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MPCA, MAR Division
Petroleum & Landfill Remediation Section

LIMITED SITE INVESTIGATION (MODIFIED)

MCDA USTFIELD SITE 2 - MPCA

2530 34TH STREET EAST

(FORMERLY 3324 HIAWATHA AVENUE)

MINNEAPOLIS, MINNESOTA

Terracon Project No. 41027029

December 12, 2002

Prepared for:

MINNESOTA POLLUTION CONTROL AGENCY

Majors and Remediation Division

Petroleum and Landfill Remediation Section

520 Lafayette Road North

St. Paul, Minnesota 55155

Prepared by:

TERRACON

3535 Hoffman Road East

White Bear Lake, Minnesota 55110

Terracon

December 12, 2002



3535 Hoffman Road East
White Bear Lake, Minnesota 55110-5376
(651) 770-1500 Fax: (651) 770-1657

Ms. Kathryn Serier
Minnesota Pollution Control Agency
Majors and Remediation Division
Petroleum and Landfill Remediation Section
520 Lafayette Road North
St. Paul, Minnesota 55155

RE: Limited Site Investigation (Modified)
MCDA USTFIELD Site 2 – MPCA
2530 34th Street East (formerly 3324 Hiawatha Avenue)
Minneapolis, Minnesota
Terracon Project No. 41027029
MPCA Site ID#: LEAK00014847

Dear Ms. Serier:

Terracon has completed a Limited Site Investigation (LSI) at the above-referenced site. The LSI consisted of chemical analysis of soil samples and groundwater samples collected from soil probes advanced in July 2002 at the site and historical research. The purpose of the LSI was to assess whether petroleum contamination was present from previous underground storage tanks reportedly located at the site. The site is currently being evaluated for redevelopment by the Minneapolis Community Development Authority (MCDA). The LSI was performed in general conformance with our proposal dated July 10, 2002. These activities were authorized by the Minnesota Pollution Control Agency (MPCA) under Work Order LTE-308.

Terracon appreciates the opportunity to work with you on this project. If you have questions or require additional information, please do not hesitate to contact our office at 651-770-1500.

Sincerely,
TERRACON

A handwritten signature in black ink, appearing to read "Jennifer L. Mlynck".

Jennifer L. Mlynck
Environmental Scientist

A handwritten signature in black ink, appearing to read "Paul J. Wiese".

Paul J. Wiese, P.G.
Project Manager/Hydrogeologist

JLMP/JW:jlm N:\02\02_7029\029LSI(MODIFIED).DOC

cc: John Harrington, MCDA, 105 5th Avenue South, Suite 200, Minneapolis, MN 55402

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LIMITED SITE INVESTIGATION (MODIFIED)

MCDA USTFIELD SITE 2 - MPCA

2530 34th STREET EAST

(FORMERLY 3324 HAWATHA AVENUE)

MINNEAPOLIS, MINNESOTA

TERRACON PROJECT NO. 41027029

Introduction

Seven soil probes (B1 through B6, and B8) were advanced at the site to depths of 24 to 28 feet below ground surface (bgs). The soil probe locations are depicted on Figure 2. One soil sample was collected from each probe, with two being collected from probe B-6. Refer to Tables 3 and 4 for the summary of soil analytical results. Groundwater samples were collected from soil probes B1 through B5, and B8. Refer to Tables 6 and 7 for the summary of groundwater analytical data. The entire laboratory analytical reports are included in Appendix B.

A historical summary of our historical research review, including MCDA information, historical maps, aerial photographs, fire insurance maps, a chain-of-title, city environmental records, a visual reconnaissance of the property, and a findings summary is included in Appendix A. Methods used to conduct the assessment are included in Appendix C. Soil probe logs are included in Appendix D. Grain size analysis results are included in Appendix E.

Recommendations

Per discussion with MPCA personnel, Terracon does not recommend further additional assessment activities be performed at the site at this time. A copy of this report is being forwarded on to the MCDA.

General Comments

The analysis and opinions expressed in this report are based upon data obtained from the soil borings and laboratory chemical analysis at the indicated locations or from other information discussed in this report. This report does not reflect variations in subsurface stratigraphy, hydrogeology, and contaminant distribution which may occur across the site. Actual subsurface conditions may vary and may not become evident without further assessment.

This report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted environmental engineering practices. No warranties are intended or made. In the event any changes in the nature or location of suspected sources of contamination as outlined in this report are observed, the conclusions and recommendations contained in this report shall not be valid

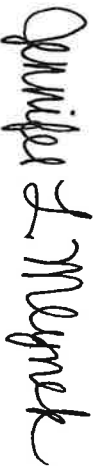
MCDA USTFIELD Site 2 – MPCA
Minneapolis, Minnesota
Terracon Project No. 41027029
December 12, 2002

Terracon

unless these changes are reviewed and the opinions of this report are modified or verified in writing by Terracon.

Terracon appreciates the opportunity to submit this report and we look forward to our working together on any future projects. If you have questions or require additional information, please do not hesitate to contact our office at 651-770-1500.

Sincerely,
TERRACON



Jennifer L. Mlynec
Environmental Scientist

JLM/PJW:jim

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Paul J. Wiese, P.G.
Project Manager/Hydrogeologist

**TABLE 2 - RESULTS OF SOIL HEADSPACE SCREENING
MCDA USTFIELD SITE 2 - MPCA
MINNEAPOLIS, MINNESOTA
TERRACON PROJECT NO. 41027029**

Depth (ft)	Soil Probe or Boring									
	B-1	B-2	B-3	B-4	B-5	B-6	B-8			
2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
12	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	<1.0			
14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
16	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
18	<1.0	NS	NS	NS	NS	NS	<1.0			
20	<1.0	NS	NS	NS	NS	NS	<1.0			
22	<1.0	NS	NS	NR	NS	NS	<1.0			
24	<1.0	1.3	<1.0	NR	7.8	1.8	<1.0			
26	EOB = 24 ft	EOB = 24 ft	EOB = 24 ft	EOB = 24 ft	EOB = 24 ft	NR	<1.0			
28						NR	<1.0			
30						EOB = 28 ft	EOB = 28 ft			

Notes:

Organic vapor concentrations for Terracon borings were measured in parts per million (ppm) using a ThermoEnvironmental 580B OVM equipped with a 10.6 eV lamp as reference to an isobutylene standard.

< = Less than 1 ppm

ND = Not detected (<1 ppm)

NR = No Recovery

NS = Not Sampled

TABLE 3 - SOIL ANALYTICAL RESULTS
 MCDA USTFIELD SITE 2 - MPCA
 MINNEAPOLIS, MINNESOTA
 TERRACON PROJECT NO. 41027029

Sample Location	Depth in Feet	Sample Date	Benzene mg/kg	Toluene mg/kg	E-Benzene mg/kg	Xylenes mg/kg	MTBE ¹ mg/kg	GRO ² mg/kg	DRO ³ mg/kg	Lab Type
B-1	10-12	07/24/02	<0.051	<0.051	<0.051	<0.15	<0.20	<5.1	<7.9	Fixed
B-2	22-24	07/26/02	<0.055	<0.055	<0.055	<0.17	<0.22	<5.5	<9.0	Fixed
B-3	12-14	07/26/02	<0.053	<0.053	<0.053	<0.16	<0.21	<5.3	36	Fixed
B-4	10-12	07/29/02	<0.055	<0.055	<0.055	<0.17	<0.22	<5.5	16	Fixed
B-5	A 22-24	07/30/02	<0.054	<0.054	<0.054	<0.160	<0.220	<5.4	14	Fixed
B-6	12-14	07/30/02	<0.057	<0.057	<0.057	<0.17	<0.23	<5.7	<43	Fixed
B-6	A 20-24	07/30/02	<0.30	<0.30	<0.30	<0.91	<0.30	<6.0	13	Fixed
B-8	2-4	07/29/02	<0.061	<0.061	<0.061	<0.18	<0.24	<6.1	<44	Fixed
QA/QC Samples										
Trip Blank	-	07/29/02	<0.050	<0.050	<0.050	<0.15	<0.20	<5.0	-	Fixed
Trip Blank	-	07/30/02	<0.050	<0.050	<0.050	<0.15	<0.20	<5.0	-	Fixed
Method Blank	-	07/29/02	<0.050	<0.050	<0.050	<0.15	<0.20	<5.0	<10	Fixed
Method Blank	-	07/30/02	<0.050	<0.050	<0.050	<0.15	<0.20	<5.0	18	Fixed
Equip. Blank	-	07/29/02	<0.050	<0.050	<0.050	<0.15	<0.20	-	-	Fixed
SRVs	-	-	1.5	145	190	122	NE	NE	NE	NE
SLVs	-	-	0.034	6.4	4.7	45	NE	NE	NE	NE

Soil volatile concentrations in milligrams per kilogram (mg/kg). Mg/kg is equal to parts per million (ppm)

Notes:

< = less than the laboratory reporting limits

- = Not analyzed

NE = Not Established

SRVs = Tier 1 Soil Reference Values (MPCA)

SLVs = Tier 1 Soil Leaching Values (MPCA)

¹MTBE denotes methyl-tert -butyl ether.

²GRO = gasoline-range organics.

³DRO = diesel-range organics.

^AAnalyte found in blank as well as sample

TABLE 4 - OTHER NOTABLE SOIL ANALYTICAL RESULTS
MCDU USTFIELD SITE 2 - MPCA
MINNEAPOLIS, MINNESOTA
TERRACON PROJECT NO. 41027029

Sample Location	Depth in Feet	Sample Date	Acetone mg/kg	1,2-DCA mg/kg	Naphthalene mg/kg	Lab Type
B-6	20-24	07/30/02	<0.30	<0.30	<0.30	fixed
QA/QC Samples						
Method Blank	-	07/30/02	<0.25	<0.25	<0.25	fixed
SRVs	-	-	320	4	10	-
SLVs	-	-	0.7	0.010	7.5	-

Notes:

Concentrations in milligrams per kilogram (mg/kg). Mg/kg is equal to parts per million (ppm)

< = less than the laboratory reporting limits

SRVs = Tier 1 Soil Reference Values (MPCA)

SLVs = Tier 1 Soil Leaching Values (MPCA)

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**TABLE 5 - WATER LEVEL MEASUREMENTS AND DEPTH OF WATER SAMPLES COLLECTED FROM BORINGS
MCDA USTFIELD SITE 2 - MPCA
MINNEAPOLIS, MINNESOTA
TERRACON PROJECT NO. 41027029**

	Soil Boring or Probe								
	B-1	B-2	B-3	B-4	B-5	B-6	B-8		
Static Water Level Depth (ft)	22	22.5	21.5	21.3	23.4	ND	25.3		
Sampled Depth (ft)	20-24	19-24	20-25	19-24	19-24	NC	23-28		

Note: Methods used to measure water levels and collect samples are included in Appendix C.

ND = Not Detected
 NM = Not Measured
 NC = Not Collected

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**TABLE 6 - GROUNDWATER ANALYTICAL RESULTS
MCDA USTFIELD SITE 2 - MPCA
MINNEAPOLIS, MINNESOTA
TERRACON PROJECT NO. 41027029**

Sample Location	Depth in Feet	Sample Date	Benzene µg/L	Toluene µg/L	E-Benzene µg/L	Xylenes µg/L	MTBE ¹ µg/L	Naphthalene µg/L	GRO ² µg/L	DRO ³ µg/L	Lab Type
B-1	22	07/26/02	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<100	<120	Fixed
B-2	22.5	07/29/02	<1.0	3.0	<1.0	<3.0	<1.0	<1.0	<100	<120	Fixed
B-3	21.5	07/26/02	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<100	<110	Fixed
B-4	21.3	07/29/02	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<100	130	Fixed
B-5	23.4	07/30/02	<1.0	2.7	<1.0	<3.0	<1.0	<1.0	<100	<110	Fixed
B-8	25.3	07/29/02	<1.0	2.7	<1.0	<3.0	<1.0	<1.0	<100	<110	Fixed
QA/QC Samples											
Trip Blank	-	07/29/02	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<100	-	Fixed
Method Blank	-	07/29/02	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<100	<100	Fixed
Method Blank	-	07/30/02	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<100	<100	Fixed
HRL / HBV⁴			10	1000	700	10000	70	300	200	200	-

Notes:

Groundwater volatile concentrations in micrograms per liter (µg/L) which is equivalent to parts per billion (ppb).

< denotes less than Practical Quantification Limit

- = Not analyzed or applicable

¹MTBE denotes methyl-tert-butyl ether.

²GRO = gasoline-range organics.

³DRO = diesel-range organics.

D = Duplicate

⁴HRL / HBV denotes MDH H

⁵NE denotes not established

**TABLE 7- OTHER NOTABLE GROUNDWATER ANALYTICAL RESULTS
 MCDA USTFIELD SITE 2 - MPCA
 MINNEAPOLIS, MINNESOTA
 TERRACON PROJECT NO. 41027029**

Sample Location	Sample Date	Acetone ug/l	Chloro-methane ug/l	1,2-DCA ug/l	Methyl ethyl ketone ug/l	n-Propyl benzene ug/l	1,2,4 TMB ug/l	1,3,5 TMB ug/l	Lab Type
B-1	07/26/02	6.1	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	Fixed
B-2	07/29/02	<5.0	2.7	<1.0	<5.0	<1.0	<1.0	<1.0	Fixed
B-3	07/26/02	<5.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	Fixed
B-4	07/29/02	6.0	4.8	<1.0	<5.0	<1.0	<1.0	<1.0	Fixed
B-5	07/30/02	<5.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	Fixed
B-8	07/29/02	<5.0	2.7	<1.0	<5.0	<1.0	<1.0	<1.0	Fixed
QA/QC Samples									
Trip Blank	07/29/02	<5.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	Fixed
Method Blank	07/29/02	<5.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	Fixed
Method Blank	07/30/02	<5.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	Fixed
HRL ¹	-	700	NE	4	4000	NE	NE	NE	-

Notes:

Groundwater volatile concentrations in micrograms per liter (µg/L) which is equivalent to parts per billion (ppb).

< denotes less than laboratory reporting limit

- = Not analyzed or applicable

NE denotes not established

D = Duplicate Sample

¹HRL = MDH Health Risk Limit. MDH Health Base Value, EPA Maximum Contaminant Level or Action Level used as default if HRL is not been established

E = Value exceeds highest calibration standard and should be considered an estimate

TABLE 13 - PROPERTIES LOCATED WITH 500 FEET OF THE RELEASE SOURCE
 MCDA USTFIELD SITE 2 - MPCA
 MINNEAPOLIS, MINNESOTA
 TERRACON PROJECT NO. 41027029

Map Location	Company / Occupant	Property Address	PO Box	Water Well	How Determined*	Well Use**	Public Water Supply	Confirmed By City	Basement Or Sumps	Possible Petroleum Sources	Comments Property use
1	Qwest	3301 24th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Commercial
2	Residential	2428 33rd Street East	-	No	No Reply	--	Yes	Yes	No	No	Residential
3	Residential	3300 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
4	Residential	3304 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
5	Residential	3310 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
6	Residential	3312 25th Avenue South	-	No	Vacant	--	Yes	Yes	No	No	Residential
7	Residential	3314 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
8	Residential	3320 25th Avenue South	-	No	No Reply	--	Yes	No	No	No	Residential
9	Residential	3322 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
10	Residential	3326 25th Avenue South	-	No	Reply	--	Yes	Yes	Yes	No	Residential
11	Residential	3330 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
12	Residential	3334 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
13	Residential	3338 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
14	Residential	3400 25th Avenue South	-	No	Reply	--	Yes	Yes	Yes	No	Residential
15	Residential	3402 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
16	Residential	3406 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
17	Residential	3301 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
18	Vacant Land	3303 25th Avenue South	-								Vacant Land
19	Residential	3305 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
20	Residential	3311 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
21	Residential	3313 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
22	Residential	3317 25th Avenue South	-	No	Addressee Unknc	--	Yes	Yes	No	No	Residential
23	Residential	3321 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
24	Residential	3323 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
25	Residential	3327 25th Avenue South	-	No	Reply	--	Yes	Yes	No	No	Residential
26	Residential	3331 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
27	Residential	3335 25th Avenue South	-	No	Reply	--	Yes	Yes	Yes	No	Residential
28	Residential	3339 25th Avenue South	-	No	Reply	--	Yes	Yes	No	No	Residential
29	Residential	3401 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
30	Residential	3403 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
31	Residential	3407 25th Avenue South	-	No	Reply	--	Yes	Yes	Yes	No	Residential
32	Residential	3411 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
33	Residential	3415 25th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
34	Vacant Land	2432 334d Street East	-								Vacant Land
35	Residential	3404 26th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
36	Residential	3406 26th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
37	Residential	3410 26th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
38	Residential	3414 26th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
39	Residential	3418 26th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
40	Residential	3401 26th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
41	Residential	3405 26th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
42	Residential	3409 26th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
43	Residential	3413 26th Avenue South	-	No	No Reply	--	Yes	Yes	No	No	Residential
44	Moto Mart C-Store	3301 Hiawatha Avenue	-	No	No Reply	--	Yes	Yes	No	No	Commercial
45	Commercial	3355 Hiawatha Avenue	-	No	Reply	--	Yes	Yes	No	No	Commercial
46	Commercial	3435 Hiawatha Avenue	-	No	No Reply	--	Yes	Yes	No	No	Commercial
47	Commercial	3401 Hiawatha Avenue	-	No	No Reply	--	Yes	Yes	No	No	Commercial

Notes: *As per MPCA Fact Sheet 3.20, properties for which no reply was received to a questionnaire are assumed to have no well or basement.

DO = Dommestic CO = Commercial IND = Industrial MU = Municipal IR = Irrigation
 - = Not applicable

**TABLE 14 - WATER SUPPLY WELLS LOCATED WITHIN 500 FEET OF THE
RELEASE SOURCE AND MUNICIPAL OR INDUSTRIAL WELLS WITHIN 1/2 MILE
MCDA USTFIELD SITE 2 - MPCA
MINNEAPOLIS, MINNESOTA
TERRACON PROJECT NO. 41027029**

Unique Well #	Ground Elevation*	Total Depth (ft)	Base of Casing (ft)	Static Elevation**	Aquifer	Use	Owner	Distance & Direction From Source
235546	835	379	143	NR	MTPL ¹	CO	Nile Theater-Abandoned	3000 ft S-SE
200602	835	502	238	775	OPDC	IN	Atkinson Mill Co	3000 ft S-SW
200601	831	46	NR	NR	NR	PS	Longfellow Field - MPLS	4300 ft E-SE
225897	840	247	173	782	MTPL ²	PS	Longfellow Field - MPLS	3500 ft North
201088	840	427	256	NR	MTPL ³	IN	MPLS Moline	3500 ft N-NE

*Elevation from USGS Topographic, Reference in Feet to Mean Sea Level

**Static Water Elevation Reference in Feet to Mean Sea Level (Ground - Depth to Water)

NR = Not Reported

QBAA = Quaternary Buried Artesian Aquifer

CMSH= Mount Simon Hinkley Sandstone

CJFS = Jordan Sandstone Formation

CO = Commercial IN = Industrial

QAA = Quaternary Artesian Aquifer

OPDC = Prairie du Chien Group

CSTL = St. Lawrence Formation

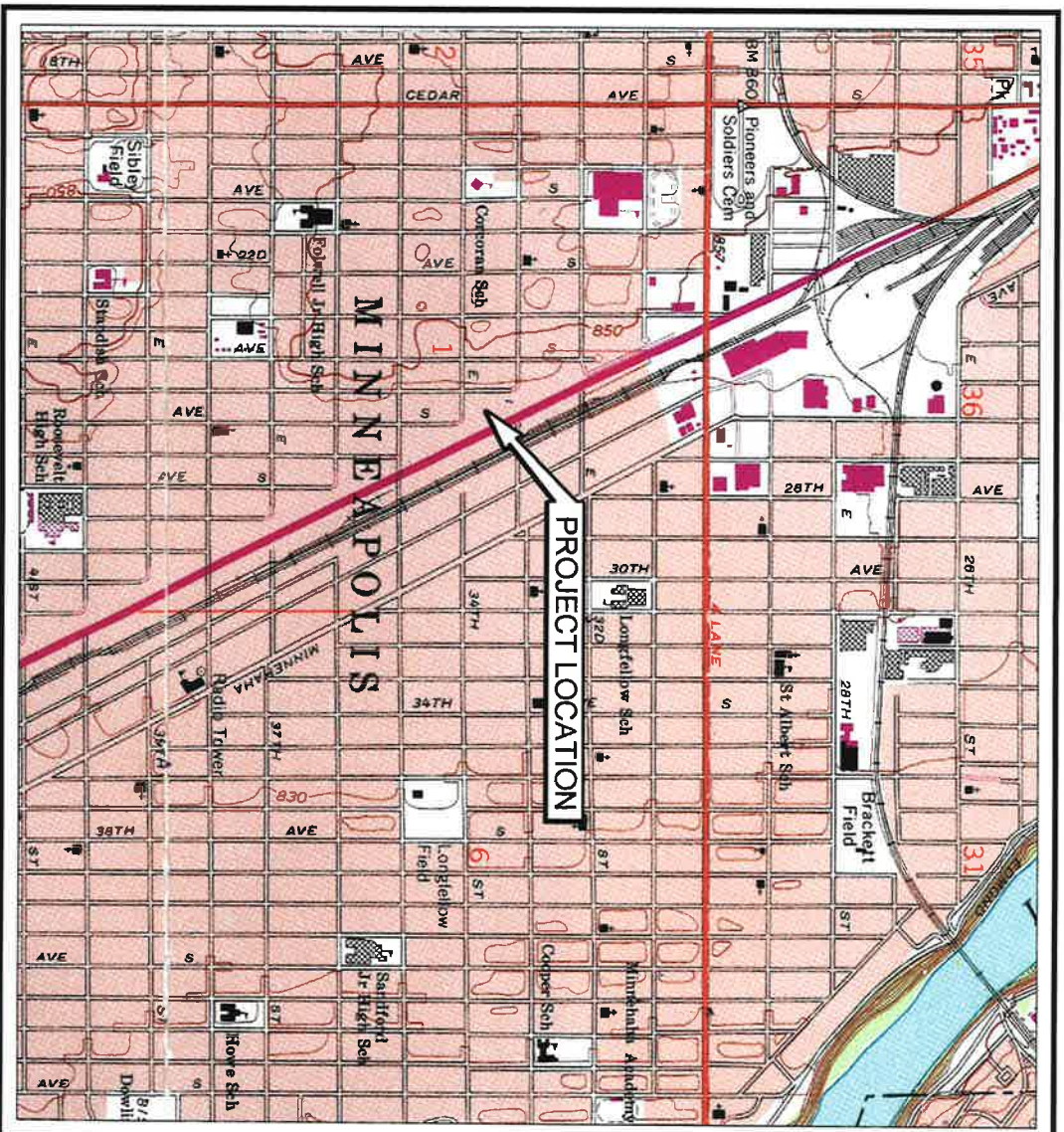
PS = Public Supply DO = Domestic

MTPL¹ = Multiple Aquifer (PDC-Jordan)

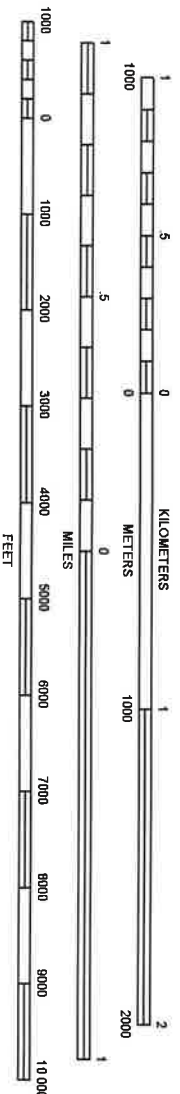
MTPL² = Multiple Aquifer (Jordan only?)

MTPL² = Multiple Aquifer (OPDC-CJSF-CSTL)

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SCALE 1:24 000

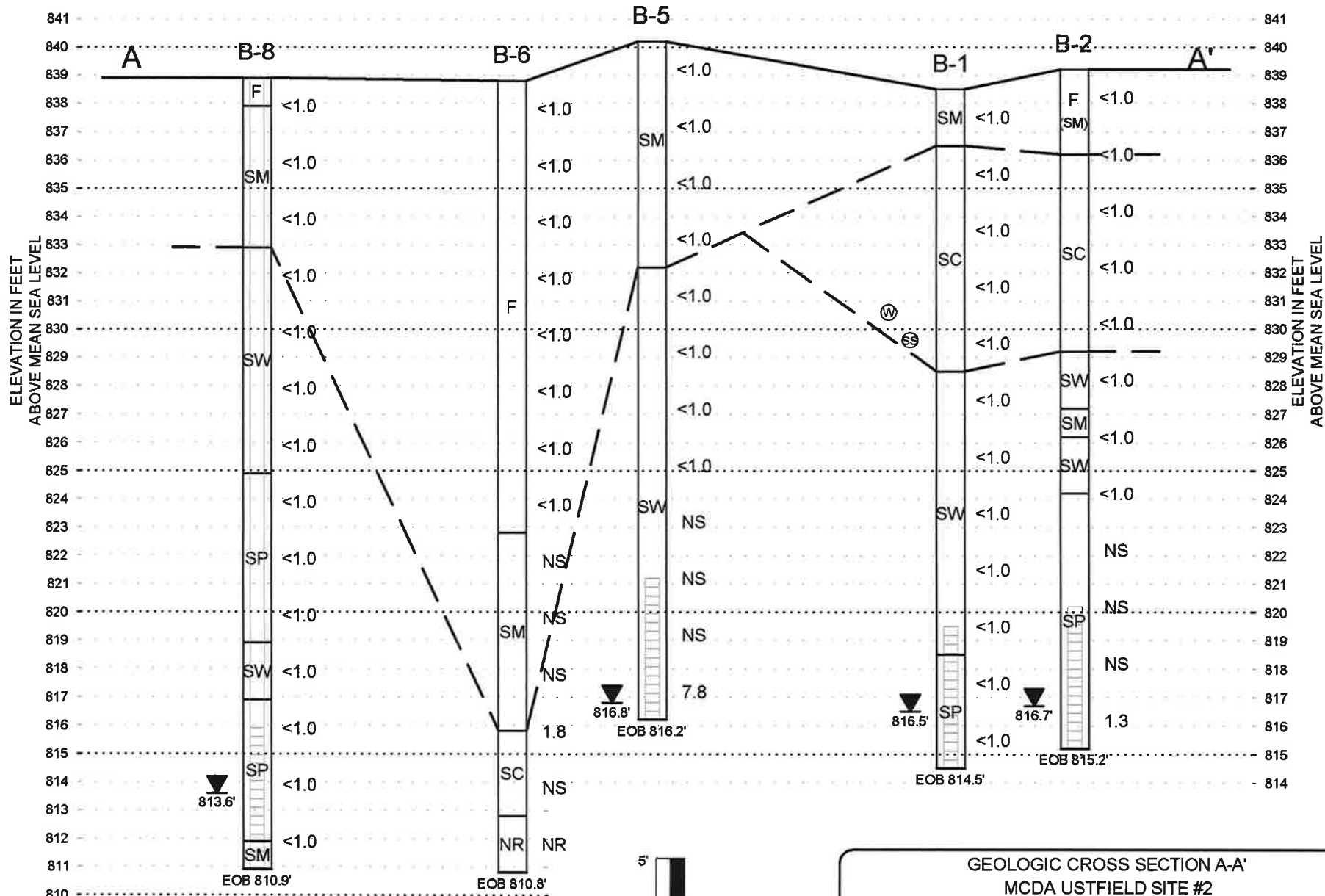


SAINT PAUL WEST QUADRANGLE
 MINNESOTA - HENNEPIN COUNTY
 7.5 MINUTE SERIES (TOPOGRAPHIC)

SITE LOCATION MAP
 MCDA USTFIELD SITE #2
 3324 HIAWATHA AVENUE
 MINNEAPOLIS, MN
 MPCA



Project Mng'r: PJW		Project No. 41027029	
Designed By: JLM		Scale: AS SHOWN	
Checked By: JLM		Date: 08/05/02	
Approved By: PJW		Drawn By: BMS (41)	
File Name: 41027029sl.dwg		Figure No. 1	
		3535 Hoffman Road East White Bear Lake, MN 55110	
		TOPO	



LEGEND	
F	= FILL
SM	= SILTY SAND
SW/SP	= SAND
SC	= CLAYEY SAND
CL	= CLAY
	= WATER TABLE LEVEL

NOTE: THE STRATIGRAPHIC BOUNDARIES DEPICTED ARE BASED UPON INTERPOLATION AND EXTRAPOLATION OF SOIL DATA COLLECTED FROM THE BORINGS SHOWN. ACTUAL CONDITIONS MAY VARY.

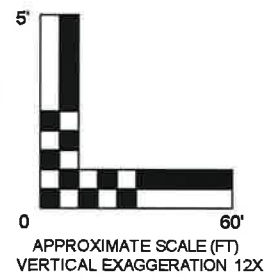
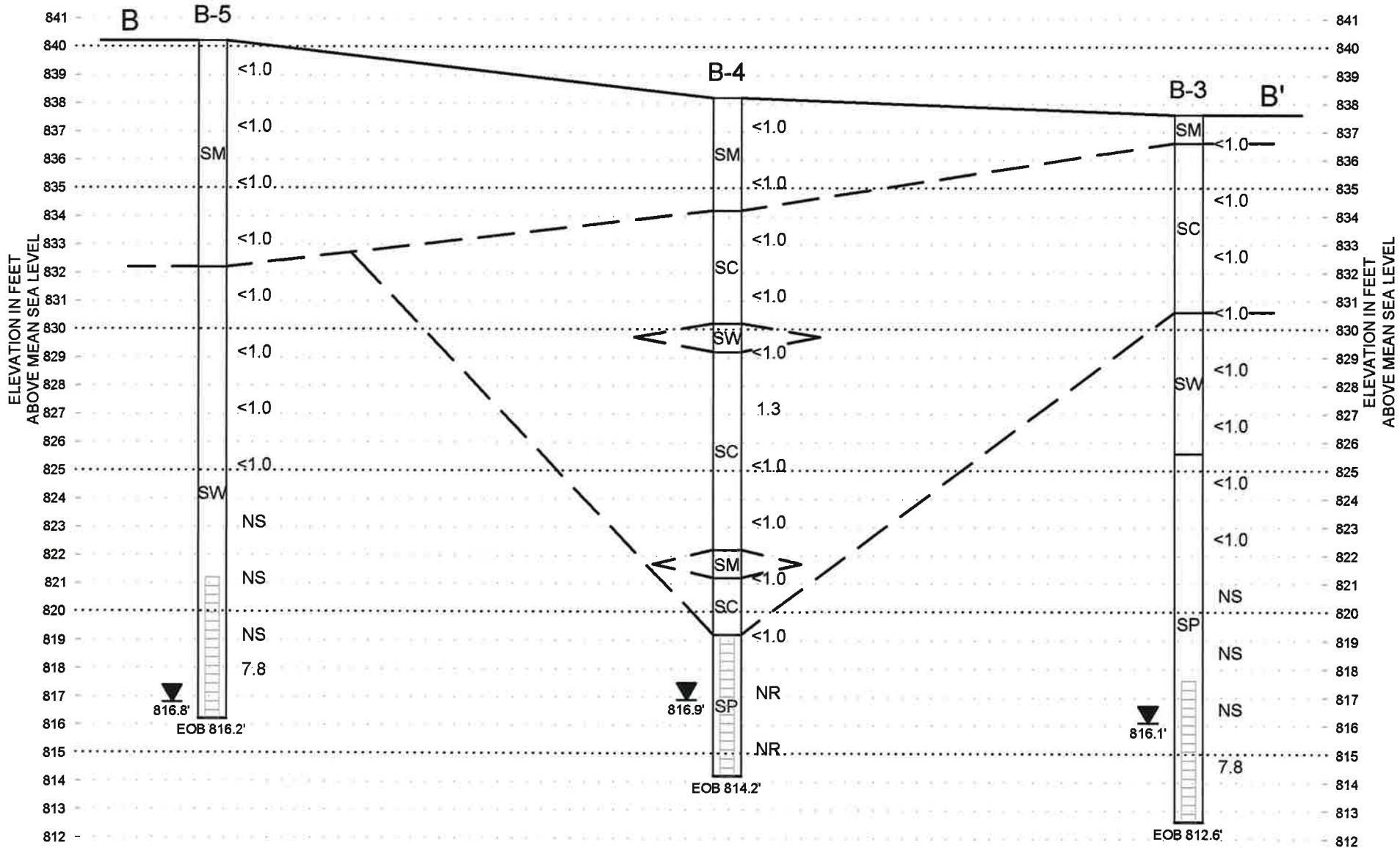


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

GEOLOGIC CROSS SECTION A-A'		
MCDA USTFIELD SITE #2		
1601 GLENWOOD AVENUE		
MINNEAPOLIS, MN		
MPCA		
Project Mngr:	PJW	Project No. 41027029
Designed By:	PJW	Scale: AS SHOWN
Checked By:	PJW	Date: 08/27/02
Approved By:	DJW	Drawn By: BMS (41)
File Name:	PAUL.dwg	Figure No. 5A

Terracon
 3535 Hoffman Road East
 White Bear Lake, MN 55110



LEGEND	
F	= FILL
SM	= SILTY SAND
SW/SP	= SAND
SC	= CLAYEY SAND
CL	= CLAY
	WATER TABLE LEVEL

NOTE: THE STRATIGRAPHIC BOUNDARIES DEPICTED ARE BASED UPON INTERPOLATION AND EXTRAPOLATION OF SOIL DATA COLLECTED FROM THE BORINGS SHOWN. ACTUAL CONDITIONS MAY VARY.

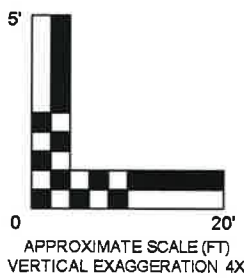
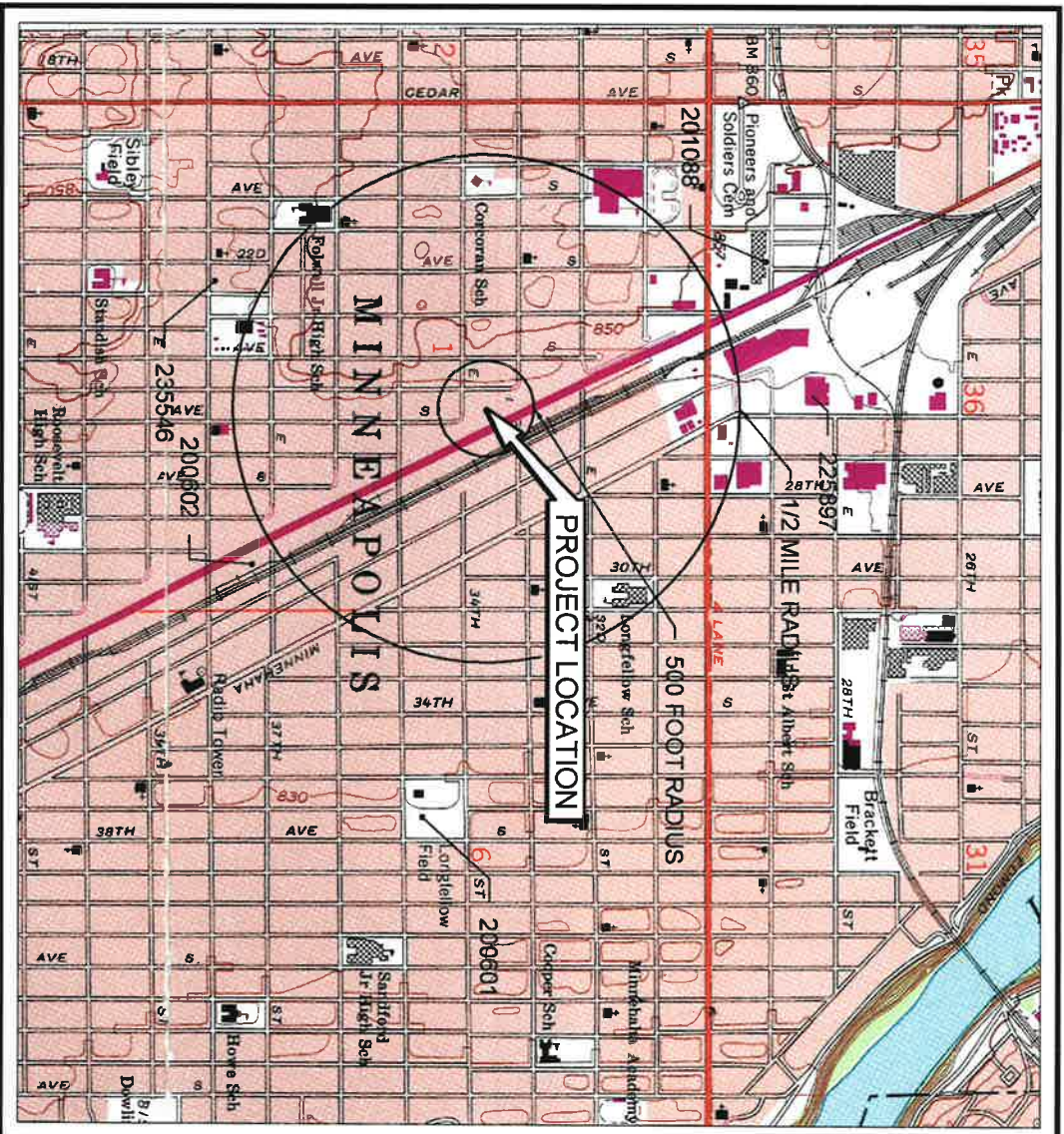
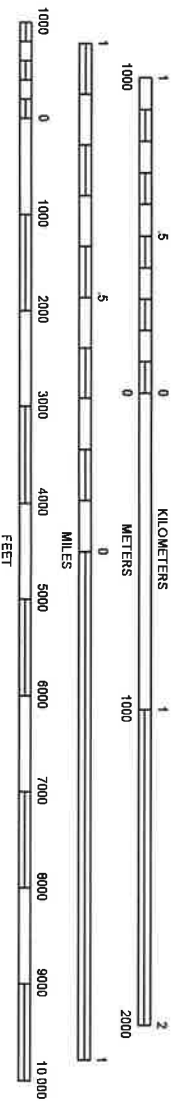


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

GEOLOGIC CROSS SECTION B-B'				
MCDA USTFIELD #2				
1601 GLENWOOD AVENUE				
MINNEAPOLIS, MN				
MPCA				
Project Mngr:	PJW	 3535 Hoffman Road East White Bear Lake, MN 55110	Project No.	41027029
Designed By:	PJW		Scale:	AS SHOWN
Checked By:	PJW		Date:	08/28/02
Approved By:	DJW		Drawn By:	BMS (41)
File Name:	PAUL.dwg	B-B'	Figure No.	5B



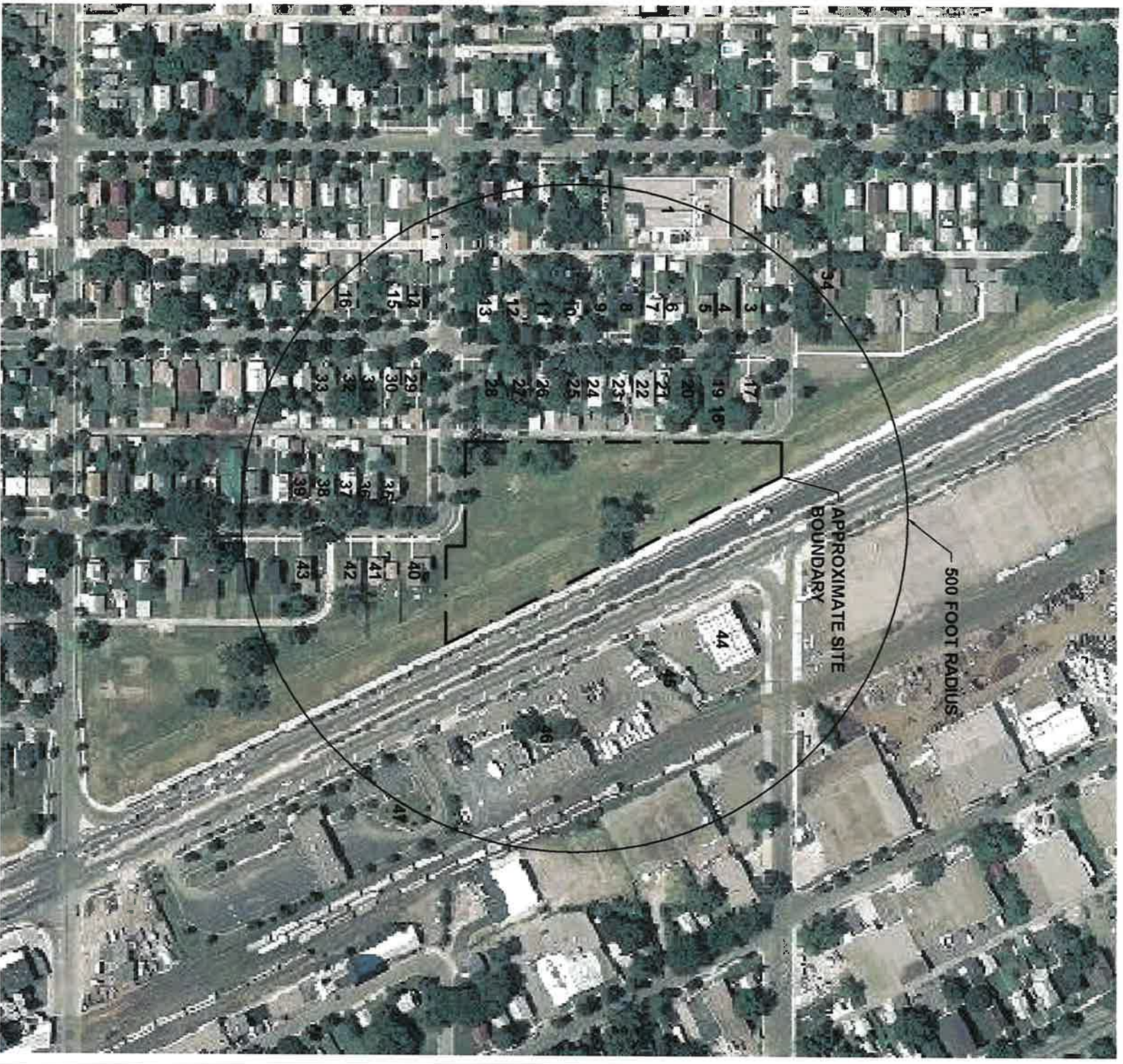
SCALE 1:24 000



SAINT PAUL WEST QUADRANGLE
 MINNESOTA - HENNEPIN COUNTY
 7.5 MINUTE SERIES (TOPOGRAPHIC)



WELL RECEPTOR MAP		Project No. 41027029
MCDA USTFIELD SITE #2		Scale: AS SHOWN
3324 HIAWATHA AVENUE		Date: 08/05/02
MINNEAPOLIS, MN		Drawn By: BMS (41)
MPCA		Figure No. 6A
Project Mgr: PJW	Terracon	
Designed By: JLM		
Checked By: JLM		3535 Hoffman Road East
Approved By: PJW		White Bear Lake, MN 55110
File Name: 41027029s1.dwg		WELL



APPROXIMATE SITE
BOUNDARY

500 FOOT RADIUS

500 FOOT RADIUS
 MCDA USTFIELD SITE 2 - MPCA
 3324 HIAWATHA AVENUE
 MINNEAPOLIS, MN
 MPCA



Project Mgr:	PJW	Project No.	41027029
Designed By:	PJW	Scale:	NO SCALE
Checked By:	PJW	Date:	08/20/02
Approved By:	DJW	Drawn By:	BMS (41)
File Name:	41027029ap.dwg	Aerial	Figure No.
			6B

DIAGRAM IS FOR GENERAL LOCATION ONLY
 AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

R1 BMS (41) DATE



HISTORICAL SUMMARY

MCDCA USTFIELD Site 2 – MPCA
2530 34TH Street East
(formerly 3324 Hiawatha Avenue)
Minneapolis, Minnesota 55406
Terracon Project No. 41027029
MPCA Site ID#: LEAK00014847

MCDCA Information

According to Mr. John Harrington with the Minneapolis Community Development Authority (MCDCA), the site reportedly had underground storage tanks (USTs) formerly on-site. Mr. Harrington did not have additional information regarding the site.

Historical Topographic Maps

Readily available historical topographic maps from the University of Minnesota John R. Borchert Map Library were reviewed to obtain information concerning the history of development on the site.

Historical Topographic Maps

USGS Map/Date	Site Description
USGS Topographic Map, St. Paul West, Minnesota Quadrangle, 1951	The site is depicted as a built-up area. A roadway (26 th Avenue) trends north to south through the site. Single structures are not depicted.
USGS Topographic Map, St. Paul West, Minnesota Quadrangle, 1967, 1972, and 1967 (revised 1972 and 1980)	The site appears to be unchanged from the 1951. The proposed location of the expansion of Hiawatha is depicted on each of these three topographic maps.
USGS Topographic Map, St. Paul West, Minnesota Quadrangle, 1967 (revised 1993)	The site is depicted as a built-up area. The roadway (26 th Avenue) no longer goes through the site. The expansion of Hiawatha Avenue has been constructed.

Historical Aerial Photographs

Readily available historical aerial photographs from the University of Minnesota John R. Borchert Map Library were reviewed to obtain information concerning the history of development on the site. Evaluation of these aeriels may be limited by a photographs quality and scale. Selected photographs are summarized below:

Historical Aerial Photographs

Date, Source and Map ID #	Site Description
1940, 1945, 1953, 1957	The site is depicted with several residential developments, a building that appears to be non-residential at the northern most portion of the site, and a roadway trending north to south through the site.
1980	The site is depicted with the building located at the northern most portion of the site and one residential development located in the southern portion of the site. The road trending north to south appears to have been removed.
1987	The only remaining building is located on the northern most portion of the site.
1990	The site is vacant and appears to be graded.
1997	The site is vacant and appears to have a vegetative cover.

Historical Fire Insurance Maps

Historical fire insurance maps produced by the Sanborn Map Company were requested from Environmental Data Resources, Inc. (EDR) to evaluate past uses and relevant characteristics of the site. Based upon inquiries to the above-listed Sanborn provider, the following Sanborn Maps were available for the site area in their collection.

Historical Fire Insurance Map

Date, Source and Map ID #	Site Description
1912	Two unidentified structures, one stable, and a portion of a dwelling are located on the northern portion of the site. One unidentified structure, one stable, and one dwelling were located in the southwestern corner of the site. A street trending north to south was located on the eastern portion of the site.
1950	An auto repair shop was located on the far northern portion of the site. Six private garages, nine dwellings, and one stable were located along the western portion of the site. A street trending north to south was located on the eastern portion of the site. East of the street was one private garage and two dwellings.
1952	An auto repair shop was located on the far northern portion of the site. Eight private garages, nine dwellings, and one stable were located along the western portion of the site. A street trending north to south was located on the eastern portion of the site. East of the street was one private garage and two dwellings.
1965, 1968	An auto repair shop was located on the far northern portion of the site. Ten private garages, ten dwellings, and one stable were located along the western portion of the site. A street trending north to south was located on the eastern portion of the site. East of the street was one private garage and two dwellings. Adjacent east of the site is a suspected service station.

City of Minneapolis Property Information Website (www.ci.minneapolis.mn.us/propertyinfo/)

Property Information			
General Information			
PID: 01-028-24-13-0102			
Lot Size: Approximately 76,131 square feet			
Zoning: R1A – Single Family District			
Business Licenses		License ID:	Expiration Date:
No business licenses were listed for this address.			
Structure Information			
Establishments: No structures of establishments are listed for this property.			
Inspection Permits		Date:	Permits:
		1987	wrecking/moving
		2000	variance issued
		2000	site plan
		2000	conditional use
		2000	application for subdivision

Other information: 3324 Hiawatha Avenue was identified as a previous address at the site. This is the address for the wrecking/moving permit.

Hennepin County Property Information Search Website (www.2.co.hennepin.mn.us/pins/)

The Hennepin County Property Information website was reviewed to obtain ownership information for the site. The property address was identified as 3324 Hiawatha Avenue (PID #01-028-24-13-0102). The property owner was identified as MCDA. The property type is listed as vacant land - residential non-homestead on approximately 1.841 acres. No construction year or sale information was on file for this property.

Historical Chain of Title Report

Hennepin County Deed Records were reviewed by NETR Real Estate Research & Information to obtain a chain-of-title for the site. Ownership records were reviewed back to 1993. Records were not searched farther back due to the complexity of the replatting of the property into new legal descriptions.

Based on a review of the title provider's research, the current site owner is Minneapolis Community Development Agency as per Quitclaim Deeds, from the State of Minnesota, dated June 25, 1993, August 9, 1993, and October 22, 1993. Leases or environmental liens were not found on record for the site.

**City of Minneapolis Environmental Management Department of Inspections and
Regulatory Services File Search**

The site address was identified historically as 3324 Hiawatha Avenue and currently as 2530 34th Street East. No tanks were registered with this property. A permit for wrecking was issued for 3324 Hiawatha Avenue in November 1987, which was consistent with the City of Minneapolis Property Information websites record of a permit for wrecking/moving in the same year. Other permits pertaining to petroleum related activities were not found. The file review is attached.

Findings

The site was developed with one dwelling on the northern portion and one dwelling on the southern portion of the site dating back to 1912. The entire site block was observed with dwellings and an Auto Repair shop was depicted on the far northern portion of the site in 1950 until 1968. The 1980 aerial photograph shows the northern most building (the auto repair shop) and one dwelling on the southern portion of the site. The road that was previously north to south on the eastern portion of the site appears to be removed. The only building remaining on the site in 1987 is the auto repair shop. The site is vacant as of 1990. No business licenses or structure information was provided on the City of Minneapolis Property information website; however, permit for wrecking/moving was dated 1987. No tanks were registered for the site with the City of Minneapolis.

Adjacent to the east of the site in the 1965 and 1968 Sanborn map is a suspected service station. Surrounding the remaining portions of the site were dwellings. During a visual survey of the site, housing was located on to the west and south of the site and Hiawatha Avenue was along the east and north of the site.

General Comments

This report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted environmental engineering practices. No warranties, express or implied are intended or made. In the event any changes in the nature or location of suspected sources of contamination as outlined in this report are observed, the conclusions and recommendations contained in this report shall not be valid unless these changes are reviewed and the opinions of this report are modified or verified in writing by Terracon.

MCDA USTFIELD Site 2 – MPCCA
Minneapolis, Minnesota
Terracon Project No. 41027029
December 12, 2002

Terracon

If you have questions or require additional information, please do not hesitate to contact our office.

Sincerely,
TERRACON



Jennifer L. Mlynek
Environmental Scientist

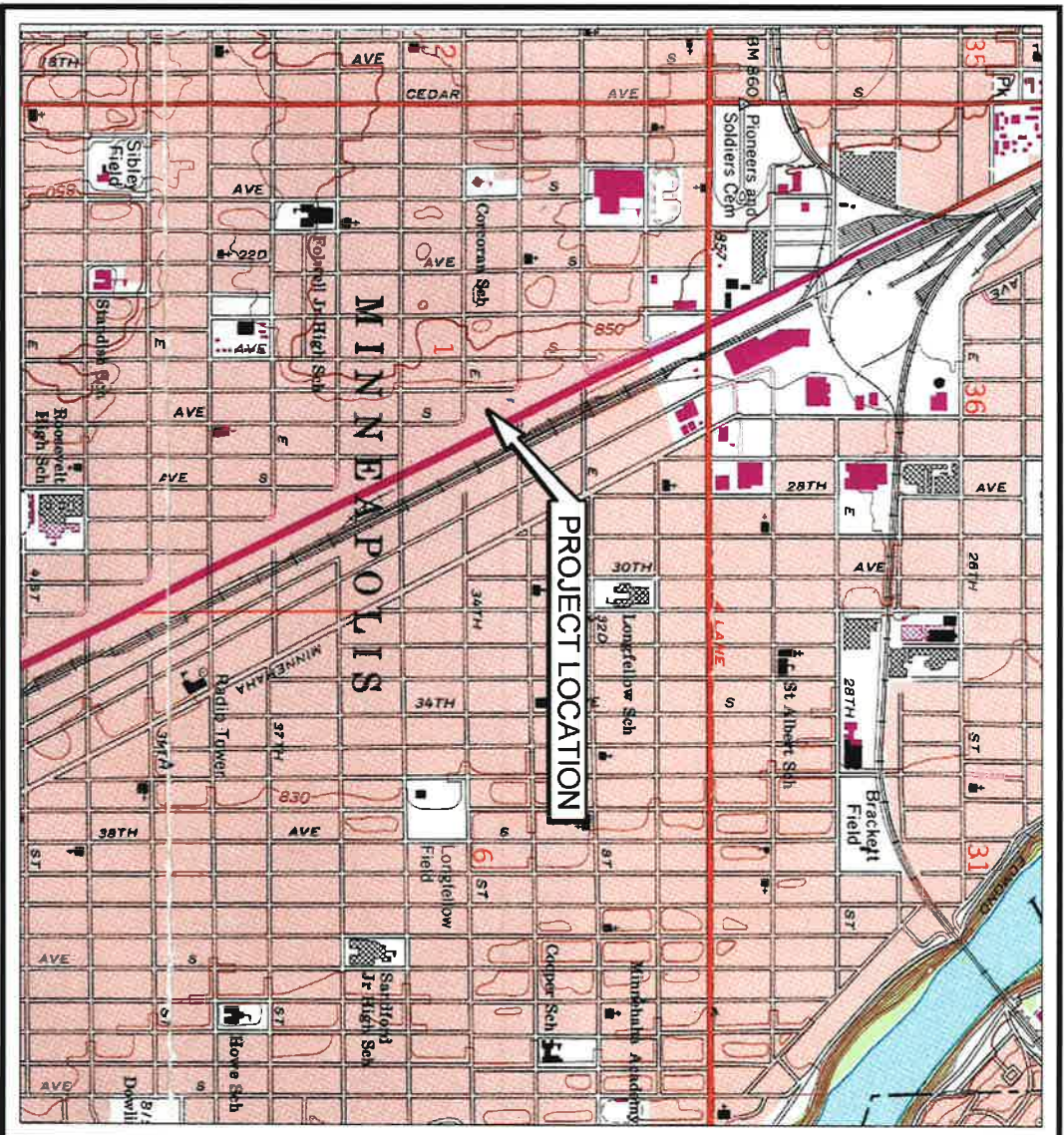


Paul J. Wiese, P.G.
Project Manager/Hydrogeologist

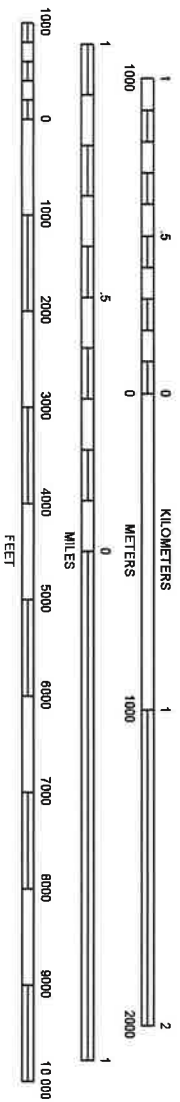
JLM/PJW:jlm

N:\02\02_7029\HISTORICAL SUMMARY SITE 2.DOC

Site Maps and Photographs



SCALE 1:24 000



SAINT PAUL WEST QUADRANGLE
 MINNESOTA - HENNEPIN COUNTY
 7.5 MINUTE SERIES (TOPOGRAPHIC)

SITE LOCATION MAP
 MCDA USTFIELD SITE #2
 3324 HIAWATHA AVENUE
 MINNEAPOLIS, MN
 MPCA




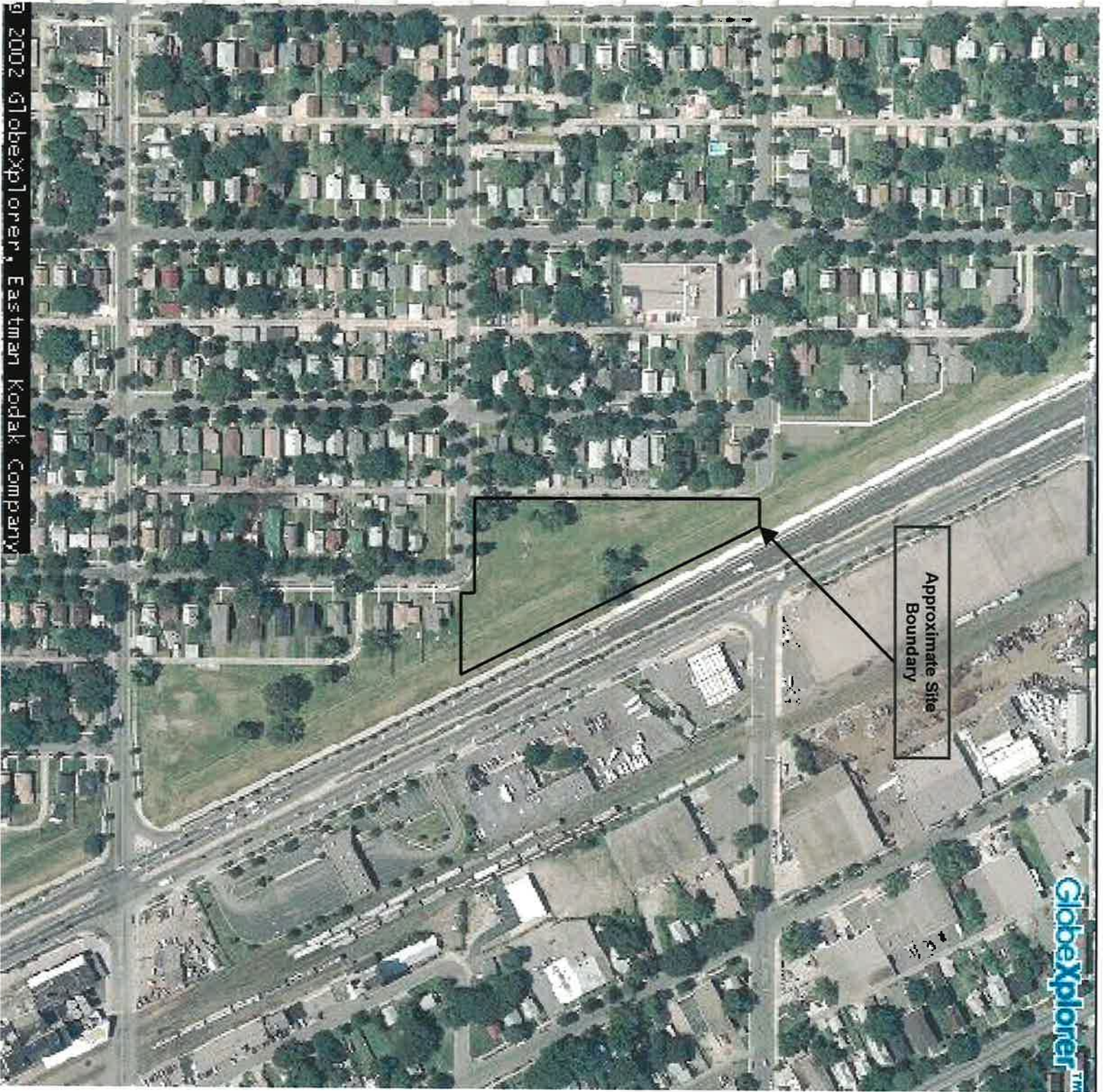
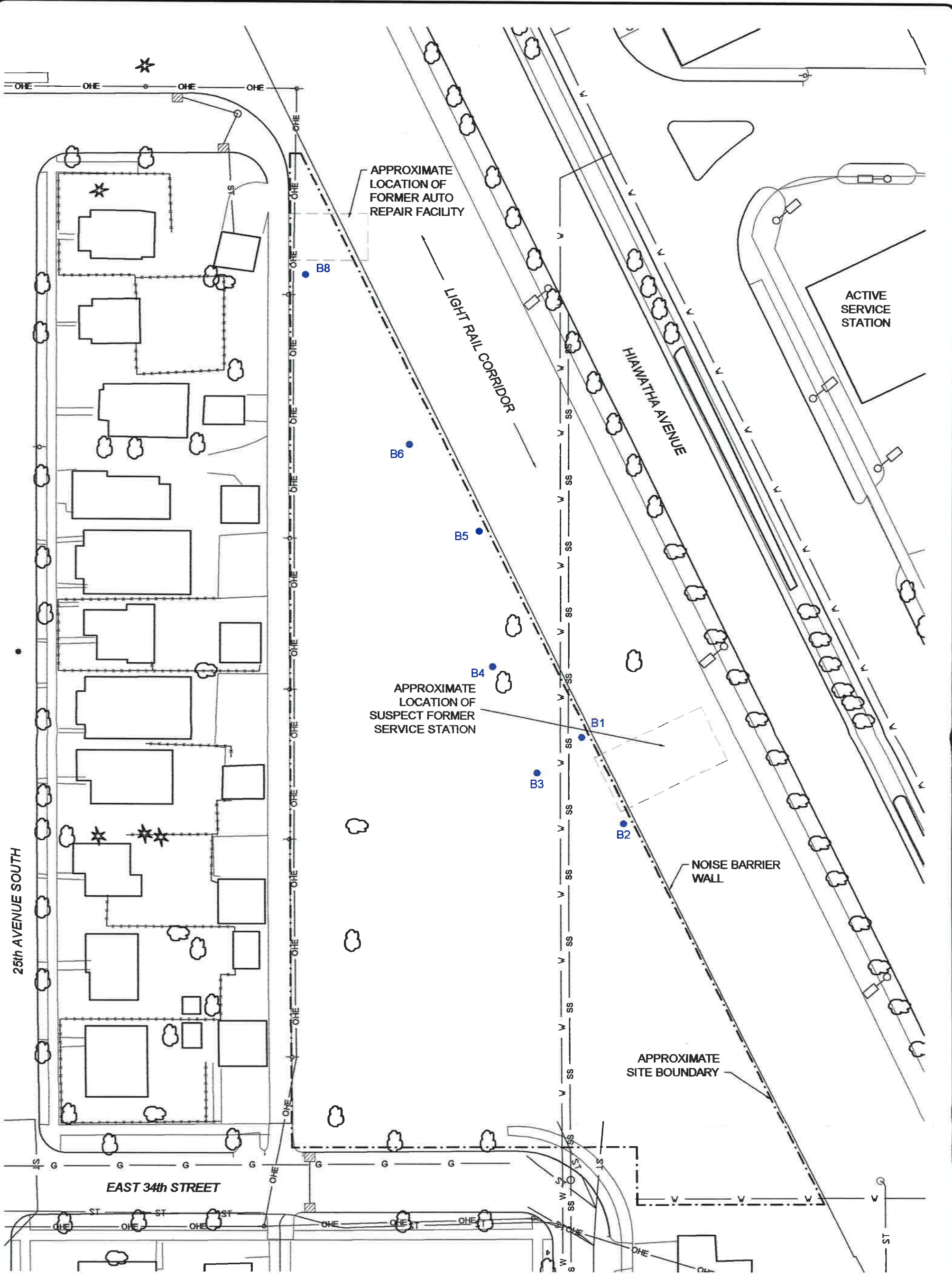
Project Mng'r: PJW		Project No. 41027029	
Designed By: JLM		Scale: AS SHOWN	
Checked By: JLM		Date: 08/05/02	
Approved By: PJW		Drawn By: BMS (41)	
File Name: 41027029s1.dwg		Figure No. 1	
			
3535 Hoffman Road East White Bear Lake, MN 55110			
TOPC			

DIAGRAM IS FOR GENERAL LOCATION ONLY,
 AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

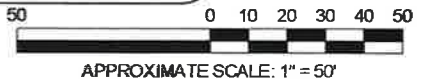


Approximate Site Boundary

MCD A USTFIELD Site 2 – MPCA
3324 Hiawatha Avenue
Minneapolis, Minnesota 55406
Terracon Project No. 41027029
MPCA Site ID#: LEAK00014847

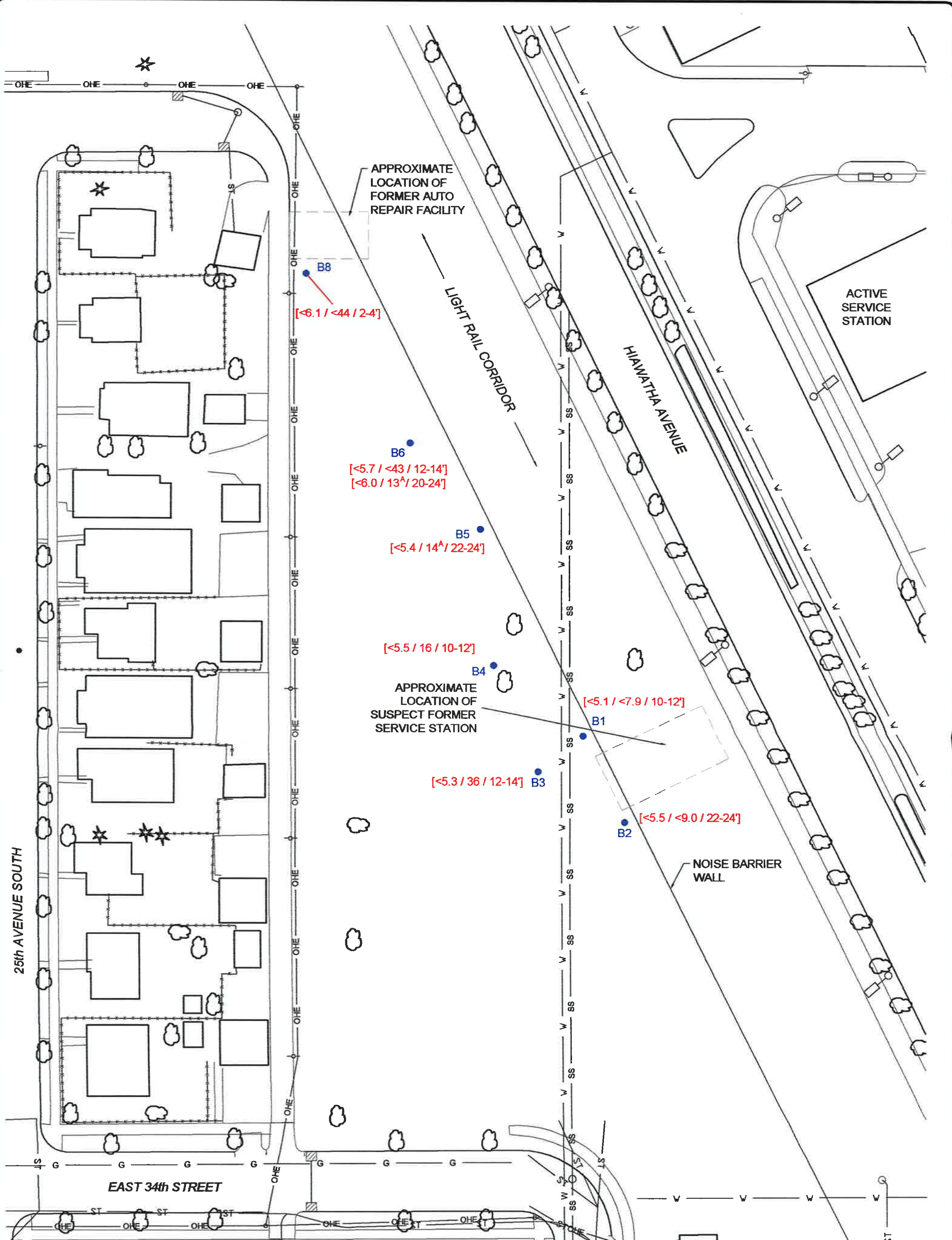


LEGEND	
	PROBE LOCATION
	POWER POLE
	CATCH BASIN
	APPROXIMATE PROPERTY BOUNDARY
	WATER LINE
	STORM SEWER LINE
	SANITARY SEWER LINE
	OVERHEAD ELECTRIC LINE
	GAS LINE



MAP PROVIDED BY THE CITY OF MINNEAPOLIS GIS DEPARTMENT
 DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE MAP				
MCDA USTFIELD SITE #2 - MPCA				
3324 HIAWATHA AVENUE				
MINNEAPOLIS, MN				
MPCA				
Project Mgr:	PJW	 3535 Hoffman Road East White Bear Lake, MN 55110	Project No.	41027029
Designed By:	PJW		Scale:	AS SHOWN
Checked By:	PJW		Date:	09/10/02
Approved By:	DJW		Drawn By:	BMS (41)
File Name:	2 - Site.dwg		SITE	Figure No.



APPROXIMATE LOCATION OF FORMER AUTO REPAIR FACILITY

B8
[<6.1 / <44 / 2-4']

B6
[<5.7 / <43 / 12-14']
[<6.0 / 13^A / 20-24']

B5
[<5.4 / 14^A / 22-24']

[<5.5 / 16 / 10-12']

B4
APPROXIMATE LOCATION OF SUSPECT FORMER SERVICE STATION

[<5.1 / <7.9 / 10-12']

[<5.3 / 36 / 12-14'] B3

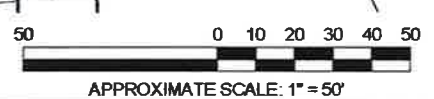
[<5.5 / <9.0 / 22-24']

B2

NOISE BARRIER WALL

25th AVENUE SOUTH

EAST 34th STREET



LEGEND

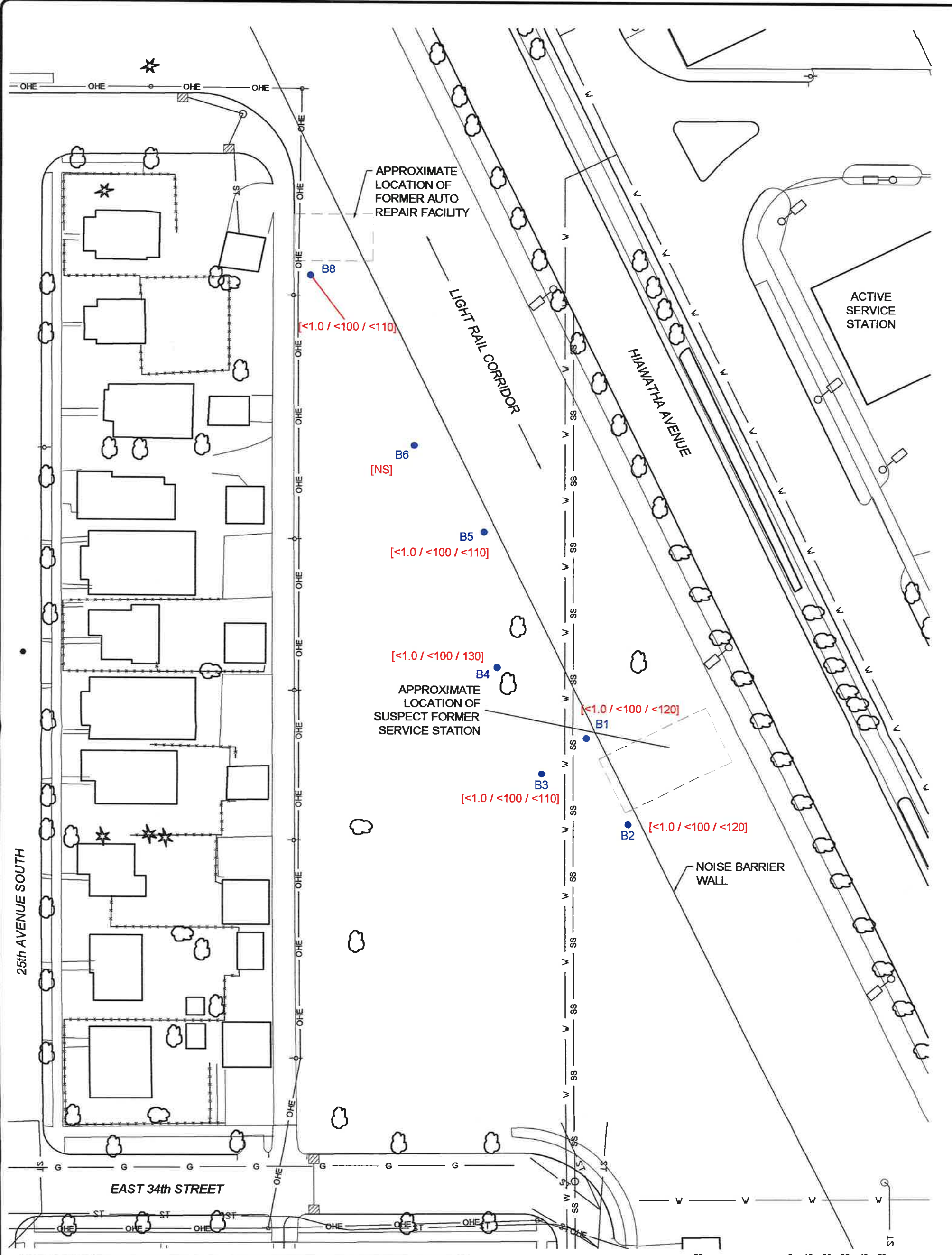
- B-1 PROBE LOCATION
- POWER POLE
- CATCH BASIN
- A = ANALYTE FOUND IN BLANK
- [150 / 210 / 6-8] GRO IN mg/kg / DRO IN mg/kg / DEPTH IN FEET
- WATER LINE
- STORM SEWER LINE
- SANITARY SEWER LINE
- OVERHEAD ELECTRIC LINE
- GAS LINE

NOTE: THE GASOLINE RANGE ORGANICS (GRO) AND DIESEL RANGE ORGANICS (DRO) CONCENTRATIONS DEPICTED IN SOIL SAMPLES COLLECTED FROM THE LOCATIONS SHOWN DURING JULY, 2002. ACTUAL CONDITIONS MAY VARY.

MAP PROVIDED BY THE CITY OF MINNEAPOLIS GIS DEPARTMENT
DIAGRAM IS FOR GENERAL LOCATION ONLY. AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES



SOIL ANALYTICAL RESULTS MCDA USTFIELD SITE #2 - MPCA 3324 HIAWATHA AVENUE MINNEAPOLIS, MN MPCA				
Project Mngr:	PJW	 3535 Hoffman Road East White Bear Lake, MN 55110	Project No.	41027029
Designed By:	PJW		Scale:	AS SHOWN
Checked By:	PJW		Date:	09/10/02
Approved By:	DJW		Drawn By:	BMS (41)
File Name:	2 - Site.dwg		Layout:	Figure No.



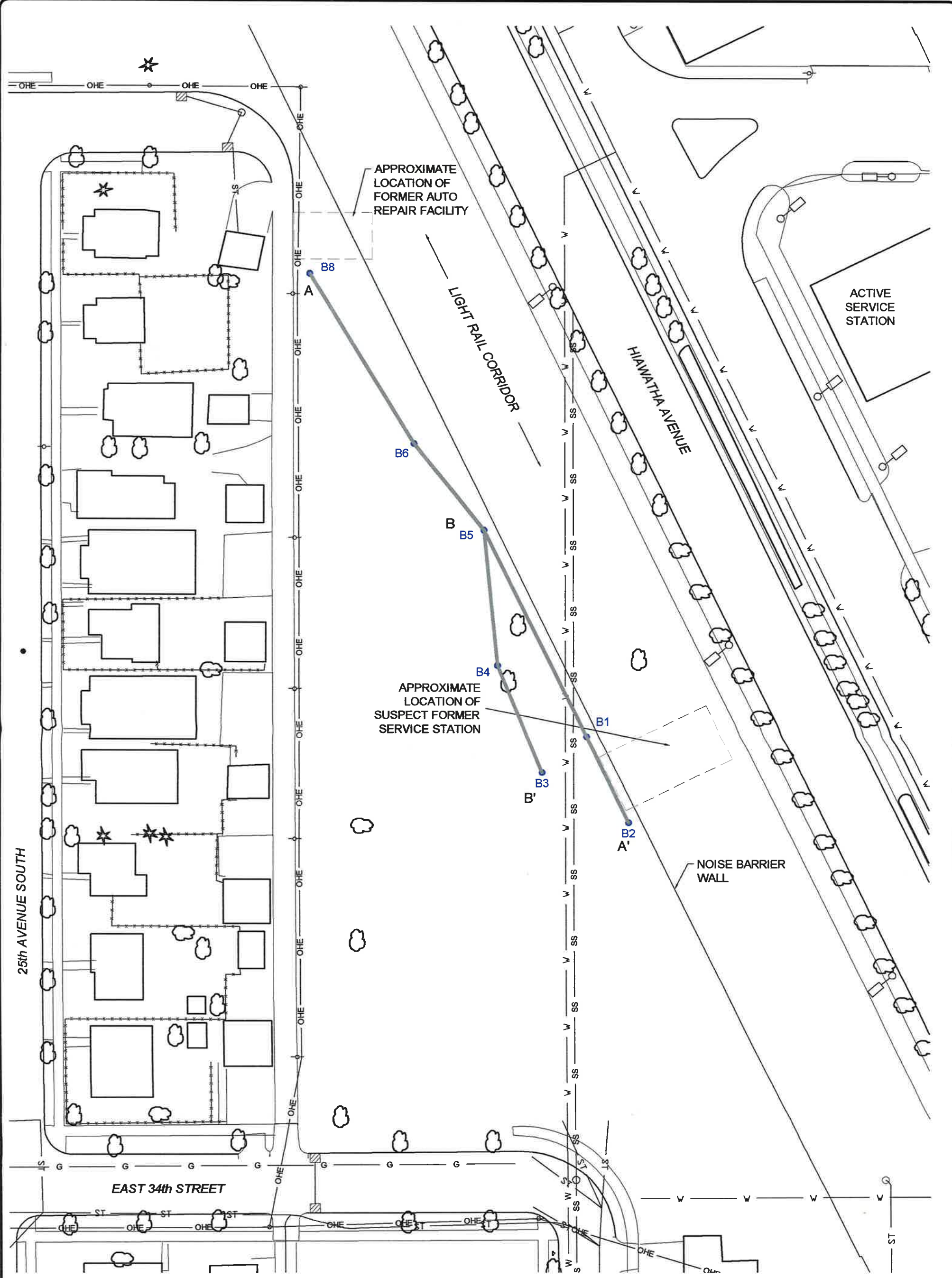
LEGEND

- B-1 PROBE LOCATION
- POWER POLE
- CATCH BASIN
- [NS] NOT SAMPLED
- [150 / 210 / 300] BENZENE / GRO / DRO CONCENTRATIONS IN $\mu\text{g/l}$
- W — WATER LINE
- ST — STORM SEWER LINE
- SS — SANITARY SEWER LINE
- OHE — OVERHEAD ELECTRIC LINE
- G — GAS LINE

NOTE: THE GASOLINE RANGE ORGANICS (GRO) AND DIESEL RANGE ORGANICS (DRO) CONCENTRATIONS DEPICTED IN SOIL SAMPLES COLLECTED FROM THE LOCATIONS SHOWN DURING AUGUST, 2002. ACTUAL CONDITIONS MAY VARY.
 MAP PROVIDED BY THE CITY OF MINNEAPOLIS GIS DEPARTMENT
 DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

GROUNDWATER ANALYTICAL RESULTS			
MCDA USTFIELD SITE #2 - MPCA			
3324 HIAWATHA AVENUE			
MINNEAPOLIS, MN			
MPCA			
Project Mngr:	PJW	Project No.	41027029
Designed By:	PJW	Scale:	AS SHOWN
Checked By:	PJW	Date:	09/10/02
Approved By:	D.JW	Drawn By:	BMS (41)
File Name:	2 - Site.dwg	GW	Figure No. 3B





LEGEND

- B-1 PROBE LOCATION
- POWER POLE
- CATCH BASIN
- W — WATER LINE
- ST — STORM SEWER LINE
- SS — SANITARY SEWER LINE
- OHE — OVERHEAD ELECTRIC LINE
- G — GAS LINE

A — A' CROSS SECTION INDICATOR



MAP PROVIDED BY THE CITY OF MINNEAPOLIS GIS DEPARTMENT
 DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

CROSS SECTION INDEX MAP
 MCDA USTFIELD SITE #2 - MPCA
 3324 HIAWATHA AVENUE
 MINNEAPOLIS, MN
 MPCA

Project Mgr:	P.JW	<p>3535 Hoffman Road East White Bear Lake, MN 55110</p>	Project No:	41027029
Designed By:	P.JW		Scale:	AS SHOWN
Checked By:	P.JW		Date:	09/10/02
Approved By:	D.JW		Drawn By:	BMS (41)
File Name:	2 - Site.dwg	CS	Figure No.	4

LOG OF E.N.O. B-1

CLIENT		PROJECT									
MPCA		MPCA USTFIELD SITE #2 - MPCA									
SITE		PROJECT									
3324 HIAWATHA AVENUE MINNEAPOLIS, MN		MPCA USTFIELD SITE #2 - MPCA									
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS			TEMP WELL DETAIL	
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	FIELD VAPOR TEST (PPM)*		SOIL SAMPLE SENT TO LABORATORY
TEMP BOREHOLE DIA.: WELL DIA.: TOP OF PROTECTOR PIPE: TOP OF CASING: GROUND SURFACE ELEV.:	Silty Sand, Brown, Fine Grained	2.5 in 1 in ft 838.5 ft	SM	1	MC	40					
				2	MC						
Clayey Sand, Brown, Coarse Grained, Trace Gravel	836.5	10	SC	3	MC	45					
				4	MC						
				5	MC	30					
				6	MC						
				7	MC	30					
Sand, Brown, Medium to Coarse Grained	828.5	15	SW	8	MC						
				9	MC	30					
				10	MC						
Sand, Brown, Medium Grained, with Gravel	823.5	20	SW	11	MC	30					
				12	MC						
				13	MC						
Sand, Brown, Coarse Grained	818.5	22	SP	12	MC						
				13	MC						
Sand, Brown, Coarse Grained, Wet	816.5	24	SP	12	MC						
				13	MC						
END OF BORING		814.5									

The stratification lines represent the approximate boundary lines between soil and rock types. In-situ, the transition may be gradual.

* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppm).

WATER LEVEL OBSERVATIONS, ft

BORING STARTED 7-24-02

WL ▽ 22 WD ▽ 22 AD

BORING COMPLETED 7-24-02

WL ▽

RIG GEOPROBE FOREMAN RM

WL

JOB # 41027029



LOG OF E NO. B-2

BORING W/ TEMP WELL 7029S2 GPJ TERRACON.GDT 9/19/02

CLIENT		PROJECT	
MPCA		MPCA USTFIELD SITE #2 - MPCA	
SITE		PROJECT	
3324 HIAWATHA AVENUE MINNEAPOLIS, MN		MPCA USTFIELD SITE #2 - MPCA	
GRAPHIC LOG		TEMP WELL DETAIL	
TEMP BOREHOLE DIA.: WELL DIA.: TOP OF PROTECTOR PIPE: TOP OF CASING: GROUND SURFACE ELEV.:		2.5 in 1 in ft ft ft	
		839.2 ft	
DESCRIPTION		DEPTH, ft.	
Silty Sand, Black, Fill		SM 1	
		NUMBER	
Clayey Sand, Black		SM 2	
		TYPE	
Clayey Sand, Brown		MC 36	
		RECOVERY, in.	
Sand, Brown, Coarse		SPT - N BLOWS / ft.	
		WATER CONTENT, %	
Silty Sand, Brown		FIELD VAPOR TEST (PPM)*	
		SOIL SAMPLE SENT TO LABORATORY	
Sand, Brown, Coarse		<1.0	
		<1.0	
Silty Sand, Brown		<1.0	
		<1.0	
Sand, Dark Brown, Well Graded with Clay		<1.0	
		<1.0	
Sand, Brown, Poorly Graded with Silt and Gravel - NO DATA		<1.0	
		<1.0	
Sand, Brown, Coarse Grained with Gravel		<1.0	
		<1.0	
END OF BORING		<1.0	
		<1.0	

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppm).

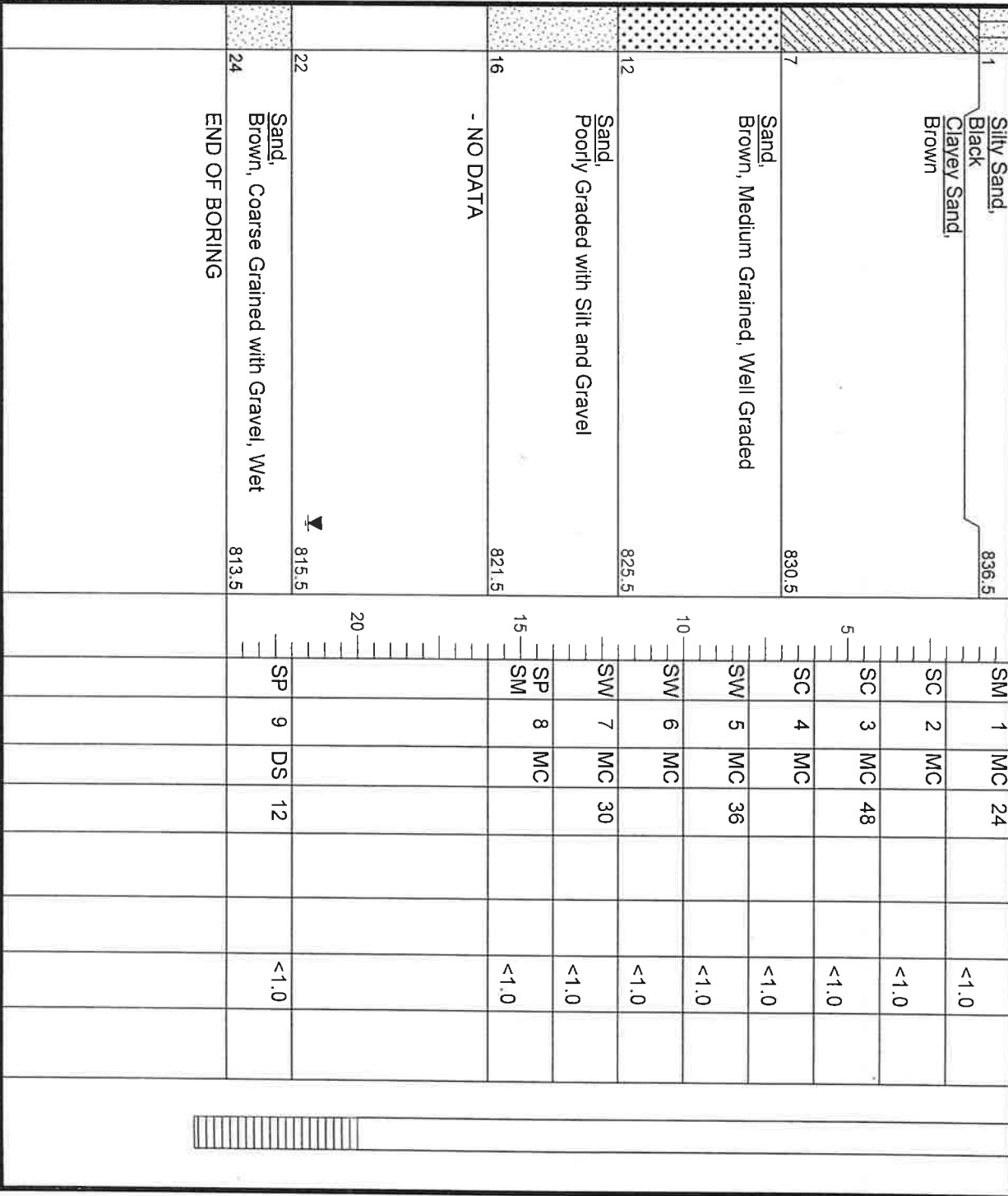
WATER LEVEL OBSERVATIONS, ft		
WL	22.5	WD
WL	22.5	AD



BORING STARTED		BORING COMPLETED	
7-26-02		7-26-02	
RIG		FOREMAN	
GEOPROBE		RM	
JOB #		41027029	

LOG OF E NO. B-3

BORING W/ TEMP WELL 7029S2.GPJ TERRACON.GDT 9/19/02

CLIENT		PROJECT								
MPCA		MPCA USTFIELD SITE #2 - MPCA								
SITE		PROJECT								
3324 HAWATHA AVENUE MINNEAPOLIS, MN		MPCA USTFIELD SITE #2 - MPCA								
DESCRIPTION	DEPTH, ft.	USCS SYMBOL	NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	FIELD VAPOR TEST (PPM)*	SOIL SAMPLE SENT TO LABORATORY	TEMP WELL DETAIL
GRAPHIC LOG										
TEMP BOREHOLE DIA.: 2.5 in										
WELL DIA.: 1 in										
TOP OF PROTECTOR PIPE:										
TOP OF CASING:										
GROUND SURFACE ELEV.: 837.6 ft										
										
1	Silty Sand, Black	SM	1	MC	24			<1.0		
	Clayey Sand, Brown	SC	2	MC				<1.0		
7	Sand, Brown, Medium Grained, Well Graded	SC	3	MC	48			<1.0		
		SW	4	MC				<1.0		
		SW	5	MC	36			<1.0		
		SW	6	MC				<1.0		
12	Sand, Poorly Graded with Silt and Gravel	SW	7	MC	30			<1.0		
		SP	8	MC				<1.0		
16	- NO DATA	SM	9	MC				<1.0		
		SP	10	MC				<1.0		
22	Sand, Brown, Coarse Grained with Gravel, Wet	SP	11	MC				<1.0		
		DS	12	MC				<1.0		
24	END OF BORING									

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million (subunitylene equivalents (ppm)).

WATER LEVEL OBSERVATIONS, ft		
WL	21.5	WD
WL		AD



BORING STARTED		7-26-02	
BORING COMPLETED		7-26-02	
RIG	GEOPROBE	FOREMAN	RM
JOB #	41027029		

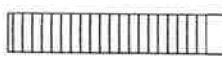
LOG OF E NO. B-4

BORING W/ TEMP WELL 7029S2.GPJ TERRACON GDT 9/19/02

CLIENT		MPCA			PROJECT		MPCA USTFIELD SITE #2 - MPCA				
SITE		3324 HIAWATHA AVENUE MINNEAPOLIS, MN									
GRAPHIC LOG		TEMP BOREHOLE DIA.: WELL DIA.: TOP OF PROTECTOR PIPE: TOP OF CASING: GROUND SURFACE ELEV.:		2.5 in 1 in ft ft 838.2 ft		DEPTH, ft.		USCS SYMBOL		TEMP WELL DETAIL	
DESCRIPTION		Silty Sand, Brown		SM		NUMBER		TYPE		RECOVERY, in.	
4		Clayey Sand, Brown		SM		1		MC		30	
8		Sand, Brown, Well Graded with Clay and Silt		SW		5		MC		40	
9		Clayey Sand,		SC		4		MC			
12		Clayey Sand, Black and Green		SC		6		MC		40	
16		Silty Sand, Brown		SC		8		MC		40	
17		Clayey Sand,		SM		9		MC		40	
19		Sand, Black-Brown, Poorly Graded with Clay and Gravel		SP		10		MC			
24		END OF BORING		SM		12		MC			
WATER LEVEL OBSERVATIONS, ft		WD		AD		BORING STARTED		BORING COMPLETED		7-29-02	
WL		21.3		21.3		RIG		GEOPROBE		FOREMAN RM	
WL						JOB #		41027029			

The stratification lines represent the approximate boundary lines between soil and rock types. In-situ, the transition may be gradual.

* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppm).



LOG OF E NO. B-5

BORING W/ TEMP WELL 7029S2.GPJ TERRACON GDT 9/19/02

CLIENT		PROJECT		TESTS		TEMP WELL DETAIL				
MPCA		MPCA USTFIELD SITE #2 - MPCA		SAMPLES						
SITE	3324 HIAWATHA AVENUE MINNEAPOLIS, MN									
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	FIELD VAPOR TEST (PPM)*	SOIL SAMPLE SENT TO LABORATORY
	TEMP BOREHOLE DIA.: WELL DIA.: TOP OF PROTECTOR PIPE: TOP OF CASING: GROUND SURFACE ELEV.:	2.5 in 1 in ft 840.2 ft								
	<u>Silty Sand,</u> <u>Brown</u>	4	SM	1	MC	40		<1.0		
	<u>Silty Sand,</u> <u>Brown</u>	4	SM	2	MC			<1.0		
	<u>Silty Sand,</u> <u>Brown</u>	6	SM	3	MC	48		<1.0		
	<u>Silty Sand,</u> <u>Light Brown</u>	8	SM	4	MC			<1.0		
	<u>Sand,</u> <u>Brown, Fine Grained, Well Graded</u>	12	SW	5	MC	40		<1.0		
	<u>Sand,</u> <u>Gray, Fine Grained, Well Graded</u>	12	SW	6	MC			<1.0		
	<u>Sand,</u> <u>Gray, Fine Grained, Well Graded</u>	22	SW	7	MC	48		<1.0		
	<u>Sand,</u> <u>Brown, Coarse Grained, Wet</u>	22	SW	8	MC			<1.0		
	END OF BORING	24	SW	9	DS	24		7.8		
	END OF BORING	24	SW	9	DS	24		7.8		

The stratification lines represent the approximate boundary lines between soil and rock types: In-situ, the transition may be gradual.

* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppmi).

WATER LEVEL OBSERVATIONS, ft			
WL	23.4	WD	23.4
WL			AD
WL			



BORING STARTED	7-30-02	BORING COMPLETED	7-30-02
RIG	GEOPROBE	FOREMAN	RM
JOB # 41027029			

LOG OF E NO. B-6

BORING W/ TEMP WELL 7029S2.GPJ TERRACON.GDT 9/19/02

CLIENT		PROJECT			
MPCA		MPCA USTFIELD SITE #2 - MPCA			
SITE		PROJECT			
3324 HIAWATHA AVENUE MINNEAPOLIS, MN		MPCA USTFIELD SITE #2 - MPCA			
DESCRIPTION		SAMPLES		TESTS	TEMP WELL DETAIL
DEPTH, ft.		USCS SYMBOL			
NUMBER		TYPE			
RECOVERY, in.		SPT - N BLOWS / ft.		WATER CONTENT, %	
FIELD VAPOR TEST (PPM)*		SOIL SAMPLE SENT TO LABORATORY			
GRAPHIC LOG					
BOREHOLE DIA.: WELL DIA.: TOP OF PROTECTOR PIPE: TOP OF CASING: GROUND SURFACE ELEV.: 838.8 ft					
Silty Sand, Brown		SM		1 MC 48	
		SM		2 MC	
		SM		3 MC 46	
		SM		4 MC	
		SM		5 MC 40	
		SM		6 MC	
Silty Sand, With Fill		SM		7 MC 40	
		SM		8 MC	
- NO DATA				<1.0	
				<1.0	
				<1.0	
				<1.0	
Silty Sand, Gray		SM		9 DS 24	
Clayey Sand, Gray		SC			
				1.8	
- NO DATA				10 DS NR	
END OF BORING					

The stratification lines represent the approximate boundary lines between soil and rock types: In-situ, the transition may be gradual.

* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppm).

WATER LEVEL OBSERVATIONS, ft		
WL <input checked="" type="checkbox"/> NE	WD <input checked="" type="checkbox"/> NE	AD
<h1 style="margin: 0;">Terracon</h1>		
WL <input checked="" type="checkbox"/>	RIG GEOPROBE	FOREMAN RM
WL	JOB #	41027029
BORING STARTED 7-30-02		
BORING COMPLETED 7-30-02		

LOG OF E NO. B-8

CLIENT MPCA SITE 3324 HIAWATHA AVENUE MINNEAPOLIS, MN	PROJECT MPCA USTFIELD SITE #2 - MPCA
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DEPTH, ft.	USCS SYMBOL	NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	FIELD VAPOR TEST (PPM)*	SOIL SAMPLE SENT TO LABORATORY	TEMP WELL DETAIL
838	SM	1	MC	48		<1.0			
838	SM	2	MC			<1.0			
833	SM	3	MC	36		<1.0			
833	SM	4	MC			<1.0			
831	SM	5	MC	36		<1.0			
831	SM	6	MC			<1.0			
825	SM	7	MC	42		<1.0			
825	SM	8	MC			<1.0			
819	SM	9	MC	40		<1.0			
819	SM	10	MC			<1.0			
817	SM	11	MC	46		<1.0			
817	SM	12	MC			<1.0			
814	SP	13	MC	40		<1.0			
814	SP	14	MC			<1.0			
812	SP	14	MC			<1.0			
811	SP	14	MC			<1.0			

GRAPHIC LOG

TEMP BOREHOLE DIA.: 2.5 in
 WELL DIA.: 1 in
 TOP OF PROTECTOR PIPE: ft
 TOP OF CASING: ft
 GROUND SURFACE ELEV.: 838.9 ft

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppm).

WATER LEVEL OBSERVATIONS, ft		
WL ▽ 25.3 WD ▽ 25.3 AD		
WL ▽		
WL ▽		

BORING STARTED	7-29-02	
BORING COMPLETED	7-29-02	
RIG GEOPROBE	FOREMAN	RM
	JOB #	41027029