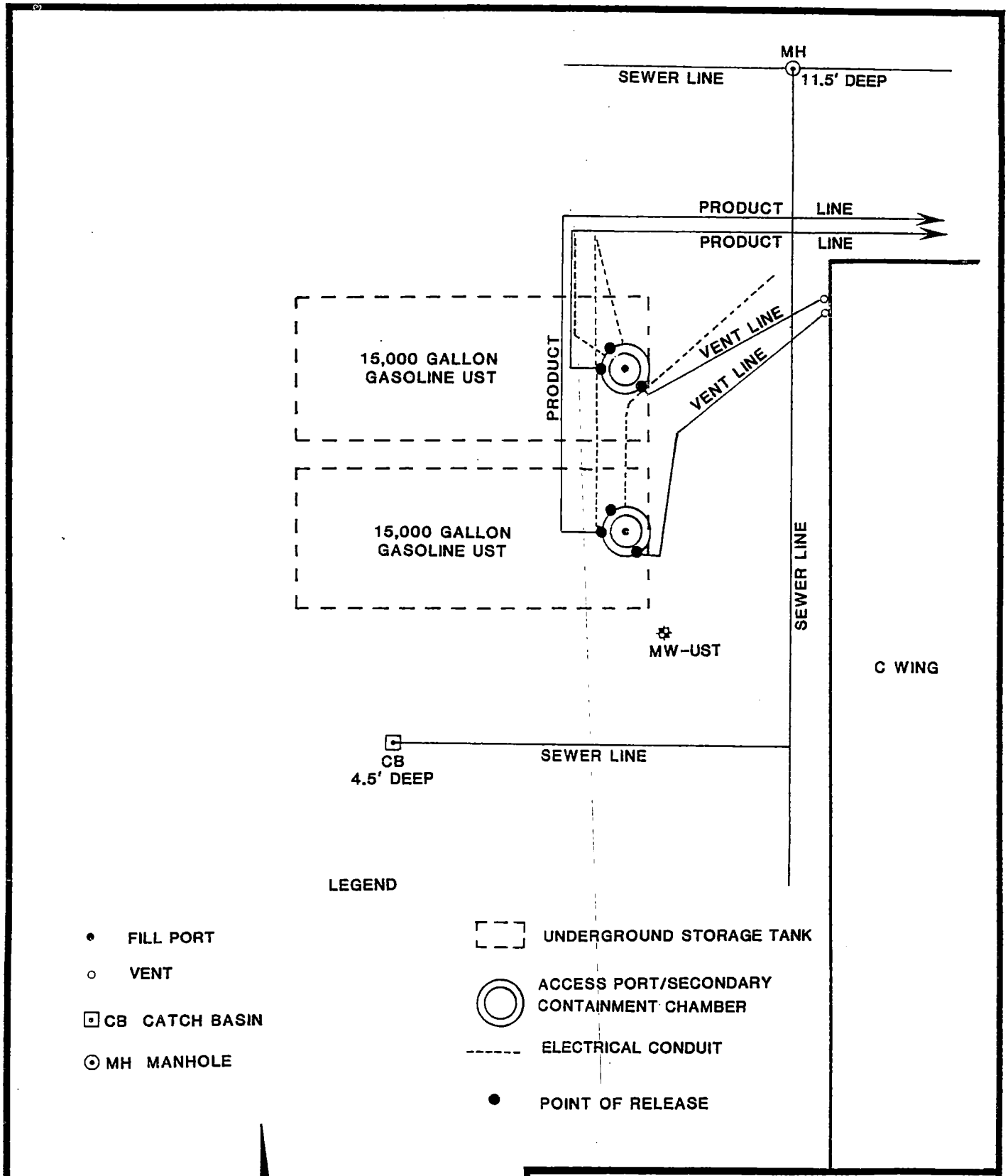
SWANSON ENVIRONMENTAL INC.

ATTACHMENT 4A

SITE MAP

1600 WEST 8 MILE ROAD
FERNDALE, MICHIGAN

scale	1" = 100'	date drawn	6/20/96
drawn by	JZB	job no.	MH 8905



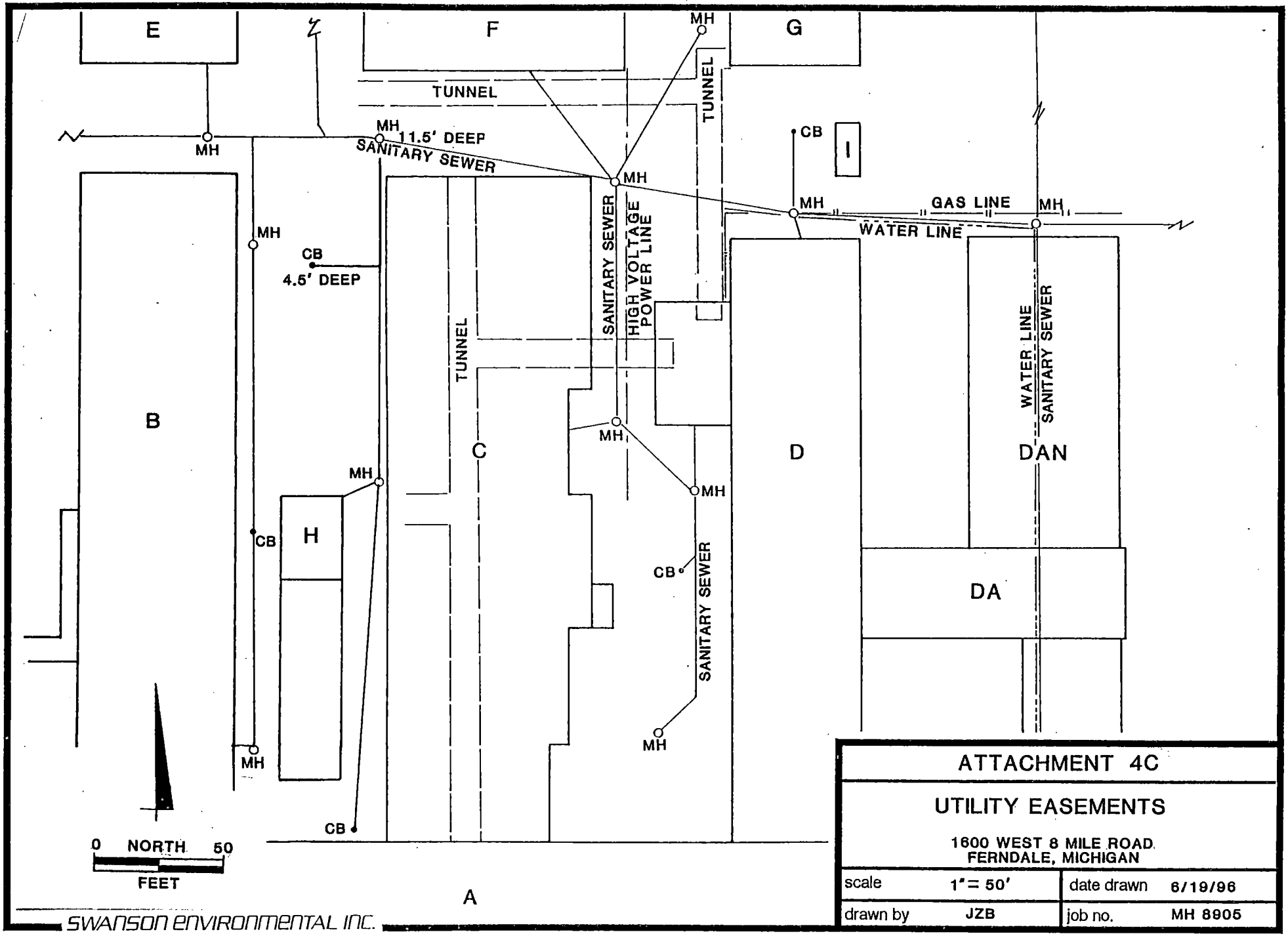
ATTACHMENT 4B

SITE MAP

1600 WEST 8 MILE ROAD
FERNDALE, MICHIGAN

scale	1" = 10'	date drawn	5/2/96
drawn by	JZB	job no.	MH 8809

SWANSON ENVIRONMENTAL INC.



SWANSON ENVIRONMENTAL INC.

ATTACHMENT 4C

UTILITY EASEMENTS

1600 WEST 8 MILE ROAD
FERNDALE, MICHIGAN

scale	1" = 50'	date drawn	6/19/96
drawn by	JZB	job no.	MH 8905

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 6
FIELD SCREENING RESULTS - SOIL
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

Sample ID	BOTTOM-1		BOTTOM-2		NUST		SUST		EW-2	
Sample Depth (feet BGS)	9.5		9.5		9		6.5		6	
Date Collected	4/11/96		4/11/96		5/17/96		5/17/96		4/11/96	
Date Analyzed	4/11/96		4/11/96		5/17/96		5/17/96		4/11/96	
Collection Method*	GS		GS		HA		HA		GS	
Screening Instrument	HNU		HNU		HNU		HNU		HNU	
CONSTITUENT	Result	D.L	Result	D.L	Result	D.L	Result	D.L	Result	D.L
Total Organics (ppm)	80	0.2	75	0.2	180	0.2	250	0.2	1	0.2
Benzene (ppb)										
Ethylbenzene (ppb)										
Toluene (ppb)										
Total Xylenes (ppb)										
Other *(Specify)*										

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 6
FIELD SCREENING RESULTS - SOIL
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

Sample ID	WW-3		WW-4		NW-1		NE CORNER		BTWN TANKS	
Sample Depth (feet BGS)	3		3		3.2		5		9.5	
Date Collected	4/12/96		4/12/96		4/12/96		4/11/96		4/11/96	
Date Analyzed	4/12/96		4/12/96		4/12/96		4/11/96		4/11/96	
Collection Method*	GS		GS		GS		GS		GS	
Screening Instrument	HNU		HNU		HNU		HNU		HNU	
CONSTITUENT	Result	D.L	Result	D.L	Result	D.L	Result	D.L	Result	D.L
Total Organics (ppm)	0.8	0.2	1	0.2	1	0.2	1	0.2	85	0.2
Benzene (ppb)										
Ethylbenzene (ppb)										
Toluene (ppb)										
Total Xylenes (ppb)										
Other *(Specify)*										

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 6
FIELD SCREENING RESULTS - SOIL
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

Sample ID	SW-1		SW-2		EW-1		WW-1		WW-2	
Sample Depth (feet BGS)	6		4		6		6		6	
Date Collected	4/11/96		4/11/96		4/11/96		4/11/96		4/11/96	
Date Analyzed	4/11/96		4/11/96		4/11/96		4/11/96		4/11/96	
Collection Method*	GS		GS		GS		GS		GS	
Screening Instrument	HNU		HNU		HNU		HNU		HNU	
CONSTITUENT	Result	D.L	Result	D.L	Result	D.L	Result	D.L	Result	D.L
Total Organics (ppm)	0.5	0.2	0.5	0.2	1	0.2	1	0.2	3	0.2
Benzene (ppb)										
Ethylbenzene (ppb)										
Toluene (ppb)										
Total Xylenes (ppb)										
Other *(Specify)*										

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 7
LABORATORY RESULTS-SOIL
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

VOLATILES										
Sample ID	SW-1		SW-2		EW-1		WW-1		WW-2	
Sample Depth (feet BGS)	6		4		6		6		6	
Date Collected	4/11/96		4/11/96		4/11/96		4/11/96		4/1196	
Date Extracted	4/11/96		4/11/96		4/11/96		4/11/96		4/11/96	
Date Analyzed	4/11/96		4/11/96		4/11/96		4/11/96		4/17/96	
Analytical Method No.	8020		8020		8020		8020		8020	
Collection Method*	GS		GS		GS		GS		GS	
CONSTITUENT (ug/kg)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
X☐ Benzene	ND	10	ND	10	ND	10	ND	10	ND	10
X☐ Toluene	ND	10	ND	10	ND	10	ND	10	ND	10
X☐ Ethylbenzene	ND	10	ND	10	ND	10	ND	10	ND	10
X☐ Total Xylenes	ND	30	ND	30	ND	30	ND	30	ND	30
X☐ MTBE	ND	100	ND	100	ND	100	ND	100	ND	100
POLYNUCLEAR AROMATICS (PNAs)										
Sample ID										
Sample Depth (feet BGS)										
Date Collected										
Date Extracted										
Date Analyzed										
Analytical Method No.										
Collection Method*										
CONSTITUENT (ug/kg)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
☐ Acenaphthene										
☐ Acenaphthylene										
☐ Anthracene										
☐ Benzo(a)anthracene										
☐ Benzo(a)pyrene										
☐ Benzo(b)fluoranthene										
☐ Benzo(g,h,i)perylene										
☐ Benzo(k)fluoranthene										

BGS=Below Ground Surface
D.L. = Detection Limit
* Collection Method Codes (Select all that apply): Bailer (BL), Geoprobe (GP), Purge Pump (PP), Cone Penetrometer (CP), Hydropunch (HP)
If Other (OT), specify here: _____

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 7
LABORATORY RESULTS-SOIL
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

VOLATILES										
Sample ID	WW-3		WW-4		NW-1		NE CORNER		BTWN TANKS	
Sample Depth (feet BGS)	3		3		3.2		5		9.5	
Date Collected	4/12/96		4/12/96		4/12/96		4/11/96		4/1196	
Date Extracted	- -		- -		- -		4/11/96		4/11/96	
Date Analyzed	4/17/96		4/17/96		4/17/96		4/11/96		4/17/96	
Analytical Method No.	8020		8020		8020		8020		8020	
Collection Method*	GS		GS		GS		GS		GS	
CONSTITUENT (ug/kg)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
X☐ Benzene	ND	10	ND	10	ND	10	ND	10	14	10
X☐ Toluene	ND	10	ND	10	ND	10	ND	10	170	10
X☐ Ethylbenzene	ND	10	ND	10	ND	10	ND	10	14	10
X☐ Total Xylenes	ND	30	ND	30	ND	30	ND	30	100	30
X☐ MTBE	ND	100	ND	100	ND	100	ND	100	1000	100
POLYNUCLEAR AROMATICS (PNAs)										
Sample ID										
Sample Depth (feet BGS)										
Date Collected										
Date Extracted										
Date Analyzed										
Analytical Method No.										
Collection Method*										
CONSTITUENT (ug/kg)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
☐ Acenaphthene										
☐ Acenaphthylene										
☐ Anthracene										
☐ Benzo(a)anthracene										
☐ Benzo(a)pyrene										
☐ Benzo(b)fluoranthene										
☐ Benzo(g,h,i)perylene										
☐ Benzo(k)fluoranthene										

BGS=Below Ground Surface
D.L. = Detection Limit
* Collection Method Codes (Select all that apply): Bailer (BL), Geoprobe (GP), Purge Pump (PP), Cone Penetrometer (CP), Hydropunch (HP)
If Other (OT), specify here: _____

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 7
LABORATORY RESULTS-SOIL
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

VOLATILES										
Sample ID	BOTTOM-1		BOTTOM-2		NUST		SUST		EW-2	
Sample Depth (feet BGS)	9.5		9.5		9		6.5		6	
Date Collected	4/11/96		4/11/96		5/17/96		5/17/96		4/1196	
Date Extracted	--		--		--		--		--	
Date Analyzed	4/19/96		4/21/96		5/21/96		5/21/96		4/17/96	
Analytical Method No.	8020		8020		8020		8020		8020	
Collection Method*	GS		GS		GS		GS		GS	
CONSTITUENT (ug/kg)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
X☐ Benzene	ND	10	ND	10	ND	40	ND	10	ND	10
X☐ Toluene	ND	10	ND	10	ND	40	840	10	ND	10
X☐ Ethylbenzene	ND	10	ND	10	ND	40	670	10	ND	10
X☐ Total Xylenes	ND	30	ND	30	14000	120	55000	30	ND	30
X☐ MTBE	ND	100	ND	100	ND	400	ND	100	ND	100
POLYNUCLEAR AROMATICS (PNAs)										
Sample ID										
Sample Depth (feet BGS)										
Date Collected										
Date Extracted										
Date Analyzed										
Analytical Method No.										
Collection Method*										
CONSTITUENT (ug/kg)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
☐ Acenaphthene										
☐ Acenaphthylene										
☐ Anthracene										
☐ Benzo(a)anthracene										
☐ Benzo(a)pyrene										
☐ Benzo(b)fluoranthene										
☐ Benzo(g,h,i)perylene										
☐ Benzo(k)fluoranthene										

BGS=Below Ground Surface
D.L. = Detection Limit
* Collection Method Codes (Select all that apply): Bailer (BL), Geoprobe (GP), Purge Pump (PP), Cone Penetrometer (CP), Hydropunch (HP)
If Other (OT), specify here: _____

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 8
TIER I RBSL/TIER II OR TIER III SSTL COMPARISON TABLE FOR SOILS
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

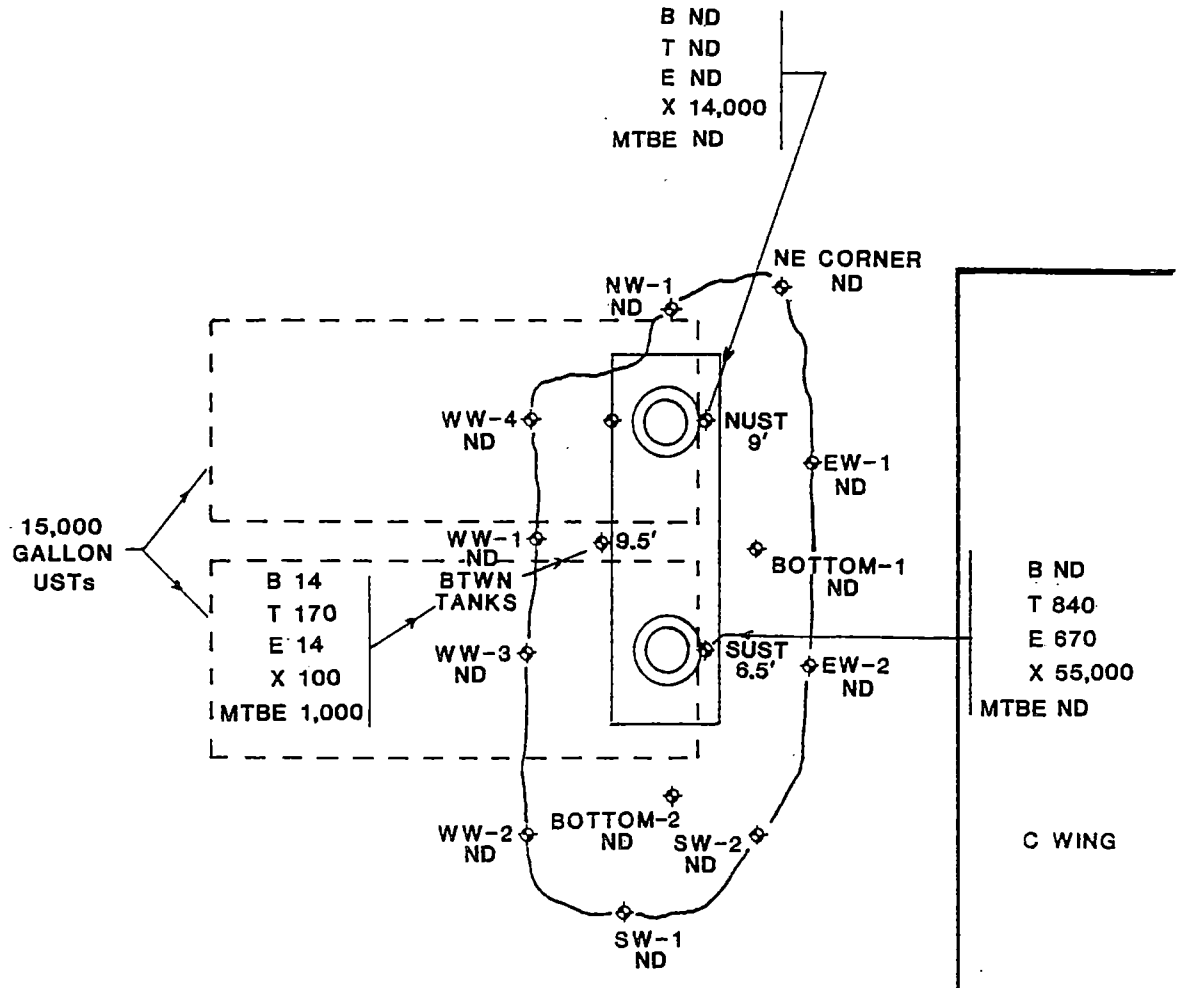
☐ **Residential** ☐ **Commercial III** ☐ **Commercial IV** X☐ **Industrial**

Exposure Codes

A. Direct Contact **B. Soil Leaching to Potable Groundwater**

Contaminant	Sample ID with Maximum Detected Concentration	Corresponding Sample Date	Maximum Detected Concentration (ug/kg)	Applicable Criterion with Exposure Codes (ug/kg)		Criterion Exceeded? (Yes or No)	
				Tier I RBSL	Tier II/III SSTL	Tier I RBSL	Tier II/III SSTL
VOLATILES							
X☐ Benzene	BTWN TANKS	4/11/96	14	100 B		NO	
X☐ Toluene	SUST	5/17/96	840	16000 B		NO	
X☐ Ethylbenzene	SUST	5/17/96	670	4700 B		NO	
X☐ Total Xylenes	SUST	5/17/96	55000	74000 B		NO	
X☐ MTBE	BTWN TANKS	4/11/96	1000	13800 B		NO	
POLYNUCLEAR AROMATICS (PNAs)							
☐ Acenaphthene							
☐ Acenaphthylene							
☐ Anthracene							
☐ Benzo(a)anthracene							
☐ Benzo(a)pyrene							
☐ Benzo(b)fluoranthene							
☐ Benzo(g,h,i)perylene							
☐ Benzo(k)fluoranthene							
☐ Chrysene							
☐ Dibenzo-(a,h)anthracene							
☐ Fluoranthene							
☐ Fluorene							
☐ Indeno(1,2,3- cd)pyrene							
☐ Naphthalene							

BGS=Below Ground Surface
D.L. = Detection Limit
* Collection Method Codes (Select all that apply): Bailer (BL), Geoprobe (GP), Purge Pump (PP), Cone Penetrometer (CP), Hydropunch (HP)
If Other (OT), specify here: _____



LEGEND

- EXCAVATION SOIL SAMPLE LOCATION
- LIMIT OF EXCAVATION
- MONITOR WELL LOCATION

ALL CONCENTRATIONS IN mg/kg (ppm)

ND NOT DETECTED

0 NORTH 10

FEET

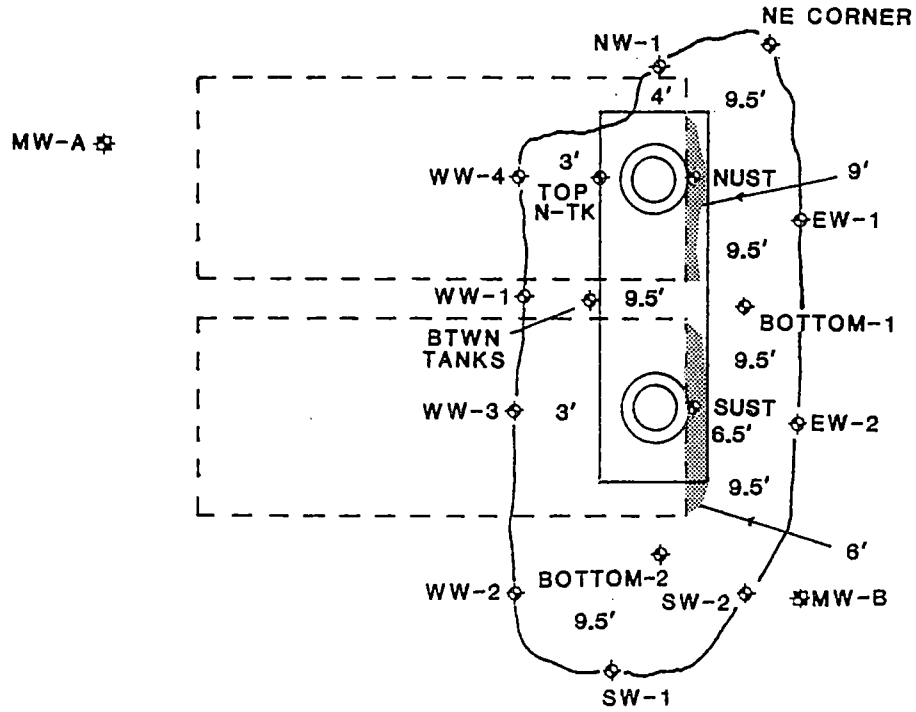
SWANSON ENVIRONMENTAL INC.

ATTACHMENT 9

SOIL SAMPLE LOCATIONS AND RESIDUAL BTEX/MTBE CONCENTRATIONS

1600 WEST 8 MILE ROAD
FERNDALE, MICHIGAN

scale	1" = 10'	date drawn	5/2/96
drawn by	JZB	job no.	MH 8809



LEGEND

- EXCAVATION SOIL SAMPLE LOCATION
- LIMIT OF EXCAVATION
- MONITOR WELL LOCATION
- RESIDUAL GASOLINE IMPACTED VADOSE ZONE SOILS

ALL DEPTHS ARE MEASURED BELOW SURFACE GRADE

0 NORTH 10
FEET

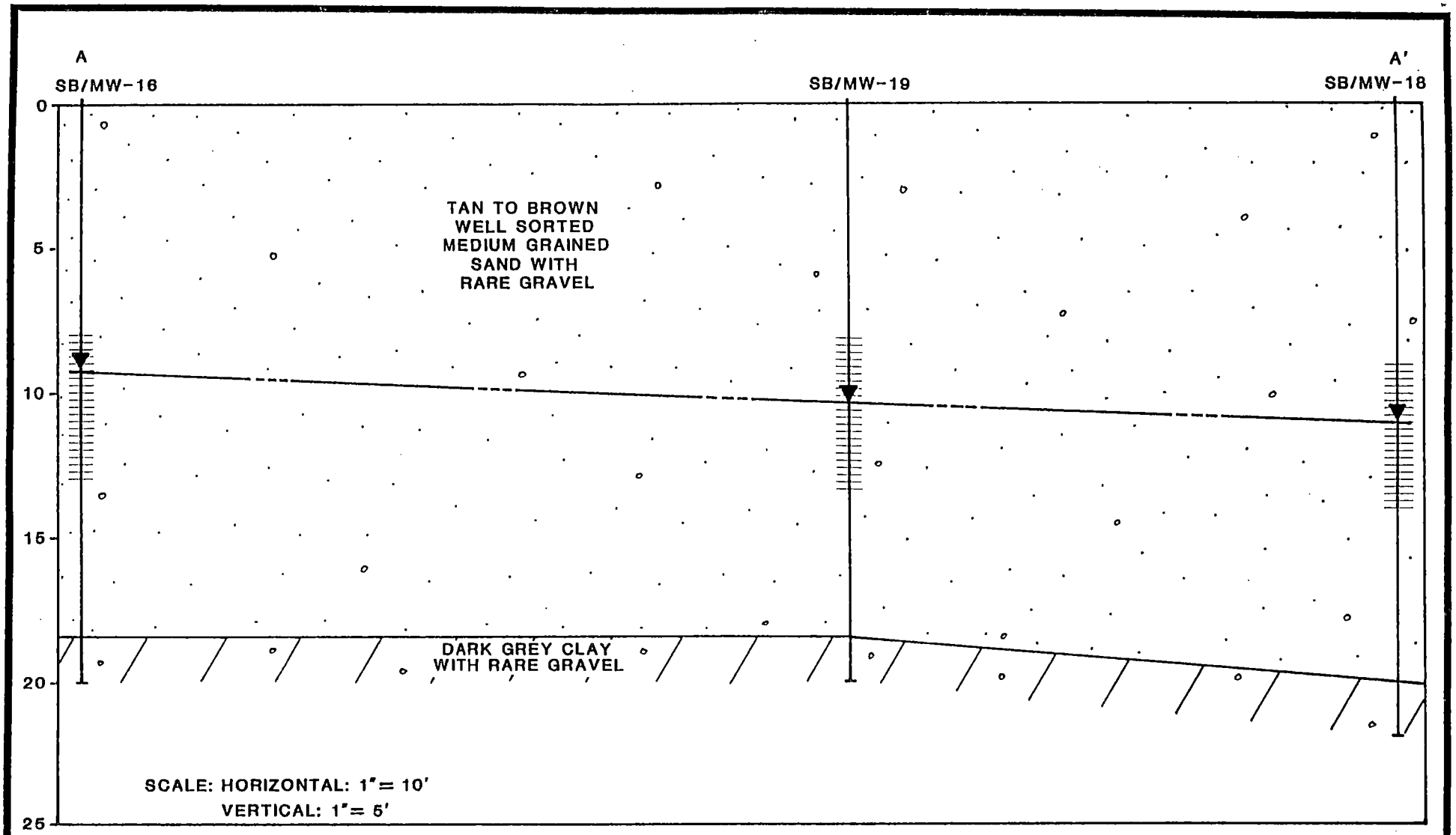
SWANSON ENVIRONMENTAL INC.

ATTACHMENT 10

APPROXIMATE AREAL EXTENT OF VADOSE ZONE CONTAMINATION

1600 WEST 8 MILE ROAD
FERNDALE, MICHIGAN

scale	1" = 10'	date drawn	5/2/96
drawn by	JZB	job no.	MH 8809



ATTACHMENT 11

GEOLOGIC CROSS SECTION

1600 WEST 8 MILE ROAD
FERNDALE, MICHIGAN

scale	SEE ABOVE	date drawn	9/7/93
drawn by	JZB	job no.	MH 7926

SWANSON ENVIRONMENTAL INC.

DRAWING NUMBER 436233 A3

CHECKED BY | APPROVED BY

HLK 11/3/87

DRAWN BY

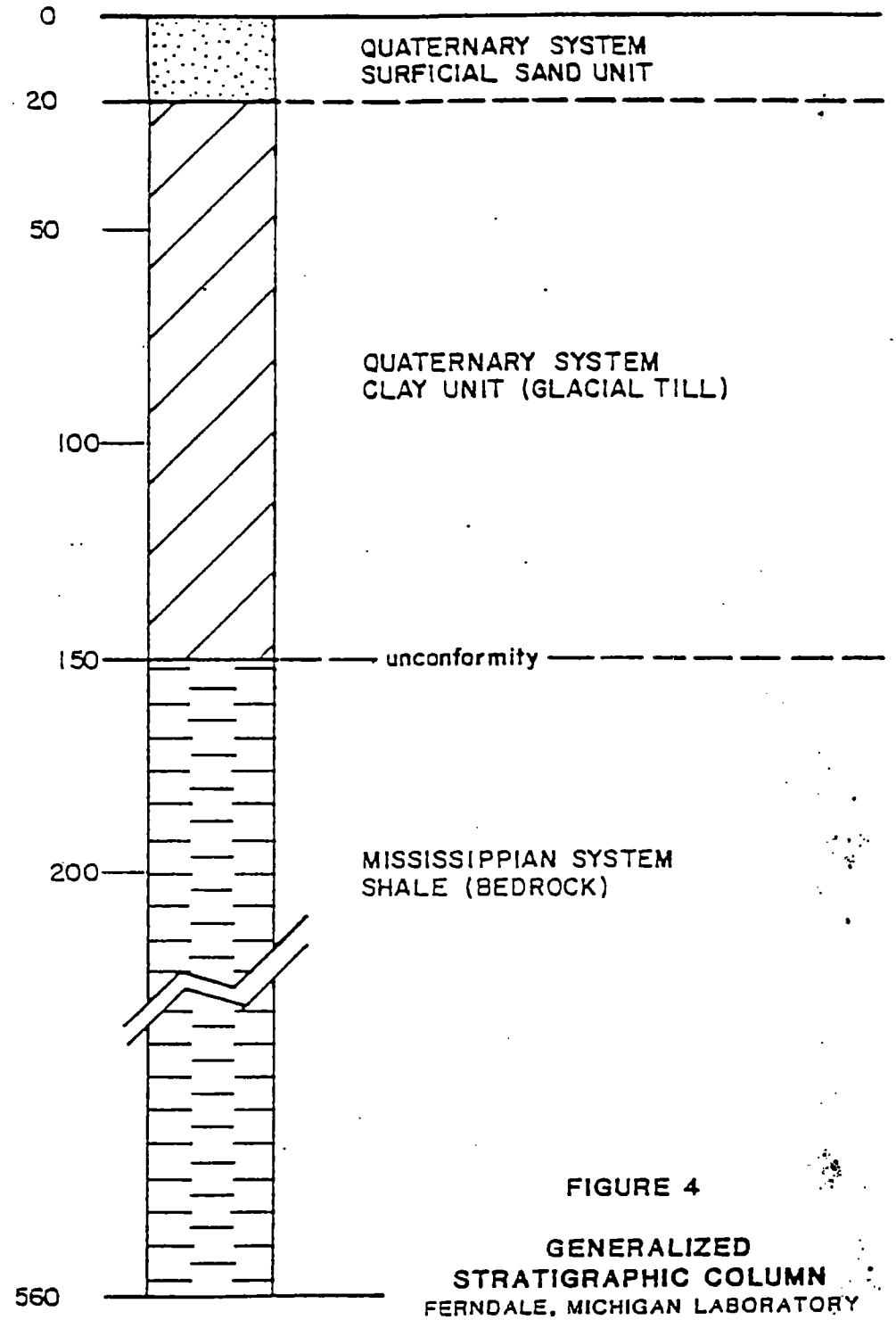


FIGURE 4

GENERALIZED
STRATIGRAPHIC COLUMN
FERNDALE, MICHIGAN LABORATORY

PREPARED FOR

ETHYL CORPORATION

BATON ROUGE, LOUISIANA

NOTE: THIS STRATIGRAPHIC COLUMN WAS DEVELOPED FROM A 1941 WATER WELL BORING LOG AND A 1954 BEDROCK GEOLOGY MAP CONSTRUCTED BY THE MICHIGAN GEOLOGICAL SURVEY.

IT ... Creating a Safer Tomorrow

Do Not Scale This Drawing

SWANSON ENVIRONMENTAL, INC.

SOIL BORING LOG

WELL INSTALLATION AND COMPLETION DATA

Client : TC Realty
Well No. : SB-21/MW-21
Total Depth : 20 feet
Casing Size & Type : 2" PVC

Site : Ferndale
Location : E of Bldg E
Screen Length : 5 feet
Field Geo./Eng. : DPQ

Job No. : MH-8242
Driller : McDowell
Ground Elev. : N/A
Org. Vap. Instr. : HNu

Date Drilled : 10/27/94
Method : HSA
Top of Casing Elev. : 667.91'
11/28/94

Depth (feet)	Samp. No.	Blows per 6" 140 lbs.	Sample Interval	Adv./ Recov.	Org. Vap. PPM	Sample Description	Strata Change	Remarks
0		2-2-3-4		90%	0.0	6" of dark silty topsoil with root material	OL	
2		4-3-4-4		80%	0.0	yellow to gold to tan/brown fine to medium grained, well sorted, sand with some silt	SP	
4		10-10-12-12		80%	0.0			
6		4-4-4-4		100%	0.0			
8	9-9.5'	3-2-3-1		100%	0.0			sat'd @ 9'
10		1-1-1-1		75%	0.0			
12		2-2-1-1		50%	0.0			
14		7-14-20-23		100%	0.0			
16		5-13-21-30		100%	0.0			
18	19-19.5	17-16-15-15		100%	0.0	grey plastic, clay w/ trace of gravel, dry	CL	
20								

BOTTOM OF BORE HOLE

SWANSON ENVIRONMENTAL, INC.

SOIL BORING LOG

WELL INSTALLATION AND COMPLETION DATA

Client : TC Realty
Well No. : SB-25/MW-25
Total Depth : 20 feet
Casing Size & Type : 2" PVC

Site : Ferndale
Location : SE of SB-21
Screen Length : 5 feet
Field Geo./Eng. : DPQ

Job No. : MH-8242
Driller : McDowell
Ground Elev. : N/A
Org. Vap. Instr. : HNu

Date Drilled : 10/29/94
Method : HSA
Top of Casing Elev. : 668.34'
11/28/94

Depth (feet)	Samp. No.	Blows per 6" 140 lbs.	Sample Interval	Adv./ Recov.	Org. Vap. PPM	Sample Description	Strata Change	Remarks
0		6-5-6-5		100%	0.0	6" of dark silty topsoil with root material	OL	
2		6-5-9-15		50%	0.0	yellow to gold to tan/brown fine to medium grained, well sorted, sand with some silt	SP	
4		7-8-7-8		70%	0.0			
6		3-4-5-5		100%	0.0			
8		4-5-8-10		100%	0.0			
10	10-10.5	6-9-14-19		75%	0.0			sat'd @ 10'
12		10-12-18-21		80%	0.0			
14		12-18-25-32		100%	0.0			
16		8-18-22-26		100%	0.0			
18	19-19.5	9-12-15-30		100%	0.0	grey plastic, clay w/ trace of gravel, dry	CL	
20								

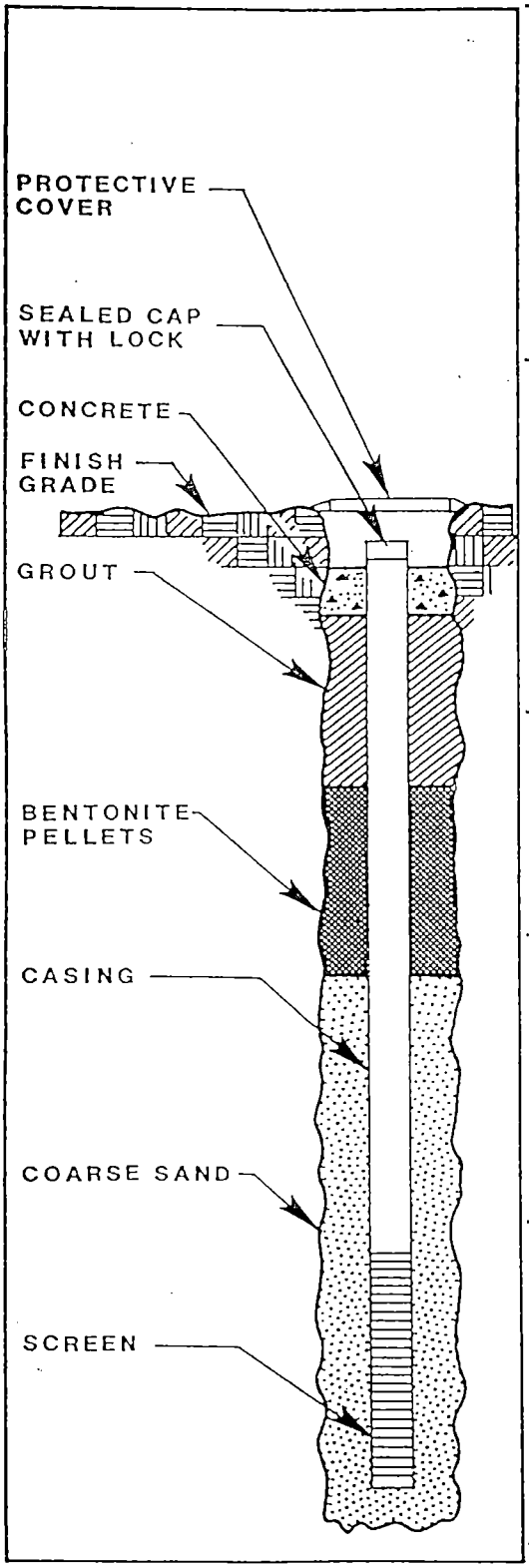
BOTTOM OF BORE HOLE

SWANSON ENVIRONMENTAL, INC.

WELL INSTALLATION LOG

09/02/93

WELL NO.: MW-15/SB-15 LOCATION : Near Bldg C OWNER : TC Realty PROJECT : TCR/Ferndale



DRILLING SUMMARY

DRILLERS : McDowell	DRILLING METHOD : HSA
RIG TYPE : CME 55	BIT : Drag Bit
DRILLING FLUID : N/A	QUANTITY : N/A
BOREHOLE DIAMETER : 8.25"	TOTAL DEPTH : 20 feet
SUPERVISING GEOLOGIST : DPQ	
LOG BOOK : NUMBER : 4	PAGES :

WELL CONSTRUCTION

CASING : MAT.: PVC	DIA. : 2"	LENGTH : 8 feet
SCREEN : MAT.: PVC	DIA. : 2"	LENGTH : 5 feet
	SLOT : 0.010"	SETTING : 8-13 feet
FILTER : MAT.: silica sand	AMT. : 3.5 bgs	SETTING : 7-13 feet
SEAL : MAT.: bent. pellets	AMT. : 1 bucket	SETTING : 6-7 feet
GROUT : MAT.: bent. slurry	AMT. : 1 bg	SETTING : 3-6 feet

ELEVATIONS

GROUND SURFACE :	WATER LEVEL (7/26/93) : 91.27'
TOP OF WELL : 100.38'	BOTTOM OF SCREEN :

TIME LOG

DRILLING : DATE STARTED :	7/12/93	DATE COMPLETED :	7/12/93
DATE INSTALLED :	7/12/93	DATE GROUTED :	7/12/93
DEVELOPMENT : DATE :	7/12/93	TIME :	.5 hrs
DATE :		TIME :	

WELL DEVELOPMENT

METHOD : surge and bailed
EQUIPMENT : decontaminated bailer
PUMPING RATE : N/A
VOLUME REMOVED : 5 gals
REMARKS : fair recharge, no sheen or odor

SWANSON ENVIRONMENTAL, INC.

SOIL BORING LOG

WELL INSTALLATION AND COMPLETION DATA

Client : TC Realty
Well No. : SB-15/MW-15
Total Depth : 13 feet
Casing Size & Type : 2" PVC

Site : Ferndale
Location : Near Bldg C
Screen Length : 5 feet
Field Geo./Eng. : DPQ

Job No. : MH-7926
Driller : McDowell
Ground Elev. : N/A
Org. Vap. Instr. : HNu

Date Drilled : 7/12/93
Method : HSA
Top of Casing Elev. : 99.63'
10/26/93

Depth (feet)	Samp. No.	Blows per 6" 140 lbs.	Sample Interval	Adv./ Recov.	Org. Vap. PPM	Sample Description	Strata Change	Remarks
0						hand auger to 5 feet	SM	
						tan to brown, well sorted, medium sand		
2						rare gravel to 1/8" in diameter, trace of silt, dry		
4		1-1-2-5		70%	0.0			
6		6-6-2-8		60%	0.0			
8	8-10	4-11-8-4		80%	0.0			sat'd @ 9.75
10		5-9-18-24		70%	0.0			
12		10-20-18-35		90%	0.0			
14		2-2-5-14		100%	0.0			
16		6-8-6-25		100%	0.0			
18	18-20	5-8-9-12		100%	0.0	last 4" grey, stiff, compact, moist clay	CL	
						trace of gravel to 1/8" diameter		
20								

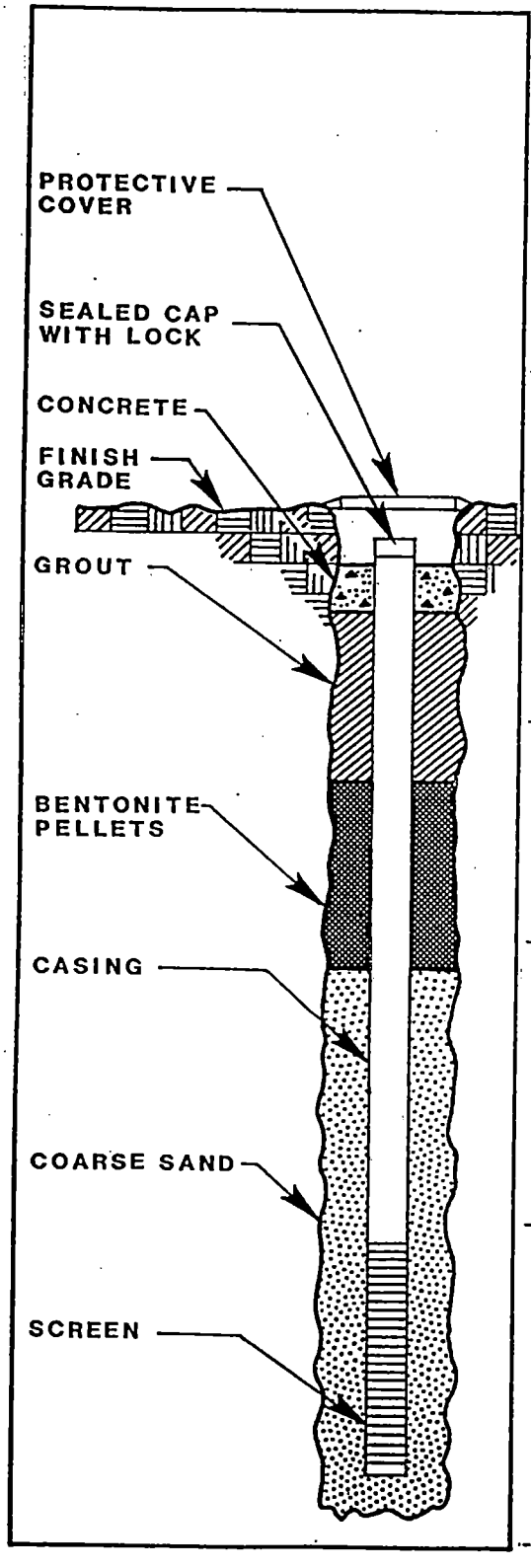
BOTTOM OF BORE HOLE

SWANSON ENVIRONMENTAL, INC.

WELL INSTALLATION LOG

11/28/94

WELL NO.: MW-21/SB-21 LOCATION : E of Bldg. E OWNER : TC Realty PROJECT : TCR/Ferndale



DRILLING SUMMARY

DRILLERS : McDowell	DRILLING METHOD : HSA
RIG TYPE : CME 55	BIT : Drag Bit
DRILLING FLUID : N/A	QUANTITY : N/A
BOREHOLE DIAMETER : 8.25"	TOTAL DEPTH : 20 feet
SUPERVISING GEOLOGIST : DPQ	
LOG BOOK : NUMBER : 4	PAGES :

WELL CONSTRUCTION

CASING : MAT.: PVC	DIA. : 2"	LENGTH : 8 feet
SCREEN : MAT.: PVC	DIA. : 2"	LENGTH : 5 feet
	SLOT : 0.010"	SETTING : 8-13 feet
FILTER : MAT.: silica sand	AMT. : 3 bgs	SETTING : 7-20 feet
SEAL : MAT.: bent. pellets	AMT. : 1 bucket	SETTING : 6-7 feet
GROUT : MAT.: bent. chips	AMT. : 2 bgs	SETTING : 1-6 feet

ELEVATIONS

GROUND SURFACE :	WATER LEVEL (11/9/94) : 658.33'
TOP OF WELL : 667.91'	BOTTOM OF SCREEN : 647.91'

TIME LOG

DRILLING : DATE STARTED :	10/27/94	DATE COMPLETED :	10/27/94
DATE INSTALLED :	10/27/94	DATE GROUTED :	10/27/94
DEVELOPMENT : DATE :	11/1/94	TIME :	.5 hrs
DATE :		TIME :	

WELL DEVELOPMENT

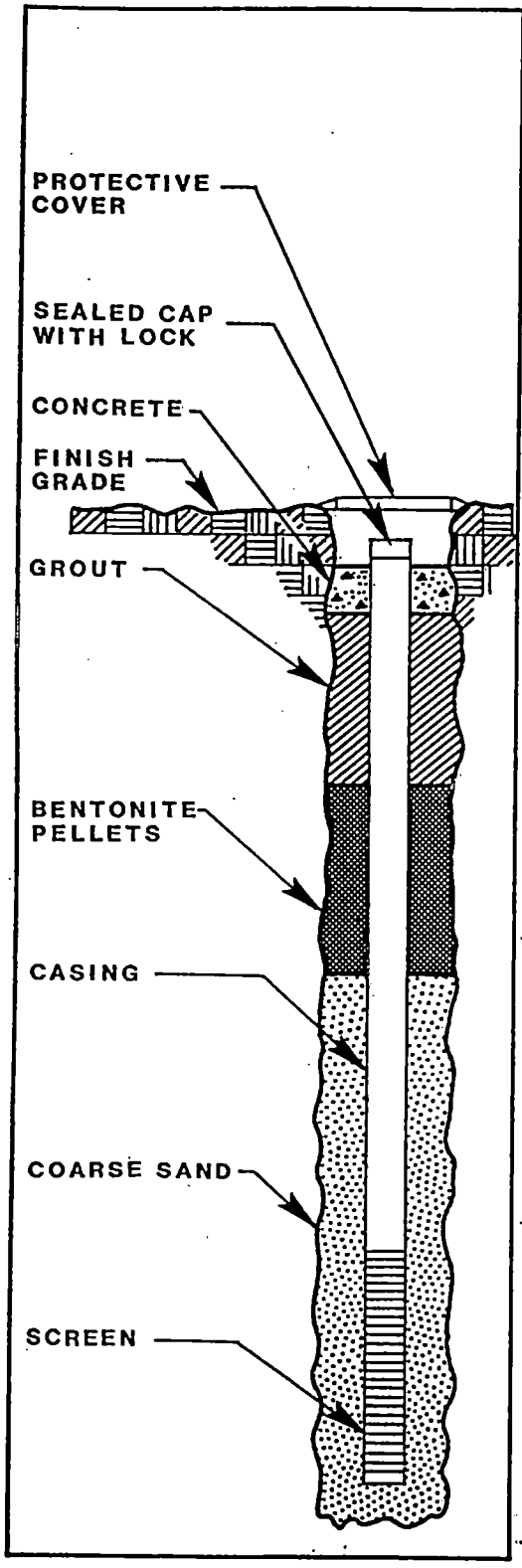
METHOD : surge and bailed
EQUIPMENT : decontaminated bailer
PUMPING RATE : N/A
VOLUME REMOVED : 5 gals
REMARKS : fair recharge, no sheen or odor

SWANSON ENVIRONMENTAL, INC.

WELL INSTALLATION LOG

11/28/94

WELL NO.: MW-25/SB-25 LOCATION : SE of MW-21 OWNER : TC Realty PROJECT : TCR/Ferndale



DRILLING SUMMARY

DRILLERS : McDowell	DRILLING METHOD : HSA
RIG TYPE : CME 55	BIT : Drag Bit
DRILLING FLUID : N/A	QUANTITY : N/A
BOREHOLE DIAMETER : 8.25"	TOTAL DEPTH : 20 feet
SUPERVISING GEOLOGIST : DPQ	
LOG BOOK : NUMBER : 4	PAGES :

WELL CONSTRUCTION

CASING : MAT.: PVC	DIA. : 2"	LENGTH : 9 feet
SCREEN : MAT.: PVC	DIA. : 2"	LENGTH : 5 feet
	SLOT : 0.010"	SETTING : 9-14 feet
FILTER : MAT.: silica sand	AMT. : 3 bgs	SETTING : 8-20 feet
SEAL : MAT.: bent. pellets	AMT. : 1 bucket	SETTING : 7-8 feet
GROUT : MAT.: bent. chips	AMT. : 2 bgs	SETTING : 1-7 feet

ELEVATIONS

GROUND SURFACE :	WATER LEVEL (11/9/94) : 658.39'
TOP OF WELL : 668.34'	BOTTOM OF SCREEN : 654.34'

TIME LOG

DRILLING : DATE STARTED :	10/29/94	DATE COMPLETED :	10/29/94
DATE INSTALLED :	10/29/94	DATE GROUTED :	10/29/94
DEVELOPMENT : DATE :	11/1/94	TIME :	.5 hrs
DATE :		TIME :	

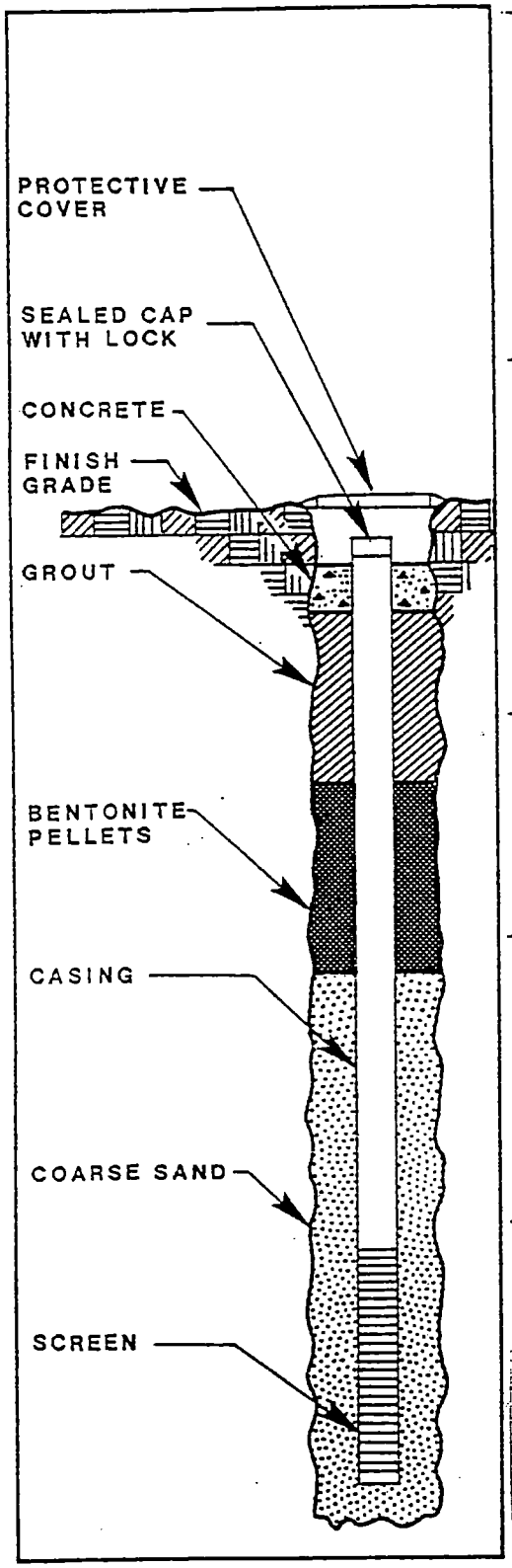
WELL DEVELOPMENT

METHOD : surge and bailed
EQUIPMENT : decontaminated bailer
PUMPING RATE : N/A
VOLUME REMOVED : 5 gals
REMARKS : fair recharge, no sheen or odor

SWANSON ENVIRONMENTAL, INC.

WELL INSTALLATION LOG 06/13/96

WELL NO.: MW-A/SB-A LOCATION : Ferndale, MI OWNER : TC Realty PROJECT : MH 8905



DRILLING SUMMARY

DRILLERS : McDowell and Assoc.	DRILLING METHOD : HSA
RIG TYPE : CME 550	BIT : DRAG
DRILLING FLUID : n/a	QUANTITY : n/a
BOREHOLE DIAMETER : 8.25 inches	TOTAL DEPTH : 14 feet
SUPERVISING GEOLOGIST : K. Benoit	
LOG BOOK : NUMBER : KMB #6	PAGES : 11

WELL CONSTRUCTION

CASING :	MAT.: PVC	DIA. : 2-inch	LENGTH : 8.5 feet
SCREEN :	MAT.: PVC	DIA. : 2-inch	LENGTH : 4.8 feet
		SLOT : 0.010 inch	SETTING : 8.7'-13.5'
FILTER :	MAT.: Coarse sand	AMT. : 150#	SETTING : 7.3'-14.0'
SEAL :	MAT.: Bentonite	AMT. : 90#	SETTING : 1.5'-7.3'
GROUT :	MAT.: Concrete	AMT. : 20#	SETTING : 0'-1.5'

ELEVATIONS

GROUND SURFACE : 669.24	WATER LEVEL (5/21/96) : 659.82
TOP OF WELL : 668.88	BOTTOM OF SCREEN : 655.55

TIME LOG

DRILLING :	DATE STARTED :	4/4/96	DATE COMPLETED :	4/4/96
DATE INSTALLED :		4/4/96	DATE GROUTED :	4/4/96
DEVELOPMENT :	DATE :	4/8/96	TIME :	1400-1455
	DATE :		TIME :	

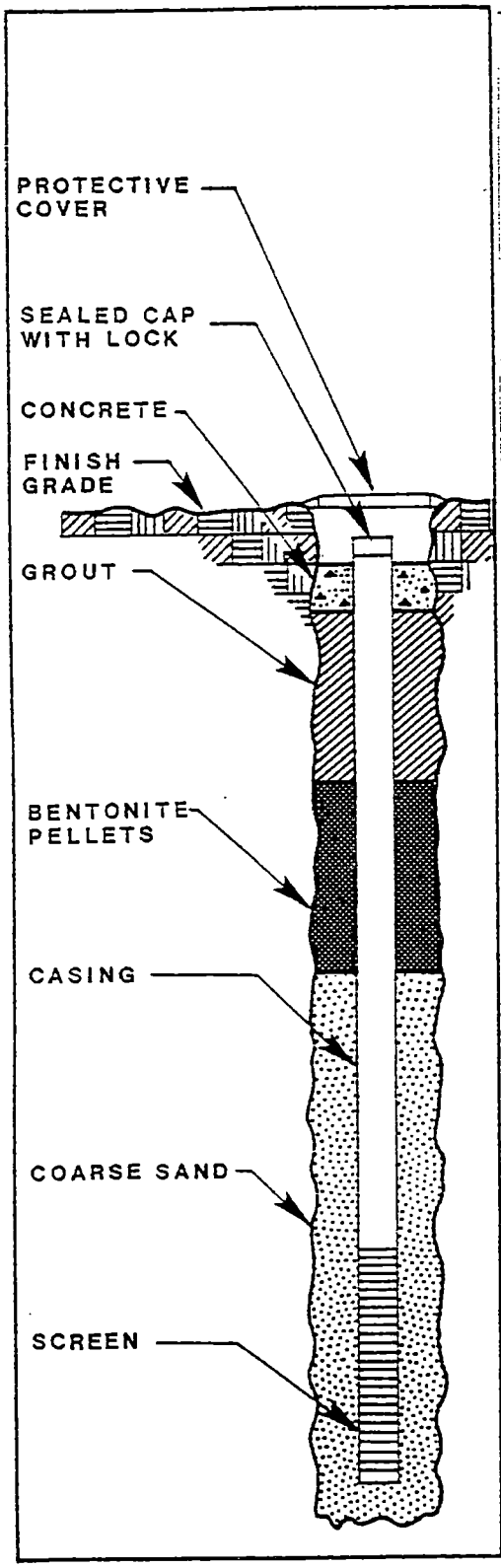
WELL DEVELOPMENT

METHOD : Surge and purge until clear
EQUIPMENT : Disposable bailer
PUMPING RATE : n/a
VOLUME REMOVED : 15 gallons
REMARKS : Spec. cond. stabilized @ 750 umhos

SWANSON ENVIRONMENTAL, INC.

WELL INSTALLATION LOG 06/13/96

WELL NO.: MW-8/S8-8 LOCATION : Ferndale, MI OWNER : TC Realty PROJECT : MH 8905



DRILLING SUMMARY

DRILLERS : McDowell and Assoc.	DRILLING METHOD : HSA
RIG TYPE : CME 550	BIT : DRAG
DRILLING FLUID : n/a	QUANTITY : n/a
BOREHOLE DIAMETER : 8.25 inches	TOTAL DEPTH : 15 feet
SUPERVISING GEOLOGIST : K. Benoit	
LOG BOOK : NUMBER : KMB #6	PAGES : 13

WELL CONSTRUCTION

CASING :	MAT.: PVC	DIA. : 2-inch	LENGTH : 9.5 feet
SCREEN :	MAT.: PVC	DIA. : 2-inch	LENGTH : 4.8 feet
		SLOT : 0.010 inch	SETTING : 9.7'-14.5'
FILTER :	MAT.: Coarse sand	AMT. : 200#	SETTING : 8'-14.5'
SEAL :	MAT.: Bentonite	AMT. : 90#	SETTING : 1.8'-8'
GROUT :	MAT.: Concrete	AMT. : 20#	SETTING : 0'-1.8'

ELEVATIONS

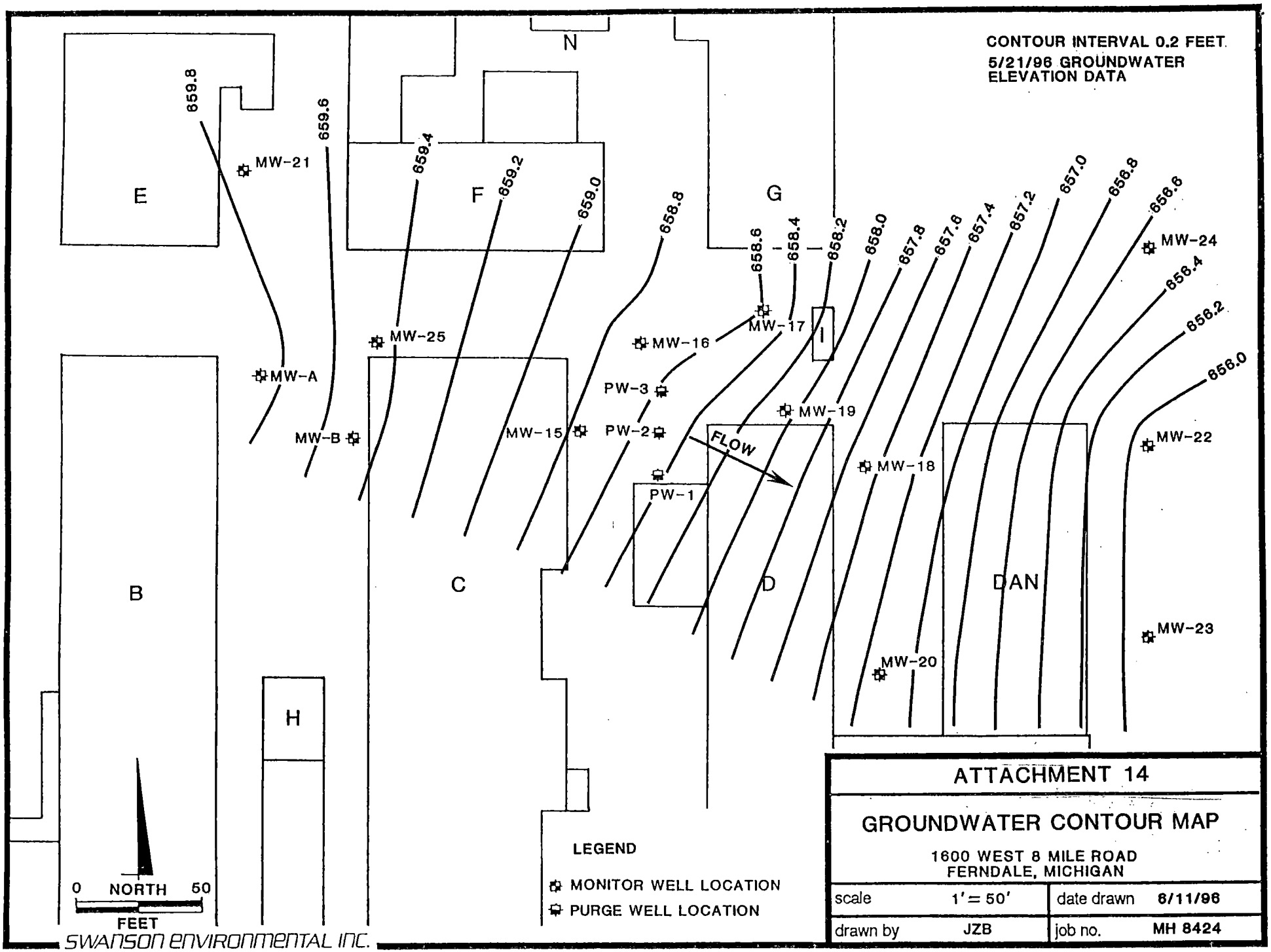
GROUND SURFACE : 668.97	WATER LEVEL (5/21/96) : 659.50
TOP OF WELL : 669.26	BOTTOM OF SCREEN : 654.67

TIME LOG

DRILLING : DATE STARTED :	4/4/96	DATE COMPLETED :	4/4/96
DATE INSTALLED :	4/4/96	DATE GROUTED :	4/4/96
DEVELOPMENT : DATE :	4/8/96	TIME :	1600-1700
DATE :		TIME :	

WELL DEVELOPMENT

METHOD : Surge and purge until clear
EQUIPMENT : Disposable bailer
PUMPING RATE : n/a
VOLUME REMOVED : 15 gallons
REMARKS : Spec. cond. stabilized @ 700 umhos


CONTOUR INTERVAL 0.2 FEET.
5/21/96 GROUNDWATER ELEVATION DATA
N
E
F
G
I
B
C
D
DAN
H
659.8
659.6
659.4
659.2
659.0
658.8
658.6
658.4
658.2
658.0
657.8
657.6
657.4
657.2
657.0
656.8
656.6
656.4
656.2
656.0
MW-21
MW-A
MW-B
MW-25
MW-15
MW-16
MW-17
PW-3
PW-2
PW-1
MW-19
MW-18
MW-20
MW-24
MW-22
MW-23
FLOW
0
NORTH
50
FEET
LEGEND
MONITOR WELL LOCATION
PURGE WELL LOCATION
SWANSON ENVIRONMENTAL INC.
ATTACHMENT 14
GROUNDWATER CONTOUR MAP
1600 WEST 8 MILE ROAD
FERNDALE, MICHIGAN
scale 1' = 50'
date drawn 6/11/96
drawn by JZB
job no. MH 8424

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY-UNDERGROUND TANK DIVISION

INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 18
LABORATORY RESULTS - GROUNDWATER
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

VOLATILES										
Sample ID	MW-A		MW-B		MW-B		MW-UST			
Sample Depth (feet BGS)	9.5-13.5		9.4-14.5		9.4-14.5		9.5-14			
Date Collected	4/10/96		4/11/96		5/21/96		3/29/96			
Date Extracted	- -		4/11/96		- -		- -			
Date Analyzed	4/19/96		4/11/96		5/30/96		4/1/96			
Collection Method*	BL		BL		BL		BL			
Analytical Method No.	8260		602		8260		602			
CONSTITUENT (ug/l)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
X☐ Benzene	ND	5	ND	5	ND	5	13	5		
X☐ Toluene	ND	1	16	1	2	1	47	1		
X☐ Ethylbenzene	ND	1	30	1	6	1	11	1		
X☐ Total Xylenes	ND	3	260	3	150	3	260	3		
X☐ MTBE	ND	50	1000	50	ND	50	6500	50		
POLYNUCLEAR AROMATICS (PNAs)										
Sample ID	MW-A				MW-B					
Sample Depth (feet BGS)	9.5-13.5				9.4-14.5					
Date Collected	5/21/96				5/21/96					
Date Extracted	5/30/96				5/30/96					
Date Analyzed	5/30/96				5/30/96					
Collection Method*	BL				BL					
Analytical Method No.	8310				8310					
CONSTITUENT (ug/l)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
X☐ Acenaphthene	ND	5			ND	5				
X☐ Acenaphthylene	ND	5			ND	5				
X☐ Anthracene	ND	5			ND	5				
X☐ Benzo(a)anthracene	ND	5			ND	5				
X☐ Benzo(a)pyrene	ND	5			ND	5				
X☐ Benzo(b)fluoranthene	ND	5			ND	5				
X☐ Benzo(g,h,i)perylene	ND	5			ND	5				
X☐ Benzo(k)fluoranthene	ND	5			ND	5				
X☐ Chrysene	ND	5			ND	5				
X☐ Dibenzo(a,h)anthracene	ND	5			ND	5				

BGS=Below Ground Surface
D.L. = Detection Limit
* Collection Method Codes (Select all that apply): Bailer (BL), Geoprobe (GP), Purge Pump (PP), Cone Penetrometer (CP), Hydropunch (HP)
If Other (OT), specify here: _____

INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 18 (CONTINUED PAGE 2 OF 4)
LABORATORY RESULTS - GROUNDWATER
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

POLYNUCLEAR AROMATICS (PNAs)										
Sample ID	MW-A				MW-B					
Sample Depth (feet BGS)	9.5-13.5				9.4-14.5					
Date Collected	5/21/96				5/21/96					
Date Extracted	- -				- -					
Date Analyzed	5/30/96				5/30/96					
Collection Method*	BL				BL					
Analytical Method No.	8310				8310					
CONSTITUENT (ug/l)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
X☐ Fluoranthene	ND	5			ND	5				
X☐ Fluorene	ND	5			ND	5				
X☐ Indeno(1,2,3- cd)pyrene	ND	5			ND	5				
X☐ Naphthalene	ND	5			28	5				
X☐ Phenanthrene	ND	5			ND	5				
X☐ Pyrene	ND	5			ND	5				
METALS - FILTERED										
Sample ID										
Sample Depth (feet BGS)										
Date Collected										
Date Extracted										
Date Analyzed										
Collection Method*										
Analytical Method No.										
CONSTITUENT (ug/l)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
☐ Cadmium										
☐ Chromium III										
☐ Chromium VI										
☐ Total Lead										

BGS=Below Ground Surface
D.L. = Detection Limit
* Collection Method Codes (Select all that apply): Bailer (BL), Geoprobe (GP), Purge Pump (PP), Cone Penetrometer (CP), Hydropunch (HP)
If Other (OT), specify here: _____

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY-UNDERGROUND TANK DIVISION

INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 18 (CONTINUED PAGE 3 OF 4)
LABORATORY RESULTS - GROUNDWATER
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

PCBs										
Sample ID										
Sample Depth (feet BGS)										
Date Collected										
Date Extracted										
Date Analyzed										
Collection Method*										
Analytical Method No.										
CONSTITUENT (ug/l)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
☐ Aroclor 1016										
☐ Aroclor 1221										
☐ Aroclor 1232										
☐ Aroclor 1242										
☐ Aroclor 1248										
☐ Aroclor 1254										
☐ Aroclor 1280										
HALOGENATED HYDROCARBONS										
Sample ID	MW-A				MW-B					
Sample Depth (feet BGS)	9.5-13.5				9.4-14.5					
Date Collected	5/21/96				5/21/96					
Date Extracted	5/30/96				5/30/96					
Date Analyzed	5/30/96				5/30/96					
Collection Method*	BL				BL					
Analytical Method No.	8260				8260					
CONSTITUENT (ug/l)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
X☐ Carbon Tetrachloride	ND	1			ND	1				
X☐ 1,1-Dichloroethane	ND	1			ND	1				
X☐ 1,2-Dichloroethane	ND	1			ND	1				
X☐ 1,1-Dichloroethylene	ND	1			ND	1				
X☐ cis-1,2-Dichloroethylene	ND	1			ND	1				
X☐ trans-1,2-Dichloroethylene	ND	1			ND	1				

BGS=Below Ground Surface
D.L. = Detection Limit

* Collection Method Codes (Select all that apply): Bailer (BL), Geoprobe (GP), Purge Pump (PP), Cone Penetrometer (CP), Hydropunch (HP)
If Other (OT), specify here: _____

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY-UNDERGROUND TANK DIVISION

INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 18 (CONTINUED PAGE 4 OF 4)
LABORATORY RESULTS - GROUNDWATER
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

HALOGENATED HYDROCARBONS	MW-A 5/21/96		MW-B 5/21/96							
X☐ Tetrachloroethylene	ND	1	ND	1						
X☐ 1,1,2-Trichloroethane	ND	1	ND	1						
OTHER *(Specify)*										
Sample ID/	MW-B									
Sample Depth (feet BGS)	9.5-13.5									
Date Collected	4/11/96									
Date Extracted	- -									
Date Analyzed	4/17/96									
Collection Method*	BL									
Analytical Method No.	8260									
CONSTITUENT (ug/l)	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
X☐ 1,2,4- Trimethylbenzene	1600	1								
X☐ 1,3,5- Trimethylbenzene	680	1								
☐										
☐										
☐										
☐										
☐										
☐										
☐										
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☐										
☐										
☐										
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BGS=Below Ground Surface
D.L. = Detection Limit
* Collection Method Codes (Select all that apply): Bailer (BL), Geoprobe (GP), Purge Pump (PP), Cone Penetrometer (CP), Hydropunch (HP)
If Other (OT), specify here: _____

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY-UNDERGROUND TANK DIVISION

INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 19
TIER I RBSL/TIER II OR TIER III SSTL
COMPARISON TABLE FOR GROUNDWATER
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

☐ **Residential** ☐ **Commercial** X☐ **Industrial**

Exposure Codes

A. Potable **B. Groundwater/Surface Water Interface**

Contaminant	Sample ID with Maximum Detected Concentration	Corresponding Sample Date	Maximum Detected Concentration (ug/l)	Applicable Criterion with Exposure Code (ug/l)		Criterion Exceeded? (Yes or No)	
				Tier I RBSL	Tier II/III SSTL	Tier I RBSL	Tier II/III SSTL
VOLATILES							
X☐ Benzene	MW-UST	3/29/96	13	5 A		YES	
X☐ Toluene	MW-UST	3/29/96	47	790 A		NO	
X☐ Ethylbenzene	MW-B	4/11/96	30	74 A		NO	
X☐ Total Xylenes	MW-B	4/11/96	260	280 A		NO	
X☐ MTBE	MW-UST	3/29/96	6500	690 A		YES	
POLYNUCLEAR AROMATICS (PNAs)							
X☐ Acenaphthene	MW-B	5/21/96	ND				
X☐ Acenaphthylene	MW-B	5/21/96	ND				
X☐ Anthracene	MW-B	5/21/96	ND				
X☐ Benzo(a)anthracene	MW-B	5/21/96	ND				
X☐ Benzo(a)pyrene	MW-B	5/21/96	ND				
X☐ Benzo(b)fluoranthene	MW-B	5/21/96	ND				
X☐ Benzo(g,h,i)perylene	MW-B	5/21/96	ND				
X☐ Benzo(k)fluoranthene	MW-B	5/21/96	ND				
X☐ Chrysene	MW-B	5/21/96	ND				
X☐ Dibenzo-(a,h)anthracene	MW-B	5/21/96	ND				
X☐ Fluoranthene	MW-B	5/21/96	ND				
X☐ Fluorene	MW-B	5/21/96	ND				
X☐ Indeno(1,2,3-cd)pyrene	MW-B	5/21/96	ND				
X☐ Naphthalene	MW-B	5/21/96	28	750		NO	
X☐ Phenanthrene	MW-B	5/21/96	ND				
X☐ Pyrene	MW-B	5/21/96	ND				

BGS=Below Ground Surface
D.L. = Detection Limit

* Collection Method Codes (Select all that apply): Bailer (BL), Geoprobe (GP), Purge Pump (PP), Cone Penetrometer (CP), Hydropunch (HP)
If Other (OT), specify here: _____

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY-UNDERGROUND TANK DIVISION

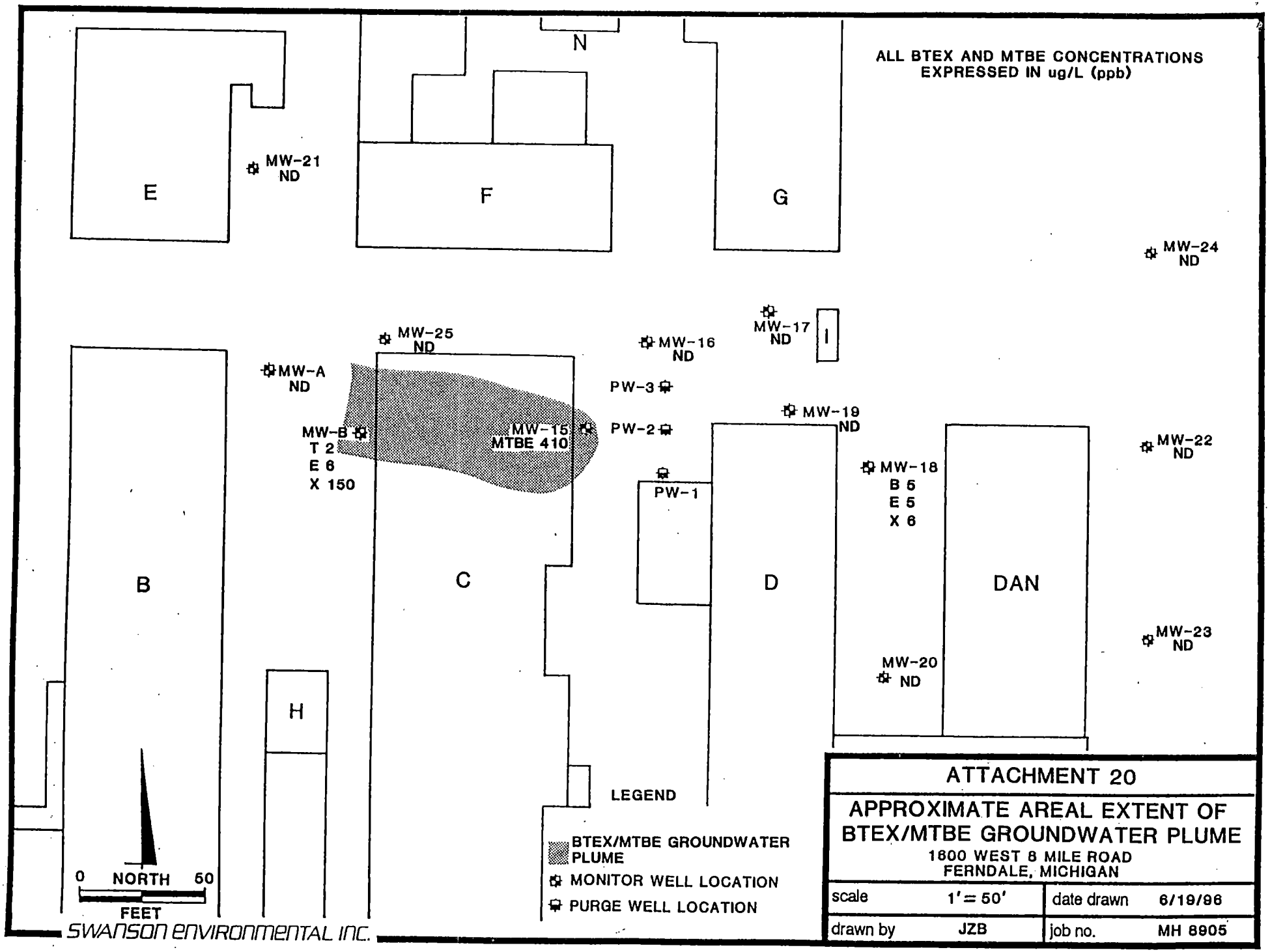
INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 19 (CONTINUED PAGE 2 OF 2)
TIER I RBSL/TIER II OR TIER III SSTL
COMPARISON TABLE FOR GROUNDWATER
FACILITY NAME TC Realty, Inc.
FACILITY ID NUMBER 0-006304
DUPLICATE TABLE AS NEEDED

Contaminant	Sample ID with Maximum Detected Concentration	Corresponding Sample Date	Maximum Detected Concentration (ug/l)	Applicable Criterion with Exposure Code (ug/l)		Criterion Exceeded? Act 451 Part 201 GIC (Yes or No)	
				Tier I RBSL	Tier II/III SSTL	Tier I RBSL	Tier II/III SSTL
METALS - FILTERED							
☐ Cadmium							
☐ Chromium III							
☐ Chromium VI							
☐ Total Lead							
PCBs							
☐ Aroclor 1016							
☐ Aroclor 1221							
☐ Aroclor 1232							
☐ Aroclor 1242							
☐ Aroclor 1248							
☐ Aroclor 1254							
☐ Aroclor 1280							
HALOGENATED HYDROCARBONS							
X☐ Carbon Tetrachloride							
X☐ 1,1-Dichloroethane							
X☐ 1,2-Dichloroethane							
X☐ 1,1-Dichloroethylene							
X☐ cis-1,2-Dichloroethylene							
X☐ trans-1,2-Dichloroethylene							
X☐ Tetrachloroethylene							
X☐ 1,1,2-Trichloroethane							
OTHER *							
X☐ 1,2,4-Trimethylbenzene	MW-B	4/11/96	1600	86 A		YES	
X☐ 1,3,5-Trimethylbenzene	MW-B	4/11/96	680	65 A		YES	

BGS=Below Ground Surface
D.L. = Detection Limit

* Collection Method Codes (Select all that apply): Bailer (BL), Geoprobe (GP), Purge Pump (PP), Cone Penetrometer (CP), Hydropunch (HP)
If Other (OT), specify here: _____



ATTACHMENT 20

APPROXIMATE AREAL EXTENT OF BTEX/MTBE GROUNDWATER PLUME

1600 WEST 8 MILE ROAD
FERNDALE, MICHIGAN

scale	1' = 50'	date drawn	6/19/96
drawn by	JZB	job no.	MH 8905

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
INITIAL ASSESSMENT REPORT (Continued)

ATTACHMENT NO. 29
WORK PLAN FOR FURTHER SITE CHARACTERIZATION AND ASSESSMENT ACTIVITY
FACILITY NAME: T. C. Realty, Inc.
FACILITY ID NUMBER: 0-006304

BACKGROUND

At present, unsaturated soil in the vicinity of the USTs passes the Tier I RBSLs for all contaminants of concern. Groundwater at two locations (MW-UST and MW-B) exceeded the Tier I RBSLs for benzene (MW-UST), MTBE (MW-UST), 1,2,4-trimethylbenzene (MW-B), and 1,3,5-trimethylbenzene (MW-B). In addition, the most severely impacted of the unsaturated zone soil in the vicinity of the USTs has been removed and disposed of off-site.

PROPOSED ACTIVITIES AND SCHEDULE

The continued leaching of gasoline-related compounds to groundwater in the vicinity of the USTs has been prevented as a result of the removal of the most severely impacted vadose zone soil. Consequently, it is anticipated that the concentrations of contaminants in groundwater in the vicinity of the USTs will diminish.

Groundwater quality in the area of the USTs will be further evaluated and will continue to be monitored. One additional groundwater monitor well will be installed at a location east of, and immediately downgradient from the USTs. A monitor well placed at this location will provide a "worst-case" determination of residual groundwater impact resulting from the gasoline release. Additionally, another phase of groundwater sampling will be conducted subsequent to installation of the proposed groundwater monitor well.

Depending on the results of the proposed groundwater monitoring, either a Tier I closure report or a Tier II evaluation will be performed and a report submitted to the MDEQ. The proposed field activities and laboratory analyses will require approximately 8 to 10 weeks. If after completion of the proposed activities the site qualifies for Tier I closure, a closure report will be submitted to the MDEQ in approximately 4 weeks after receipt of the analytical data. If the site does not qualify for a Tier I closure, a Tier II evaluation and final assessment/closure report will be submitted to the MDEQ no later than the regulatory deadline (365 days after the release).