



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

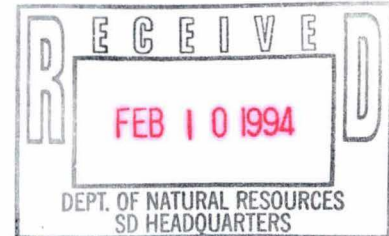
REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

HSRW-6J



February 7, 1994

Mr. Robert Kardasz  
Director of Public Works  
City of Stoughton  
P.O. Box 383  
211 Water Street  
Stoughton, WI 53589

**Re: Groundwater Sampling Data  
Stoughton City Landfill Site**

Dear Mr. Kardasz:

Enclosed are data packages containing the results of groundwater sampling conducted by U.S. EPA near the Stoughton Landfill site during October 1993. I have included the data sheets from the lab and also draft summary tables of the data prepared by Jacobs Engineering Group. (The reason the tables are "draft" is because they will be included as part of a final sampling report which is not yet complete). The results for tetrahydrofuran (THF) and the two chlorofluorocarbons (CFCs) are penciled in on the enclosed site map. Monitoring well information and five geologic transects are also included.

First, and most importantly, I would like to state that the groundwater samples collected from Stoughton Municipal Wells No.'s 3 and 6 did not contain detectable levels of any of the compounds analyzed for. We do not plan to collect samples from the municipal wells during Round 2 of the sampling.

Secondly, as we discussed over the phone, the Round 1 sampling data did show THF and the two CFCs present at elevated concentrations in on-site groundwater. Based on these results, U.S. EPA plans to begin the design of a groundwater treatment system. As stated on page 17 of the Record of Decision for the site, if there is an "attainment or exceedance of an ES [enforcement standard] in any sample collected during the 12-month period after the effective date of the ROD, groundwater extraction and treatment will be initiated". The ES for THF is

50 ug/l. Concentrations as high as 417 ug/l of THF were detected in on-site groundwater.

Please note that as documented in an Agency memorandum dated February 4, 1994, the 12-month period referred to in the ROD has been extended to 30 months so that the ROD is consistent with the actual amount of time that was needed to collect and analyze the samples. The four references to the 12-month time period that appear on page 17 of the ROD are revised to be 30 months instead of 12. Specifically, in the first sentence of Section IX.2 on page 17, "12-month period" is changed to read "30-month period", and in the first sentences of Sections IX.1, IX.2, and IX.3, "within 12 months" is changed to read "within 30 months". This modification results in a revised deadline of March 31, 1994.

To make accessing the information in the data packages a little easier, sample IDs are listed below.

<u>MW</u>	<u>EPA ID</u>
1S	S05
1D	S04
2S	S09
2D	S11
3S	S27
3D	S28
3B	S26
4S	S19
4D	S20
5S	S31
5D	S30
6S	S06
6D	S07
7S	S12
7I	S14
7B	S13
8B	S25
9S	S39
9I	S33
9B	S32
EB01	S10
EB02	S40
CS03	S02
CS06	S01

The ID numbers are the last three characters of the boxed sample number (organic sample numbers begin with "93JM04") located in the upper right-hand corner of the data sheets. Please note that in the data package for THF and the two CFCs, the letter "S" in the IDs is mistakenly printed as a "5". The two samples labeled with the "EB" prefix are groundwater samples collected from bore holes which were not converted into monitoring wells. The samples with the "CS" prefix are the City of Stoughton municipal well samples.

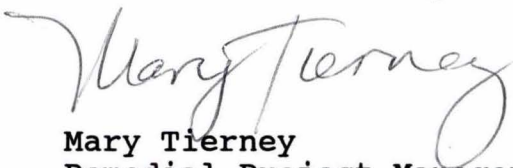
I am also sending a Monitoring Well Construction Report prepared by Jacobs and a Public Health Assessment for the site prepared by the Wisconsin Department of Health and Human Services (WDHHS). The Monitoring Well Construction Report contains information on the drilling that took place at the site this past summer. The sampling data included in the report are results from the groundwater samples collected as drilling was taking place. These were the samples that were sent to a laboratory for quick-turnaround analyses.

The Public Health Assessment that is enclosed was completed by WDHHS under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). ATSDR is responsible for preparing health assessments for each facility on the National Priorities List. The recommendations made by ATSDR in the assessment for the Stoughton Landfill site were: 1) to continue monitoring groundwater to ensure that private and municipal wells do not become affected; and, 2) to take steps to control the methane that is generated at the site. Both recommendations are being or will be followed.

Please note that the second round of groundwater sampling, which is scheduled for the week of February 7, 1994, will include collection of groundwater samples from the on-site monitoring wells only. The parameters to be analyzed for in Round 2 will be limited to THF and the two CFCs analyzed for previously. Jacobs will not conduct a third round of sampling.

If you have any questions after you take a look at the enclosed information and data, or if you would like to discuss anything, please feel free to call me at (312) 886-4785. Thanks very much for your time and consideration.

Sincerely,



Mary Tierney  
Remedial Project Manager

cc: Gary Edelstein, WDNR (w/o attachments)  
Pat McCutcheon, WDNR, SEDO (w/o attachments)  
Mayor Helen Johnson, City of Stoughton (w/o attachments)  
Rodney Scheel, City of Stoughton (w/o attachments)  
Mark Benson, Skaalen Sunset Home (w/o attachments)  
John Tielsch, U.S. EPA (w/o attachments)





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:  
HSRW-6J

February 8, 1994

Mr. Gary Edelstein  
Wisconsin Department of Natural Resources  
P.O. Box 7921  
Madison, Wisconsin 53707-7921

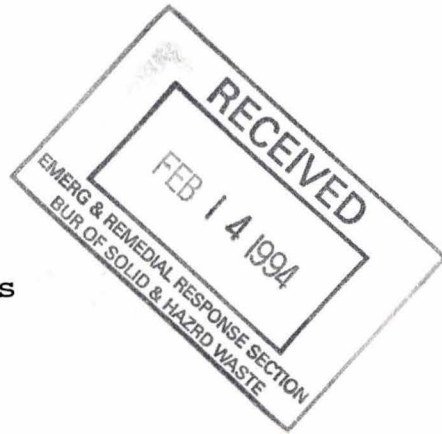
**Re: Validated Round 1 Groundwater Data  
Stoughton City Landfill  
Stoughton, Wisconsin**

Dear Gary:

Enclosed please find the following material related to the Stoughton City Landfill site:

- 1) Letter to Bob Kardasz, City of Stoughton, 2/7/94;
- 2) Letter to Bill Karlovitz, Weston, Inc., 2/3/94;
- 3) Draft summary tables of groundwater data from samples collected by Jacobs Engineering Group in October 1993;
- 4) Map of site with results for THF and the two CFCs penciled in;
- 5) Monitoring well information sheet and five geologic transects;
- 6) Five data packages (one for THF/CFCs, two for VOA/SVOA, and two for metals/cyanide); and
- 7) Public Health Assessment completed by ATSDR (Agency for Toxic Substances and Disease Registry).

I realize the data packages may not be of much use to you, but because I had the copies made, and because it is important data, I thought I would send them along. The sample IDs that were used are listed on the next page.

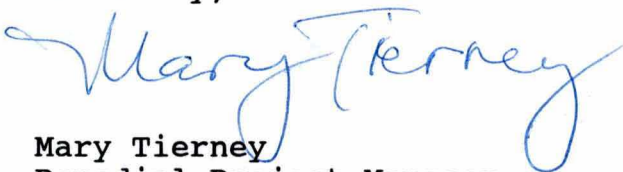


<u>MW</u>	<u>EPA ID</u>
1S	S05
1D	S04
2S	S09
2D	S11
3S	S27
3D	S28
3B	S26
4S	S19
4D	S20
5S	S31
5D	S30
6S	S06
6D	S07
7S	S12
7I	S14
7B	S13
8B	S25
9S	S39
9I	S33
9B	S32
EB01	S10
EB02	S40
CS03	S02
CS06	S01

Labels CS03 and CS06 refer to Stoughton Municipal Wells No. 3 and No. 6, and labels EB01 and EB02 refer to groundwater samples collected from bore holes that were drilled at the site this past summer but which were not converted into monitoring wells.

Please give me a call if you have any questions.

Sincerely,



Mary Tierney  
Remedial Project Manager

cc: Pat McCutcheon, WDNR, SEDO (w/o Attachment 6)

Table 1: Dichlorodifluoromethane, Trichlorofluoromethane, & Tetrahydrofuran  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-1S	MW-1D	MW-2S	MW-2D	MW-3S	MW-3D	MW-3B
Dichlorodifluoromethane	10U	10U	10U	10U	10U	20UD	10U
Trichlorofluoromethane	10U	10U	10U	10U	10U	20UD	10U
Tetrahydrofuran	10U	10U	10U	10U	10U	417D	10U

Sample Number Analyte	MW-4S	MW-4D	MW-5S	MW-5D	MW-6S	MW-6D	MW-6D DUP
Dichlorodifluoromethane	10U	10U	18	10U	10U	10U	10U
Trichlorofluoromethane	10U	10U	10U	10U	10U	10U	10U
Tetrahydrofuran	10U	10U	10U	10U	10U	10U	10U

Sample Number Analyte	MW-7S	MW-7I	MW-7B	MW-8B	MW-9S	MW-9I
Dichlorodifluoromethane	10U	10U	10U	10U	357D	315D
Trichlorofluoromethane	10U	10U	10U	10U	10	16
Tetrahydrofuran	10U	10U	10U	10U	42	94

Sample Number Analyte	MW-9B	MW-9B DUP	EB01	EB02	CS03	CS06
Dichlorodifluoromethane	10U	10U	10U	10U	10U	10U
Trichlorofluoromethane	10U	10U	10U	10U	10U	10U
Tetrahydrofuran	10U	10U	10U	10U	10U	10U

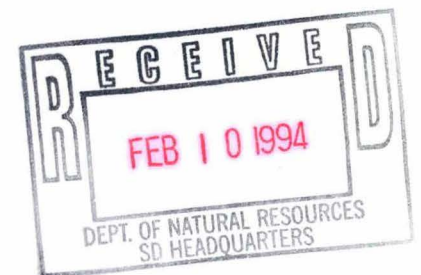


Table 2: Volatile Organic Compounds  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-1S	MW-1D	MW-2S	MW-2D	MW-3S	MW-3D	MD-3B
Chloromethane	1U	1U	1U	1U	1U	1U	1U
Bromomethane	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	1U	1U	1U	1U	1U	1U	1U
Chloroethane	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	2U	2U	2U	2U	2U	2U	2U
Acetone	7	5U	5U	5U	5U	5U	5U
Carbon Disulfide	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	1U	1U	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	1U	1U	1U	1U	1U	1U	1U
Chloroform	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	1U	1U	1U	1U	1U	1U	1U
2-Butanone	5U	5U	5U	5U	5U	5U	5U
1,1,1-Trichloroethane	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	1U	1U	1U	1U	1U	1U	1U
Vinyl Acetate	1U	1U	1U	1U	1U	1U	1U
Bromodichloromethane	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	1U	1U	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1U	1U	1U	1U	1U	1U	1U
Benzene	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	1U	1U	1U	1U	1U	1U	1U
Bromoform	1U	1U	1U	1U	1U	1U	1U
4-Methyl-2-Pentanone	5U	5U	5U	5U	5U	5U	5U
2-Hexanone	5U	5U	5U	5U	5U	5U	5U
Tetrachloroethene	1U	1U	1U	1U	1U	1U	1U
1,1,2,2-Tetrachloroethane	1U	1U	1U	1U	1U	1U	1U
Toluene	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	1U	1U	1U	1U	1U	1U	1U
Ethylbenzene	2	1U	1U	1U	1U	1U	1U
Styrene	1U	1U	1U	1U	1U	1U	1U
Xylene (total)	2	1U	1U	1U	1U	1U	1U
Trichlorofluoromethane	1U	1U	1U	1U	1U	1U	1U
1,2-Dichlorobenzene	1U	1U	1U	1U	1U	1U	1U
1,4-Dichlorobenzene	1U	1U	1U	1U	1U	1U	1U
1,3-Dichlorobenzene	1U	1U	1U	1U	1U	1U	1U

Table 2: Volatile Organic Compounds  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-4S	MW-4D	MW-5S	MW-5D	MW-6S	MW-6D	MW-6D DUP
Chloromethane	1U	1U	1U	1U	1U	1U	1U
Bromomethane	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	1U	1U	1U	1U	1U	1U	1U
Chloroethane	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	2U	2U	12	12	2U	2U	2U
Acetone	5U	5U	36	21	5U	5U	5U
Carbon Disulfide	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	1U	1U	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	1U	1U	1U	2	1U	1U	1U
Chloroform	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	1U	1U	1U	1U	1U	1U	1U
2-Butanone	5U	5U	5U	5U	5U	5U	5U
1,1,1-Trichloroethane	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	1U	1U	1U	1U	1U	1U	1U
Vinyl Acetate	1U	1U	1U	1U	1U	1U	1U
Bromodichloromethane	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	1U	1U	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1U	1U	1U	1U	1U	1U	1U
Benzene	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	1U	1U	1U	1U	1U	1U	1U
Bromoform	1U	1U	1U	1U	1U	1U	1U
4-Methyl-2-Pentanone	5U	5U	5U	5U	5U	5U	5U
2-Hexanone	5U	5U	5U	5U	5U	5U	5U
Tetrachloroethene	1U	1U	1U	1U	1U	1U	1U
1,1,2,2-Tetrachloroethane	1U	1U	1U	1U	1U	1U	1U
Toluene	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	1U	1U	1U	1U	1U	1U	1U
Ethylbenzene	1U	1U	1U	1U	1U	1U	1U
Styrene	1U	1U	1U	1U	1U	1U	1U
Xylene (total)	1U	1U	1U	1U	1U	1U	1U
Trichlorofluoromethane	1U	1U	1U	3	1U	1U	1U
1,2-Dichlorobenzene	1U	1U	1U	1U	1U	1U	1U
1,4-Dichlorobenzene	1U	1U	1U	1U	1U	1U	1U
1,3-Dichlorobenzene	1U	1U	1U	1U	1U	1U	1U



Table 2: Volatile Organic Compounds  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-7S	MW-7I	MW-7B	MW-8B	MW-9S	MW-9I	MW-9B
Chloromethane	1U	1U	1U	1U	1U	1U	1U
Bromomethane	1U	1U	1U	1U	1U	1U	1U
Vinyl Chloride	1U	1U	1U	1U	1U	1U	1U
Chloroethane	1U	1U	1U	1U	1U	1U	1U
Methylene Chloride	2U	2U	2U	2U	4	4	9
Acetone	5U	5U	5U	5U	9	5U	5U
Carbon Disulfide	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	1U	1U	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	1U	1U	1U	1U	2	7	1U
Chloroform	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	1U	1U	1U	1U	1U	1U	1U
2-Butanone	5U	5U	5U	5U	5U	5U	5U
1,1,1-Trichloroethane	1U	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	1U	1U	1U	1U	1U	1U	1U
Vinyl Acetate	1U	1U	1U	1U	1U	1U	1U
Bromodichloromethane	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	1U	1U	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	1U	1U	1U	1U	9	1	1U
Dibromochloromethane	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1U	1U	1U	1U	1U	1U	1U
Benzene	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	1U	1U	1U	1U	1U	1U	1U
Bromoform	1U	1U	1U	1U	1U	1U	1U
4-Methyl-2-Pentanone	5U	5U	5U	5U	5U	5U	5U
2-Hexanone	5U	5U	5U	5U	5U	5U	5U
Tetrachloroethene	1U	1U	1U	1U	2	1U	1U
1,1,2,2-Tetrachloroethane	1U	1U	1U	1U	1U	1U	1U
Toluene	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	1U	1U	1U	1U	1U	1U	1U
Ethylbenzene	1U	1U	1U	1U	1U	1U	1U
Styrene	1U	1U	1U	1U	1U	1U	1U
Xylene (total)	1U	1U	1U	1U	1U	1U	1U
Trichlorofluoromethane	1U	1U	1U	1U	2	24	7
1,2-Dichlorobenzene	1U	1U	1U	1U	1U	1U	1U
1,4-Dichlorobenzene	1U	1U	1U	1U	1U	1U	1U
1,3-Dichlorobenzene	1U	1U	1U	1U	1U	1U	1U

Table 2: Volatile Organic Compounds  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-9B DUP	CS03	CS06	EB01	EB02
Chloromethane	1U	1U	1U	20U	5U
Bromomethane	1U	1U	1U	20U	5U
Vinyl Chloride	1U	1U	1U	20U	5U
Chloroethane	1U	1U	1U	20U	13D
Methylene Chloride	11	2U	2U	40U	25U
Acetone	60	5U	5U	100U	5U
Carbon Disulfide	1U	1U	1U	20U	5U
1,1-Dichloroethene	1U	1U	1U	20U	5U
1,1-Dichloroethane	1U	1U	1U	20U	5U
trans-1,2-Dichloroethene	1U	1U	1U	20U	5U
cis-1,2-Dichloroethene	1U	1U	1U	20U	5U
Chloroform	1U	1U	1U	43D	44D
1,2-Dichloroethane	1U	1U	1U	20U	5U
2-Butanone	5U	5U	5U	100U	25U
1,1,1-Trichloroethane	1U	1U	1U	20U	5U
Carbon Tetrachloride	1U	1U	1U	20U	5U
Vinyl Acetate	1U	1U	1U	20U	5U
Bromodichloromethane	1U	1U	1U	20U	6D
1,2-Dichloropropane	1U	1U	1U	20U	5U
cis-1,3-Dichloropropene	1U	1U	1U	20U	5U
Trichloroethene	1U	1U	1U	20U	5U
Dibromochloromethane	1U	1U	1U	20U	5U
1,1,2-Trichloroethane	1U	1U	1U	20U	5U
Benzene	1U	1U	1U	20U	5U
trans-1,3-Dichloropropene	1U	1U	1U	20U	5U
Bromoform	1U	1U	1U	20U	5U
4-Methyl-2-Pentanone	5U	5U	5U	100U	25U
2-Hexanone	5U	5U	5U	100U	25U
Tetrachloroethene	1U	1U	1U	20U	5U
1,1,2,2-Tetrachloroethane	1U	1U	1U	20U	5U
Toluene	1U	1U	1U	20U	5U
Chlorobenzene	1U	1U	1U	20U	5U
Ethylbenzene	1U	1U	1U	20U	5U
Styrene	1U	1U	1U	20U	5U
Xylene (total)	1U	1U	1U	20U	5U
Trichlorofluoromethane	5	1U	1U	20U	5U
1,2-Dichlorobenzene	1U	1U	1U	20U	5U
1,4-Dichlorobenzene	1U	1U	1U	20U	5U
1,3-Dichlorobenzene	1U	1U	1U	20U	5U

Table 3: Semivolatile Organic Compounds  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-1S	MW-1D	MW-2S	MW-2D	MW-3S	MW-3D	MW-3B
Phenol	5U	18	7	5U	5U	5U	5U
bis(2-Chlorooctyl)Ether	5U	5U	5U	5U	5U	5U	5U
2-Chlorophenol	5U	5U	5U	5U	5U	5U	5U
Benzyl Alcohol	20U	20U	20U	20U	20U	20U	20U
2-Methylphenol	5U	5U	5U	5U	5U	5U	5U
2,2'-oxybis(1-Chloropropane)	5U	5U	5U	5U	5U	5U	5U
1-Methylphenol	5U	5U	5U	5U	5U	5U	5U
N-Nitroso-Di-n-Propylamine	5U	5U	5U	5U	5U	5U	5U
Hexachloroethane	5U	5U	5U	5U	5U	5U	5U
Nitrobenzene	5U	5U	5U	5U	5U	5U	5U
Isophorone	5U	5U	5U	5U	5U	5U	5U
2-Nitrophenol	5U	5U	5U	5U	5U	5U	5U
2,4-Dimethylphenol	5U	5U	5U	5U	5U	5U	5U
Benzoic Acid	20U	20U	20U	20U	20U	20U	20U
bis(2-Chloroethoxy)Methane	5U	5U	5U	5U	5U	5U	5U
2,4-Dichlorophenol	5U	5U	5U	5U	5U	5U	5U
1,2,4-Trichlorobenzene	5U	5U	5U	5U	5U	5U	5U
Napthalene	5U	5U	5U	5U	5U	5U	5U
4-Chloroaniline	5U	5U	5U	5U	5U	5U	5U
Hexachlorobutadiene	5U	5U	5U	5U	5U	5U	5U
4-Chloro-3-Methylphenol	5U	5U	5U	5U	5U	5U	5U
2-Methylnapthalene	5U	5U	5U	5U	5U	5U	5U
Hexachlorocyclopentadiene	5U	5U	5U	5U	5U	5U	5U
2,4,6-Trichlorophenol	5U	5U	5U	5U	5U	5U	5U
2,4,5-Trichlorophenol	20U	20U	20U	20U	20U	20U	20U
2-Chloronapthalene	5U	5U	5U	5U	5U	5U	5U
2-Nitroaniline	20U	20U	20U	20U	20U	20U	20U
Dimethylphthalate	5U	5U	5U	5U	5U	5U	5U
Acenaphthylene	5U	5U	5U	5U	5U	5U	5U
2,6-Dinitrotoluene	5U	5U	5U	5U	5U	5U	5U
3-Nitroaniline	20U	20U	20U	20U	20U	20U	20U
Acenaphthene	5U	5U	5U	5U	5U	5U	5U
2,4-Dinitrophenol	20U	20U	20U	20U	20U	20U	20U
4-Nitrophenol	20U	20U	20U	20U	20U	20U	20U
Dibenzofuran	5U	5U	5U	5U	5U	5U	5U
2,4-Dinitrotoluene	5U	5U	5U	5U	5U	5U	5U
Diethylphthalate	5U	5U	5U	5U	5U	5U	5U
4-Chlorophenyl-phenylether	5U	5U	5U	5U	5U	5U	5U
Fluorene	5U	5U	5U	5U	5U	5U	5U
4-Nitroaniline	20U	20U	20U	20U	20U	20U	20U
4,6-Dinitro-2-methylphenol	20U	20U	20U	20U	20U	20U	20U

Table 3: Semivolatile Organic Compounds  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-1S	MW-1D	MW-2S	MW-2D	MW-3S	MW-3D	MW-3B
N-Nitrosodiphenylamine	5U	5U	5U	5U	5U	5U	5U
4-Bromophenyl-phenylether	5U	5U	5U	5U	5U	5U	5U
Hexachlorobenzene	5U	5U	5U	5U	5U	5U	5U
Pentachlorophenol	20U	20U	20U	20U	20U	20U	20U
Phenanthrene	5U	5U	5U	5U	5U	5U	5U
Anthracene	5U	5U	5U	5U	5U	5U	5U
Di-n-Butylphthalate	5U	5U	5U	5U	5U	5U	5U
Fluoranthene	5U	5U	5U	5U	5U	5U	5U
Pyrene	5U	5U	5U	5U	5U	5U	5U
Butylbenzylphthalate	5U	5U	5U	5U	5U	5U	5U
3,3'-Dichlorobenzidine	5U	5U	5U	5U	5U	5U	5U
Benzo(a)Anthracene	5U	5U	5U	5U	5U	5U	5U
Chrysene	5U	5U	5U	5U	5U	5U	5U
bis(2-Ethylhexyl)Phthalate	5U	5U	5U	5U	5U	5U	5U
Di-n-Octyl Phthalate	5U	5U	5U	5U	5U	5U	5U
Benzo(b)Fluoranthene	5U	5U	5U	5U	5U	5U	5U
Benzo(k)Fluoranthene	5U	5U	5U	5U	5U	5U	5U
Benzo(a)Pyrene	5U	5U	5U	5U	5U	5U	5U
Indeno(1,2,3-cd)Anthracene	5U	5U	5U	5U	5U	5U	5U
Dibenz(a,h)Anthracene	5U	5U	5U	5U	5U	5U	5U
Benzo(g,h,i)Perylene	5U	5U	5U	5U	5U	5U	5U



Table 3: Semivolatile Organic Compounds  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-4S	MW-4D	MW-5S	MW-5D	MW-6S	MW-6D	MW-6D DUP
Phenol	5U	5U	5U	5U	3J	5U	5U
bis(2-Chloroethyl)Ether	5U	5U	5U	5U	5U	5U	5U
2-Chlorophenol	5U	5U	5U	5U	5U	5U	5U
Benzyl Alcohol	20U	20U	20U	20U	20U	20U	20U
2-Methylphenol	5U	5U	5U	5U	5U	5U	5U
2,2' oxybis(1-Chloropropane)	5U	5U	5U	5U	5U	5U	5U
4-Methylphenol	5U	5U	5U	5U	5U	5U	5U
N-Nitroso-Di-n-Propylamine	5U	5U	5U	5U	5U	5U	5U
Hexachloroethane	5U	5U	5U	5U	5U	5U	5U
Nitrobenzene	5U	5U	5U	5U	5U	5U	5U
Isophorone	5U	5U	5U	5U	5U	5U	5U
2-Nitrophenol	5U	5U	5U	5U	5U	5U	5U
2,4-Dimethylphenol	5U	5U	5U	5U	5U	5U	5U
Benzoic Acid	20U	20U	20U	20U	20U	20U	20U
bis(2-Chloroethoxy)Methane	5U	5U	5U	5U	5U	5U	5U
2,4-Dichlorophenol	5U	5U	5U	5U	5U	5U	5U
1,2,4-Trichlorobenzene	5U	5U	5U	5U	5U	5U	5U
Napthalene	5U	5U	5U	5U	5U	5U	5U
4-Chloroaniline	5U	5U	5U	5U	5U	5U	5U
Hexachlorobutadiene	5U	5U	5U	5U	5U	5U	5U
4-Chloro-3-Methylphenol	5U	5U	5U	5U	5U	5U	5U
2-Methylnaphthalene	5U	5U	5U	5U	5U	5U	5U
Hexachlorocyclopentadiene	5U	5U	5U	5U	5U	5U	5U
2,4,6-Trichlorophenol	5U	5U	5U	5U	5U	5U	5U
2,4,5-Trichlorophenol	20U	20U	20U	20U	20U	20U	20U
2-Chloronaphthalene	5U	5U	5U	5U	5U	5U	5U
2-Nitroaniline	20U	20U	20U	20U	20U	20U	20U
Dimethylphthalate	5U	5U	5U	5U	5U	5U	5U
Acenaphthylene	5U	5U	5U	5U	5U	5U	5U
2,6-Dinitrotoluene	5U	5U	5U	5U	5U	5U	5U
3-Nitroaniline	20U	20U	20U	20U	20U	20U	20U
Acenaphthene	5U	5U	5U	5U	5U	5U	5U
2,4-Dinitrophenol	20U	20U	20U	20U	20U	20U	20U
4-Nitrophenol	20U	20U	20U	20U	20U	20U	20U
Dibenzofuran	5U	5U	5U	5U	5U	5U	5U
2,4-Dinitrotoluene	5U	5U	5U	5U	5U	5U	5U
Diethylphthalate	5U	5U	5U	5U	5U	5U	5U
4-Chlorophenyl-phenylether	5U	5U	5U	5U	5U	5U	5U
Fluorene	5U	5U	5U	5U	5U	5U	5U
4-Nitroaniline	20U	20U	20U	20U	20U	20U	20U
4,6-Dinitro-2-methylphenol	20U	20U	20U	20U	20U	20U	20U

Table 3: Semivolatile Organic Compounds  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-4S	MW-4D	MW-5S	MW-5D	MW-6S	MW-6D	MW-6D DUP
N-Nitrosodiphenylamine	5U	5U	5U	5U	5U	5U	5U
4-Bromophenyl-phenylether	5U	5U	5U	5U	5U	5U	5U
Hexachlorobenzene	5U	5U	5U	5U	5U	5U	5U
Pentachlorophenol	20U	20U	20U	20U	20U	20U	20U
Phenanthrene	5U	5U	5U	5U	5U	5U	5U
Anthracene	5U	5U	5U	5U	5U	5U	5U
Di-n-Butylphthalate	5U	5U	5U	5U	5U	5U	5U
Fluoranthene	5U	5U	5U	5U	5U	5U	5U
Pyrene	5U	5U	5U	5U	5U	5U	5U
Butylbenzylphthalate	5U	5U	5U	5U	5U	5U	5U
3,3'-Dichlorobenzidine	5U	5U	5U	5U	5U	5U	5U
Benzo(a)Anthracene	5U	5U	5U	5U	5U	5U	5U
Chrysene	5U	5U	5U	5U	5U	5U	5U
bis(2-Ethylhexyl)Phthalate	5U	5U	5U	5U	5U	5U	5U
Di-n-Octyl Phthalate	5U	5U	5U	5U	5U	5U	5U
Benzo(b)Fluoranthene	5U	5U	5U	5U	5U	5U	5U
Benzo(k)Fluoranthene	5U	5U	5U	5U	5U	5U	5U
Benzo(a)Pyrene	5U	5U	5U	5U	5U	5U	5U
Indeno(1,2,3-cd)Anthracene	5U	5U	5U	5U	5U	5U	5U
Dibenz(a,h)Anthracene	5U	5U	5U	5U	5U	5U	5U
Benzo(g,h,i)Perylene	5U	5U	5U	5U	5U	5U	5U

Table 3: Semivolatile Organic Compounds  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-7S	MW-7I	MW-7B	MW-8B	MW-9S	MW-9I	MW-9B
Phenol	2J	5U	2J	5U	5U	5U	5U
bis(2-Chloroethyl)Ether	5U	5U	5U	5U	5U	5U	5U
2-Chlorophenol	5U	5U	5U	5U	5U	5U	5U
Benzyl Alcohol	20U	20U	20U	20U	20U	20U	20U
2-Methylphenol	5U	5U	5U	5U	5U	5U	5U
2,2'-oxybis(1-Chloropropane)	5U	5U	5U	5U	5U	5U	5U
4-Methylphenol	5U	5U	5U	5U	5U	5U	5U
N-Nitroso-Di-n-Propylamine	5U	5U	5U	5U	5U	5U	5U
Hexachloroethane	5U	5U	5U	5U	5U	5U	5U
Nitrobenzene	5U	5U	5U	5U	5U	5U	5U
Isophorone	5U	5U	5U	5U	5U	5U	5U
2-Nitrophenol	5U	5U	5U	5U	5U	5U	5U
2,4-Dimethylphenol	5U	5U	5U	5U	5U	5U	5U
Benzoic Acid	20U	20U	20U	20U	20U	20U	20U
bis(2-Chloroethoxy)Methane	5U	5U	5U	5U	5U	5U	5U
2,4-Dichlorophenol	5U	5U	5U	5U	5U	5U	5U
1,2,4-Trichlorobenzene	5U	5U	5U	5U	5U	5U	5U
Napthalene	5U	5U	5U	5U	5U	5U	5U
4-Chloroaniline	5U	5U	5U	5U	5U	5U	5U
Hexachlorobutadiene	5U	5U	5U	5U	5U	5U	5U
4-Chloro-3-Methylphenol	5U	5U	5U	5U	5U	5U	5U
2-Methylnaphthalene	5U	5U	5U	5U	5U	5U	5U
Hexachlorocyclopentadiene	5U	5U	5U	5U	5U	5U	5U
2,4,6-Trichlorophenol	5U	5U	5U	5U	5U	5U	5U
2,4,5-Trichlorophenol	20U	20U	20U	20U	20U	20U	20U
2-Chloronaphthalene	5U	5U	5U	5U	5U	5U	5U
2-Nitroaniline	20U	20U	20U	20U	20U	20U	20U
Dimethylphthalate	5U	5U	5U	5U	5U	5U	5U
Accnaphthylene	5U	5U	5U	5U	5U	5U	5U
2,6-Dinitrotoluene	5U	5U	5U	5U	5U	5U	5U
3-Nitroaniline	20U	20U	20U	20U	20U	20U	20U
Accnaphthene	5U	5U	5U	5U	5U	5U	5U
2,4-Dinitrophenol	20U	20U	20U	20U	20U	20U	20U
4-Nitrophenol	20U	20U	20U	20U	20U	20U	20U
Dibenzofuran	5U	5U	5U	5U	5U	5U	5U
2,4-Dinitrotoluene	5U	5U	5U	5U	5U	5U	5U
Diethylphthalate	5U	5U	5U	5U	5U	5U	5U
4-Chlorophenyl-phenylether	5U	5U	5U	5U	5U	5U	5U
Fluorene	5U	5U	5U	5U	5U	5U	5U
4-Nitroaniline	20U	20U	20U	20U	20U	20U	20U
4,6-Dinitro-2-methylphenol	20U	20U	20U	20U	20U	20U	20U

Table 3: Semivolatile Organic Compounds  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-7S	MW-7I	MW-7B	MW-8B	MW-9S	MW-9I	MW-9B
N-Nitrosodiphenylamine	5U	5U	5U	5U	5U	5U	5U
4-Bromophenyl-phenylether	5U	5U	5U	5U	5U	5U	5U
Hexachlorobenzene	5U	5U	5U	5U	5U	5U	5U
Pentachlorophenol	20U	20U	20U	20U	20U	20U	20U
Phenanthrene	5U	5U	5U	5U	5U	5U	5U
Anthracene	5U	5U	5U	5U	5U	5U	5U
Di-n-Butylphthalate	5U	5U	5U	5U	5U	5U	5U
Fluoranthene	5U	5U	5U	5U	5U	5U	5U
Pyrene	5U	5U	5U	5U	5U	5U	5U
Butylbenzylphthalate	5U	5U	5U	5U	5U	5U	5U
3,3'-Dichlorobenzidine	5U	5U	5U	5U	5U	5U	5U
Benzo(a)Anthracene	5U	5U	5U	5U	5U	5U	5U
Chrysene	5U	5U	5U	5U	5U	5U	5U
bis(2-Ethylhexyl)Phthalate	5U	5U	5U	5U	5U	5U	5U
Di-n-Octyl Phthalate	5U	5U	5U	5U	5U	5U	5U
Benzo(b)Fluoranthene	5U	5U	5U	5U	5U	5U	5U
Benzo(k)Fluoranthene	5U	5U	5U	5U	5U	5U	5U
Benzo(a)Pyrene	5U	5U	5U	5U	5U	5U	5U
Indeno(1,2,3-cd)Anthracene	5U	5U	5U	5U	5U	5U	5U
Dibenz(a,h)Anthracene	5U	5U	5U	5U	5U	5U	5U
Benzo(g,h,i)Perylene	5U	5U	5U	5U	5U	5U	5U



Table 3: Semivolatile Organic Compounds  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-9B DUP	CS03	CS06	EB01	EB02
Phenol	5U	5U	5U	4J	5U
bis(2-Chloroethyl)Ether	5U	5U	5U	5U	5U
2-Chlorophenol	5U	5U	5U	5U	5U
Benzyl Alcohol	20U	20U	20U	20U	20U
2 Methylphenol	5U	5U	5U	5U	5U
2,2'-oxybis(1-Chloropropane)	5U	5U	5U	5U	5U
4-Methylphenol	5U	5U	5U	5U	5U
N-Nitroso-Di-n-Propylamine	5U	5U	5U	5U	5U
Hexachloroethane	5U	5U	5U	5U	5U
Nitrobenzene	5U	5U	5U	5U	5U
Isophorone	5U	5U	5U	5U	5U
2-Nitrophenol	5U	5U	5U	5U	5U
2,4-Dimethylphenol	5U	5U	5U	5U	5U
Benzoic Acid	20U	20U	20U	20U	20U
bis(2-Chloroethoxy)Methane	5U	5U	5U	5U	5U
2,4-Dichlorophenol	5U	5U	5U	5U	5U
1,2,4-Trichlorobenzene	5U	5U	5U	5U	5U
Napthalene	5U	5U	5U	5U	5U
4-Chloroaniline	5U	5U	5U	5U	5U
Hexachlorobutadiene	5U	5U	5U	5U	5U
4-Chloro-3-Methylphenol	5U	5U	5U	5U	5U
2-Methylnapthalene	5U	5U	5U	5U	5U
Hexachlorocyclopentadiene	5U	5U	5U	5U	5U
2,4,6-Trichlorophenol	5U	5U	5U	5U	5U
2,4,5-Trichlorophenol	20U	20U	20U	20U	20U
2-Chloronapthalene	5U	5U	5U	5U	5U
2-Nitroaniline	20U	20U	20U	20U	20U
Dimethylphthalate	5U	5U	5U	5U	5U
Acenaphthylene	5U	5U	5U	5U	5U
2,6-Dinitrotoluene	5U	5U	5U	5U	5U
3-Nitroaniline	20U	20U	20U	20U	20U
Acenaphthene	5U	5U	5U	5U	5U
2,4-Dinitrophenol	20U	20U	20U	20U	20U
4-Nitrophenol	20U	20U	20U	20U	20U
Dibenzofuran	5U	5U	5U	5U	5U
2,4-Dinitrotoluene	5U	5U	5U	5U	5U
Diethylphthalate	5U	5U	5U	5U	5U
4-Chlorophenyl-phenylether	5U	5U	5U	5U	5U
Fluorene	5U	5U	5U	5U	5U
4-Nitroaniline	20U	20U	20U	20U	20U
4,6-Dinitro-2-methylphenol	20U	20U	20U	20U	20U

**Table 3: Semivolatile Organic Compounds**  
**Stoughton City Landfill - October 1993 Groundwater Sampling**  
**All Results Reported in ug/L**

Sample Number Analyte	MW-9B DUP	CS03	CS06	EB01	EB02
N-Nitrosodiphenylamine	SU	SU	SU	SU	SU
4-Bromophenyl-phenylether	SU	SU	SU	SU	SU
Hexachlorobenzene	SU	SU	SU	SU	SU
Pentachlorophenol	20U	20U	20U	20U	20U
Phenanthrene	SU	SU	SU	SU	SU
Anthracene	SU	SU	SU	SU	SU
Di-n-Butylphthalate	SU	SU	SU	SU	SU
Fluoranthene	SU	SU	SU	SU	SU
Pyrene	SU	SU	SU	SU	SU
Butylbenzylphthalate	SU	SU	SU	SU	SU
3,3'-Dichlorobenzidine	SU	SU	SU	SU	SU
Benzo(a)Anthracene	SU	SU	SU	SU	SU
Chrysene	SU	SU	SU	SU	SU
bis(2-Ethylhexyl)Phthalate	SU	SU	SU	SU	12
Di-n-Octyl Phthalate	SU	SU	SU	SU	SU
Benzo(h)Fluoranthene	SU	SU	SU	SU	SU
Benzo(k)Fluoranthene	SU	SU	SU	SU	SU
Benzo(a)Pyrene	SU	SU	SU	SU	SU
Indeno(1,2,3-cd)Anthracene	SU	SU	SU	SU	SU
Dibenz(a,h)Anthracene	SU	SU	SU	SU	SU
Benzo(g,h,i)Perylene	SU	SU	SU	SU	SU





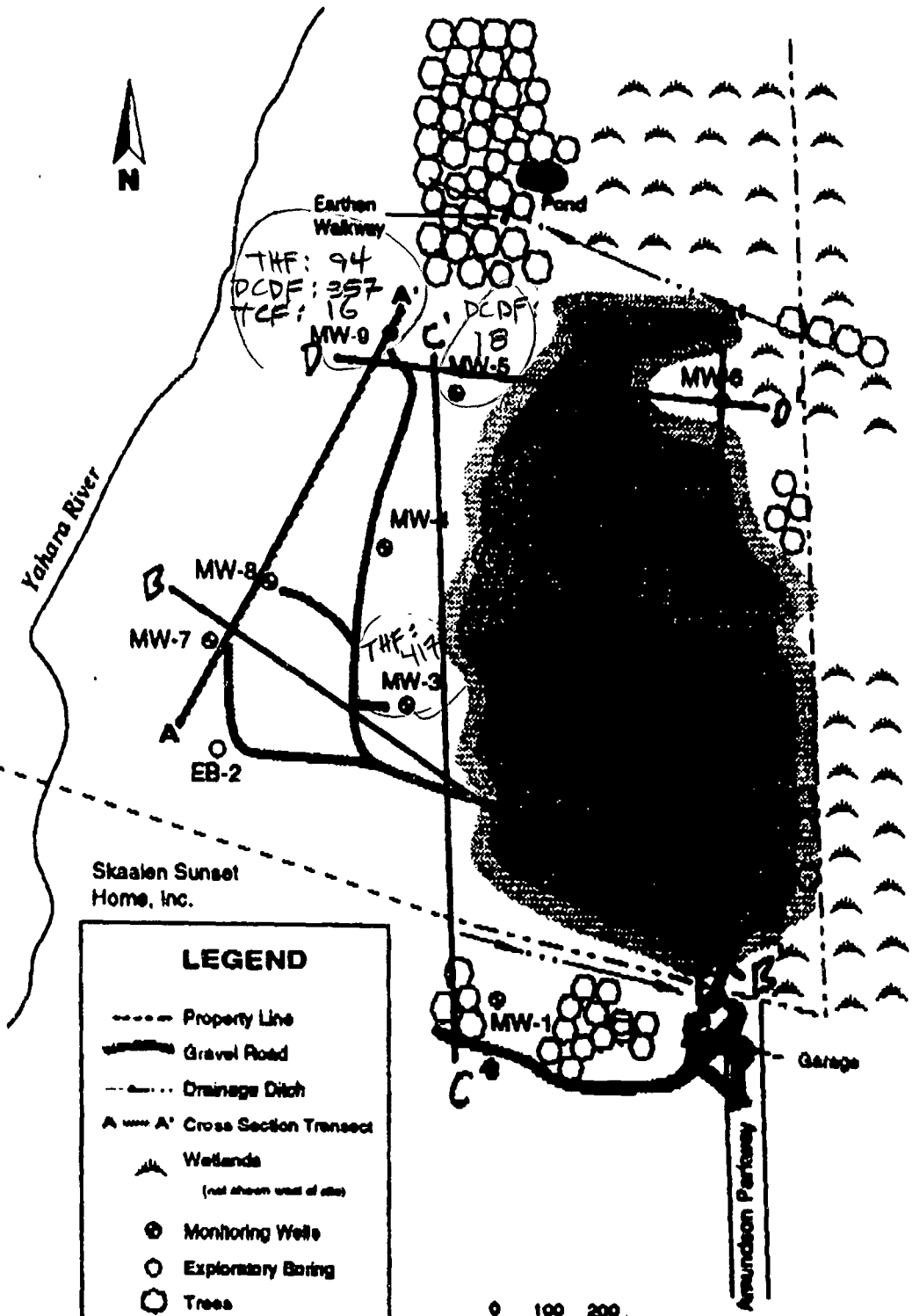




Table 4: Total Metals  
 Stoughton City Landfill - October 1993 Groundwater Sampling  
 All Results Reported in ug/L

Sample Number Analyte	MW-9B DUP	CS03	CS06	EB01	EB02
Aluminum	13.60B	22.10B	36.10B	10.00U	20.40U
Antimony	1.80B	1.10U	1.70B	1.20B	1.10U
Arsenic	2.20U	2.20U	2.20U	2.20U	2.20U
Barium	24.20	27.80	32.10	7.00U	7.00U
Beryllium	1.00U	1.00U	1.00U	1.00U	1.00U
Cadmium	0.22U	0.22U	0.70B	0.22U	0.22U
Calcium	81700.00	74000.00	72500.00	1460.00	572.00B
Chromium	2.00U	2.00U	2.00U	2.00U	2.00U
Cobalt	2.00U	2.00U	2.00U	2.00U	2.00U
Copper	2.00U	2.00U	5.80B	2.00U	2.00U
Iron	4.00U	350.00	320.00	149.00	6.50B
Lead	1.10U	1.10U	1.10U	1.10U	1.10U
Magnesium	42200.00	45000.00	45600.00	587.00B	284.00B
Manganese	10.50	16.50	16.50	14.90	2.70B
Mercury	0.20U	0.20U	0.20U	0.20	0.40
Nickel	8.00U	8.00U	8.00U	8.00U	8.00U
Potassium	1090.00B	1500.00B	1480.00	319.00U	319.00U
Selenium	1.10U	1.10U	1.10U	1.10U	1.10U
Silver	2.00U	2.00U	2.70B	2.00U	2.00U
Sodium	5820.00	2630.00	3050.00	199.00B	83.90B
Thallium	2.20U	2.20U	2.20U	2.20U	2.20U
Vanadium	2.00U	2.00U	2.00U	2.00U	2.00U
Zinc	2.90	1.00U	1.90	1.00U	1.30
Cyanide	10.00U	10.00U	10.00U	10.00U	10.00U

Dane County



THF: 94  
 PCDF: 357  
 TCF: 16

DCDF: 18  
 MW-5

THF: 419  
 MW-3

**LEGEND**

- Property Line
- Gravel Road
- - - - - Drainage Ditch
- A --- A' Cross Section Transect
- ▲ Wetlands  
(not shown west of site)
- ⊙ Monitoring Well
- Exploratory Boring
- Trees
- Landfill

0 100 200  
 Approximate Scale in Feet

Veenevdi, Inc.

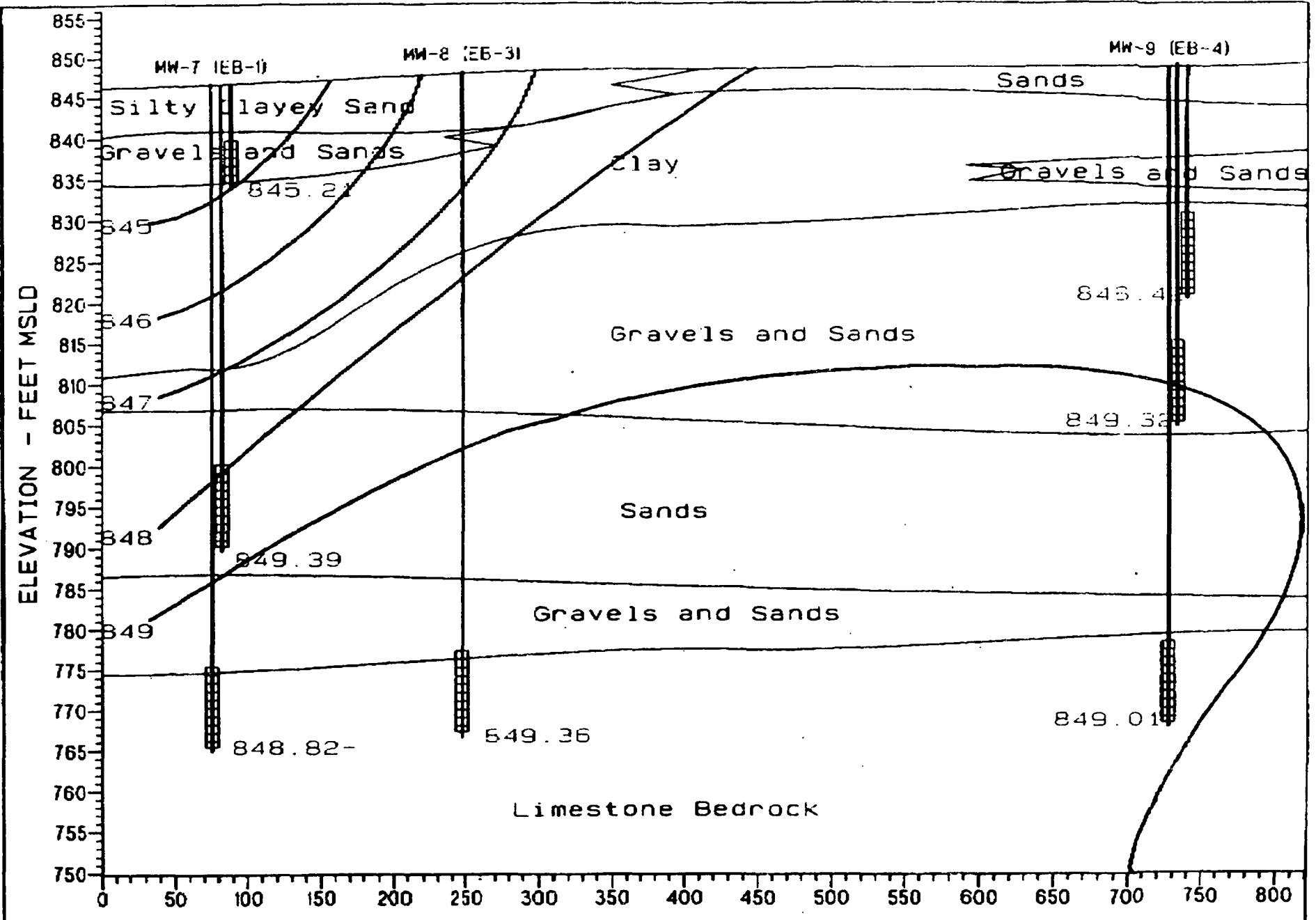
Monitoring Well	Top of Well Casing*	Depth to Water**	Total Depth**	Water Level Elevation***	Vertical Gradient
MW-1S	857.50	9.94	17.24	847.56	0.0473
MW-1D	855.81	5.22	81.21	850.59	
MW-2S	854.16	8.73	17.59	845.43	0.2030
MW-2D	853.80	4.52	36.55	849.28	
MW-3S	859.00	9.62	19.07	849.38	0.0002
MW-3D	858.87	9.48	72.76	849.39	0.0072
MW-3B	859.81	10.26	95.00	849.55	
MW-4S	856.26	6.94	16.86	849.32	0.0005
MW-4D	856.17	6.82	73.70	849.35	
MW-5S	856.19	6.87	16.42	849.32	-0.0002
MW-5D	856.03	6.72	77.16	849.31	
MW-6S	853.59	4.20	14.73	849.39	0.0013
MW-6D	853.11	3.66	60.78	849.45	
MW-7S	849.57	4.36	14.94	845.21	0.0931
MW-7I	849.47	0.08	59.84	849.39	
MW-7B	848.82	0.00+	83.80	848.82+	
MW-8B	850.84	1.48	84.03	849.36	
MW-9S	850.82	2.40	29.90	848.42	0.0526
MW-9I	851.42	2.10	47.00	849.32	-0.0086
MW-9B	850.84	1.83	83.01	849.01	

\* All elevation results in feet MSLD provided by Roy F. Weston

\*\* All water level measurements in feet collected by Jacobs Engineering Group, Inc., October 18-21 1993.

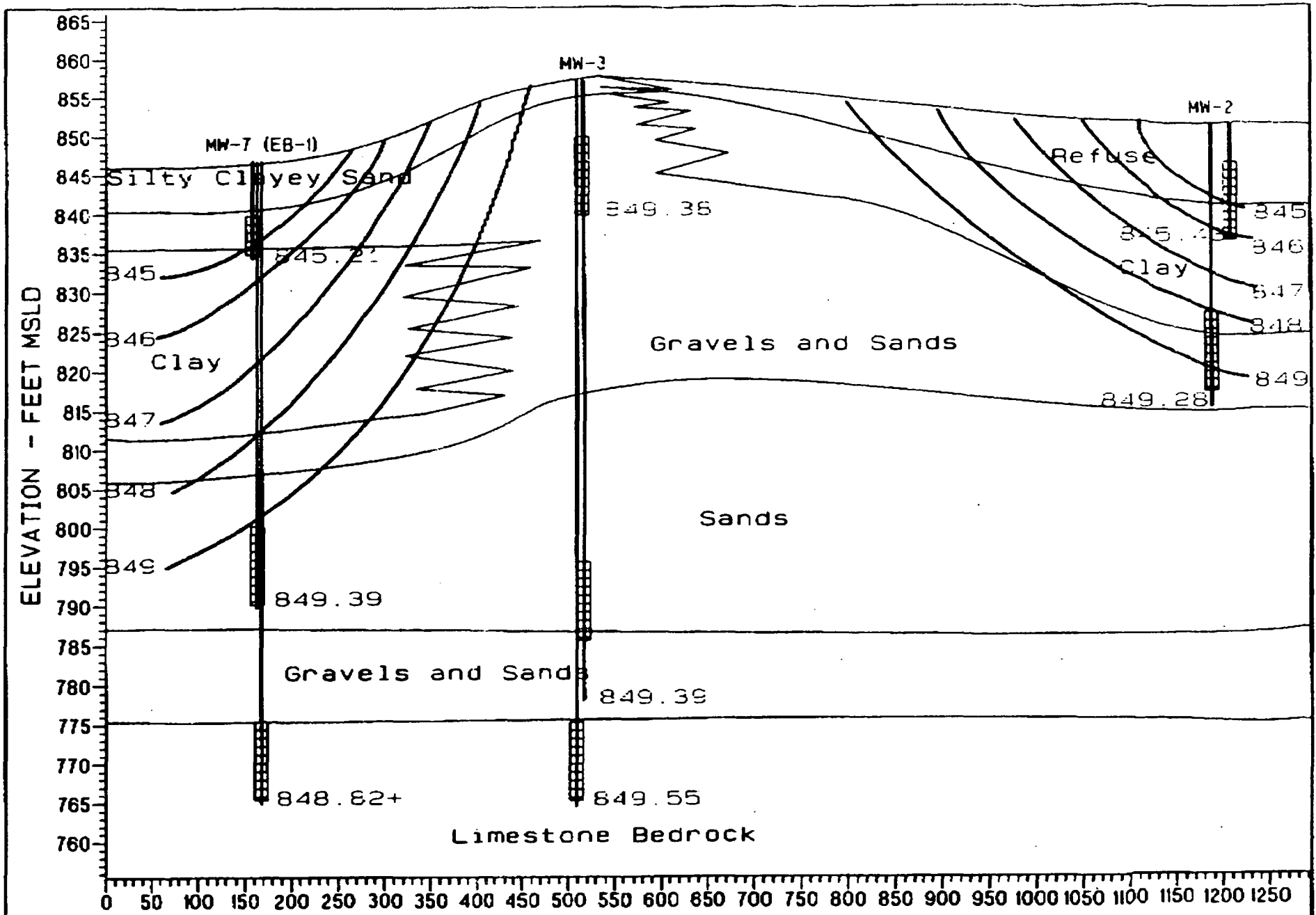
\*\*\* Feet MSLD

+ Flowing Artesian



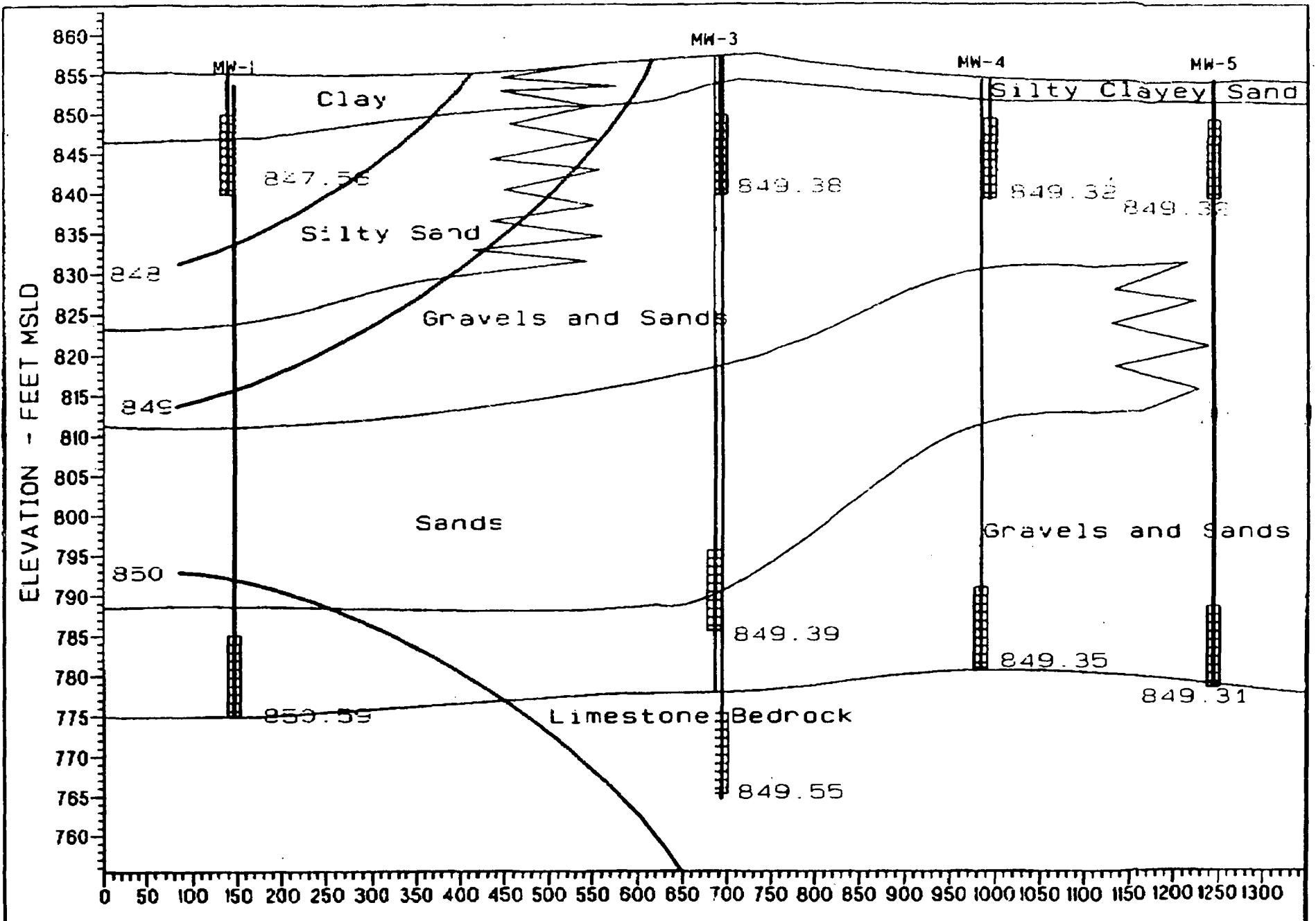
*A-A' Transect*

**JACOBS ENGINEERING GROUP, INC.**  
 CHICAGO ENVIRONMENTAL  
 Stoughton City Landfill  
 Stoughton, WI



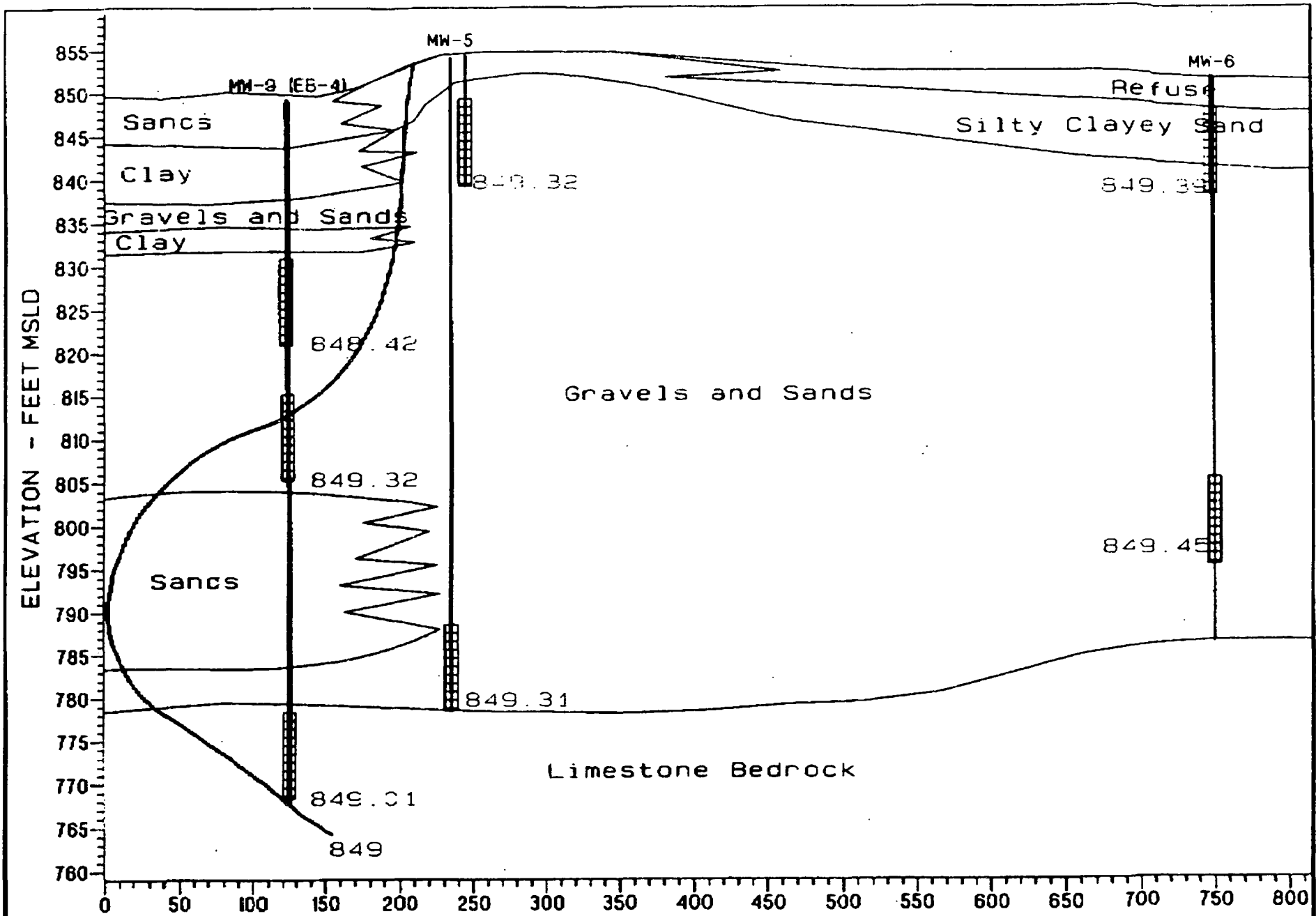
B-B' Transect

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 CHICAGO ENVIRONMENTAL  
 Sloughton City Landfill  
 Sloughton, WI



*C-C' Transect*

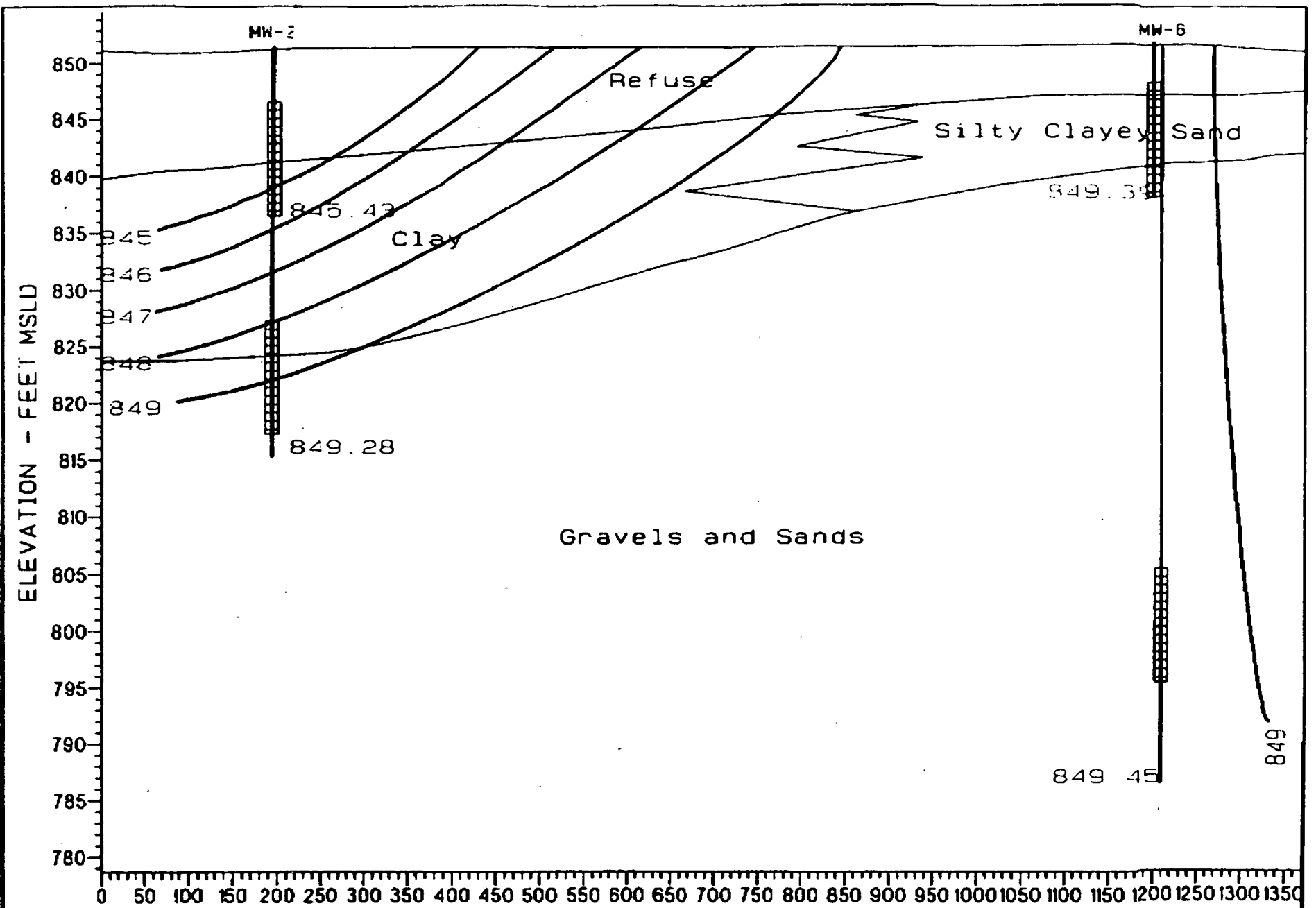
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 Stoughton City Landfill  
 Stoughton, WI



D-D' Transsect

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 Stoughton City Landfill  
 Stoughton, WI





Gravels and Sands

FEET

*E - E' Transect*

**JACOBS ENGINEERING GROUP, INC.**

CHICAGO ENVIRONMENTAL

Stoughton City Landfill

Stoughton, WI