

***RCRA Facility Investigation
Work Plan***

Volume II

**General Motors Corporation
NAO Flint Operations Site
Flint, Michigan**

March 30, 2001

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BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Consultants with focus

WORK PLAN

*RCRA Facility Investigation
Work Plan*

Volume II

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NAO Flint Operations Site
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Table of Contents

Volume I

Section 1. Introduction	1-1
1.1 Background.....	1-1
1.2 RFI Scope.....	1-2
1.3 RFI Work Plan Objectives.....	1-2
1.4 RFI Work Plan Organization.....	1-3
1.5 Investigation Summary and Data Needs	1-6
1.5.1 Summary of Historical Investigations.....	1-6
1.5.2 Overview of Data Needs.....	1-8
1.5.3 Overview of Proposed Investigations	1-8
Section 2. Description of the Site.....	2-1
2.1 Site Location	2-1
2.2 Current and Historical Operations	2-1
2.3 Historical Mapping, Aerial Photographs, and Site Buildings.....	2-3
Section 3. Regional Setting	3-1
3.1 Land Use	3-1
3.2 Demographics.....	3-1
3.3 Climate.....	3-1
3.4 Regional Geology	3-2
3.5 Regional Hydrogeology	3-3
3.6 Regional Hydrology	3-3
3.7 River Ecology.....	3-3
Section 4. Site Setting.....	4-1
4.1 Geology	4-1
4.2 Hydrogeology.....	4-1
4.3 Hydrology.....	4-2
4.4 Surface Cover and Ecology.....	4-3
Section 5. Sampling and Analysis Plan for Areas of Interest (AOIs).....	5-1
5.1 Sampling Rationale and Approach	5-1
5.1.1 Generic Michigan Department of Environmental Quality (MDEQ) Screening Criteria.....	5-1
5.1.2 Soil Boring, Monitoring Well, and Piezometer Completion	5-2
5.1.3 Soil Sample Collection	5-3
5.1.4 Groundwater Elevation Measurement and Groundwater Sample Collection	5-4
5.1.5 LNAPL Delineation and Sample Collection.....	5-5
5.1.6 Dense Nonaqueous Phase Liquid (DNAPL) Delineation.....	5-5
5.1.7 Site Survey	5-6
5.2 AOIs North of Leith Street.....	5-6
5.2.1 AOI 38-1	5-7
5.2.2 AOI 36-1	5-7
5.2.3 AOI 36-2	5-8

5.2.4	AOI 36-3	5-8
5.2.5	AOI 36-4	5-8
5.2.6	AOI 36-5	5-9
5.2.7	AOI 55-1	5-9
5.2.8	AOI 10-1	5-9
5.2.9	AOI 10-2	5-10
5.2.10	AOI 10-3	5-10
5.2.11	AOI 10-4	5-10
5.2.12	AOI 05-1	5-11
5.2.13	AOI 05-2	5-11
5.2.14	AOI 05-3	5-11
5.2.15	AOI 05-4	5-12
5.2.16	AOI 05-5	5-12
5.2.17	AOI-05-6	5-13
5.2.18	AOI 03-1	5-13
5.2.19	AOI 81-1	5-14
5.2.20	AOI 81-2	5-14
5.2.21	AOI 81-3	5-14
5.2.22	AOI 81-4	5-15
5.2.23	AOI 81-5	5-15
5.2.24	AOI 21-1	5-15
5.2.25	AOI 65-1	5-16
5.2.26	AOIs 83/84-1 through 83/84-3	5-16
5.2.27	AOI 83/84-4	5-17
5.2.28	AOI 83/84-5	5-17
5.2.29	AOI 83/84-6	5-17
5.2.30	AOI 83/84-7	5-18
5.2.31	AOI 85-1	5-18
5.2.32	AOI 86-1	5-18
5.2.33	AOI 07-1	5-19
5.2.34	AOI 07-2	5-19
5.2.35	AOI 07-3	5-19
5.3	AOIs South of Leith Street – Sampling and Analysis Plan	5-20
5.3.1	AOI Group 94-A	5-20
5.3.2	AOI Group 94-B	5-20
5.3.3	AOI Group 94-C	5-21
5.3.4	AOI Group 94-D	5-21
5.3.5	AOI Group 94-E	5-21
5.3.6	AOI Group 84-A	5-22
5.3.7	AOI Group 84-B	5-22
5.3.8	AOI Group 84-C	5-23
5.3.9	AOI Group 84-D	5-23
5.3.10	AOI Group 17-A	5-23
5.3.11	AOI Group 02-A	5-24
5.3.12	AOI Group 02-B	5-24
5.3.13	AOI Group 02-C	5-24
5.3.14	AOI Group 02-D	5-25
5.3.15	AOI Group 02-E	5-25
5.3.16	AOI Group 02-F	5-25
5.3.17	AOI Group 23-A	5-26
5.3.18	AOI Group 29-A	5-26
5.3.19	AOI Group 12-A	5-26
5.3.20	AOI Group 12-B	5-27

5.3.21	AOI Group 12-C.....	5-27
5.3.22	AOI Group 12-D.....	5-28
5.3.23	AOI Group 04-A.....	5-28
5.3.24	AOI Group 04-B.....	5-28
5.3.25	AOI Group 04-C.....	5-29
5.3.26	AOI Group 04-D.....	5-29
5.3.27	AOI Group 16-A.....	5-29
5.3.28	AOI Group 16-B.....	5-30
5.3.29	AOI Group 16-C.....	5-30
5.3.30	AOI Group 16-D.....	5-30
5.3.31	AOI Group 40-A.....	5-31
5.3.32	AOI Group 40-B.....	5-31
5.3.33	AOI Group 40-C.....	5-31
5.3.34	AOI Group 40-D.....	5-32
5.3.35	AOI Group 44-A.....	5-32
5.3.36	AOI Group 09-A.....	5-32
5.3.37	AOI Group 09-B.....	5-33
Section 6.	Data Evaluation.....	6-1
6.1	Objectives.....	6-1
6.2	Evaluation of Need for Additional Investigations.....	6-1
6.3	Use of Investigation Data.....	6-3
Section 7.	Reporting.....	7-1
7.1	Progress Reports.....	7-1
7.2	Phase I and Phase II Investigation Reports.....	7-1
7.3	Environmental Indicators Reports.....	7-2
Section 8.	RFI Schedule.....	8-1
Section 9.	References.....	9-1

Tables

Table 1	Summary of AOIs – North of Leith Street
Table 2	Summary of Post-Cleaning AOI Evaluation – South of Leith Street
Table 3	Overview of RFI Activities – Northend AOIs
Table 4	Overview of RFI Activities – Southend AOIs
Table 5	Proposed RFI Field Investigations – Northend AOIs
Table 6	Proposed RFI Field Activities Southend AOIs
Table 7	Notes for Proposed RFI Activities

Figures

Figure 1	Site Location Map
Figure 2	Decision Logic Flow Chart for Groundwater Sample Collection
Figure 3	Figure Key for Coverage Areas – Figures 4 through 15
Figure 4	Proposed RFI Field Investigations – Building 38 Area
Figure 5	Proposed RFI Field Investigations – Factory 36 Area
Figure 6	Proposed RFI Field Investigations – Buildings 55, 55A, 55B, and Factory 10 Area
Figure 7	Proposed RFI Field Investigations – Factory 05 Area
Figure 8	Proposed RFI Field Investigations – Factory 03 Area
Figure 9	Proposed RFI Field Investigations – Factory 81 Area and Building 21 Area
Figure 10	Proposed RFI Field Investigations – Factory 83/84 Area and Building 65 Area
Figure 11	Proposed RFI Field Investigations – Buildings 15, 61, 61A, 85, 86, 86A, & 07 Area
Figure 12	Proposed RFI Field Investigations – Buildings 03, 10, 17, 17A, 28, 84, 84B, 94, and 94A Area
Figure 13	Proposed RFI Field Investigations – Buildings 02, 12, 23, and 29 Area
Figure 14	Proposed RFI Field Investigations – Buildings 04, 08, 16, 40, and 44 Area
Figure 15	Proposed RFI Field Investigations – Building 09 Area
Figure 16	Schedule of RFI Activities

Appendices

Volume II

Appendix A	Geologic Cross-Section Mapping and Historical Soil Boring and Monitoring Well Logs
-	Geologic Cross-Section Mapping
-	Historical Monitoring Well Logs

Volume III

Appendix A	Geologic Cross-Section Mapping and Historical Soil Boring and Monitoring Well Logs
-	Historical Soil Boring Logs

Volume IV

Appendix B	Project Management Plan (PMP)
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Volume V

Appendix C Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP)

Volume VI

Appendix D Data Management Plan (DMP)

Appendix E Health and Safety Plan (HASP)

- Excluding Attachment H (Material Safety Data Sheets)

Volume VII

Appendix E Health and Safety Plan (HASP)

- Attachment H (Material Safety Data Sheets)

Volume VIII

Appendix F Community Relations Plan (CRP)

Appendix G Historical Analytical Results

Appendix A

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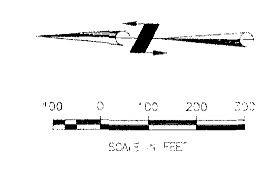
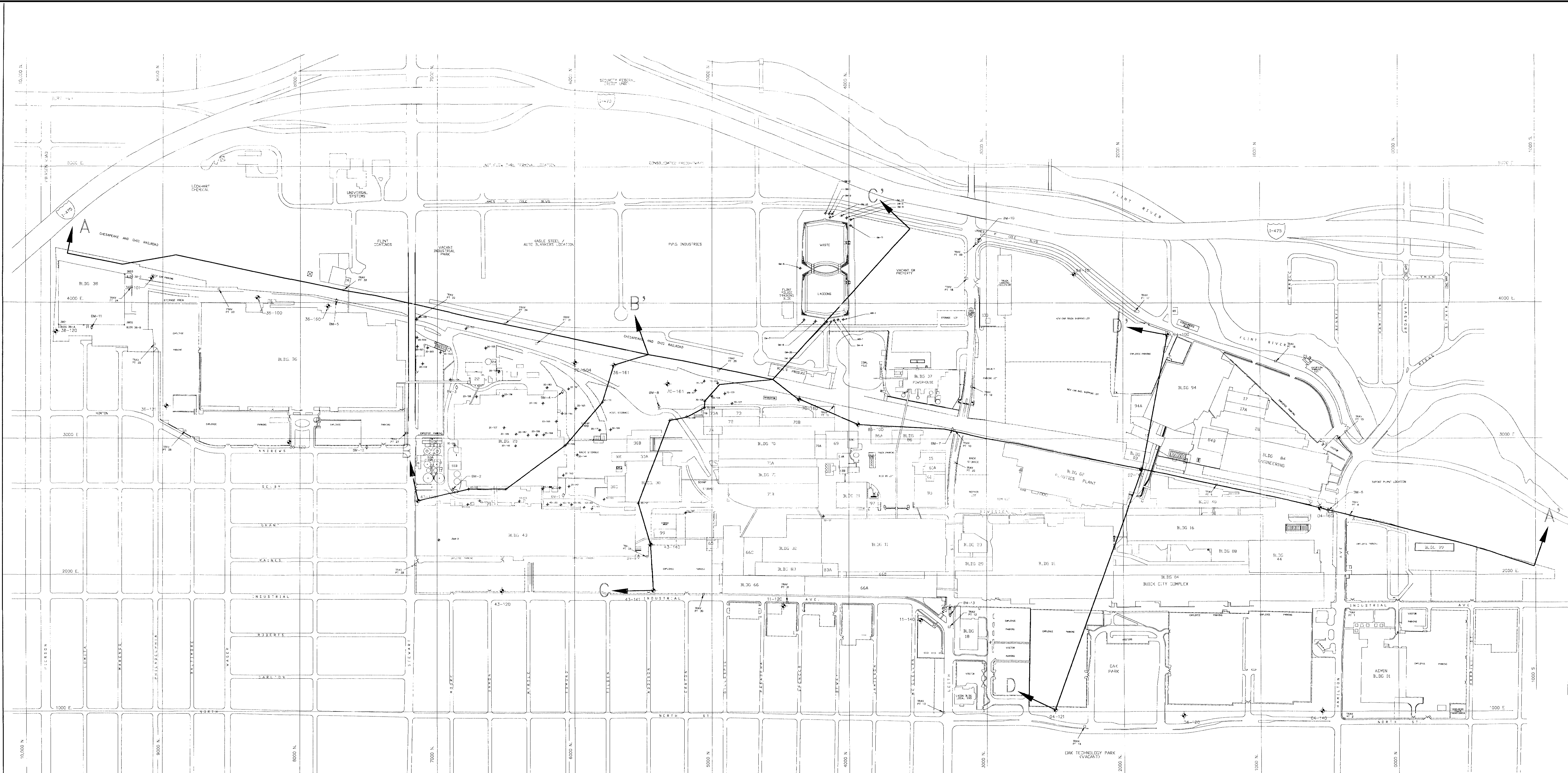
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Geologic Cross-Section Mapping and Historical Soil Boring and Monitoring Well Logs

Geologic Cross-Section Mapping

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- LEGEND**
- ◻ MONITORING WELL
 - ▲ BENCH MARK (VERTICAL CONTROL)
 - ◊ BENCH MARK (VERTICAL CONTROL)
 - HORIZONTAL SURVEY CONTROL POINT

NOTES:

1. THIS DRAWING WAS CREATED FROM AN UNALTERED ENECOTECH FIGURE ENTITLED "GEOLOGIC CROSS-SECTION LOCATION MAP", FILE NO. 10097-005, DATED 11/29/95.
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 F.L.T., MICHIGAN

ENECOTECH
 GEOLOGIC
 CROSS-SECTION
 LOCATION MAP

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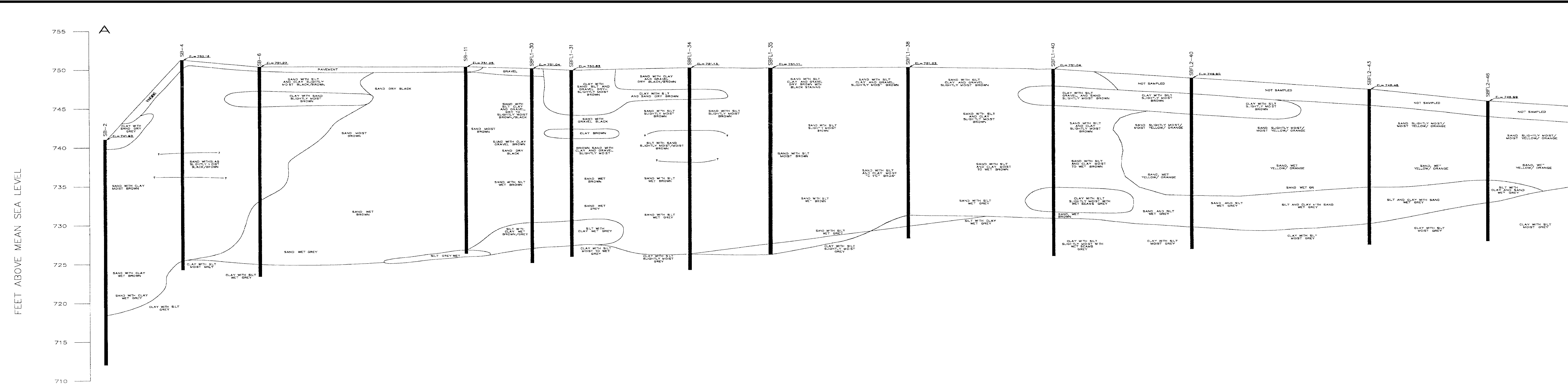
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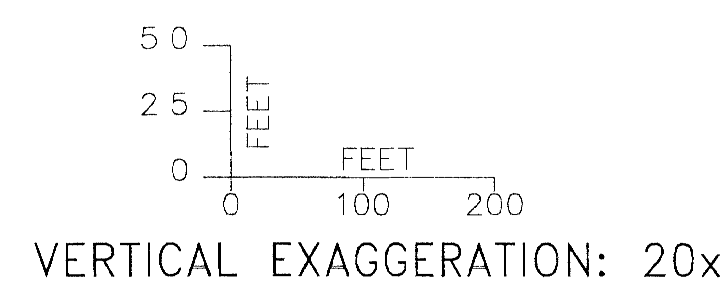
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FIGURE
A-1

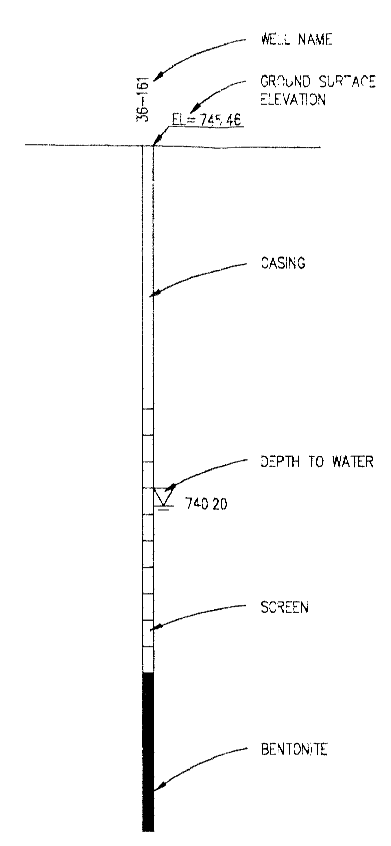
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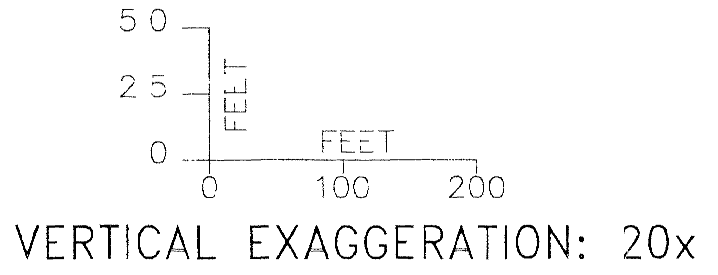
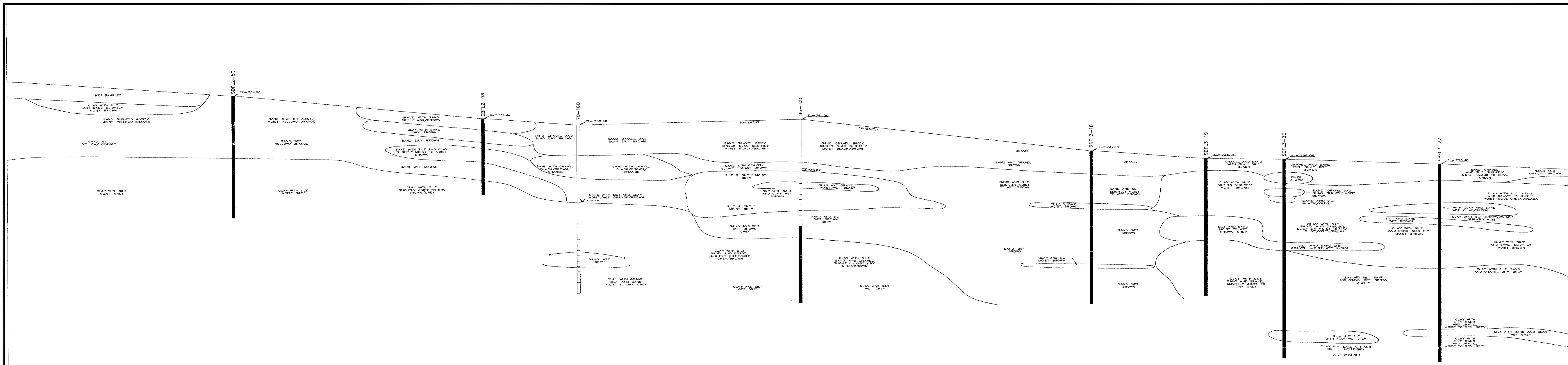
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Project		GENERAL MOTORS	
Site		FLINT, MICHIGAN	
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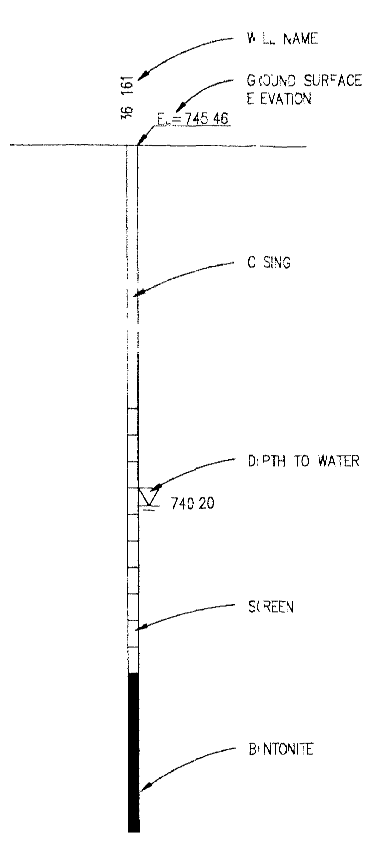
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FIGURE
A-2



LEGEND



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Site	FLINT MICHIGAN
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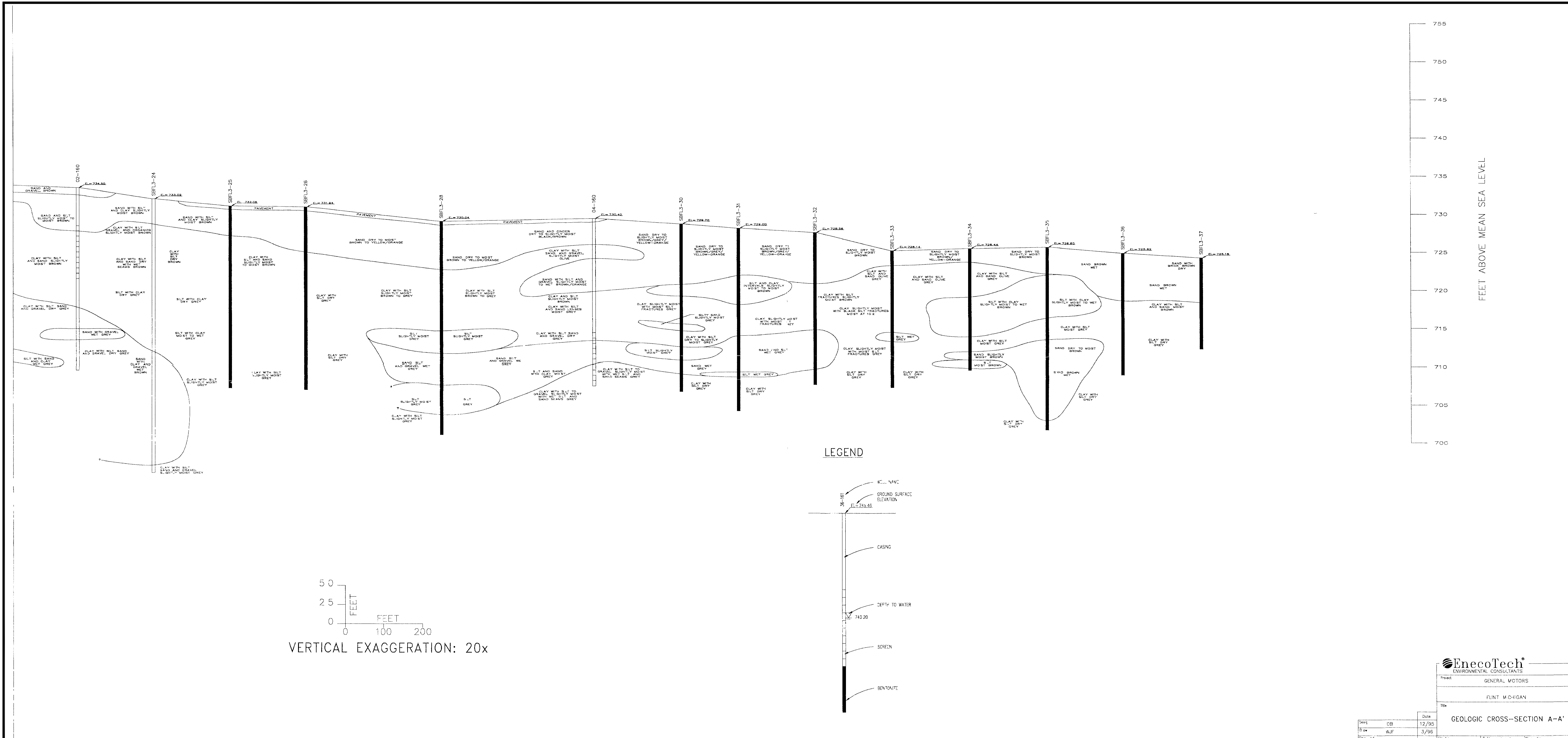
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**ENECOTECH GEOLOGIC
CROSS-SECTION A-A'**

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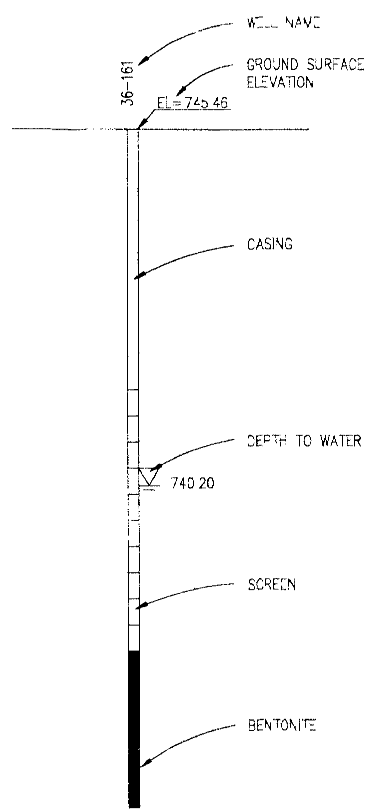
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A-2

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Project	GENERAL MOTORS	Site	FLINT MICHIGAN
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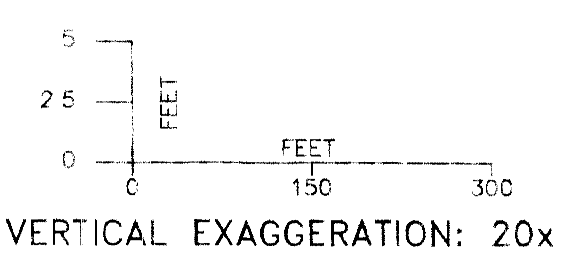
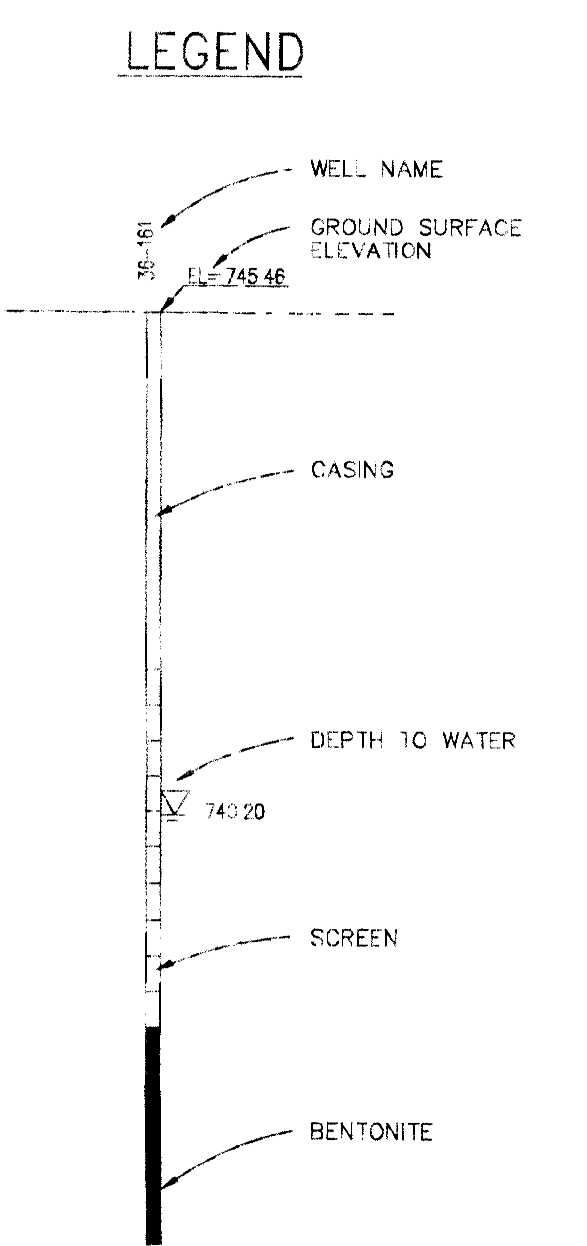
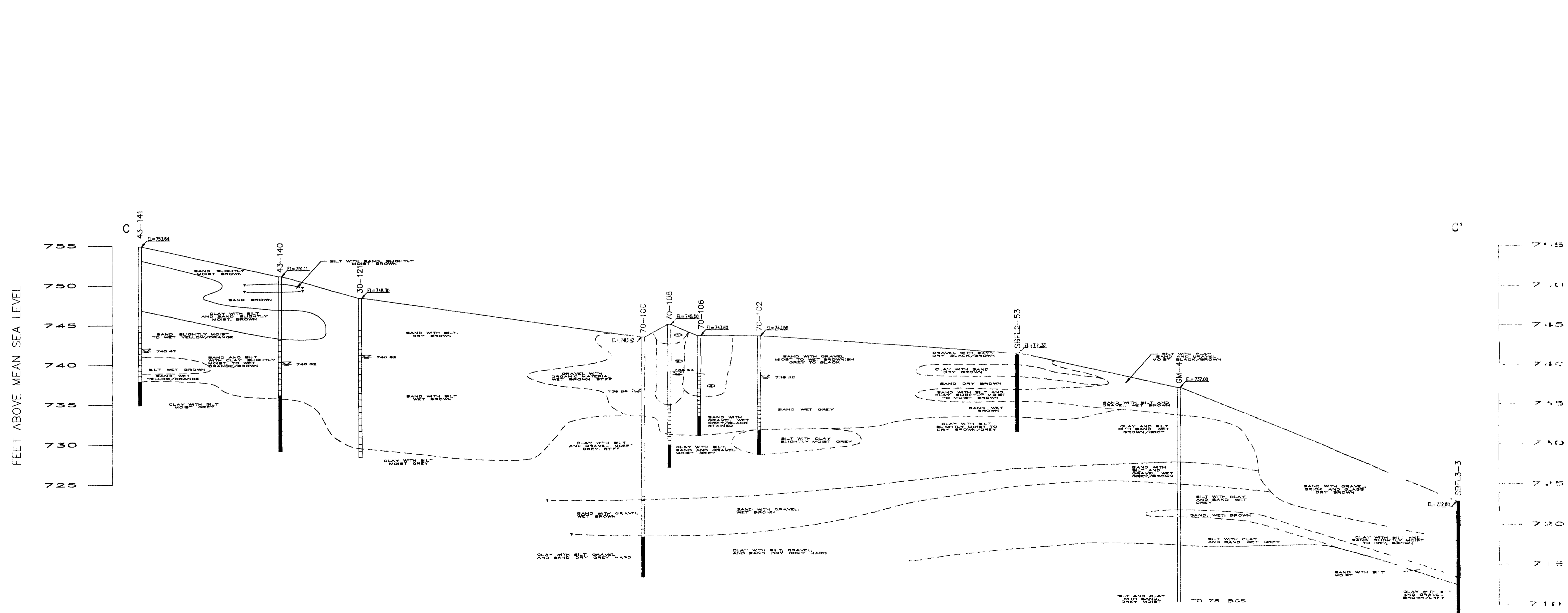
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ENECOTECH GEOLOGIC
CROSS-SECTION A-A'

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FIGURE
A-2

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- UTLIGIOLOGY NOTS:**
- ① CLAY WITH SILT, MOIST, GREY/BLACK
 - ② SAND WITH SILT AND CLAY, MOIST, BLACK STAINED
 - ③ CLAY WITH SILT, SAND, AND SLAG, MOIST, BROWN WITH STAINING

		Project: GENERAL MOTORS	
		Flint, Michigan	
Title: GEOLOGIC CROSS-SECTION C-C'		Date: 3/96	Drawn: 3/96
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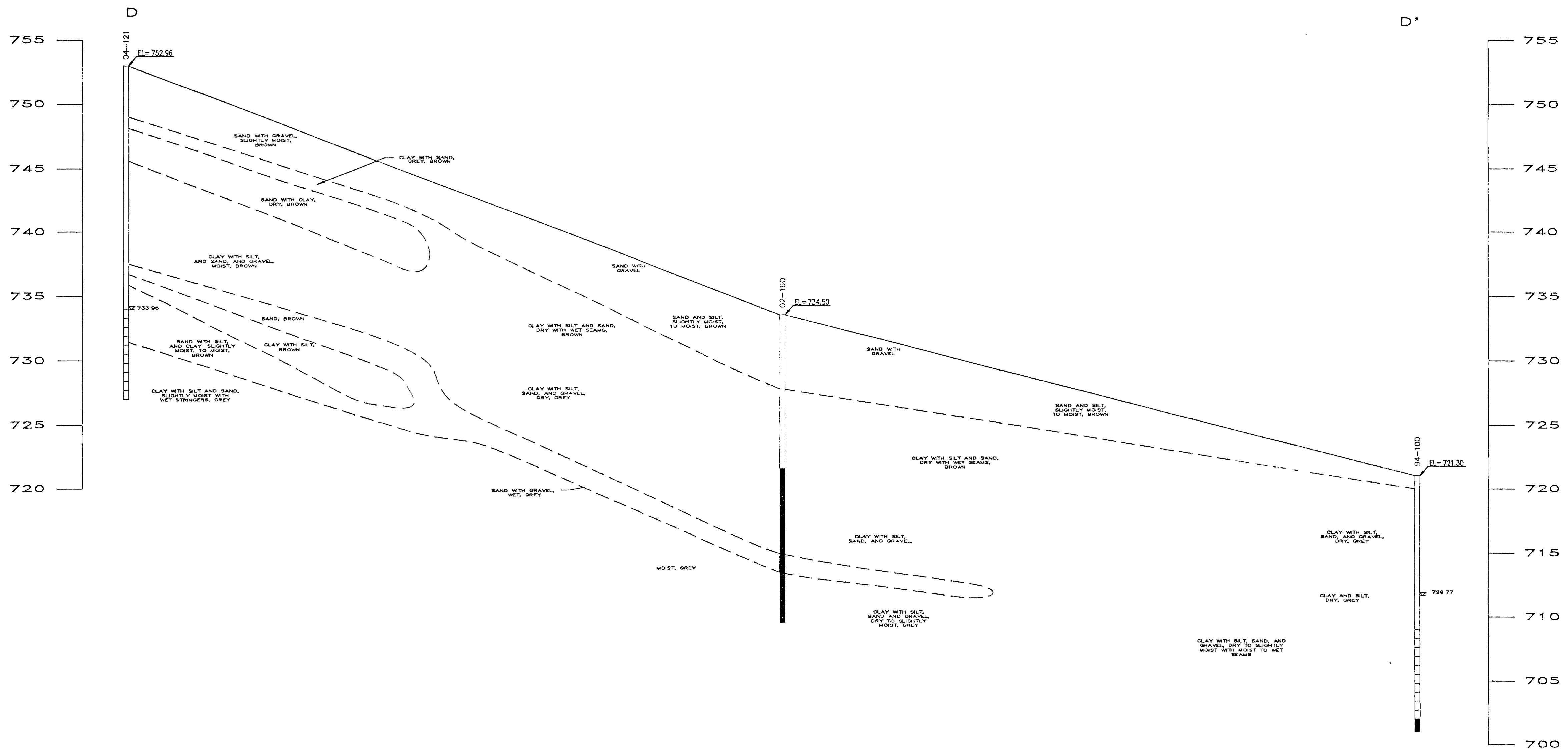
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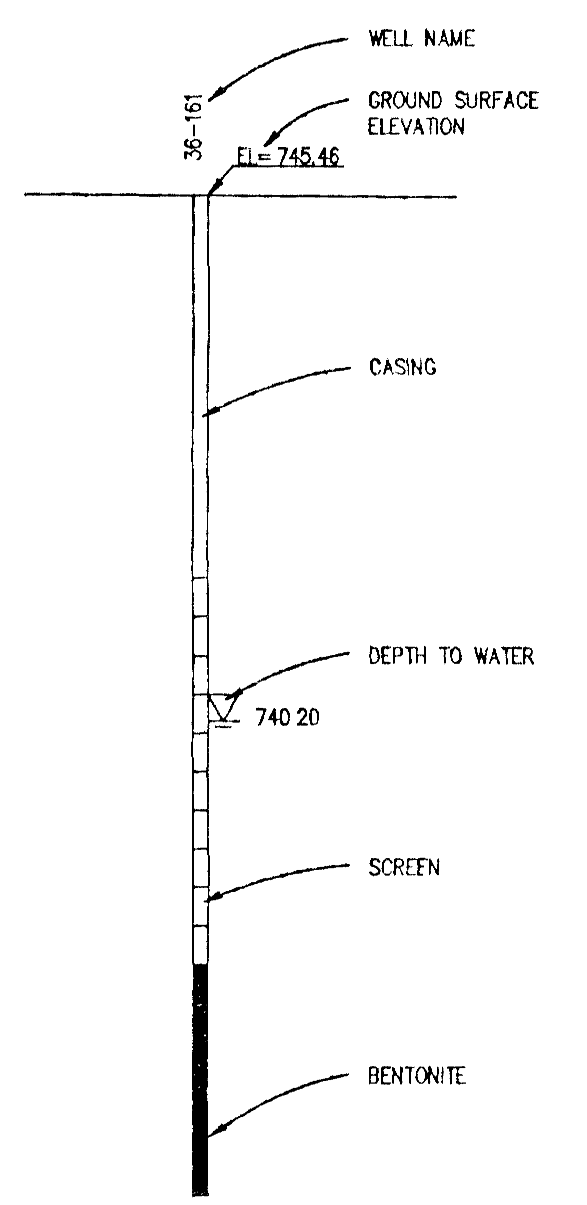
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FIGURE
A-3

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LEGEND



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VERTICAL EXAGGERATION: 20x

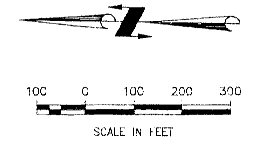
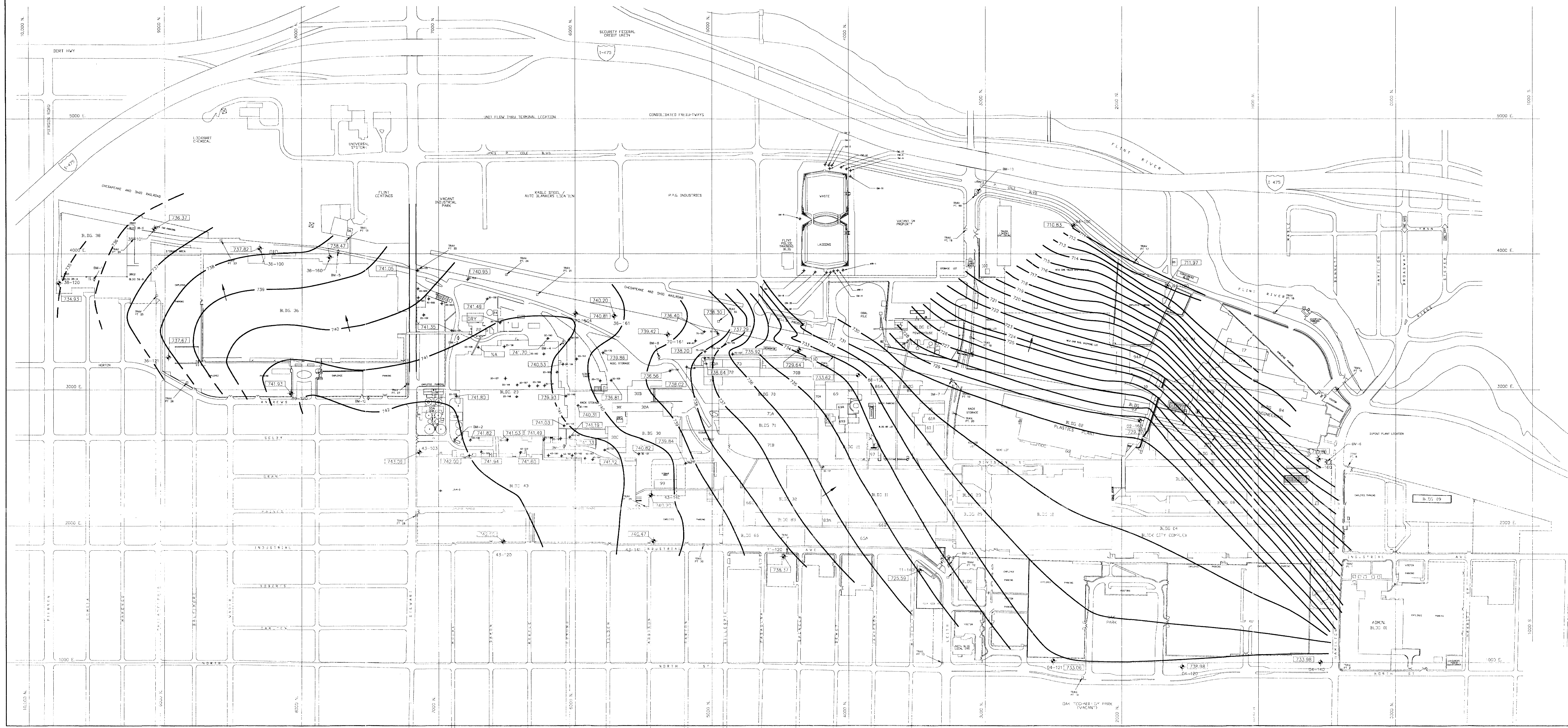
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Approved:		Date	12/12/95
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		Rev.	3/7/96
		Scale	1 of 1

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**ENECOTECH GEOLOGIC
CROSS-SECTION D-D'**

BBL	BLASLAND, BOUCK & LEE, INC. engineers & scientists	FIGURE A-4
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- LEGEND
- ◻ MONITORING WELL
 - ▲ SOIL BORING/TEST BORING/ HAND BORING (USE 15-19)
 - BENCH MARK (VERTICAL CONTROL)
 - HORIZONTAL SURVEY CONTROL POINTS
 - 736.37 MEASURED GROUND WATER ELEVATION (ft)
 - 735 WATER ELEVATION CONTOUR

3. GROUNDWATER CONTOURS HAVE NOT BEEN ALTERED TO CORRESPOND WITH MEASURED GROUNDWATER ELEVATION POINTS WHERE VARIATIONS EXIST.

EncoTech	
ENVIRONMENTAL CONSULTANTS	
PROJECT:	GENERAL MOTORS
CLIENT:	GM
DATE:	05/20/05
GROUND WATER ELEVATION CONTOUR MAP	
SCALE:	AS SHOWN
DATE:	05/20/05

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**ENECOTECH GROUND WATER
ELEVATION CONTOUR MAP**

BBL BLASLAND, BOUCK & LEE, INC. FIGURE
A-5
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X: 8654607.DWG
P: 05/20/05 09:11:07
S: 10/10/05 09:11:07
R: 05/20/05 09:11:07

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Historical Monitoring Well Logs

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 734.50
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/13/95
 Logged By: DARRYL BARRICKLOW
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 4.37 Total Depth: 24.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-1.0'			5YR 4/4	ND	S-1	100	SP	0.0-1.0': SAND AND GRAVEL, DARK BROWN.
1.0-2.5'			5YR 4/4	ND	S-2	40	SM	1.0-2.5': SAND AND SILT, BROWN, DRY TO SLIGHTLY MOIST, FINE GRAINED.
2.5-5.5'			5YR 4/4	ND	S-3	90	SP	2.5-5.5': SAND, BROWN, SLIGHTLY MOIST TO MOIST, FINE GRAINED.
5.5-7.5'			5YR 4/4	ND	S-4	75		5.5-7.5': CLAY WITH SOME TRACE SILT, TRACE SAND, BROWN WITH GRAY MOTTLING, DRY.
7.5-10.0'			5YR 4/4	ND	S-5	100		7.5-10.0': CLAY WITH SOME SILT AND SAND, BROWN. SANDS ARE MOIST TO WET.
10.0-13.0'			5YR 4/4	ND	S-6	-	CL	10.0-13.0': CLAY WITH TRACE SILT TO COARSE SAND, BROWN, DRY, HARD.
13.0-14.0'			5YR 4/4	ND	S-7	100		13.0-14.0': S.A.A.: GRAY WITH RUST MOTTLING, LARGE GRAVEL.
14.0-18.5'			N5	ND	S-8	100		14.0-18.5': CLAY WITH TRACE SILT TO COARSE GRAVEL, GRAY, DRY, HARD.
18.5-19.8'			N5	ND	S-9	100		18.5-19.8': SAND WITH SOME GRAVEL, GRAY, MOIST TO WET, FINE TO MEDIUM GRAINED.
19.8-20.0'			N5	ND	S-10	100	SP	19.8-20.0': CLAY WITH SOME SILT AND GRAVEL, GRAY, DRY TO SLIGHTLY MOIST.
20.0-22.0'			N5	ND	S-11	25		20.0-22.0': CLAY WITH TRACE SILT AND SAND, GRAY, DRY TO SLIGHTLY MOIST.
22.0-24.0'			N5	ND	S-12	100	CL	22.0-24.0': S.A.A.: WITH TRACE GRAVEL, DRY.
TOTAL DEPTH DRILLED = 24.0 FEET WELL SET FROM 5.0 TO 12.0'. GROUNDWATER SAMPLE COLLECTED FROM 5.0 TO 10.0'. GROUNDWATER SAMPLE COLLECTED FROM 17.0 TO 22.0'.								

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Date Start/Finish: 3/16/00 / 3/16/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 16.0 feet Geologist: Ray Wagner	Well No: 03-01 Client: General Motors Corporation Location: GM NAO Flint Site Factory 03 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		15 50/ 0.4'	NA	0.6	1.0			FILL, dark brown fine to coarse Gravel, some Silt, wood, moist to wet.	Steel 8" diameter flushmount curb box. Cement pad.
		(2-4')		NA	NA	NA	0.2				Bentonite seal 1.0' to 3.0' bgs.
5		(4-6')		1 3 2 2	5	1.2	16.9			Gray SILT, some fine Sand, wet, odor, staining.	2-inch diameter PVC casing to 5.0' bgs.
		(6-8')		1 2 2 1	4	0.4	1.4				
10		(8-10')		2 3 4 4	7	1.1	2.5				
		(10-12')		2 2 1 2	3	1.4	0.5			Gray poorly graded fine SAND, wet, odor, staining.	#5 sand pack 3.0' to 15.0' bgs.
		(12-14')		1 3 7 8	10	2.0	0.2			Brown poorly graded fine SAND, no odor or staining.	2-inch diameter 0.010" slot PVC well screen 5.0' to 15.0' bgs.
5		(14-16')		5 6	17	2.0	0.4			Gray lean CLAY, wet.	

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 engineers & scientists


Remarks:
 bgs - below ground surface. NA - Not Available. Soil sample collected from 4-6' bgs for VOCs, metals, SVOCs, and PCBs.

Water Levels		
Date / Time	Elevation	Depth

Client:
General Motors Corporation

Well No: 03-01
Total Depth = 16.0 ft.

Location:
GM NAO Flint Site
Factory 03 Area

DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		11 17	17	2.0	0.4			Gray lean CLAY, wet.	 Formation collapse 15.0' to 16.0' bgs.
										End of boring at 16.0' bgs.	
20											
25											
30											
35											

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Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/16/00 / 3/16/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 16.0 feet Geologist: Ray Wagner	Well No: 03-02 Client: General Motors Corporation Location: GM NAO Flint Site Factory 03 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		5 7 7 9	14	1.2	0.5			FILL, black fine to coarse Sand, Gravel, and coal.	Steel 8" diameter flushmount curb box. Cement pad.
		(2-4')		3 3 4 3	7	1.5	0.1			Yellow-brown poorly graded fine SAND, moist.	Bentonite seal 1.0' to 3.0' bgs.
5		(4-6')		2 2 1 4	3	1.3	0.4			Gray poorly graded fine SAND, some Silt, odor.	2-inch diameter PVC casing to 5.0' bgs.
		(6-8')		3 2 1 3	3	1.3	1.1			Grades with little organic matter (roots) from 8-10' bgs.	
		(8-10')		1 3 4 3	7	1.2	0.7				
10		(10-12')		4 5 5 4	10	1.3	0.5				#5 sand pack 3.0' to 15.0' bgs.
		(12-14')		4 3 5 7	8	1.9	0.4			Gray SILT, little Clay, wet, no odor.	2-inch diameter 0.010" slot PVC well screen 5.0' to 15.0' bgs.
5		(14-16')		4 7	18	2.0	0.2			Gray lean CLAY, moist, no odor.	


 BLASLAND, BOUCK & LEE, INC. <i>engineers & scientists</i>	Remarks: bgs - below ground surface. NA - Not Available. Soil sample collected from 6-8' bgs for VOCs, metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Client:
General Motors Corporation

Well No: 03-02

Location:
GM NAO Flint Site
Factory 03 Area

Total Depth = 18.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		18	18	2.0	0.2			Gray lean CLAY, moist, no odor.	 Formation collapse 15.0' to 16.0' bgs.
										End of boring at 16.0' bgs.	
20											
25											
30											
35											

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Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/17/00 / 3/17/00
Drilling Company: RAU Drilling
Driller's Name: Rod Chaperon
Drilling Method: Hollow Stem Auger
Auger Size: 4.25"
Rig Type: CME 55
Sampling Method: Split Spoon
Hammer Weight: 140 lb.

Borehole Depth: 18.0 feet

Geologist: Ray Wagner

Well No: 03-03

Client:
 General Motors Corporation

Location:
 GM NAO Flint Site
 Factory 03 Area

DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
				NA	NA	NA	NA			2" of Asphalt, then 4" of concrete.	Steel 8" diameter flushmount curb box. Cement pad.
		(1-3')		4 5 5 7	10	1.5	12.3			FILL, black Silt, some fine to medium Sand and Cinders, slight odor and staining.	Cement/bentonite grout 1.0' to 4.0' bgs.
		(3-5')		5 5 3 2	8	1.9	14.5				Bentonite seal 4.0' to 6.0' bgs.
5		(5-7')		2 4 9 10	13	1.1	14.1				2-inch diameter PVC casing to 8.0' bgs.
		(7-9')		6 7 17 29	24	0.7	11.4			Gray SILT, moist to wet. Augered through concrete.	
10		(10-12')		7 10 17 50/ 0.2'	27	0.7	35.3			FILL, brown to black fine to coarse Gravel and concrete, some Silt and fine to coarse Sand. Augered through concrete slab.	#5 sand pack 6.0' to 18.0' bgs.
		(12-14')		NA	NA	NA	NA			Gray SILT, wet, odor, staining, sheen.	2-inch diameter 0.010" slot PVC well screen 8.0' to 18.0' bgs.
6		(14-16')		6 5	8	1.6	69.5				

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Remarks:

bgs - below ground surface. NA - Not Available. Soil sample collected from 14-16' bgs for VOCs, metals, SVOCs, and PCBs.

Water Levels

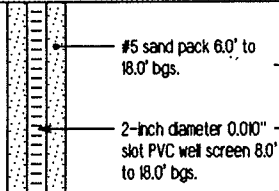
Date / Time	Elevation	Depth

Client:
General Motors Corporation

Well No: 03-03

Location:
GM NAO Flint Site
Factory 03 Area

Total Depth = 18.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		3 3	8	1.6	69.5			Gray SILT, wet, odor, staining, sheen.	 <p>#5 sand pack 6.0' to 18.0' bgs. 2-inch diameter 0.010" slot PVC well screen 8.0' to 18.0' bgs.</p>
		(16-18')		7 9 8 7	17	2.0	10.7			Gray lean CLAY, moist.	
										End of boring at 18.0' bgs.	
20											
25											
30											
35											

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Remarks:

Water Levels

Date / Time	Elevation	Depth


Date Start/Finish: 3/8/00 / 3/8/00 Drilling Company: RAU Drilling Driller's Name: Rick Rau Drilling Method: Hollow Stem Auger Auger Size: 4.25" ID Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 14.0 feet Geologist: Matt Stuk	Well No: 04-1 Client: General Motors Corporation Location: GM NAO Flint Site Building 04 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		- 5 10	5	0.33	1.6			Concrete.	
		(2-4')		2 9 10 15	19	1.67	2.5			Brown Sandy lean CLAY, moist.	
5		(4-6')		12 19 27 30	46	2.0	0.1			Wet.	
		(6-8')		10 10 17 16	27	1.83	0.3				
		(8-10')		11 17 22 29	39	2.0	1.4				
10		(10-12')		8 13 17 21	30	1.67	331			Color changes to gray.	
		(12-14')		11 17 19 19	36	2.0	170				
5										End of boring at 14.0' bgs.	

	Remarks: bgs - below ground surface. NA - Not Available. Soil sample collected from 2-4' bgs for metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Date Start/Finish: 3/8/00 / 3/8/00 Drilling Company: RAU Drilling Driller's Name: Rick Rau Drilling Method: Hollow Stem Auger Auger Size: 4.25" ID Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 14.0 feet Geologist: Matt Stuk	Well No: 04-2 Client: General Motors Corporation Location: GM NAO Flint Site Building 04 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		5 9	14	0.5	0.0			Asphalt. Sand FILL.	Steel 8" diameter flushmount curb box.
		(2-4')		5 5 10 17	15	1.67	0.0			Brown Sandy lean CLAY, some fine to coarse Sand, moist, slight hydrocarbon odor.	Bentonite seal 1.0' to 3.5' bgs. 2-inch diameter PVC casing to 4.0' bgs.
5		(4-6')		7 9 9 13	18	1.5	0.0			Wet.	#5 sand pack 3.5' to 14.0' bgs.
		(6-8')		3 4 7 8	11	0.5	10.3				
		(8-10')		3 9 7 11	16	0.42	47				2-inch diameter 0.010" slot PVC well screen 4.0' to 14.0' bgs.
10		(10-12')		3 6 7 10	13	1.5	32			Brown Clayey fine GRAVEL, wet, slight hydrocarbon odor.	
		(12-14')		- 17 15 30	32	1.67	16			Gray Sandy SILT, little fine to coarse Sand, wet.	
										End of boring at 14.0' bgs.	

 BLASLAND, BOUCK & LEE, INC. <i>engineers & scientists</i>	Remarks: bgs - below ground surface. NA - Not Available. Soil sample collected from 4-6' bgs for metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Date Start/Finish: 3/8/00 / 3/8/00
 Drilling Company: RAU Drilling
 Driller's Name: Rick Rau
 Drilling Method: Hollow Stem Auger
 Auger Size: 4.25"
 Rig Type: CME 55
 Sampling Method: Split Spoon
 Hammer Weight: 140 lb.

Borehole Depth: 14.0 feet

Geologist: Matt Stuk

Well No: 04-3

Client:
 General Motors Corporation

Location:
 GM NAO Flint Site
 Recovery Well South of Building 04

DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		5 9	14	0.5	0.0			Asphalt. Sand FILL.	Steel 8" diameter flushmount curb box.
		(2-4')		5 5 10 17	15	1.67	0.0			Brown Sandy lean CLAY, some fine to coarse Sand, moist, slight hydrocarbon odor.	Bentonite seal 1.0' to 3.5' bgs. 2-inch diameter PVC casing to 4.0' bgs.
5		(4-6')		7 9 9 13	18	1.5	0.0			Wet.	#5 sand pack 3.5' to 14.0' bgs.
		(6-8')		3 4 7 8	11	0.5	10.3				
		(8-10')		3 9 7 11	16	0.42	47				2-inch diameter 0.010" slot PVC well screen 4.0' to 14.0' bgs.
10		(10-12')		3 6 7 10	13	1.5	32			Brown Clayey fine GRAVEL, wet, slight hydrocarbon odor.	
		(12-14')		- 17 15 30	32	1.67	16			Gray Sandy SILT, little fine to coarse Sand, wet.	
										End of boring at 14.0' bgs.	

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Remarks:

bgs - below ground surface. NA - Not Available. Soil sample collected from 4-6' bgs for metals, SVOCs, and PCBs.

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/9/00 / 3/9/00 Drilling Company: RAU Drilling Driller's Name: Rick Rau Drilling Method: Hollow Stem Auger Auger Size: 4.25" ID Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 14.0 feet Geologist: Matt Stuk	Well No: 04-4 Client: General Motors Corporation Location: GM NAO Flint Site Building 04 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		3 5 8 10	13	1.67	0.0			Asphalt. Black Sand FILL, dry, no odor.	
		(2-4')		7 11 14 19	25	2.0	0.1				
5		(4-6')		8 13 14 22	27	2.0	7.6				
		(6-8')		6 16 22 28	38	1.67	1.0		Wet.		
		(8-10')		4 6 4 4	10	1.83	0.0		Brown Sandy lean CLAY, some fine to coarse Sand, moist, no odor.		
10		(10-12')		3 2 1 2	3	0.83	0.0		Brown Clayey GRAVEL, wet.		
		(12-14')		8 50 - -	NA	0.33	0.0		Auger refusal at 12.5' bgs.		
5									End of boring at 14.0' bgs.		

	Remarks: bgs - below ground surface. NA - Not Available. Soil sample collected from 4-6' bgs for VOCs, metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 751.44
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 9/29/95
 Logged By: DARRYL BARRICKLOW
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 12.16 Total Depth: 24.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
			5YR 4/4	ND	S-1	70	OL	0.0-0.5': LANDSCAPE.
			5YR 4/4	ND	S-2	75		0.5-1.8': SAND WITH GRAVEL, BROWN, DRY. 1.8-2.0': SAND, LIGHT BROWN, FINE GRAINED.
5			5YR 4/4	ND	S-3	80	SP	2.0-4.0': SAND WITH TRACE GRAVEL, BROWN, SLIGHTLY MOIST, FINE GRAINED.
			5YR 4/4	ND	S-4	80		4.0-8.0': SAND AND GRAVEL, BROWN, DRY TO SLIGHTLY MOIST, FINE GRAINED.
10			5YR 4/4	ND	S-5	100	SM	8.0-11.8': SAND AND SILT, BROWN, SLIGHTLY MOIST, VERY FINE GRAINED. WET AT 11.0'.
			5YR 4/4	ND	S-6	100		
15			N5	ND	S-7	100	MH	11.8-14.0': SILT WITH TRACE CLAY, GRAY, WET.
			N5	ND	S-8	90		14.0-15.8': S.A.A.: WITH TRACE SAND.
			N5	ND	S-9	100		15.8-18.0': CLAY WITH TRACE SILT, SLIGHTLY MOIST, GRAY, MEDIUM STIFFNESS.
20			N5	ND	S-10	100	CL	
			N5	ND	S-11	100		18.0-24.0': S.A.A.: SLIGHTLY MOIST TO DRY.
			N5	ND	S-12	100		
25								TOTAL DEPTH DRILLED = 24.0 FEET WELL SET FROM 10.0 TO 17.0'.

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 752.96
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 9/29/95
 Logged By: DARRYL BARRICKLOW
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 19.65 Total Depth: 26.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-0.5'			5YR 4/4	ND	S-1	60	OL	0.0-0.5': LANDSCAPE AND SOD.
0.5-4.0'			5YR 4/4	ND	S-2	100	SP	0.5-4.0': SAND WITH TRACE GRAVEL, DRY TO SLIGHTLY MOIST. 1" ASPHALT AT 3.4'.
4.0-4.9'			5YR 4/4	ND	S-3	100	CL	4.0-4.9': CLAY WITH SOME SAND, BROWN, DRY.
4.9-7.4'			5YR 4/4	ND	S-4	100	SC	4.9-7.4': SAND WITH TRACE CLAY, BROWN, DRY, FINE GRAINED.
7.4-10.0'			5YR 4/4	ND	S-5	10		7.4-10.0': CLAY WITH SOME SILT AND TRACE COARSE SAND, BROWN, MOIST.
10.0-12.0'			5YR 4/4	ND	S-6	95	CL	10.0-12.0': CLAY WITH TRACE SILT, BROWN WITH GRAY MOTTLING, DRY, STIFF.
12.0-14.0'			5YR 4/4	ND	S-7	100		12.0-14.0': CLAY WITH SOME SAND AND SILT, BROWN WITH TRACE GRAY MOTTLING, SLIGHTLY MOIST.
14.0-15.8'			5YR 4/4	ND	S-8	100		14.0-15.8': CLAY WITH SOME SILT, TRACE SAND AND FINE GRAVEL, BROWN. GRAY FROM 15.1 TO 15.4'.
15.8-16.0'			5YR 4/4	ND	S-9	100	SP CL	15.8-16.0': SAND, BROWN, FINE GRAINED.
16.0-16.4'			5YR 4/4	ND	S-10	100	SM	16.0-16.4': CLAY WITH SOME SILT, BROWN.
16.4-20.7'			5YR 4/4	ND	S-10	100	SM	16.4-20.7': SAND WITH SOME SILT AND CLAY, BROWN, SLIGHTLY MOIST TO MOIST.
20.7-21.5'			N5	ND	S-11	100	CL MH	20.7-21.5': CLAY WITH SOME SILT, GRAY, DRY TO SLIGHTLY MOIST.
21.5-21.8'			N5	ND	S-12	100	CL SM CL	21.5-21.8': SILT WITH SOME CLAY, GRAY, WET.
21.8-22.7'			N5	ND	S-12	100	CL SM CL	21.8-22.7': CLAY WITH SOME TO TRACE SILT, GRAY, SLIGHTLY MOIST.
22.7-22.9'			N5	ND	S-12	100	CL SM CL	22.7-22.9': SAND WITH SOME SILT, WET.
22.9-26.0'			N5	ND	S-13	100	CL SM CL	22.9-26.0': CLAY WITH SOME SILT AND TRACE COARSE SAND, GRAY/BROWN, SLIGHTLY MOIST. 2" WET SAND SEAM AT 23.5'.
TOTAL DEPTH DRILLED = 26.0 FEET								
WELL SET FROM 19.0 TO 26.0'.								
GROUNDWATER SAMPLE COLLECTED FROM 16.0-21.0'.								

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 751.82
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 9/29/95
 Logged By: DARRYL BARRICKLOW
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 17.67 Total Depth: 22.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-0.5'			5YR 4/4	ND	S-1	100	OL	0.0-0.5': SOD.
0.5-2.0'			5YR 4/4	ND	S-2	100	SP	0.5-2.0': SAND WITH SOME GRAVEL, BROWN, DRY, FILL.
2.0-3.25'			5YR 4/4	ND	S-3	100	SC	2.0-3.25': SAND WITH SOME CLAY AND GRAVEL, BROWN, DRY.
3.25-8.0'			5YR 4/4	ND	S-4	60	SP	3.25-8.0': SAND, LIGHT BROWN, DRY, FINE GRAINED.
8.0-9.0'			5YR 4/4	ND	S-5	100	SC	8.0-9.0': SAND WITH SOME CLAY AND SILT, ORANGE/BROWN, SLIGHTLY MOIST.
9.0-13.7'			5YR 4/4	ND	S-6	100	SM	9.0-13.7': SAND AND SILT, BROWN, SLIGHTLY MOIST TO DRY, FINE GRAINED.
13.7-14.0'			5YR 4/4	ND	S-7	100	MH	13.7-14.0': SILT WITH SOME CLAY, BROWN, MOIST TO WET.
14.0-18.2'			5YR 4/4	ND	S-8	100	SM	14.0-18.2': SAND AND SILT, BROWN, SLIGHTLY MOIST, FINE GRAINED.
18.2-18.6'			N5	ND	S-9	100	SM	18.2-18.6': SAND AND SILT, BROWN, SLIGHTLY MOIST, FINE GRAINED. WET AT 17.0'.
18.6-18.8'			N5	ND	S-10	100	CL	18.6-18.8': CLAY WITH SOME SILT, BROWN, SLIGHTLY MOIST, SOFT.
18.8-22.0'			N5	ND	S-11	100	CL	18.8-22.0': S.A.A.: GRAY, TRACE SILT, SOFT TO MEDIUM STIFFNESS.
TOTAL DEPTH DRILLED = 22.0 FEET WELL SET FROM 15.0 TO 22.0'. GROUNDWATER SAMPLE COLLECTED FROM 16.0-21.0'.								

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 730.42
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/10/95
 Logged By: DARRYL BARRICKLOW
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 14.02 Total Depth: 22.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-0.6'								ASPHALT AND CONCRETE.
0.7-3.3'							SP	SAND AND CINDER, BLACK/BROWN, DRY TO SLIGHTLY MOIST.
3.3-4.9'							CL	CLAY WITH SOME SILT, TRACE SAND AND GRAVEL, OLIVE/BROWN, SLIGHTLY MOIST.
4.9-6.0'								SAND WITH TRACE SILT AND FINE GRAVEL, BROWN/ORANGE, SLIGHTLY MOIST, FINE GRAINED.
6.0-9.3'							SP	S.A.A.: FINE SAND TO FINE GRAVEL. MOIST TO WET.
9.3-10.2'							CL	CLAY AND SILT, BROWN, SLIGHTLY MOIST.
10.2-12.0'							CH	CLAY WITH VARYING SILT AND SAND LENSES, GRAY, MOIST TO WET.
12.0-16.8'							CL	CLAY WITH SILT TO COARSE GRAVEL, GRAY, DRY, HARD.
16.8-17.8'							SP	SAND (FINE GRAINED) TO COARSE GRAVEL, GRAY, WET.
17.8-18.3'							ML	SILT WITH SOME CLAY, GRAY, SLIGHTLY MOIST.
18.3-19.0'							SM	SILT AND FINE SAND WITH SOME GRAVEL, GRAY, MOIST.
19.0-19.8'							CL	CLAY WITH SOME SILT AND GRAVEL, GRAY, SLIGHTLY MOIST.
19.8-20.0'							SM	SILT WITH SOME SAND, GRAY, WET.
20.0-22.0'							CL	CLAY WITH SOME SILT TO GRAVEL, GRAY, STIFF TO HARD. SILT SEAMS.
								TOTAL DEPTH DRILLED = 22.0 FEET
								WELL SET FROM 15.0 TO 22.0'
								GROUNDWATER SAMPLE COLLECTED FROM 15.0 TO 20.0'

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Date Start/Finish: 3/15/00 / 3/15/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 18.0 feet Geologist: Ray Wagner	Well No: 07-01 Client: General Motors Corporation Location: GM NAO Flint Site Building 07 Power House Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		- 7 8	NA	1.0	0.5			Concrete with rebar.	
		(2-4')		9 15 50/ 0.4'	NA	0.83	0.9			FILL, brown/black Silt and fine Sand, some medium to coarse Sand and Gravel.	
		(4-6')		15 7 4 3	11	1.33	0.8			FILL, black Silty fine Sand, wet.	
		(6-8')		NA	NA	NA	NA			No sample collected - concrete debris (Fill).	
5		(8-10')		3 5 7 7	12	1.83	0.7			Lean CLAY, some Silt, trace fine to coarse Sand, wet, slightly plastic.	
		(10-12')		2 3 5 6	8	1.67	1.0				
		(12-14')		3 5 4 8	9	1.67	0.7				
		(14-16')		4 5	10	1.83	0.2			Gray SILT, little fine Sand, wet.	

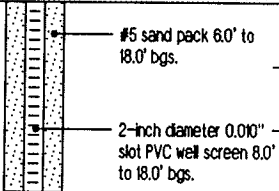
	Remarks: bgs - below ground surface. NA - Not Available. Soil sample collected from 10-12' bgs for VOCs, metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Client:
General Motors Corporation

Well No: 07-01

Location:
GM NAO Flint Site
Building 07 Power House Area

Total Depth = 18.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')	/	5	10	1.83	0.2			Gray SILT, little fine Sand, wet.	
		(16-18')		3							
										End of boring at 18.0' bgs.	
20											
25											
30											
35											

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Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/15/00 / 3/15/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 18.0 feet Geologist: Ray Wagner	Well No: 07-02 Client: General Motors Corporation Location: GM NAO Flint Site Building 07 Power House Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		9 8 7 -	15	0.3	2.4			Crushed railroad bed. FILL, brown/black medium to coarse Gravel, coal, and fine to coarse Sand.	Steel 8" diameter flushmount curb box. Cement pad. Cement/bentonite grout 1.0' to 2.5' bgs.
		(2-4')		9 7 13 17	20	0.2	0.9				Bentonite seal 2.5' to 6.0' bgs.
5		(4-6')		6 7 6 7	13	1.5	2.1			Brown poorly graded medium SAND, moist.	2-inch diameter PVC casing to 8.0' bgs.
		(6-8')		3 5 5 4	10	1.6	2.1			Brown well sorted SAND, some Silt, moist.	
		(8-10')		3 6 5 5	11	2.0	2.0			Brown SILT, little fine to coarse Sand, moist.	
10		(10-12')		3 7 9 10	16	2.0	2.2				#5 sand pack 6.0' to 18.0' bgs.
		(12-14')		7 11 12 14	23	2.0	2.4			Brown Silty SAND, wet.	2-inch diameter 0.010" slot PVC well screen 8.0' to 18.0' bgs.
5		(14-16')		12 22	62	2.0	1.5				

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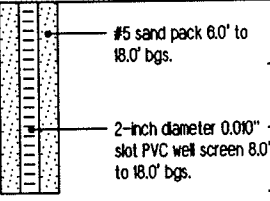
Remarks:
 bgs - below ground surface. NA - Not Available. Soil sample collected from 10-12' bgs for VOCs, metals, SVOCs, and PCBs. Duplicate sample collected at this location.

Water Levels		
Date / Time	Elevation	Depth

Client:
General Motors Corporation

Well No: 07-02
Total Depth = 18.0 ft.

Location:
GM NAO Flint Site
Building 07 Power House Area

DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		40 46	62	2.0	1.5			Gray SILT, some fine Sand, hard, wet.	 <p>#5 sand pack 6.0' to 18.0' bgs. 2-inch diameter 0.010" slot PVC well screen 8.0' to 18.0' bgs.</p>
		(16-18')		27 39 50/ 0.5'	89	1.5	1.9				
										End of boring at 18.0' bgs.	
20											
25											
30											
35											

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engineers & scientists

Remarks:

Water Levels

Date / Time	Elevation	Depth

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 748.17
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/4/95
 Logged By: BRIAN BOKOVOY
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 9.54 Total Depth: 22.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Drg. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-2.7'			5YR 4/4	ND	S-1	50		0.0-2.7': SAND AND GRAVEL, DARK BROWN, SLIGHTLY MOIST, FINE GRAINED.
2.7-5.5'			10YR 8/6	ND	S-2	75	SP	2.7-5.5': SAND, YELLOW-ORANGE, SLIGHTLY MOIST TO MOIST, FINE GRAINED.
5.5-6.1'			10YR 8/6	ND	S-3	100	CL	5.5-6.1': CLAY WITH SOME SILT, BROWN, SLIGHTLY MOIST, SLIGHTLY PLASTIC.
6.1-8.0'			5YR 4/4	ND	S-4	100	SM	6.1-8.0': SAND AND SILT, YELLOW-ORANGE, MOIST, FINE GRAINED.
8.0-10.5'			N5	ND	S-5	50	CL	8.0-10.5': CLAY WITH SOME SILT, GRAY, SLIGHTLY MOIST, SLIGHTLY PLASTIC. WET SILT LENSES FROM 9.3 TO 10.0'.
10.5-12.0'			N5	ND	S-6	50		10.5-12.0': SAND, GRAY, WET, FINE TO COARSE GRAINED.
12.0-14.3'			N5	ND	S-8	100		12.0-14.3': S.A.A.: COARSE GRAINED.
14.3-18.7'			N5	ND	S-9	100	SP	14.3-18.7': S.A.A.: FINE GRAINED.
18.7-20.0'			N5	ND	S-10	100		
20.0-22.0'			N5	ND	S-11	100	CH	18.7-20.0': CLAY WITH SOME SILT, GRAY, MOIST, PLASTIC.
			N5	ND	S-12	100	CL	20.0-22.0': CLAY WITH SOME SILT, SLIGHTLY MOIST, SLIGHTLY PLASTIC.
TOTAL DEPTH DRILLED = 22.0 FEET WELL SET FROM 7.0 TO 14.0'. GROUNDWATER SAMPLE COLLECTED FROM 7.0-12.0'. GROUNDWATER SAMPLE COLLECTED FROM 15.0-20.0'.								

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Project Name: GM-NAO FLINT OPERATIONS Date(s) Drilled: 10/4/95
 Project Number: 041057F001 Logged By: BRIAN BOKOVOY
 Location: T.7N R.7E 7 Contractor: SOMAT ENGINEERING
 T R SEC QTR QTR Drill Rig/Method: HOLLOW STEM AUGER
 Northing: _____ Easting: _____ Sampling Method: SPLIT SPOON
 Ground Surface Elev.: 742.74 Borehole Diam.: 8" Drilling Fluid: NONE
 Property Owner/Contact: GENERAL MOTORS Depth to Water: 16.70 Total Depth: 24.0'
 Application: MONITORING WELL INSTALLATION

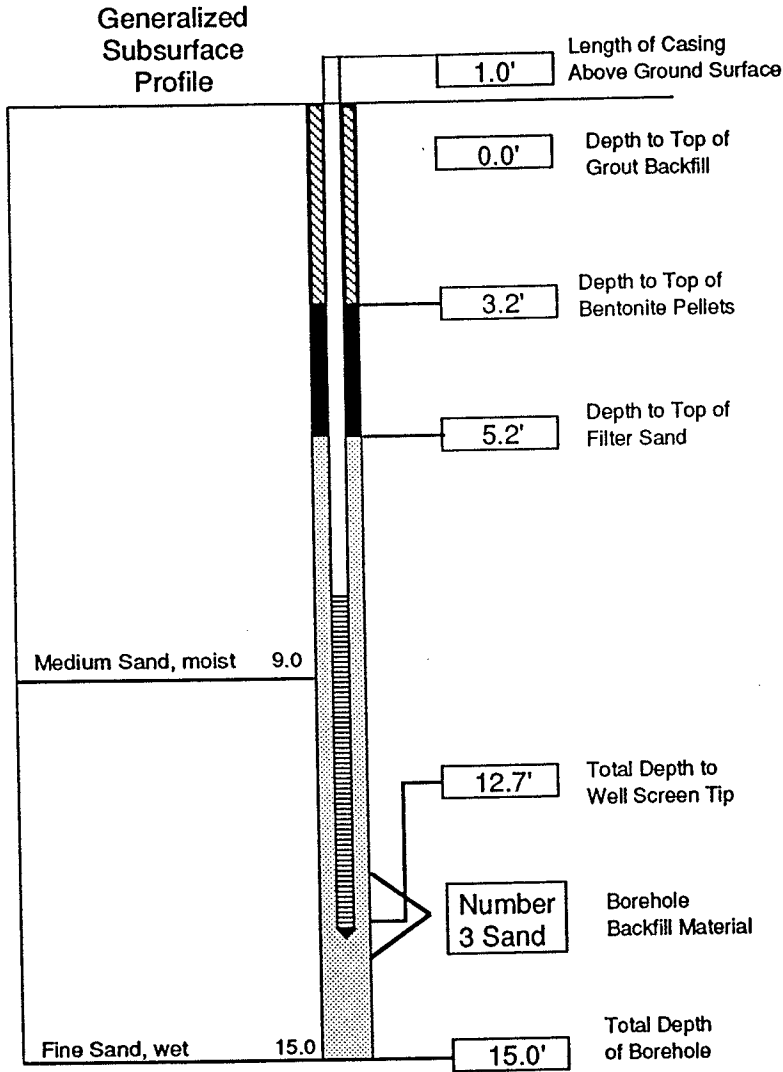
Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-4.5'			10YR 8/6	ND	S-1	10		SAND, YELLOW-ORANGE, SLIGHTLY MOIST, FINE GRAINED.
4.5-6.0'			10YR 8/6	ND	S-2	100	SP	S.A.A.: BROWN.
6.0-6.2'			5YR 4/4	ND	S-3	100		SILT WITH SOME CLAY, GRAY, WET.
6.2-8.0'			N5	ND	S-4	75	MH SP	SAND, GRAY, WET, FINE TO MEDIUM GRAINED.
8.0-12.2'			N5	ND	S-5	100		CLAY WITH SOME SILT, GRAY, MOIST, PLASTIC.
12.2-15.0'			N5	ND	S-6	100	CH	
15.0-18.5'			N5	ND	S-8	50	SP	SAND, GRAY, DRY, FINE TO MEDIUM GRAINED. WET AT 14.0'.
18.5-18.7'			N5	ND	S-9	90		
18.7-22.0'			N5	ND	S-10	100	MH	SILT, GRAY, WET TO MOIST.
22.0-24.0'			N5	ND	S-11	100	CL	CLAY WITH SOME SILT, GRAY, SLIGHTLY MOIST, SLIGHTLY PLASTIC.
			N5	ND	S-12	100	MH	SILT, GRAY, MOIST.
			N5		S-13	0		NO RECOVERY.
TOTAL DEPTH DRILLED = 24.0 FEET WELL SET FROM 11.0 TO 18.0'. GROUNDWATER SAMPLE COLLECTED FROM 7.0-12.0'. GROUNDWATER SAMPLE COLLECTED FROM 17.0-22.0'.								

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Log of Well Installation

Well Designation: Section 1 / MW-2 (20-100)

Date(s) of Installation: 10-23-91 To 10-23-91



Top of Casing Elevation: 751.35

Ground Surface Elevation: 750.5

Well Screen Tip Elevation: 737.8

Well Casing

Diameter: 2 inches

Total Length: 8.5 feet

Material: Schedule 40 PVC

Cap (Y/N): Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.010-inch slot size

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Steel

Diameter: 4 inches

Length: 5.0 feet

Length Above Ground: 1 foot

Lock (Y/N): Yes

Inspector: C. Kingma
 Contractor: Stearns Drilling Co.
 Driller: R. Christensen
 Drilling Equipment: CME-55 rig with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

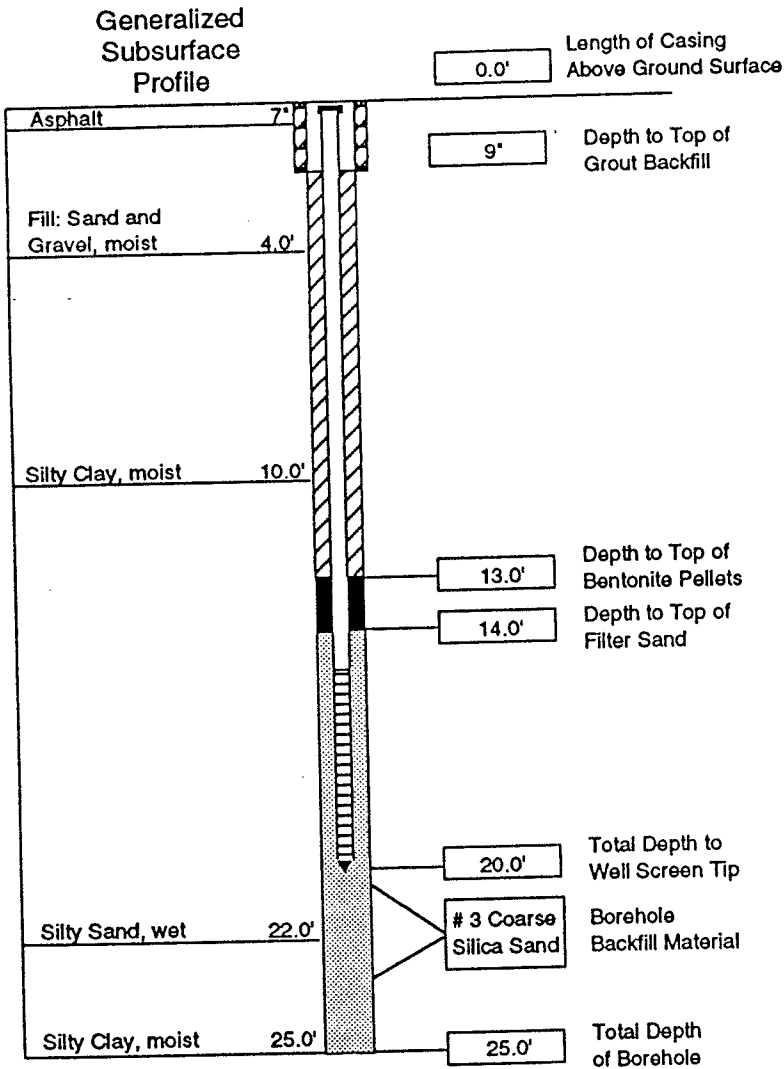
Datum: Top of Well Casing

Date	Water Level Elevation
11-14-91	740.53
2-10-92	741.01

General Notes: Elevations presented on this log are referenced to a U.S.G.S. datum.

Log of Well Installation

Well Designation: Section 2/MW-2 (20-101)
 Date(s) of Installation: 10/15/91 To 10/15/91



Top of Casing Elevation: 752.24
 Ground Surface Elevation: 752.6
 Well Screen Tip Elevation: 732.6

Well Casing

Diameter: 2 inches
 Total Length: 15 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen

Diameter: 2 inches
 Length: 5 feet
 Mesh: 0.010 - inch slot size
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush mount road box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: Hosam Hassanien
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55 rig with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

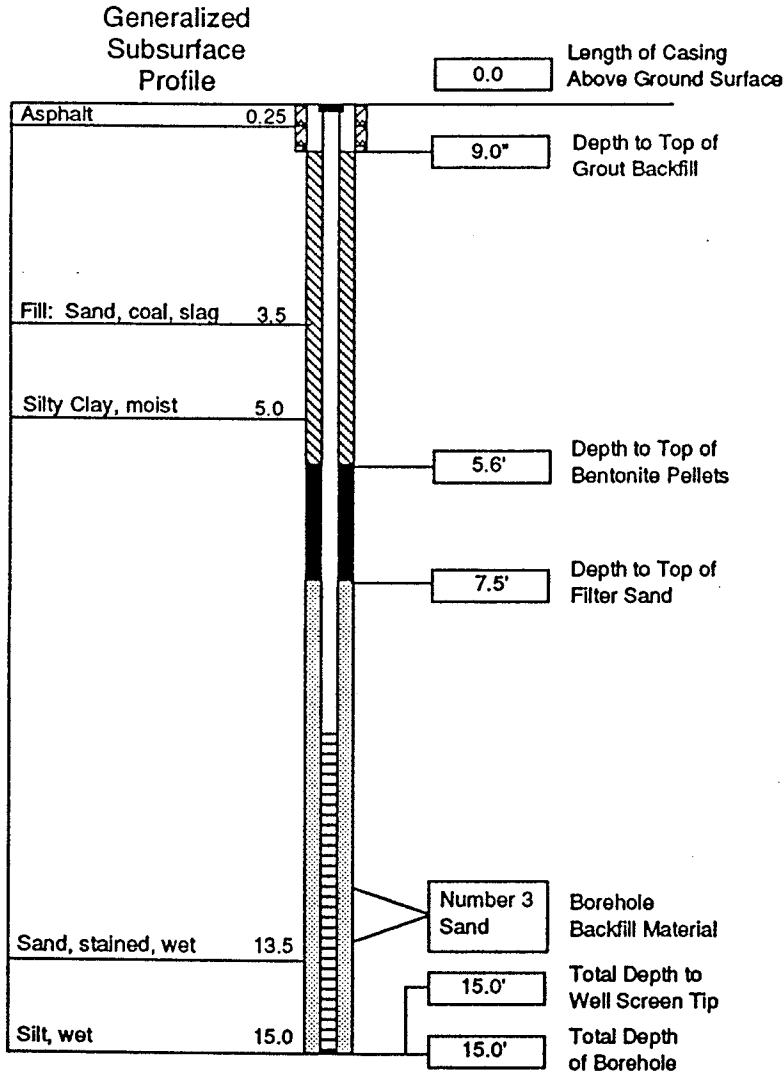
Date	Water Level Elevation
11-14-91	740.97

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 2 /MW-3 (10-01)

Date(s) of Installation: 10-23-91 To 10-23-91



Top of Casing Elevation: 751.82

Ground Surface Elevation: 752.3

Well Screen Tip Elevation: 737.3

Well Casing

Diameter: 2 inches

Total Length: 9.5 feet

Material: Schedule 40 PVC

Cap (Y/N): Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.010-inch slot size

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box

Diameter: 7.5 inches

Length: 9.0 inches

Length Above Ground: 0 inches

Lock (Y/N): Yes

Inspector: C. Kingma

Contractor: Stearns Drilling Co.

Driller: R. Christensen

Drilling Equipment: CME-55 rig with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand

Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Top of Well Casing

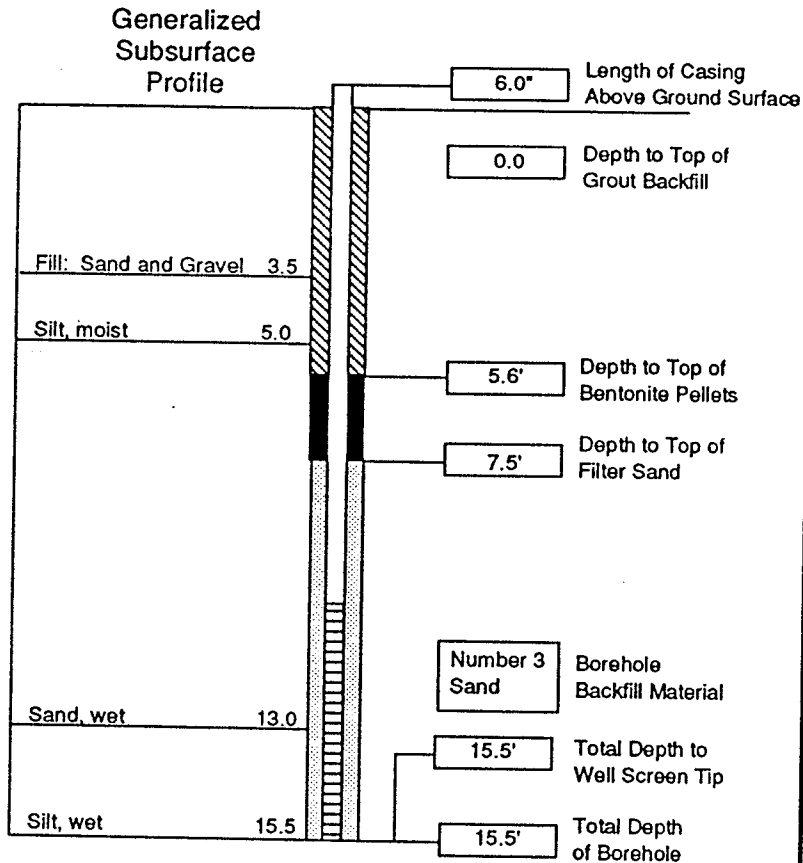
Date	Water Level Elevation
11-14-91	739.94
2-10-92	738.24

General Notes: Elevations presented on this log are referred to a U.S.G.S. datum.

Log of Well Installation

Well Designation: Section 12 / MW-4 (20-163)

Date(s) of Installation: 10-24-91 To 10-25-91



Top of Casing Elevation: 752.12

Ground Surface Elevation: 752.6

Well Screen Tip Elevation: 737.1

Well Casing

Diameter: 2 inches

Total Length: 10.0 feet

Material: Schedule 40 PVC

Cap (Y/N): Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.010-inch slot size

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box

Diameter: 7.5 inches

Length: 9.0 inches

Length Above Ground: 0 inches

Lock (Y/N): Yes

Inspector: C. Kingma
 Contractor: Stearns Drilling Co.
 Driller: R. Christensen
 Drilling Equipment: CME-55 rig with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Top of Well Casing
 Date Water Level Elevation

Date	Water Level Elevation
11-14-91	738.99
2-10-92	740.84

General Notes: Elevations presented on this log are referred to a U.S.G.S. datum.

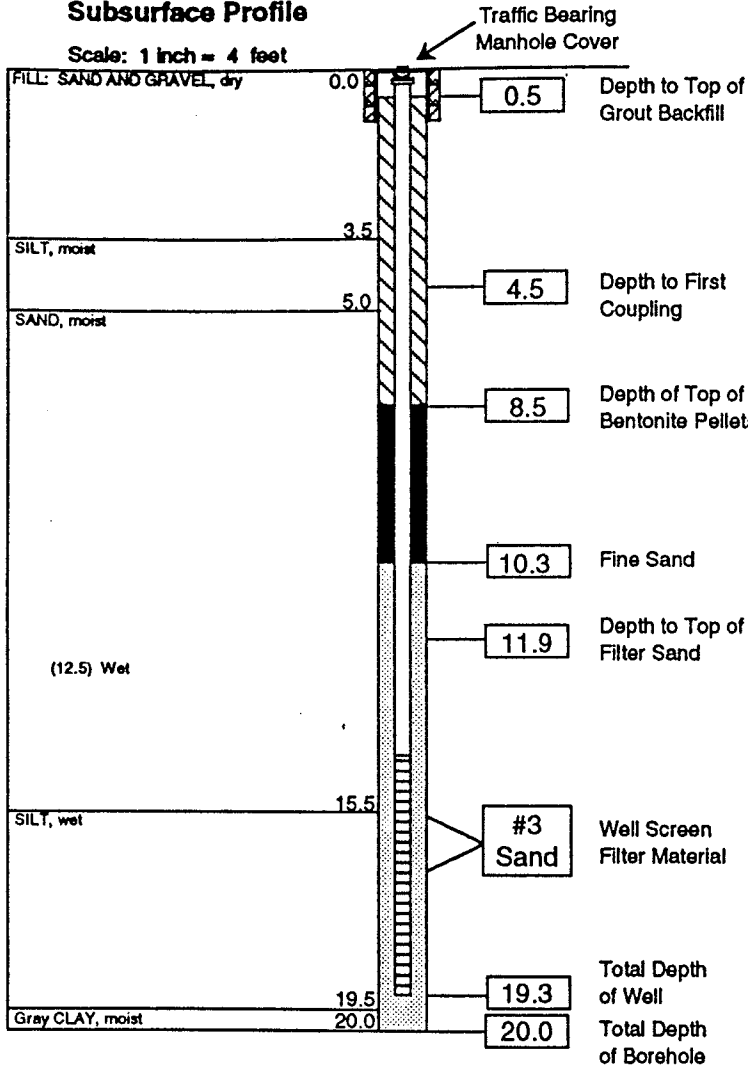
Log of Well Installation

Well Designation: MW-4D (20-103S)

Date(s) of Installation: 7-21-92 To 7-21-92

Generalized Subsurface Profile

Scale: 1 inch = 4 feet



Ground Surface Elevation: 752.5

Top of Casing Elevation: 752.20

Well Screen Tip Elevation: 733.2

Well Casing

Diameter: 2.0 inches

Total Length: 14.0 feet

Material: Schedule 40 PVC

Cap (Y/N): Locking J-Plug

Well Screen

Diameter: 2.0 inches

Length: 5.0 feet

Mesh: 0.010 inch slot

Material: Schedule 40 PVC

Well Screen Interval: 14.3 - 19.3

Protective Well Casing Cover

Material: Steel Flush Cap

Diameter: 9.0 inches

Length: 12.0 inches

Lock (Y/N): 7/8 inch bolt

Inspector: G. Schmalz

Driller: R. Christensen

Contractor: Stearns Drilling Company

Drilling Equipment: CME 750 Trailer Mount

Well Screen Filter Material: #3 Sand

Grout Backfill Material: Cement/Bentonite slurry

Other well materials used: Bentonite pellets/Fine sand

Water Level Data

Datum: Top of Well Casing

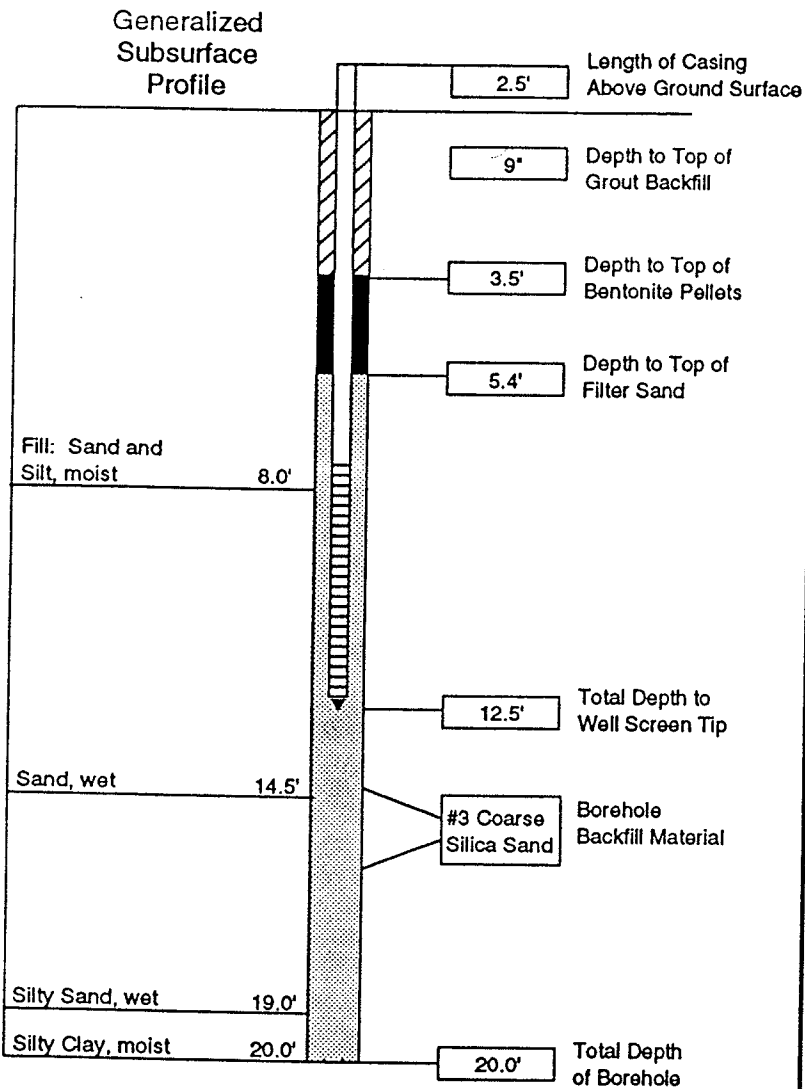
Date	Water Level Elevation
7-28-92	741.40
8-14-92	741.56
8-25-92	741.33

General Notes: _____

Log of Well Installation

Well Designation: Section 11/MW-1 (28-104)

Date(s) of Installation: 10/11/91 To 10/11/91



Top of Casing Elevation: 753.19

Ground Surface Elevation: 751.0

Well Screen Tip Elevation: 738.5

Well Casing

Diameter: 2 inches

Total Length: 10.0 feet

Material: Schedule 40 PVC

Cap (Y/N): Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.01 - inch Machine slotted

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Galvanized Steel

Diameter: 4.0 inches

Length: 5.0 feet

Length Above Ground: 3.0 feet

Lock (Y/N): Yes

Inspector: C. Kingma

Contractor: Stearns Drilling Co.

Driller: Roger Christensen

Drilling Equipment: CME-55
with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand

Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date	Water Level Elevation
11-14-91	741.29
2-10-92	742.14

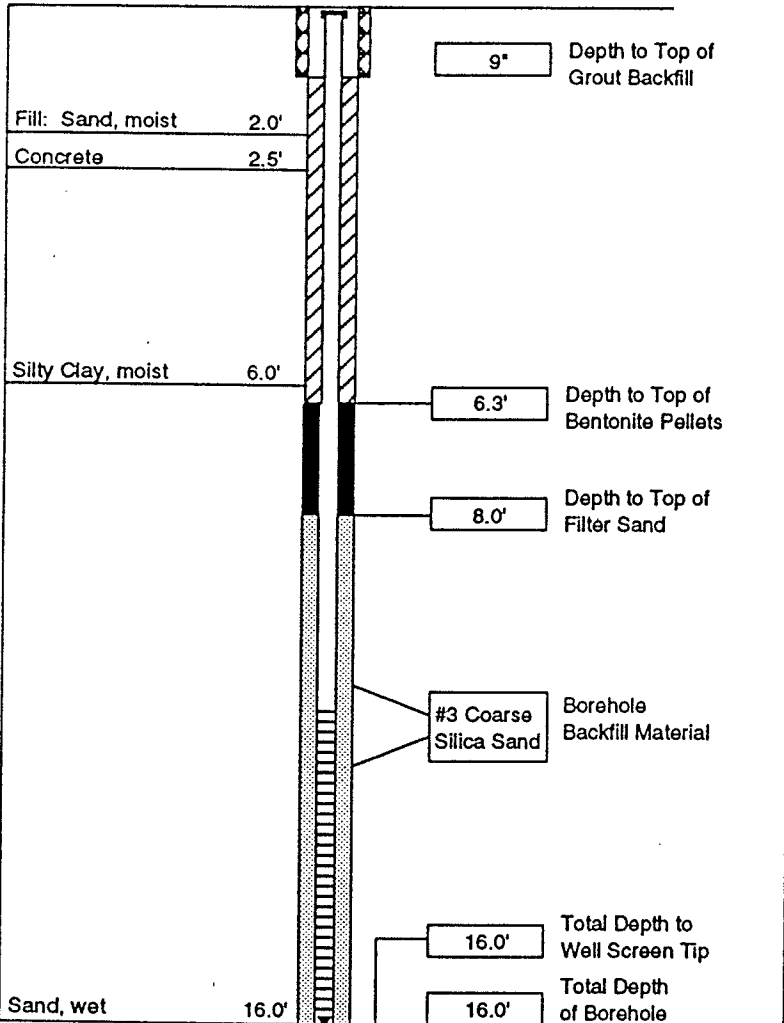
General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 12/MW-2 (20-105)

Date(s) of Installation: 10/21/91 To 10/22/91

Generalized
Subsurface
Profile



Top of Casing Elevation: 751.61

Ground Surface Elevation: 752.1

Well Screen Tip Elevation: 736.1

Well Casing

Diameter: 2 inches
 Total Length: 10.8 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen

Diameter: 2 inches
 Length: 5.0 feet
 Mesh: 0.01 - inch Machine slotted
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: C. Kingma
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55
with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Bentonite Grout

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date Water Level Elevation

Date	Water Level Elevation
11-14-91	740.67
2-10-92	741.28

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

WELL LOG

PAGE 1 OF 1

PROJECT: GM POWERTRAIN HOLE NO. MW-9 20-106

LOCATION: FLINT, MI - PLANT 10 BASEMENT TOTAL DEPTH: 14'

LOGGED BY: R. LEACH DEPTH TO WATER: 9'

DEPTH	LOG	SAMPLE NO.	SAMPLE DEPTH	DESCRIPTION	H-NU READING

CASING ELEVATION: _____ DRILLER: RICH BENSON

GROUNDWATER ELEVATION: _____ DRILL TYPE: 4" HOLLOW STEM AUGER

GROUND ELEVATION: _____ CASING: 2" I.D. X 10' PVC

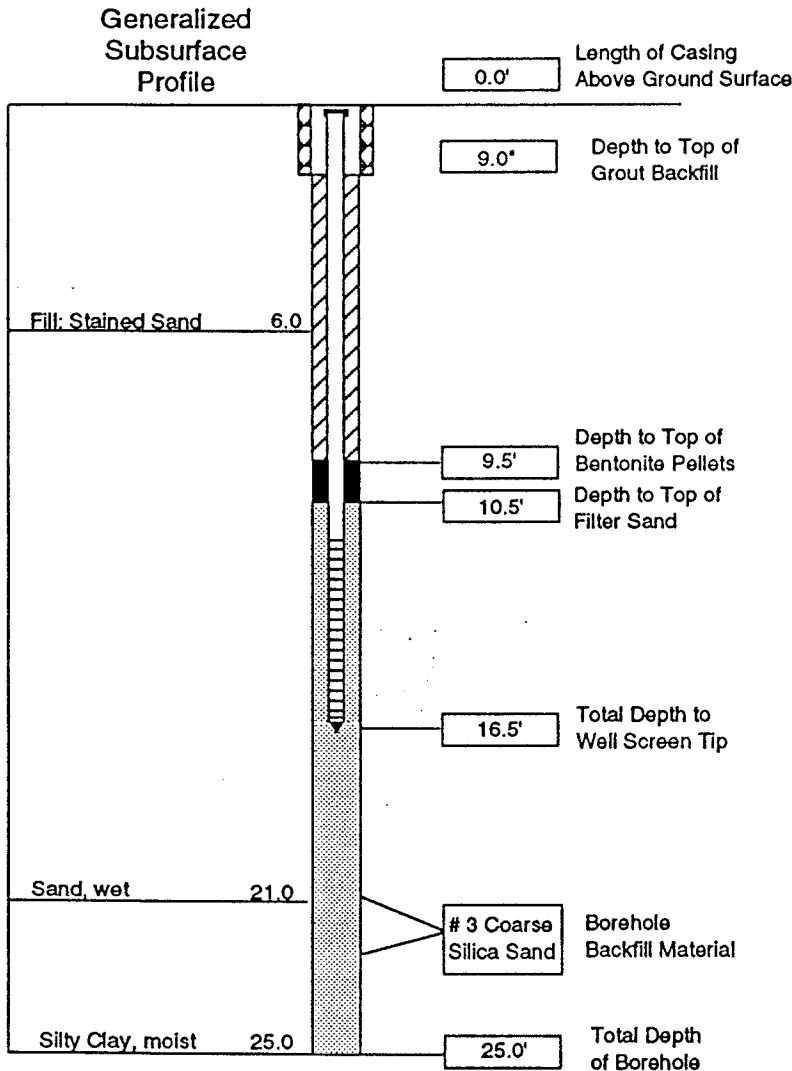
DATE STARTED: 12/18/92 SCREEN: 2" I.D. X 5' 10-SLOT PVC

DATE COMPLETED: 12/18/92 SCREEN DEPTH: 8-13'

NOTES: DRILLED TO 8' AND SPLIT-SPOON SAMPLED AT 2' INTERVALS.

Log of Well Installation

Well Designation: Section 6/MW-4 (20-122)
 Date(s) of Installation: 10/1/91 To 10/1/91



Top of Casing Elevation: 753.10
 Ground Surface Elevation: 753.6
 Well Screen Tip Elevation: 737.1

Well Casing
 Diameter: 2 inches
 Total Length: 11.5 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen
 Diameter: 2 inches
 Length: 5 feet
 Mesh: 0.010 - inch slot size
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing
 Material: Flush mount road box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: C. Kingma
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55 rig with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry
 Other well materials used: Bentonite Pellets

Water Level Data

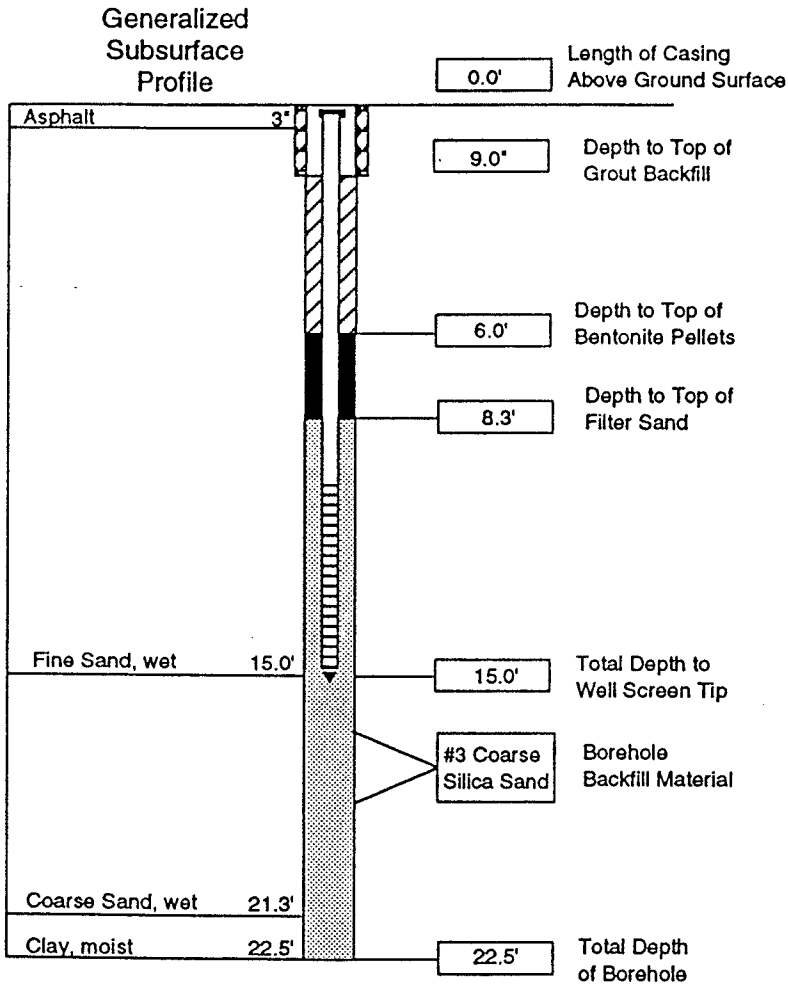
Datum: Mean Sea Level

Date	Water Level Elevation
11-14-91	741.48
2-10-92	741.49

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 7/MW-3 (20-40)
 Date(s) of Installation: 10/2/91 To 10/3/91



Top of Casing Elevation: 752.43
 Ground Surface Elevation: 752.8
 Well Screen Tip Elevation: 737.8

Well Casing
 Diameter: 2 inches
 Total Length: 10.0 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen
 Diameter: 2 inches
 Length: 5 feet
 Mesh: 0.010 - inch slot size
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing
 Material: Flush Mount Road Box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: D. Kanzer
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55
rig with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level
 Date Water Level Elevation

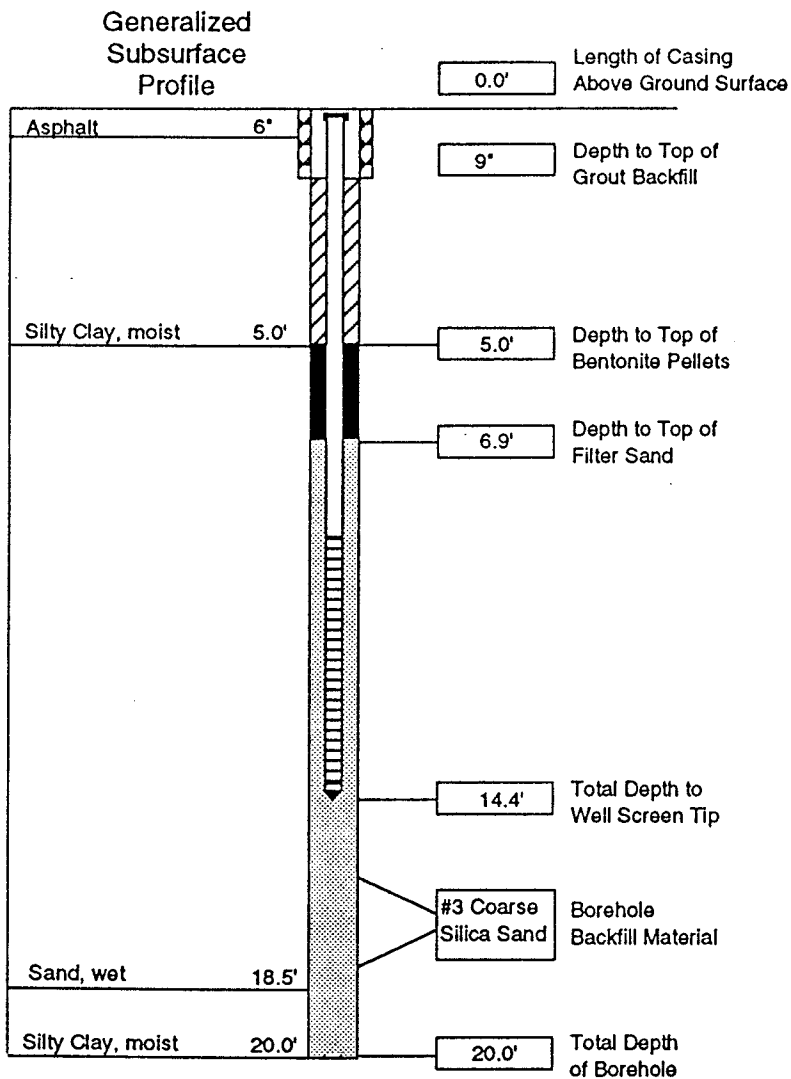
11-14-91	740.53
2-10-92	741.35

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 7/MW-7 (20-141)

Date(s) of Installation: 10/10/91 To 10/10/91



Top of Casing Elevation: 749.78

Ground Surface Elevation: 750.2

Well Screen Tip Elevation: 735.8

Well Casing

Diameter: 2 inches

Total Length: 9.0 feet

Material: Schedule 40 PVC

Cap (Y/N): Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.01 - inch Machine slotted

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box

Diameter: 7.5 inches

Length: 9 inches

Length Above Ground: 0 inches

Lock (Y/N): Yes

Inspector: D. Kanzer
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55
with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

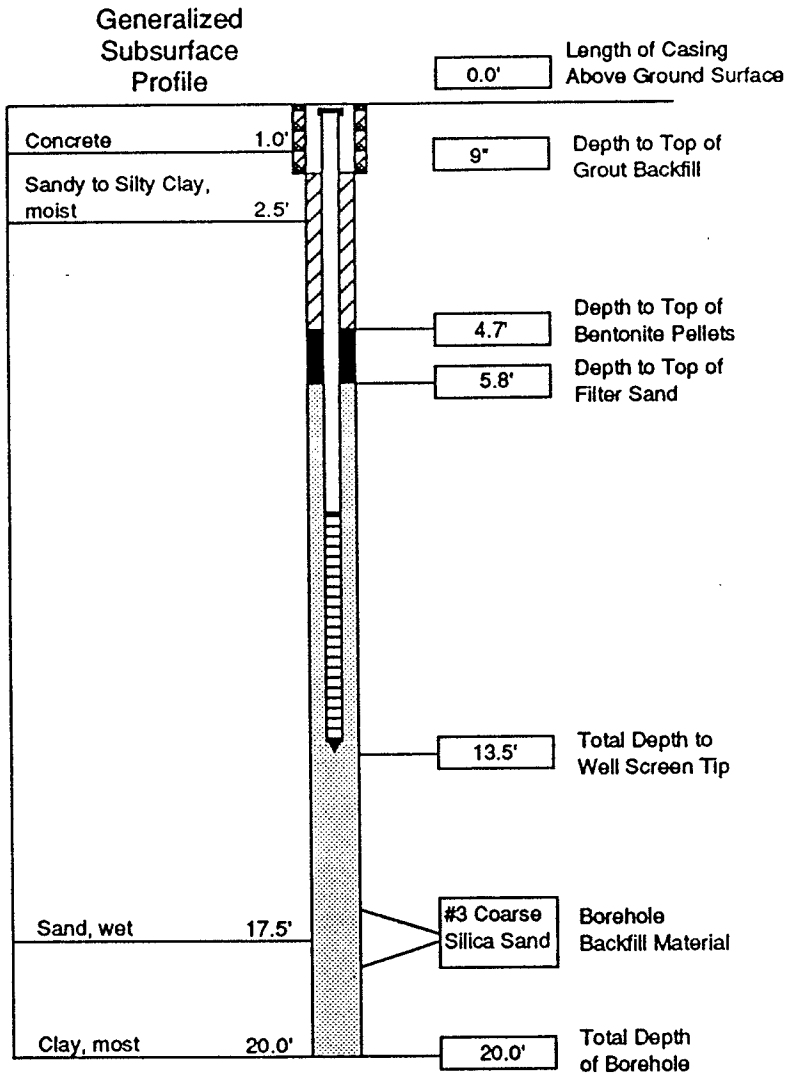
Date Water Level Elevation

11-14-91	741.32
2-10-92	740.82

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 7/MW-9 (20-142)
 Date(s) of Installation: 10/18/91 To 10/18/91



Top of Casing Elevation: 749.33
 Ground Surface Elevation: 749.6
 Well Screen Tip Elevation: 736.1

Well Casing
 Diameter: 2 inches
 Total Length: 8.0 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen
 Diameter: 2 inches
 Length: 5.0 feet
 Mesh: 0.01 - inch Machine slotted
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing
 Material: Flush Mount Road Box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: D. Kanzer
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55
with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry
 Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date Water Level Elevation

11-14-91	741.21
2-10-92	741.20

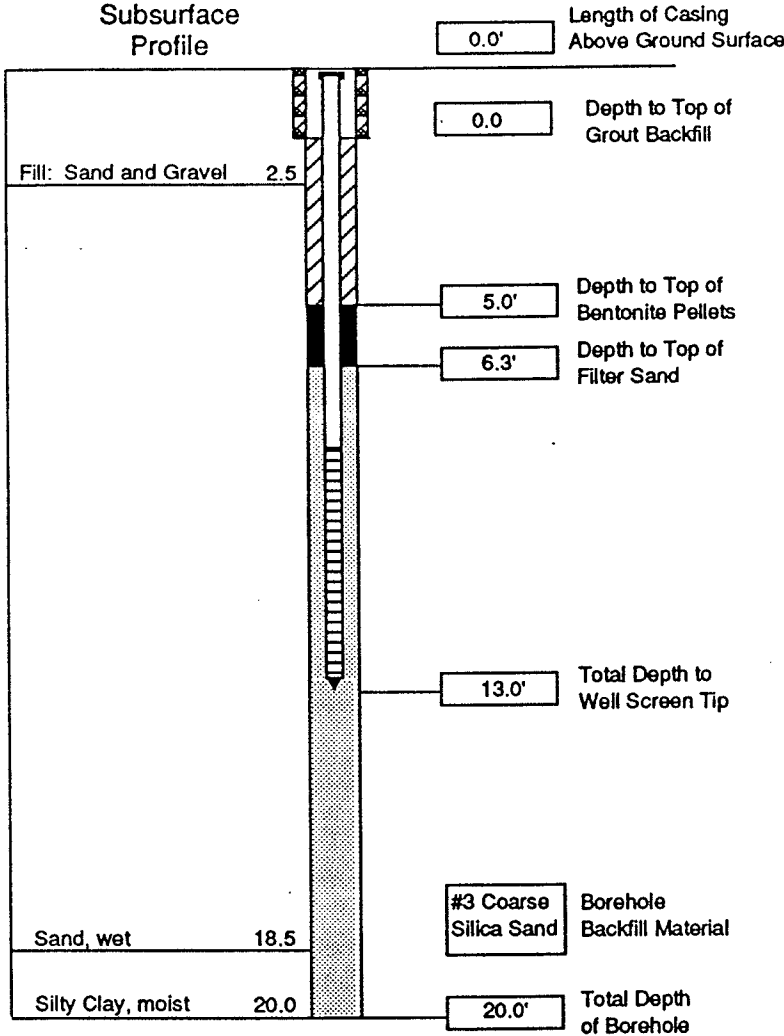
General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 7/MW-6 (20-143)

Date(s) of Installation: 10/4/91 To 10/4/91

Generalized
Subsurface
Profile



Top of Casing Elevation: 750.17

Ground Surface Elevation: 750.6

Well Screen Tip Elevation: 737.6

Well Casing

Diameter: 2 inches

Total Length: 8.0 feet

Material: Schedule 40 PVC

Cap (Y/N) Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.01 - inch Machine slotted

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box

Diameter: 7.5 inches

Length: 9 inches

Length Above Ground: 0 inches

Lock (Y/N): Yes

Inspector: C. Kingma

Contractor: Stearns Drilling Co.

Driller: Roger Christensen

Drilling Equipment: CME-55 rig with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand

Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date Water Level Elevation

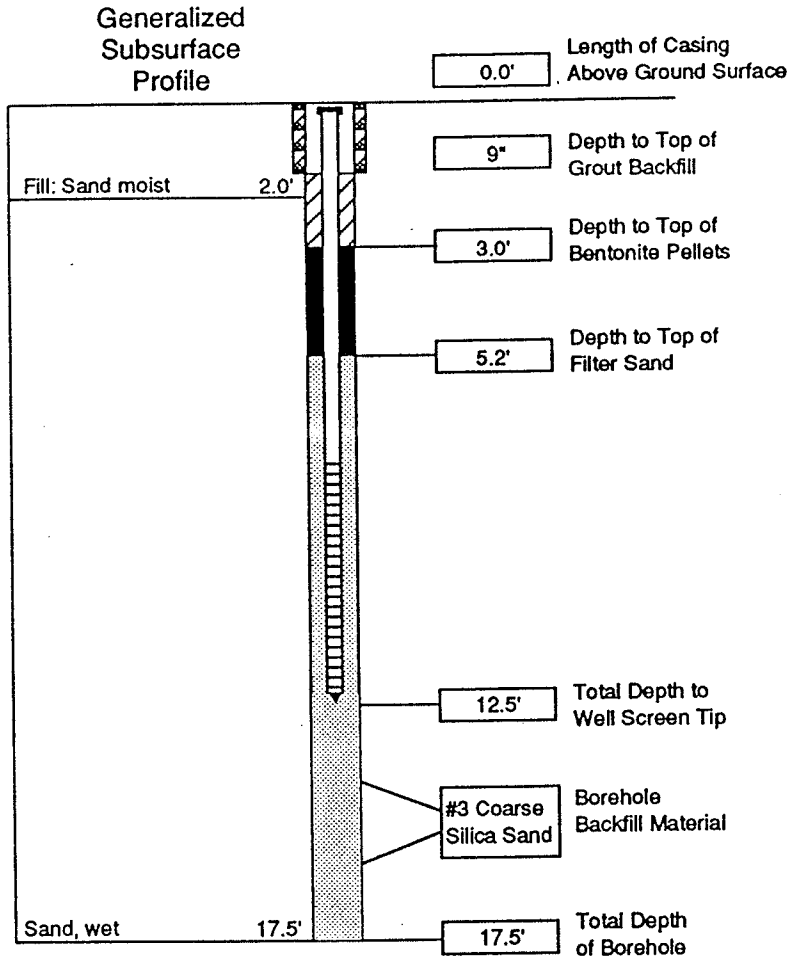
11-14-91	741.15
2-10-92	741.12

General Notes: Elevations presented on this log are referred to a U.S.G.S Datum

Log of Well Installation

Well Designation: Section 8/MW-1 (20-144)

Date(s) of Installation: 10/7/91 To 10/7/91



Top of Casing Elevation: 749.46

Ground Surface Elevation: 749.9

Well Screen Tip Elevation: 737.4

Well Casing

Diameter: 2 inches
 Total Length: 7.5 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen

Diameter: 2 inches
 Length: 5.0 feet
 Mesh: 0.01 - inch Machine slotted
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: D. Kanzer
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55 with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

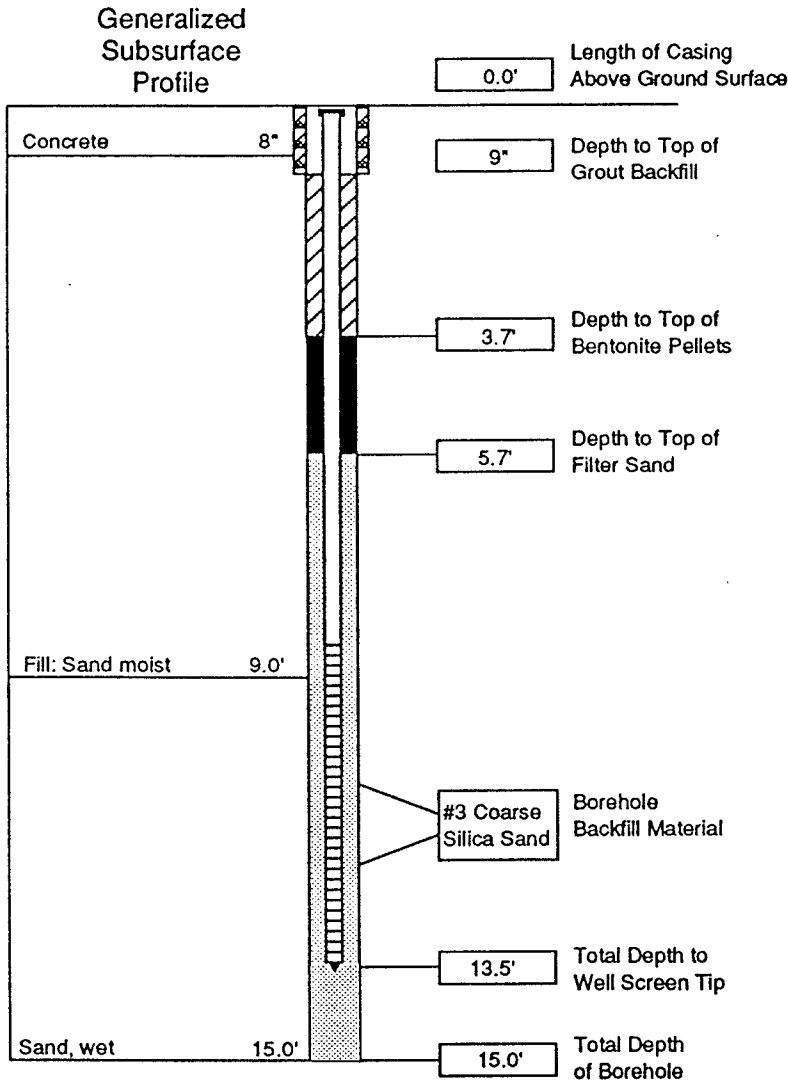
Date	Water Level Elevation
11-14-91	740.72
2-10-92	740.80

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 8/MW-2 (10-145)

Date(s) of Installation: 10/8/91 To 10/8/91



Top of Casing Elevation: 749.97

Ground Surface Elevation: 750.4

Well Screen Tip Elevation: 736.9

Well Casing

Diameter: 2 inches

Total Length: 8.5 feet

Material: Schedule 40 PVC

Cap (Y/N) Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.01 - inch Machine slotted

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box

Diameter: 7.5 inches

Length: 9 inches

Length Above Ground: 0 inches

Lock (Y/N): Yes

Inspector: C. Kingma

Contractor: Stearns Drilling Co.

Driller: Roger Christensen

Drilling Equipment: CME-55
with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand

Grout Backfill Material: Grout, Bentonite

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date Water Level Elevation

Date	Water Level Elevation
11-14-91	740.72
2-10-92	740.69

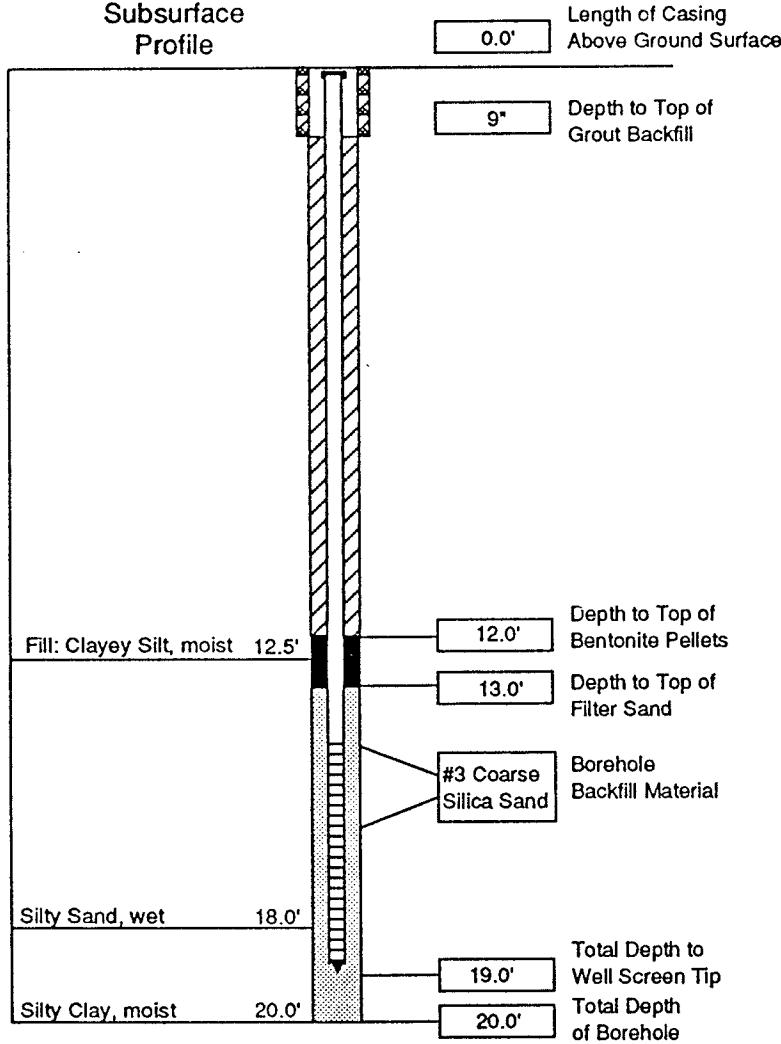
General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 9/MW-2 (20-161)

Date(s) of Installation: 10/15/91 To 10/15/91

Generalized
Subsurface
Profile



Top of Casing Elevation: 751.55

Ground Surface Elevation: 751.9

Well Screen Tip Elevation: 732.9

Well Casing

Diameter: 2 inches

Total Length: 14.0 feet

Material: Schedule 40 PVC

Cap (Y/N) Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.01 - inch Machine slotted

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box

Diameter: 7.0 inches

Length: 9 inches

Length Above Ground: 0 inches

Lock (Y/N): Yes

Inspector: H. Hassanien

Contractor: Stearns Drilling Co.

Driller: Roger Christensen

Drilling Equipment: CME-55 with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand

Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date Water Level Elevation

Date	Water Level Elevation
11-14-91	740.84
2-10-92	741.03

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

WELL LOG

PAGE 1 OF 1

PROJECT: GM POWERTRAIN HOLE NO. MW-8 20-162

LOCATION: FLINT, MI - PLANT 10 BASEMENT TOTAL DEPTH: 13'

LOGGED BY: R. LEACH DEPTH TO WATER: 11'

DEPTH	LOG	SAMPLE NO.	SAMPLE DEPTH	DESCRIPTION	H-NU READING
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					

CASING ELEVATION: _____ DRILLER: RICH BENSON

GROUNDWATER ELEVATION: _____ DRILL TYPE: 4" HOLLOW STEM AUGER

GROUND ELEVATION: _____ CASING: 2" I.D. X 10' PVC

DATE STARTED: 12/21/92 SCREEN: 2" I.D. X 5' 10-SLOT PVC

DATE COMPLETED: 12/21/92 SCREEN DEPTH: 8-13'

NOTES: _____

WELL LOG

PAGE 1 OF 1

PROJECT: GM POWERTRAIN HOLE NO. MW-6 20-163

LOCATION: FLINT, MI - PLANT 10 BASEMENT TOTAL DEPTH: 17'

LOGGED BY: R. LEACH DEPTH TO WATER: 11'

DEPTH	LOG	SAMPLE NO.	SAMPLE DEPTH	DESCRIPTION	H-NU READING
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					

CASING ELEVATION: _____ DRILLER: RICH BENSON

GROUNDWATER ELEVATION: _____ DRILL TYPE: 4" HOLLOW STEM AUGER

GROUND ELEVATION: _____ CASING: 2" I.D. PVC X 10'

DATE STARTED: 12/16/92 SCREEN: 2" I.D. X 5' 10-SLOT PVC

DATE COMPLETED: 12/16/92 SCREEN DEPTH: 10-15'

NOTES: WHILE SPLIT-SPOONING AT 2-FOOT INTERVALS, SET SCREEN AT 10-15' TO COLLECT BEST REPRESENTATIVE SAMPLE.

WELL LOG

PAGE 1 OF 1

PROJECT: GM POWERTRAIN HOLE NO. MW-7 20-164

LOCATION: FLINT, MI - PLANT 10 BASEMENT TOTAL DEPTH: 16'

LOGGED BY: R. LEACH DEPTH TO WATER: 12'

DEPTH	LOG	SAMPLE NO.	SAMPLE DEPTH	DESCRIPTION	H-NU READING

CASING ELEVATION: _____ DRILLER: RICH BENSON

GROUNDWATER ELEVATION: _____ DRILL TYPE: 4" HOLLOW STEM AUGER

GROUND ELEVATION: _____ CASING: 2" I.D. X 10' PVC

DATE STARTED: 12/16/92 SCREEN: 2" I.D. X 5' 10-SLOT PVC

DATE COMPLETED: 12/16/92 SCREEN DEPTH: 11-16'

NOTES: DRILLED TO 10', SPLIT-SPOON AT 2 FOOT INTERVALS TO WATER TABLE.

WELL LOG

PAGE 1 OF 1

PROJECT: GM POWERTRAIN HOLE NO. MW-11 20-165

LOCATION: FLINT, MI - PLANT 10 BASEMENT TOTAL DEPTH: 15'

LOGGED BY: R. LEACH DEPTH TO WATER: 11'

DEPTH	LOG	SAMPLE NO.	SAMPLE DEPTH	DESCRIPTION	H-NU READING
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					

CASING ELEVATION: _____ DRILLER: RICH BENSON

GROUNDWATER ELEVATION: _____ DRILL TYPE: 4" HOLLOW STEM AUGER

GROUND ELEVATION: _____ CASING: 2" I.D. X 10' PVC

DATE STARTED: 12/21/92 SCREEN: 2" I.D. X 5' 10-SLOT PVC

DATE COMPLETED: 12/21/92 SCREEN DEPTH: 10-15'

NOTES: ENCOUNTERED A SMALL, DRY CAVITY AT THE END OF THE 15' RUN.
THEREFORE, WE GROUTED THE WELL IN AT THE INDICATED POSITION. DRILLED TO 10';
SPLIT-SPOONED AT 2' INTERVALS. NO RECOVERY AT 9-11'.

BORING LOG

PAGE 1 OF 2

PROJECT: GM POWERTRAIN HOLE NO. SB-11/MW-1 20-167

LOCATION: FLINT TOTAL DEPTH: 22'

LOGGED BY: C. BADE DEPTH TO WATER: 15'

DEPTH	LOG	SAMPLE NO.	SAMPLE DEPTH	DESCRIPTION	F-ID READING
				0 - 10" CONCRETE	
-		1' - 2'		10" - 5.5' FOUNDRY SAND Black, medium to silty, slightly moist, slag and other metal debris, sour odor.	14 ppm
- 2					
-		2.5' - 4.5'			12 ppm
- 4					
-		5' - 7'		5.5' - 66 FINE SAND Light brown w/green tint, w/trace of clay, relatively dry and crumbly, small pebbles <2mm, sour odor.	8.8 ppm
- 6					
-		7.5' - 9.5'		6' - 8' FOUNDRY SAND Black, some silt, relatively dry and crumbly, some cobbles, sour odor.	10 ppm
- 8					
- 10		10' - 12'		8' - 10.5' FINE SAND Black, some silt, relatively dry and crumbly, some pebbles, <3mm, sour odor	62 ppm
- 12				10.5' - 11' SILT Light brown, w/some fine sand, slightly sour odor, dry.	

CASING ELEVATION: 755.40 DRILLER: B. GERBER

GROUNDWATER ELEVATION: 742.65 DRILL TYPE: HOLLOW STEM AUGER

GROUND ELEVATION: 755.82 CASING: 2" PVC

DATE STARTED: 9/21/92 SCREEN: 2", 0.01 SLOT, PVC

DATE COMPLETED: 9/21/92 SCREEN DEPTH: 16' - 21'

NOTES: _____

BORING LOG

PROJECT: GM POWERTRAIN HOLE NO. SB-11/MW-1 20-167
 LOCATION: FLINT TOTAL DEPTH: 22'
 LOGGED BY: C. BADE DEPTH TO WATER: 15'

DEPTH	LOG	SAMPLE NO.	SAMPLE DEPTH	DESCRIPTION	F-ID READING
-12				11' - 14' SAND Black, w/some silt, pebbles, 3mm to >10mm, relatively dry.	
-14				14' - 22' FINE SAND Light brown, moist at 14' and becomes wet at 15'. Subrounded to subangular pebbles, >5mm, sour odor.	180 ppm
-16		15' - 16'			
-18					
-20					
-22				EOB @ 22'	

CASING ELEVATION: 755.40 DRILLER: B. GERBER
 GROUNDWATER ELEVATION: 742.65 DRILL TYPE: HOLLOW STEM AUGER
 GROUND ELEVATION: 755.82 CASING: 2" PVC
 DATE STARTED: 9/21/92 SCREEN: 2", 0.01 SLOT, PVC
 DATE COMPLETED: 9/21/92 SCREEN DEPTH: 16' - 21'
 NOTES: _____

BORING LOG

PAGE 1 OF 1

PROJECT: GM POWERTRAIN HOLE NO. SB-17/MW-3 20-169

LOCATION: FLINT TOTAL DEPTH: 17

LOGGED BY: C. BADE DEPTH TO WATER: 15.5'

DEPTH	LOG	SAMPLE NO.	SAMPLE DEPTH	DESCRIPTION	F-ID READING
		0' - 2'		0 - 10" CONCRETE	0 ppm
- 3				10" - 15.5' FOUNDRY SAND Black, fine to medium grain, relatively dry to 14.5', wet at 15.5', some slag, sour odor from 12.5' - 15.5'.	10 ppm
- 6		5' - 7'			
- 9		10' - 12'			250 ppm
- 12		12.5' - 14.5'			>1000 ppm
- 15		14.5' - 16.5'		15.5' - 18' FINE SAND Light brown, wet, relatively clean and uniform.	>1000 ppm
- 18				EOB @ 18'	

CASING ELEVATION: 755.51 DRILLER: B. GERBER

GROUNDWATER ELEVATION: 742.51 DRILL TYPE: HOLLOW STEM AUGER

GROUND ELEVATION: 755.69 CASING: 2" PVC

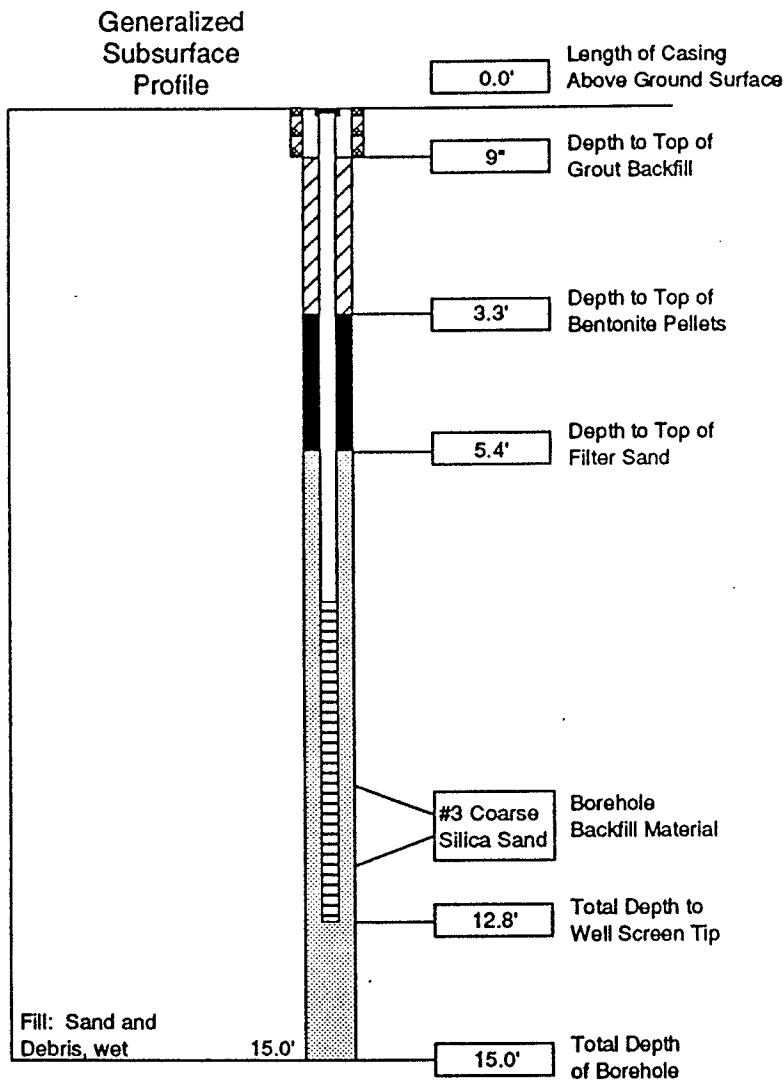
DATE STARTED: 9/29/92 SCREEN: 2", 0.01 SLOT, PVC

DATE COMPLETED: 9/29/92 SCREEN DEPTH: 13' - 18'

NOTES: _____

Log of Well Installation

Well Designation: Section 9/MW-3 (20-170)
 Date(s) of Installation: 10/22/91 To 10/22/91



Top of Casing Elevation: 748.77
 Ground Surface Elevation: 749.2
 Well Screen Tip Elevation: 736.4

Well Casing
 Diameter: 2 inches
 Total Length: 7.8 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen
 Diameter: 2 inches
 Length: 5.0 feet
 Mesh: 0.01 - inch Machine slotted
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing
 Material: Flush Mount Road Box
 Diameter: 7.0 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: D. Kanzer
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55
with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

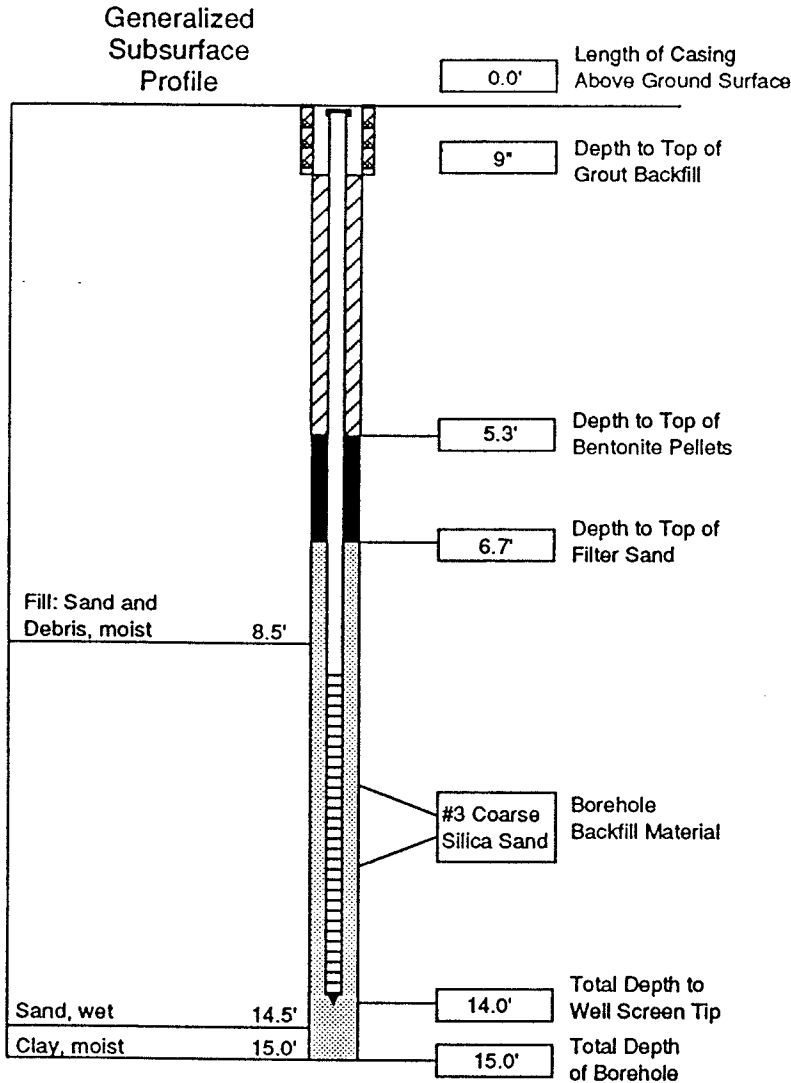
Date	Water Level Elevation
11-14-91	740.04
2-10-92	740.24

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 9/MW-1 (20-171)

Date(s) of Installation: 10/8/91 To 10/8/91



Top of Casing Elevation: 747.87

Ground Surface Elevation: 748.2

Well Screen Tip Elevation: 734.2

Well Casing

Diameter: 2 inches

Total Length: 9.0 feet

Material: Schedule 40 PVC

Cap (Y/N) Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.01 - inch Machine slotted

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box

Diameter: 7.5 inches

Length: 9 inches

Length Above Ground: 0 inches

Lock (Y/N): Yes

Inspector: D. Kanzer

Contractor: Stearns Drilling Co.

Driller: Roger Christensen

Drilling Equipment: CME-55 with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand

Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date Water Level Elevation

Date	Water Level Elevation
11-14-91	739.72
2-10-92	739.78

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

BORING LOG

PAGE 1 OF 1

PROJECT: GM POWERTRAIN HOLE NO. SB-15/MW 49 (20-281)/(20-18)
 LOCATION: FLINT TOTAL DEPTH: 18'
 LOGGED BY: C. BADE DEPTH TO WATER: 15'

DEPTH	LOG	SAMPLE NO.	SAMPLE DEPTH	DESCRIPTION	F-ID READING
				0 - 10" CONCRETE	
- 2		0' - 2'		10" - 1.5' SAND Light brown to buff, medium grain, dry.	160 ppm
- 4				1.5' - 10' FOUNDRY SAND Black, fine to medium grained, relatively dry w/subround pebbles, <2mm - >10mm, some slag, sour odor.	
- 6		5' - 7'			80 ppm
- 8					
-10		10' - 12'		10' - 12.5' SILT Light brown clayey, slightly moist, sour order.	25 ppm
-12		12.5' - 14.5'		12.5' - 16.5' FOUNDRY SAND Black moist, medium grain, sour odor.	680 ppm
-14		15' - 17'			280 ppm
-16				16.5' - 18' FIND SAND Light brown, wet, relatively clean and uniform.	
-18					
-20				EOB @ 18'	

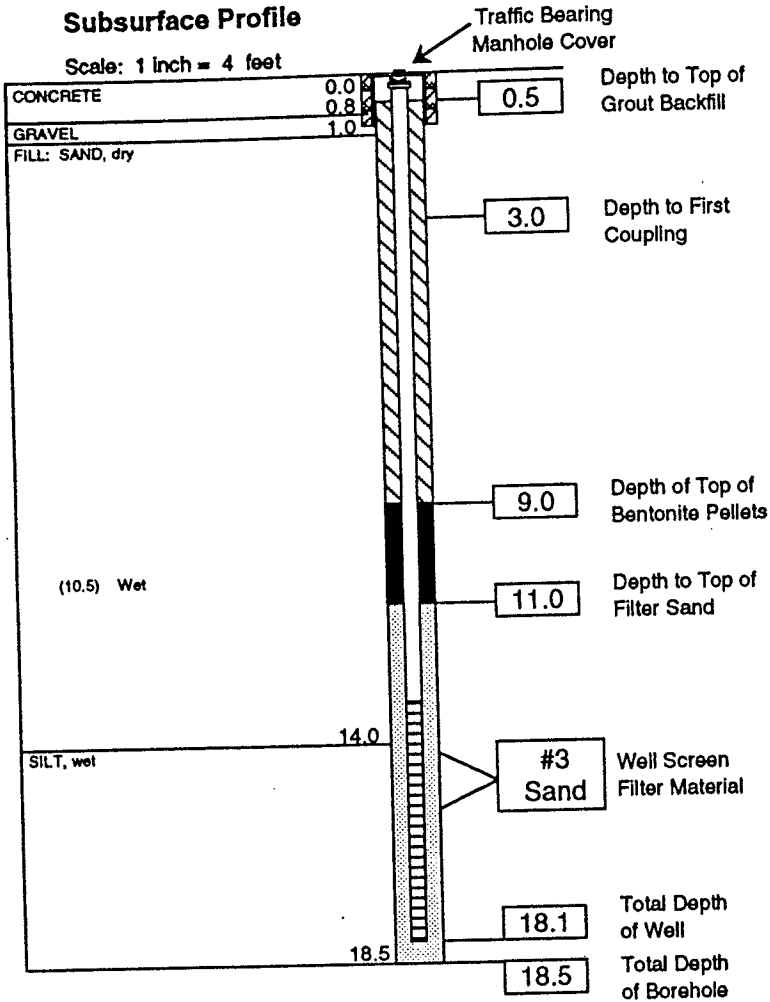
CASING ELEVATION: 755.65 DRILLER: B. GERBER
 GROUNDWATER ELEVATION: 742.94 DRILL TYPE: HOLLOW STEM AUGER
 GROUND ELEVATION: 755.87 CASING: 2" PVC
 DATE STARTED: 9/28/92 SCREEN: 2", 0.01 SLOT, PVC
 DATE COMPLETED: 9/28/92 SCREEN DEPTH: 13' - 18'
 NOTES: FREE PRODUCT ON GROUNDWATER

Log of Well Installation

Well Designation: MW-5 (20-500)
 Date(s) of Installation: 7-17-92 To 7-17-92

Generalized Subsurface Profile

Scale: 1 inch = 4 feet



Ground Surface Elevation: 751.8
 Top of Casing Elevation: 751.24
 Well Screen Tip Elevation: 733.7

Well Casing
 Diameter: 2.0 inches
 Total Length: 12.5 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Locking J-Plug

Well Screen
 Diameter: 2.0 inches
 Length: 5.0 feet
 Mesh: 0.010 inch slot
 Material: Schedule 40 PVC
 Well Screen Interval: 13.1 - 18.1

Protective Well Casing Cover
 Material: Steel Flush Cap
 Diameter: 9.0 inches
 Length: 12.0 inches
 Lock (Y/N): 7/8 inch bolt

Inspector: G. Schmalz
 Driller: D. Decater
 Contractor: Stearns Drilling Company
 Drilling Equipment: CME 750 Trailer Mount

Well Screen Filter Material: #3 Sand
 Grout Backfill Material: Cement/Bentonite slurry

Other well materials used: Bentonite pellets

Water Level Data

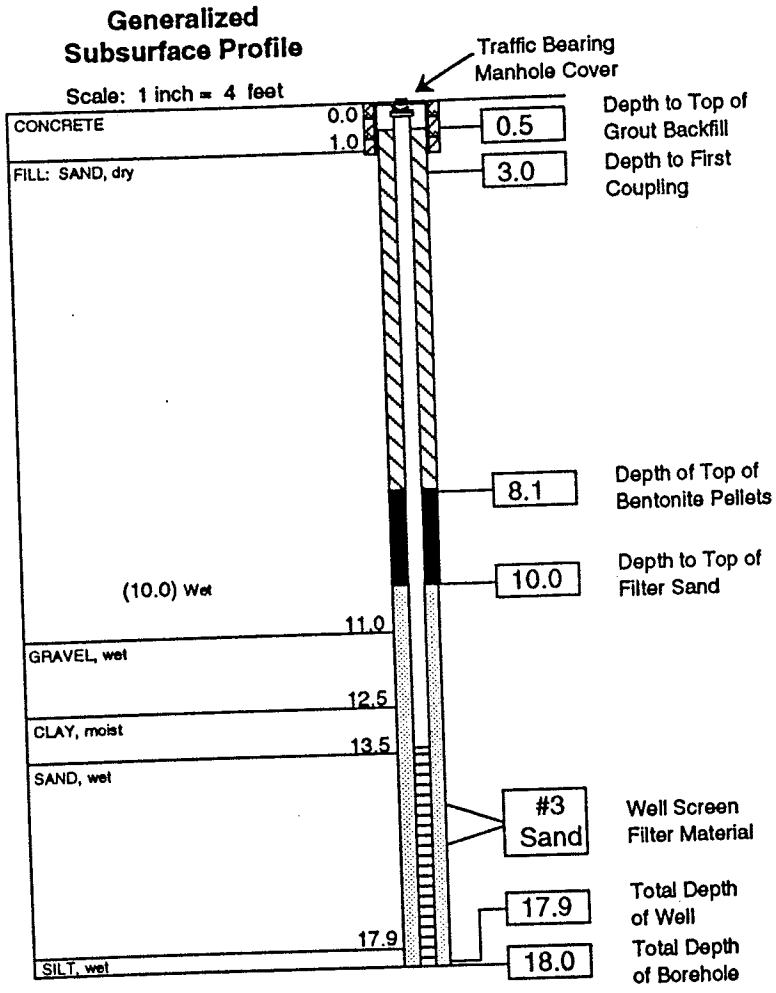
Datum: Top of Well Casing

Date	Water Level Elevation
7-28-92	740.89
8-14-92	740.99
8-25-92	740.89

General Notes: _____

Log of Well Installation

Well Designation: MW-6 (20-501)
 Date(s) of Installation: 7-23-92 To 7-23-92



Ground Surface Elevation: 751.2
 Top of Casing Elevation: 750.80
 Well Screen Tip Elevation: 733.3

Well Casing
 Diameter: 2.0 inches
 Total Length: 12.5 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Locking J-Plug

Well Screen
 Diameter: 2.0 inches
 Length: 5.0 feet
 Mesh: 0.010 inch slot
 Material: Schedule 40 PVC
 Well Screen Interval: 12.9 - 17.9 feet

Protective Well Casing Cover
 Material: Steel Flush Cap
 Diameter: 9.0 inches
 Length: 12.0 inches
 Lock (Y/N): 7/8 inch bolt

Inspector: G. Schmalz
 Driller: R. Christensen
 Contractor: Stearns Drilling Company
 Drilling Equipment: CME 750 Trailer Mount

Well Screen Filter Material: #3 Sand
 Grout Backfill Material: Cement/Bentonite slurry
 Other well materials used: Bentonite pellets

Water Level Data
 Datum: Top of Well Casing

Date	Water Level Elevation
7-28-92	740.38
8-14-92	740.74
8-25-92	740.64

General Notes: _____

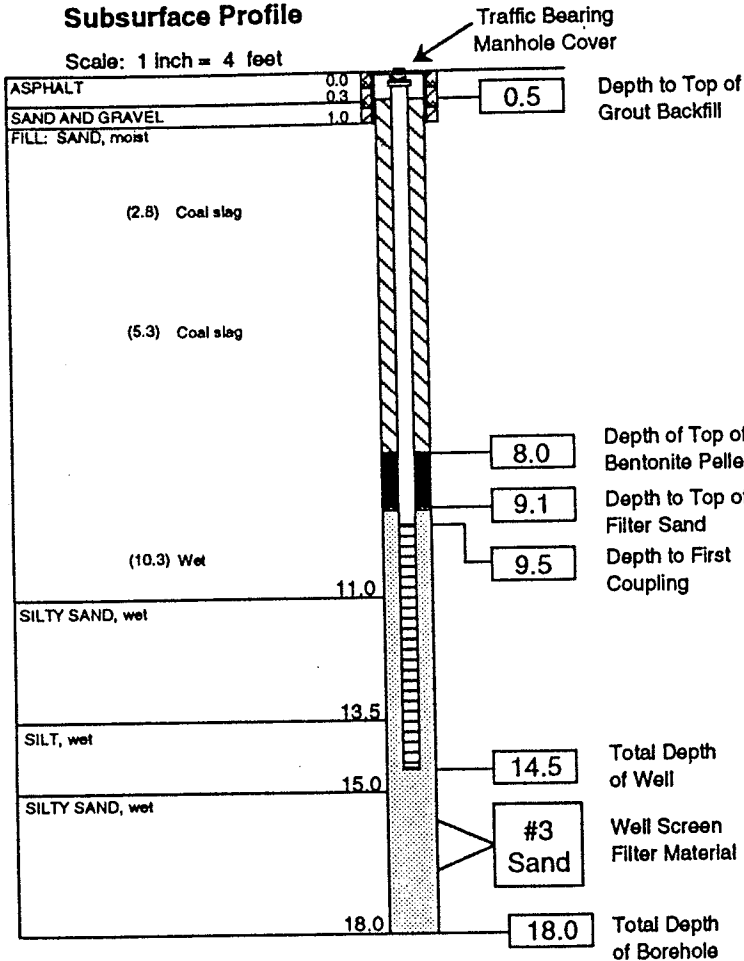
Log of Well Installation

Well Designation: MW-7 (20-502)

Date(s) of Installation: 7-22-92 To 7-22-92

Generalized Subsurface Profile

Scale: 1 inch = 4 feet



Ground Surface Elevation: 752.3

Top of Casing Elevation: 751.80

Well Screen Tip Elevation: 737.8

Well Casing

Diameter: 2.0 inches
 Total Length: 9.0 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Locking J-Plug

Well Screen

Diameter: 2.0 inches
 Length: 5.0 feet
 Mesh: 0.010 inch slot
 Material: Schedule 40 PVC
 Well Screen Interval: 9.5 - 14.5 feet

Protective Well Casing Cover

Material: Steel Flush Cap
 Diameter: 9.0 inches
 Length: 12.0 inches
 Lock (Y/N): 7/8 inch bolt

Inspector: G. Schmalz
 Driller: R. Christensen
 Contractor: Stearns Drilling Company
 Drilling Equipment: CME 750 Trailer Mount

Well Screen Filter Material: #3 Sand
 Grout Backfill Material: Cement/Bentonite slurry

Other well materials used: Bentonite pellets

Water Level Data

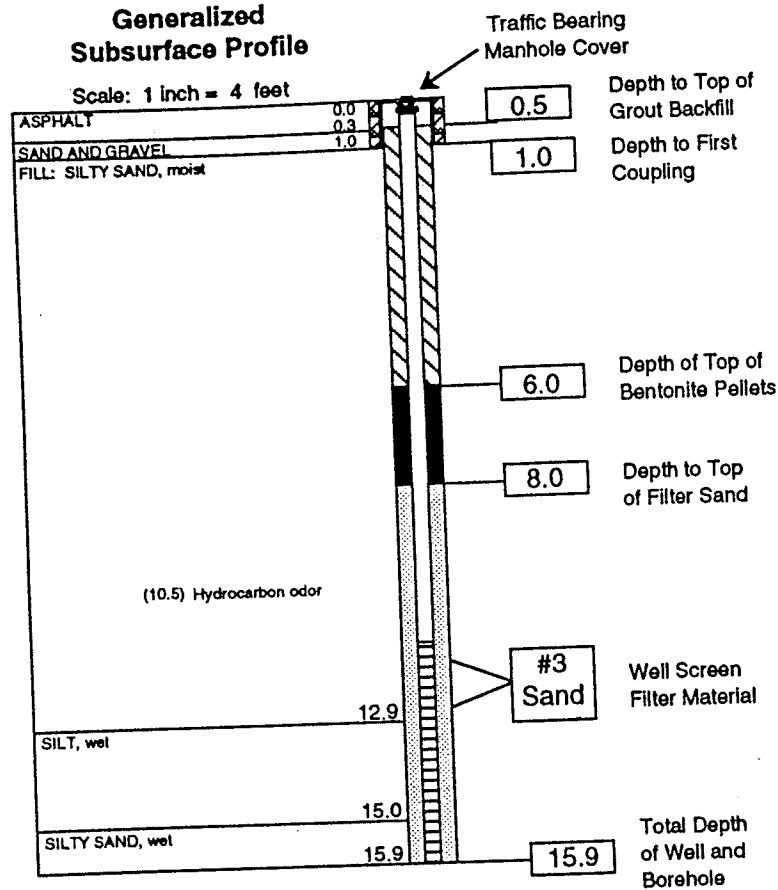
Datum: Top of Well Casing

Date	Water Level Elevation
7-28-92	741.12
8-14-92	741.16
8-25-92	741.11

General Notes: _____

Log of Well Installation

Well Designation: MW-8 (20-503)
 Date(s) of Installation: 7-22-92 To 7-22-92



Ground Surface Elevation: 752.6
 Top of Casing Elevation: 752.22
 Well Screen Tip Elevation: 736.7

Well Casing
 Diameter: 2.0 inches
 Total Length: 10.5 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Locking J-Plug

Well Screen
 Diameter: 2.0 inches
 Length: 5.0 feet
 Mesh: 0.010 inch slot
 Material: Schedule 40 PVC
 Well Screen Interval: 10.9 - 15.9 feet

Protective Well Casing Cover
 Material: Steel Flush Cap
 Diameter: 9.0 inches
 Length: 12.0 inches
 Lock (Y/N): 7/8 inch bolt

Inspector: G. Schmalz
 Driller: R. Christensen
 Contractor: Stearns Drilling Company
 Drilling Equipment: CME 750 Trailer Mount

Well Screen Filter Material: #3 Sand
 Grout Backfill Material: Cement/Bentonite slurry

Other well materials used: Bentonite pellets

Water Level Data

Datum: Top of Well Casing

Date	Water Level Elevation
7-28-92	740.76
8-14-92	740.76
8-25-92	740.78

General Notes: _____

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 750.62
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/19/95
 Logged By: BRIAN BOKOVOY
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 9.43 Total Depth: 22.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
2.0-3.5'			5YR 4/4	ND	S-1	100	CL	2.0-3.5': CLAY WITH SOME SILT, BROWN, SLIGHTLY MOIST, SLIGHTLY PLASTIC.
3.5-6.0'			10YR 8/6	ND	S-2	100		3.5-6.0': SAND, YELLOW-ORANGE, SLIGHTLY MOIST, FINE GRAINED.
6.0-10.0'			5YR 4/4	ND	S-3	100		6.0-10.0': S.A.A.: BROWN, SLIGHTLY MOIST TO MOIST.
10.0-18.5'			5YR 4/4	ND	S-4	80		
			10YR 8/6	ND	S-5	75	SP	
			10YR 8/6	ND	S-6	100		
			10YR 8/6	ND	S-8	100		10.0-18.5': S.A.A.: YELLOW-ORANGE, WET.
			10YR 8/6	ND	S-9	20		
18.5-22.0'			N5	ND	S-10	100		
			N5	ND	S-11	100	CH	18.5-22.0': CLAY WITH SOME SILT, GRAY, MOIST, PLASTIC.
TOTAL DEPTH DRILLED = 22.0 FEET WELL SET FROM 7.0 TO 14.0'. GROUNDWATER SAMPLE COLLECTED FROM 7.0 TO 12.0'. GROUNDWATER SAMPLE COLLECTED FROM 15.0 TO 20.0'.								

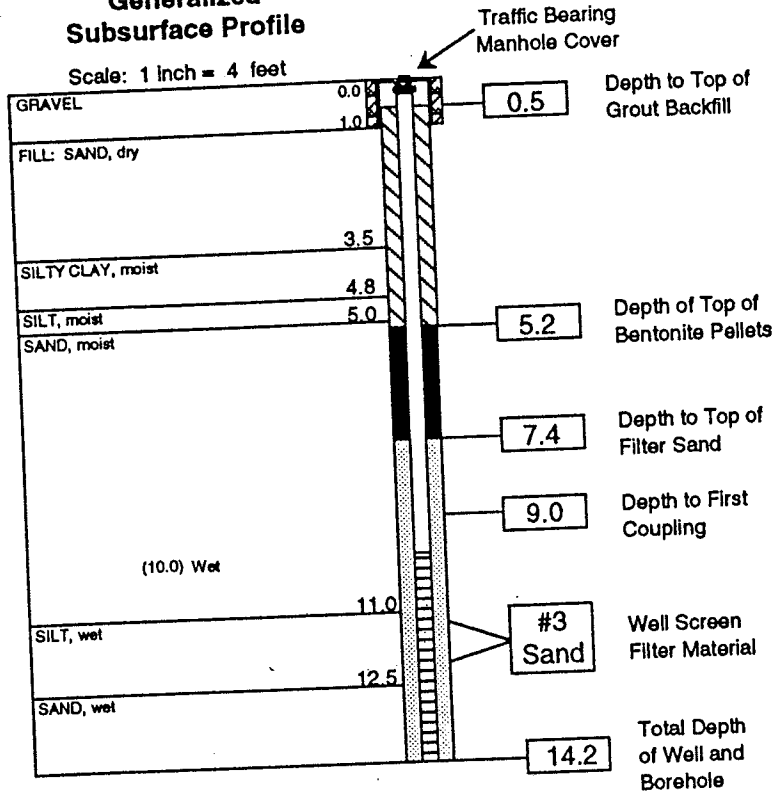
Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Log of Well Installation

Well Designation: MW-10S (20-5855)
Date(s) of Installation: 7-23-92 To 7-24-92

Generalized Subsurface Profile

Scale: 1 inch = 4 feet



Ground Surface Elevation: 752.0
Top of Casing Elevation: 751.33
Well Screen Tip Elevation: 737.8

Well Casing

Diameter: 2.0 inches
Total Length: 8.5 feet
Material: Schedule 40 PVC
Cap (Y/N): Locking J-Plug

Well Screen

Diameter: 2.0 inches
Length: 5.0 feet
Mesh: 0.010 inch slot
Material: Schedule 40 PVC
Well Screen Interval: 9.2 - 14.2 feet

Protective Well Casing Cover

Material: Steel Flush Cap
Diameter: 9.0 inches
Length: 12.0 inches
Lock (Y/N): 7/8 inch bolt

Inspector: G. Schmalz
Driller: R. Christensen
Contractor: Stearns Drilling Company
Drilling Equipment: CME 750 Trailer Mount

Well Screen Filter Material: #3 Sand
Grout Backfill Material: Cement/Bentonite slurry
Other well materials used: Bentonite pellets

Water Level Data

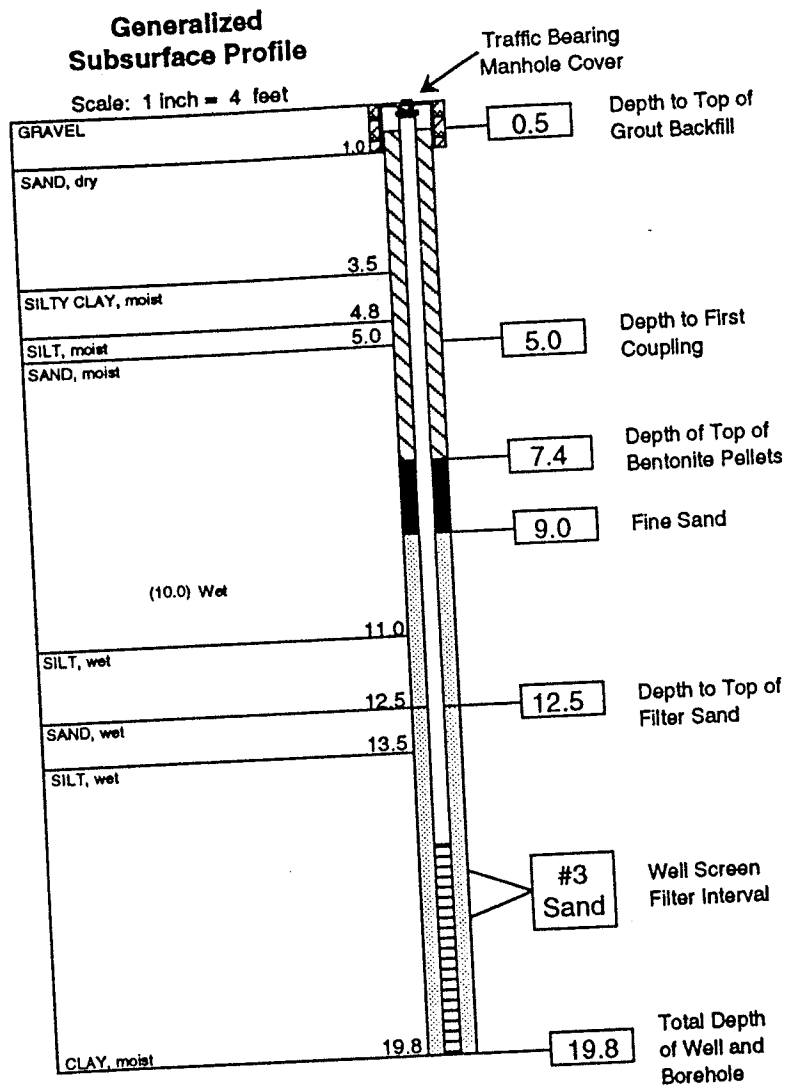
Datum: Top of Well Casing

Date	Water Level Elevation
7-28-92	740.71
8-14-92	740.94
8-25-92	740.61

General Notes: _____

Log of Well Installation

Well Designation: MW-10D (20-505 D)
 Date(s) of Installation: 7-23-92 To 7-23-92



Ground Surface Elevation: 752.5
 Top of Casing Elevation: 752.20
 Well Screen Tip Elevation: 732.7

Well Casing
 Diameter: 2.0 inches
 Total Length: 14.5 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Locking J-Plug

Well Screen
 Diameter: 2.0 inches
 Length: 5.0 feet
 Mesh: 0.010 inch slot
 Material: Schedule 40 PVC
 Well Screen Interval: 14.8- 19.8 feet

Protective Well Casing Cover
 Material: Steel Flush Cap
 Diameter: 9.0 inches
 Length: 12.0 inches
 Lock (Y/N): 7/8 inch bolt

Inspector: G. Schmalz
 Driller: R. Christensen
 Contractor: Stearns Drilling Company
 Drilling Equipment: CME 750 Trailer Mount

Well Screen Filter Material: #3 Sand
 Grout Backfill Material: Cement/Bentonite slurry
 Other well materials used: Bentonite pellets/Fine sand

Water Level Data
 Datum: Top of Well Casing

Date	Water Level Elevation
7-28-92	741.40
8-14-92	741.64
8-25-92	741.26

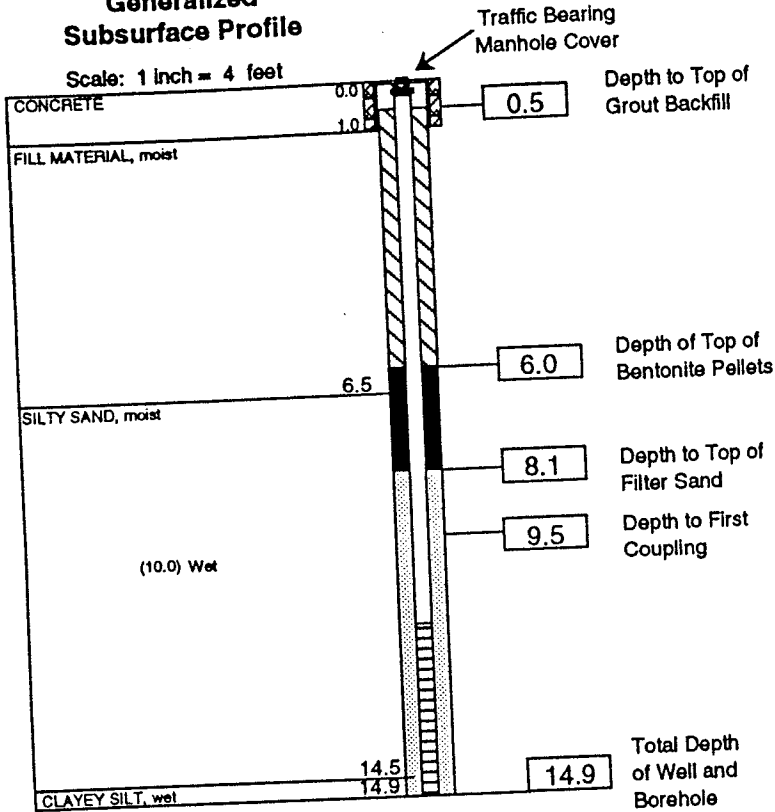
General Notes: _____

Log of Well Installation

Well Designation: MW-9 (20-506)
 Date(s) of Installation: 7-23-92 To 7-23-92

Generalized Subsurface Profile

Scale: 1 inch = 4 feet



Ground Surface Elevation: 752.2
 Top of Casing Elevation: 751.81
 Well Screen Tip Elevation: 737.3

Well Casing

Diameter: 2.0 inches
 Total Length: 9.5 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Locking J-Plug

Well Screen

Diameter: 2.0 inches
 Length: 5.0 feet
 Mesh: 0.010 inch slot
 Material: Schedule 40 PVC
 Well Screen Interval: 9.9 - 14.9 feet

Protective Well Casing Cover

Material: Steel Flush Cap
 Diameter: 9.0 inches
 Length: 12.0 inches
 Lock (Y/N): 7/8 inch bolt

Inspector: G. Schmalz
 Driller: R. Christensen
 Contractor: Stearns Drilling Company
 Drilling Equipment: CME 750 Trailer Mount

Well Screen Filter Material: #3 Sand
 Grout Backfill Material: Cement/Bentonite slurry

Other well materials used: Bentonite pellets

Water Level Data

Datum: Top of Well Casing
 Date Water Level Elevation

Date	Water Level Elevation
7-28-92	740.63
8-14-92	741.78

General Notes: _____

Date Start/Finish: 08/07/98 / 08/07/98 Drilling Company: Rau Drilling Driller's Name: Rodd Drilling Method: Hollow Stem Auger Bit Size: N/A Auger Size : OD 8.0 Rig Type: CME 55 Spoon Size: 2	Northing: Eastng: Well Casing Elev.: ft. Corehole Depth: Borehole Depth: 20 ft. Ground Surface Elev.: ft. Descriptions by: Robert Gang III	Well No. 20-FP1 Client: GM NAO Flint Site: Factory 10 Scrapyard Flint, Michigan
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DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
Ground Surface											Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-6')		NA	NA	NA	NA		FI	Fill material consisting of rock aggregate, slag, metal bits, bolts, wire, wood, and paper. [FILL] Description obtained from 20-FPIC for 0-6' bgs.	Type I Portland cement/5% bentonite grout 1.0' to 2.0' bgs Bentonite seal 2.0' to 4.0' bgs
5		(6-8')		8 25 16 13	41	1.75	37.0			Black SILT, some wood, nails, and cinders, dry. [FILL]	2-in diameter Sch. 40 PVC well casing 0.5' to 16.0' bgs
		(8-10')		11 50/ 0.5	REF	0.75	46.5			Obstruction encountered at 9' bgs, augered through. No sample obtained.	Grade #5 silica sand pack 4.0' to 20.0' bgs
10		(10-12')		7 7 9 7	16	1.0	12.6			Black SILT. [FILL] Light brown fine SAND, saturated, well sorted, stained.	0.01" Sch. 40 PVC screen 6.0' to 15.8' bgs
		(12-14')		4 7 10 7	17	1.25	5.0		SW	Grading to olive fine SAND, saturated, well sorted, stained.	
5		(14-16')		3 4	7	1.0	2.3				

Remarks: NA - Not Applicable. REF - Refusal.	Water Levels		
	Date / Time	Elevation	Depth
	08/05/98		11.70 ↓
			-1 ↓
		-1 ↓	

Site:
 Factory 10 Scrapyard
 Flint, Michigan

Client:
 GM NAO Flint

Well No. 20-FP1
Total Depth = 20 ft.

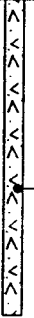
DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		3 4	7	1.0	2.3			Black fine SAND, saturated, well sorted.	<p>2-in diameter Sch. 40 PVC sump 15.8' to 16.0' bgs</p> <p>Grade #5 silica sand pack 4.0' to 20.0' bgs</p>
		(16-18')		3 4 6 8	10	2.0	0.0	SW	Grayish black coarse SAND, saturated, well sorted, heavily stained.		
		(18-20')		5 8 14 10	22	2.0	3.1		Grading to olive.		
20									Grading to olive and light brown fine SAND, saturated, well sorted. Gray CLAY, saturated. End of boring at 20' bgs.		
25											
30											
35											

Remarks:
 NA - Not Applicable.

Water Levels

Date / Time	Elevation	Depth
08/05/98		11.70 ↓
		-1 ↓
		-1 ↓

Date Start/Finish: 07/30/98 - 07/30/98 Drilling Company: Rau Drilling Driller's Name: Allen Rau Drilling Method: Hand Auger Auger Size: 2/6 Rig Type: 45C Skid Rig Spoon Size: NA Hammer Weight: NA-lb Height of Fall: NA-in.	Northing: Easting: Borehole Depth: 5.0 ft. Ground Surface Elev.: ft. Geologist: Robert Gang	Boring No. 20-FPIA Client: GM NAO Flint Site: Factory 10 Scrapyard Flint, Michigan
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DEPTH	ELEVATION	Sample Interval	Spoon Size (in,OD)	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0										GROUND SURFACE	
5	-5	(0-1')		NA	NA	NA	NA	NA	V	Floor of Building 20.	 Cement grout backfil to 5.0' bgs.
5	-5	(1-3')		NA	NA	2.0	19.0	SW	●	Black fine to medium SAND, some gray Clay, dry, strong odor.	
5	-5	(3-5')		NA	NA	2.0	20.2	GP	○	Black fine SAND, angular, some fine Gravel, dry.	
5	-5									End of boring at 5.0' bgs.	

<h1 style="margin:0;">BBL</h1> <p style="margin:0; font-size: small;">BLASLAND, BOUCK & LEE, INC. engineers & scientists</p>	Remarks: 	Saturated Zone	
		Date / Time	Elevation

Date Start/Finish: 07/30/98 / 07/30/98 Drilling Company: Rau Drilling Driller's Name: Tom Rau Drilling Method: Hollow Stem Auger Bit Size: N/A Auger Size: ID 4.25 Rig Type: CME 45C Skid Rig Spoon Size: 2	Northing: Easting: Well Casing Elev.: ft. Corehole Depth: Borehole Depth: 20 ft. Ground Surface Elev.: ft. Descriptions by: Robert Gang III	Well No. 20-FP2 Client: GM NAO Flint Site: Factory 10 Scrapyard Flint, Michigan
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DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-1')		NA	NA	NA	NA	NA		Go through concrete floor of Building #2.	
		(1-3')		NA	NA	2.0	6.3			Dark brown Silty fine SAND, trace light brown fine Sand and dark brown coarse Sand, dry.	
		(3-5')		NA	NA	2.0	14.6	SM		Dark brown Silty fine angular SAND, some fine Gravel, trace light brown fine Sand, dry.	Type 1 Portland cement/5% bentonite grout 1.0' to 6.0' bgs
5		(5-7')		5 5 5 4	10	1.5	11.0			Dark brown Silty fine angular SAND, some fine Gravel, trace light brown coarse Sand, Gravel, and glass, dry.	Bentonite seal 6.0' to 7.8' bgs
		(7-9')		4 6 6 7	12	1.5	10.2				2-in diameter Sch. 40 PVC well casing 0.5' to 10.0' bgs
10		(9-11')		9 6 5 3	11	1.0	12.7	SW			Grade #5 silica sand pack 7.8' to 20.0' bgs
		(11-13')		4 2 3 6	5	1.0	12.4				0.0" Sch. 40 PVC screen 10.0' to 19.8' bgs
15		(13-15')		11 12 6 10	18	1.0	16.7				

Remarks: NA - Not Applicable. REF - Refusal.	Water Levels		
	Date / Time	Elevation	Depth
	08/05/98		13.51 ▼
			-1 ▼

Site:
 Factory 10 Scrapyard
 Flint, Michigan

Well No. 20-FP2
Total Depth = 20 ft.

Client:
 GM NAO Flint

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		4 4 8 10	12	1.25	12.3	SW		Dark brown Silty fine angular SAND, some fine Gravel, trace light brown coarse Sand, gravel, dry.	<p>Grade #5 silica sand pack 7.8' to 20.0' bgs</p> <p>2-in diameter Sch. 40 PVC sump 19.8' to 20.0' bgs</p>
		(17-20')		NA	NA	NA	NA	NA	No sample taken from 17-20' bgs.		
20									End of boring at 20' bgs.		
25											
30											
35											

Remarks:
 NA - Not Applicable.

Water Levels

Date / Time	Elevation	Depth
08/05/98		13.51 ▼
		-1 ▼
		-1 ▼

Date Start/Finish: 07/30/98 - 07/30/98
 Drilling Company: Rau Drilling
 Driller's Name: Tom Rau
 Drilling Method: Hand Auger
 Auger Size: N/A
 Rig Type: 45C Skid Rig
 Spoon Size: NA
 Hammer Weight: NA-lb
 Height of Fall: NA-in.

Northing:
 Easting:
 Borehole Depth: 4.2 ft.
 Ground Surface Elev.: ft.
 Geologist: Robert Gang

Boring No. 20-FP3
 Client:
 GM NAO Flint
 Site:
 Factory 10 Scrapyard
 Flint, Michigan

DEPTH	ELEVATION	Sample Interval	Spoon Size (in,OD)	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
gs elevation ft.	0									GROUND SURFACE	
		(0-1')		NA	NA	NA	NA	NA		Go through concrete floor of Building 20.	
		(1-3')		NA	NA	2.0	9.5	SM		Dark black fine angular Sandy SILT, dry. Obstruction at 3' bgs. Concrete fill.	
		(3-4.2')		NA	NA	2.0	11.6			Dark brown fine angular Sandy SILT, trace Gravel. Saturated with product at 4' bgs. Obstruction at 4.2' bgs. End of boring at 4.2' bgs.	
5	-5										
10	-10										
5	-5										



Remarks:
 NA - Not Applicable Boring completed using hand auger.

Saturated Zones

Date / Time	Elevation	Depth
		-1' ▼
		-1' ▼
		-1' ▼

Date Start/Finish: 07/31/98 / 07/31/98
 Drilling Company: Rau Drilling
 Driller's Name: Al Rau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size: OD 8.0
 Rig Type: CME 65
 Spoon Size: 2

Northing:
 Easting:
 Well Casing Elev.: ft.
 Corehole Depth:
 Borehole Depth: 19 ft.
 Ground Surface Elev.: ft.

Well No. 20-FP4
 Client:
 GM NAO Flint
 Site:
 Factory 10 Scrapyard
 Flint, Michigan

Descriptions by: Robert Gang III

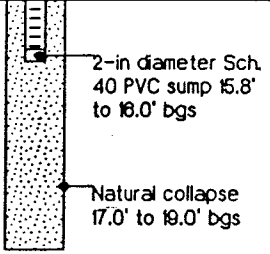
DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.											Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-1')		NA	NA	NA	NA	NA		Go through concrete floor.	
		(1-3')		9 16 13 19	29	1.75	16.9			Dark brown to black fill material, dry. 1" piece of charcoal within sample. [FILL] Brown SILT, some wood.	Type 1 Portland cement/5% bentonite grout 1.0' to 4.0' bgs
		(3-5')		33 21 19 19	40	1.0	48.6			Black SILT, some Gravel, trace glass, dry. [FILL]	Bentonite seal 4.0' to 5.0' bgs
5		(5-7')		13 40 9 3	49	1.0	79.1			Black fine angular SAND, dry. Brownish red Silty REFUSE.	2-in diameter Sch. 40 PVC well casing 0.5' to 6.0' bgs
		(7-9')		3 1 19 25	20	0.5	28.0	FI		Sludge material, some Gravel and pieces of metal. Product encountered at 7' bgs.	Grade #5 silica sand pack 5.0' to 17.0' bgs
10		(9-11')		34 19 4 5	23	0.25	4.2			Blackish gray fine SAND, trace Silt. Metal debris observed on auger.	0.01" Sch. 40 PVC screen 6.0' to 15.8' bgs
		(11-13')		21 12 6 5	18	0.25	8.5			Black Sandy SILT, some Gravel, trace wire.	
15		(13-15')		2 2 3 4	5	1.5	11.4	SW		Olive to gray fine SAND, saturated. Sheen and odor observed.	

Remarks:
 NA - Not Applicable. REF - Refusal.

Water Levels		
Date / Time	Elevation	Depth
		-1' ▼
		-1' ▼
		-1' ▼

Site:
 Factory 10 Scrapyard
 Flint, Michigan
Client:
 GM NAO Flint

Well No. 20-FP4
Total Depth = 19 ft.

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')	/	2 2 3 4	7	1.25	14				 <p>2-in diameter Sch. 40 PVC sump 15.8' to 18.0' bgs</p> <p>Natural collapse 17.0' to 19.0' bgs</p>
		(17-19')	/	2 2 3 5	5	2.0	10	SW		Grading to brownish olive gray. Tip of split spoon contained gray Silty CLAY.	
20										End of boring at 19' bgs.	
25											
30											
35											

Remarks:
 NA - Not Applicable.

Water Levels

Date / Time	Elevation	Depth
		-1' ↓
		-1' ↓
		-1' ↓

Date Start/Finish: 07/30/98 / 07/30/98
 Drilling Company: Rau Drilling
 Driller's Name: Rodd
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size : ID 4.25
 Rig Type: CME 65
 Spoon Size: 2

Northing:
 Easting:
 Well Casing Elev.: ft.
 Corehole Depth:
 Borehole Depth: 17 ft.
 Ground Surface Elev.: ft.

Well No. 20-FP5

Client:
 GM NAO Flint

Site:
 Factory 10 Scrapyard
 Flint, Michigan

Descriptions by: Gordon Hotchkiss

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 10' bgs
		(0-1')		NA	NA	NA	NA	NA		Go through concrete floor.	
		(1-3')		8 7 10 8	17	1.0	5.4			Brown fine SAND and GRAVEL, well graded, very loose, dry. [FILL]	Bentonite seal 1.0' to 3.0' bgs
		(3-5')		2 11 2 3	13	1.0	NA			Black fine to medium SAND, poorly graded, some metal fragments, dry. [FILL]	2-in diameter Sch. 40 PVC well casing 0.5' to 4.0' bgs
5		(5-7')		3 4 4 4	8	0.7	NA			Black brown and tan fine SAND and GRAVEL, well graded, dry. [FILL]	
		(7-9')		8 5 7 11	12	1.0	17.3	FI		Black fine to medium SAND. [FILL] Black Clayey SAND, moist. [FILL] Olive fine to medium SAND, moist to saturated. [FILL]	Grade #5 silica sand pack 3.0' to 17.0' bgs
10		(9-11')		4 5 5 5	10	1.3	7.8			Black to gray fine to medium SAND, poorly sorted, saturated. [FILL]	0.0" Sch. 40 PVC screen 4.0' to 13.8' bgs
		(11-13')		2 1 2 6	3	1.2	8.2			Brown to gray fine to medium SAND. [FILL]	
15		(13-15')		3 5 7 11	12	1.2	4.1				2-in diameter Sch. 40 PVC sump 13.8' to 14.0' bgs

Remarks:

NA - Not Applicable. FI - Fill

Water Levels

Date / Time	Elevation	Depth
8/5/98		9.52 ↓
		-1 ↓
		-1 ↓

Site:
 Factory 10 Scrapyard
 Flint, Michigan

Well No. 20-FP5
Total Depth = 17 ft.

Client:
 GM NAO Flint

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		3 2 3 3	5	17	17	FI			Grade #5 silica sand pack 3.0' to 17.0' bgs
								CL		Gray Silty CLAY, slightly plastic.	
										End of boring at 17' bgs.	
-20											
-25											
-30											
-35											

Remarks:
 NA - Not Applicable.

Water Levels

Date / Time	Elevation	Depth
8/5/98		9.52 ↓
		-1 ↓
		-1 ↓

Date Start-Finish: 07/29/98 - 07/29/98 Drilling Company: Rau Drilling Driller's Name: Al Rau Drilling Method: Hollow Stem Auger Auger Size: ID 8.0-in. Rig Type: CME 65 Spoon Size: 2-in. Hammer Weight: 140-lb Height of Fall: 30-in.	Northing: Easting: Well Casing Elev.: ft. Surface Elev.: ft. Borehole Depth: 17 ft. Geologist: Gordon Hotchkiss	Well No. 20-FP8 Client: GM NAO Flint Site: Factory 10 Scrapyard Flint, Michigan
---	--	---

DEPTH	ELEVATION	Sample Run Number	Sample /Int/ Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 10' bgs
		(0-1')		NA	NA	NA	NA			Asphalt	
		(1-3')		10 8 8 10	16	1.5	1.0			Brown, black, and tan fine SAND and GRAVEL, well graded, dry. Little slag. [FILL] Black fine to medium SAND, poorly graded, dry. [FILL] Tan CLAY, slightly plastic. [FILL]	Bentonite seal 1.0' to 8.0' bgs
5		(3-5')		5 4 4 4	8	1.5	2.2	FI		Alternating 4" horizons of black fine to medium SAND, poorly graded, dry. Trace brown SAND, moist to saturated at 6.3' bgs.	2-in diameter Sch. 40 PVC well casing 0.5' to 4.0' bgs
		(5-7')		3 3 3 4	6	1.5	3.4				
		(7-9')		4 3 1 2	4	1.7	4.2	SC		Black fine to medium SAND, some to little Silt, saturated. Olive Sandy CLAY. Olive Clayey SAND, trace Gravel, moist to saturated.	
10		(9-11')		5 6 7 17	13	1.5	23.5			Black wood fragments. Black SAND, well graded, little Gravel and Silt, dry to moist.	Grade #5 silica sand pack 8.0' to 17.0' bgs
		(11-13')		7 6 8 7	14	1.3	7.6	SP		Black fine to medium SAND, saturated.	0.01" Sch. 40 PVC screen 10.0' to 14.8' bgs
		(13-15')		6 8 12 13	20	2.0	5.8				2-in diameter Sch. 40 PVC sump 14.8' to 15.0' bgs
15											

BBL

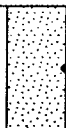
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
 NA - Not Applicable.
 FI - Fill

Water Levels		
Date / Time	Elevation	Depth
8/5/98		8.63 ▼

Site:
 Factory 10 Scrapyard
 Flint, Michigan
 Client:
 GM NAO Flint

Well No. 20-FP8
 Total Depth = 17 ft.

DEPTH	ELEVATION	Sample Run Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		8 7 8 8	15	1.2	NA	SM		Gray Silty SAND, trace Clay, saturated.	 Grade #5 silica sand pack 8.0' to 17.0' bgs
										End of boring at 17' bgs.	
-20											
-25											
-30											
-35											

BBL
 BLASLAND, BOUCK & LEE, INC.
 engineers & scientists

Remarks:
 NA - Not Applicable.

Water Levels

Date / Time	Elevation	Depth
8/5/98		8.63 ▼

Date Start/Finish: 07/30/98 / 07/30/98 Drilling Company: Rau Drilling Driller's Name: Al Rau Drilling Method: Hollow Stem Auger Bit Size: N/A Auger Size: ID 8.0 Rig Type: CME 65 Spoon Size: 2	Northing: Easting: Well Casing Elev.: ft. Corehole Depth: Borehole Depth: 17 ft. Ground Surface Elev.: ft. Descriptions by: Gordon Hotchkiss	Well No. 20-FP7 Client: GM NAO Flint Site: Factory 10 Scrapyard Flint, Michigan
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DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-1')		NA	NA	NA	NA	NA		Asphalt	
		(1-3')		7 11 15 18	26	15	6.2			Brown Silty CLAY, trace Gravel, dry. [FILL]	Bentonite seal 1.0' to 3.0' bgs
		(3-5')		5 4 4 6	8	15	7.3			Black to brown.	2-in diameter Sch. 40 PVC well casing 0.5' to 4.0' bgs
5		(5-7')		7 8 10 10	18	12	8.4		FI	Black	
		(7-9')		20 19 9 5	28	15	22.6			Black SAND, GRAVEL, and CLAY, well graded, dry.	Grade #5 silica sand pack 3.0' to 17.0' bgs
10		(9-11')		3 8 6 4	14	17	46.3			Brown fine to medium SAND, poorly graded, saturated.	0.01" Sch. 40 PVC screen 4.0' to 13.8' bgs
		(11-13')		1 1 1 1	2	15	7.1		SP		
		(13-15')		4 3 6 7	9	17	5.9			Brown to gray fine to medium SAND, trace to little Silt.	2-in diameter Sch. 40 PVC sump 13.8' to 14.0' bgs

Remarks: NA - Not Applicable. FI - Fill	Water Levels		
	Date / Time	Elevation	Depth
	8/5/98		8.65 ↓
		-1 ↓	
		-1 ↓	

Date Start/Finish: 07/30/98 / 07/30/98
 Drilling Company: Rau Drilling
 Driller's Name: Al Rau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size: ID 8.0
 Rig Type: CME 65
 Spoon Size: 2

Northing:
 Easting:
 Well Casing Elev.: ft.
 Corehole Depth:
 Borehole Depth: 17 ft.
 Ground Surface Elev.: ft.

Well No. 20-FP8
 Client:
 GM NAO Flint
 Site:
 Factory 10 Scrapyard
 Flint, Michigan

Descriptions by: Gordon Hotchkiss

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-1')		NA	NA	NA	NA			Asphalt	
		(1-3')		5 5 9 8	14	15	180.0			Brown to gray Silty CLAY, stiff, dry, petroleum odor. [FILL] Black fine to medium SAND, poorly graded, dry, petroleum odor. [FILL]	Bentonite seal 1.0' to 3.0' bgs
5		(3-5')		5 6 6	12	17	226.0	FI		Brown fine to medium SAND, trace Silt, poorly graded, dry.	2-in diameter Sch. 40 PVC well casing 0.5' to 4.0' bgs
		(5-7')		5 6 7 7	13	15	162.0			Black staining from 0.4 to 0.7' bgs. Moist.	
		(7-9')		2 4 6 6	10	15	152.0			Brown to rust Clayey SILT. Little to some Silt.	Grade #5 silica sand pack 3.0' to 17.0' bgs
10		(9-11')		3 3 5 6	8	15	217.0	SP		Olive gray fine to medium SAND, saturated, black staining, strong odor, sheen.	0.01" Sch. 40 PVC screen 4.0' to 13.8' bgs
		(11-13')		2 4 6 9	10	2.0	22.1			Brown	
5		(13-15')		3 5 6 6	11	17	256.0			Gray	2-in diameter Sch. 40 PVC sump 13.8' to 14.0' bgs

Remarks:
 NA - Not Applicable. FI - Fill

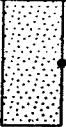
Water Levels

Date / Time	Elevation	Depth
		-1' ▽
		-1' ▽
		-1' ▽

Site:
 Factory 10 Scrapyard
 Flint, Michigan

Well No. 20-FP8
 Total Depth = 17 ft.

Client:
 GM NAO Flint


DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		2 3 3 7	6	2.0	6.2	SP SP		Brown	 Grade #5 silica sand pack 3.0' to 17.0' bgs
								CL		Gray Silty CLAY. End of boring at 17' bgs.	
20											
25											
30											
35											

Remarks:
 NA - Not Applicable.

Water Levels		
Date / Time	Elevation	Depth
		-1' ↓
		-1' ↓
		-1' ↓

Date Start-Finish: 5/4/99 - 5/4/99 Drilling Company: RAU Drilling Driller's Name: Greg Compeau Drilling Method: Hollow Stem Auger Auger Size: ID 4.25-in. Rig Type: CME 75 Spoon Size: 2-in. Hammer Weight: 140-lb Height of Fall: 30-in.	Northing: Easting: Well Casing Elev.: ft. Surface Elev.: ft. Borehole Depth: 11 ft. Geologist: Tamara Hauptfleisch	Well No. 20-FP11 Client: General Motors Corporation Site: GM NAO Flint Site Building 20-Scrap Yard
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DEPTH	ELEVATION	Sample Run Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.											9" diameter steel flush-mount cover. Cement pad, ground surface to 0.5' BGS.
										GROUND SURFACE	
		(0-1')		NA	NA	NA	NA			Auger through cement from 0 to 1' BGS.	2" diameter Sch. 40 PVC well casing, 0.3 to 3' BGS. Bentonite seal, 0.5 to 2.5' BGS.
		(1-3')		4 5 6	10	1.8	7.5			Orange brown fine SAND, dry. Black CINDERS.	Grade #5 silica sand pack, 2.5 to 11' BGS. 0.010" screened 2" diameter Sch. 40 PVC, 3 to 9.8' BGS.
5		(3-5')		4 6 3	12	2.0	7.6			Orange Brown fine SAND, trace Silt, moist to wet. Same as above.	
		(5-7')		2 4 3	10	1.6	3.1			Fine to coarse SAND, some Silt and Clay, saturated, trace organics at 5' BGS.	
		(7-9')		2 3 4 4	7	2.0	1.5			Brown fine to medium SAND, organic seam at 8.8' BGS, saturated.	
10		(9-11')		2 3 4 5	7	2.0	0.4			Gray brown fine to medium SAND, trace coarse Sand, saturated.	2" diameter PVC slip cap, 9.8 to 10' BGS.
										End of boring at 11' BGS.	

 BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists	Remarks: BGS - Below Ground Surface. NA- Not Available. Sample from 3 to 5' BGS taken for analysis.	Water Levels		
		Date / Time	Elevation	Depth

Date Start-Finish: 5/4/99 - 5/4/99 Drilling Company: RAU Drilling Driller's Name: Greg Compeau Drilling Method: Hollow Stem Auger Auger Size: ID 4.25-in. Rig Type: CME 75 Spoon Size: 2-in. Hammer Weight: 140-lb Height of Fall: 30-in.	Northing: Easting: Well Casing Elev.: ft. Surface Elev.: ft. Borehole Depth: 11 ft. Geologist: Tamara Hauptfleisch	Well No. 20-FP12 Client: General Motors Corporation Site: GM NAO Flint Site Building 20-Scrap Yard
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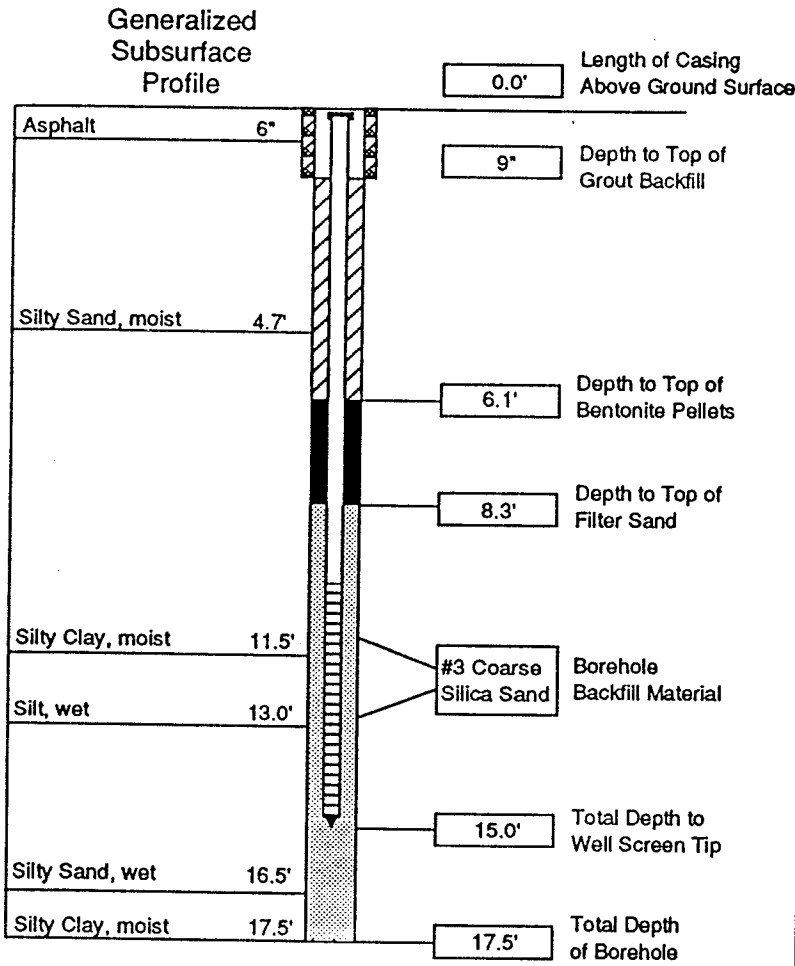
DEPTH	ELEVATION	Sample Run Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.										GROUND SURFACE	
		(0-1')		NA	NA	NA	NA			Auger through Gravel Fill from 0 to 1' BGS.	
		(1-3')		4 4 4 6	8	1.5	0.0			Brown fine SAND, some Cinders, trace medium to coarse Gravel, some orange brown fine Sand layers, moist. From 1.3 to 1.5' BGS, layer of gray silt, trace clay, strong odor.	
		(3-5')		2 2 3 4	5	1.8	22.1			Gray fine SAND, wet.	
5		(5-7')		2 2 3 2	5	1.7	6.5			Gray brown fine SAND, saturated, slight odor.	
		(7-9')		1 1 1 1	2	1.8	7.3			Gray brown fine to medium SAND, saturated.	
		(9-10')		NA	NA	NA	NA			No Sample Taken.	
10										End of boring at 10' BGS.	
5											

	Remarks: BGS - Below Ground Surface. NA - Not Available. Sample from 3 to 5' BGS taken for analysis.	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">Water Levels</th> </tr> <tr> <th style="width:33%;">Date / Time</th> <th style="width:33%;">Elevation</th> <th style="width:33%;">Depth</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Water Levels			Date / Time	Elevation	Depth									
Water Levels																	
Date / Time	Elevation	Depth															

Log of Well Installation

Well Designation: Section 18/MW-1 (30-106)

Date(s) of Installation: 10/9/91 To 10/9/91



Top of Casing Elevation: 747.84

Ground Surface Elevation: 748.3

Well Screen Tip Elevation: 733.3

Well Casing

Diameter: 2 inches
 Total Length: 10.0 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen

Diameter: 2 inches
 Length: 5.0 feet
 Mesh: 0.01 - inch Machine slotted
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: C. Kingma
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55
with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry
 Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date Water Level Elevation

Date	Water Level Elevation
11-14-91	737.21
2-10-92	736.01

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum



WELL LOG

CLIENT ▶ GM-BOC	PROJECT NUMBER ▶ 54079200584
WELL NUMBER ▶ SEC13 A3 (30-120)	SITE LOCATION ▶ Section 7 & 13
DATE ▶ MAR 9 93	WEATHER ▶ Cloudy, Cold
LOGGED BY ▶ Jim Farkas	DRILLED BY ▶ Atec Associates
DRILLING METHOD ▶ Hollow Stem Auger	SAMPLING METHOD ▶ Split Spoon
GRAVEL PACK ▶ Coarse Silica Sand	SEAL ▶ Benonite Grout
CASING ▶ TYPE Schedule 40 PVC	DIAMETER 2.0" LENGTH 5.0' HOLE DIA. 6.25"
SCREEN ▶ TYPE Schedule 40 PVC	SLOT 0.010" DIAMETER 2.0" LENGTH 15.0' TOTAL DEPTH 20.0'

DEPTH BELOW SURFACE	WELL COMPLETION	SAMPLE NO.	SAMPLE RECOVERY	PENETRATION RESISTANCE	PID	READING	LITHOLOGY	ELEVATION
	Cover						CONCRETE	
	Concrete							
	Bentonite Grout							
	Riser	1	1.50	9 10		0	Fine SAND, some silt, medium dense, dry, brown to black SW	
5								
		2	1.50	13 10		0	Fine SAND, little silt, trace gravel, medium dense, wet to saturated, brown SW	
10	Coarse Silica Sand							
		3	2.0	4 5		0	Fine SAND, little silt, loose, saturated, brown SW	
15								
	Screen	4	2.0	4 4		0		
20							CLAY, little silt, stiff, moist, gray CL	
							END OF BORING	

Water levels: ∇ ATD ∇ "Stabilized"



WELL LOG

CLIENT ▶ GM-BOC	PROJECT NUMBER ▶ 54079200584
WELL NUMBER ▶ SEC13 A4 (30-121)	SITE LOCATION ▶ Section 7 & 13
DATE ▶ MAR 9 93	WEATHER ▶ Cloudy, Cold
LOGGED BY ▶ Jim Farkas	DRILLED BY ▶ Atec Associates
DRILLING METHOD ▶ Hollow Stem Auger	SAMPLING METHOD ▶ Split Spoon
GRAVEL PACK ▶ Coarse Silica Sand	SEAL ▶ Benonite Grout
CASING ▶ TYPE Schedule 40 PVC	DIAMETER 2.0" LENGTH 5.0' HOLE DIA. 6.25"
SCREEN ▶ TYPE Schedule 40 PVC	SLOT 0.010" DIAMETER 2.0" LENGTH 15.0' TOTAL DEPTH 20.0'

DEPTH BELOW SURFACE	WELL COMPLETION	SAMPLE NO.	SAMPLE RECOVERY	PENETRATION RESISTANCE	PID READING	LITHOLOGY	ELEVATION
	Cover					ASPHALT	
	Concrete						
	Bentonite Grout						
	Riser	1	2.0	3 3	0	Fine SAND, trace silt, loose, dry, brown SW	
5							
		2	2.0	2 2	0	Fine SAND, little silt, very loose, wet, brown SW	
10	Coarse Silica Sand						
		3	2.0	4 4	0	Fine SAND, little silt, loose, saturated, brown SW	
15							
	Screen	4	2.0	4 5	0		
20						CLAY, little silt, stiff, moist, gray CL	
						END OF BORING	

Water levels: ATD "Stabilized"



WELL LOG

CLIENT ▶ GM-BOC	PROJECT NUMBER ▶ 54079200584	
WELL NUMBER ▶ SEC13 A6 (30-140)	SITE LOCATION ▶ Section 7 & 13	
DATE ▶ MAR 9 93	WEATHER ▶ Cloudy, Cold	
LOGGED BY ▶ Jim Farkas	DRILLED BY ▶ Atec Associates	
DRILLING METHOD ▶ Hollow Stem Auger	SAMPLING METHOD ▶ Split Spoon	
GRAVEL PACK ▶ Coarse Silica Sand	SEAL ▶ Benonite Grout	
CASING ▶ TYPE Schedule 40 PVC	DIAMETER 2.0" LENGTH 5.0'	HOLE DIA. 6.25"
SCREEN ▶ TYPE Schedule 40 PVC	SLOT 0.010" DIAMETER 2.0" LENGTH 10.0'	TOTAL DEPTH 15.0'

DEPTH BELOW SURFACE	WELL COMPLETION	SAMPLE NO.	SAMPLE RECOVERY	PENETRATION RESISTANCE	PID	READING	LITHOLOGY	ELEVATION
	Cover						Coarse GRAVEL	
	Concrete							
	Bentonite Grout							
	Riser	1	2.0	4 2		0	Fine SAND, little silt, loose, moist, brown SW	
5							SILT, little sand, soft, wet, brown SM	
		2	2.0	6 7		0	SILT, little sand, medium, wet, brown SM	
10	Coarse Silica Sand							
	Screen	3	2.0	4 4		0	CLAY, some silt, medium firm, damp, gray CL	
15	Bentonite Grout	4	2.0	6 7		0	Same as above	
							END OF BORING	

Water levels: ∇ ATD ∇ "Stabilized"

Global Environmental Engineering Inc.
 5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well: SB-1/MW-1 (3-1)	Project Name: GM - BUILDING 31
Date: 6/4/97	Project No.: F329
Contractor: GEEI	Location:
Prepared By: ALK	Twp/Range/Sec.:
Time Started: 8:30	Depth Drilled: 27'
Time Completed:	Hole Diameter: 8.25"
Coring Device: 5'	Inner Diameter: 4.50"

Boring Methods

Water Level Data

X	Boring Methods	Date	SWL Elevation
	Hollow Stem Auger		
	Hand Auger	6/10/97	8.40'
	Geoprobe		

Drilling Fluid:	None
Driller:	Norm
Helper:	Ash

WELL SPECIFICATIONS

SOIL PROFILE

Well Casing Cover:

Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No

Top of Casing:

Depth to Top of Grout Backfill: 1'

Well Casing:

Diameter:	2"
Length:	20.5'
Material:	PVC
Cap:	Expandable
Locking:	Dolphin

Depth to Top of Bentonite: 13.5'

Depth to Top of Sand: 13'

Depth to Top of Screen: 15.5'

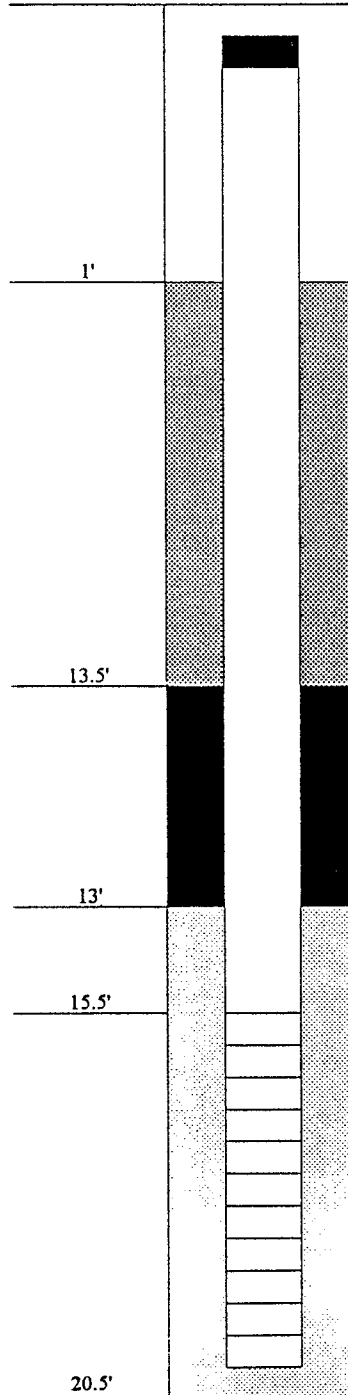
Well Screen:

Diameter:	2"
Length:	5'
Slotsize:	0.01
Material:	PVC
Well Screen	
Interval:	15.5'-20.5'
Filter Pack:	Sand

Total Well Depth: 20.5'

- 0 - 9" Concrete
- 9" - 3' Silty Sand
- 3 - 21.5' Silty Clay
- 21.5 - 22' Sand
- 22 - 25' Silty Clay
- 25 - 26.5 Sand
- 26.5 - 27 Silty Sand

Groundwater Encountered at 18'



Global Environmental Engineering Inc.

5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well: SB-2/MW-2 (31-2)	Project Name: GM - BUILDING 31
Date: 6/4/97	Project No.: F329
Contractor: GEEI	Location:
Prepared By: ALK	Twp/Range/Sec.:
Time Started: 11:45	Depth Drilled: 19'
Time Completed:	Hole Diameter: 8.25"
Coring Device: 5'	Inner Diameter: 4.50"

Boring Methods		Water Level Data		Drilling Fluid: None
X	Hollow Stem Auger	Date	SWL Elevation	Driller: Norm
	Hand Auger	6/10/97	6.95	Helper: Ash
	Geoprobe			

WELL SPECIFICATIONS **SOIL PROFILE**

Casing Cover:

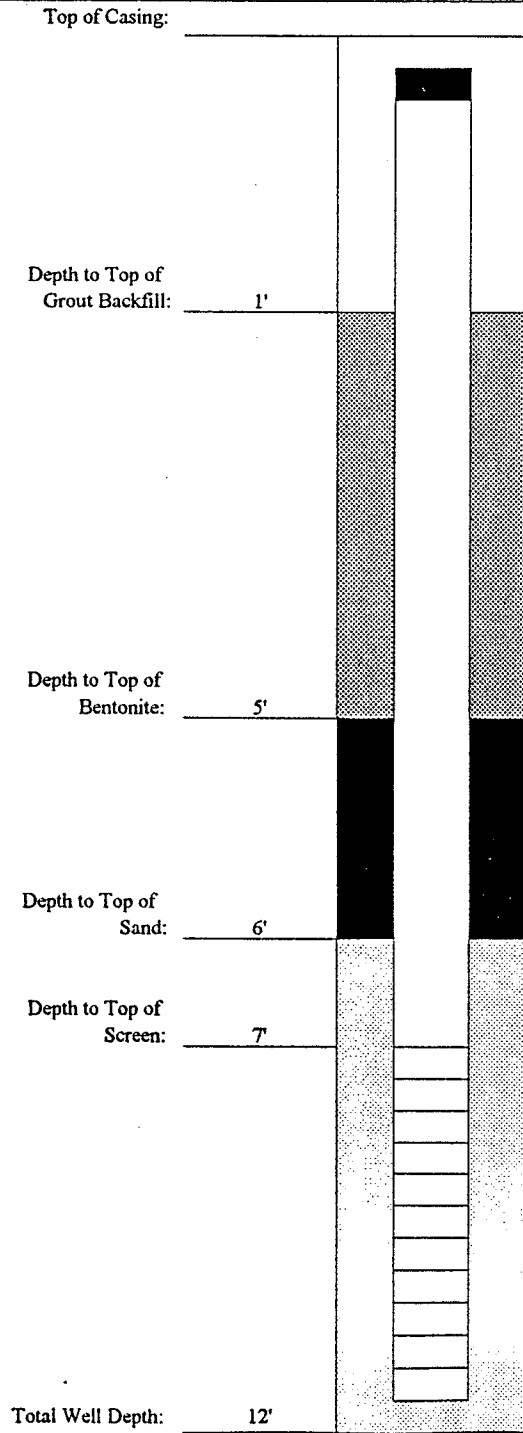
Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No

Casing:

Diameter:	2"
Length:	12'
Material:	PVC
Cap:	Expandable
Locking:	Dolphin

Screen:

Diameter:	2"
Length:	5'
Slotsize:	0.01
Material:	PVC
Well Screen	
Interval:	7'-12'
Filter Pack:	Sand



0 - 8" Concrete
 8" - 8.5' Sand
 8.5 - 19' Silty Clay

 Groundwater Encountered at 8'

Global Environmental Engineering Inc.

5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well: SB-3/MW-3 (31-3)	Project Name: GM - BUILDING 31
Date: 6/4/97	Project No.: F329
Contractor: GEEI	Location:
Prepared By: ALK	Twp/Range/Sec.:
Time Started: 16:15	Depth Drilled: 21'
Time Completed:	Hole Diameter: 8.25"
Coring Device: 5'	Inner Diameter: 4.50"

Boring Methods		Water Level Data		Drilling Fluid: None
X	Hollow Stem Auger	Date	SWL Elevation	Driller: Norm
	Hand Auger	6/10/97	7.17	Helper: Ash
	Geoprobe			
WELL SPECIFICATIONS			SOIL PROFILE	

I Casing Cover:

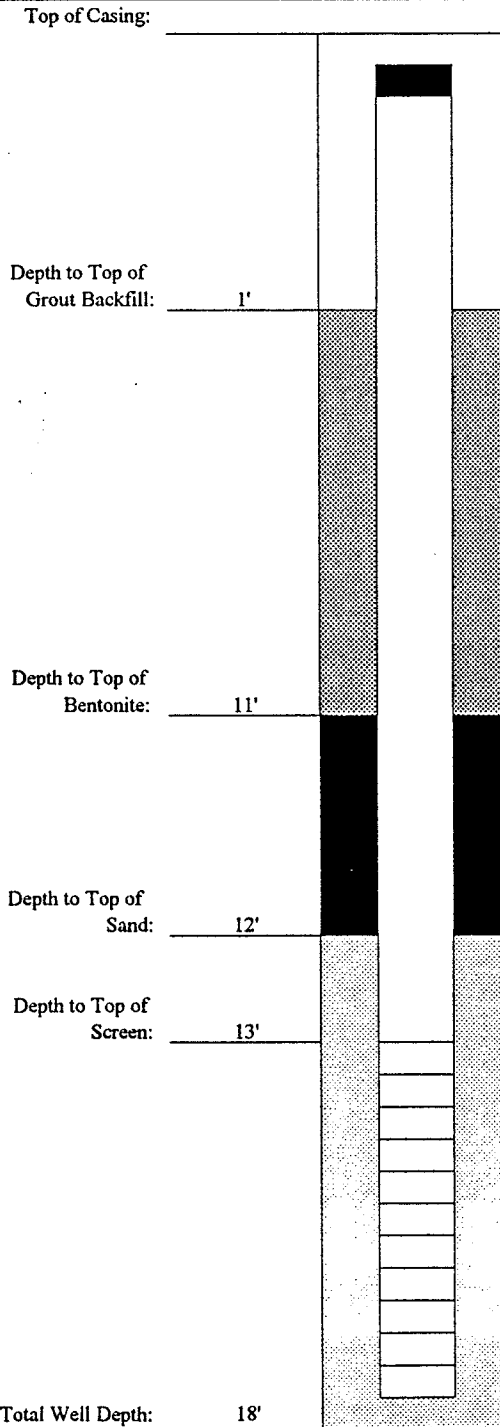
Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No

I Casing:

Diameter:	2"
Length:	18'
Material:	PVC
Cap:	Expandable
Locking:	Dolphin

II Screen:

Diameter:	2"
Length:	5'
Slotsize:	0.01
Material:	PVC
Well Screen	
Interval:	13'-18'
Filter Pack:	Sand



0 - 10" Asphalt
 10" - 3.5' Sand
 3.5 - 13' Silty Clay
 13 - 14.5 Sand
 14.5 - 15 Silty Clay
 15 - 16.5 Sand
 16.5 - 21' Silty Clay
 Groundwater Encountered at 15.5'

Global Environmental Engineering Inc.

5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well: SB-4/MW-4S (31-4)	Project Name: GM - BUILDING 31
Date: 6/5/97	Project No.: F329
Contractor: GEEI	Location:
Prepared By: ALK	Twp/Range/Sec.:
Time Started: 8:20	Depth Drilled: 21'
Time Completed:	Hole Diameter: 8.25"
Coring Device: 5'	Inner Diameter: 4.50"

Boring Methods		Water Level Data	
X	Hollow Stem Auger	Date	SWL Elevation
	Hand Auger	6/10/97	6.08
	Geoprobe		

Drilling Fluid:	None
Driller:	Norm
Helper:	Ash

WELL SPECIFICATIONS **SOIL PROFILE**

II Casing Cover:

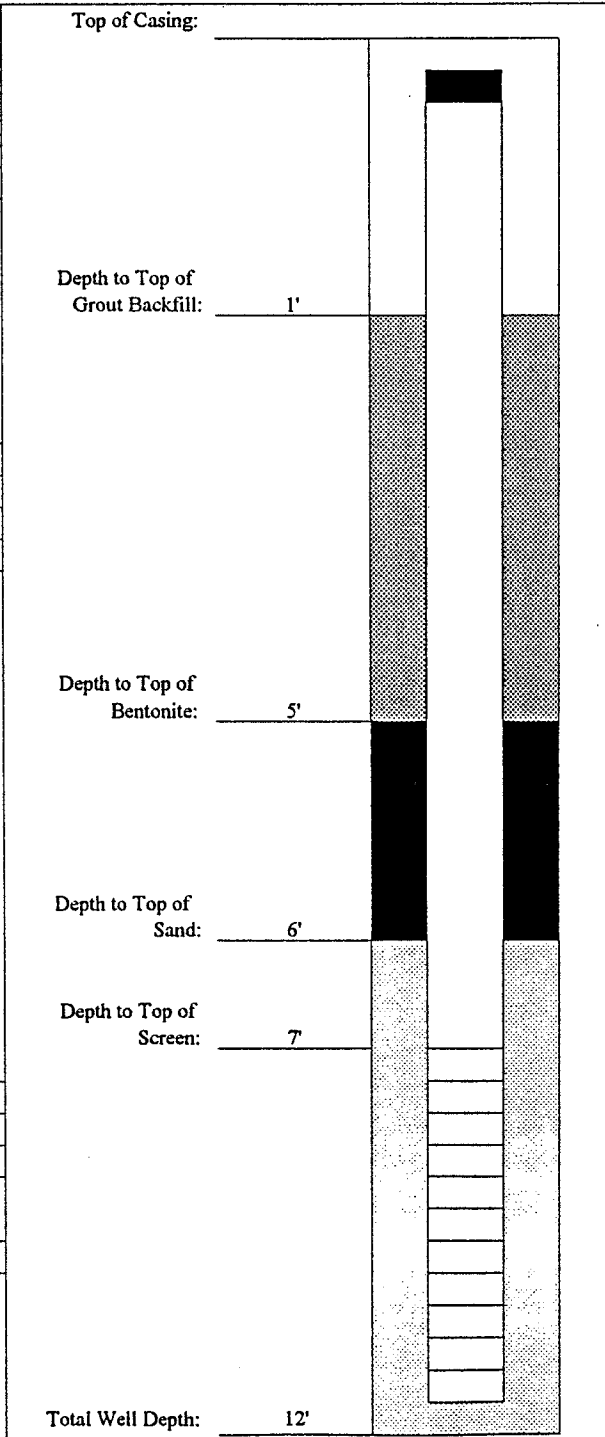
Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No

II Casing:

Diameter:	2"
Length:	12'
Material:	PVC
Cap:	Expandable
Locking:	Dolphin

I Screen:


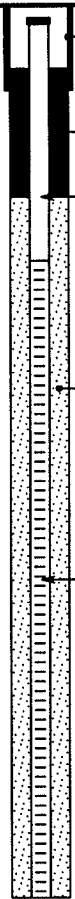



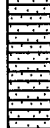

Diameter:	2"
Length:	5'
Slotsize:	0.01
Material:	PVC
Well Screen	
Interval:	7'-12'
Filter Pack:	Sand



0 - 10" Asphalt
 10" - 3.5' Sand
 3.5 - 21' Silty Clay

Groundwater Encountered at 8'

Date Start/Finish: 3/7/00 / 3/7/00 Drilling Company: RAU Drilling Driller's Name: Rick Rau Drilling Method: Hollow Stem Auger Auger Size: 4.25" ID Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 14.0 feet Geologist: Matt Stuk	Well No: 31-5 Client: General Motors Corporation Location: GM NAO Flint Site Former Hamilton Ave. Tank Farm Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-4')		NA	NA	NA	NA			Asphalt. FILL, concrete.	 <ul style="list-style-type: none"> Steel 8" diameter flushmount curb box. Bentonite seal 1.0' to 3.0' bgs. 2-inch diameter PVC casing to 4.0' bgs. #5 sand pack 3.0' to 14.0' bgs. 2-inch diameter 0.010" slot PVC well screen 4.0' to 14.0' bgs.
5		(4-6')	/	7 9 10 10	18	0.5	1.6			Yellowish-brown Sandy lean CLAY, little fine to coarse Sand, moist.	
		(6-8')	/	7 9 13 11	22	1.83	0.3			Wet. Color changes to gray.	
		(8-10')	/	3 4 9 11	13	2.0	0.0			1" wet sand lens at 10.5' bgs.	
10		(10-12')	/	5 13 17 16	30	2.0	0.0				
		(12-14')	/	15 7 11 19	18	1.83	0.0				
5										End of boring at 14.0' bgs.	

<h1 style="margin: 0;">BBL</h1> <p style="margin: 0;">BLASLAND, BOUCK & LEE, INC. engineers & scientists</p>	Remarks: bgs - below ground surface. Soil sample collected from 4-6' bgs for metals, SVOCs, and PCBs.	Water Levels			
		Date / Time	Elevation	Depth	

Date Start/Finish: 3/6/00 / 3/6/00 Drilling Company: RAU Drilling Driller's Name: Rick Rau Drilling Method: Hollow Stem Auger Auger Size: 4.25" ID Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 14.0 feet Geologist: Matt Stuk	Well No: 31-6 Client: General Motors Corporation Location: GM NAO Flint Site Former Hamilton Ave. Tank Farm Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm)	Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
											GROUND SURFACE	
		(0-2.5')		NA	NA	NA	NA				Asphalt.	
		(2.5-4')		7 9 1	NA	1.33	0.1			Brown, fine Silty SAND, moist.	Concrete.	
		(4-6')		2 2 4 3	6	1.5	0.0			Yellowish-brown Sandy lean CLAY, some fine to medium Sand, moist.	Bentonite seal 1.0' to 4.0' bgs.	
		(6-8')		2 3 3 1	6	1.67	0.0			Wet.	2-inch diameter PVC casing to 4.0' bgs.	
5		(8-10')		4 9 12 15	21	2.0	0.0				#5 sand pack 4.0' to 14.0' bgs.	
		(10-12')		4 11 22 9	33	2.0	0.0				2-inch diameter 0.010" slot PVC well screen 4.0' to 14.0' bgs.	
		(12-14')		8 13 11 9	24	1.67	0.0					
											End of boring at 14.0' bgs.	

	Remarks: bgs - below ground surface. NA - Not Available. Soil sample collected from 6-8' bgs for VOCs, metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Date Start/Finish: 3/6/00 / 3/6/00
Drilling Company: RAU Drilling
Driller's Name: Rick Rau
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME 55
Sampling Method: Split Spoon
Hammer Weight: 140 lb.

Borehole Depth: 16.0 feet
Geologist: Matt Stuk

Well No: 31-7
Client:
 General Motors Corporation
Location:
 GM NAO Flint Site
 Former Hamilton Ave. Tank Farm Area

DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		5 6 13	11	0.33	50			Concrete.	
		(2-4')		5 7	12	0.42	1019			Sand and Gravel FILL, solvent odor.	
5		(4-6')		8 16 21 24	37	1.67	779			Olive-gray SILT, moist, solvent odor.	
		(6-8')		11 14 17 20	31	1.83	596			Brown Silty SAND, moist, slight solvent odor.	
10		(8-10')		8 11 17 16	28	2.0	983			Gray Sandy lean CLAY, some fine to coarse Sand, moist to wet, solvent odor.	
		(10-12')		11 13 17 22	30	1.83	490			Gray Clayey SAND, wet, solvent odor.	
		(12-14')		18 22 30 22	52	1.67	702				
5		(14-16')		8 10	36	1.33	954				

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 engineers & scientists

Remarks:

bgs - below ground surface. NA - Not Available. Soil sample collected from 2-4' bgs for VOCs, metals, SVOCs, and PCBs.

Water Levels


Date / Time	Elevation	Depth

Client:
General Motors Corporation

Well No: 31-7

Location:
GM NAO Flint Site
Former Hamilton Ave. Tank Farm Area

Total Depth = 16.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		26 21	36	1.33	954			Gray Clayey SAND, wet, solvent odor.	 <p>#5 sand pack 5.0' to 16.0' bgs. 2-inch diameter 0.010" slot PVC well screen 6.0' to 16.0' bgs.</p>
										End of boring at 16.0' bgs.	
20											
25											
30											
35											

BBL
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Remarks:

bgs - below ground surface. NA - Not Available.

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/8/00 / 3/8/00
Drilling Company: RAU Drilling
Driller's Name: Rick Rau
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME 55
Sampling Method: Split Spoon
Hammer Weight: 140 lb.

Borehole Depth: 18.0 feet
Geologist: Matt Stuk

Well No: 31-8
Client: General Motors Corporation
Location: GM NAO Flint Site
 Former Hamilton Ave. Tank Farm Area

DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		7 18 18 -	37	0.5	1.0			Concrete.	
		(2-4')		11 20 30 33	50	0.67	0.8			Sand and Gravel FILL.	
		(4-6')		50 - -	NA	0.08	0.0			Olive-green Sandy lean CLAY, some fine to coarse Sand, moist.	
5		(6-8')		7 9 11 17	20	1.83	2.3			Concrete.	
		(8-10')		8 9 13 11	22	2.0	682			Drive cap broke at 5.5' bgs. Move to another location and continue boring.	
		(10-12')		5 15 17 15	32	1.58	58			Brown fine Silty SAND.	
10		(12-14')		7 27 11 18	38	1.33	924			Wet.	
		(14-16')		13 19	39	1.58	56			Gray fine to coarse well graded SAND, wet.	

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 engineers & scientists

Remarks:

bgs - below ground surface. NA - Not Available. Soil sample collected from 8-10' for VOCs, metals, SVOCs, and PCBs.


Water Levels

Date / Time	Elevation	Depth

Client:
General Motors Corporation

Location:
GM NAO Flint Site
Former Hamilton Ave. Tank Farm Area

Well No: 31-8
Total Depth = 18.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.		Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
					N						
		(14-16')		20 29	39	1.58	56			Gray fine to coarse well graded SAND, wet.	 Pelletal bentonite 15.0' to 18.0' bgs.
		(16-18')		7 9 17 23	26	1.67	34				
										End of boring at 18.0' bgs.	
20											
25											
30											
35											

BBL
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engineers & scientists

Remarks:

bgs - below ground surface. NA - Not Available.

Water Levels

Date / Time	Elevation	Depth

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 751.39
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/6/95
 Logged By: BRIAN BOKOVOY
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 13.23 Total Depth: 26.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-3.5'	CLAY WITH SOME SILT, BROWN, SLIGHTLY MOIST, SLIGHTLY PLASTIC.		5YR 4/4	ND	S-1	60	CL	
3.5-4.3'	S.A.A.: MOIST, PLASTIC.		5YR 4/4	ND	S-2	100	CH	
4.3-18.0'	SAND, YELLOW-ORANGE, SLIGHTLY MOIST TO WET, FINE GRAINED. WET AT 12.5'.		10YR 8/6	ND	S-3	100		
			10YR 8/6	ND	S-4	100		
			10YR 8/6	ND	S-5	50		
			10YR 8/6	ND	S-6	75		
			10YR 8/6	ND	S-7	100		
			10YR 8/6	ND	S-8	100		
			10YR 8/6	ND	S-10	100	SP	
18.0-20.0'	SAND, GRAY, WET, FINE TO MEDIUM GRAINED.		N5	ND	S-11	100		
			N5	ND	S-12	100		
20.0-25.0'	S.A.A.: FINE GRAINED.		N5	ND	S-13	50		
25.0-26.0'	CLAY WITH SOME SILT, GRAY, MOIST, PLASTIC.		N5	ND	S-14	75	CH	

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 750.94
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/6/95
 Logged By: BRIAN BOKOVOY
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 14.28 Total Depth: 24.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0			5YR 4/4	ND	S-1	75	SP	0.0-3.4': SAND, DARK BROWN, SLIGHTLY MOIST TO MOIST, FINE GRAINED 3.4-5.8': CLAY WITH SOME SILT, BROWN, SLIGHTLY MOIST, SLIGHTLY PLASTIC. 5.8-15.0': SAND, YELLOW-ORANGE, SLIGHTLY MOIST TO WET, FINE GRAINED. WET AT 14.0'. 15.0-16.0': S.A.A.: LIGHT BROWN. 16.0-17.0': SAND, GRAY, WET, FINE TO MEDIUM GRAINED. 17.0-18.0': SILT WITH SOME CLAY, GRAY, MOIST, PLASTIC. 18.0-23.5': SILT, GRAY, WET. 23.5-24.0': CLAY WITH SOME SILT, GRAY, SLIGHTLY MOIST, SLIGHTLY PLASTIC. TOTAL DEPTH DRILLED = 24.0 FEET WELL SET FROM 11.0 TO 18.0'. GROUNDWATER SAMPLE COLLECTED FROM 11.0 TO 16.0'. GROUNDWATER SAMPLE COLLECTED FROM 17.0 TO 22.0'.
3.4			5YR 4/4	ND	S-2	100		
5.8			5YR 4/4	ND	S-3	100	CL	
8.2			10YR 8/6	ND	S-4	60		
10.6			10YR 8/6	ND	S-5	100		
13.0			10YR 8/6	ND	S-6	100	SP	
15.4			10YR 8/6	ND	S-7	100		
17.8			10YR 8/6	ND	S-8	100		
20.2			N5	ND	S-10	75		
22.6			N5	ND	S-11	100		
25.0			N5	ND	S-12	40	MH	
27.4			N5	ND	S-13	100	CL	

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Project Name: GM-NAO FLINT OPERATIONS Date(s) Drilled: 10/5/95
 Project Number: 041057F001 Logged By: BRIAN BOKOVOY
 Location: T.7N R.7E 7 Contractor: SOMAT ENGINEERING
 T R SEC QTR QTR Drill Rig/Method: HOLLOW STEM AUGER
 Northing: _____ Easting: _____ Sampling Method: SPLIT SPOON
 Ground Surface Elev.: 755.47 Borehole Diam.: 8" Drilling Fluid: NONE
 Property Owner/Contact: GENERAL MOTORS Depth to Water: 13.09 Total Depth: 26.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-0.3'			N1	ND	S-1	25	SP	SAND AND GRAVEL, GRAY, DRY, FINE TO MEDIUM GRAINED.
0.3-2.0'			5YR 4/4	ND	S-2	50		CLAY WITH SOME SILT, BLACK, SLIGHTLY MOIST, SLIGHTLY PLASTIC.
2.0-2.4'			5YR 4/4	ND	S-3	60	CL	CLAY WITH SOME SILT AND SAND, DARK BROWN, SLIGHTLY MOIST.
2.4-8.0'			5YR 4/4	ND	S-4	100		CLAY WITH SOME SILT, BROWN, SLIGHTLY MOIST, SLIGHTLY PLASTIC.
8.0-9.8'			5YR 4/4	ND	S-5	100		S.A.A.: BROWN SILT FRACTURES.
9.8-17.3'			10YR 8/6	ND	S-6	100		SAND, YELLOW-ORANGE, SLIGHTLY MOIST TO WET, FINE GRAINED.
17.3-25.7'			10YR 8/6	ND	S-7	100		SAND, GRAY, WET, FINE GRAINED.
25.7-26.0'			10YR 8/6	ND	S-8	100	SP	SAND, YELLOW-ORANGE, SLIGHTLY MOIST TO WET, FINE GRAINED.
			N5	ND	S-9	100		
			N5	ND	S-11	100		
			N5	ND	S-12	100		
			N5	ND	S-13	100		
			N5	ND	S-14	100	CH	CLAY WITH SOME SILT, GRAY, MOIST, PLASTIC.
TOTAL DEPTH DRILLED = 26.0 FEET								
WELL SET FROM 11.0 TO 18.0'								
GROUNDWATER SAMPLE COLLECTED FROM 11.0-16.0'								
GROUNDWATER SAMPLE COLLECTED FROM 19.0-24.0'								

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 0410057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 754.65
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/5/95
 Logged By: BRIAN BOKOVOY
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 16.72 Total Depth: 28.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-2.7'			5YR 4/4	ND	S-1	100	CL	0.0-2.7': CLAY WITH SOME SILT, BROWN, SLIGHTLY MOIST, SLIGHTLY PLASTIC.
			5YR 4/4	ND	S-2	100		
5			5YR 4/4	ND	S-3	100		
			5YR 4/4	ND	S-4	100		
			5YR 4/4	ND	S-5	100	SP	2.7-9.2': S.A.A.: WITH SOME SAND, INTERMITTENT SILT FRACTURES FROM 4.0 TO 6.0'.
10			10YR 8/6	ND	S-6	40		
			5YR 5/6	ND	S-7	75		
15			5YR 5/6	ND	S-8	75		
			5YR 5/6	ND	S-9	75		
			5YR 5/6	ND	S-10	100		
20			N5	ND	S-12	100		
			N5	ND	S-13	100		
25			N5	ND	S-14	30		
			N5	ND	S-15	50		
							CH	27.8-28.0': CLAY WITH SOME SILT, GRAY, MOIST, PLASTIC. TOTAL DEPTH DRILLED = 28.0 FEET WELL SET FROM 13.0 TO 20.0'. GROUNDWATER SAMPLE COLLECTED FROM 15.0 TO 20.0'. GROUNDWATER SAMPLE COLLECTED FROM 21.0 TO 26.0'.

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 750.94
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/9/95
 Logged By: DARRYL BARRICKLOW
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 12.18 Total Depth: 24.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-4.0'	Gravel						GP	0.0-4.0': GRAVEL.
4.0-5.8'	Sand		5YR 4/4	ND	S-1	75		4.0-5.8': SAND, BROWN, SLIGHTLY MOIST, FINE GRAINED.
5.8-6.0'	S.A.A.		5YR 4/4	ND	S-2	75	SM	5.8-6.0': S.A.A.: WITH TRACE SILTS.
6.0-8.0'	Sand and silt		N5	ND	S-3	80		6.0-8.0': SAND AND SILT, BROWN/GRAY, SLIGHTLY MOIST, FINE GRAINED. 1" SILTY CLAY LENS AT 7.0'.
8.0-10.8'	S.A.A.		N5	ND	S-4	100	CL	8.0-10.8': S.A.A.: GRAY, NO CLAY.
10.8-11.0'	Clay		N5	ND	S-5	85	SM	10.8-11.0': CLAY WITH SOME SILT, BROWN.
11.0-11.2'	Sand		N5	ND	S-6	100	SP	11.0-11.2': SAND, GRAY, MOIST TO WET.
11.2-12.0'	Clay		N5	ND	S-7	80	SM	11.2-12.0': CLAY WITH SOME SILT, BROWN/GRAY, MOIST TO WET, SAND AND SILT LENS FROM 11.7' TO 11.8'.
12.0-14.0'	Intervals of brown, fine sand; brown and gray silty clay; and gray silts.		N5	ND	S-8	100	SM	12.0-14.0': INTERVALS OF BROWN, FINE SAND; BROWN AND GRAY SILTY CLAY; AND GRAY SILTS. SANDS AND SILTS ARE WET, CLAY IS SLIGHTLY MOIST.
14.0-16.0'	Sand		N5	ND	S-9	100	SP	14.0-16.0': SAND, BROWN/GRAY, WET, FINE GRAINED.
16.0-19.5'	Sand and silt		N5	ND	S-10	100	SM	16.0-19.5': SAND AND SILT, GRAY, WET, FINE GRAINED.
19.5-20.0'	Silt with some clay		N5	ND		100	MH	19.5-20.0': SILT WITH SOME CLAY, GRAY, WET.
20.0-20.5'	Sand		N5	ND		100	SP	20.0-20.5': SAND, GRAY, WET, FINE GRAINED.
20.5-22.0'	Clay with some silt and trace sand		N5	ND		100	CL	20.5-22.0': CLAY WITH SOME SILT AND TRACE SAND, GRAY. WET SILT LENSES.
22.0-24.0'	Clay with some silt and trace sand		N5	ND		100	CL	22.0-24.0': CLAY WITH SOME SILT AND TRACE SAND, GRAY, SLIGHTLY MOIST.

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 745.46
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/9/95
 Logged By: DARRYL BARRICKLOW
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 4.57 Total Depth: 24.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
5 10 15 20 25			5YR 4/4	ND	S-1	100	SP	0.0-0.75': SAND AND GRAVEL, BROWN. 0.75-1.2': SAND AND CINDER, BLACK, DRY.
			5YR 4/4	ND	S-2	100		1.2-2.0': SAND AND SILT, BROWN TO ORANGE, DRY TO SLIGHTLY MOIST.
			5YR 4/4	ND	S-3	75		2.0-3.0': SAND WITH SOME SILT, ORANGE, DRY TO SLIGHTLY MOIST.
			5YR 4/4	ND	S-4	75	SM	3.0-4.0': SAND AND SILT, BROWN, DRY TO SLIGHTLY MOIST, FINE GRAINED.
			5YR 4/4	ND	S-5	90		4.0-6.0': SAND AND SILT, BROWN, MOIST TO WET, FINE GRAINED.
			5YR 4/4	ND	S-6	90		6.0-10.0': S.A.A.: WET.
			5YR 4/4	ND	S-7	100		10.0-11.8': S.A.A.: WITH TRACE ORANGE SANDS.
			N5	ND	S-8	100		11.8-14.0': CLAY WITH SOME SILT, GRAY, SLIGHTLY MOIST.
			N5	ND	S-9	100	CL	14.0-16.0': CLAY, GRAY, SLIGHTLY MOIST.
			N5	ND	S-10	75		16.0-18.0': CLAY WITH TRACE SILT AND GRAVEL, GRAY, SLIGHTLY MOIST.
			N5	ND	S-11	25		18.0-20.0': S.A.A.: WITH SOME SAND.
							20.0-22.0': CLAY WITH SAND, SILT, AND GRAVEL, GRAY.	
							22.0-24.0': CLAY WITH SOME GRAVELS, GRAY.	
							TOTAL DEPTH DRILLED = 24.0 FEET WELL SET FROM 3.5-10.5' GROUNDWATER SAMPLE COLLECTED FROM 3.0 TO 8.0'. GROUNDWATER SAMPLE COLLECTED FROM 17.0 TO 22.0'.	

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Date Start/Finish: 08/05/98 / 08/05/98
 Drilling Company: Rau Drilling
 Driller's Name: Al Rau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size : ID 8.0
 Rig Type: CME 65
 Spoon Size: 2

Northing:
 Easting:
 Well Casing Elev.: ft.
 Corehole Depth:
 Borehole Depth: 21 ft.
 Ground Surface Elev.: ft.

Well No. 36-FP1

Client:
 GM NAO Flint

Site:
 Building 36 Monitoring Well 36-160
 Flint, Michigan

Descriptions by: Robert Gang III

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.											Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs.
		(0-1')		NA	NA	NA	NA	NA		Go through concrete floor of Building #36.	
		(1-3')		3 4 4 4	8	1.0	0.0			Light brown fine SAND, dry. Light brown Silty CLAY, dry.	
		(3-5')		3 4 5 5	9	1.0	0.0	CL		Moist	Type I Portland cement/5% bentonite grout 1.0' to 4.0' bgs
5		(5-7')		3 4 4 7	8	1.25	0.0			Light brown fine SAND, well sorted, dry.	Bentonite seal 4.0' to 6.0' bgs
		(7-9')		3 4 4 6	7	1.25	0.0	SW			2-in diameter Sch. 40 PVC well casing 0.5' to 8.0' bgs
10		(9-11')		5 10 15 15	25	1.5	0.0			Light brown medium to fine SAND, well sorted, dry.	Grade #5 silica sand pack 6.0' to 21.0' bgs
		(11-13')		6 8 7 7	15	1.5	0.0	SP			
		(13-15')		3 4 4 11	8	1.5	0.0			Saturated.	0.0" Sch. 40 PVC screen 8.0' to 17.8' bgs .d=-15.5, c=-10 0.0" Sch. 40 PVC screen 8.0' to 17.8' bgs
5											

Remarks:

NA - Not Applicable. REF - Refusal.

Water Levels

Date / Time	Elevation	Depth
08/05/98		12.31 ↓
		-1 ↓
		-1 ↓

Site:
 Building 36 Monitoring Well 36-160
 Flint, Michigan

Well No. 36-FP1
 Total Depth = 21 ft.

Client:
 GM NAO Flint

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')	/	7 13 23 23	36	15	0.0				<p>2-in diameter Sch. 40 PVC sump 17.8' to 18.0' bgs</p> <p>Grade #5 silica sand pack 8.0' to 21.0' bgs</p>
		(17-19')	/	8 7 9 8	16	15	0.0	SP		Gray coarse SAND, saturated.	
-20		(19-21')	/	3 4 5 5	9	2.0	0.0	CL		Silty CLAY.	
										End of boring at 21' bgs.	
-25											
-30											
-35											

Remarks:
 NA - Not Applicable.

Water Levels		
Date / Time	Elevation	Depth
08/05/98		12.31 ↓
		-1 ↓
		-1 ▽

Date Start/Finish: 08/05/98 / 08/05/98 Drilling Company: Rau Drilling Driller's Name: Al Rau Drilling Method: Hollow Stem Auger Bit Size: N/A Auger Size: OD 8.0 Rig Type: CME 65 Spoon Size: 2	Northing: Easting: Well Casing Elev.: ft. Corehole Depth: Borehole Depth: 19 ft. Ground Surface Elev.: ft. Descriptions by: Robert Gang III	Well No. 36-FP2 Client: GM NAO Flint Site: Building 36 Monitoring Well 36-160 Flint, Michigan
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DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
GS elevation ft.										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs.
		(0-1')		NA	NA	NA	NA	NA		Go through concrete floor of Building #36.	
		(1-3')		3 3 4 6	7	1.25	0.8	SM SW		Light brown fine SAND, well sorted, dry. Gray SILT, dry. Gray CLAY, dry.	Type 1 Portland cement/5% bentonite grout 1.0' to 4.0' bgs
5		(3-5')		3 4 4 6	8	0.5	1.0	SM		Gray SILT, trace Gravel, dry.	
		(5-7')		2 1 3 3	4	1.25	1.1			Gray fine SAND, well sorted, dry.	Bentonite seal 4.0' to 6.0' bgs
		(7-9')		4 8 12 10	20	1.5	1.4			Gray SILT seam.	2-in diameter Sch. 40 PVC well casing 0.5' to 8.0' bgs
10		(9-11')		4 4 9 16	13	1.5	1.0	SW			Grade #5 silica sand pack 6.0' to 21.0' bgs
		(11-13')		7 9 16 16	25	1.25	0.9			Moist. Saturated.	0.01" Sch. 40 PVC screen 8.0' to 17.8' bgs
15		(13-15')		4 9 20 26	29	1.5	2.6			Gray coarse SAND.	

Remarks: NA - Not Applicable. REF - Refusal.	Water Levels												
	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">Date / Time</th> <th style="width:30%;">Elevation</th> <th style="width:40%;">Depth</th> </tr> </thead> <tbody> <tr> <td>08/05/98</td> <td></td> <td>12.44 ↓</td> </tr> <tr> <td></td> <td></td> <td>-1 ↓</td> </tr> <tr> <td></td> <td></td> <td>-1 ↓</td> </tr> </tbody> </table>	Date / Time	Elevation	Depth	08/05/98		12.44 ↓			-1 ↓			-1 ↓
Date / Time	Elevation	Depth											
08/05/98		12.44 ↓											
		-1 ↓											
		-1 ↓											

Site:

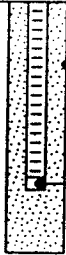
Building 36 Monitoring Well 36-160
Flint, Michigan

Well No. 36-FP2

Total Depth = 19 ft.

Client:

GM NAO Flint

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		6 13 16 20	22	2.0	7.8	SW		Gray fine SAND, well sorted, saturated.	 <p>Grade #5 silica sand pack 8.0' to 19.0' bgs. 2-in diameter Sch. 40 PVC sump 17.8' to 18.0' bgs</p>
		(17-19')		5 7 8 9	15	2.0	4.7	CL		Silty CLAY, saturated.	
										End of boring at 19' bgs.	
-20											
-25											
-30											
-35											

Remarks:

NA - Not Applicable.

Water Levels

Date / Time	Elevation	Depth
08/05/98		12.44 ▼
		-1 ▼
		-1 ▼

Date Start/Finish: 08/05/98 / 08/05/98
 Drilling Company: Rau Drilling
 Driller's Name: Al Rau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size : OD 8.0
 Rig Type: CME 55
 Spoon Size: 2

Northing:
 Easting:
 Well Casing Elev.: ft.
 Corehole Depth:
 Borehole Depth: 19 ft.
 Ground Surface Elev.: ft.

Well No. 36-FP3
 Client:
 GM NAO Flint
 Site:
 Building 36 Monitoring Well 36-160
 Flint, Michigan

Descriptions by: Robert Gang III

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-1')		NA	NA	NA	NA			GRAVEL consisting of crushed stone used for railroad bedding.	
		(1-3')		NA	NA	NA	NA	FI			
		(3-5')		NA NA 4 5	4	1.0	0.7			Gray fine SAND, well sorted, dry.	Type 1 Portland cement/5% bentonite grout 1.0' to 4.0' bgs
5		(5-7')		6 6 3 5	9	1.0	2.7	SW			Bentonite seal 4.0' to 6.0' bgs
		(7-9')		5 7 3 4	10	2.0	2.2	SM		Gray SILT, wet, sheen.	2-in diameter Sch. 40 PVC well casing 0.5' to 8.0' bgs
10		(9-11')		3 2 4 4	6	2.0	2.1	CL		Gray CLAY, moist.	Grade #5 silica sand pack 6.0' to 19.0' bgs
		(11-13')		6 6 8 10	14	1.5	3.1	SM		Gray SILT, moist.	
		(13-15')		4 9 14 16	23	1.75	13.1	SW		Gray medium SAND, saturated. (Sheen present at SILT/SAND interface.)	0.01" Sch. 40 PVC screen 8.0' to 17.8' bgs
5											

Remarks:
 NA - Not Applicable. REF - Refusal.

Water Levels		
Date / Time	Elevation	Depth
08/05/98		11.31 ↓
		-1 ↓
		-1 ▽

Site:

Building 36 Monitoring Well 36-160
Flint, Michigan

Well No. 36-FP3

Total Depth = 19 ft.

Client:

GM NAO Flint

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		30 25	21	15	49.4	SW		Gray medium SAND, saturated.	<p>Grade #5 silica sand pack 8.0' to 19.0' bgs.</p> <p>2-in diameter Sch. 40 PVC sump 17.8' to 18.0' bgs</p>
		(17-19')		38 27	17	2.0	31.7	SM		Gray SILT, saturated.	
-20										End of boring at 19' bgs.	
-25											
-30											
-35											

Remarks:

NA - Not Applicable.

Water Levels

Date / Time	Elevation	Depth
08/05/98		11.31 ↓
		-1 ↓
		-1 ↓

Date Start/Finish: 08/03/98 / 08/04/98
 Drilling Company: Rau Drilling
 Driller's Name: Greg Compau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size : OD 8.0
 Rig Type: CME 65
 Spoon Size: 2

Northing:
 Easting:
 Well Casing Elev.: ft.
 Corehole Depth:
 Borehole Depth: 23 ft.
 Ground Surface Elev.: ft.

Well No. 38-FP4

Client:
 GM NAO Flint

Site:
 Building 36 Monitoring Well 38-160
 Flint, Michigan

Descriptions by: Gordon Hotchkiss

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-1')		NA	NA	NA	NA	FI		Drill through concrete.	
		(1-3')		4 4 5 5	9	1.0	1.8			Brown fine to medium SAND, poorly graded, loose, dry. [FILL]	
		(3-5')		4 4 6 5	10	1.0	1.2				Type I Portland cement/5% bentonite grout 1.0' to 7.0' bgs
5		(5-7')		5 5 6 7	11	1.5	2.5			Brown SAND and CLAY, well graded, loose, dry. [FILL]	
		(7-9')		5 3 4 3	7	1.2	2.1	SW		Trace limestone Gravel, black staining.	Bentonite seal 7.0' to 9.0' bgs
10		(9-11')		2 2 2 2	4	1.2	2.3			Dark brown Brown fine to medium SAND, poorly graded, very loose, dry. [FILL]	2-in diameter Sch. 40 PVC well casing 0.5' to 11.5' bgs
		(11-13')		6 7 8 7	15	1.5	1.3			Sandy SILT layer from 11.8 to 12.2' bgs.	Grade #5 silica sand pack 9.0' to 23.0' bgs
15		(13-15')		8 6 6 7	12	1.2	1.9				0.01" Sch. 40 PVC screen 11.5' to 21.3' bgs

Remarks:

NA - Not Applicable. REF - Refusal.

Water Levels

Date / Time	Elevation	Depth
08/05/98		15.71 ↓
		-1 ↓
		-1 ↓

Site:

Building 36 Monitoring Well 36-160
Flint, Michigan

Well No. 36-FP4

Total Depth = 23 ft.

Client:

GM NAO Flint

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		5 4 3 3	7	13	3.9	CL		Brown Silty CLAY, few Silty SAND seams throughout.	<p>Grade #5 silica sand pack 9.0' to 23.0' bgs.</p> <p>2-in diameter Sch. 40 PVC sump 21.3' to 21.5' bgs.</p>
		(17-19')		2 2 1 2	3	10	9.7	SP		Gray medium SAND, poorly graded, saturated, hydrocarbon odor.	
		(19-21')		2 2 1 2	3	12	NA			Gray fine SAND, poorly graded.	
		(21-23')		4 3 2 2	5	15	NA			End of boring at 23' bgs.	
20											
25											
30											
35											

Remarks:

NA - Not Applicable.

Water Levels

Date / Time	Elevation	Depth
08/05/98		15.71 ↓
		-1 ↓
		-1 ↓

Date Start/Finish: 08/04/98 / 08/04/98
 Drilling Company: Rau Drilling
 Driller's Name: Greg Compeau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size : 00 8.0
 Rig Type: CME 65
 Spoon Size: 2

Northing:
 Easting:
 Well Casing Elev.: ft.
 Corehole Depth:
 Borehole Depth: 23 ft.
 Ground Surface Elev.: ft.

Well No. 36-FP5

Client:
 GM NAO Flint

Site:
 Building 36 Monitoring Well 36-160
 Flint, Michigan

Descriptions by: Gordon Hotchkiss

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.											Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-1')		NA	NA	NA	NA			Drill through concrete.	
		(1-3')		3 2 2 2	4	15	2.5			Brown fine to medium SAND, poorly graded, dry. [FILL] Black fine to medium SAND, poorly graded, loose, dry. [FILL]	Type I Portland cement/5% bentonite grout 1.0' to 7.0' bgs
5		(3-5')		2 2 1 2	3	12	2.4			Brown fine to medium SAND with 4 inch layer black in color at 6.2' bgs. [FILL]	
		(5-7')		3 3 2 1	5	2.0	2.7	FI		Black fine to medium SAND with brown stringers, poorly graded, dry.	Bentonite seal 7.0' to 9.0' bgs
		(7-9')		7 9 12 9	21	15	2.4			Trace brick fragments, slag.	2-in diameter Sch. 40 PVC well casing 0.5' to 11.0' bgs
10		(9-11')		6 12 21 16	33	1.2	2.8			Brown fine to medium SAND, poorly graded, dry.	Grade #5 silica sand pack 9.0' to 23.0' bgs
		(11-13')		6 7 7 6	14	1.2	2.3			Brown fine Silty SAND, grading to a brown Sandy SILT, poorly graded, dry.	0.01" Sch. 40 PVC screen 11.0' to 20.8' bgs
5		(13-15')		3 4 3 4	7	1.2	3.3	SM		Moist	

Remarks:

NA - Not Applicable. REF - Refusal.

Water Levels

Date / Time	Elevation	Depth
08/05/98		15.88 ↓
		-1 ↓
		-1 ▽

Site:

Building 36 Monitoring Well 36-160
Flint, Michigan

Well No. 36-FP5

Total Depth = 23 ft.

Client:

GM NAO Flint

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		5 5 4 4	9	12	3.3	SM		Grading to a Silty CLAY with 1/16" to 1/4" seams of fine SAND, moist to saturated.	<p>Grade #5 silica sand pack 9.0' to 23.0' bgs.</p> <p>2-in diameter Sch. 40 PVC sump 20.8' to 21.0' bgs</p>
		(17-19')		5 7 7 9	14	15	4.1	SP		Gray to green fine to medium SAND, poorly graded, satuated.	
20		(19-21')		2 2 1 2	3	15	3.2	CL		Gray Silty CLAY, highly plastic, moist.	
		(21-23')		5 8 8 7	12	15	3.2	SM SP		Gray Sandy SILT with several 1/4" lenses of Silty CLAY.	
										Gray fine to medium SAND, poorly graded, saturated.	
										End of boring at 23' bgs.	
25											
30											
35											

Remarks:

NA - Not Applicable.

Water Levels

Date / Time	Elevation	Depth
08/05/98		15.88 ↓
		-1 ↓
		-1 ↓

Date Start/Finish: 08/06/98 / 08/06/98 Drilling Company: Rau Drilling Driller's Name: Greg Compeau Drilling Method: Hollow Stem Auger Bit Size: N/A Auger Size : OD 8.0 Rig Type: CME 65 Spoon Size: 2	Northing: Easting: Well Casing Elev.: ft. Corehole Depth: Borehole Depth: 20 ft. Ground Surface Elev.: ft. Descriptions by: Robert Gang III	Well No. 38-FP6 Client: GM NAO Flint Site: Fatory 36 Monitoring Well 38-160 Flint, Michigan
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DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-4')		NA	NA	NA	NA	FI	Go through Rail Road Bed Gravel.		Bentonite seal 1.0' to 3.0' bgs
5		(4-6')		3 5 7 6	12	1.25	0.5	SP	Olive gray fine SAND, well sorted, some black staining, dry.		2-in diameter Sch. 40 PVC well casing 0.5' to 5.0' bgs
		(6-8')		2 3 7 8	10	1.25	2.0	ML	Olive gray SILT, dry.		
								SP	Black staining and odor observed. Olive fine SAND, well sorted.		
10		(8-10')		5 7 13 15	20	1.5	1.1	ML	Olive SILT, moist, some brown product observed. Saturated.		Grade #5 silica sand pack 3.0' to 20.0' bgs
		(10-12')		6 9 5 6	14	1.5	0.62	SP	Olive Sandy SILT, saturated.		0.01" Sch. 40 PVC screen 5.0' to 14.8' bgs
								CL	Olive SILT, saturated.		
		(12-14')		2 5 5 8	10	1.75	0.0	SP	Olive gray SAND and medium GRAVEL, well sorted.		
								CL	Olive gray CLAY, saturated.		
								CL	Olive gray medium SAND, well sorted.		
5		(14-16')		2 3	10	2.0	4.74	SP	Olive CLAY. Olive gray medium SAND, well sorted, saturated.		2-in diameter Sch. 40 PVC sump 14.8' to 15.0' bgs

Remarks:
 NA - Not Applicable. REF - Refusal.

Water Levels		
Date / Time	Elevation	Depth
08/05/98		10.94 ▼
		-1 ▼
		-1 ▼

Site:

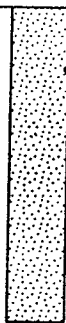
Factory 36 Monitoring Well 36-160
Flint, Michigan

Well No. 36-FP6

Total Depth = 20 ft.

Client:

GM NAO Flint

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		7 9	10	2.0	4.74			Olive gray medium SAND, well sorted, saturated.	
		(16-18')		3 4 6 6	10	2.0	14.4	SP			
		(18-20')		4 6 11 10	17	2.0	16.6				
20										Gray CLAY, saturated. End of boring at 20' bgs.	
25											
30											
35											

Remarks:

NA - Not Applicable.

Water Levels

Date / Time	Elevation	Depth
08/05/98		10.94 ↓
		-1 ↓
		-1 ↓

Date Start/Finish: 08/07/98 / 08/07/98 Drilling Company: Rau Drilling Driller's Name: Rodd Drilling Method: Hollow Stem Auger Bit Size: N/A Auger Size: OD 8 Rig Type: CME 55 Spoon Size: 2	Northing: Eastings: Well Casing Elev.: ft. Corehole Depth: Borehole Depth: 19 ft. Ground Surface Elev.: ft. Descriptions by: Robert Gang III	Well No. 36-FP7 Client: GM NAO Flint Site: Factory 36 Monitoring Well 36-160 Flint, Michigan
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DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-1')		NA	NA	NA	NA	FI		Go through concrete floor.	
		(1-3')		2 6 8 4	14	1.75	4.8	SM CL		Gray Sandy SILT, dry. Gray to Brown CLAY, dry.	Type I Portland cement/5% bentonite grout 1.0 to 3.0' bgs
5		(3-5')		2 3 4 4	7	1.5	4.1			Light brown fine SAND, well sorted, dry.	Bentonite seal 3.0' to 5.0' bgs
		(5-7')		4 4 5 6	9	1.75	3.3	SP		Light brown, odor.	2-in diameter Sch. 40 PVC well casing 0.5' to 7.0' bgs
		(7-9')		3 10 12 20	22	1.25	4.3			Gray in color with Gray SILT lenses at 7.1' and 8.3' bgs. Moist	Grade #5 silica sand pack 5.0' to 19.0' bgs
10		(9-11')		3 9 12 12	21	1.0	2.2			Gray CLAY, some odor, moist.	
		(11-13')		3 3 6 7	9	1.75	4.1	CL		Trace product at interface of Gray SILT lense and Gray CLAY.	0.0" Sch. 40 PVC screen 7.0' to 16.8' bgs
5		(13-15')		3 4 7 13	11	1.5	6.3	SP		Olive to Gray Medium SAND, well sorted.	

Remarks:
 NA - Not Applicable. REF - Refusal.

Water Levels		
Date / Time	Elevation	Depth
5/8/98		12.10 ▼
		-1 ▼
		-1 ▼

Site:
 Factory 36 Monitoring Well 36-160
 Flint, Michigan
Client:
 GM NAO Flint

Well No. 36-FP7
Total Depth = 19 ft.

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		3 7 11	16	2.0	7.6			Olive to Gray Medium SAND, well sorted, saturated.	 <p>2-in diameter Sch. 40 PVC sump 16.8' to 17.0' bgs</p> <p>Grade #5 silica sand pack 5.0' to 19.0' bgs.</p>
		(17-19')		4 8 10 10	18	2.0	20.0	SP		Sheen	
										Gray SILT, saturated.	
-20										End of boring at 19' bgs.	
-25											
-30											
-35											

Remarks:
 NA - Not Applicable.

Water Levels		
Date / Time	Elevation	Depth
5/8/98		12.10 ▼
		-1 ▼
		-1 ▼

Date Start-Finish: 5/6/99 - 5/6/99 Drilling Company: RAU Drilling Driller's Name: Greg Compeau Drilling Method: Hollow Stem Auger Auger Size: ID 4.25-in. Rig Type: CME 75 Spoon Size: 2-in. Hammer Weight: 140-lb Height of Fall: 30-in.	Northing: -1 Easting: -1 Well Casing Elev.: -1 ft. Surface Elev.: -1 ft. Borehole Depth: 14 ft. Geologist: Tami Hauptfleisch	Well No. 36-FP8 Client: General Motors Corporation Site: GM NAO Flint Site Building 20-Scrap Yard
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
gs elevation -1 ft										GROUND SURFACE	
	(0-2')			NA	NA	NA	NA		(0-2')	Auger through gravel from 0 to 2' BGS.	
	(2-4')			2 3 3 2	6	1.8	0.3		(2-4')	Brown fine SAND, little Clay, moist, trace medium to coarse Sand.	
-5				2 2 3 2	5	1.8	0.8		(4-6')	Same as above. Black fine foundary SAND, dry.	
5				3 3 4 5	7	1.8	1.0		(6-8')	Same as above with some brown fine Sand at tip.	
-10				9 9 11 12	20	1.6	0.4		(8-10')	Brown to black fine SAND, trace fine Gravel.	
10				6 7 9 12	16	1.7	1.5		(10-12')	Same as above, dry.	
-15				6 6 7 11	13	1.8	5.7		(12-14')	Black fine SAND, saturated, trace fine Gravel.	
5					9	1.6	1.1		(14-16')	Same as above, in tip of spoon black Silt and fine Sand, saturated	

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engineers & scientists

Remarks:

BGS - Below Ground Surface.
 NA- Not Available.
 Sample from 12 to 14' BGS taken for analysis.

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/16/00 / 3/16/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 16.0 feet Geologist: Ray Wagner	Well No: 37-01 Client: General Motors Corporation Location: GM NAO Flint Site Former Tank Farm 37 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		5 4 4 25	8	1.5	0.5			Concrete. FILL, Silt, Sand, Stag.	<p>Steel 8" diameter flushmount curb box. Cement pad. Cement/bentonite grout 1.5' to 2.0' bgs. Bentonite seal 2.0' to 4.0' bgs. 2-inch diameter PVC casing to 6.0' bgs. #5 sand pack 4.0' to 16.0' bgs. 2-inch diameter 0.010" slot PVC well screen 6.0' to 16.0' bgs.</p>
		(2-4')		5 50/ 0.2'	NA	0.5	0.4				
5		(4-6')		4 4 5 5	9	1.5	0.5			Yellowish-brown poorly graded fine to medium SAND, wet.	
		(6-8')		3 3 2 3	5	2.0	0.3				
		(8-10')		4 5 7 6	12	2.0	0.2				
10		(10-12')		3 4 5 4	9	2.0	0.2			Gray SILT, some fine Sand, wet.	
		(12-14')		3 6 5 4	11	2.0	0.2				
5		(14-16')		3 4	7	2.0	0.3				

<p>BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists</p>	Remarks: bgs - below ground surface. NA - Not Available. Soil sample collected from 8-10' bgs for VOCs, metals, SVOCs, and PCBs. MS/MSD collected at this location. No odor or staining observed.	Water Levels		
		Date / Time	Elevation	Depth

Client:
General Motors Corporation

Location:
GM NAO Flint Site
Former Tank Farm 37 Area

Well No: 37-01
Total Depth = 16.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		3 3	7	2.0	0.3			Gray SILT, some fine Sand, wet.	 <p>#5 sand pack 4.0' to 16.0' bgs. 2-inch diameter 0.010" slot PVC well screen 6.0' to 16.0' bgs.</p>
										End of boring at 16.0' bgs.	
20											
25											
30											
35											

BBL
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engineers & scientists

Remarks:

Water Levels

Date / Time	Elevation	Depth

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 749.33
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/6/95
 Logged By: BRIAN BOKOVOY
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 14.04 Total Depth: 26.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0			5YR 4/4	ND	S-1	50	SP	0.0-4.0': SAND WITH WOOD CHUNKS (BROWN WITH BLACK STAINING), BROWN AND BLACK, DRY, FINE GRAINED.
			N1	ND	S-2	30		
5			5YR 4/4	ND	S-3	50	CL	4.0-4.7': CLAY WITH SOME SILT, BROWN, SLIGHTLY MOIST, SLIGHTLY PLASTIC.
			5YR 4/4	ND	S-4	75		
			5YR 5/6	ND	S-5	80	SP	4.7-14.0': SAND, LIGHT BROWN, SLIGHTLY MOIST, FINE GRAINED. MOIST AT 13.6'.
10			5YR 5/6	ND	S-6	100		
			5YR 5/6	ND	S-7	100		
15			N5	ND	S-8	75		
			N5	ND	S-9	75		
			N5	ND	S-11	50		
20			N5	ND	S-12	100	CH	14.0-25.0': SAND, GRAY, WET, FINE GRAINED.
			N5	ND	S-13	100		
25			N5	ND	S-14	100		
								TOTAL DEPTH DRILLED = 26.0 FEET
								WELL SET FROM 11.0 TO 18.0'
								GROUNDWATER SAMPLE COLLECTED FROM 11.0 TO 16.0'
								GROUNDWATER SAMPLE COLLECTED FROM 19.0 TO 24.0'

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Global Environmental Engineering Inc.
 5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

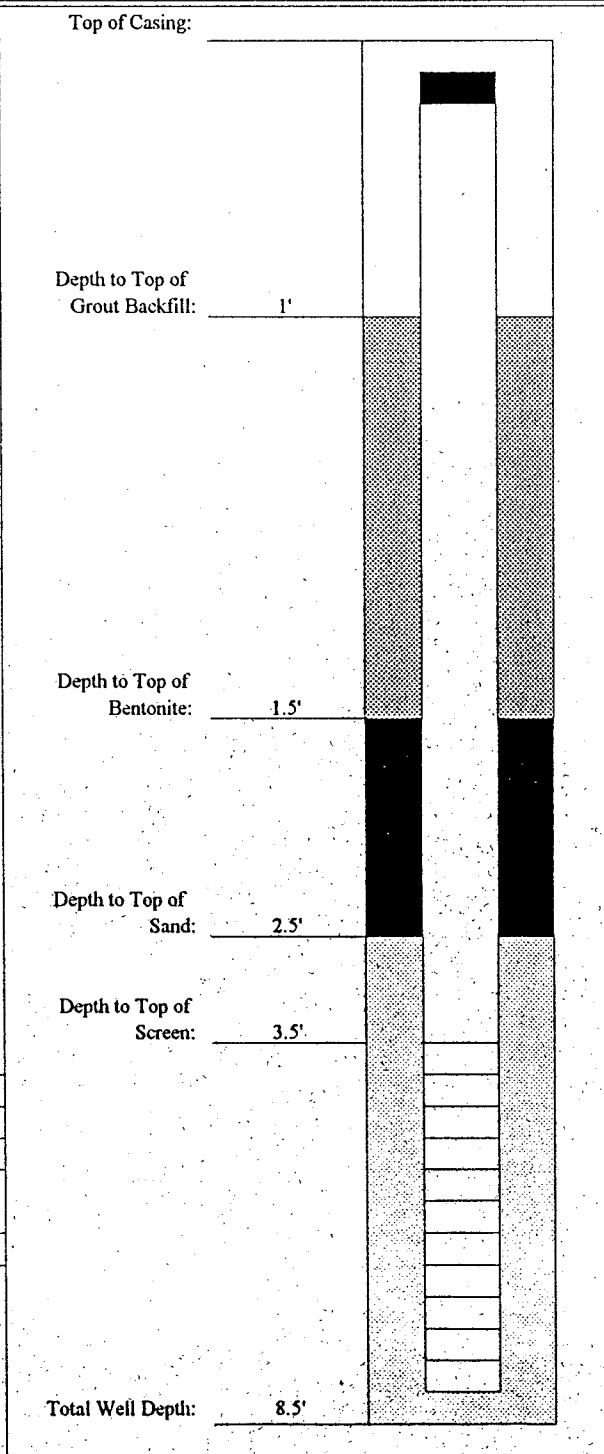
Monitoring Well: MW-1 (40-1)	Project Name: GM-CLCD N.
Date: 11/8/96	Project No.: F174
Contractor: GEEI	Location: Building 40/02 South
Prepared By: JCW	Twp/Range/Sec.:
Time Started: 12:45	Depth Drilled: 12'
Time Completed:	Hole Diameter: 8.25"
Coring Device: 5'	Inner Diameter: 4.50"

Boring Methods		Water Level Data		Drilling Fluid: None
X	Hollow Stem Auger	Date	SWL Elevation	Driller: Elroy
	Hand Auger			Helper: NA
	Geoprobe			
WELL SPECIFICATIONS			SOIL PROFILE	

Well Casing Cover:
 Material: Steel
 Diameter: 12"
 Length: 12"
 Lock: No

Well Casing:
 Diameter: 2"
 Length: 3.5'
 Material: PVC
 Cap: Expandable
 Locking: Dolphin

Well Screen
 Diameter: 2"
 Length: 5'
 Slotsize: .01"
 Material: PVC
 Well Screen Interval: 3.5'-8.5'
 Filter Pack: Sand



0'-9.5' - Sand
 9.5'-12' - Clay
 Groundwater Encountered at 5'
 End of Boring 12'

Global Environmental Engineering Inc.

5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well: MW-2 <i>402</i>	Project Name: GM-CLCD N.
Date: 11/8/96	Project No.: F174
Contractor: GEEI	Location: Building 40/02 South
Prepared By: JCW	Twp/Range/Sec.:
Time Started: 14:50	Depth Drilled: 16'
Time Completed:	Hole Diameter: 8.25"
Coring Device: 5'	Inner Diameter: 4.50"

Boring Methods		Water Level Data		Drilling Fluid:	None
X	Hollow Stem Auger	Date	SWL Elevation	Driller:	Elroy
	Hand Auger			Helper:	NA
	Geoprobe				
WELL SPECIFICATIONS				SOIL PROFILE	

Well Casing Cover:

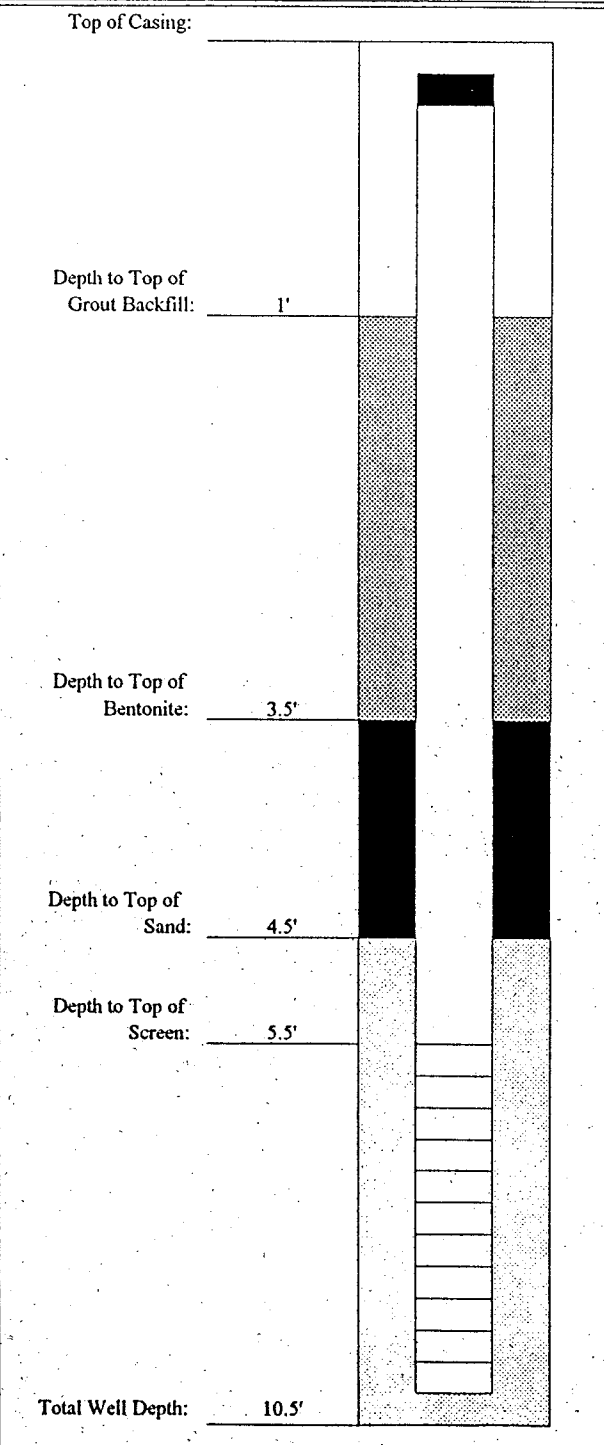
Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No

Well Casing:

Diameter:	2"
Length:	5.5'
Material:	PVC
Cap:	Expandable
Locking:	Dolphin

Well Screen

Diameter:	2"
Length:	5'
Slotsize:	.01"
Material:	PVC
Well Screen	
Interval:	5.5'-10.5'
Filter Pack:	Sand



0'-4.5' - Sandy Clay
 4.5'-6.5' - Clay
 6.5'-10' Sandy Clay
 Groundwater Encountered at 6.5'
 End of Boring 16'

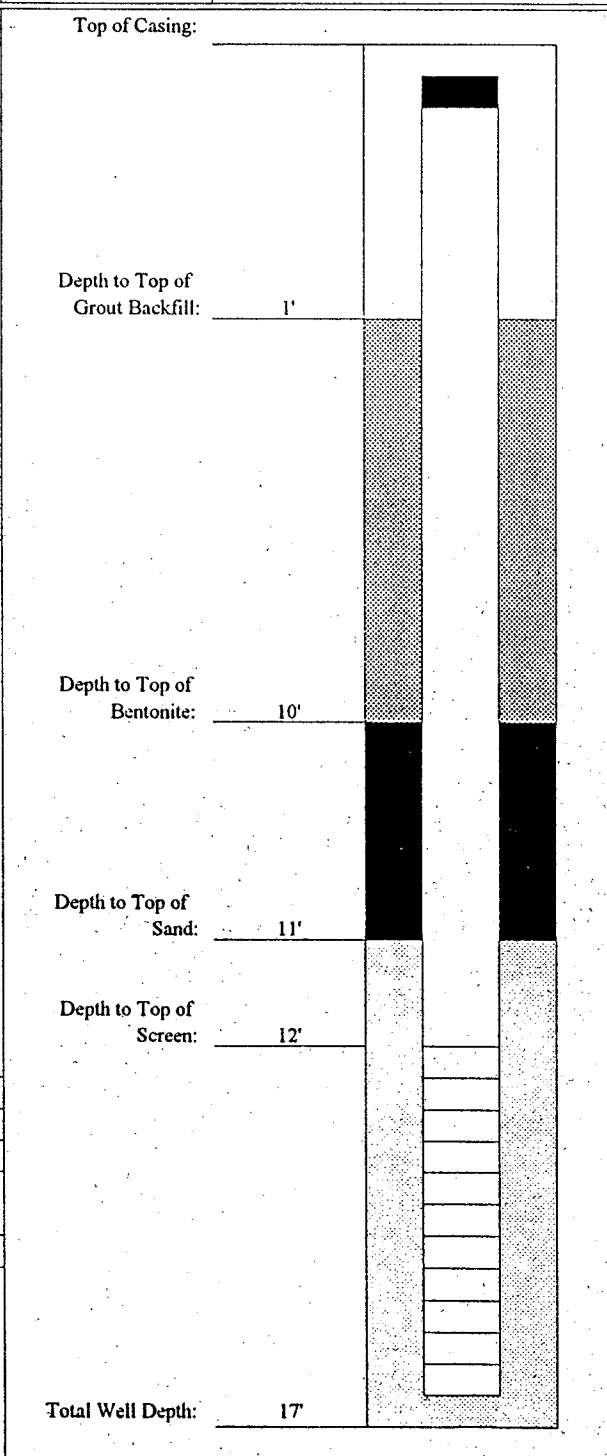
Global Environmental Engineering Inc.

5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well:	MW-3 <i>40-3</i>	Project Name:	GM-CLCD N.
Date:	12/10/96	Project No.:	F174
Contractor:	YECI	Location:	Building 40/02 South
Prepared By:	JCW	Twp/Range/Sec.:	
Time Started:	14:15	Depth Drilled:	21'
Time Completed:		Hole Diameter:	8.25"
Coring Device:	5'	Inner Diameter:	4.50"

Boring Methods		Water Level Data		Drilling Fluid:	None
Hollow Stem Auger	Date	SWL Elevation	Driller:	Scott	
Hand Auger			Helper:	NA	
X Geoprobe					
WELL SPECIFICATIONS				SOIL PROFILE	

Well Casing Cover:	
Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No
Well Casing:	
Diameter:	2"
Length:	12'
Material:	PVC
Cap:	Expandable
Locking:	Dolphin
Well Screen	
Diameter:	2"
Length:	5'
Slotsize:	.01"
Material:	PVC
Well Screen Interval:	5'
Filter Pack:	Sand



0'-.5' - Concrete
.5'-4.5' - Sand
4.5'-6' - Clay
6'-9' - Sandy Clay
9'-12.5' - Silty Clay
12.5'-13.5' - Sandy Silt
13.5'-17' - Sandy Silt
17'-19' - Silt
19'-21' - Sand
End of Boring 21'

Date Start/Finish: 3/9/00 / 3/10/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 16.0 feet Geologist: Matt Stuk	Well No: 40-4 Client: General Motors Corporation Location: GM NAO Flint Site Building 40 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		1 3 2 2	5	1.33	0.0			Concrete.	Steel 8" diameter flushmount curb box.
		(2-4')		4 4 7 4	11	0.42	0.0			FILL, brown Sand, dry, no odor.	Bentonite seal 1.0' to 4.0' bgs.
5		(4-6')		3 5 7 7	12	1.83	1.3				2-inch diameter PVC casing to 5.0' bgs.
		(6-8')		5 3 2 2	5	2.0	6.4			Color changes to black.	#5 sand pack 4.0' to 13.0' bgs.
		(8-10')		2 2 2 2	4	1.67	415			Wet, hydrocarbon odor.	2-inch diameter 0.010" slot PVC well screen 5.0' to 15.0' bgs.
10		(10-12')		3 5 1 2	6	2.0	773				
		(12-14')		2 4 5 9	9	1.67	929			Brown Sandy lean CLAY, some fine to coarse Sand, wet, hydrocarbon odor.	
		(14-16')		3 3	8	2.0	824			Brown Clayey SAND, little Clay, wet, hydrocarbon odor.	

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 engineers & scientists

Remarks:
 bgs - below ground surface. NA - Not Available. Soil sample collected from 8-8' bgs for VOCs, metals, SVOCs, and PCBs.


Water Levels		
Date / Time	Elevation	Depth

Client:
General Motors Corporation

Well No: 40-4

Location:
GM NAO Flint Site
Building 40 Area

Total Depth = 16.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		5 4	8	2.0	824			Brown Clayey SAND, little Clay, wet, hydrocarbon odor.	 Pelletal bentonite 15.0' to 16.0' bgs.
										End of boring at 16.0' bgs.	
20											
25											
30											
35											


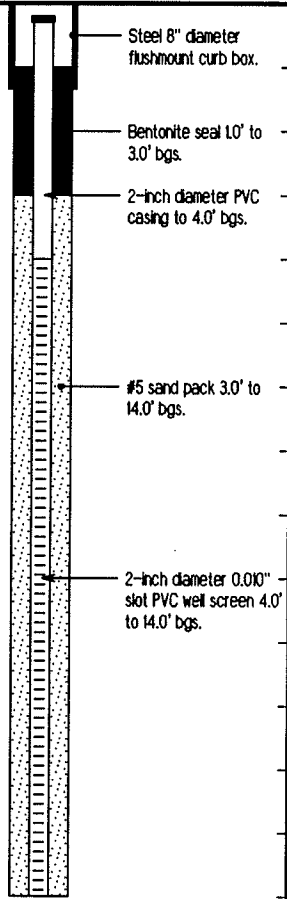





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engineers & scientists

Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/9/00 / 3/9/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 14.0 feet Geologist: Matt Stuk	Well No: 40-5 Client: General Motors Corporation Location: GM NAO Flint Site Building 40 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-6')		NA	NA	NA	NA			Concrete.	
		(6-8')		6 8 11 7	19	1.83	7.4		FILL, concrete and debris, could not collect sample.		
		(8-10')		19 29 33 -	62	2.0	129		Olive-brown Sandy lean CLAY, some fine to medium Sand, moist to wet, hydrocarbon odor, very dense.		
5		(10-12')		20 23 25 27	48	2.0	1.2				
		(12-14')		15 19 20 23	39	2.0	0.1				
											
6										End of boring at 14.0' bgs.	

<h1 style="margin:0;">BBL</h1> <p style="margin:0; font-size: small;">BLASLAND, BOUCK & LEE, INC. engineers & scientists</p>	Remarks: bgs - below ground surface. NA - Not Available. Soil sample collected from 6-8' bgs for metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Date Start/Finish: 3/9/00 / 3/9/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 14.0 feet Geologist: Matt Stuk	Well No: 40-6 Client: General Motors Corporation Location: GM NAO Flint Site Building 40 Area
---	---	---

DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
										Concrete.	
		(0-2')		4 5 1 5	6	1.5	0.2			FILL, black Sand, dry, no odor.	
		(2-4')		4 2 3 2	5	1.67	0.6				
5		(4-6')		9 7 10 11	17	1.83	0.5			Wet.	
		(6-8')		7 11 10 12	30	1.33	0.0				
		(8-10')		3 6 6 11	12	1.5	0.0				
10		(10-12')		5 6 5 3	11	1.25	0.0				
		(12-14')		3 4 5 5	9	1.08	0.0				
5										End of boring at 14.0' bgs.	

	Remarks: bgs - below ground surface. NA - Not Available. Soil sample collected from 2-4' bgs for metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Date Start/Finish: 3/10/00 / 3/10/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 14.0 feet Geologist: Matt Stuk	Well No: 40-7 Client: General Motors Corporation Location: GM NAO Flint Site Building 40 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		2 3 3	6	0.83	33			Gravel base.	
		(2-4')		4 5 7 5	12	1.58	135		FILL, black to brown Sand to Clayey Sand, moist, slight hydrocarbon odor.		
5		(4-6')		7 9 11 17	20	1.83	58		Olive-green Sandy lean CLAY, little to some fine to coarse Sand, slight hydrocarbon odor.		
		(6-8')		13 19 11 21	30	2.0	124		Yellowish-brown SILT, wet, hydrocarbon odor.		
		(8-10')		9 10 19 13	29	1.83	3		Black poorly graded medium SAND, wet, slight hydrocarbon odor.		
10		(10-12')		11 17 20 22	37	2.0	5		End of boring at 14.0' bgs.		
		(12-14')		17 17 21 24	38	2.0	773				
5											

	Remarks: bgs - below ground surface. NA - Not Available. Soil sample collected from 2-4' bgs for VOCs, metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

ADVANCED ENVIRONMENTAL

352 South Saginaw Street
 Suite 600
 Flint, Michigan
 Tel: (313) 238-9190
 Fax: (313) 238-9195

Monitoring Well:	MW-1 (40-301)	Project:	GMCLCD-B#40
Date:	12/16/93	Project No.:	3143CE
Drilling Contractor:	Young's	Location:	902 E. Hamilton
Prepared By:	JLW	Twp/Range/Sec.:	Flint, MI
Time Started:		Total Depth Drilled:	17'
Time Completed:		Hole Diameter:	8.25"
Lgth Coring Device:	5'	Dia. Coring Device:	4.5"

Boring Methods

Ground Water Observations

Drilling Fluid Used: None

Driller: Scott

Helper: Ken

Well Material: PVC

Well Diameter: 2"

X Hollow Stem Auger

Depth to Water From TOC:

Hand Auger

Depth to Bottom of Well from TOC:

Other

Height of Water Column:

Water Volume:

Purged Volume:

Pipe Specifications

Remarks

Top of Manhole: 0

Casing Type: Steel Flush Mount

Grout: 1'

Bentonite: Chips

Top of Sand: 11'

Sand Type: Silica

Sand Size: #4

Top of Casing (PVC)

Cap Type: Locking/Expandable

Lock Type: Dolphin

Riser Length: 11.5'

Riser Type: PVC Sched. 40

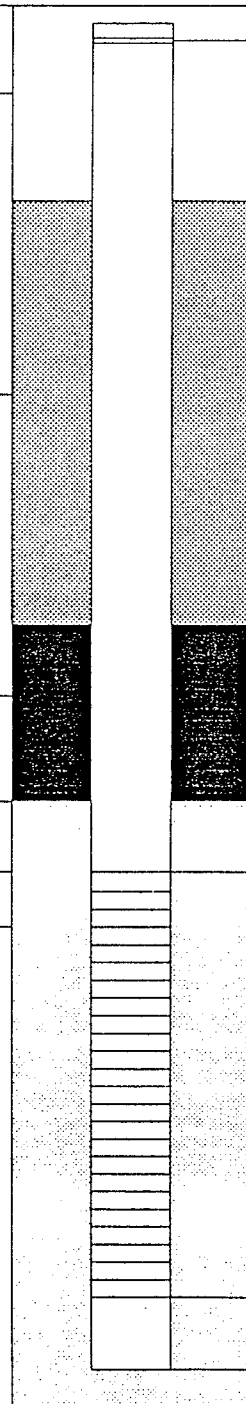
12' = Top of Screen

Screen Length: 5'

Screen Type: PVC

Slot Size: 0.01

17' Bottom of Well

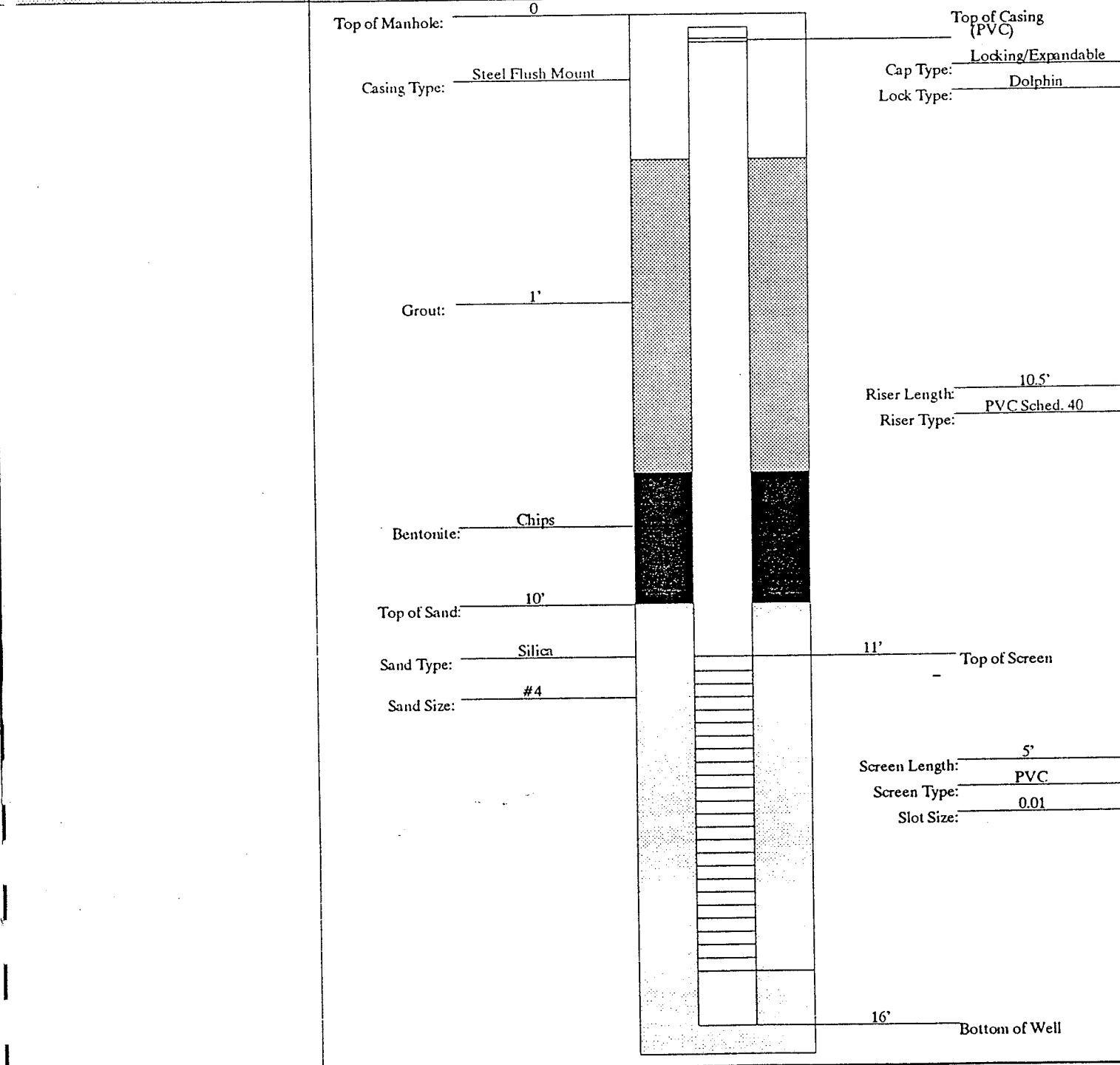


ADVANCED ENVIRONMENTAL

352 South Saginaw Street
 Suite 600
 Flint, Michigan
 Tel: (313) 238-9190
 Fax: (313) 238-9195

Monitoring Well:	MW-2 (40-302)	Project:	GMCLCD-B#40
Date:	12/16/93	Project No.:	3143CE
Drilling Contractor:	Young's	Location:	902 E. Hamilton
Prepared By:	JLW	Twp/Range/Sec.:	Flint, MI
Time Started:		Total Depth Drilled:	16'
Time Completed:		Hole Diameter:	8.25"
Lgth Coring Device:	5'	Dia. Coring Device:	4.5"

Boring Methods	Ground Water Observations	Pipe Specifications
X Hollow Stem Auger	Depth to Water From TOC:	Drilling Fluid Used: None
Hand Auger	Depth to Bottom of Well from TOC:	Driller: Scott
Other	Height of Water Column:	Helper: Ken
	Water Volume:	Well Material: PVC
	Purged Volume:	Well Diameter: 2"

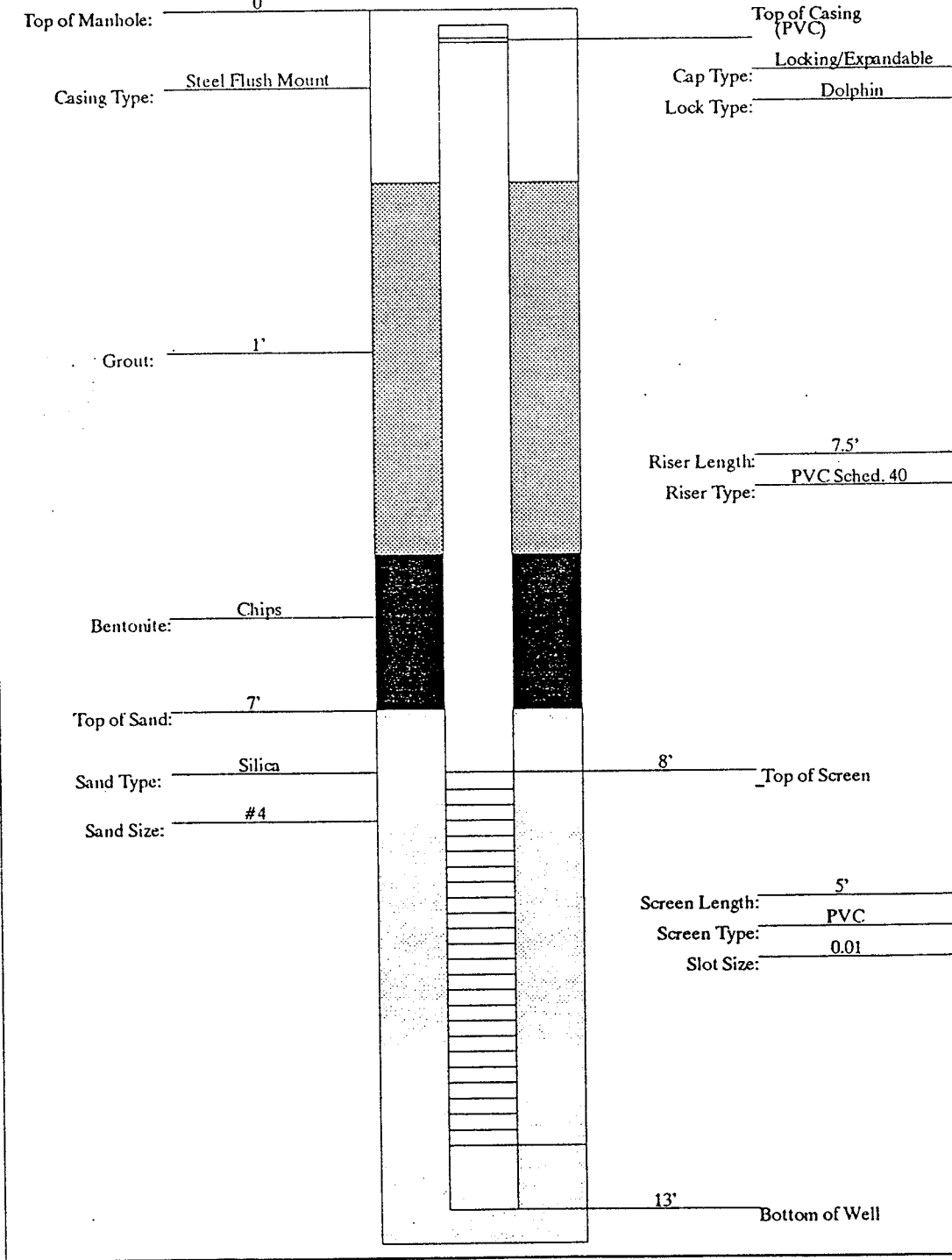


ADVANCED ENVIRONMENTAL

352 South Saginaw Street
 Suite 600
 Flint, Michigan
 Tel: (313) 238-9190
 Fax: (313) 238-9195

Monitoring Well:	MW-3 (40-303)	Project:	GMCLCD-B#40
Date:	12/16/93	Project No.:	3143CE
Drilling Contractor:	Young's	Location:	902 E. Hamilton
Prepared By:	JLW	Twp/Range/Sec.:	Flint, MI
Time Started:		Total Depth Drilled:	13'
Time Completed:		Hole Diameter:	8.25"
Lgth Coring Device:	5'	Dia. Coring Device:	4.5"

Boring Methods	Hollow Stem Auger	Ground Water Observations	Depth to Water From TOC:	Drilling Fluid Used:	None
	Hand Auger		Depth to Bottom of Well from TOC:	Driller:	Scott
	Other		Height of Water Column:	Helper:	Ken
Remarks			Water Volume:	Well Material:	PVC
			Purged Volume:	Well Diameter:	2"
				Pipe Specifications	



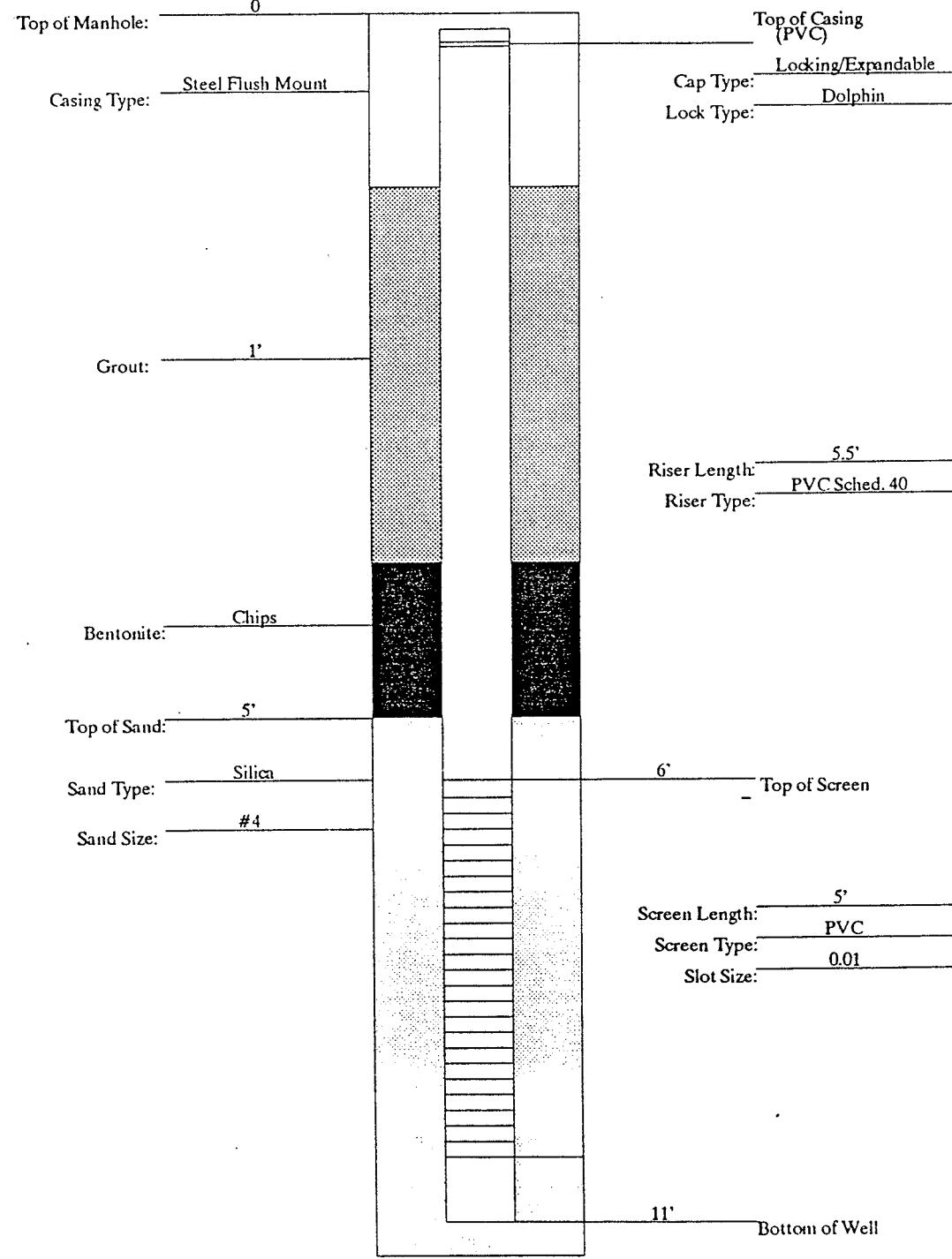
ADVANCED ENVIRONMENTAL

352 South Saginaw Street
 Suite 600
 Flint, Michigan
 Tel: (313) 238-9190
 Fax: (313) 238-9195

Monitoring Well:	MW-4 (40-304)	Project:	GMCLCD-B#40
Date:	12/16/93	Project No.:	3143CE
Drilling Contractor:	Young's	Location:	902 E. Hamilton
Prepared By:	JLW	Twp/Range/Sec.:	Flint, MI
Time Started:		Total Depth Drilled:	11'
Time Completed:		Hole Diameter:	8.25"
Lgth Coring Device:	5'	Dia. Coring Device:	4.5"

Boring Methods	Ground Water Observations	Drilling Fluid Used:	None
<input checked="" type="checkbox"/> Hollow Stem Auger	Depth to Water From TOC:	Driller:	Scott
<input type="checkbox"/> Hand Auger	Depth to Bottom of Well from TOC:	Helper:	Ken
<input type="checkbox"/> Other	Height of Water Column:	Well Material:	PVC
	Water Volume:	Well Diameter:	2"

Remarks	Purged Volume:	Pipe Specifications
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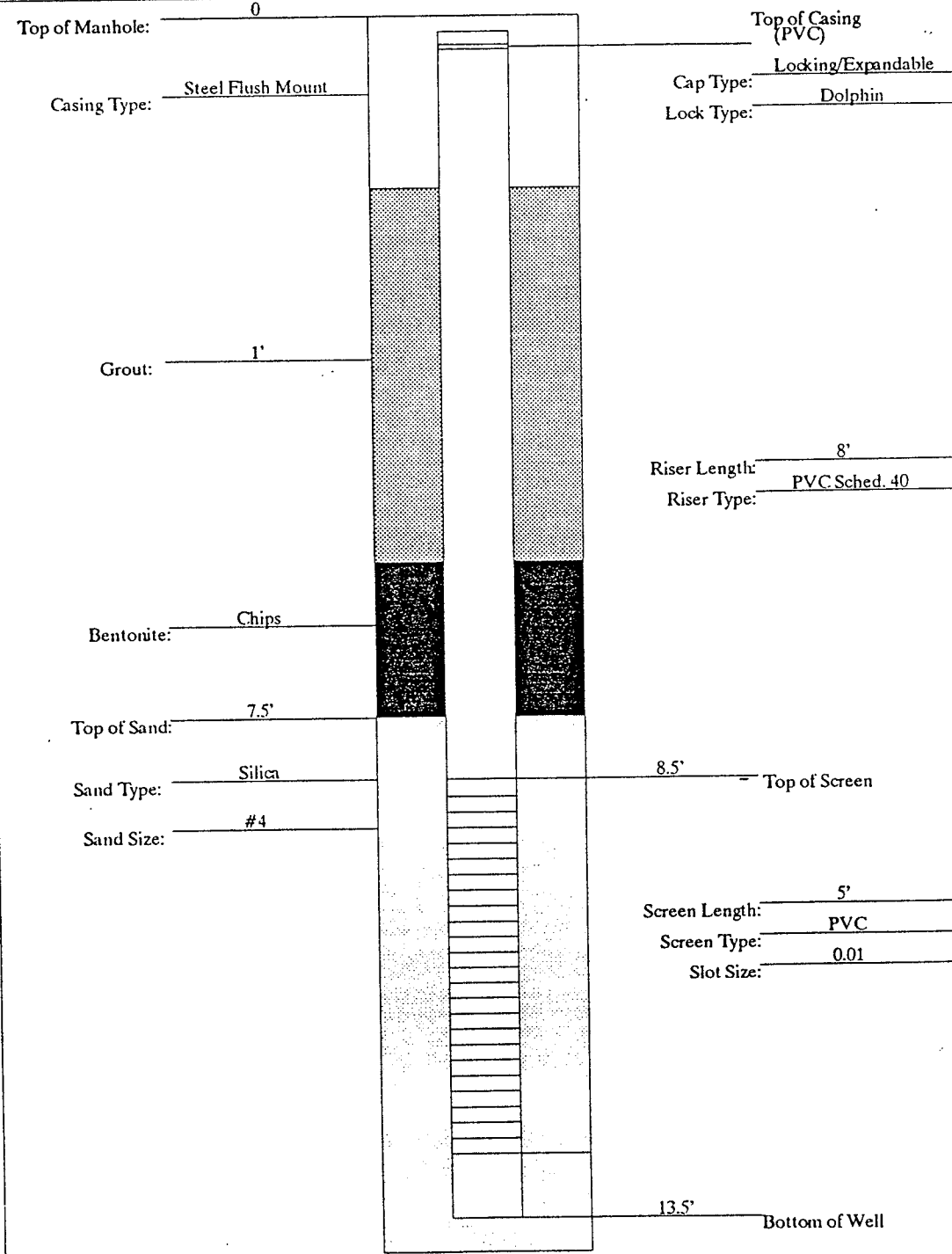


ADVANCED ENVIRONMENTAL

352 South Saginaw Street
 Suite 600
 Flint, Michigan
 Tel: (313) 238-9190
 Fax: (313) 238-9195

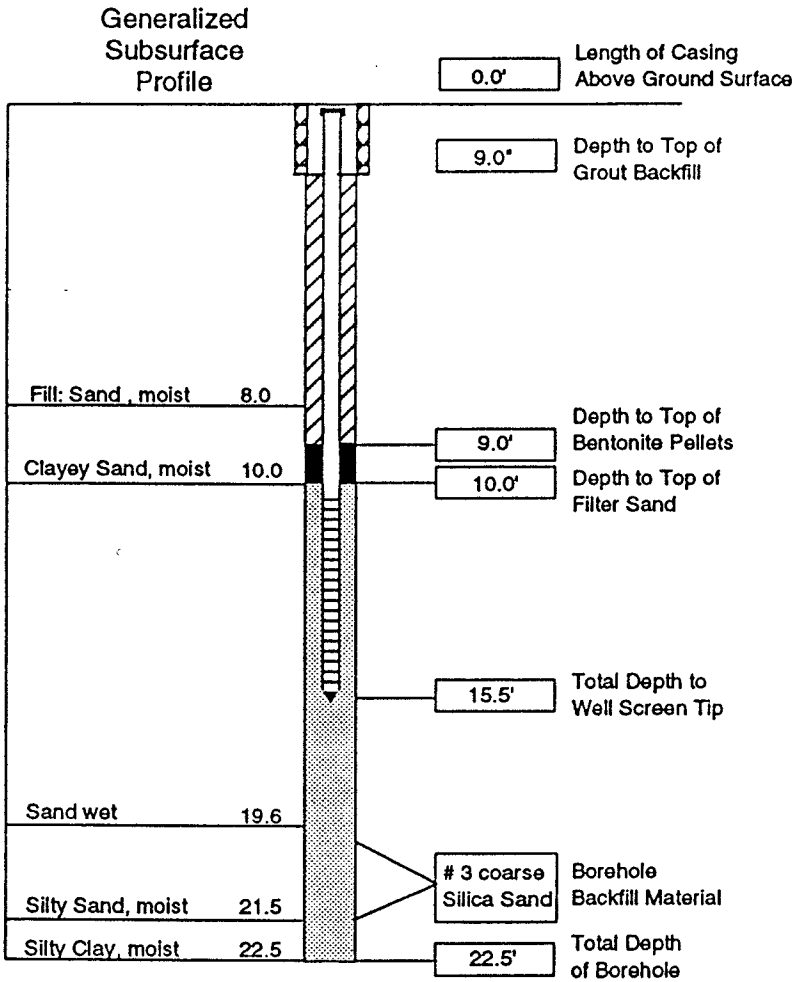
Monitoring Well:	MW-5 (40-305)	Project:	GMCLCD-B#40
Date:	12/16/93	Project No.:	3143CE
Drilling Contractor:	Young's	Location:	902 E. Hamilton
Prepared By:	JLW	Twp/Range/Sec.:	Flint, MI
Time Started:		Total Depth Drilled:	13.5'
Time Completed:		Hole Diameter:	8.25"
Lgth Coring Device:	5'	Dia. Coring Device:	4.5"

Drilling Methods:	Ground Water Observations	Drilling Fluid Used:	None
		Driller:	Scott
		Helper:	Ken
		Well Material:	PVC
X Hollow Stem Auger	Depth to Water From TOC:	Well Diameter:	2"
Hand Auger	Depth to Bottom of Well from TOC:		
Other	Height of Water Column:		
Remarks	Water Volume:	Pipe Specifications	
	Purged Volume:		



Log of Well Installation

Well Designation: Section 5/MW-1 (43-100)
 Date(s) of Installation: 9/25/91 To 9/25/91



Top of Casing Elevation: 753.69
 Ground Surface Elevation: 754.0
 Well Screen Tip Elevation: 738.5

Well Casing

Diameter: 2 inches
 Total Length: 10.5 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen

Diameter: 2 inches
 Length: 5 feet
 Mesh: 0.010 - inch slot size
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush mount road box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: Hosam Hassanien
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55 rig with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

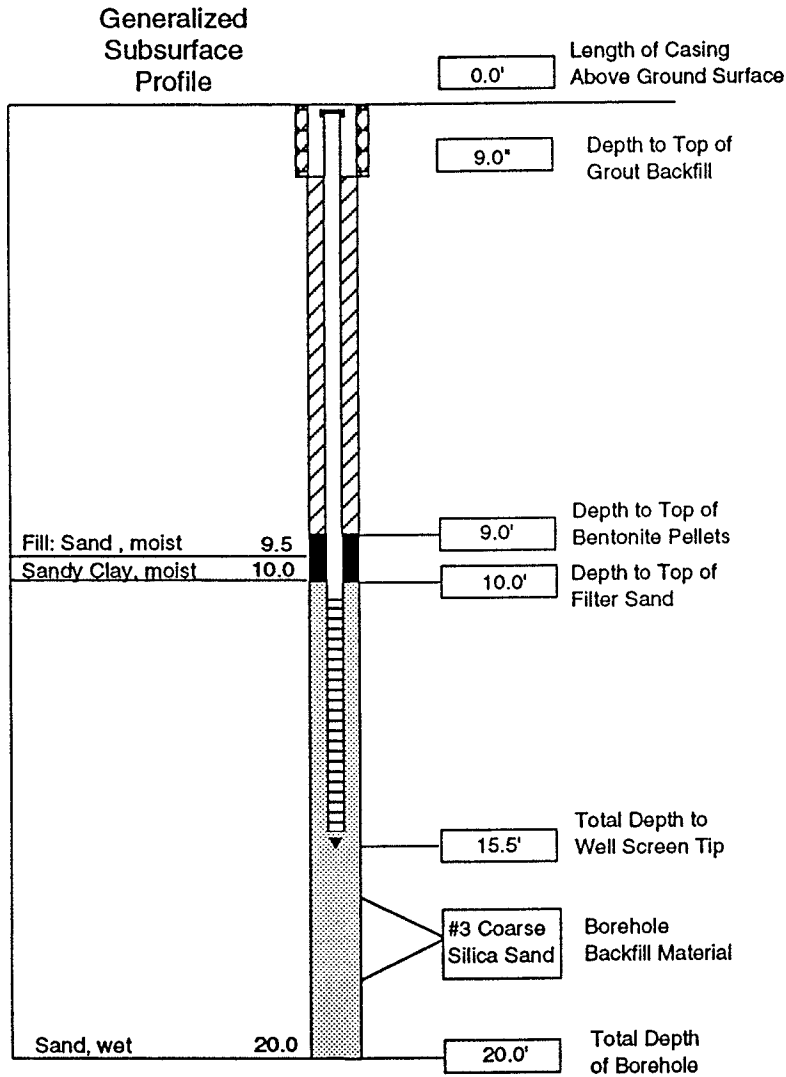
Datum: Mean Sea Level

Date	Water Level Elevation
11-14-91	742.29
2-10-92	742.31

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 6/MW-2 (43-101)
 Date(s) of Installation: 9/27/91 To 9/27/91



Top of Casing Elevation: 753.18
 Ground Surface Elevation: 753.5
 Well Screen Tip Elevation: 738.0

Well Casing
 Diameter: 2 inches
 Total Length: 10.5 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen
 Diameter: 2 inches
 Length: 5 feet
 Mesh: 0.010 - inch slot size
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing
 Material: Flush Mount Road Box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: Hosam Hassanien
 Contractor: Stearns Drilling Co
 Driller: Roger Christensen
 Drilling Equipment: CME-55 rig with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date	Water Level Elevation
11-14-91	742.06
2-10-92	742.09

General Notes: Elevations presented on this log are referred to a U.S.G.S Datum



WELL LOG

CLIENT ▶ GM-BOC

PROJECT NUMBER ▶ 54079200584

WELL NUMBER ▶ SEC7 A10 (43-162)

SITE LOCATION ▶ Section 7 & 13

LOCATION
UNKNOWN.

DATE ▶ MAR 8 93

WEATHER ▶ Cloudy, Cold

LOGGED BY ▶ Jim Farkas

DRILLED BY ▶ Atec Associates

DRILLING METHOD ▶ Hollow Stem Auger

SAMPLING METHOD ▶ Split Spoon

GRAVEL PACK ▶ Coarse Silica Sand

SEAL ▶ Benonite Grout

CASING ▶ TYPE Schedule 40 PVC

DIAMETER 2.0" LENGTH 8.0'

HOLE DIA. 6.25"

SCREEN ▶ TYPE Schedule 40 PVC

SLOT 0.010"

DIAMETER 2.0" LENGTH 15.0'

TOTAL DEPTH 23.0'

DEPTH BELOW SURFACE	WELL COMPLETION	SAMPLE NO.	SAMPLE RECOVERY	PENETRATION RESISTANCE	PID	READING	LITHOLOGY	ELEVATION
	Cover						CONCRETE	
	Concrete	1	1.5	4 5		0	Medium SAND trace gravel, loose, damp, brown SW	
		2	2.0	3 3		0	Same as above	
5	Bentonite Grout	3	2.0	3 3		0	Medium SAND, trace gravel, little silt, loose, moist, brown SW	
	Riser							
10	Coarse Silica Sand	4	2.0	6 6		0	Same as above, saturated	
15		5	2.0	6 6		0		
	Screen	6	2.0	2 1		0	Medium SAND, trace gravel, little silt, medium dense, moist, gray SW	
20		7	2.0	2 2		0	Same as above	
							CLAY	
							END OF BORING	

Water levels: ATD "Stabilized"

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 752.68
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/5/95
 Logged By: BRIAN BOKOVOY
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 9.30 Total Depth: 22.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-0.1'			10YR 8/6	ND	S-1	50	CL	CLAY WITH SOME SILT, BROWN, SLIGHTLY MOIST, SLIGHTLY PLASTIC.
0.1-2.0'			5YR 4/4	ND	S-2	90	SP	SAND, YELLOW-ORANGE, SLIGHTLY MOIST, FINE GRAINED.
2.0-2.3'			5YR 4/4	ND	S-3	100	CL	CLAY WITH SOME SILT AND SAND, BROWN, SLIGHTLY MOIST, SLIGHTLY PLASTIC.
2.3-5.0'			5YR 4/4	ND	S-4	100	CL	CLAY WITH SOME SILT, BROWN, SLIGHTLY MOIST, SLIGHTLY PLASTIC.
5.0-6.0'			5YR 4/4	ND	S-4	100	SP	SAND, SLIGHTLY MOIST, FINE GRAINED.
6.0-7.0'			10YR 8/6	ND	S-5	100	ML	SILT, BROWN, SLIGHTLY MOIST.
7.0-12.8'			10YR 8/6	ND	S-6	100	ML	SAND, YELLOW-ORANGE, SLIGHTLY MOIST TO WET, FINE GRAINED. WET AT 9.0'.
12.8-20.0'			N5	ND	S-7	100	SP	SAND, GRAY, WET, FINE GRAINED.
20.0-22.0'			N5	ND	S-9	100	SP	
			N5	ND	S-10	100	SP	
			N5	ND	S-11	75	SP	
			N5	ND	S-12	100	CH	CLAY WITH SOME SILT, GRAY, MOIST, PLASTIC.
TOTAL DEPTH DRILLED = 22.0 FEET								
WELL SET FROM 7.0 TO 14.0'.								
GROUNDWATER SAMPLE COLLECTED FROM 9.0-14.0'.								
GROUNDWATER SAMPLE COLLECTED FROM 15.0-20.0'.								

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 755.29
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/3/95
 Logged By: BRIAN BOKOVOY
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 12.47 Total Depth: 26.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-2.0			10YR 8/6	ND	S-1	10	SP	0.0-2.0': SAND, YELLOW-ORANGE, SLIGHTLY MOIST, FINE TO MEDIUM GRAINED.
2.0-4.0			5YR 4/4	ND	S-2	30	ML	2.0-4.0': SILT WITH SOME CLAY, BROWN, SLIGHTLY MOIST. CRUSHED WOOD FIBERS IN SPOON.
4.0-8.0			5YR 4/4	ND	S-3	100	CL	4.0-8.0': CLAY WITH SOME SILT, BROWN, SLIGHTLY MOIST, PLASTIC.
8.0-22.8			10YR 8/6	ND	S-4	50		
8.0-22.8			10YR 8/6	ND	S-5	100		
8.0-22.8			10YR 8/6	ND	S-6	100		
8.0-22.8			10YR 8/6	ND	S-7	100		
8.0-22.8			10YR 8/6	ND	S-8	100	SP	8.0-22.8': SAND, YELLOW-ORANGE, SLIGHTLY MOIST TO WET, FINE GRAINED. WET AT 10.0'.
8.0-22.8			10YR 8/6	ND	S-9	100		
8.0-22.8			10YR 8/6	ND	S-11	100		
8.0-22.8			10YR 8/6	ND	S-12	100		
22.8-24.0			N5	ND	S-13	100	MH	22.8-24.0': SILT, GRAY, WET.
24.0-26.0			N5	ND	S-14	100	CH	24.0-26.0': CLAY WITH SOME SILT, GRAY, MOIST, PLASTIC.

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

TOTAL DEPTH DRILLED = 26.0 FEET
 WELL SET FROM 8.0 TO 15.0'.
 GROUNDWATER SAMPLE COLLECTED FROM 11.0-16.0'.
 GROUNDWATER SAMPLE COLLECTED FROM 19.0-24.0'.

Project Name: GM-NAO FLINT OPERATIONS Date(s) Drilled: 10/10/95
 Project Number: 041057F001 Logged By: DARRYL BARRICKLOW
 Location: T.7N R.7E 7 Contractor: SOMAT ENGINEERING
 T R SEC QTR QTR Drill Rig/Method: HOLLOW STEM AUGER
 Northing: _____ Easting: _____ Sampling Method: SPLIT SPOON
 Ground Surface Elev.: 751.11 Borehole Diam.: 8" Drilling Fluid: NONE
 Property Owner/Contact: GENERAL MOTORS Depth to Water: 10.50 Total Depth: 22.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
5 10 15 20 25			5YR 4/4	ND	S-1	60	SP	0.0-1.2': SAND WITH PIECES OF GRANITE, BROWN, SLIGHTLY MOIST.
			ML	1.2-2.0': SILT WITH SOME FINE SAND, BROWN, SLIGHTLY MOIST.				
			5YR 4/4	ND	S-2	0	SP	2.0-4.0': SAND, BROWN.
			5YR 4/4	ND	S-3	60	CL	4.0-6.0': CLAY WITH SOME SILT, TRACE SAND AND FINE GRAVEL, BROWN SLIGHTLY MOIST.
			5YR 4/4	ND	S-4	15		6.0-8.0': CLAY WITH SOME SILT AND SAND, BROWN, SLIGHTLY MOIST.
			5YR 4/4	ND	S-5	85	SM	8.0-15.2': SAND AND SILT, ORANGE/BROWN, SLIGHTLY MOIST, FINE GRAINED. WET AT 9.8'. TRACE CLAY FROM 9.0 TO 10.0'.
			5YR 4/4	ND	S-6	100		
			5YR 4/4	ND	S-7	40		
			N5	ND	S-8	80		
			N5	ND	S-9	80	CL	15.2-16.0': CLAY WITH TRACE SILT, GRAY, SLIGHTLY MOIST.
			N5	ND	S-10	100		16.0-22.0': CLAY WITH TRACE SILT, GRAY WITH PINK MOTTLING, SLIGHTLY MOIST.
N5	ND	S-11	100					

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 753.64
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/4/95
 Logged By: BRIAN BOKOVOY
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 12.85 Total Depth: 20.0'
 Application: MONITORING WELL INSTALLATION

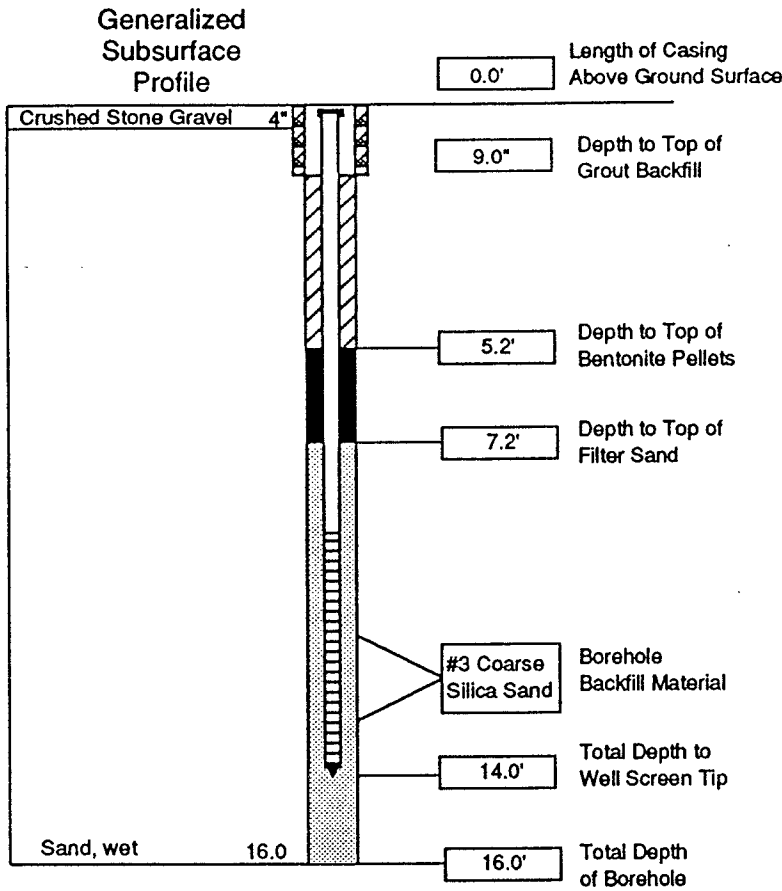
Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0			5YR 4/4	ND	S-1	5	SP	0.0-2.0': SAND, DARK BROWN, SLIGHTLY MOIST, FINE GRAINED.
2.0			5YR 4/4	ND	S-2	50		
4.0			5YR 4/4	ND	S-3	75	CL	2.0-8.0': CLAY WITH SOME SILT AND SAND, BROWN, SLIGHTLY MOIST, SLIGHTLY PLASTIC.
6.0			5YR 4/4	ND	S-4	5		
8.0			10YR 8/6	ND	S-5	100		
10.0			10YR 8/6	ND	S-6	100	SP	8.0-14.0': SAND, YELLOW-ORANGE, SLIGHTLY MOIST TO WET, FINE GRAINED. WET AT 13.8'.
12.0			10YR 8/6	ND	S-7	100		
14.0			5YR 4/4	ND	S-8	100	MH	14.0-16.0': SILT, BROWN, WET, FINE.
16.0			10YR 8/6	ND	S-9	100	SP	16.0-17.0': SAND, YELLOW-ORANGE, WET, FINE GRAINED.
17.0			N5	ND	S-11	10	CH	17.0-20.0': CLAY WITH SOME SILT, GRAY, MOIST, PLASTIC.
TOTAL DEPTH DRILLED = 20.0 FEET WELL SET FROM 10.0 TO 17.0'. GROUNDWATER SAMPLE COLLECTED FROM 11.0-16.0'.								

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Log of Well Installation

Well Designation: Section 7/MW-1 (43-160)

Date(s) of Installation: 10/1/91 To 10/1/91



Top of Casing Elevation: 751.0

Ground Surface Elevation: 751.4

Well Screen Tip Elevation: 737.4

Well Casing

Diameter: 2 inches

Total Length: 9.0 feet

Material: Schedule 40 PVC

Cap (Y/N): Yes

Well Screen

Diameter: 2 inches

Length: 5 feet

Mesh: 0.010 - inch slot size

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box

Diameter: 7.5 inches

Length: 9 inches

Length Above Ground: 0 inches

Lock (Y/N): Yes

Inspector: D. Kanzer

Contractor: Stearns Drilling Co.

Driller: Roger Christensen

Drilling Equipment: CME-55 rig with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand

Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date Water Level Elevation

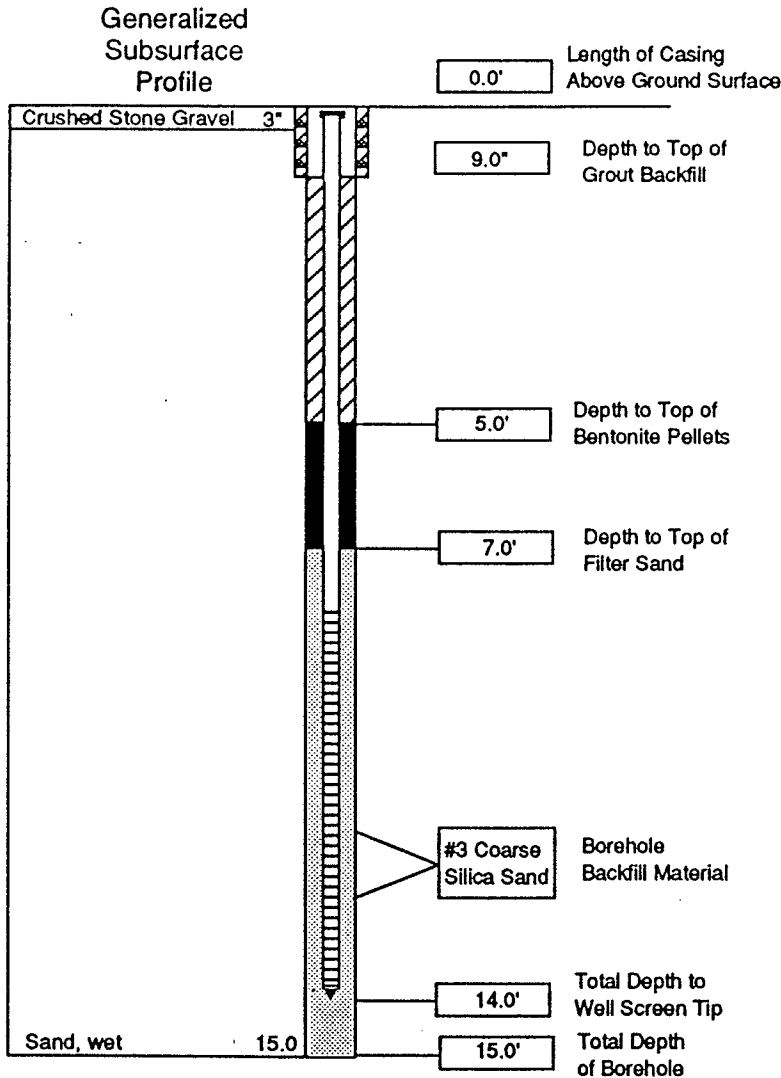
Date	Water Level Elevation
11-14-91	741.50
2-10-92	741.49

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 7/MW-4 (43-161)

Date(s) of Installation: 10/3/91 To 10/3/91



Top of Casing Elevation: 750.97

Ground Surface Elevation: 751.4

Well Screen Tip Elevation: 737.4

Well Casing

Diameter: 2 inches

Total Length: 8.0 feet

Material: Schedule 40 PVC

Cap (Y/N): Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.01 - inch Machine slotted

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box

Diameter: 7.5 inches

Length: 9 inches

Length Above Ground: 0 inches

Lock (Y/N): Yes

Inspector: C. Kingma

Contractor: Stearns Drilling Co.

Driller: Roger Christensen

Drilling Equipment: CME-55 rig with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand

Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date Water Level Elevation

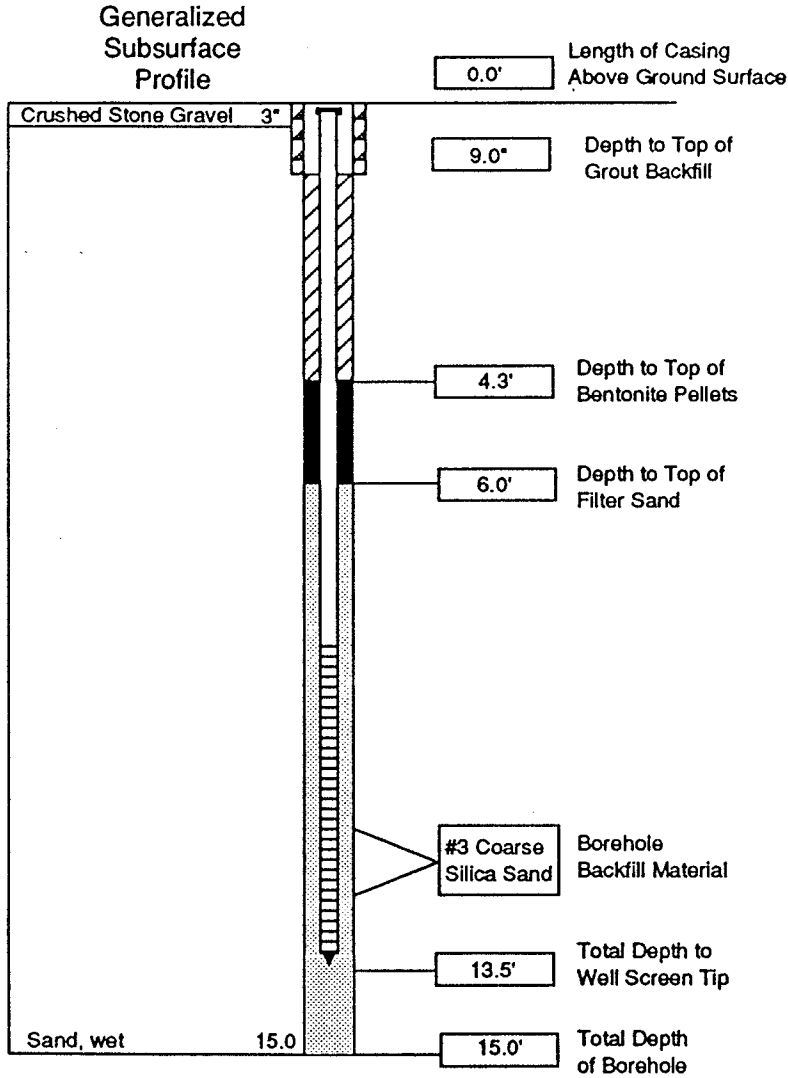
Date	Water Level Elevation
11-14-91	741.41
2-10-92	740.49

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 7/MW-5 (43-162)

Date(s) of Installation: 10/3/91 To 10/3/91



Top of Casing Elevation: 750.44

Ground Surface Elevation: 750.8

Well Screen Tip Elevation: 737.3

Well Casing

Diameter: 2 inches

Total Length: 8.5 feet

Material: Schedule 40 PVC

Cap (Y/N): Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.01 - inch Machine slotted

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box

Diameter: 7.5 inches

Length: 9 inches

Length Above Ground: 0 inches

Lock (Y/N): Yes

Inspector: C. Kingma

Contractor: Stearns Drilling Co.

Driller: Roger Christensen

Drilling Equipment: CME-55 rig with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand

Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date Water Level Elevation

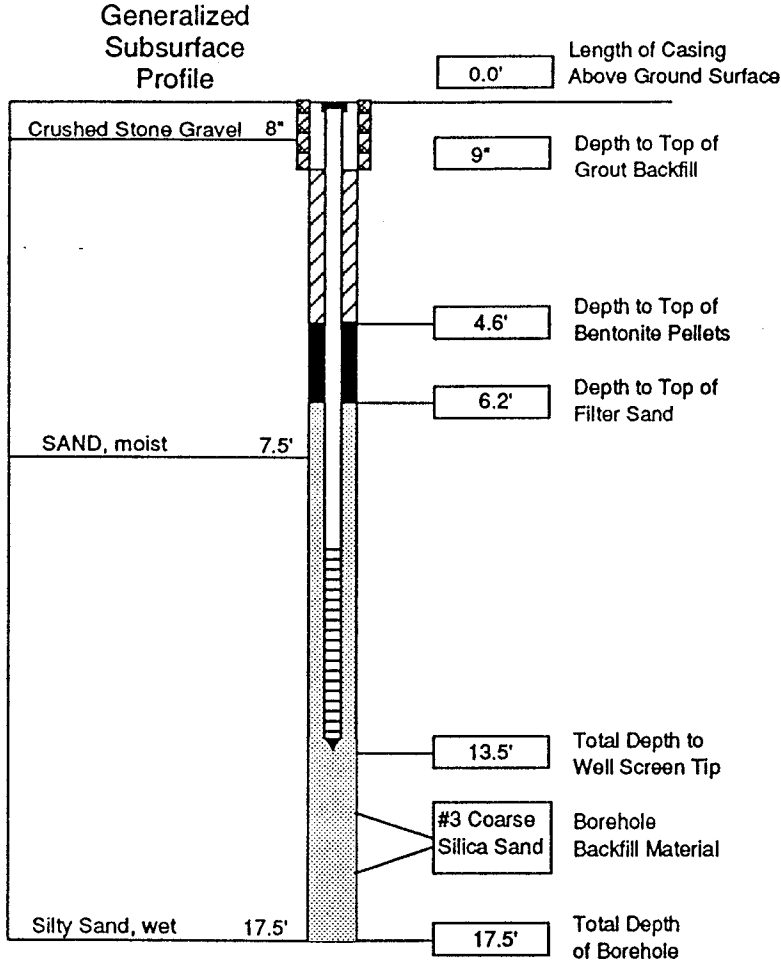
Date	Water Level Elevation
11-14-91	740.95
2-10-92	739.87

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 7/MW-8 (43-163)

Date(s) of Installation: 10/16/91 To 10/17/91



Top of Casing Elevation: 750.21

Ground Surface Elevation: 750.6

Well Screen Tip Elevation: 737.1

Well Casing

Diameter: 2 inches

Total Length: 8.5 feet

Material: Schedule 40 PVC

Cap (Y/N) Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.01 - inch Machine slotted

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box

Diameter: 7.5 inches

Length: 9 inches

Length Above Ground: 0 inches

Lock (Y/N): Yes

Inspector: D. Kanzer

Contractor: Stearns Drilling Co.

Driller: Roger Christensen

Drilling Equipment: CME-55 with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand

Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date Water Level Elevation

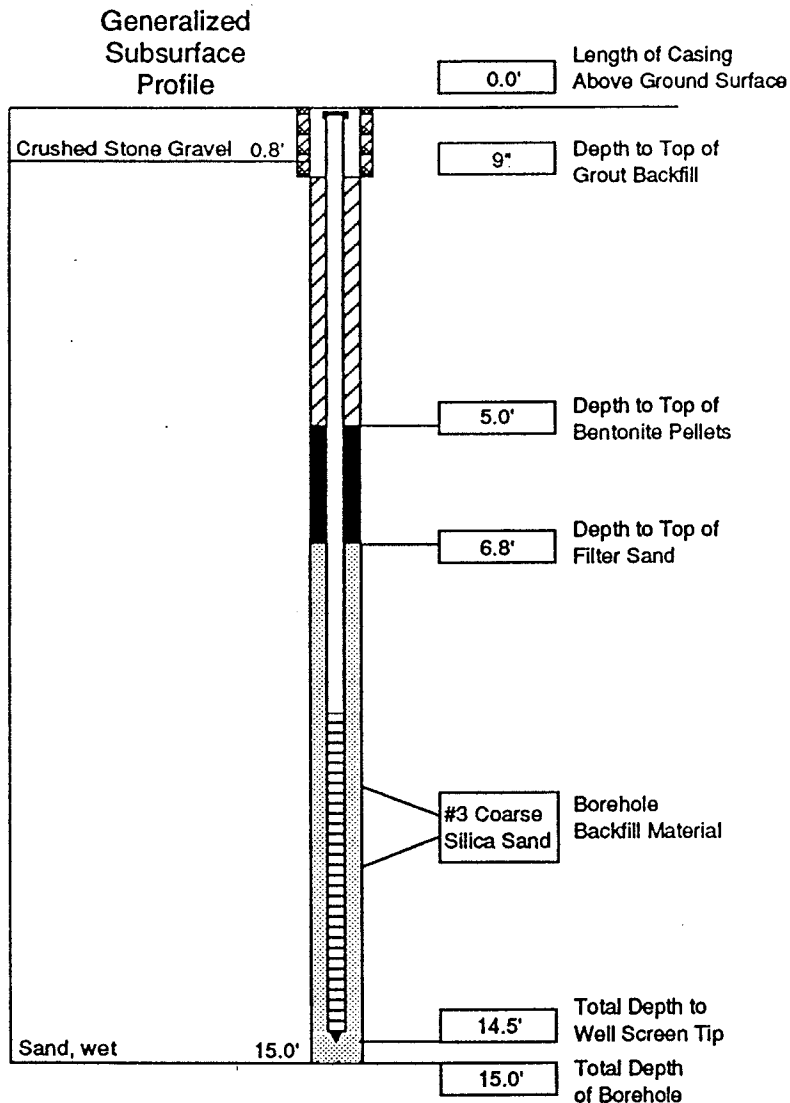
11-14-91	741.28
2-10-92	739.66

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 13/MW-1 (43-164)

Date(s) of Installation: 10/21/91 To 10/21/91



Top of Casing Elevation: 750.16

Ground Surface Elevation: 750.5

Well Screen Tip Elevation: 736.0

Well Casing

Diameter: 2 inches

Total Length: 9.5 feet

Material: Schedule 40 PVC

Cap (Y/N) Yes

Well Screen

Diameter: 2 inches

Length: 5.0 feet

Mesh: 0.01 - inch Machine slotted

Material: Schedule 40 PVC

Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box

Diameter: 7.5 inches

Length: 9 inches

Length Above Ground: 0 inches

Lock (Y/N): Yes

Inspector: D. Kanzer
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55
with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

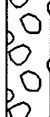
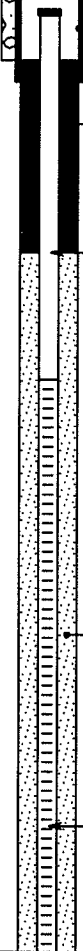
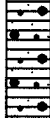


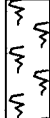



Water Level Data

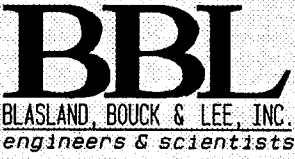
Datum: Mean Sea Level

Date	Water Level Elevation
11-14-91	741.26
2-10-92	741.50

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Date Start/Finish: 3/20/00 / 3/20/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 16.0 feet Geologist: Matt Stuk	Well No: 43-165 Client: General Motors Corporation Location: GM NAO Flint Site Factory 05 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		NA	NA	NA	NA			Gravel FILL.	 <ul style="list-style-type: none"> Steel 8" diameter flushmount curb box. Cement pad. Bentonite seal 1.0' to 4.0' bgs. 2-inch diameter PVC casing to 6.0' bgs. #5 sand pack 4.0' to 16.0' bgs. 2-inch diameter 0.010" slot PVC well screen 6.0' to 16.0' bgs.
		(2-4')		9 11 12 13	23	1.5	2.0			Olive to brown Sandy lean CLAY, some fine to coarse Sand, moist, hydrocarbon odor, no sheen.	
5		(4-6')		6 4 5 5	9	1.67	1.4				
		(6-8')		5 7 6 10	13	0.83	1.3				
		(8-10')		3 4 4 7	8	1.25	0.7			Fine grained PEAT, moist to wet, slight hydrocarbon odor.	
10		(10-12')		5 7 7 11	14	1.67	0.4			Brown to gray poorly graded medium SAND, little Silt, wet.	
		(12-14')		2 8 12 14	20	1.67	0.2				
5		(14-16')		3 5	12	1.92	0.0			Brown Clayey fine SAND, some Clay, wet.	

 BLASLAND, BOUCK & LEE, INC. <i>engineers & scientists</i>	Remarks: bgs - below ground surface. NA - Not Available. Soil sample collected from 2-4' bgs for VOCs, metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Client:
General Motors Corporation

Location:
GM NAO Flint Site
Factory 05 Area

Well No: 43-165
Total Depth = 16.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		7 7	12	1.92	0.0			Brown Clayey fine SAND, some Clay, wet.	 <p>#5 sand pack 4.0' to 16.0' bgs. 2-inch diameter 0.010" slot PVC well screen 6.0' to 16.0' bgs.</p>
										End of boring at 16.0' bgs.	
20											
25											
30											
35											

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Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/21/00 / 3/21/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 16.0 feet Geologist: Matt Stuk	Well No: 43-166 Client: General Motors Corporation Location: GM NAO Flint Site Factory 05 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		NA	NA	NA	NA			Concrete.	Steel 8" diameter flushmount curb box. Cement pad.
		(2-4')		NA	NA	2.0	0.0			FILL, brown to black Sand and Gravel, moist.	Bentonite seal 1.0' to 3.5' bgs.
5		(4-6')		NA	NA	2.0	0.0				2-inch diameter PVC casing to 5.0' bgs.
		(6-8')		NA	NA	2.0	0.0				
10		(8-10')		8 6 9 12	15	1.67	0.0			Brown poorly graded fine to medium SAND, wet.	#5 sand pack 3.5' to 15.0' bgs.
		(10-12')		2 8 13 15	21	1.75	0.0				
		(12-14')		5 6 6 8	12	1.83	0.0				2-inch diameter 0.010" slot PVC well screen 5.0' to 15.0' bgs.
15		(14-16')		NA	NA	NA	NA				


	Remarks: bgs - below ground surface. NA - Not Available. Hand auger to 8.0' bgs. Soil sample collected from 6-8' bgs for VOCs, metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Client:
General Motors Corporation

Well No: 43-166

Location:
GM NAO Flint Site
Factory 05 Area

Total Depth = 18.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		NA	NA	NA	NA			Brown poorly graded fine to medium SAND, wet.	 Formation collapse 15.0' to 16.0' bgs.
										End of boring at 18.0' bgs.	
20											
25											
30											
35											

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Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/20/00 / 3/20/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 16.0 feet Geologist: Matt Stuk	Well No: 43-167 Client: General Motors Corporation Location: GM NAO Flint Site Factory 05 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		NA	NA	0.67	0.3			Concrete.	
		(2-4')		NA	NA	2.0	0.1			FILL, Sand and Gravel.	
		(4-6')		NA	NA	2.0	0.4			Yellowish-brown poorly graded fine to medium SAND, dry.	
		(6-8')		NA	NA	2.0	0.6				
		(8-10')		1 2 1 1	3	1.67	0.3			Well.	
		(10-12')		2 2 3 4	5	1.83	0.2				
		(12-14')		2 1 3 3	4	1.67	0.6				
		(14-16')		3 3	9	1.83	0.2				


<h1 style="margin:0;">BBL</h1> <p style="margin:0;">BLASLAND, BOUCK & LEE, INC. engineers & scientists</p>	Remarks: bgs - below ground surface. NA - Not Available. Hand auger to 8.0' bgs. Soil sample collected from 6-8' bgs for VOCs, metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Client:
General Motors Corporation

Well No: 43-167

Location:
GM NAO Flint Site
Factory 05 Area

Total Depth = 16.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		6 7	9	1.83	0.2			Yellowish-brown poorly graded fine to medium SAND, dry.	 Formation collapse 15.0' to 16.0' bgs.
										End of boring at 16.0' bgs.	
20											
25											
30											
35											

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engineers & scientists


Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/21/00 / 3/21/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 16.0 feet Geologist: Matt Stuk	Well No: 43-168 Client: General Motors Corporation Location: GM NAO Flint Site Factory 05 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		NA	NA	1.17	0.0			Concrete.	Steel 8" diameter flushmount curb box. Cement pad.
		(2-4')		NA	NA	2.0	0.0			Brown Silty medium SAND, little to some Silt. Wet.	Bentonite seal 1.0' to 4.0' bgs.
5		(4-6')		NA	NA	2.0	0.0			Brown poorly graded medium SAND, dry.	2-inch diameter PVC casing to 5.0' bgs.
		(6-8')		NA	NA	2.0	0.0				
		(8-10')		2 1 3 4	4	1.92	0.0			Wet.	
10		(10-12')		2 3 5 8	8	1.67	0.0			Brown Silty SAND, some Silt, wet.	#5 sand pack 4.0' to 15.0' bgs.
		(12-14')		3 3 4 7	7	1.5	0.0				2-inch diameter 0.010" slot PVC well screen 5.0' to 15.0' bgs.
5		(14-16')		3 4	9	1.83	0.0				

	Remarks: bgs - below ground surface. NA - Not Available. Hand auger to 8.0' bgs. Soil sample collected from 6-8' bgs for VOCs, metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Client:
General Motors Corporation

Location:
GM NAO Flint Site
Factory 05 Area

Well No: 43-168
Total Depth = 16.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		5 5	9	1.83	0.0			Brown Silty SAND, some Silt, wet.	 Formation collapse 15.0' to 16.0' bgs.
										End of boring at 16.0' bgs.	
20											
25											
30											
35											

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Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/21/00 / 3/21/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 16.0 feet Geologist: Matt Stuk	Well No: 43-169 Client: General Motors Corporation Location: GM NAO Flint Site Factory 05 Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		- 7 8	7	1.5	0.0			Concrete.	Steel 8" diameter flushmount curb box. Cement pad.
		(2-4')		- 3 4 4	7	1.67	0.1			Yellowish-brown poorly graded medium SAND.	Bentonite seal 1.0' to 3.5' bgs.
5		(4-6')		2 3 1 3	4	2.0	0.0				2-inch diameter PVC casing to 5.0' bgs.
		(6-8')		2 3 3 2	5	1.92	0.0				
10		(8-10')		3 7 7 6	14	1.33	0.0			Silty fine to medium SAND, some Silt, wet.	#5 sand pack 3.5' to 15.0' bgs.
		(10-12')		3 4 4 9	8	1.83	0.0				
		(12-14')		3 3 5 7	8	1.5	0.0				2-inch diameter 0.010" slot PVC well screen 5.0' to 15.0' bgs.
5		(14-16')		2 4	9	1.75	0.0			Brown poorly graded fine to medium SAND, wet.	

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Remarks:

bgs - below ground surface. NA - Not Available. Soil sample collected from 2-4' bgs for VOCs, metals, SVOCs, and PCBs.

Water Levels


Date / Time	Elevation	Depth

Client:
General Motors Corporation

Well No: 43-169

Location:
GM NAO Flint Site
Factory 05 Area

Total Depth = 16.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		5 e	9	1.75	0.0			Brown poorly graded fine to medium SAND, wet.	 Formation collapse 15.0' to 16.0' bgs.
										End of boring at 16.0' bgs.	
20											
25											
30											
35											

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Remarks:

Water Levels

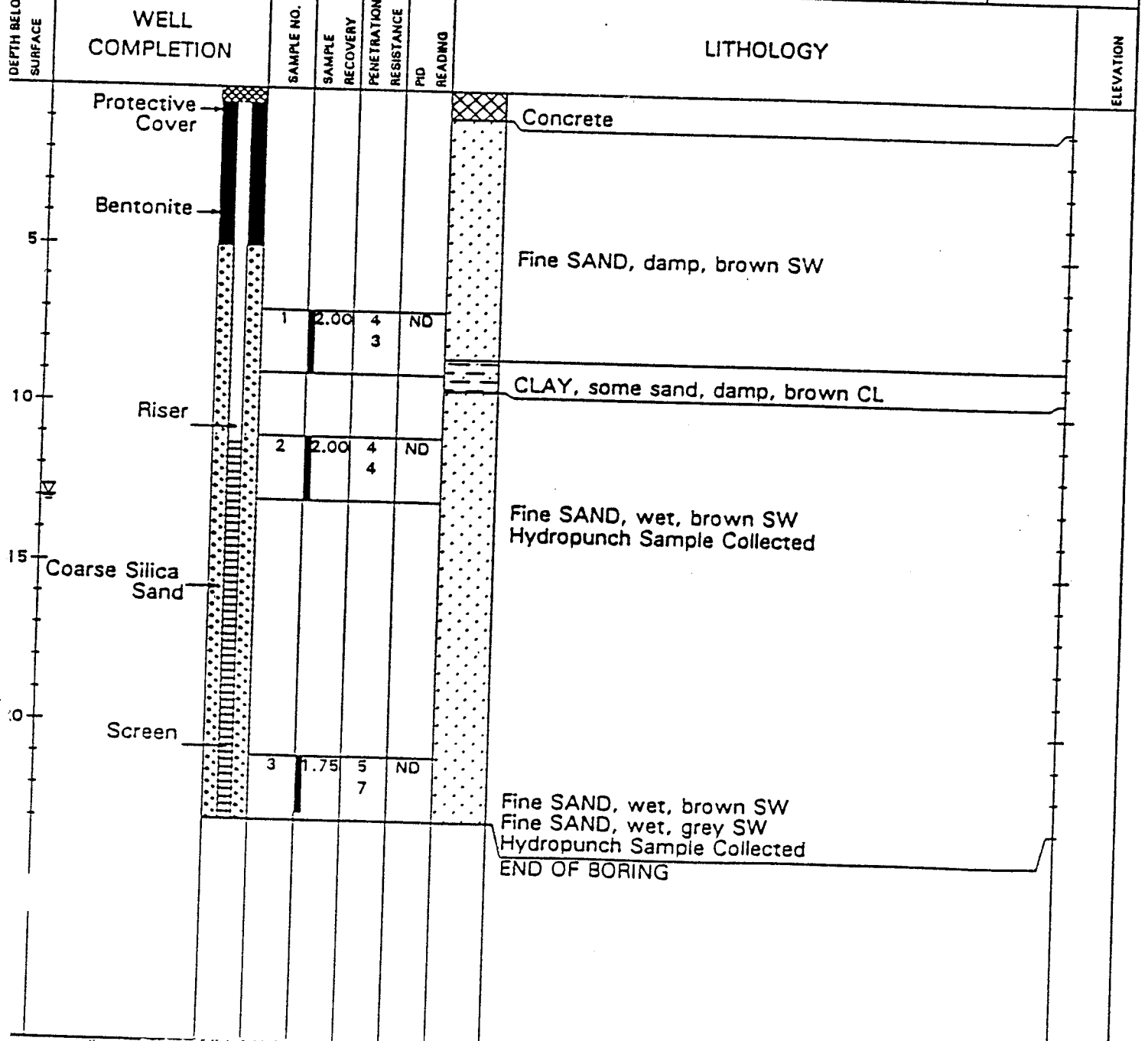
Date / Time	Elevation	Depth



WELL LOG

NT ▶ G.M.-Powertrain-Building #43		PROJECT NUMBER ▶ 54079400324	
WELL NUMBER ▶ SB10MW-2 (43-220)		SITE LOCATION ▶ Plant 05 902 East Hamilton	
DATE ▶ MAY 13 94		WEATHER ▶ Indoor Boring	
LOGGED BY ▶ Kwiecinski		DRILLED BY ▶ ATEC Associates, Inc	
DRILLING METHOD ▶ Hollow Stem Auger		SAMPLING METHOD ▶ Split Spoon	
GRAVEL PACK ▶ Coarse Silica Sand		SEAL ▶ Bentonite Chips	

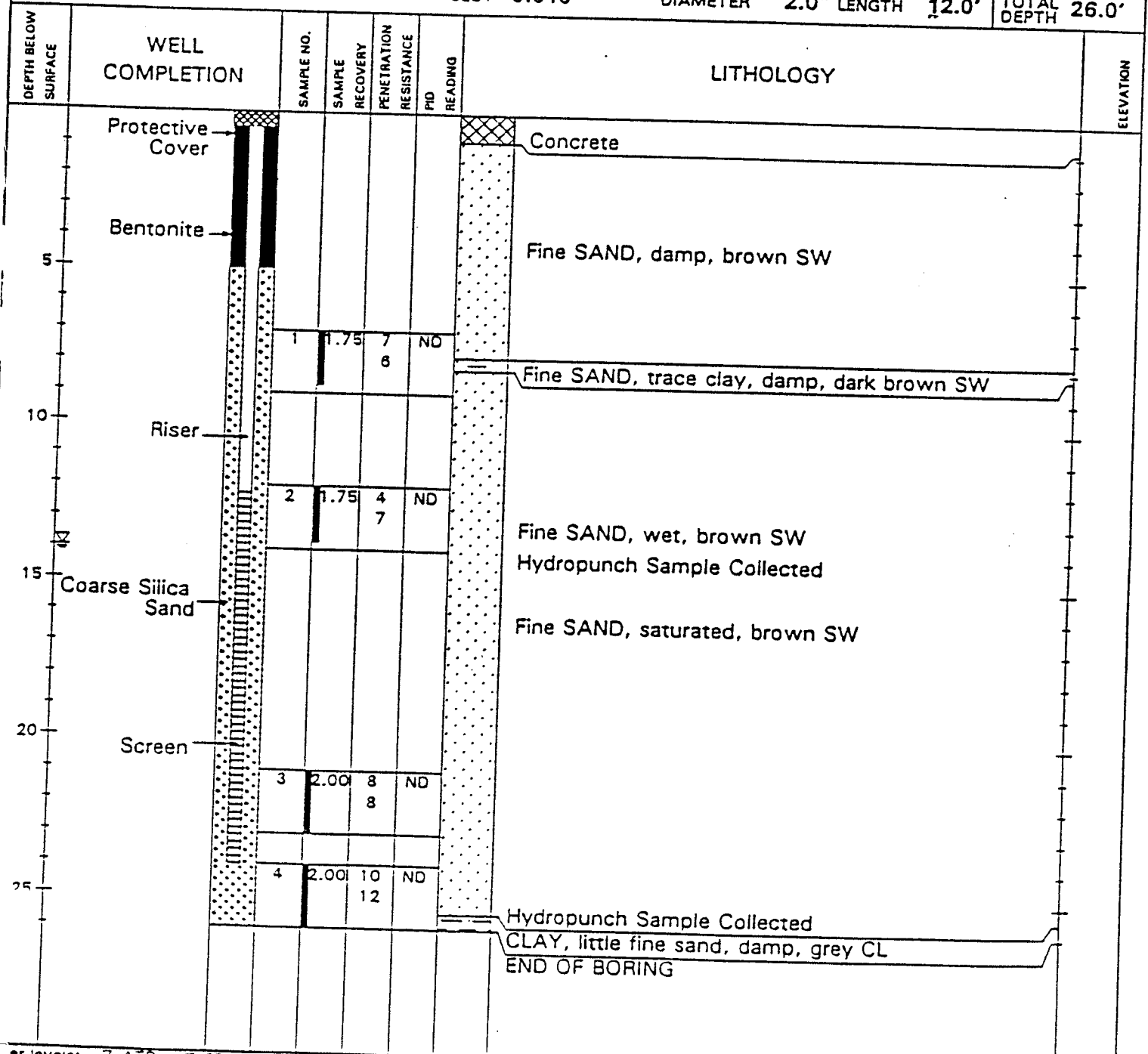
CASING ▶ TYPE Schedule 40 PVC	DIAMETER 2.0"	LENGTH 12.0'	HOLE DIA. 6.25"
SCREEN ▶ TYPE Schedule 40 PVC	SLOT 0.010"	DIAMETER 2.0"	LENGTH 12.0'
			TOTAL DEPTH 23.0'





WELL LOG

CLIENT ▶ G.M.-Powertrain-Building #43		PROJECT NUMBER ▶ 54079400324	
WELL NUMBER ▶ SB2/MW-1 (43-242)		SITE LOCATION ▶ Plant 05 902 East Hamilton	
DATE ▶ MAY 10 94		WEATHER ▶ Indoor Boring	
LOGGED BY ▶ Kwiecinski		DRILLED BY ▶ ATEC Associates, Inc	
DRILLING METHOD ▶ Hollow Stem Auger		SAMPLING METHOD ▶ Split Spoon	
GRAVEL PACK ▶ Coarse Silica Sand		SEAL ▶ Bentonite Chips	
CASING ▶ TYPE Schedule 40 PVC		DIAMETER 2.0"	LENGTH 12.0'
SCREEN ▶ TYPE Schedule 40 PVC		SLOT 0.010"	HOLE DIA. 6.25"
		DIAMETER 2.0"	LENGTH 12.0'
			TOTAL DEPTH 26.0'



Date Start-Finish: 5/5/99 - 5/5/99 Drilling Company: RAU Drilling Driller's Name: Greg Compeau Drilling Method: Hollow Stem Auger Auger Size: ID 4.25-in. Rig Type: CME 75 Spoon Size: 2-in. Hammer Weight: 140-lb Height of Fall: 30-in.	Northing: Easting: Well Casing Elev.: ft. Surface Elev.: ft. Borehole Depth: 17 ft. Geologist: Tami Hauptfleisch	Well No. 55-1 Client: General Motors Corporation Site: GM NAO Flint Site Building 20-Scrap Yard
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft										GROUND SURFACE	9" diameter steel flush-mount cover. Cement pad, groundsurface to 10' BGS.
		(0-1')		NA	NA	NA	NA			Auger through asphalt from 0 to 2" BGS and cement from 2" to 1' BGS.	2" diameter Sch. 40 PVC well casing, 0.25 to 9' BGS. Portland Type I Grout, 1 to 6' BGS.
		(1-3')		2 3 3 3	6	2.0	1.1			Light to dark brown mottled fine SAND, trace Clay and coarse SAND, dry.	Bentonite seal, 6 to 8' BGS.
		(3-5')		2 2 3 3	5	0.1	0.0			Same as above.	Sand pack, 8 to 17' BGS.
5		(5-7')		2 3 3 3	6	1.8	0.0			Black fine SAND (foundry SAND). Light brown fine SAND, trace fine Gravel, trace black fine sand, moist.	0.010 screened 2" diameter Sch. 40 PVC, 9 to 15.8' BGS.
		(7-9')		3 2 2 2	4	1.6	0.0			light brown fine SAND, moist.	
		(9-11')		2 2 5 5	7	1.5	0.0			Same as above. Brown medium SAND to FILL material.	
		(11-13')		5 7 7 5	14	1.6	1.4			Gray brown fine SAND, moist, trace silt. Gray brown fine SAND, some black stained Sand at 11' BGS, saturated, odor.	
		(13-15')		3 4 4 3	8	1.8	0.0			Same as above, no black staining.	
5											



Remarks:
 BGS - Below Ground Surface.
 NA - Not Available.
 Sample from 11 to 13' BGS taken for analysis.

Water Levels		
Date / Time	Elevation	Depth

Site:
GM NAO Flint Site
Building 20-Scrap Yard

Well No. 55-1
Total Depth = 17 ft.

Client:
General Motors Corporation

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		3 4 4 3	8	1.6	0.0			Same as above, slightly finer grained, slightly grayer color.	<p>0.010 screened 2" diameter Sch. 40 PVC, 9 to 15.75' BGS. 2" diameter PVC slip cap, 15.75 to 16' BGS. Sand pack, 8 to 17' BGS.</p>
										End of boring at 17' BGS.	
20											
25											
30											
35											

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Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start-Finish: 5/5/99 - 5/5/99 Drilling Company: RAU Drilling Driller's Name: Greg Compeau Drilling Method: Hollow Stem Auger Auger Size: ID 4.25-in. Rig Type: CME 75 Spoon Size: 2-in. Hammer Weight: 140-lb Height of Fall: 30-in.	Northing: Easting: Well Casing Elev.: ft. Surface Elev.: ft. Borehole Depth: 17 ft. Geologist: Tami Hauptfleisch	Well No. 55-2 Client: General Motors Corporation Site: GM NAO Flint Site Building 20-Scrap Yard
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.										GROUND SURFACE	
		(0-1')		NA	NA	NA	NA			Auger through cement from 0 to 1' BGS.	
		(1-3')		4 4 5 7	9	1.6	0.0			Brown fine to coarse SAND, some fine to medium Gravel, dry.	
		(3-5')		5 7 5 4	12	1.5	0.0			Brown and gray fine SAND, trace Clay and Silt, some black fine SAND, damp.	
5		(5-7')		4 4 6 5	10	1.8	0.0			Orange brown fine Sand, trace coarse Sand and fine Gravel, moist.	
		(7-9')		2 4 6 6	10	2.0	0.0			Orange brown fine to medium SAND and SILT, little Clay, moist.	
		(9-11')		4 7 8 7	15	1.6	0.0			Orange brown fine SAND, dry. Same as above. Brown gray fine SAND, saturated.	
10		(11-13')		3 4 4 3	8	1.7	0.0			Same as above, some brown fine SAND.	
		(13-15')		3 3 3 4	6	1.6	0.0			Brown gray olive fine SAND, saturated. odor.	
15											

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Remarks:

BGS - Below Ground Surface.
 NA - Not Available.
 Sample from 9 to 11' BGS taken for analysis.

Water Levels		
Date / Time	Elevation	Depth
		▼
		▼
		▼

Site:
 GM NAO Flint Site
 Building 20-Scrap Yard
Client:
 General Motors Corporation

Well No. 55-2
Total Depth = 17 ft.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		5 3 4	6	1.5	0.0			Same as above.	<p> 0.010" screened 2" diameter Sch. 40 PVC, 9 to 15.8' BGS. 2" diameter PVC slip cap, 15.8 to 16' BGS. Sandpack, 8 to 17' BGS. </p>
										End of boring at 17' BGS.	
-20											
-25											
-30											
-35											

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Remarks:

Water Levels

Date / Time	Elevation	Depth
		▼
		▼
		▼

Date Start-Finish: 5/5/99 - 5/5/99 Drilling Company: RAU Drilling Driller's Name: Greg Compeau Drilling Method: Hollow Stem Auger Auger Size: ID 4.25-in. Rig Type: CME 75 Spoon Size: 2-in. Hammer Weight: 140-lb Height of Fall: 30-in.	Northing: -1 Easting: -1 Well Casing Elev.: -1 ft. Surface Elev.: -1 ft. Borehole Depth: 15 ft. Geologist: Tami Hauptfleisch	Well No. 55-3 Client: General Motors Corporation Site: GM NAO Flint Site Building 20-Scrap Yard
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DEPTH	ELEVATION	Sample Run Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
GS elevation -1 ft.										GROUND SURFACE	9" diameter steel flush-mount cover. Cement pad, groundsurface to 10' BGS.
		(0-1')		NA	NA	NA	NA			Auger through cement from 0 to 1' BGS.	2" diameter Sch. 40 PVC well casing, 0.3 to 7' BGS. Bentonite seal, 0 to 5' BGS.
		(1-3')		6 6 4 7	10	1.6	46.3			Brown orange fine SAND, trace medium Sand, dry. Black foundary SAND, dry.	Sand pack, 5 to 15' BGS. 0.010 screened 2" diameter Sch. 40 PVC, 7 to 13.75' BGS.
-5		(3-5')		4 6 9 11	15	2.0	66.6			Same as above. Gray fine SAND and SILT, moist, trace fine Gravel.	2" diameter PVC slip cap, 13.8 to 14' BGS.
5		(5-7')		3 2 2 2	4	2.0	0.7			Brown fine to coarse SAND and SILT, little Clay, trace fine Gravel, moist.	
		(7-9')		1 1 1 2	2	1.6	0.5			Same as above, grades to orange brown color.	
-10		(9-11')		1 1 1 2	2	1.8	1.8			Same as above, moist to wet. Orange brown fine SAND, trace medium Gravel, saturated.	
10		(11-13')		1 1 2 2	3	1.6	0.8			Orange brown fine SAND. Olive gray fine SAND.	
-15		(13-15')		2 3 3 5	6	1.3	0.8			Same as above.	
15											

<h1 style="margin:0;">BBL</h1> <p style="margin:0; font-size: small;">BLASLAND, BOUCK & LEE, INC. engineers & scientists</p>	Remarks: BGS - Below Ground Surface. NA- Not Available. Sample from 3 to 5' BGS (DUP-1) and 9 to 11' BGS taken for analysis.	Water Levels											
		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:33%;">Date / Time</th> <th style="width:33%;">Elevation</th> <th style="width:33%;">Depth</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Date / Time	Elevation	Depth								
Date / Time	Elevation	Depth											

Date Start-Finish: 5/5/99 - 5/5/99 Drilling Company: RAU Drilling Driller's Name: Greg Compeau Drilling Method: Hollow Stem Auger Auger Size: ID 4.25-in. Rig Type: CME 75 Spoon Size: 2-in. Hammer Weight: 140-lb Height of Fall: 30-in.	Northing: -1 Easting: -1 Well Casing Elev.: -1 ft. Surface Elev.: -1 ft. Borehole Depth: 15 ft. Geologist: Tami Hauptfleisch	Well No. 55-4 Client: General Motors Corporation Site: GM NAO Flint Site Building 20-Scrap Yard
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DEPTH	ELEVATION	Sample Run Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
gs elevation -1 ft										GROUND SURFACE	9" diameter steel flush-mount cover. Cement pad, ground surface to 10' BGS.
		(0-1')		NA	NA	NA	NA			Auger through cement from 0 to 1' BGS.	
		(1-3')		6 8 10 11	18	1.5	2.8			Black fine SAND with Fill material, dry, aggregate, white stone, wood peice.	2" diameter Sch. 40 PVC well casing, 0.3 to 7' BGS.
	-5	(3-5')		6 7 9 9	16	1.8	0.0			Orange brown SAND and fine SAND, some Clay, little medium to coarse Sand, trace fine to medium Gravel, very tight, moist.	Bentonite seal, 0 to 5' BGS.
5		(5-7')		4 4 4 4	8	1.8	0.0			Same as above.	Sand pack, 5 to 15' BGS.
		(7-9')		2 3 3 4	6	1.8	0.0			Same as above.	0.010 screened 2" diameter Sch. 40 PVC, 7 to 13.75' BGS.
-10		(9-11')		2 6 7 12	13	1.8	0.0			Orange brown fine SAND, moist to wet. Same as above, saturated.	
10		(11-13')		4 7 9 12	16	1.5	0.0			same as above.	
	-5	(13-15')		1 4 4 9	8	2.0	0.0				2" diameter PVC slip cap, 13.8 to 14' BGS.
5											


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Remarks:
 BGS - Below Ground Surface.
 NA - Not Available.
 Sample from 9 to 11' BGS taken for analysis.

Water Levels		
Date / Time	Elevation	Depth

Date Start-Finish: 5/6/99 - 5/6/99 Drilling Company: RAU Drilling Driller's Name: Greg Compeau Drilling Method: Hollow Stem Auger Auger Size: ID 4.25-in. Rig Type: CME 75 Spoon Size: 2-in. Hammer Weight: 140-lb Height of Fall: 30-in.	Northing: -1 Easting: -1 Well Casing Elev.: -1 ft. Surface Elev.: -1 ft. Borehole Depth: 18 ft. Geologist: Tami Hauptfleisch	Well No. 55-5 Client: General Motors Corporation Site: GM NAO Flint Site Building 20-Scrap Yard
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DEPTH	ELEVATION	Sample Run Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
gs elevation -1 ft.										GROUND SURFACE	9" diameter steel flush-mount cover. Cement pad, ground surface to 10' BGS.
		(0-2')		NA	NA	NA	NA			Auger through gravel from 0 to 2' BGS.	2" diameter Sch. 40 PVC well casing, 0.3 to 10' BGS.
		(2-4')		NA	NA	NA	NA			Brown fine SAND, little Clay, trace medium to coarse Sand, moist.	Bentonite seal, 0 to 8' BGS.
5		(4-6')		2 3 4 4	7	1.6	0.0			Black fine foundary SAND, dry.	
		(6-8')		3 3 4 5	7	0.2	6.1			Trace fine Gravel.	
10		(8-10')		3 3 4 6	7	1.4	3.8				
		(10-12')		2 3 2 4	5	1.2	4.2			Saturated.	Sand pack, 8 to 18' BGS. 0.010 screened 2" diameter Sch. 40 PVC, 10 to 17' BGS.
		(12-14')		2 2 2 2	4	1.6	122				
15											

	Remarks: BGS - Below Ground Surface. NA- Not Available. Sample from 12 to 14' BGS taken for analysis.	Water Levels		
		Date / Time	Elevation	Depth

Site:

GM NAO Flint Site
 Building 20-Scrap Yard

Well No. 55-5

Total Depth = 18 ft.

Client:

General Motors Corporation

DEPTH	ELEVATION	Sample Run Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
											<p>2" diameter PVC slip cap, 16.8 to 17' BGS.</p> <p>Sand pack, 8 to 18' BGS.</p>
	-20									Olive fine SAND, saturated.	
	-20									End of boring at 18' BGS.	
	-25										
	-25										
	-30										
	-30										
	-35										
	-35										
35											

BBL
 BLASLAND, BOUCK & LEE, INC.
 engineers & scientists

Remarks:

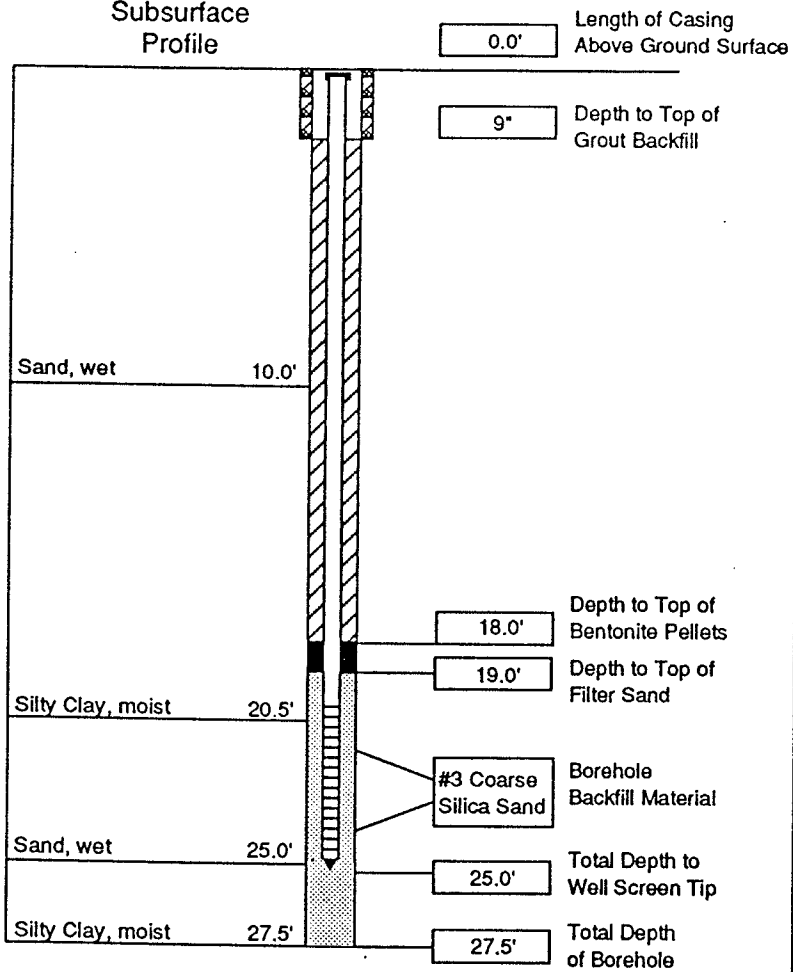
Water Levels		
Date / Time	Elevation	Depth

Log of Well Installation

Well Designation: Section 17/MW-1 (70-100)

Date(s) of Installation: 9/18/91 To 9/18/91

Generalized
Subsurface
Profile



Top of Casing Elevation: 742.97
 Ground Surface Elevation: 743.4
 Well Screen Tip Elevation: 718.4

Well Casing

Diameter: 2 inches
 Total Length: 20.0 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen

Diameter: 2 inches
 Length: 5.0 feet
 Mesh: 0.01 - inch Machine slotted
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: H. Hassanien
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55
with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry
 Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date	Water Level Elevation
11-14-91	736.61
2-10-92	736.66

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum



WELL LOG

CLIENT ▶ GM-BOC		PROJECT NUMBER ▶ 54079200279	
WELL NUMBER ▶ 17/A-6 (70-101)		SITE LOCATION ▶ Section 17	
DATE ▶ AUG 19 92		WEATHER ▶ Clear, 75 Degrees	
LOGGED BY ▶ J. Farkas		DRILLED BY ▶ ATEC Associates	
DRILLING METHOD ▶ Hollow Stem Auger		SAMPLING METHOD ▶ Split Spoon	
GRAVEL PACK ▶ Coarse Silica		SEAL ▶ Bentonite	
CASING ▶ TYPE Schedule 40 PVC		DIAMETER 2.0" LENGTH 2.0'	HOLE DIA. 6.25"
SCREEN ▶ TYPE Schedule 40 PVC		SLOT 0.010" DIAMETER 2.0" LENGTH 10.0'	TOTAL DEPTH 15.0'

DEPTH BELOW SURFACE	WELL COMPLETION	SAMPLE NO.	SAMPLE RECOVERY	PENETRATION RESISTANCE	PID READING	LITHOLOGY	U.S.G.S. ELEVATION
	Protective Cover Bentonite Riser						
5	Sand	1	2	1 2 1 1	35	Fine to medium SAND, with a little gravel, very loose, moist to wet, black, SP	-738
10	Screen	2	2	1 3 3 2	4	Fine to medium SAND, loose, saturated, gray, SP	-733
15	Bentonite	3	2	1 3 3 6	0	SILT, with a little clay, stiff, damp, gray, ML	-728
						END OF BORING	

Water levels: ATD Stabilized



WELL LOG

CLIENT ▶ GM-BOC	PROJECT NUMBER ▶ 54079200279
WELL NUMBER ▶ 17/A-5 (70-102)	SITE LOCATION ▶ Section 17
DATE ▶ AUG 19 92	WEATHER ▶ Clear, 75 Degrees
LOGGED BY ▶ J. Farkas	DRILLED BY ▶ ATEC Associates
DRILLING METHOD ▶ Hollow Stem Auger	SAMPLING METHOD ▶ Split Spoon
GRAVEL PACK ▶ Coarse Silica	SEAL ▶ Bentonite

CASING ▶ TYPE Schedule 40 PVC	DIAMETER 2.0" LENGTH 2.0'	HOLE DIA. 6.25"
SCREEN ▶ TYPE Schedule 40 PVC	SLOT 0.010" DIAMETER 2.0" LENGTH 10.0'	TOTAL DEPTH 15.0'

DEPTH BELOW SURFACE	WELL COMPLETION	SAMPLE NO.	SAMPLE RECOVERY	PENETRATION RESISTANCE	PID READING	LITHOLOGY	U.S.G.S. ELEVATION
0	Protective Cover						
0	Bentonite Riser						
5	Sand	1	2	2 1 1 2	25	Fine to medium SAND, with a little gravel, very loose, moist to wet, brownish grey to black, SP	738
10	Screen	2	2	3 3 4	0	Fine to medium SAND, loose, saturated, gray, SP	733
15	Bentonite	3	2	3 5 7 8	0	SILT, with a little clay, stiff, damp, gray, ML	728
						END OF BORING	

Water levels: ATD Stabilized



WELL LOG

CLIENT ▶ GM-BOC	PROJECT NUMBER ▶ 54079200279
WELL NUMBER ▶ 17/A-7 (170-103)	SITE LOCATION ▶ Section 17
DATE ▶ AUG 19 92	WEATHER ▶ Clear, 75 Degrees
LOGGED BY ▶ J. Farkas	DRILLED BY ▶ ATEC Associates
DRILLING METHOD ▶ Hollow Stem Auger	SAMPLING METHOD ▶ Split Spoon
GRAVEL PACK ▶ Coarse Silica	SEAL ▶ Bentonite

CASING ▶ TYPE Schedule 40 PVC	DIAMETER 2.0" LENGTH 2.0'	HOLE DIA. 6.25"
SCREEN ▶ TYPE Schedule 40 PVC	SLOT 0.010" DIAMETER 2.0" LENGTH 10.0'	TOTAL DEPTH 15.0'

DEPTH BELOW SURFACE	WELL COMPLETION	SAMPLE NO.	SAMPLE RECOVERY	PENETRATION RESISTANCE	PID	READING	LITHOLOGY	U.S.G.S. ELEVATION
0	Protective Cover						Crushed limestone GRAVEL, dry, loose, greyish white, GP	
0	Bentonite Riser							
4	Sand	1	2	1	0		Fine to medium SAND, with a little gravel, very loose, moist to wet, grey, SP	739
5	Screen			2				
10		2	2	1	0		Fine to medium SAND, very loose, saturated, gray, SP	734
10				1				
10				1				
10				3				
15	Bentonite	3	2	1	0		SILT, with a little clay, stiff, damp, gray, ML	729
15				1				
15				1				
15				3				
15							END OF BORING	



WELL LOG

CLIENT ▶ GM-BOC	PROJECT NUMBER ▶ 54079200279	
WELL NUMBER ▶ 17/A-9 (70-104)	SITE LOCATION ▶ Section 17	
DATE ▶ AUG 19 92	WEATHER ▶ Clear, 75 Degrees	
LOGGED BY ▶ J. Farkas	DRILLED BY ▶ ATEC Associates	
DRILLING METHOD ▶ Hollow Stem Auger	SAMPLING METHOD ▶ Split Spoon	
GRAVEL PACK ▶ Coarse Silica	SEAL ▶ Bentonite	
CASING ▶ TYPE Schedule 40 PVC	DIAMETER 2.0" LENGTH 2.0'	HOLE DIA. 6.25"
SCREEN ▶ TYPE Schedule 40 PVC	SLOT 0.010" DIAMETER 2.0" LENGTH 10.0'	TOTAL DEPTH 15.0'

DEPTH BELOW SURFACE	WELL COMPLETION	SAMPLE NO.	SAMPLE RECOVERY	PENETRATION RESISTANCE	PID READING	LITHOLOGY	U.S.G.S. ELEVATION
0	Protective Cover						
0	Bentonite						
0	Riser						
5	Sand	1	2	2 2 6 6	5	Fine to medium SAND, with a little gravel, medium dense, wet, black, (with some organic material), SP	-738
10	Screen	2	2	3 6 9 9	5	Same, saturated, SP	-733
15	Bentonite	3	2	3 5 6 7	0	SILT, with a little clay, stiff, damp, gray, ML	-728
						END OF BORING	

Water levels: ∇ ATD ∇ Stabilized



WELL LOG

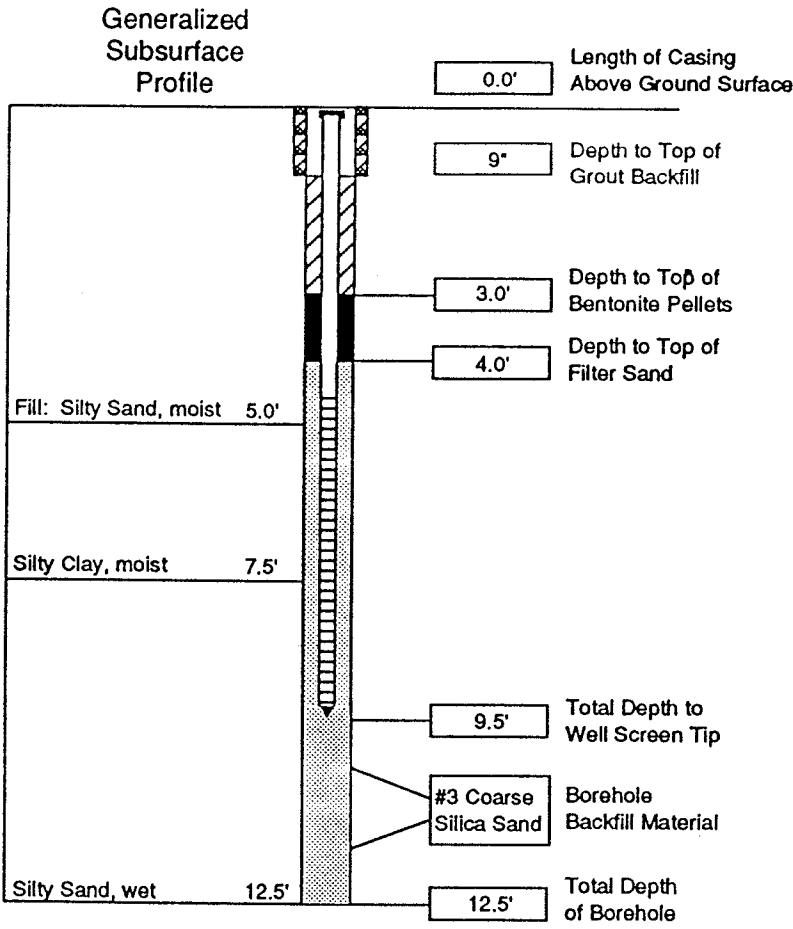
CLIENT ▶ GM-BOC	PROJECT NUMBER ▶ 54079200279	
WELL NUMBER ▶ 17/A-4 (170-105)	SITE LOCATION ▶ Section 17	
DATE ▶ AUG 19 92	WEATHER ▶ Clear, 75 Degrees	
LOGGED BY ▶ J. Farkas	DRILLED BY ▶ ATEC Associates	
DRILLING METHOD ▶ Hollow Stem Auger	SAMPLING METHOD ▶ Split Spoon	
GRAVEL PACK ▶ Coarse Silica	SEAL ▶ Bentonite	
CASING ▶ TYPE Schedule 40 PVC	DIAMETER 2.0" LENGTH 2.0'	HOLE DIA. 6.25"
SCREEN ▶ TYPE Schedule 40 PVC	SLOT 0.010" DIAMETER 2.0" LENGTH 10.0'	TOTAL DEPTH 20.0'

DEPTH BELOW SURFACE	WELL COMPLETION	SAMPLE NO.	SAMPLE RECOVERY	PENETRATION RESISTANCE	PID READING	LITHOLOGY	U.S.G.S. ELEVATION
	Protective Cover					Crushed limestone GRAVEL	
	Bentonite	1	2	2	12		
	Riser			2		Fine to medium SAND, with a little gravel, loose, moist to wet, black (with some organic material and debris), SP	
				3			
				4			
	Sand	2	2	2	180		
				2			
5				4		Same, medium dense, saturated	-739
				6			
	Screen	3	2	6	12		
				6			
				6			
				7			
		4	2	14	40		
				13			
				7			
				4			
10		5	2	1	0	Fine to medium SAND, loose, saturated, gray to black, SP	-734
				4			
				4			
				3			
		6	2	4	0	SILT, with a little clay, stiff, damp, gray, ML	
				3			
				4			
				5			
		7	2	3	0		
				3			
				4			
				4			
15	Bentonite						-729
		8	2	1	0	Same, moist, with a little SAND	
				3			
				5			
				6			
20							-724
						END OF BORING	

Water levels: ATD "Stabilized"

Log of Well Installation

Well Designation: Section 17/MW-3 (70-106)
 Date(s) of Installation: 10/17/91 To 10/17/91



Top of Casing Elevation: 743.24
 Ground Surface Elevation: 743.6
 Well Screen Tip Elevation: 734.1

Well Casing
 Diameter: 2 inches
 Total Length: 4.5 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen
 Diameter: 2 inches
 Length: 5.0 feet
 Mesh: 0.01 - inch Machine slotted
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing
 Material: Flush Mount Road Box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: H. Hassanien
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55
with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry

Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date	Water Level Elevation
11-14-91	739.01
2-10-92	739.18

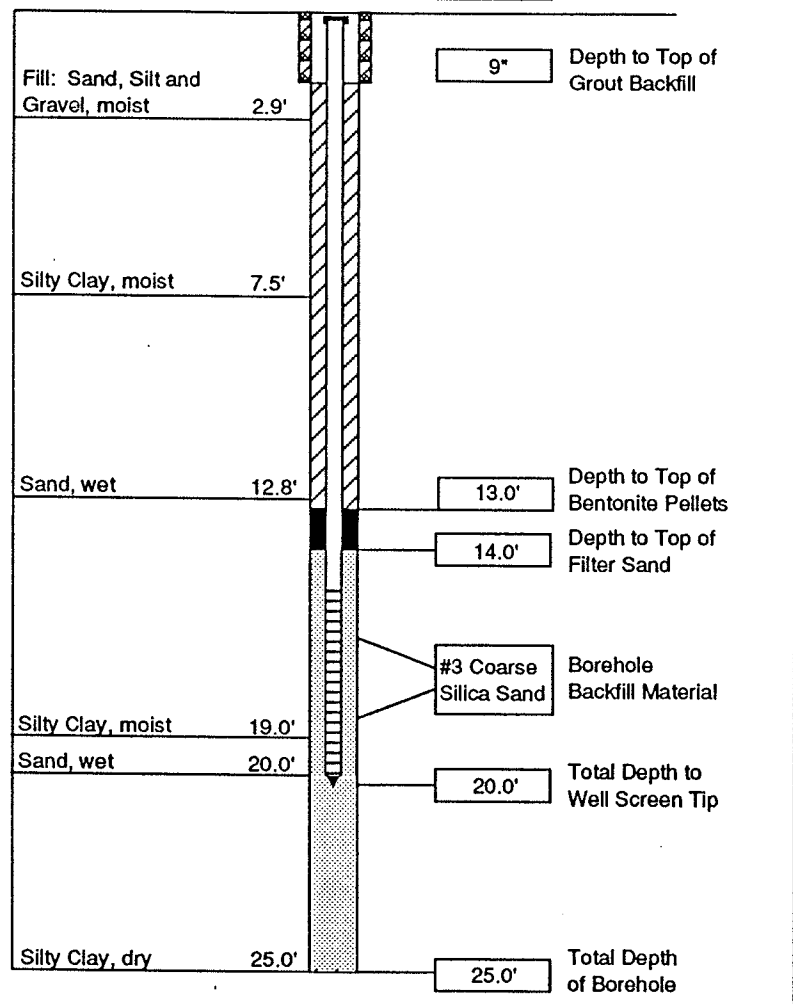
General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 20/MW-2 (70-107)
 Date(s) of Installation: 9/17/91 To 9/17/91

Top of Casing Elevation: 743.21
 Ground Surface Elevation: 743.7
 Well Screen Tip Elevation: 723.7

Generalized Subsurface Profile



Well Casing

Diameter: 2 inches
 Total Length: 15.0 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen

Diameter: 2 inches
 Length: 5.0 feet
 Mesh: 0.01 - inch Machine slotted
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: H. Hassanien
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55 with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry
 Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date	Water Level Elevation
11-14-91	735.07
2-10-92	736.41

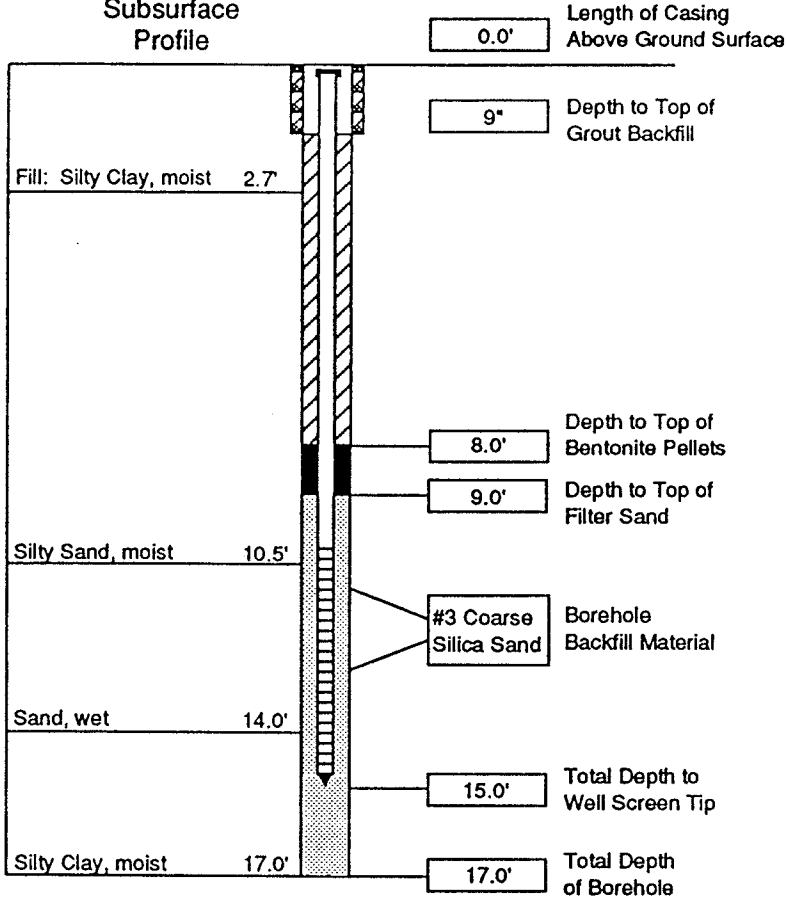
General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum

Log of Well Installation

Well Designation: Section 17/MW-2 (70-108)
 Date(s) of Installation: 9/18/91 To 9/19/91

Top of Casing Elevation: 744.59
 Ground Surface Elevation: 745.0
 Well Screen Tip Elevation: 730.0

Generalized Subsurface Profile



Well Casing

Diameter: 2 inches
 Total Length: 10.0 feet
 Material: Schedule 40 PVC
 Cap (Y/N): Yes

Well Screen

Diameter: 2 inches
 Length: 5.0 feet
 Mesh: 0.01 - inch Machine slotted
 Material: Schedule 40 PVC
 Screen Plug (Y/N): Yes

Protective Well Casing

Material: Flush Mount Road Box
 Diameter: 7.5 inches
 Length: 9 inches
 Length Above Ground: 0 inches
 Lock (Y/N): Yes

Inspector: H. Hassanien
 Contractor: Stearns Drilling Co.
 Driller: Roger Christensen
 Drilling Equipment: CME-55
with hollow-stem augers

Well Screen Filter Material: Number 3 Coarse Silica Sand
 Grout Backfill Material: Bentonite/Cement Slurry
 Other well materials used: Bentonite Pellets

Water Level Data

Datum: Mean Sea Level

Date Water Level Elevation

11-14-91	738.70
2-10-92	739.28

General Notes: Elevations presented on this log are referred to a U.S.G.S. Datum



WELL LOG

CLIENT ▶ GM-BOC	PROJECT NUMBER ▶ 54079200279
WELL NUMBER ▶ 17/A-8 (70-109)	SITE LOCATION ▶ Section 17
DATE ▶ AUG 19 92	WEATHER ▶ Clear, 75 Degrees
LOGGED BY ▶ J. Farkas	DRILLED BY ▶ ATEC Associates
DRILLING METHOD ▶ Hollow Stem Auger	SAMPLING METHOD ▶ Split Spoon
GRAVEL PACK ▶ Coarse Silica	SEAL ▶ Bentonite

CASING ▶ TYPE Schedule 40 PVC	DIAMETER 2.0" LENGTH 2.0'	HOLE DIA. 6.25"
SCREEN ▶ TYPE Schedule 40 PVC	SLOT 0.010" DIAMETER 2.0" LENGTH 10.0'	TOTAL DEPTH 15.0'

DEPTH BELOW SURFACE	WELL COMPLETION	SAMPLE NO.	SAMPLE RECOVERY	PENETRATION RESISTANCE	PID	READING	LITHOLOGY	U.S.G.S. ELEVATION
0	Protective Cover						Concrete	
0	Bentonite Riser							
4	Sand	1	2	3 4 3 4		8	Fine to medium SAND, with a trace silt, loose, moist, brown, SP	737
5	Screen							
10		2	2	3 5 4 5		3	Fine to medium SAND, loose, saturated, gray, SP	732
15	Bentonite	3	2	6 6 6 8		0	SILT, with a little clay, stiff, damp, gray, ML	727
							END OF BORING	

Water levels: $\frac{1}{2}$ ATD $\frac{1}{2}$ "Stabilized"

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 740.48
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/9/95
 Logged By: DARRYL BARRICKLOW
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 10.50 Total Depth: 22.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0-4.0			N1	140	S-1	80	GM	0.0-4.0': SAND, GRAVEL, AND SLAG, BLACK/BROWN, DRY.
4.0-8.5			N1	464	S-2	90		
8.5-9.8			N1	ND	S-3	75		
9.8-11.0			-	-	S-4	0	SP	4.0-8.5': SAND WITH TRACE GRAVEL, BLACK/BROWN/ORANGE, FINE GRAINED.
11.0-13.0			5YR 4/4	ND	S-5	100	SM	8.5-9.8': SAND WITH TRACE SILT AND CLAY, ORANGE AND BROWN, SLIGHTLY MOIST TO WET, FINE GRAINED.
13.0-14.3			N5	ND	S-6	80		9.8-11.0': CLAY WITH SOME SILT, GRAY, SLIGHTLY MOIST.
14.3-16.0			N5	ND	S-7	100	CL	11.0-13.0': CLAY WITH SOME SILT AND TRACE SAND, OLIVE, SLIGHTLY MOIST, SOFT.
16.0-16.5			5YR 4/4	ND	S-8	100		13.0-14.3': CLAY WITH TRACE SILT, BROWN WITH GRAY MOTTLING, DRY, STIFF.
16.5-18.8			N5	ND	S-9	100	SP	14.3-16.0': CLAY WITH TRACE SILT, SAND, AND GRAVEL, BROWN WITH SOME PINK, DRY, STIFF.
18.8-20.0			N5	ND	S-10	90		16.0-16.5': CLAY, GRAY, SLIGHTLY MOIST.
20.0-22.0			N5	ND	S-11	75	CL	16.5-18.8': SAND, GRAY, WET, FINE TO MEDIUM GRAINED.
								18.8-20.0': CLAY WITH SOME COARSE GRAVEL, TRACE SILT AND SAND, GRAY, DRY, HARD.
								20.0-22.0': CLAY WITH SOME GRAVEL AND FINE TO COARSE SAND, GRAY, DRY, HARD.
								TOTAL DEPTH DRILLED = 22.0 FEET
								WELL SET FROM 15.0 TO 22.0'.
								GROUNDWATER SAMPLE COLLECTED FROM 15.0 TO 20.0'.

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 743.85
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/19/95
 Logged By: BRIAN BOKOVOY
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 4.02 Total Depth: 18.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
5		10YR 8/6	ND	S-1	100			2.0-2.2': SAND, DARK BROWN, SLIGHTLY MOIST, FINE GRAINED.
		10YR 8/6	ND	S-2	90			
		10YR 8/6	ND	S-3	100		SP	2.2-14.0': S.A.A.: WET AT 5.2'.
		10YR 8/6	ND	S-5	100			
10		10YR 8/6	ND	S-6	100			
		10YR 8/6	ND	S-7	100			
15			N5	ND	S-8	50		CH
	N5		ND	S-9	75			
20	TOTAL DEPTH DRILLED = 18.0 FEET WELL SET FROM 3.0 TO 10.0'. GROUNDWATER SAMPLE COLLECTED FROM 3.0 TO 8.0'. GROUNDWATER SAMPLE COLLECTED FROM 11.0 TO 16.0'.							

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Date Start/Finish: 2/21/96 / 2/21/96
 Drilling Company: RAU Drilling
 Driller's Name: Rick Rau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size: ID 4.25
 Rig Type: CME 85
 Spoon Size: 2-in.

Northing:
 Easting:
 Well Casing Elev.: 744.07 ft.
 Corehole Depth:
 Borehole Depth: 14 ft.
 Ground Surface Elev.: 744.31 ft.

Well No. 70-162
 Client:
 General Motors Corporation
 Site:
 GM NAO Flint Site
 Building 70 LNAPL Investigation

Geologist: Ronald D. Kuhn

DEPTH	ELEVATION	Sample Run Number	Sample/In./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
	gs elevation 744.31 ft.										9-in diameter steel protective curb box, locking well cap Concrete surface seal
										GROUND SURFACE	
		(0-2')		10 11 7 6	18	1.5	0.0			Black COAL and fine to medium SAND, frozen. Orange fine to medium SAND, trace silt, trace red brick, damp.	Bentonite seal 0.4' to 2.0' bgs 2-in diameter Sch. 40 PVC well casing 0.24' to 3.5' bgs
	740	(2-4')		7 7 7	14	1.5	0.0			Black COAL and fine to medium SAND, damp. Orange fine SAND, trace silt, damp.	
5		(4-6')		4 5 5 6	10	1.8	0.0			Orange and brown fine interbedded sand, trace silt, trace coal, moist. Fill/Native material boundary	0.01" Sch. 40 PVC screen 3.5' to 13.1' bgs
		(6-8')		2 3 3 4	6	1.8	0.0			Light brown fine SAND, trace silt, wet at tip of spoon. Brown fine SAND, trace silt, Fe staining 7.2' to 7.4', saturated at 8' bgs.	
	735	(8-10')		3 3 2 3	5	2.0	0.0				Grade #5 silica sand pack 2.0' to 13.5' bgs
10		(10-12')		2 3 5 6	8	1.5	0.0				
		(12-14')		2 2 2 3	4	2.0	0.0				2-in diameter Sch. 40 PVC sump 13.1' to 13.5' bgs
	730									Gray Silty CLAY, soft, moist.	Native soil collapse 13.5' to 14.0' bgs
5										Total depth of boring 14.0 ft. bgs.	

Remarks:

Soil samples from 6-8" and 12-14" were collected by EncoTech and submitted for laboratory analyses for the following parameters: VOCs, SVOCs, PCBs, metals, and cyanide.

Water Levels

Date / Time	Elevation	Depth
2/22/96	738.95	5.38' ↓

Date Start/Finish: 2/21/96 / 2/21/96
 Drilling Company: RAU Drilling
 Driller's Name: Rick Rau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size: ID 4.25
 Rig Type: CME 85
 Spoon Size: 2-in.

Northing:
 Easting:
 Well Casing Elev.: 743.17 ft.
 Corehole Depth:
 Borehole Depth: 10 ft.
 Ground Surface Elev.: 743.43 ft.

Well No. 70-163
 Client:
 General Motors Corporation
 Site:
 GM NAO Flint Site
 Building 70 LNAPL Investigation

Geologist: Ronald D. Kuhn

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 in.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
	gs elevation 743.43 ft.										
										GROUND SURFACE	
		(0-2')		7 6 4 5	10	2.0	0.0			Dark brown fine SAND, little silt, frozen.	9-in diameter steel protective curb box, locking well cap
	740	(2-4')		4 6 8 5	12	1.8	0.0			Brown fine SAND, trace silt, trace natural organics (rootlets), trace glass, damp.	Concrete surface seal
										Brown fine SAND, trace silt, trace Fe staining, trace glass, damp.	Bentonite seal 0.4' to 2.0' bgs
										FM/Native material boundary	2-in diameter Sch. 40 PVC well casing 0.28' to 3.0' bgs
5		(4-8')		2 2 3 2	5	1.2	0.0			Brown fine SAND, trace silt, saturated at 5' bgs.	0.0" Sch. 40 PVC screen 3.0' to 9.6' bgs
		(8-8')		1 2 1 2	3	1.6	0.0				Grade #5 silica sand pack 2.0' to 10.0' bgs
	735	(8-10')		2 2 2 4	4	2.0	0.0				
										Brown Silty CLAY, trace fine sand, stiff, moist.	
10										Gray Silty CLAY, soft, moist.	2-in diameter Sch. 40 PVC sump 9.6' to 10.0' bgs
										Total depth of boring 10.0 ft. bgs.	
	730										
5											

Remarks:
 Soil samples from 4-8' and 8-10' were collected by Enecotech and submitted for laboratory analyses for the following parameters: VOCs, SVOCs, PCBs, metals, and cyanide.

Water Levels		
Date / Time	Elevation	Depth
2/22/96	738.35	5.08 ↓

Date Start/Finish: 2/21/96 / 2/21/96
 Drilling Company: RAU Drilling
 Driller's Name: Rick Rau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size: ID 4.25
 Rig Type: CME 85
 Spoon Size: 2-in.

Northing:
 Easting:
 Well Casing Elev.: 742.87 ft.
 Corehole Depth:
 Borehole Depth: 10 ft.
 Ground Surface Elev.: 743.11 ft.

Well No. 70-184

Client:
 General Motors Corporation

Site:
 GM NAO Flint Site
 Building 70 LNAPL Investigation

Geologist: Ronald D. Kuhn

DEPTH	ELEVATION	Sample Run Number	Sample Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation 743.11 ft.											9-in diameter steel protective curb box, locking well cap Concrete surface seal
										GROUND SURFACE	
		(0-2')		3 2 2 2	4	2.0	0.0			Black fine SAND, little coal, glass, wire, frozen. Fill/Native material boundary	Bentonite seal 0.4' to 2.0' bgs
	740	(2-4')		2 1 1 2	2	0.9	0.0			Brown fine SAND, trace silt, damp.	2-in diameter Sch. 40 PVC well casing 0.24' to 3.0' bgs
5		(4-6')		2 2 2 4	4	1.4	0.0			Saturated at 5' bgs	0.0" Sch. 40 PVC screen 3.0' to 9.6' bgs
		(6-8')		2 2 2 2	4	1.8	0.0			Slight sheen noticed on soil.	Grade #5 silica sand pack 2.0' to 10.0' bgs
735		(8-10')		1 2 2 2	4	2.0	0.0				2-in diameter Sch. 40 PVC sump 9.8' to 10.0' bgs
10										Brown Silty CLAY, trace fine sand, soft, moist. Total depth of boring 10.0 ft. bgs.	
	730										
5											

Remarks:

Soil samples from 4-6" and 8-10" were collected by Enecotech and submitted for laboratory analyses for the following parameters: VOCs, SVOCs, PCBs, metals, and cyanide.

Water Levels

Date / Time	Elevation	Depth
2/22/96	738.8	4.95' ↓

Date Start/Finish: 2/21/96 / 2/21/96 Drilling Company: RAU Drilling Driller's Name: Rick Rau Drilling Method: Hollow Stem Auger Bit Size: N/A Auger Size: ID 4.25 Rig Type: CME 85 Spoon Size: 2-in.	Northing: Easting: Well Casing Elev.: 741.95 ft. Corehole Depth: Borehole Depth: 14 ft. Ground Surface Elev.: 742.41 ft. Geologist: Ronald D. Kuhn.	Well No.: 70-185 Client: General Motors Corporation Site: GM NAO Flint Site Building 70 LNAPL Investigation
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DEPTH	ELEVATION	Sample Run Number	Sample/In/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
GS elevation 742.41 ft.											9-in diameter steel protective curb box with sand drain, locking well cap Concrete surface seal
										GROUND SURFACE	
		(0-2')		5 9 8 8	17	18	0.0			Brown fine SAND, trace clay, trace silt, trace fine gravel, damp. Dark brown fine SAND, trace silt, trace fine gravel, trace coal and slag, damp.	Bentonite seal 13' to 3.0' bgs 2-in diameter Sch. 40 PVC well casing 0.48' to 5.0' bgs
	740	(2-4')		3 3 4 4	7	18	0.0			Brown fine SAND, trace silt, trace fine gravel, moist.	
5		(4-8')		2 2 2 2	4	0.8	0.0			Dark brown and gray fine to medium SAND and FILL materials, trace wood, trace coal, wet.	
	735	(6-8')		3 8 8 8	14	18	0.0			Dark brown and black SILT, trace fine sand, moist, sheens noticed on soil. Fill/Native material boundary	0.0" Sch. 40 PVC screen 5.0' to 9.8' bgs Grade #5 silica sand pack 3.0' to 12.0' bgs
		(8-10')		2 3 4 8	7	2.0	0.0			Brown fine SAND, trace fine gravel, saturated at 7.5' bgs. Brown fine to medium SAND, saturated.	2-in diameter Sch. 40 PVC sump 9.8' to 10.0' bgs
0		(10-12')		3 4 8 7	10	2.0	0.0				
	730	(12-14')		3 5 9 7	14	15	0.0			Gray Silty CLAY, medium stiff, damp. Trace natural organics (rootlets).	Natural formation collapse and grade #5 silica sand backfill
5										Total depth of boring 14.0 ft. bgs.	

Remarks: Soil samples from 8-8" and 10-12" were collected by Eneotech and submitted for laboratory analyses for the following parameters: VOCs, SVOCs, PCBs, metals, and cyanide.	Water Levels		
	Date / Time	Elevation	Depth
	2/22/95	737.80	4.81' ↓

Global Environmental Engineering Inc.

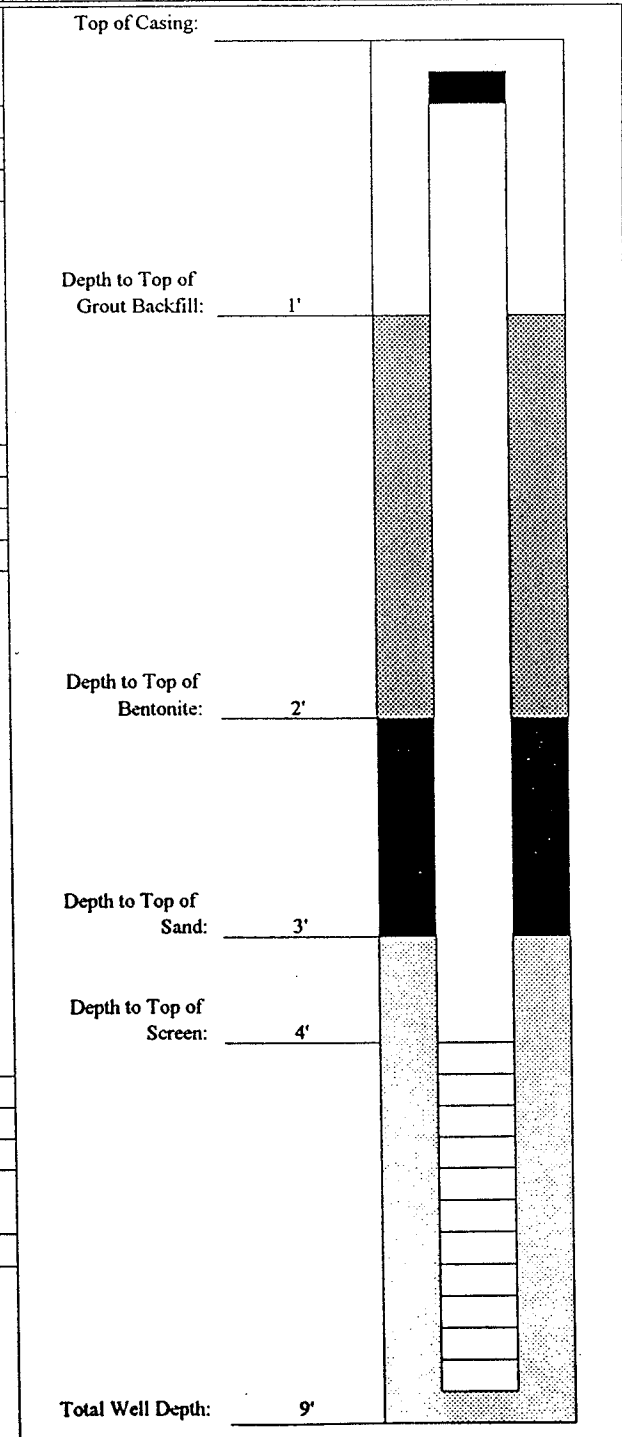
5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well:	SB-1/MW-1 (80-1)	Project Name:	GM - BUILDING 86
Date:	6/2/97	Project No.:	F329
Contractor:	GEEI	Location:	
Prepared By:	ALK	Twp/Range/Sec.:	
Time Started:	16:00	Depth Drilled:	12'
Time Completed:		Hole Diameter:	8.25"
Coring Device:	5'	Inner Diameter:	4.50"

Boring Methods		Water Level Data		Drilling Fluid:	None
X	Hollow Stem Auger	Date	SWL Elevation	Driller:	Norm
	Hand Auger	6/10/97	5.45	Helper:	Ash
	Geoprobe				

WELL SPECIFICATIONS **SOIL PROFILE**

Well Casing Cover:	
Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No
Well Casing:	
Diameter:	2"
Length:	9'
Material:	PVC
Cap:	Expandable
Locking:	Dolphin
Well Screen:	
Diameter:	2"
Length:	5'
Slotsize:	0.01
Material:	PVC
Well Screen Interval:	4'-9"
Filter Pack:	Sand



0 - 1.5' Concrete
 1.5 - 5' Sand
 5 - 7.5' Sandy Silt
 7.5 - 11' Silty Sand

Groundwater Encountered at 5.5'

Global Environmental Engineering Inc.
 5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well: SB-2/MW-2 (80-2)	Project Name: GM - BUILDING 86
Date: 6/3/97	Project No.: F329
Contractor: GEEI	Location:
Prepared By: ALK	Twp/Range/Sec.:
Time Started: 8:25	Depth Drilled: 11'
Time Completed:	Hole Diameter: 8.25"
Coring Device: 5'	Inner Diameter: 4.50"

Boring Methods		Water Level Data	
X	Hollow Stem Auger	Date	SWL Elevation
	Hand Auger	6/10/97	6.95
	Geoprobe		

Drilling Fluid:	None
Driller:	Norm
Helper:	Ash

WELL SPECIFICATIONS	SOIL PROFILE
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Well Casing Cover:

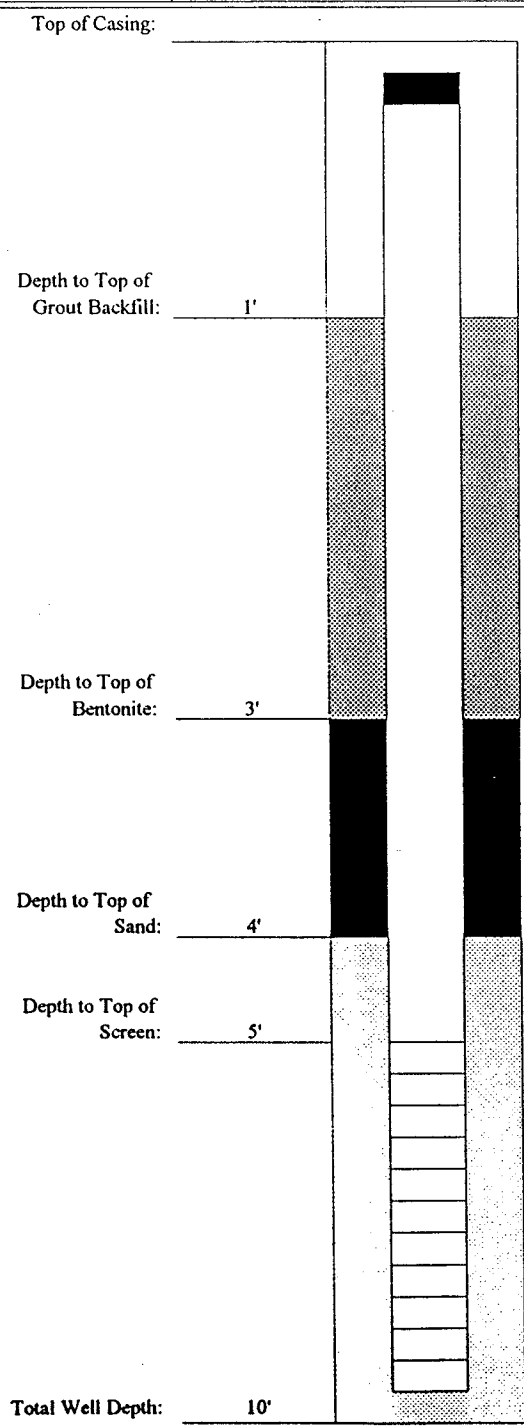
Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No

Well Casing:

Diameter:	2"
Length:	10'
Material:	PVC
Cap:	Expandable
Locking:	Dolphin

Well Screen:

Diameter:	2"
Length:	5'
Slotsize:	0.01
Material:	PVC
Well Screen	
Interval:	5'-10'
Filter Pack:	Sand



0 - 10" Concrete
 10" - 6' Sand
 6 - 8' Silty Sand
 8 - 11' Sandy Clay

Groundwater Encountered at 6.5'

Global Environmental Engineering Inc.
 5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well: SB-3/MW-3 (46-3)	Project Name: GM - BUILDING 86
Date: 6/3/97	Project No.: F329
Contractor: GEEI	Location:
Prepared By: ALK	Twp/Range/Sec.:
Time Started: 10:30	Depth Drilled: 21'
Time Completed:	Hole Diameter: 8.25"
Coring Device: 5'	Inner Diameter: 4.50"

Boring Methods		Water Level Data		Drilling Fluid:	None
X	Hollow Stem Auger	Date	SWL Elevation	Driller:	Norm
	Hand Auger	6/10/97	13.67	Helper:	Ash
	Geoprobe				

WELL SPECIFICATIONS	SOIL PROFILE
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Well Casing Cover:

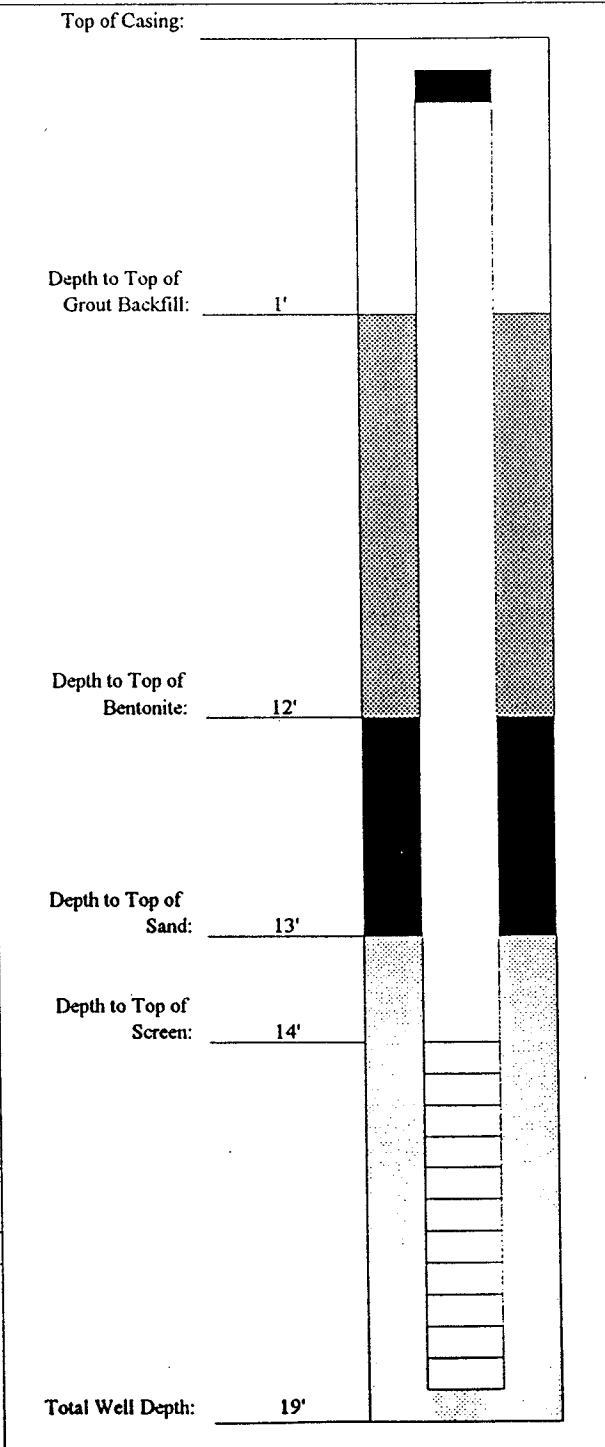
Material: Steel
 Diameter: 12"
 Length: 12"
 Lock: No

Well Casing:

Diameter: 2"
 Length: 19'
 Material: PVC
 Cap: Expandable
 Locking: Dolphin

Well Screen:

Diameter: 2"
 Length: 5'
 Slotsize: 0.01
 Material: PVC
 Well Screen Interval: 14'-19'
 Filter Pack: Sand



0 - 10" Concrete
 10" - 7' Sand
 7 - 8.5' Silty Sand
 8.5 - 15' Silty Clay
 15 - 15.5' Sand
 15.5 - 16' Silty Clay
 16 - 21' Sand

Groundwater Encountered at 16.5'

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 741.20
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 10/10/95
 Logged By: DARRYL BARRICKLOW
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 6.94 Total Depth: 24.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0.0-0.5'	ASPHALT							0.0-0.5': ASPHALT
0.5-5.3'	SAND, GRAVEL, BRICK, CINDERS, AND SLAG, BLACK/BROWN, SLIGHTLY MOIST.							0.5-5.3': SAND, GRAVEL, BRICK, CINDERS, AND SLAG, BLACK/BROWN, SLIGHTLY MOIST.
5.3-6.0'	SAND WITH TRACE GRAVEL, BROWN, SLIGHTLY MOIST, FINE GRAINED.						SP	5.3-6.0': SAND WITH TRACE GRAVEL, BROWN, SLIGHTLY MOIST, FINE GRAINED.
6.0-7.8'	SILT, GRAY, SLIGHTLY MOIST.						ML	6.0-7.8': SILT, GRAY, SLIGHTLY MOIST.
7.8-8.1'	SLAG AND GRAVEL, BLACK, MOIST TO WET.						GP	7.8-8.1': SLAG AND GRAVEL, BLACK, MOIST TO WET.
8.1-10.0'	SILT WITH SOME FINE SAND AND TRACE CLAY, OLIVE AND BROWN, WET.						MH	8.1-10.0': SILT WITH SOME FINE SAND AND TRACE CLAY, OLIVE AND BROWN, WET.
10.0-12.0'	SAND AND SILT, OLIVE TO BROWN, WET, FINE GRAINED.						SM	10.0-12.0': SAND AND SILT, OLIVE TO BROWN, WET, FINE GRAINED.
12.0-13.4'	SAND WITH TRACE SILT, GRAY/OLIVE, WET, FINE GRAINED.							12.0-13.4': SAND WITH TRACE SILT, GRAY/OLIVE, WET, FINE GRAINED.
13.4-14.0'	CLAY WITH SOME SILT, BROWN TO GRAY, SLIGHTLY MOIST.							13.4-14.0': CLAY WITH SOME SILT, BROWN TO GRAY, SLIGHTLY MOIST.
14.0-16.0'	CLAY WITH TRACE SILT, GRAY, SLIGHTLY MOIST TO DRY.							14.0-16.0': CLAY WITH TRACE SILT, GRAY, SLIGHTLY MOIST TO DRY.
16.0-20.8'	S.A.A.: WITH PINK MOTTLING, WITH SOME SILT AT 20.0'.						CL	16.0-20.8': S.A.A.: WITH PINK MOTTLING, WITH SOME SILT AT 20.0'.
20.8-24.0'	CLAY AND SILT, GRAY, WET, PLASTIC.						CH	20.8-24.0': CLAY AND SILT, GRAY, WET, PLASTIC.
TOTAL DEPTH DRILLED = 24.0 FEET								
WELL SET FROM 7.0 TO 14.0'								
GROUNDWATER SAMPLE COLLECTED FROM 7.0 TO 12.0'								

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Date Start/Finish: 08/04/98 / 08/04/98 Drilling Company: Rau Drilling Driller's Name: Al Rau Drilling Method: Hollow Stem Auger Bit Size: N/A Auger Size : OD 8.0 Rig Type: CME 55 Spoon Size: 2	Northing: Eastng: Well Casing Elev.: ft. Corehole Depth: Borehole Depth: 9 ft. Ground Surface Elev.: ft. Descriptions by: Robert Gang III	Well No. 87-FP1 Client: GM NAO Flint Site: Building 87/Leith Street Overpass Flint, Michigan
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DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
	Gs elevation ft.									GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs.
		(0-1')		NA	NA	NA	NA	FI		Drilled through 1" of asphalt, and 12" of concrete.	
		(1-3')		3 4 6 7	10	1.5	1.2			Light brown fine to medium SAND, well sorted. Light brown fine to medium SAND, grading to coarse Sand and fine Gravel.	Bentonite seal 1.0' to 1.3' bgs
		(3-5')		3 4 6 5	10	1.25	1.3			Gray coarse SAND and fine GRAVEL, trace medium Gravel.	2-in diameter Sch. 40 PVC well casing 0.5' to 1.5' bgs
5		(5-7')		2 2 3 5	5	1.0	1.5		SW		0.01" Sch. 40 PVC screen 1.5' to 6.3' bgs
		(7-9')		3 4 6 11	10	1.0	1.6				2-in diameter Sch. 40 PVC sump 6.3' to 6.5' bgs
										End of boring at 9' bgs.	Grade #5 silica sand pack 1.3' to 9.0' bgs.
10											
5											

Remarks:
 NA - Not Applicable. REF - Refusal.

Water Levels		
Date / Time	Elevation	Depth
08/05/98		2.22 ▼
		-1 ▼
		-1 ▼

Date Start/Finish: 08/03/98 / 08/03/98
 Drilling Company: Rau Drilling
 Driller's Name: Al Rau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size : OD 8.0
 Rig Type: CME 65
 Spoon Size: 2

Northing:
 Easting:
 Well Casing Elev.: ft.
 Corehole Depth:
 Borehole Depth: 19 ft.
 Ground Surface Elev.: ft.

Well No. 87-FP2
 Client:
 GM NAO Flint
 Site:
 Building 87/Leith Street Overpass
 Flint, Michigan

Descriptions by: Robert Gang III

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
GS elevation ft.										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-1')		NA	NA	NA	NA	FI		Go through concrete floor of Building #36.	
		(1-3')		3 3 3 5	6	1.0	2.4			Light brown fine SAND, dry. Black	
		(3-5')		3 1 1 1	4	0.25	2.2	SP		Dark brown, trace lenses of light brown SAND.	
5		(5-7')		2 2 3 3	5	1.25	0.4	ML		Light brown Clay SILT, increasing in Clay content and plasticity with depth.	Bentonite seal 1.0' to 6.0' bgs
		(7-9')		2 2 4 7	6	1.75	0.7	ML		Light brown Silty CLAY, highly plastic, trace fine Gravel.	2-in diameter Sch. 40 PVC well casing 0.5' to 8.0' bgs
		(9-11')		2 2 7 6	9	1.75	0.7	ML		Light Brown SILT. Light brown and gray Silty CLAY, medium plasticity. High plasticity.	Grade #5 silica sand pack 6.0' to 21.0' bgs
10		(11-13')		3 3 4 3	7	1.75	0.8	CL		Light brown SILT, low plasticity. Light brown CLAY, high plasticity, some gray mottling. Light brown to gray CLAY.	
		(13-15')		1 3 4 7	7	1.5	8.1	SP		Light brown fine to medium SAND, highly sorted. 1" SILT lense.	0.0" Sch. 40 PVC screen 8.0' to 17.8' bgs
5								SP		Gray to black medium SAND, saturated.	

Remarks:
 NA - Not Applicable. REF - Refusal.

Water Levels

Date / Time	Elevation	Depth
08/05/98		13.42 ↓
		-1 ↓
		-1 ↓

Site:
 Building 87/Leith Street Overpass
 Flint, Michigan

Well No. 87-FP2
 Total Depth = 19 ft.

Client:
 GM NAO Flint

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		3 5 7 8	12	15	14.8	SP		Gray to black medium SAND, saturated.	<p>Grade #5 silica sand pack 6.0' to 19.0' bgs. 2-in diameter Sch. 40 PVC sump 17.8' to 18.0' bgs</p>
		(17-19')		4 6 3 9	9	2.0	3.0	SW		Light brown coarse SAND, some white fine gravel, saturated.	
								SM		Light brown to gray coarse SAND, saturated.	
								SP		Light brown Silty fine SAND, angular, well sorted, saturated.	
-20										Light brown coarse SAND, well sorted, angular, saturated.	
										End of boring at 19' bgs.	
-25											
-30											
-35											

Remarks:
 NA - Not Applicable.

Water Levels		
Date / Time	Elevation	Depth
08/05/98		13.42 ↓
		-1 ↓
		-1 ↓

Date Start-Finish: 08/11/98 - 08/12/99 Drilling Company: Rau Drilling Driller's Name: Rick Rau Drilling Method: Hollow Stem Auger Auger Size: OD 8.0-in. Rig Type: CME 65 Spoon Size: 2-in. Hammer Weight: 140-lb Height of Fall: 30-in.	Northing: Easting: Well Casing Elev.: ft. Surface Elev.: ft. Borehole Depth: 38 ft. Geologist: Robert Gang III	Well No. 87-FP-D2 Client: GM NAO Flint Site: Building 87/Leith Street Overpass Flint, Michigan
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm)	Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.											GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 10' bgs
5		(0-1')		NA	NA	NA	NA	NA			Go through concrete floor of Building #36.	Type 1 Portland cement/5% bentonite grout 1.0' to 25.0' bgs Type 1 Portland cement/5% bentonite grout for double casing 1.0' to 20.5' bgs
		(1-3')		3 3 3 5	6	1.0	2.4		SP	Light brown fine SAND, dry. Black		
		(3-5')		3 1 1 1	4	0.25	2.2		SP	Dark brown, trace lenses of light brown SAND.		
		(5-7')		2 2 3 3	5	1.25	0.4		ML CL	Light brown Clayey Silt, increasing in Clay content and plasticity with depth. Gray CLAY.		
		(7-9')		2 2 4 7	6	1.75	0.7		ML CL	Light brown Silty CLAY, highly plastic, trace fine Gravel. Light brown SILT.		
		(9-11')		2 2 7 6	9	1.75	0.7		ML CL	Light brown and gray Silty CLAY, medium plasticity. High plasticity. Light brown SILT, low plasticity.		
		(11-13')		3 3 4 3	7	1.75	0.8		CL SP	Light brown CLAY, high plasticity, some gray mottling. Light brown to gray CLAY. Light brown fine to medium SAND, highly sorted.		
		(13-15')		1 3 4 7	7	1.5	8.1		SP SP	1" SILT lense. Gray to black medium SAND, saturated.		

<h1 style="margin:0;">BBL</h1> <p style="margin:0;">BLASLAND, BOUCK & LEE, INC. engineers & scientists</p>	Remarks: Lithology ground surface to 19' bgs obtained from boring 87-FP2. NA - Not Applicable. REF - Refusal.	Water Levels			
		Date / Time	Elevation	Depth	

Site:
 Building 87/Leith Street Overpass
 Flint, Michigan

Client:
 GM NAO Flint

Well No. 87-FP-D2
Total Depth = 38 ft.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction	
		(15-17')		3 5 7 8	12	1.5	14.8	SP	[Pattern]	Gray to black medium SAND, saturated.	Type 1 Portland cement/5% bentonite grout for double casing 1.0' to 20.5' bgs	
		(17-19')		4 8 3 9	9	2.0	3.0	SW		Light brown coarse SAND, some white fine Gravel, saturated.		
								SM		Light brown to gray coarse SAND, saturated.		
								SP		Light brown Silty fine SAND, angular, well sorted, saturated.		
-20		(15-22')		NA	NA	NA	NA	NA		Light brown coarse SAND, well sorted, angular, saturated. No sample taken 19' to 22' bgs.		
		(22-24')		3 5 5 7	10	2.0	0.0	CL	[Pattern]	Gray CLAY	Type 1 Portland cement/5% bentonite grout 1.0' to 25.0' bgs	
-25		(24-26')		3 5 6 7	11	2.0	0.0					
		(26-28')		NA	NA	2.0	NS					Bentonite seal 25.0' to 27.0' bgs
		(28-30')		4 5 13 8	18	1.5	0.0					
-30		(30-32')		10 10 10 10	20	1.0	0.0	SP		Gray coarse SAND, saturated.	2-in diameter Sch. 40 PVC well casing 29.0' to 33.8' bgs	
		(32-34')		6 5	10	1.0	0.0	GW		Medium GRAVEL.	Grade #5 silica sand pack 27.0' to 34.0' bgs	
		(34-36')		5 6	17	1.25	0.0	GP		Gray coarse SAND and GRAVEL, saturated.	0.01" Sch. 40 PVC screen 29.0' to 33.8' bgs	
35										Gray coarse SAND and GRAVEL, saturated.	2-in diameter Sch. 40 PVC sump 33.8' to 34.0' bgs	



Remarks:
 NA - Not Applicable.

Water Levels		
Date / Time	Elevation	Depth

Site:
 Building 87/Leith Street Overpass
 Flint, Michigan

Well No. 87-FP-D2
 Total Depth = 38 ft.

Client:
 GM NAO Flint

DEPTH	ELEVATION	Sample Run Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
		(34-36')			17	1.25	0.0	GP			
		(36-38')			15	1.0	0.0				
40										End of boring at 38' bgs.	
45											
50											
55											

Natural collapse
 29.0' to 34.0' bgs

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Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 08/03/88 / 08/03/98
 Drilling Company: Rau Drilling
 Driller's Name: Al Rau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size : 00 8.0
 Rig Type: CME 85
 Spoon Size: 2

Northing:
 Easting:
 Well Casing Elev.: ft.
 Corehole Depth: ft.
 Borehole Depth: 15 ft.
 Ground Surface Elev.: ft.

Well No. 87-FP3
 Client:
 GM NAO Flint
 Site:
 Building 87/Leith Street Overpass
 Flint, Michigan

Descriptions by: Robert Gang III


DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.											Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 10' bgs
		(0-1')		NA	NA	NA	NA			Go through concrete floor of Building #36.	
		(1-3')		7 8 12 10	20	175	23.3	FI		Brownish gray fine SAND, some Silt, well sorted. [FILL] Black fine SAND, well sorted. Brown fine Sandy SILT, well sorted, containing 2 seams of charcoal approximately 1/2" in thickness.	
5		(3-5')		4 3 3 3	6	125	6.2	CL		Olive medium SAND, some gravel. Brown Silty FILL material. Black Wood. Olive CLAY.	Bentonite seal 1.0' to 3.0' bgs 2-in diameter Sch. 40 PVC well casing 0.5' to 5.0' bgs
		(5-7')		2 4 5 6	9	15	8.7	ML		Olive brown SILT, some gray brown Silt, trace angular fine Gravel.	Grade #5 silica sand pack 3.0' to 15.0' bgs
		(7-9')		2 2 1 2	3	10	3.9	CL		Brown gray Silty CLAY, highly cohesive.	0.0" Sch. 40 PVC screen 5.0' to 14.8' bgs
10		(9-11')		2 3 4 12	7	2.0	13.5	CL		Gray Silty CLAY, some mottling with 1/16" lenses of fine SAND.	
		(11-13')		7 9 11 12	20	15	2.3	SP		Olive fine Sand, saturated, well sorted.	
		(13-15')		6 8 5 7	13	2.0	1.8	SM		Olive Silty SAND, saturated.	2-in diameter Sch. 40 PVC sump 14.8' to 15.0' bgs
15								CL		Gray Sandy CLAY, high plasticity, saturated.	

Remarks:
 NA - Not Applicable. REF - Refusal.

Water Levels		
Date / Time	Elevation	Depth
08/05/98		10.88 ↓
		-1 ↓
		-1 ↓

Date Start-Finish: 08/11/98 - 08/12/98 Drilling Company: Rau Drilling Driller's Name: Rick Rau Drilling Method: Hollow Stem Auger Auger Size: OD 10.0-in. Rig Type: CME 65 Spoon Size: 2-in. Hammer Weight: 140-lb Height of Fall: 30-in.	Northing: Easting: Well Casing Elev.: ft. Surface Elev.: ft. Borehole Depth: 46 ft. Geologist: Robert Gang III	Well No. 87-FP-D3 Client: GM NAO Flint Site: Building 87/Leith Street Overpass Flint, Michigan
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DEPTH	ELEVATION	Sample Run Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
gs elevation										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-1')		NA	NA	NA	NA			Go through concrete floor of Building #36.	
		(1-3')		7 8 12 10	20	1.75	23.3	FI		Brownish gray fine SAND, some Silt, well sorted. [FILL] Black fine SAND, well sorted.	
		(3-5')		4 3 3 3	6	1.25	6.2	CL		Brown fine Sandy SILT, well sorted, containing 2 seams of charcoal approximately 1/2" in thickness. Olive medium SAND, some Gravel. Brown Silty FILL material. Black wood.	
5		(5-7')		2 4 5 6	9	1.5	8.7	ML		Olive CLAY. Olive brown SILT, some gray brown Silt, trace angular fine Gravel.	Type I Portland cement/5% bentonite grout 1.0' to 37.0' bgs
		(7-9')		2 2 1 2	3	1.0	3.9			Brown gray Silty CLAY, highly cohesive.	
		(9-11')		2 3 4 12	7	2.0	13.5	CL		Gray Silty CLAY, some mottling with 1/16" lenses of fine SAND.	Type I Portland cement/5% bentonite grout for double casing 1.0' to 21.0' bgs
		(11-13')		7 9 11 12	20	1.5	2.3	SP		Olive fine SAND, saturated, well sorted.	
		(13-15')		6 8 5 7	13	2.0	1.8	SM		Olive Silty SAND, saturated.	
15								CL		Gray Sandy CLAY, high plasticity, saturated.	

	Remarks: Lithology ground surface to 15.0' bgs obtained from boring 87-FP3 NA - Not Applicable. REF - Refusal.	Water Levels		
		Date / Time	Elevation	Depth

Site:
 Building 87/Leith Street Overpass
 Flint, Michigan

Well No. 87-FP-D3
 Total Depth = 46 ft.

Client:
 GM NAO Flint

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
20		(15-22')		NA	NA	NA	NA	NA		No samples taken 15.0' to 22.0' bgs.	
		(22-24')		3 4 5 5	9	2.0	0.0		Gray CLAY, saturated.		
25		(24-26')		3 4 5 6	9	2.0	0.0				
		(26-28')		4 5 6 8	11	1.75	0.0				
30		(28-30')		3 4 5 6	9	2.0	0.0	CL			
		(30-32')		4 4 5 6	9	2.0	0.0				
		(32-34')		2 3	6	2.0	0.0				
35		(34-36')		3 4	8	2.0	0.0				

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 engineers & scientists

Remarks:
 NA - Not Applicable.

Water Levels		
Date / Time	Elevation	Depth

Site:
 Building 87/Leith Street Overpass
 Flint, Michigan

Well No. 87-FP-D3

Total Depth = 48 ft.

Client:
 GM NAO Flint

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
		(34-36')			8	2.0	0.0	CL		Gray CLAY, saturated.	<p>Type I Portland cement/5% bentonite grout 1.0' to 37.0' bgs</p> <p>Bentonite seal 38.0' to 40.0' bgs</p> <p>Grade #5 silica sand pack 39.0' to 46.0' bgs</p> <p>0.01" Sch. 40 PVC screen 41.0' to 45.8' bgs</p> <p>2-in diameter Sch. 40 PVC sump 45.8' to 46.0' bgs</p>
		(36-38')		3 3 4 4	7	2.0	0.0	CL			
		(38-40')		3 4 6 7	10	1.25	0.0	ML		Gray SILT. Coarse SAND lenses.	
40		(40-42')		7 7 8 11	15	1.0	NA	ML		Gray SILT.	
		(42-44')		7 10 11 12	21	1.25	NA	SM		Gray Silty fine SAND, well sorted	
		(44-46')		9 7 13 50/5"	20	0.75	NA	GP		Coarse rounded GRAVEL.	
										End of boring at 46' bgs.	

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 engineers & scientists

Remarks:
 NA - Not Applicable.

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 08/12/98 / 08/12/98
 Drilling Company: Rau Drilling
 Driller's Name: Allen Rau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size : OD 8.0
 Rig Type: CME 65
 Spoon Size: 2

Northing:
 Easting:
 Well Casing Elev.: ft.
 Corehole Depth:
 Borehole Depth: 23 ft.
 Ground Surface Elev.: ft.

Well No. 87-FP4
 Client:
 GM NAO Flint
 Site:
 Building 87/Leith Street Overpass
 Flint, Michigan

Descriptions by: Robert Gang III

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft.											Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 1.0' bgs
		(0-1')		NA	NA	NA	NA	FI		Drill through concrete.	
		(1-3')		8 8 8 9	16	1.0	0.0			Light brown fine SAND, well sorted, dry.	
5		(3-5')		4 5 4 7	9	2.0	0.0				Type 1 Portland cement/5% bentonite grout 1.0' to 8.0' bgs
		(5-7')		4 3 3 3	6	1.5	1.8				2-in diameter Sch. 40 PVC well casing 0.5' to 11.9' bgs
		(7-9')		2 1 1 1	2	1.25	0.6	SP			Bentonite seal 8.0' to 10.0' bgs
10		(9-11')		1 1 1 4	2	2.0	1.1			Olive/light brown.	Grade #5 silica sand pack 10.0' to 23.0' bgs
		(11-13')		5 4 4 5	8	2.0	0.0				0.01" Sch. 40 PVC screen 11.9' to 21.7' bgs
15		(13-15')		2 2 1 1	3	1.25	0.6				

Remarks:
 NA - Not Applicable. REF - Refusal.

Water Levels		
Date / Time	Elevation	Depth
08/12/98		21.75 ▼
		-1 ▼
		-1 ▼

Site:

Building 87/Leith Street Overpass
Flint, Michigan

Well No. 87-FP4

Total Depth = 23 ft.

Client:

GM NAO Flint

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(15-17')		1 2 1 2	3	2.0	0.3			Olive/light brown fine SAND, well sorted, dry.	<p>0.0' Sch. 40 PVC screen 11.9' to 21.7' bgs</p> <p>Grade #5 silica sand pack 10.0' to 23.0' bgs.</p> <p>2-in diameter Sch. 40 PVC sump 21.7' to 21.9' bgs</p>
		(17-19')		1 1 1/12	2	1.75	0.0	SP		Saturated.	
20		(19-21')		1/12 6 1 1	1	1.25	0.0				
		(21-23')		1 3 3 5	6	2.0	0.0	CL		Gray CLAY, saturated.	
										End of boring at 23' bgs.	
25											
30											
35											

Remarks:

NA - Not Applicable.

Water Levels

Date / Time	Elevation	Depth
08/12/98		21.75 ↓
		-1 ↓
		-1 ↓

Date Start/Finish: 08/12/98 / 08/12/98
 Drilling Company: Rau Drilling
 Driller's Name: Allen Rau
 Drilling Method: Hollow Stem Auger
 Bit Size: N/A Auger Size : OD 8.0 in
 Rig Type: CME 65
 Spoon Size: 2

Northing:
 Easting:
 Well Casing Elev.: ft.
 Corehole Depth:
 Borehole Depth: 15 ft.
 Ground Surface Elev.: ft.

Well No. 87-FP5

Client:
 GM NAO Flint

Site:
 Building 87/Leith Street Overpass
 Flint, Michigan

Descriptions by: Robert Gang III

DEPTH	ELEVATION	Sample Depth Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction		
gs elevation ft.										GROUND SURFACE	Steel protective flush mount casing, locking cap installed. Concrete pad ground surface to 10' bgs		
		(0-1')		NA	NA	NA	NA			Go through concrete floor.			
		(1-3')		7 17 18 14	35	15	5.7			Light brown fine SAND, well sorted, dry.	Bentonite seal 1.0' to 3.0' bgs		
		(3-5')		10 12 8 7	20	125	5.5			Dark brown, some coarse Gravel, dry.	2-in diameter Sch. 40 PVC well casing 0.5' to 4.0' bgs		
5		(5-7')		5 8 10 9	18	125	3.0			Olive fine SAND, coarse SAND, and fine GRAVEL, some rusted bits of metal, dry. [FILL]			
		(7-9')		3 3 5 3	8	0.75	5.73	FI		Moist.	Grade #5 silica sand pack 3.0' to 15.0' bgs		
10		(9-11')		3 2 2 1	4	0.5	2.7			Olive coarse SAND, moist. Olive fine SAND, well sorted, moist.	0.0" Sch. 40 PVC screen 4.0' to 13.8' bgs		
		(11-13')		2 4 7 8	11	1.0	1.4			Black fine SAND, some coarse Sand, well sorted, heavily stained, odor, sheen, saturated.			
15		(13-15')		7 50/3	REF	0.5	1.0			Black globbules observed.	2-in diameter Sch. 40 PVC sump 13.8' to 14.0' bgs		
Remarks: NA - Not Applicable. FI - Fill										Water Levels			
										Date / Time	Elevation	Depth	
										8/5/98		11.35	▼
												-1	▼
												-1	▼

Global Environmental Engineering Inc.

5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well:	SB1/MW1 (548-1)	Project Name:	GMCLCD N.
Date:	11/6/96	Project No.:	F174
Contractor:	GEEI	Location:	Building 88
Prepared By:	A.L.K.	Twp/Range/Sec.:	
Time Started:	8:30	Depth Drilled:	17'
Time Completed:	11:15	Hole Diameter:	8.25"
Coring Device:	5'	Inner Diameter:	4.5"

Boring Methods		Water Level Data		Drilling Fluid:	None
X	Hollow Stem Auger	Date	SWL Elevation	Driller:	Lisa
	Hand Auger			Helper:	NA
	Geoprobe				
WELL SPECIFICATIONS				SOIL PROFILE	

Well Casing Cover:

Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No

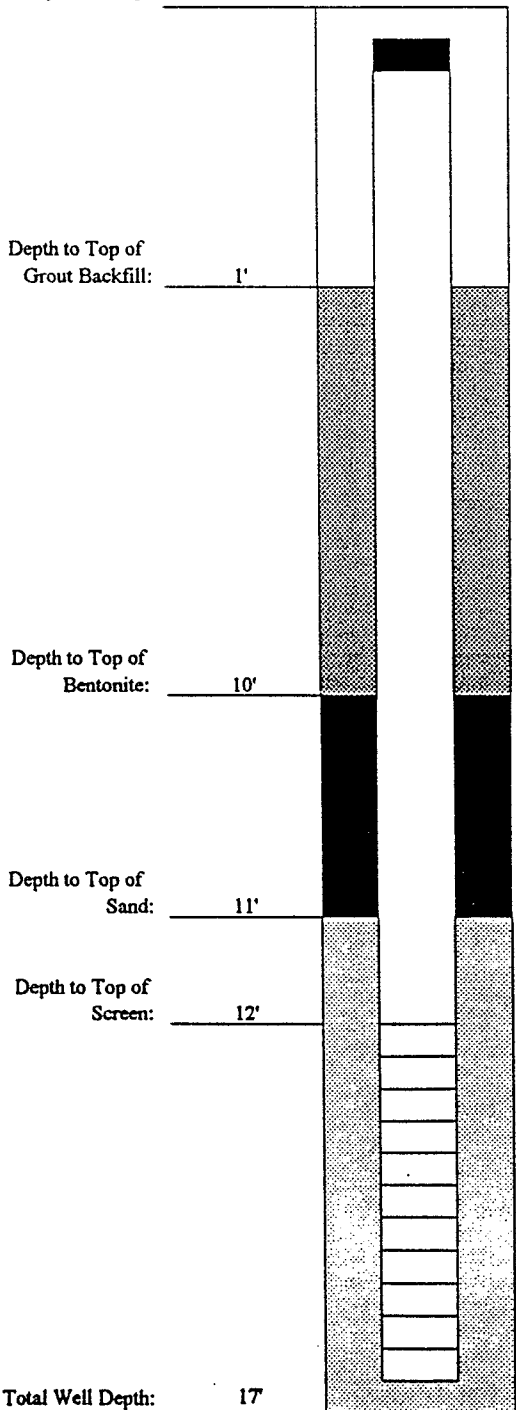
Well Casing:

Diameter:	2"
Length:	17'
Material:	PVC
Cap:	Expandable
Locking:	Dolphin

Well Screen:

Diameter:	2"
Length:	5'
Slotsize:	0.01"
Material:	PVC
Well Screen	
Interval:	12'-17'
Filter Pack:	Sand

Top of Casing:



0'-6.5' - Sand

6.5' - 11' - Silt

11'-12' ; Silty Clay

12'-17' - Silt

Total Well Depth: 17'

Global Environmental Engineering Inc.

5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
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 Fax: (810) 238-9195

Monitoring Well:	SB2/MW2 (89-2)	Project Name:	GMCLCD N.
Date:	11/6/96	Project No.:	F174
Contractor:	GEEI	Location:	Building 88
Prepared By:	A.L.K.	Twp/Range/Sec.:	
Time Started:	11:45	Depth Drilled:	16'
Time Completed:	4:05	Hole Diameter:	8.25"
Coring Device:	5'	Inner Diameter:	4.5"

Boring Methods		Water Level Data		Drilling Fluid:	None
X	Hollow Stem Auger	Date	SWL Elevation	Driller:	Lisa
	Hand Auger			Helper:	NA
	Geoprobe				
WELL SPECIFICATIONS				SOIL PROFILE	

Well Casing Cover:

Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No

Well Casing:

Diameter:	2"
Length:	16'
Material:	PVC
Cap:	Expandable
Locking:	Dolphin

Well Screen:

Diameter:	2"
Length:	5'
Slotsize:	0.01"
Material:	PVC
Well Screen	
Interval:	11'-16'
Filter Pack:	Sand

Top of Casing:

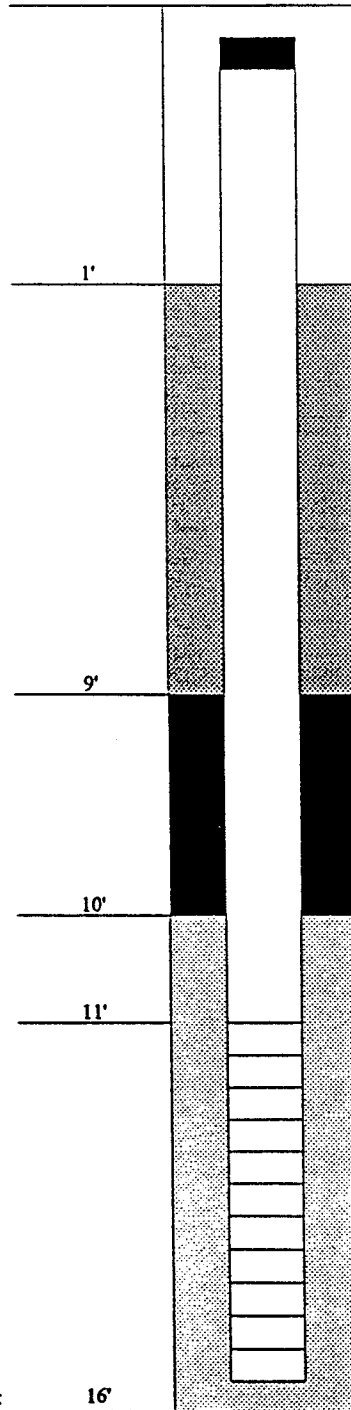
Depth to Top of
Grout Backfill:

Depth to Top of
Bentonite:

Depth to Top of
Sand:

Depth to Top of
Screen:

Total Well Depth:



0'-16' - Sand

Global Environmental Engineering Inc.

5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well: SB3/MW3 (88-3)	Project Name: GMCLCD N.
Date: 11/6/96	Project No.: F174
Contractor: GEEI	Location: Building 88
Prepared By: A.L.K.	Twp/Range/Sec.:
Time Started: 14:45	Depth Drilled: 15'
Time Completed:	Hole Diameter: 8.25"
Coring Device: 5'	Inner Diameter: 4.5"

Boring Methods		Water Level Data		Drilling Fluid: None
X	Hollow Stem Auger	Date	SWL Elevation	Driller: Lisa
	Hand Auger			Helper: NA
	Geoprobe			
WELL SPECIFICATIONS			SOIL PROFILE	

II Casing Cover:

Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No

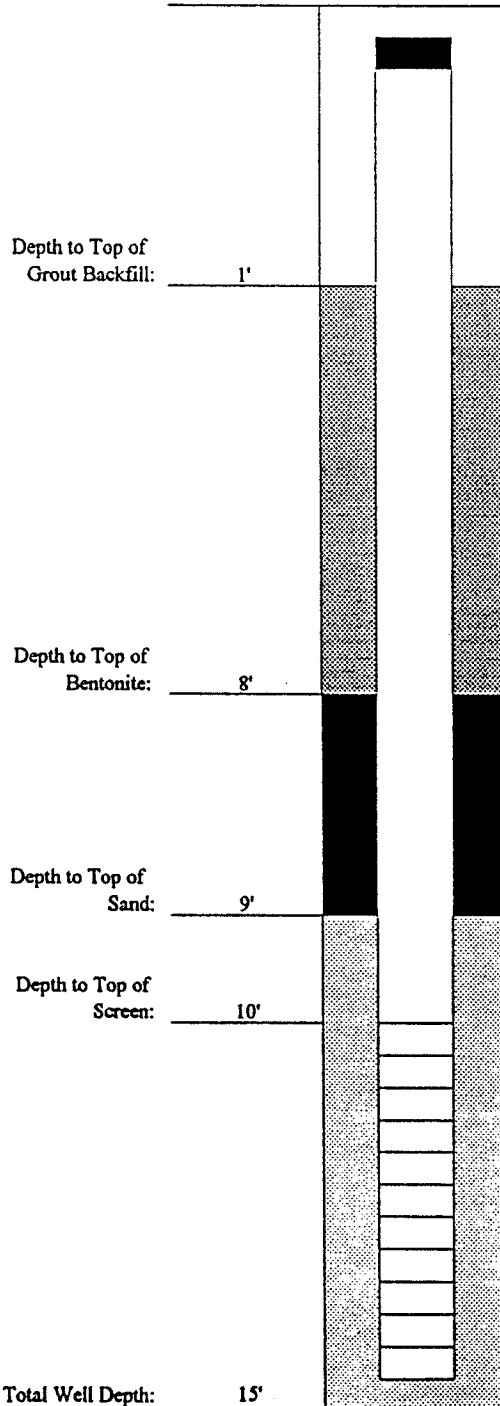
III Casing:

Diameter:	2"
Length:	15'
Material:	PVC
Cap:	Expandable
Locking:	Dolphin

III Screen:

Diameter:	2"
Length:	5'
Slotsize:	0.01"
Material:	PVC
Well Screen	
Interval:	10'-15'
Filter Pack:	Sand

Top of Casing:



0'-15' - Sand

Global Environmental Engineering Inc.

5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well: SB4/MW4 (88-4)	Project Name: GMCLCD N.
Date: 11/8/96	Project No.: F174
Contractor: GEEI	Location: Building 88
Prepared By: A.L.K.	Twp/Range/Sec.:
Time Started: 8:00	Depth Drilled: 12'
Time Completed: 10:30	Hole Diameter: 8.25"
Coring Device: 5'	Inner Diameter: 4.5"

Boring Methods		Water Level Data		Drilling Fluid: None
X	Hollow Stem Auger	Date	SWL Elevation	Driller: Lisa
	Hand Auger			Helper: NA
	Geoprobe			

WELL SPECIFICATIONS	SOIL PROFILE
---------------------	--------------

Well Casing Cover:

Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No.

Well Casing:

Diameter:	2"
Length:	12'
Material:	PVC
Cap:	Expandable
Locking:	Dolphin

Well Screen:

Diameter:	2"
Length:	5'
Slotsize:	0.01"
Material:	PVC
Well Screen	
Interval:	7'-12'
Filter Pack:	Sand

Top of Casing:

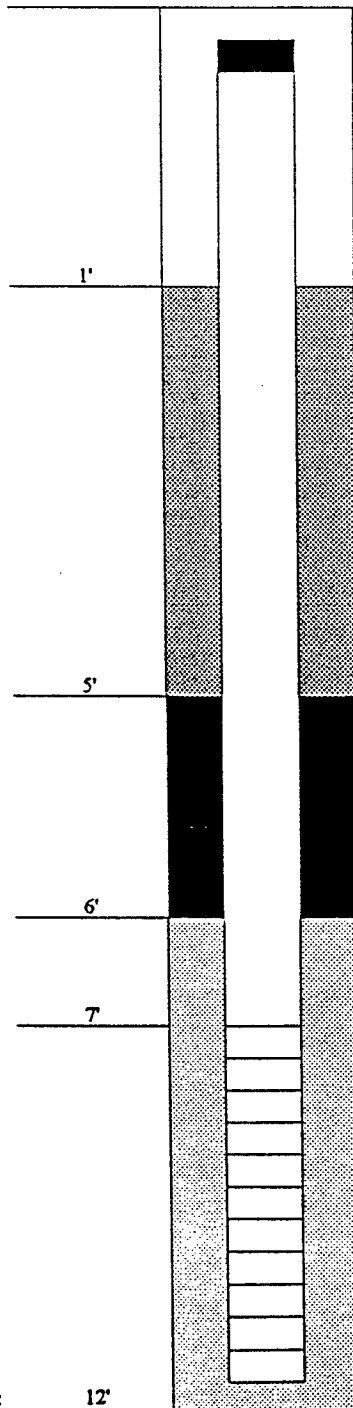
Depth to Top of Grout Backfill: 1'

Depth to Top of Bentonite: 5'

Depth to Top of Sand: 6'

Depth to Top of Screen: 7'

Total Well Depth: 12'



0'-12' - Sand

Global Environmental Engineering Inc.
 5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
 Tel: (810) 238-9190
 Fax: (810) 238-9195

Monitoring Well: SB-5/MW-5 (86-5)	Project Name: GM - BUILDING 88
Date: 6/2/97	Project No.: F329
Contractor: GEEI	Location:
Prepared By: ALK	Twp/Range/Sec.:
Time Started: 11:30	Depth Drilled: 12'
Time Completed:	Hole Diameter: 8.25"
Coring Device: 5'	Inner Diameter: 4.50"

Boring Methods		Water Level Data		Soil Profile	
X	Hollow Stem Auger	Date	SWL Elevation	Drilling Fluid:	None
	Hand Auger	6/10/97	7.52	Driller:	Norm
	Geoprobe			Helper:	Ash
WELL SPECIFICATIONS				SOIL PROFILE	

Well Casing Cover:

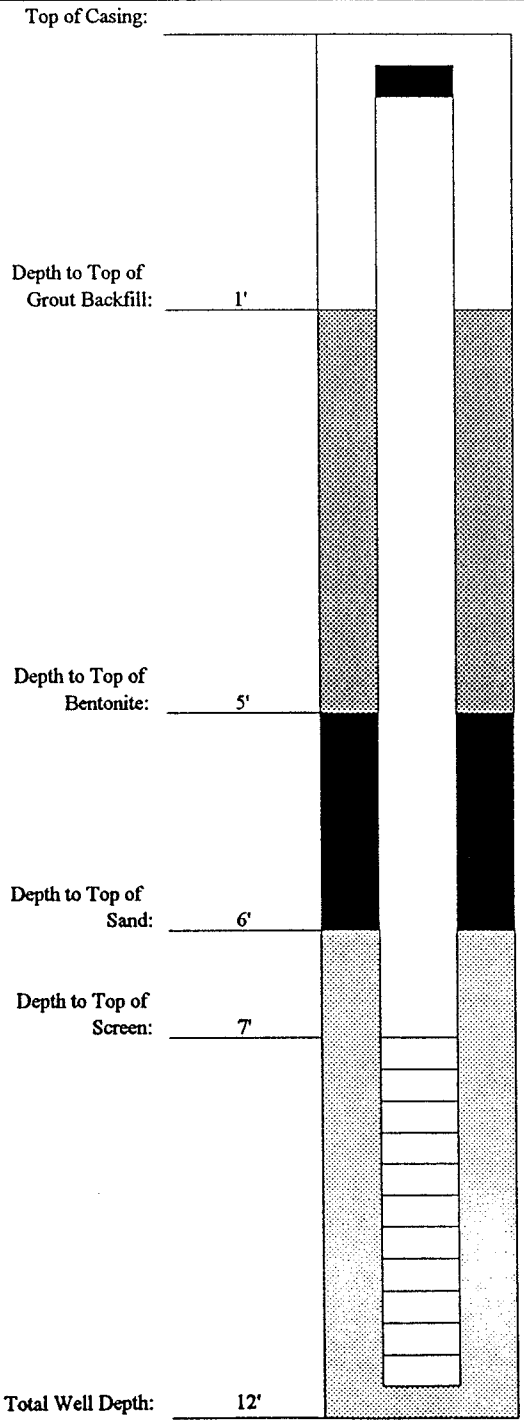
Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No

Well Casing:

Diameter:	2"
Length:	12"
Material:	PVC
Cap:	Expandable
Locking:	Dolphin

Well Screen:

Diameter:	2"
Length:	5'
Slotsize:	0.01
Material:	PVC
Well Screen Interval:	7-12'
Filter Pack:	Sand



0 - 2' Concrete
 2' - 3' Stone
 3 - 12' Sand

Groundwater Encountered at 8'

Global Environmental Engineering Inc.

5467 Hill 23 Drive, Suite B
 Flint, Michigan 48507
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Monitoring Well: SB-6/MW-6 (99-6)	Project Name: GM - BUILDING 88
Date: 6/2/97	Project No.: F329
Contractor: GEEI	Location:
Prepared By: ALK	Twp/Range/Sec.:
Time Started: 14:00	Depth Drilled: 12'
Time Completed:	Hole Diameter: 8.25"
Coring Device: 5'	Inner Diameter: 4.50"

Boring Methods		Water Level Data		Drilling Fluid: None
X	Hollow Stem Auger	Date	SWL Elevation	Driller: Norm
	Hand Auger	6/10/97	7.48	Helper: Ash
	Geoprobe			
WELL SPECIFICATIONS				SOIL PROFILE

Well Casing Cover:

Material:	Steel
Diameter:	12"
Length:	12"
Lock:	No

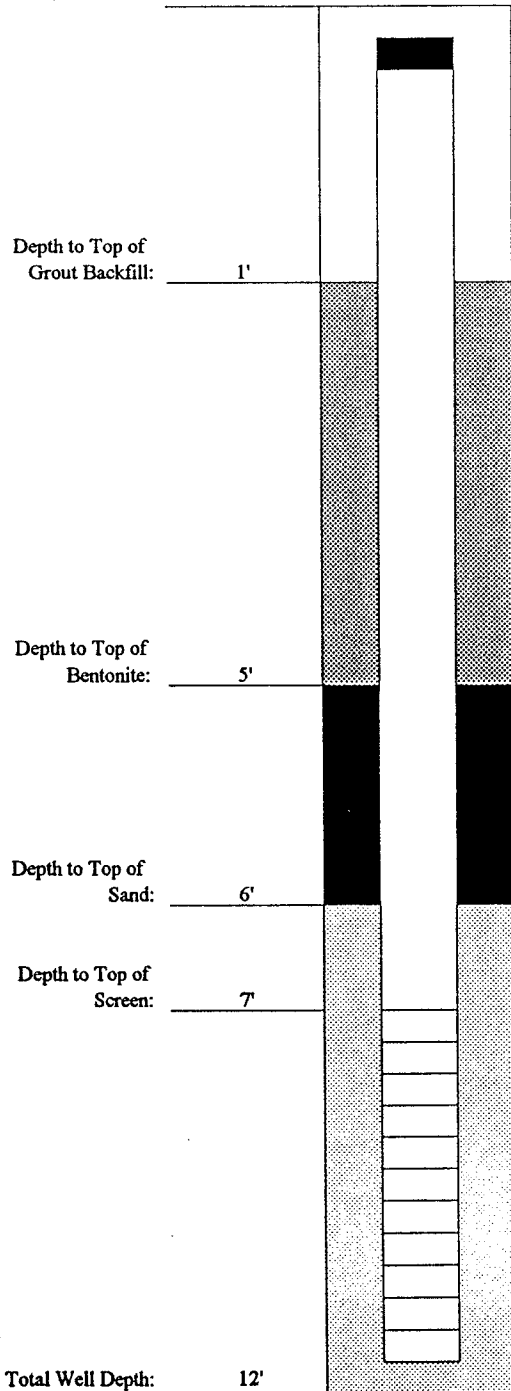
Well Casing:

Diameter:	2"
Length:	12"
Material:	PVC
Cap:	Expandable
Locking:	Dolphin

Well Screen:

Diameter:	2"
Length:	5'
Slotsize:	0.01
Material:	PVC
Well Screen Interval:	7-12'
Filter Pack:	Sand

Top of Casing:



0 - 1.5' Concrete
 1.5' - 12' Sand

Groundwater Encountered at 9'

Date Start/Finish: 3/15/00 / 3/15/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 18.0 feet Geologist: Ray Wagner	Well No: 88-7 Client: General Motors Corporation Location: GM NAO Flint Site Former Building 88 Tank Farm Area
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DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm)	Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
											GROUND SURFACE	
		(0-2')		NA	NA	1.0	0.0				Concrete.	<p>Steel 8" diameter flushmount curb box. Cement pad. Cement/bentonite grout 1.0' to 2.5' bgs. Bentonite seal 2.5' to 6.0' bgs. 2-inch diameter PVC casing to 8.0' bgs. #5 sand pack 6.0' to 18.0' bgs. 2-inch diameter 0.010" slot PVC well screen 8.0' to 18.0' bgs.</p>
		(2-4')		NA	NA	1.0	0.0				FILL, brown fine to medium Sand, little Silt.	
		(4-6')		NA	NA	1.0	0.0					
5		(6-8')		7 10 7 8	17	1.5	0.0					
		(8-10')		5 6 5 5	11	1.67	0.0				Gray Silty SAND, wet.	
10		(10-12')		4 3 5 6	8	1.83	0.0				Gray lean CLAY, some Silt, wet, medium plasticity.	
		(12-14')		2 3 4 4	7	1.83	0.0					
		(14-16')		2 3	6	1.92	0.0					
5												

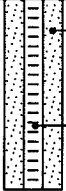
<p>BBL BLASLAND, BOUCK & LEE, INC. <i>engineers & scientists</i></p>	Remarks: Hand augered to 6.0' bgs. bgs - below ground surface. NA - Not Available. Soil sample collected from 8-10' bgs for VOCs, metals, SVOCs, and PCBs.	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">Water Levels</th> </tr> <tr> <th style="width:33%;">Date / Time</th> <th style="width:33%;">Elevation</th> <th style="width:33%;">Depth</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Water Levels			Date / Time	Elevation	Depth									
Water Levels																	
Date / Time	Elevation	Depth															

Client:
General Motors Corporation

Well No: 88-7

Location:
GM NAO Flint Site
Former Building 88 Tank Farm Area

Total Depth = 18.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		3 3	6	1.92	0.0			Gray lean CLAY, some SILT, wet, medium plasticity.	 <p>#5 sand pack 6.0' to 18.0' bgs. 2-inch diameter 0.010" slot PVC well screen 8.0' to 18.0' bgs.</p>
		(16-18')		4 3 2 1	5	2.0	0.0			Gray SILT, wet.	
										End of boring at 18.0' bgs.	
20											
25											
30											
35											

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Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/12/00 / 3/12/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 24.0 feet Geologist: Matt Stuk	Well No: 88-8 Client: General Motors Corporation Location: GM NAO Flint Site Former Building 88 Tank Farm Area
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DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		5 6 7 7	13	0.67	0.2			Concrete.	<p>Steel 8" diameter flushmount curb box. Cement pad. Cement/bentonite grout 1.0' to 9.0' bgs. Bentonite seal 9.0' to 10.0' bgs. 2-inch diameter PVC casing to 12.0' bgs. #5 sand pack 10.0' to 22.0' bgs. 2-inch diameter 0.010" slot PVC well screen 12.0' to 22.0' bgs.</p>
		(2-4')		3 7 9 4	16	1.67	0.0			FILL, brown to black Sand and Gravel, dry to moist.	
		(4-6')		3 4 4 7	8	1.67	0.2			Brownish-yellow poorly graded medium SAND, dry.	
5		(6-8')		5 11 11 19	22	1.67	0.0			Wet.	
		(8-10')		9 15 23 25	38	1.33	0.0				
		(10-12')		7 11 15 20	26	1.42	0.0				
		(12-14')		5 7 9 9	16	1.83	0.4				
5		(14-16')		3 12	26	1.67	0.6				

<p>BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists</p>	Remarks: bgs - below ground surface. NA - Not Available. Soil sample collected from 4-6' bgs for VOCs, metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Client:
General Motors Corporation

Location:
GM NAO Flint Site
Former Building 88 Tank Farm Area

Well No: 88-8
Total Depth = 24.0 ft.

DEPTH	ELEVATION	Sample Number	Sample/Int./Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		14 16	26	1.67	0.6			Gray SAND, some Silt, wet.	<p>#5 sand pack 10.0' to 22.0' bgs.</p> <p>2-inch diameter 0.010" slot PVC well screen 12.0' to 22.0' bgs.</p> <p>Formation collapse 22.0' to 24.0' bgs.</p>
		(16-18')		8 11 16 17	27	1.83	0.0			Gray SILT, little fine Sand, wet.	
		(18-20')		7 8 9 4	17	1.67	0.0				
20		(20-22')		- 1 3 4	4	2.0	0.0			Gray CLAY and SILT, wet.	
		(22-24')		3 3 4 3	7	2.0	0.0			Gray CLAY, little Silt, wet.	
										End of boring at 24.0' bgs.	
25											
30											
35											

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Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/14/00 / 3/14/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 20.0 feet Geologist: Matt Stuk	Well No: 88-9 Client: General Motors Corporation Location: GM NAO Flint Site Former Building 88 Tank Farm Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-2')		7 9 13 22	22	1.5	0.0			Concrete.	<p>Steel 8" diameter flushmount curb box. Cement pad. Cement/bentonite grout- 1.0' to 7.0' bgs. Bentonite seal 7.0' to 8.0' bgs. 2-inch diameter PVC casing to 9.0' bgs. #5 sand pack 8.0' to 10.0' bgs. 2-inch diameter 0.010" slot PVC well screen 9.0' to 10.0' bgs.</p>
		(2-4')		NA	NA	NA	NA			FILL, Sand, Clay, and Gravel. Drilled through obstruction at 2-4' bgs.	
5		(4-6')		3 12 14 9	26	1.67	0.0			Brownish-yellow poorly graded medium SAND, dry.	
		(6-8')		8 9 15 13	24	2.0	0.0			Wet.	
		(8-10')		5 5 9 13	14	1.83	0.0				
10		(10-12')		11 11 13 11	24	2.0	0.0				
		(12-14')		9 12 8 13	20	1.67	0.0			Gray Silty SAND, wet.	
		(14-16')		7 11	24	1.83	0.0				

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Remarks:
 bgs - below ground surface. NA - Not Available. Soil sample collected from 6-8' bgs for VOCs, metals, SVOCs, and PCBs.

Water Levels		
Date / Time	Elevation	Depth

Client:
General Motors Corporation

Well No: 88-9
Total Depth = 20.0 ft.

Location:
GM NAO Flint Site
Former Building 88 Tank Farm Area

DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
		(14-16')		13 14	24	1.83	0.0			Gray Silty SAND, wet.	<p>#5 sand pack 8.0' to 19.0' bgs.</p> <p>2-inch diameter 0.010" slot PVC well screen 9.0' to 19.0' bgs.</p> <p>Formation collapse 19.0' to 20.0' bgs.</p>
		(16-18')		5 6 9 16	15	2.0	0.0			Gray SILT, wet.	
		(18-20')		8 17 19 19	36	2.0	0.0			Gray lean CLAY, some Silt, wet, medium plasticity.	
20										End of boring at 20.0' bgs.	
25											
30											
35											


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Remarks:

Water Levels

Date / Time	Elevation	Depth

Date Start/Finish: 3/12/00 / 3/12/00 Drilling Company: RAU Drilling Driller's Name: Rod Chaperon Drilling Method: Hollow Stem Auger Auger Size: 4.25" Rig Type: CME 55 Sampling Method: Split Spoon Hammer Weight: 140 lb.	Borehole Depth: 22.0 feet Geologist: Matt Stuk	Well No: 88-10 Client: General Motors Corporation Location: GM NAO Flint Site Former Building 88 Tank Farm Area
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DEPTH	ELEVATION	Sample Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Well Construction
										GROUND SURFACE	
		(0-4')		NA	NA	NA	NA			Concrete. Hand augered to 4.0' bgs to check for utilities. No samples collected.	
5		(4-6')		5 5 6 8	11	2.0	0.1		Brown poorly graded fine SAND, dry.		
		(6-8')		5 4 5 6	9	2.0	0.1		Wet.		
		(8-10')		5 9 9 9	18	1.5	0.0		Olive-brown Silty SAND, wet. Color changes to gray.		
10		(10-12')		8 10 11 13	21	2.0	0.0				
		(12-14')		8 10 11 13	21	2.0	0.0				
		(14-16')		7 7	13	1.83	0.0				
5											

	Remarks: bgs - below ground surface. NA - Not Available. Soil samples collected from 14-16' and 20-22' bgs for VOCs, metals, SVOCs, and PCBs.	Water Levels		
		Date / Time	Elevation	Depth

Project Name: GM-NAO FLINT OPERATIONS
 Project Number: 041057F001
 Location: T.7N R.7E 7
 T R SEC QTR QTR
 Northing: _____ Easting: _____
 Ground Surface Elev.: 721.30
 Property Owner/Contact: GENERAL MOTORS

Date(s) Drilled: 9/26/95
 Logged By: DARRYL BARRICKLOW
 Contractor: SOMAT ENGINEERING
 Drill Rig/Method: HOLLOW STEM AUGER
 Sampling Method: SPLIT SPOON
 Borehole Diam.: 8" Drilling Fluid: NONE
 Depth to Water: 9.03 Total Depth: 20.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Drg. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
0-1.0			5YR 4/4	ND	S-1	75	SM	0.0-1.0': SILT AND SAND, BROWN, MOIST TO SLIGHTLY MOIST.
1.0-4.0			5YR 4/4	ND	S-2	100		1.0-4.0': CLAY WITH SOME SILT AND TRACE GRAVEL, BROWN, DRY.
4.0-6.0			5YR 4/4	ND	S-3	55	CL	4.0-6.0': CLAY WITH SOME SILT AND TRACE COARSE SAND, BROWN, DRY, HARD.
6.0-9.0			5YR 4/4	ND	S-4	100		6.0-9.0': S.A.A.: SOME COARSE GRAVEL.
9.0-10.0			5YR 4/4	ND	S-5	100		9.0-10.0': S.A.A.: GRAY.
10.0-12.0			N5	ND	S-6	100	ML	10.0-12.0': SILT WITH SOME CLAY, GRAY, DRY, POWDERY.
12.0-16.0			N5	ND	S-7	100		12.0-16.0': CLAY WITH SOME SILT, TRACE COARSE SAND AND GRAVEL, GRAY, DRY TO SLIGHTLY MOIST. MOIST SAND SEAMS AT 13.0' AND 13.7'. BROWN SILTY GRAVEL AT 14.0 TO 14.2'.
16.0-20.0			5YR 4/4	ND	S-8	100	CL	16.0-20.0': CLAY WITH SOME SILT, GRAY, SLIGHTLY MOIST. WET, FINE SAND SEAM AT 16.75' (0.75" THICK), AND TRACE GRAVEL AT 17.0'.
			N5	ND	S-9	75		
			N5	ND	S-10	100		
								TOTAL DEPTH DRILLED = 20.0 FEET WELL SET FROM 12.0 TO 19.0'. GROUNDWATER SAMPLE COLLECTED FROM 13.0-18.0'.

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART


Project Name: GM-NAO FLINT OPERATIONS Date(s) Drilled: 10/23/95
 Project Number: 041057F001 Logged By: BRIAN BOKOVOY
 Location: T.7N R.7E 7 Contractor: SOMAT ENGINEERING
 T R SEC QTR QTR Drill Rig/Method: HOLLOW STEM AUGER
 Northing: _____ Easting: _____ Sampling Method: SPLIT SPOON
 Ground Surface Elev.: 719.84 Borehole Diam.: 8" Drilling Fluid: NONE
 Property Owner/Contact: GENERAL MOTORS Depth to Water: 8.71 Total Depth: 26.0'
 Application: MONITORING WELL INSTALLATION

Depth (ft)	Lithology	Samples	Color	Org. Vapor (ppm)	Sample ID	Recovery %	USCS Code	Lithologic Description
5			5YR 4/4	ND	S-1	30	SP	2.0-4.3': SAND, DARK BROWN, MOIST, FINE GRAINED.
			5YR 4/4	ND	S-2	50		4.3-6.0': SAND AND GRAVEL, BROWN, SLIGHTLY MOIST, FINE GRAINED.
			5YR 4/4	ND	S-3	10	CL	6.0-8.3': CLAY WITH SOME SILT, BROWN, SLIGHTLY MOIST, PLASTIC.
10			5YR 4/4	ND	S-4	30		8.3-10.0': SAND WITH TRACE GRAVEL, BROWN, MOIST, FINE GRAINED.
			5YR 4/4	ND	S-5	75		10.0-12.0': SAND WITH SOME GRAVEL, BROWN, WET, MEDIUM TO COARSE GRAINED.
			5YR 4/4	ND	S-7	100		
15			5YR 4/4	ND	S-8	30		
			5YR 4/4	ND	S-9	50	SP	
			5YR 4/4	ND	S-10	50		12.0-26.0': S.A.A.: COARSE GRAINED.
20			5YR 4/4	ND	S-11	40		
			5YR 4/4	ND	S-12	50		
25			5YR 4/4	ND	S-13	50		
								TOTAL DEPTH DRILLED = 26.0 FEET WELL SET FROM 7.0 TO 14.0'. GROUNDWATER SAMPLE COLLECTED FROM 7.0 TO 12.0'. GROUNDWATER SAMPLE COLLECTED FROM 19.0 TO 24.0'.

Comments: COLOR CODE- GEOLOGICAL SOCIETY OF AMERICA ROCK COLOR CHART

Date Start/Finish: 1/23/01 Drilling Company: Mateco Driller's Name: Gary Swift Drilling Method: Direct Push Bit Size: Auger Size: Rig Type: Geoprobe 66 DT Track Rig Sampling Method: 2" diam. + disposable liner Hammer Weight:	Northing: NA Easting: NA Casing Elevation: NA Borehole Depth: 18' below grade Surface Elevation: Geologist: Shawn Kerr	Well/Boring ID: RFI-05-02 Client: General Motors Location: GM-Flint - Focused RFI Factory 36, Building 36
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.8	-				CONCRETE.		Flush Mount Cover
		2	0.8-2	1.2				Brown fine to medium SAND.		3/8" Bentonite Chips (0' - 10' bgs)
		3	2-4	1.8						
5	5	4	4-6	2.0				Brown fine to medium SAND with Clay.		1.5" ID Sch. 40 PVC Riser (0' - 12' bgs)
		5	6-8	0.4				Brown CLAY with brown fine to medium Sand.		
		6	8-10	1.9			X	Brown fine to medium SAND with Clay.		
		7	10-12	1.3			X	Brown fine to medium SAND.		
10	10							Brown CLAY with brown fine to medium Sand.		Colorado #2040 Silica Sand (10' - 17' bgs)
		8	12-14	1.5				As above, moist to wet.		
		9	14-16	1.5				As above, wet to saturated.		1.5" ID x 1 7/8" OD Sch. 40 PVC 0.010" Slot Screen with 0.011 SS Mesh (12' - 17' bgs)
15	15									

 BLASLAND, BOUCK & LEE, INC. <i>engineers & scientists</i>	Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals, and PCBs. PID not functional.
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Client:



General Motors

Well/Boring ID: RFI-05-02

Site Location:

GM-Flint - Focused RFI
Factory 36, Building 36

Borehole Depth: 18' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		10	16-18	1.4					As above, wet to saturated.	 Colorado #2040 Silica Sand (10' - 17' bgs) 1.5" ID x 1 7/8" OD Sch. 40 PVC 0.010" Slot Screen with 0.011 SS Mesh (12' - 17' bgs)
20	20									
25	25									
30	30									
35	35									



Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals, and PCBs.
PID not functional.

Date Start/Finish: 1/24/01
Drilling Company: Mateco
Driller's Name: Gary Swift
Drilling Method: Direct Push
Bit Size:
Auger Size:
Rig Type: Geoprobe 66 DT Track Rig
Sampling Method: 2" diam. + disposable liner
Hammer Weight:

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 16' below grade
Surface Elevation:

Geologist: Shawn Kerr

Well/Boring ID: RFI-05-04

Client: General Motors
Location: GM-Flint - Focused RFI
 Factory 36, Building 36


DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.7	-				CONCRETE.		Flush Mount Cover
		2	0.7-2	1.6				Brown fine to medium SAND. Dark brown fine to medium SAND with Clay. Brown fine to medium SAND. Dark brown fine to medium SAND with Clay and Gravel. Dark brown fine to medium SAND.		3/8" Bentonite Chips (0' - 8.5' bgs)
		3	2-4	2.0				Dark brown fine to medium SAND with Clay. Brown fine SAND. Brownish-gray CLAY, trace brown Sand.		1.5" ID Sch. 40 PVC Riser (0' - 10' bgs)
5	5	4	4-6	1.7				Brown fine SAND with Clay.		
		5	6-8	1.7				Dark gray CLAY with brown fine Sand. Brown CLAY with brown fine Sand.		
10	10	6	8-10	1.6			X	Brown fine SAND with trace Clay and rounded Gravel. Dark brown CLAY with brown fine Sand. Brown fine SAND, moist to wet. Brown fine SAND, saturated.		#1 Sand (8.5' - 10' bgs)
		7	10-12	1.7			X			#2040 Silica Sand (10' - 15' bgs)
		8	12-14	1.3						
15	15	9	14-16	1.8						1.5" ID x 1 7/8" OD Sch. 40 PVC 0.010" Slot Screen with 0.011 SS Mesh (10' - 15' bgs)



Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals.
 PID not functional.

Date Start/Finish: 1/23/01 Drilling Company: Mateco Driller's Name: Gary Swift Drilling Method: Direct Push Bit Size: Auger Size: Rig Type: Geoprobe 66 DT Track Rig Sampling Method: 2" diam. + disposable liner Hammer Weight:	Northing: NA Easting: NA Casing Elevation: NA Borehole Depth: 16' below grade Surface Elevation: Geologist: Shawn Kerr	Well/Boring ID: RFI-05-05 Client: General Motors Location: GM-Flint - Focused RFI Factory 36, Building 36
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.7	-				CONCRETE.		Flush Mount Cover
		2	0.7-2	1.0				Brown fine to medium SAND, rounded Gravel, Silt, and Clay.		3/8" Bentonite Chips (0' - 9.0' bgs)
		3	2-4	2.0				Brown fine to medium SAND with Gravel and Clay. Brown fine to medium SAND.		1.5" ID Sch. 40 PVC Riser (0' - 11' bgs)
5	5	4	4-6	1.8				Brown fine SAND, trace Clay.		
		5	6-8	1.5				Brown fine SAND.		
		6	8-10	1.5			X			
10	10	7	10-12	2.0			X	As above, moist.		Colorado #2040 Silica Sand (9.0' - 16' bgs)
		8	12-14	1.0				Brown fine SAND, saturated.		
15	15	9	14-16	1.5						1.5" ID x 1 7/8" OD Sch. 40 PVC 0.010" Slot Screen with 0.011 SS Mesh (10' - 16' bgs)

 BLASLAND, BOUCK & LEE, INC. <i>engineers & scientists</i>	Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals. PID not functional.
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Date Start/Finish: 1/24/01
Drilling Company: Mateco
Driller's Name: Gary Swift
Drilling Method: Direct Push
Bit Size:
Auger Size:
Rig Type: Geoprobe 66 DT Track Rig
Sampling Method: 2" diam. + disposable liner
Hammer Weight:

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 16' below grade
Surface Elevation:

Geologist: Shawn Kerr

Well/Boring ID: RFI-05-07

Client: General Motors
Location: GM-Flint - Focused RFI
 Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 0										Flush Mount Cover
		1	0-0.9	-					CONCRETE.	
		2	0.9-2	1.1					Brown fine to medium SAND. Brownish-gray CLAY.	3/8" Bentonite Chips (0' - 9.5' bgs)
		3	2-4	1.3					Brown fine to medium SAND, trace Clay. Black SAND with rounded and angular Rock. CONCRETE Chunks. Grayish-brown CLAY with brown fine Sand.	
5 5		4	4-6	1.7					Crushed CONCRETE. Dark gray CLAY with brown fine Sand.	1.5" ID Sch. 40 PVC Riser (0' - 11' bgs)
		5	6-8	1.2					Gray fine GRAVEL, trace brown fine Sand. Brown fine SAND, trace Clay and small Gravel. Pinkish-white Rock.	
		6	8-10	1.4			X		Grayish-brown CLAY with brown fine to medium Sand and small to medium Gravel. Brown fine SAND. As above, moist.	
10 10		7	10-12	1.7			X		Brown medium SAND and large pink Granite Rock. Brown fine to medium SAND, moist. Brown fine to medium SAND, moist to wet.	#1 Sand (9.5' - 11' bgs)
		8	12-14	1.3					Brown fine to medium SAND, saturated.	#2040 Silica Sand (11' - 16' bgs)
15 15		9	14-16	1.4						1.5" ID x 1 7/8" OD Sch. 40 PVC 0.010" Slot Screen with 0.011 SS Mesh (11' - 16' bgs)



Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals.
 PID not functional.

Date Start/Finish: 1/23/01
 Drilling Company: Mateco
 Driller's Name: Gary Swift
 Drilling Method: Direct Push
 Bit Size:
 Auger Size:
 Rig Type: Geoprobe 66 DT Track Rig
 Sampling Method: 2" diam. + disposable liner
 Hammer Weight:

Northing: NA
 Easting: NA
 Casing Elevation: NA
 Borehole Depth: 17' below grade
 Surface Elevation:
 Geologist: Shawn Kerr

Well/Boring ID: RFI-05-10
 Client: General Motors
 Location: GM-Flint - Focused RFI
 Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.7	-				CONCRETE.		Flush Mount Cover
		2	0.7-2	1.5				Brown fine SAND.		3/8" Bentonite Chips (0' - 10' bgs)
		3	2-4	1.9				Dark brown fine SAND, odor. Brown fine SAND.		1.5" ID Sch. 40 PVC Riser (0' - 12' bgs)
5	5	4	4-6	2.0				Brown CLAY with fine Sand. Brown fine SAND with Clay. Brown CLAY with fine brown Sand.		
		5	6-8	1.6				Brown fine SAND, trace Clay, slight odor. Brown CLAY, trace fine Sand. Brown fine SAND.		
10	10	6	8-10	1.8			X	Brownish-gray CLAY with trace brown Sand. Brown fine SAND.		
		7	10-12	1.7			X	Gray-brown fine SAND, moist.		Colorado #2040 Silica Sand (10' - 17' bgs)
		8	12-14	1.4				Gray-brown fine SAND, saturated.		
15	15	9	14-16	1.4						1.5" ID x 1 7/8" OD Sch. 40 PVC 0.010" Slot Screen with 0.011 SS Mesh (12' - 17' bgs)



Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals.
 Duplicate sample collected from 10'-12' interval.
 PID not functional.

Client:


General Motors

Well/Boring ID: RFI-05-10

Site Location:

GM-Flint - Focused RFI
 Factory 36, Building 36

Borehole Depth: 17' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
										 <p>Colorado #2040 Silica Sand (10' - 17' bgs) 1.5" ID x 1 7/8" OD Sch. 40 PVC 0.010" Slot Screen with 0.011 SS Mesh (12' - 17' bgs)</p>
20	20									
25	25									
30	30									
35	35									



Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals.
 Duplicate sample collected from 10'-12' interval.
 PID not functional.

Date Start/Finish: 1/23/01 Drilling Company: Mateco Driller's Name: Gary Swift Drilling Method: Direct Push Bit Size: Auger Size: Rig Type: Geoprobe 66 DT Track Rig Sampling Method: 2" diam. + disposable liner Hammer Weight:	Northing: NA Easting: NA Casing Elevation: NA Borehole Depth: 18' below grade Surface Elevation: Geologist: Shawn Kerr	Well/Boring ID: RFI-05-11 Client: General Motors Location: GM-Flint - Focused RFI Factory 36, Building 36
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.7	-					CONCRETE.	
		2	0.7-2	1.3	-				Dark brown fine to medium SAND.	
		3	2-4	1.2	-				Brown fine to medium SAND.	
		4	4-6	1.0	-				Brown fine SAND with Clay.	
5	5	5	6-8	0.3	-				Brown fine SAND, trace Clay.	
		6	8-10	1.6	-		X		Gray-brown Silty SAND with 1" angular Rock.	
10	10	7	10-12	1.8	+		X		Brown fine SAND.	
		8	12-14	1.8	+				Dark gray fine SAND, moist.	
									Brown fine SAND.	
									Dark gray fine SAND.	
									Brownish-gray fine SAND, moist to wet, strong odor, visible product.	
15	15	9	14-16	1.6	+				Brown fine SAND, saturated, no odor.	

 BLASLAND, BOUCK & LEE, INC. <i>engineers & scientists</i>	Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals, and PCBs. PID not functional.
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Client:

General Motors

Well/Boring ID: RFI-05-11

Site Location:

GM-Flint - Focused RFI
 Factory 36, Building 36

Borehole Depth: 18' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		10	16-18	1.5	-				Brown fine SAND, saturated, slight odor.	
20	20									
25	25									
30	30									
35	35									



Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals, and PCBs.
 PID not functional.

Date Start/Finish: 1/22/01
Drilling Company: Mateco
Driller's Name: Gary Swift
Drilling Method: Direct Push
Bit Size:
Auger Size:
Rig Type: Geoprobe 66 DT Track Rig
Sampling Method: 2" diam. + disposable liner
Hammer Weight:

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 16' below grade
Surface Elevation:

Geologist: Shawn Kerr

Well/Boring ID: RFI-05-13

Client: General Motors
Location: GM-Flint - Focused RFI
 Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.8	-					CONCRETE.	
		2	0.8-2	1.2					Brown fine to medium SAND.	
		3	2-4	1.8					Brown Sandy CLAY, stiff.	
									Brown fine to medium SAND.	
									Brown fine to medium SAND, some rounded grade Backfill, trace Clay.	
5	5	4	4-6	1.5					Brown fine to medium SAND.	
		5	6-8	0.3					Gray angular GRAVEL with brown Sand.	
		6	8-10	1.3	-				CONCRETE.	
									Gray angular GRAVEL with brown Sand.	
									Brown fine SAND.	
10	10	7	10-12	1.7	-				As above, wet.	
		8	12-14	1.3	+				As above, saturated. As above, saturated, odor.	
									Brown fine SAND, saturated.	
15	15	9	14-16	1.8	-				Brown fine to medium SAND, saturated.	



Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals, and PCBs.
 PID not functional.

Date Start/Finish: 1/22/01
 Drilling Company: Mateco
 Driller's Name: Gary Swift, Dennis Powney
 Drilling Method: Direct Push
 Bit Size:
 Auger Size:
 Rig Type: Geoprobe 66 DT Track Rig
 Sampling Method: 2" diam. + disposable liner
 Hammer Weight:

Northing: NA
 Easting: NA
 Casing Elevation: NA
 Borehole Depth: 17' below grade
 Surface Elevation:
 Geologist: Ron Kuhn

Well/Boring ID: RFI-05-14
 Client: General Motors
 Location: GM-Flint - Focused RFI
 Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.5	-				CONCRETE.		Flush Mount Cover
		2	0.5-2	2.0	-			Brown fine to medium SAND.		3/8" Bentonite Chips (0' - 10' bgs)
		3	2-4	1.5	-			Dark brown-black SAND. Brown fine to medium SAND.		1.5" ID Sch. 40 PVC Riser (0' - 12' bgs)
5	5	4	4-6	1.8	-			Black medium SAND. Brown fine to medium SAND, trace Clay. Brown fine to medium SAND.		
		5	6-8	1.9	-			Dark brown SAND. Gray angular GRAVEL with Sand. Brown fine SAND.		
10	10	6	8-10	2.0	-		X			
		7	10-12	1.2	-		X	Brown fine SAND, moist to wet. Very fine SAND, wet, odor.		#1 Drillers Sand (10' - 12' bgs)
		8	12-14	1.0	+			As above, saturated.		
15	15	9	14-16	1.9	+					Colorado #2040 Silica Sand (10' - 17' bgs)



Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals, and PCBs.
 PID not functional.

Client:


General Motors

Well/Boring ID: RFI-05-14

Site Location:

GM-Flint - Focused RFI
Factory 36, Building 36

Borehole Depth: 17' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
										 <p>Colorado #2040 Silica Sand (10' - 17' bgs)</p> <p>1.5" ID Sch. 40 PVC 0.010" Slot Screen (12' - 17' bgs)</p>
20	20									
25	25									
30	30									
35	35									



Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals, and PCBs.
PID not functional.

Date Start/Finish: 12/20/00
 Drilling Company: Mateco
 Driller's Name: John Pitch, Roy Hoin
 Drilling Method: Driven, temporary casing
 Bit Size:
 Auger Size:
 Rig Type: CME 45, skid mount
 Sampling Method: 2" diam.
 Hammer Weight: 140 lbs., 30" fall

Northing: NA
 Easting: NA
 Casing Elevation: NA
 Borehole Depth: 20' below grade
 Surface Elevation:
 Geologist: Brian Loomis

Well/Boring ID: RFI-36-3
 Client: General Motors
 Location: GM-Flint - Focused RFI
 Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.8	0.8	0.0			CONCRETE.	Flush Mount Cover Concrete Pad (0 - 0.5' bgs)	
		2	0.8-2	2.0	0.0		X	Brown and gray fine SAND. Dark brown fine SAND. Brown fine SAND.	Colorado #2040 Silica Sand (0 - 2.0' bgs)	
		3	2-4	2.0	0.0			Dark brown Silty CLAY, trace fine Sand, trace Gravel.		
5	5	4	4-6	2.0	0.0			Brown CLAY with gray mottles, trace Sand, trace Silt.	1.5" ID Sch. 40 PVC Riser (0.2' - 14.5' bgs)	
		5	6-8	2.0	0.0			Brown CLAY, some fine brown Sand.	3/8" Bentonite Chips (2.0' - 12.5' bgs)	
		7	8-10	1.4	0.0		X	Brown fine SAND, moist-wet @15.4'-16'.		
10	10	8	10-12	1.6	0.0					
		9	12-14	1.8	0.0					
15	15	10	14-16	2.0	0.0		X		1.5" ID Sch. 40 PVC 0.010" Slot Screen (14.5' - 19.5' bgs) Colorado #2040 Silica Sand (12.5' - 19.5' bgs)	



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.
 RFI-36-DUP-2 collected between 14'-16' below grade.

Client:

General Motors

Well/Boring ID: RFI-36-3

Site Location:

GM-Flint - Focused RFI
Factory 36, Building 36

Borehole Depth: 20' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
11		16-18		1.7		0.0			Brown fine SAND, saturated.	
12		18-20		2.0		0.0				
20	20									
25	25									
30	30									
35	35									



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.
RFI-36-DUP-2 collected between 14'-16' below grade.

Date Start/Finish: 12/19/00 Drilling Company: Mateco Driller's Name: John Pitch, Roy Hoin Drilling Method: Driven, temporary casing Bit Size: Auger Size: Rig Type: CME 45, skid mount on tracks Sampling Method: 2" diam. Hammer Weight: 140 lbs.	Northing: NA Easting: NA Casing Elevation: NA Borehole Depth: 24' below grade Surface Elevation: Geologist: Brian Loomis	Well/Boring ID: RFI-36-4 Client: General Motors Location: GM-Flint - Focused RFI Factory 36, Building 36
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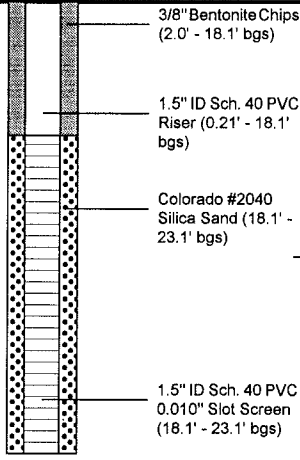
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.6	0.6	0.0			CONCRETE.		Flush Mount Cover
		2	0.6-2	1.1	0.0		X	Brown fine SAND, trace Silt. Dark brown fine SAND, trace Silt, trace Gravel.		Concrete Pad (0 - 0.5' bgs) Colorado #2040 Silica Sand (0 - 2.0' bgs)
		3	2-4	1.5	0.0			Brown firm CLAY, trace to some fine Sand. Brown fine SAND. Dark brown fine SAND.		
5	5	4	4-6	2.0	0.0			Brown Sandy CLAY. Dark brown fine to medium SAND.		1.5" ID Sch. 40 PVC Riser (0.21' - 18.1' bgs)
		5	6-8	1.5	0.0			Fine to medium SAND with Brick fragments, some Clay, some Silt, trace angular Gravel. (FILL)		3/8" Bentonite Chips (2.0' - 18.1' bgs)
		7	8-10	1.8	0.0		X	Brown fine to medium SAND.		
10	10	8	10-12	1.5	0.0			Brown Silty fine SAND. Brown fine SAND.		
		9	12-14	1.7	0.0					
15	15	10	14-16	1.6	0.2					

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 engineers & scientists

Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.
 RFI-36-DUP-1 collected between 18'-20' below grade
 Rinse Blank RFI 36 RB-1 collected 12/19/00 from split spoon

Client:
 General Motors
 Site Location:
 GM-Flint - Focused RFI
 Factory 36, Building 36

Well/Boring ID: RFI-36-4
 Borehole Depth: 24' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
11	16-18	16-18		2.0		0.0		Geologic Column	Brown fine SAND, wet @ 21.5', saturated 22'-24'.	 <p>3/8" Bentonite Chips (2.0' - 18.1' bgs) 1.5" ID Sch. 40 PVC Riser (0.21' - 18.1' bgs) Colorado #2040 Silica Sand (18.1' - 23.1' bgs) 1.5" ID Sch. 40 PVC 0.010" Slot Screen (18.1' - 23.1' bgs)</p>
12	18-20	18-20	1.2			X				
13	20-22	20-22		1.5		0.0				
14	22-24	22-24		2.0						
20	20									
25	25									
30	30									
35	35									



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.
 RFI-36-DUP-1 collected between 18'-20' below grade
 Rinse Blank RFI 36 RB-1 collected 12/19/00 from split spoon

Date Start/Finish: 12/18/00 Drilling Company: Mateco Driller's Name: Gary Swift Drilling Method: Direct Push Bit Size: Auger Size: Rig Type: Geoprobe 66 DT Track Rig Sampling Method: 2" diam. + disposable liner Hammer Weight:	Northing: NA Easting: NA Casing Elevation: NA Borehole Depth: 22' below grade Surface Elevation: Geologist: Ron Kuhn	Well/Boring ID: RFI-36-5 Client: General Motors Location: GM-Flint - Focused RFI Factory 36, Building 36
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DEPTH	ELEVATION	Sample Run Number	Sample/In/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.8	0.8	0.0			CONCRETE.		Flush Mount Cover
		2	0.8-2	1.0	0.0		X	Light brown to gray-black fine SAND, trace Silt, trace fine Gravel, damp, loose.		Concrete Pad (0 - 0.5' bgs)
		3	2-4	0.8	0.0			Light brown fine SAND, trace Silt, damp, loose.		Colorado #2040 Silica Sand (0 - 2.0' bgs)
5	5	4	4-6	0.8	0.0					1.5" ID Sch. 40 PVC Riser (0.13' - 17.0' bgs)
		5	6-8	1.6	0.0			Olive-brown to orange-brown Clayey SILT, trace fine Sand, damp.		3/8" Bentonite Chips (2.0' - 17.0' bgs)
10	10	7	8-10	2.0	0.0		X	Light brown very fine SAND, loose, damp, slight odor at 12-13.5 feet bgs.		
		8	10-12	2.0	0.0					
		9	12-14	1.5	0.0					
15	15	10	14-16	1.6	0.2			Light brown very fine SAND, loose, damp.		

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Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.

Client:

General Motors

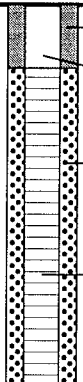
Well/Boring ID: RFI-36-5

Site Location:

GM-Flint - Focused RFI

Borehole Depth: 22' below grade

Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20	20	11	16-19	3.0	0.0				Light brown fine SAND, loose, saturated @ 18 feet.	 <p>3/8" Bentonite Chips (2.0' - 17.0' bgs) 1.5" ID Sch. 40 PVC Riser (0.13' - 17.0' bgs) Colorado #2040 Silica Sand (17.0' - 22.0' bgs) 1.5" ID Sch. 40 PVC 0.010" Slot Screen (17.0' - 22.0' bgs)</p>
20	20	12	19-22	1.9	0.0					
25	25									
30	30									
35	35									

Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.



Date Start/Finish: 12/19/00
 Drilling Company: Mateco
 Driller's Name: Gary Swift
 Drilling Method: Direct Push
 Bit Size:
 Auger Size:
 Rig Type: Geoprobe 66 DT Track Rig
 Sampling Method: 2" diam. + disposable liner
 Hammer Weight:

Northing: NA
 Easting: NA
 Casing Elevation: NA
 Borehole Depth: 21' below grade
 Surface Elevation:
 Geologist: Ron Kuhn

Well/Boring ID: RFI-36-6
 Client: General Motors
 Location: GM-Flint - Focused RFI
 Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
										Flush Mount Cover
0	0	1	0-0.7	0.7				CONCRETE.		Concrete Pad (0 - 0.5' bgs)
		2	0.7-2	1.0	0.8		X	Dark brown to gray-brown very fine SAND, little Silt, damp, slight odor.		Colorado #2040 Silica Sand (0 - 2.0' bgs)
		3	2-4	2.0	0.0			Olive-brown to orange-brown Clayey SILT, trace very fine Sand, damp.		1.5" ID Sch. 40 PVC Riser (0.15' - 16.0' bgs)
5	5	4	4-6	1.6	0.0					3/8" Bentonite Chips (2.0' - 16.0' bgs)
		5	6-8	1.6	0.0					
		6	8-10	0.0			X	No Recovery.		
10	10	7	10-12	1.6	0.0			Light brown to orange-brown very fine SAND, damp, loose.		
		8	12-14	1.6	0.0					
15	15	9	14-16	2.0	0.2					



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.

Client:
 General Motors
 Site Location:
 GM-Flint - Focused RFI
 Factory 36, Building 36

Well/Boring ID: RFI-36-6
 Borehole Depth: 21' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10	16-18	2.0	+	0.0				Light gray to gray fine SAND, loose, saturated @ 17 feet, slight odor, Jar test for NAPL, NAPL is clear.	<p>Colorado #2040 Silica Sand (16.0' - 21.0' bgs)</p> <p>1.5" ID Sch. 40 PVC 0.010" Slot Screen (16.0' - 21.0' bgs)</p>	
20	20	11	18-21	3.0	+	7.5		Gray fine SAND, loose, saturated, slight odor. Jar test (sheen present).		
25	25									
30	30									
35	35									



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.

Date Start/Finish: 12/20/00
Drilling Company: Mateco
Driller's Name: John Pitch, Roy Hoin
Drilling Method: Driven, temporary casing
Bit Size:
Auger Size:
Rig Type: CME 45, skid mount
Sampling Method: 2" diam.
Hammer Weight: 140 lbs, 30" fall

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 20' below grade
Surface Elevation:

Geologist: Brian Loomis

Well/Boring ID: RFI-36-7

Client: General Motors
Location: GM-Flint - Focused RFI
 Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.8					CONCRETE.	Flush Mount Cover	
		2	0.8-2	1.2		14.6	X	Brown and gray fine SAND, hydrocarbon odor.	Concrete Pad (0 - 0.5' bgs)	
								Same as above, strong hydrocarbon odor.	Colorado #2040 Silica Sand (0 - 2.0' bgs)	
		3	2-4	0.1	+ CN	18.2		Dark brown SAND and CLAY, trace Gravel, strong odor, product @ 4.6'.	1.5" ID Sch. 40 PVC Riser (0.15' - 15' bgs)	
5	5	4	4-6	1.5	+ CN	7.9		Brown fine SAND, odor, product present.	3/8" Bentonite Chips (2.0' - 15' bgs)	
		5	6-8	1.4		16.8		Brown fine SAND, product @ ~13.8'.		
		7	8-10	2.0		20.3	X			
10	10	8	10-12	2.0		19.7				
		9	12-14	2.0	+ CN	17.6	X			
								Brown fine SAND, slight hydrocarbon odor, saturated.	1.5" ID Sch. 40 PVC 0.010" Slot Screen (15' - 20' bgs)	
15	15	10	14-16	2.0		13.6			Colorado #2040 Silica Sand (15' - 20' bgs)	



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.
 Rinse Blank RFI 36 RB-2 collected 12/20/00 from split spoon.
 CN = Clear NAPL

Client:


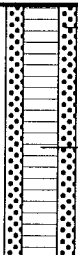



General Motors

Well/Boring ID: RFI-36-7

Site Location:

GM-Flint - Focused RFI
Factory 36, Building 36

Borehole Depth: 20' below grade


DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
11	16-18	16-18		2.0		12.5			Brown fine SAND, slight hydrocarbon odor, saturated.	 <p>Colorado #2040 Silica Sand (15' - 20' bgs)</p> <p>1.5" ID Sch. 40 PVC 0.010" Slot Screen (15' - 20' bgs)</p>
									Brown Sandy CLAY, stiff, saturated.	
									Brown fine SAND, saturated.	
12	18-20	18-20		2.0		13.2			Brown CLAY, stiff, saturated	
20	20									
25	25									
30	30									
35	35									



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.
Rinse Blank RFI 36 RB-2 collected 12/20/00 from split spoon.
CN = Clear NAPL


Date Start/Finish: 12/21/00 Drilling Company: Mateco Driller's Name: Gary Swift, Dennis Powney Drilling Method: Direct Push Bit Size: Auger Size: Rig Type: Geoprobe 66 DT Track Rig Sampling Method: 2" diam. + disposable liner Hammer Weight:	Northing: NA Easting: NA Casing Elevation: NA Borehole Depth: 18' below grade Surface Elevation: Geologist: Ron Kuhn	Well/Boring ID: RFI-36-11 Client: General Motors Location: GM-Flint - Focused RFI Factory 36, Building 36
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0									Flush Mount Cover
		1	0-0.8	0.8				CONCRETE.		Concrete Pad (0 - 0.5' bgs)
		2	0.8-2.0	1.2	0.0		X	Black fine SAND, trace Silt, loose, damp. Black fine foundry SAND, little Silt, loose, damp.		Colorado #2040 Silica Sand (0 - 2.0' bgs)
		3	2.0-4.0	2.0	0.0			Orange-brown Clayey SILT, mottled, trace fine Sand, stiff, damp.		
5	5	4	4.0-6.0	2.0	0.3					1.5" ID Sch. 40 PVC Riser (0.18' - 10.9' bgs)
		5	6.0-8.0	1.6	0.0			Light Brown to orange-brown fine SAND, loose, wet at ~10'.		3/8" Bentonite Chips (2.0' - 10.9' bgs)
		6	8.0-10.0	1.5	0.0		X			
10	10	7	10.0-12.0	1.4	0.0		X	Orange-brown grading to gray-brown, very fine SAND, loose, wet.		Colorado #2040 Silica Sand (10.9' - 15.9' bgs)
		8	12.0-14.0	1.5	0.0			Gray-brown very fine SAND, saturated.		
15	15	9	14.0-16.0	2.0						1.5" ID Sch. 40 PVC 0.010" Slot Screen (10.9'-15.9' bgs)

 BLASLAND, BOUCK & LEE, INC. <i>engineers & scientists</i>	Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals
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Client: General Motors Site Location: GM-Flint - Focused RFI Factory 36, Building 36	Well/Boring ID: RFI-36-11 Borehole Depth: 18' below grade
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		10	16.0-18.0	2.0					Gray-brown very fine SAND, saturated.	
20	20									
25	25									
30	30									
35	35									

 BLASLAND, BOUCK & LEE, INC. <i>engineers & scientists</i>	Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals
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Date Start/Finish: 12/20/00
 Drilling Company: Mateco
 Driller's Name: Gary Swift, Dennis Powney
 Drilling Method: Direct Push
 Bit Size:
 Auger Size:
 Rig Type: Geoprobe 66 DT Track Rig
 Sampling Method: 2" diam. + disposable liner
 Hammer Weight:

Northing: NA
 Easting: NA
 Casing Elevation: NA
 Borehole Depth: 14' below grade
 Surface Elevation:
 Geologist: Ron Kuhn, Shawn Kerr

Well/Boring ID: RFI-36-12
 Client: General Motors
 Location: GM-Flint - Focused RFI
 Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 0										Flush Mount Cover
		1	0-0.8	0.8				CONCRETE.		Concrete Pad (0 - 0.5' bgs)
		2	0.8-2	1.0	0.0		X	Black fine foundry SAND, trace Silt, damp.		Colorado #2040 Silica Sand (0 - 2.0' bgs)
		3	2-4	2.0	0.0			Brown fine SAND, trace SILT, loose, damp.		
5 5		4	4-6	1.6	0.3			Black foundry SAND, trace Silt, damp.		1.5" ID Sch. 40 PVC Riser (0.15' - 9.2' bgs)
		5	6-8	1.7	0.0			Orange-brown fine SAND, loose, damp.		3/8" Bentonite Chips (2.0' - 9.2' bgs)
		6	8-10	1.5	0.0		X	Orange-brown very fine SAND and SILT, saturated at 10'.		
10 10		7	10-12	1.6	0.0					Colorado #2040 Silica Sand (9.2' - 14.2' bgs)
		8	12-14	1.7	0.0					1.5" ID Sch. 40 PVC 0.010" Slot Screen (9.2'-14.2' bgs)
15 15										



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals

Date Start/Finish: 12/20/00
 Drilling Company: Mateco
 Driller's Name: Gary Swift, Dennis Powney
 Drilling Method: Direct Push
 Bit Size:
 Auger Size:
 Rig Type: Geoprobe 66 DT Track Rig
 Sampling Method: 2" diam. + disposable liner
 Hammer Weight:

Northing: NA
 Easting: NA
 Casing Elevation: NA
 Borehole Depth: 20' below grade
 Surface Elevation:
 Geologist: Ron Kuhn, Shawn Kerr

Well/Boring ID: RFI-36-15
 Client: General Motors
 Location: GM-Flint - Focused RFI
 Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.8	0.8				CONCRETE.		Flush Mount Cover
		2	0.8-2	1.2	0.0		X	Orange-brown to dark brown fine SAND, little Silt. Orange-brown mottled Clayey SILT, stiff, moist.		Concrete Pad (0 - 0.5' bgs) Colorado #2040 Silica Sand (0 - 2.0' bgs)
		3	2-4	2.0	0.0			As above with trace fine Sand.		
5	5	4	4-6	2.0	0.0					1.5" ID Sch. 40 PVC Riser (0.3' - 14.5' bgs)
		5	6-8	2.0	0.0					3/8" Bentonite Chips (2.0' - 14.5' bgs)
10	10	6	8-10	2.0	0.0		X	Orange-brown fine SAND, trace Silt, loose, damp.		
		7	10-12	1.5	0.0					
		8	12-14	1.8	0.0					
15	15	9	14-16	1.6	0.0		X	Orange-brown to gray-brown fine SAND, loose, wet, clear NAPL present.		Colorado #2040 Silica Sand (14.5' - 19.5' bgs) 1.5" ID Sch. 40 PVC 0.010" Slot Screen (14.5' - 19.5' bgs)



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals
 MS/MSD collected between 14'-16'
 CN = clear NAPL

Client:
 General Motors
 Site Location:
 GM-Flint - Focused RFI
 Factory 36, Building 36

Well/Boring ID: RFI-36-15
 Borehole Depth: 20' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/In/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		10	16-18	2.0	+ CN	0.0			Gray-brown very fine SAND, saturated, loose.	<p>Colorado #2040 Silica Sand (14.5' - 19.5' bgs)</p> <p>1.5" ID Sch. 40 PVC 0.010" Slot Screen (14.5' - 19.5' bgs)</p>
		11	18-20	2.0	+ CN	0.0			Gray-brown very fine SAND and SILT, saturated, loose.	
20	20									
25	25									
30	30									
35	35									



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals
 MS/MSD collected between 14'-16'
 CN = clear NAPL

Date Start/Finish: 12/19-20/00
 Drilling Company: Mateco
 Driller's Name: Gary Swift, Dennis Powney
 Drilling Method: Direct Push
 Bit Size:
 Auger Size:
 Rig Type: Geoprobe 66 DT Track Rig
 Sampling Method: 2" diam. + disposable liner
 Hammer Weight:

Northing: NA
 Easting: NA
 Casing Elevation: NA
 Borehole Depth: 24' below grade
 Surface Elevation:
 Geologist: Ron Kuhn

Well/Boring ID: RFI-36-16
 Client: General Motors
 Location: GM-Flint - Focused RFI
 Factory 36, Building 36

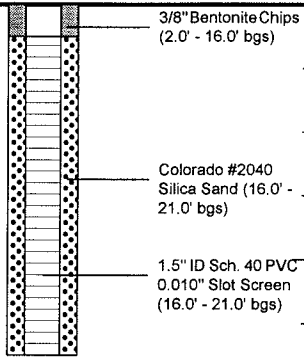
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 0		1	0-0.9	0.9	0.0			CONCRETE.		Flush Mount Cover
		2	0.9-2	1.0	0.0		X	Dark gray to black foundry fine Sand, trace Silt, slight odor, loose, damp.		Concrete Pad (0 - 0.5' bgs)
		3	2-4	2.0	0.0			Olive-brown to orange-brown Clayey SILT, trace very fine Sand, damp.		Colorado #2040 Silica Sand (0 - 2.0' bgs)
5 5		4	4-6	2.0	0.0					1.5" ID Sch. 40 PVC Riser (0.15' - 16.0' bgs)
		5	6-8	2.0	0.0					3/8" Bentonite Chips (2.0' - 16.5' bgs)
10 10		6	8-10	2.0	0.0		X	Light brown fine SAND, trace Silt, loose, damp.		
		7	10-12	1.6	0.0					
		8	12-14	1.6	+ CN	0.5			Same as above with slight odor, trace of clear NAPL.	
15 15		9	14-16	2.0	+ CN	0.0			Gray-brown very fine SAND, trace Silt, slight odor, loose, trace clear NAPL, damp.	



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.
 CN = Clear NAPL

Client:
 General Motors
 Site Location:
 GM-Flint - Focused RFI
 Factory 36, Building 36

Well/Boring ID: RFI-36-16
 Borehole Depth: 24' below grade


DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10	16-18	16-18	2.0	+ CN	0.0				Gray-brown very fine SAND and SILT grading to gray-brown Clayey SILT @ 17'.	
								Same as above @ 17'.		
11	18-20	18-20	2.0	+ CN	0.0	X				
20	20							Gray-brown fine SAND, saturated @ 19.5'		
								Gray-brown very fine SAND and SILT, saturated.		
12	20-22	20-22	2.0	+ CN	0.0					
13	22-24	22-24	2.0	+ CN	0.0					
25	25									
30	30									
35	35									

Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.
 CN = Clear NAPL



Date Start/Finish: 1/25/01 Drilling Company: Mateco Driller's Name: Gary Swift Drilling Method: Direct Push Bit Size: Auger Size: Rig Type: Geoprobe 66 DT Track Rig Sampling Method: 2" diam. + disposable liner Hammer Weight:	Northing: NA Easting: NA Casing Elevation: NA Borehole Depth: 16' below grade Surface Elevation: Geologist: Shawn Kerr	Well/Boring ID: RFI-81-04 Client: General Motors Location: GM-Flint - Focused RFI Factory 36, Building 36
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-1	-				CONCRETE.		Flush Mount Cover
		2	1-2	0.0				No Recovery.		3/8" Bentonite Chips (0' - 7.0' bgs)
		3	2-4	0.3						
5	5	4	4-6	1.3				Dark gray-black fine to medium SAND with small to large rounded and angular GRAVEL. Brown fine SAND. Black fine SAND with large angular Rock.		1.5" ID Sch. 40 PVC Riser (0' - 9.0' bgs)
		5	6-8	1.1				Brown fine to medium SAND, black staining at 6.4' and 6.9' bgs.		
		6	8-10	1.0			X	Brown medium to coarse SAND and GRAVEL. Black foundry SAND with Slag.		#1 Sand (7.0' - 9.0' bgs)
10	10	7	10-12	1.2			X X X X X X X X X X	Black SAND, FILL material, and Metal Chunks. As above, saturated.		#2040 Silica Sand (9.0' - 14' bgs)
		8	12-14	1.5				Dark gray-black Sandy CLAY. Gray fine SAND, trace Clay, angular Gravel.		
15	15	9	14-16	2.0				Brownish-gray CLAY, stiff.		1.5" ID x 1 7/8" OD Sch. 40 PVC 0.010" Slot Screen with 0.011 SS Mesh (9.0' - 14' bgs)

 BLASLAND, BOUCK & LEE, INC. <i>engineers & scientists</i>	Remarks: Samples collected for TCL VOCs, SVOCs, TAL Metals, and PCBs. PID not functional.
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Date Start/Finish: 1/25/01
Drilling Company: Mateco
Driller's Name: Gary Swift
Drilling Method: Direct Push
Bit Size:
Auger Size:
Rig Type: Geoprobe 66 DT Track Rig
Sampling Method: 2" diam. + disposable liner
Hammer Weight:




Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 2.8' below grade
Surface Elevation:

Geologist: Shawn Kerr

Well/Boring ID: RFI-81-05

Client: General Motors
Location: GM-Flint - Focused RFI
 Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0									
		1	0-1.1	-					CONCRETE.	
		2	1.1-2.8	1.7					Black medium SAND with Gravel and Wood chunks.	
									CONCRETE, powdery.	
5	5									
10	10									
15	15									



Remarks: Spoon gets stuck in concrete at 2'-4' interval. Site is abandoned and new site will attempt to be located and cleared for this drilling event.
 PID not functional.

Date Start/Finish: 1/29/01
Drilling Company: Mateco
Driller's Name: Gary Swift
Drilling Method: Direct Push
Bit Size:
Auger Size:
Rig Type: Geoprobe 66 DT Track Rig
Sampling Method: 2" diam. + disposable liner
Hammer Weight:

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 14' below grade
Surface Elevation:

Geologist: Shawn Kerr

Well/Boring ID: RFI-83/84-03

Client: General Motors
Location: GM-Flint - Focused RFI
 Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 0										
		1	0-0.5	-					CONCRETE.	
		2	0.5-2	1.0			X		Brown fine to medium SAND.	
		3	2-4	1.4					Light brown fine SAND, moist from 5.7' to 5.9' bgs.	
5 5		4	4-6	1.9					Brown fine to medium SAND.	
		5	6-8	1.9					Brown fine to medium SAND.	
		6	8-10	1.9			X		Dark brown fine to medium SAND, strong odor. Black fine to medium SAND, wet, odor.	
10 10		7	10-12	2.0			X		Gray CLAY with fine SAND. Black fine to medium SAND, wet.	
		8	12-14	1.9					Gray CLAY, wet. Black fine to medium SAND, saturated. Gray CLAY.	
15 15										



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.
 Dup-RFI-05 collected at 10' - 12'. MS/MSD collected from 8' - 10'.
 PID not functional.

Date Start/Finish: 1/29/01 Drilling Company: Mateco Driller's Name: Gary Swift Drilling Method: Direct Push Bit Size: Auger Size: Rig Type: Geoprobe 66 DT Track Rig Sampling Method: 2" diam. + disposable liner Hammer Weight:	Northing: NA Easting: NA Casing Elevation: NA Borehole Depth: 18' below grade Surface Elevation: Geologist: Shawn Kerr	Well/Boring ID: RFI-83/84-04 Client: General Motors Location: GM-Flint - Focused RFI Factory 36, Building 36
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DEPTH	ELEVATION	Sample Run Number	Sample Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-0.7	-				CONCRETE.		Flush Mount Cover
		2	0.7-2	1.3	-					3/8" Bentonite Chips (0' - 7.0' bgs)
		3	2-4	0.5				Brown medium to coarse SAND, some green stuff.		
		4	4-6	1.3	+			Dark brown fine SAND, moist. Dark brown coarse SAND with angular chunks. Gray fine SAND, slight odor, moist.		1.5" ID Sch. 40 PVC Riser (0' - 11' bgs)
		5	6-8	1.5	+			Gray fine SAND, trace Clay, moist, odor.		
		6	8-10	1.8	-		X	Gray CLAY, trace brown Sand, moist. Dark gray SAND with gray CLAY. Gray CLAY.		#1 Sand (7.0' - 11' bgs)
		7	10-12	1.6	-			Gray and brown mottled CLAY and SAND. Gray CLAY with SAND, moist. Gray CLAY with fine SAND, saturated.		
		8	12-14	1.8			X	Gray CLAY.		#2040 Silica Sand (11' - 16' bgs)
		9	14-16	1.6				Brown fine SAND with CLAY, saturated. Brown-gray mottled CLAY, saturated.		1.5" ID x 1 7/8" OD Sch. 40 PVC 0.010" Slot Screen with 0.011 SS Mesh (11' - 16' bgs)



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.
PID not functional.

Client:

General Motors

Well/Boring ID: RFI-83/84-04

Site Location:

GM-Flint - Focused RFI

Borehole Depth: 18' below grade

Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		10	16-18	1.9					Gray-brown CLAY, saturated.	
									Gray CLAY.	
20	20									
25	25									
30	30									
35	35									



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.
PID not functional.

Date Start/Finish: 1/29/01
 Drilling Company: Mateco
 Driller's Name: Gary Swift
 Drilling Method: Direct Push
 Bit Size:
 Auger Size:
 Rig Type: Geoprobe 66 DT Track Rig
 Sampling Method: 2" diam. + disposable liner
 Hammer Weight:

Northing: NA
 Easting: NA
 Casing Elevation: NA
 Borehole Depth: 14' below grade
 Surface Elevation:
 Geologist: Shawn Kerr

Well/Boring ID: RFI-83/84-10
 Client: General Motors
 Location: GM-Flint - Focused RFI
 Factory 36, Building 36

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Oil/Water Shake Test	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction	
0 0		1	0-0.5	-				CONCRETE.			
		2	0.5-2	0.9			X	Brown fine to medium SAND. Dark brown fine to medium SAND, trace Clay and large Gravel.			
		3	2-4	1.4				Dark brown medium SAND with GRAVEL and BRICK chunks. Brown fine to medium SAND.			
5 5		4	4-6	1.8				Light brown fine SAND. Gray CLAY with brown fine to medium SAND, moist from 5.1' to 5.3' bgs.		Backfilled with Bentonite to grade	
		5	6-8	1.6				Brown fine SAND, trace Clay. BRICK chunks. Light brown fine to medium SAND. Gray CLAY with light brown fine to medium SAND.			
		6	8-10	1.2			X	Brown fine to medium SAND. BRICK chunks. Light brown fine to medium SAND.			
10 10		7	10-12	2.0			X	Gray fine to medium SAND, odor, moist. As above, trace coarse Sand, moist.			
		8	12-14	1.4				Brown fine to medium SAND, moist. Brown fine SAND, saturated. Gray CLAY.			
15 15		9									



Remarks: Samples collected for TCL VOCs, SVOCs, and TAL Metals.
 PID not functional.