Department of Environmental Conservation

Division of Environmental Remediation

Becker Electronics site
Site No. 4-20-007
Town of East Durham
Greene County, New York

Post Remediation Report

Bureau of Construction Services

December 2001

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

1. Background

1.1 Site location

The Becker site is located in a rural, residential area, south of Catskill Creek on Route 145 in the hamlet East Durham, Greene County, New York. East Durham is located approximately 40 miles southwest of Albany. East Durham is a rural vacation community with private residences and small business establishments located north and south of the site.

1.2 Site History

The Becker Corporation (Becker) was a manufacturer of high fidelity speakers and speaker components. As part of the plant operations, 1,1,1 trichloroethane was used to remove oil from speaker magnet plates and to degrease mechanical machinery. The solvent was used from April 1976 to March 1982. In September 1980, a private water supply well used by the neighboring Weldon House resort area was found to be contaminated with 72,000 parts per billion of 1,1,1 trichloroethane. Subsequent sampling revealed that approximately twelve (12) private water supply wells of homes and businesses have been impacted by the contamination. Becker closed the plant in 1988 and declared bankruptcy. The NYSDEC initiated a Remedial Investigation/Feasibility Study (RI/FS) in February 1996.

From July 1992 through November 1992, on-site septic tanks were pumped out, cleaned and removed or demolished. Fuel oil tanks were pumped out, removed or backfilled with concrete. Contaminated soil was excavated and removed for disposal. Drums of abandoned chemicals were also removed for disposal.

In 1996, an RI/FS for the site was completed by NYSDEC per a 1992 Consent Decree ordered by the United States Northern District Court of New York. The Record of Decision (ROD) was issued on March 28, 1996. Based on this ROD, the Department implemented a remedial design program to verify and define the elements of a Remedial Action. The remedial design was completed in 1999.

2. Summary of Remedial Work performed under the remedial construction contract.

The contract was awarded to the Tyree Organization, Inc. of Latham, New York with Notice to Proceed date of September 22, 2000. Resident

inspector was Russ Shaver of NYSDEC. Project Manager was Lech Dolata.

2.1 Scope of the Site Remediation Project

The scope of the contract work included the following work.

I. Groundwater Remediation System

a. Modifications to existing structure to house the groundwater treatment system.

b. Installation of groundwater recovery wells and well discharge piping.

c. Installation of groundwater treatment system consisting of shallow tray air stripper, blower, liquid phase carbon treatment, and associated controls and equipment.

II. Removal of Contaminated Soils

d. Demolition of a chemical storage building.

e. Disposal of building debris in debris pile.

f. Excavation and disposal of contaminated soils.

III. Debris Pile Vegetative Cover

g. Debris relocation, regrading and compacting.

h. Construction of a vegetative cover consisting of a stabilization fabric, barrier layer and vegetative layer over the approximately one acre of relocated debris pile.

i. Regrading the perimeter of the relocated debris pile to create drainage ditches.

a. Clearing vegetation from designated segments of existing drainage channels.

The contract required excavation and removal of contaminated soil with volatile substances concentrations equaling or exceeding those listed in Table 1, Appendix F.

2.2 Important Milestone Dates

Bid opening date:	May 2, 2000
Notice to Proceed date:	September 22, 2000
Mobilization date:	September 25, 2000
Substantial Completion date:	March 2, 2001
Final completion date:	January 6, 2002

2.3 Cost of the project

Engineer's estimate:	$523,356.00
The lowest bid:	$449,541.00
Change Order No.1:	$34,676.62
The final cost:	$484,217.62

2.4 Significant variations from the contract documents

Soil

The original contract called for the excavation and off-site disposal of 100 tons of hazardous soil, 100 cubic yards of non-hazardous contaminated soil to be excavated and disposed at the site and 950 tons of non-hazardous contaminated soil to be excavated and disposed off the site. Although, no hazardous soil was found, the contractor excavated 1020.46 tons of non-hazardous contaminated soil which is 70.46 tons above the contract quantity. This quantity overrun was dictated by the presence of volatile contaminants in the soil, beyond the designed limits of the excavation. During the excavation, the soil was screened using Photoionization Detector (PID) instrument. The excavation continued until all contaminated soil was removed. The classification of the soil for disposal was based on the soil analytical results obtained from MitChem Laboratory of Warwick, Rhode Island. This soil testing was performed on every 1000 cubic yards of soil to be disposed as required by the disposal facility.

Installation and operation of the Groundwater Treatment System (GTS)

The contract required the contractor to install all components of GTS, start it up and operate the plant, within the specified discharge criteria, for a period of three months. The original design did not require installation of granular activated carbon filters (GAC), however, the contract provided for the GAC filtration on "as needed" basis.

The initial operation of the plant demonstrated the presence of 1,2,3 trichloroethane, toluene, 2-butnone and methylene chloride in the effluent, in excess of the discharge criteria. Since these contaminants persisted in the effluent, it was decided to install GAC filtration unit to remove the volatiles. The GAC unit was installed on April 2, 2001 and successfully reduced concentration of volatiles to a level permitted under the discharge criteria. This allowed the treatment system to discharge to the creek including retreated water that had been stored during the initial operation. The GAC unit was removed from the treatment train on September 12, 2001, after it had been determined that the concentration of volatiles in the raw water decreased to a point where the GAC unit was no longer necessary.

2.5 Cleanup goals

The following cleanup goals were specified in the contract reflective of Record of Decision requirements:

Acetone	0.2 ppm
2-Butanone	0.21 ppm
Methylene chloride	0.1 ppm
1,1 Dichloroethene	0.28 ppm
1,1 Dicloroethane	0.14 ppm
1,1,1, Trichloroethane	0.56 ppm
Trichloroethene	0.5 ppm
Toluene	1.05 ppm
Ethylbenzene	3.85 ppm
Xylene (Total)	0.84 ppm

The specified cleanup goals were met across the excavated area and were verified by the post-excavation confirmatory sampling performed in 24 locations. Appendix B contains a tabulation of the post construction soil sampling results and sample location map.

2.6 Other construction related documents

- Contract documents dated March 2000.
- Post construction drawings dated September 1, 2001.
- Operation and Maintenance Manual, November 2001 Revision.

2.7 Change Orders

The Department issued one change order. The cost of Change Order No.1(Final) was $34,676.62 and it included the following modifications resulting in a revised contract amount of $484,217.62.

MODIFICATION 1. ADDITIONAL DISCHARGE PIPING (BID ITEM UP-4)

The contractor was instructed to install an additional 27 feet of pipeline because the distance to the receiving body of water required an additional length of pipe. This change increased the contract price by $554.31.

MODIFICATION 2. EXTRA TOP SOIL (BID ITEM UP-7)

As a part of the restoration work, the contractor was required to install an additional 15,435 square feet of topsoil in areas that were originally not designated for restoration. This modification resulted in an extra cost of $12,193.65.

MODIFICATION 3. CREDIT FOR HAZARDOUS SOIL REMOVAL (BID ITEM UP-12)

All the excavated soil was found contaminated, but not hazardous, therefore, the contractor did not encounter hazardous soil during the remedial action. This modification resulted in a credit of $13,811.

MODIFICATION 4. ADDITIONAL NON-HAZARDOUS SOIL EXCAVATION AND DISPOSAL (BID ITEM UP-13)

During the remedial action the contractor excavated and removed for off-site disposal an additional 70.46 cubic yards of non-hazardous soil at a cost of $3,456.06, to meet the cleanup goals established for this site.

MODIFICATION 5. ADDITIONAL OPERATION AND MAINTENANCE TIME (BID ITEM UP-15)

The contractor provided operation and maintenance services (O&M) for the groundwater treatment plant during an additional 6-month period. These additional O&M services were necessary to finalize the treatment system components, balance the system, verify its performance and to provide a continuous operation of the groundwater treatment plant during the time needed to prepare an O&M manual and select an operator. The cost of this additional work was $15,300.

MODIFICATION 6. ADDITIONAL SEEDING (BID ITEM UP-16)

As a part of the restoration work, the contractor was required to seed an additional 33,965 square feet in areas that were originally not designated for restoration but were disturbed during construction. The cost of this additional work was $3,396.50.

MODIFICATION 7. ADDITIONAL WATER SAMPLE ANALYSES (BID ITEM UP-17)

The contractor sampled and analyzed an additional 54 water samples for parameters listed in the effluent discharge permit at a cost of $7,514.10. This additional analytical work was required as a result of an extended O&M time for the groundwater treatment system and it was performed to meet the conditions under the discharge limits.

MODIFICATION 8. INSTALL/DISASSEMBLE AND DISPOSE OF ACTIVATED CARBON FILTERS

The contractor installed two (2) activated carbon filters, complete with piping, valves and gauges to improve the performance of the treatment train. The activated carbon filters were not required under the original contract, however, the design called for their installation on "as needed" basis to ensure that the effluent meets the discharge criteria established for this site. The treatment system could not treat the higher than expected levels of VOC without the activated carbon filters. The installation cost was $2,676.

MODIFICATION 9. INSTALL BETA 4a METERING PUMP

The contractor dismantled and removed a peristaltic transfer pump from the groundwater treatment train and installed in its place a Beta 4a metering pump. This substitution, at a cost $1,307, was necessary to reduce the number of treatment system shutdowns, to increase the reliability of the treatment plant, and to reduce the number of personnel maintenance trips to the treatment system.

MODIFICATION 10. ADDITIONAL WATER (EFFLUENT) ANALYSES

The contractor additionally sampled and analyzed nine (9) effluent samples for volatile organics using method 8260, three (3) samples using method 524, two (2) samples using method 8260 with total Tetrahydrofuran (THF) as a target compound with 24 hours turnaround time and two (2) samples using method 8260 with total THF as a target compound with 48 hours turnaround time.

During the start-up phase of the operation of the groundwater treatment system, it was determined that methylene chloride and toluene are present in the effluent at concentrations exceeding the discharge criteria. Additional analyses using method 8260, at a cost of $2,155, were necessary to ascertain that the presence of these contaminants was not temporary and additional measures must be taken to improve the performance of the treatment system.

MODIFICATION 11. ADDITIONAL POST EXCAVATION SAMPLING AND ANALYSES (BID ITEM UP-20)

As a result of extra quantity of excavated contaminated soil, the contractor additionally sampled and analyzed nine (9) soil samples for PCBs. These additional analyses, performed at a cost of $135.00, were necessary to verify that the project's cleanup goals were met.

MODIFICATION 12. CREDIT FOR USED FURNITURE

Since the used furniture offered by the contractor was in excellent condition and was suitable for the on-site office, the Department accepted the used desk and chair instead of new furniture for a negotiated credit in the amount of $200.

2.8 Disposal Facilities

All contaminated non-hazardous soil was disposed at:

City of Albany Landfill,
525 Rapp Road
Albany, New York 12205

3.0 Engineer's Certification

BECKER ELECTRONICS SITE
CONSTRUCTION CERTIFICATION

Construction was completed in substantial conformance with the Contract Documents entitled "Site Remediation Project, Site NO. 4-20-007, East Durham, Greene New York, dated March 2000 and Addendum No. 1 dated April 20,2000.

Signature: James G. Van Hoesen

James G. Van Hoesen, P.E.
Designated Representative

Date: 12-27-01

APPENDIX A

ORIGINAL TABULATION OF BIDS RECEIVED

BIDS AS OPENED - BIDS TABULATION

BID OPENING DATE: May 2, 2000

Becker Electronics Site Remediation Project

SITE NO. 4-20-007

Table 1

PAY ITEM	DESCRIPTION	UNIT	EST. QUANTITY	ENGINEER'S ESTIM. UNIT PRICE	ENGINEER'S ESTIM. COST	TYREE ORGANIZATION UNIT PRICE	TYREE ORGANIZATION COST	ENVIR. RESOURCES MGMT UNIT PRICE	ENVIR. RESOURCES MGMT COST	INDUSTRRIAL SITE SERV. UNIT PRICE	INDUSTRRIAL SITE SERV. COST	CASTLTON EXCAV. UNIT PRICE	CASTLTON EXCAV. COST
UP-1	HEALTH &SAFETY	DAY	100.00	220.00	22,000.00	78.81	7,881.00	167.00	16,700.00	150.00	15,000.00	345.00	34,500.00
UP-2	SITE SERVICES	DAY	150.00	90.00	13,500.00	43.80	6,570.00	111.00	16,650.00	300.00	45,000.00	195.00	29,250.00
UP-3	1-INCH HDPE WELL DISCH PIPING	LF	550.00	21.50	11,825.00	13.66	7,513.00	10.00	5,500.00	10.00	5,500.00	27.00	14,850.00
UP-4	GRAVITY DISCH PIPING	LF	200.00	23.50	4,700.00	20.53	4,106.00	12.50	2,500.00	8.00	1,600.00	29.00	5,800.00
UP- 5	PRECAST MANHOLE	EACH	1.00	2,000.00	2,000.00	2,079.00	2,079.00	3,500.00	3,500.00	2,000.00	2,000.00	2,900.00	2,900.00
UP-6	SELECT FILL	CY	200.00	15.00	3,000.00	19.73	3,946.00	27.50	5,500.00	25.00	5,000.00	26.00	5,200.00
UP-7	TOPSOIL	SF	42,000.00	0.35	14,700.00	0.79	33,180.00	0.43	18,060.00	0.20	8,400.00	0.65	27,300.00
UP-8	LOW PERM. SOIL	CY	2,050.00	20.00	41,000.00	37.03	75,911.50	20.00	41,000.00	20.00	41,000.00	16.00	32,800.00
UP-9	SEPARATION FABRIC	SF	2,550.00	0.16	408.00	0.36	918.00	1.38	3,519.00	0.15	382.50	0.22	561.00
UP-10	STABILIZAT. FABRIC	SF	41,100.00	0.20	8,220.00	0.16	6,576.00	0.17	6,987.00	0.08	3,288.00	0.45	18,495.00
UP-11	NON- HAZ. SOIL EXC.& DISP.	CY	100.00	25.00	2,500.00	7.99	799.00	45.00	4,500.00	10.00	1,000.00	17.00	1,700.00
UP-12	HAZ. SOIL EXC.& DISP.	TONS	100.00	200.00	20,000.00	138.11	13,811.00	250.00	25,000.00	250.00	25,000.00	235.00	23,500.00
UP-13	NON-HAZ SOIL . DISP/SOLID WASTI	TONS	950.00	81.00	76,950.00	49.05	46,597.50	60.00	57,000.00	70.00	66,500.00	58.00	55,100.00
UP-14	TCLP FOR SOIL	SMPL	5.00	1,100.00	5,500.00	698.60	3,493.00	560.00	2,800.00	400.00	2,000.00	275.00	1,375.00
UP-15	O&M OF TREATMENT SYST.	DAY	90.00	175.00	15,750.00	85.00	7,650.00	500.00	45,000.00	300.00	27,000.00	225.00	20,250.00
UP-16	SEED, FERT., MULCH	SF	42,000.00	0.05	2,100.00	0.10	4,200.00	0.32	13,440.00	0.10	4,200.00	0.88	36,960.00
UP-17	WATER SAMPLE ANALYSES	SMPL	60.00	235.00	14,100.00	139.15	8,349.00	133.00	7,980.00	150.00	9,000.00	145.00	8,700.00
UP-18	EROSION CONTROL MATERIAL	SF	17,000.00	0.20	3,400.00	0.56	9,520.00	0.24	4,080.00	0.25	4,250.00	0.90	15,300.00
UP-19	FENCING	LF	85.00	33.00	2,805.00	20.00	1,700.00	23.00	1,955.00	50.00	4,250.00	49.00	4,165.00
UP-20	POST- EXC. SAMPLING	SMPL	15.00	200.00	3,000.00	15.00	225.00	346.00	5,190.00	300.00	4,500.00	215.00	3,225.00
LF-21	MOB/DEMOB. SITE FACILITIES	LS	1.00	80,000.00	80,000.00	17,881.00	17,881.00	15,000.00	15,000.00	10,000.00	10,000.00	15,000.00	15,000.00
LF-22	CONSTRUCT TRREATM. BLDG.	LS	1.00	63,000.00	63,000.00	43,475.00	43,475.00	29,129.00	29,129.00	15,000.00	15,000.00	38,000.00	38,000.00
LF-23	TREATMENT EQUIP. AND PIPING	LS	1.00	30,000.00	30,000.00	32,703.00	32,703.00	40,000.00	40,000.00	65,000.00	65,000.00	24,300.00	24,300.00
LF-24	WELL MOD. AND WELL PUMPS	LS	1.00	33,500.00	33,500.00	18,610.00	18,610.00	26,000.00	26,000.00	57,500.00	57,500.00	46,000.00	46,000.00
LF-25	ELECTR. WORK	LS	1.00	25,000.00	25,000.00	56,254.00	56,254.00	45,000.00	45,000.00	29,000.00	29,000.00	16,500.00	16,500.00
LF-26	INSTRUMENT AND ALARMS	LS	1.00	15,000.00	15,000.00	20,504.00	20,504.00	10,000.00	10,000.00	15,000.00	15,000.00	19,720.00	19,720.00
LF-27	DEBRIS PILE REGRADING	LS	1.00	3,200.00	3,200.00	6,863.00	6,863.00	18,000.00	18,000.00	10,000.00	10,000.00	8,920.00	8,920.00
LF-28	CHEMICAL STORAGE BLDG	LS	1.00	6,200.00	6,200.00	8,226.00	8,226.00	8,226.00	8,226.00	15,000.00	15,000.00	23,710.00	23,710.00
	TOTAL				**$523,358.00**		**$449,541.00**		**$478,216.00**		**$491,370.50**		**$534,081.00**

ERR IN ORG.

PAY ITEM	DESCRIPTION	UNIT	EST. QUANTITY	ENGINEER'S ESTIM. UNIT PRICE	ENGINEER'S ESTIM. COST	INTEGRATED TECHN. SERV. UNIT PRICE	INTEGRATED TECHN. SERV. COST	TARGET GROUP OF NY UNIT PRICE	TARGET GROUP OF NY COST	CLEAN HARBORS. UNIT PRICE	CLEAN HARBORS. COST	CLEAN VENTURE UNIT PRICE	CLEAN VENTURE COST	IRA D. CONKLIN UNIT PRICE	IRA D. CONKLIN COST
UP-1	HEALTH &SAFETY	DAY	100.00	220.00	22,000.00	505.00	50,500.00	400.00	40,000.00	35.00	3,500.00	375.00	37,500.00	1,420.00	142,000.00
UP-2	SITE SERVICES	DAY	150.00	90.00	13,500.00	160.00	24,000.00	100.00	15,000.00	40.00	6,000.00	375.00	56,250.00	903.00	135,450.00
UP-3	1-INCH HDPE WELL DISCH PIPING	LF	550.00	21.50	11,825.00	10.50	5,775.00	15.00	8,250.00	50.00	27,500.00	15.50	8,525.00	27.00	14,850.00
UP-4	GRAVITY DISCH PIPING	LF	200.00	23.50	4,700.00	13.40	2,680.00	28.00	5,600.00	45.00	9,000.00	31.75	6,350.00	19.00	3,800.00
UP- 5	PRECAST MANHOLE	EACH	1.00	2,000.00	2,000.00	2,540.00	2,540.00	6,500.00	6,500.00	650.00	650.00	2,495.00	2,495.00	4,500.00	4,500.00
UP-6	SELECT FILL	CY	200.00	15.00	3,000.00	24.00	4,800.00	20.00	4,000.00	18.50	3,700.00	16.25	3,250.00	21.00	4,200.00
UP-7	TOPSOIL	SF	42,000.00	0.35	14,700.00	0.50	21,000.00	0.60	25,200.00	0.50	21,000.00	0.52	21,840.00	0.50	21,000.00
UP-8	LOW PERM. SOIL	CY	2,050.00	20.00	41,000.00	20.00	41,000.00	4.00	8,200.00	45.00	92,250.00	18.65	38,232.50	26.00	53,300.00
UP-9	SEPARATION FABRIC	SF	2,550.00	0.16	408.00	0.40	1,020.00	3.50	8,925.00	0.40	1,020.00	0.47	1,198.50	0.40	1,020.00
UP-10	STABILIZAT. FABRIC	SF	41,100.00	0.20	8,220.00	0.14	5,754.00	0.70	28,770.00	0.15	6,165.00	0.24	9,864.00	0.21	8,631.00
UP-11	NON- HAZ. SOIL EXC.& DISP.	CY	100.00	25.00	2,500.00	12.50	1,250.00	40.00	4,000.00	13.00	1,300.00	23.50	2,350.00	20.00	2,000.00
UP-12	HAZ. SOIL EXC.& DISP.	TONS	100.00	200.00	20,000.00	200.00	20,000.00	120.00	12,000.00	208.00	20,800.00	176.00	17,600.00	250.00	25,000.00
UP-13	NON-HAZ SOIL . DISP/SOLID WASTI	TONS	950.00	81.00	76,950.00	49.00	46,550.00	50.00	47,500.00	85.00	80,750.00	84.50	80,275.00	58.00	55,100.00
UP-14	TCLP FOR SOIL	SMPL	5.00	1,100.00	5,500.00	690.00	3,450.00	600.00	3,000.00	230.00	1,150.00	950.00	4,750.00	550.00	2,750.00
UP-15	O&M OF TREATMENT SYST.	DAY	90.00	175.00	15,750.00	440.00	39,600.00	750.00	67,500.00	375.00	33,750.00	350.00	31,500.00	300.00	27,000.00
UP-16	SEED, FERT., MULCH	SF	42,000.00	0.05	2,100.00	0.12	5,040.00	0.50	21,000.00	0.06	2,520.00	0.05	1,890.00	0.30	12,600.00
UP-17	WATER SAMPLE ANALYSES	SMPL	60.00	235.00	14,100.00	235.00	14,100.00	300.00	18,000.00	230.00	13,800.00	375.00	22,500.00	150.00	9,000.00
UP-18	EROSION CONTROL MATERIAL	SF	17,000.00	0.20	3,400.00	0.44	7,480.00	0.80	13,600.00	0.67	11,390.00	0.69	11,730.00	0.50	8,500.00
UP-19	FENCING	LF	85.00	33.00	2,805.00	35.00	2,975.00	80.00	6,800.00	33.00	2,805.00	23.50	1,997.50	105.00	8,925.00
UP-20	POST- EXC. SAMPLING	SMPL	15.00	200.00	3,000.00	200.00	3,000.00	400.00	6,000.00	147.00	2,205.00	168.75	2,531.25	100.00	1,500.00
LF-21	MOB/DEMOB. SITE FACILITIES	LS	1.00	80,000.00	80,000.00	39,700.00	39,700.00	30,000.00	30,000.00	33,300.00	33,300.00	48,500.00	48,500.00	12,000.00	12,000.00
LF-22	CONSTRUCT TRREATM. BLDG.	LS	1.00	63,000.00	63,000.00	57,100.00	57,100.00	30,000.00	30,000.00	65,800.00	65,800.00	41,500.00	41,500.00	55,000.00	55,000.00
LF-23	TREATMENT EQUIP. AND PIPING	LS	1.00	30,000.00	30,000.00	45,000.00	45,000.00	94,000.00	94,000.00	43,800.00	43,800.00	34,650.00	34,650.00	82,000.00	82,000.00
LF-24	WELL MOD. AND WELL PUMPS	LS	1.00	33,500.00	33,500.00	57,000.00	57,000.00	20,000.00	20,000.00	23,700.00	23,700.00	32,000.00	32,000.00	28,100.00	28,100.00
LF-25	ELECTR. WORK	LS	1.00	25,000.00	25,000.00	38,000.00	38,000.00	30,000.00	30,000.00	42,500.00	42,500.00	43,000.00	43,000.00	40,641.00	40,641.00
LF-26	INSTRUMENT AND ALARMS	LS	1.00	15,000.00	15,000.00	21,000.00	21,000.00	15,000.00	15,000.00	30,500.00	30,500.00	24,750.00	24,750.00	31,900.00	31,900.00
LF-27	DEBRIS PILE REGRADING	LS	1.00	3,200.00	3,200.00	13,600.00	13,600.00	20,000.00	20,000.00	10,000.00	10,000.00	13,900.00	13,900.00	7,000.00	7,000.00
LF-28	CHEMICAL STORAGE BLDG	LS	1.00	6,200.00	6,200.00	3,350.00	3,350.00	11,000.00	11,000.00	9,600.00	9,600.00	12,500.00	12,500.00	12,000.00	12,000.00
	TOTAL				**$523,358.00**		**$577,264.00**		**$599,845.00**		**$600,455.00**		**$613,428.75**		**$809,767.00**

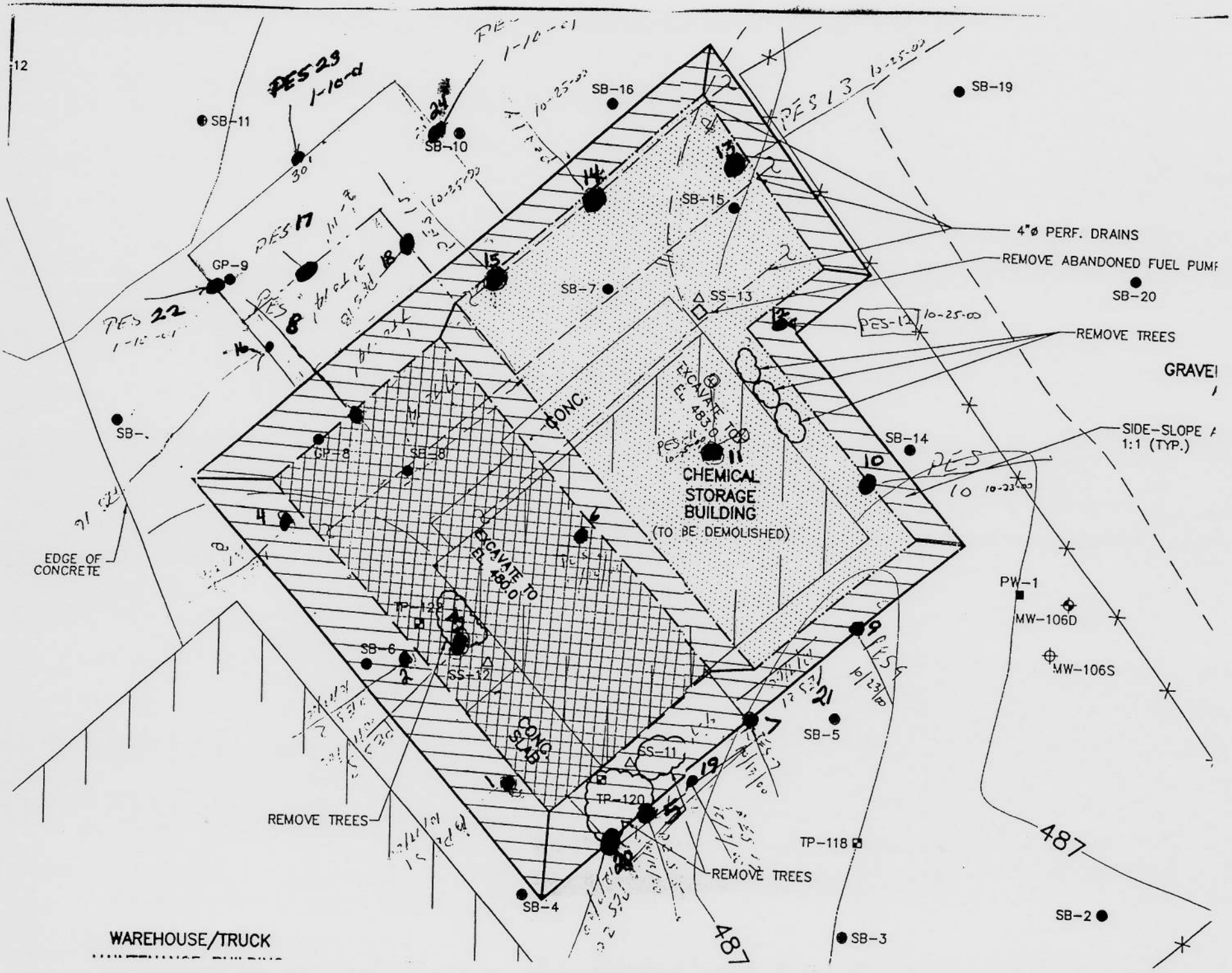
ERR. IN ORIG.

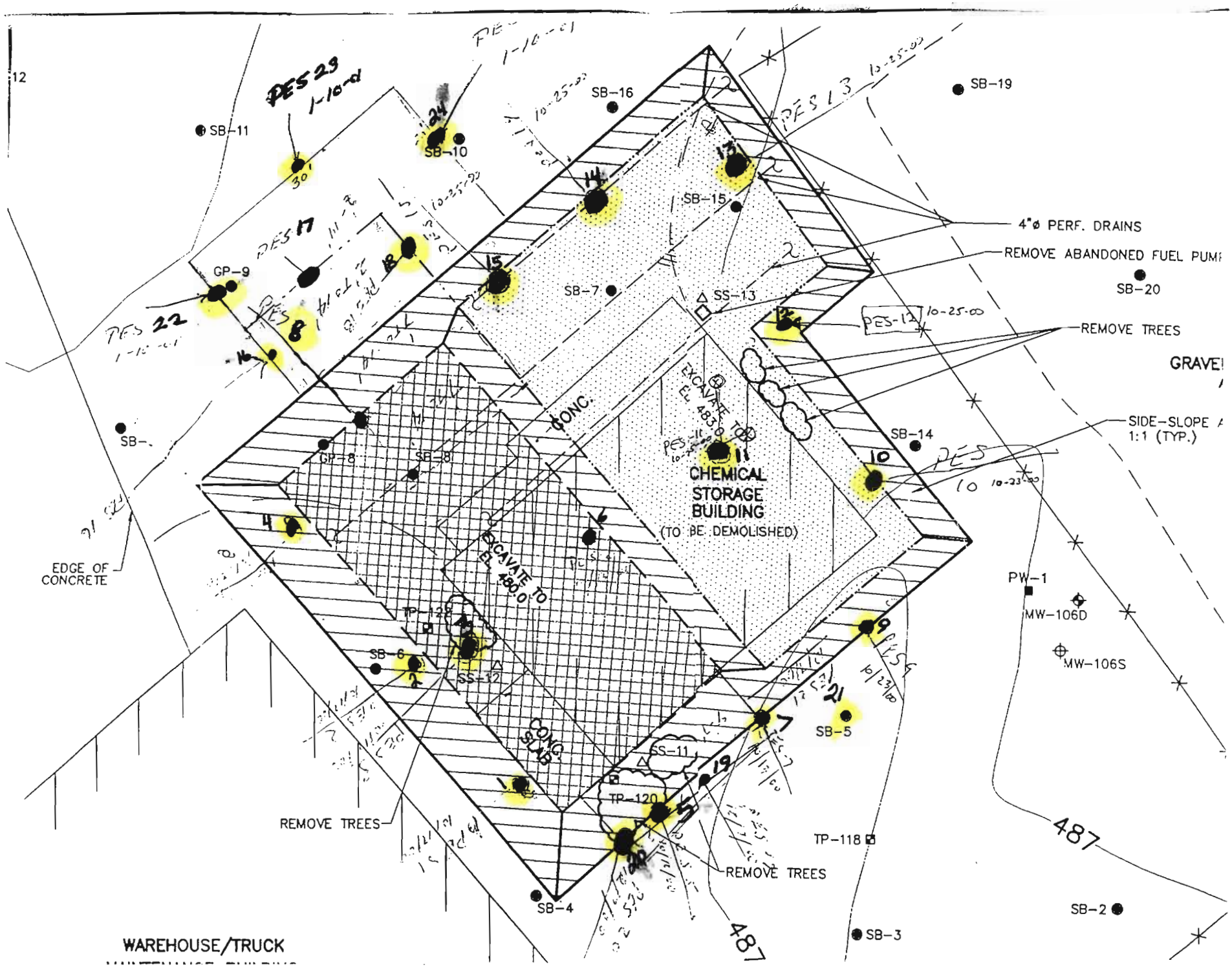
APPENDIX B

POST CONSTRUCTION SOIL SAMPLING LOCATION AND RESULTS

Post- Excavation Soil Sample Analytical Summary Table
Becker Electronics Site Remediation Project
East Durham, New York
NYSDEC Site # 4-20-007

Analyte	Sample ID	PES-1	PES-2	PES-3	PES-4	PES-5	PES-6	PES-7	PES-8	PES-9	PES-10	PES-11	PES-12	PES-13	PES-14	PES-15	PES-16	PES-17	PES-18	PES-19	PES-20	PES-21	PES-22	PES-23	PES-24
	Sample Collection Date	10/12/00	10/12/00	10/12/00	10/12/00	10/12/00	10/13/00	10/13/00	10/17/00	10/23/00	10/23/00	10/25/00	10/25/00	10/25/00	10/25/00	10/25/00	12/6/00	12/6/00	12/6/00	12/7/00	1/12/01	1/12/01	1/12/01	1/12/01	1/12/01
Chloroethane	ppb	82	<5	<5	<6	<6	<290	<290	<49	<6	<6	<6	<6	<6	<6	<5	<6	<280	<1400	<6	<6	<6	<5	<5	<5
1,1-Dichloroethene	ppb	8	<5	<5	<6	8	<290	<290	<49	<6	<6	<6	<6	<6	<6	<4	8	<280	<1400	<5	<6	25	18	20	20
Acetone	ppb	<5	<5	<5	<4	49	450	320	150	<6	22	<6	<6	<6	<6	<5	<6	<860	<2600	<6	<11	<8	<7	<7	<8
Methylene Chloride	ppb	<6	<3	<4	<6	<6	360	<290	<49	<6	<6	<6	<6	<6	<6	<5	<1	<240	<370	<6	<6	<6	10	<5	<5
t-1,2-Dichloroethene	ppb	<6	<5	<5	<6	<6	<290	<290	<49	<6	<6	<6	<6	<6	<6	<5	<6	<280	<1400	<6	<6	<6	<5	<5	<5
1,1-Dichloroethane	ppb	52	<5	<3	<6	<6	<290	<290	68	8	<6	<2	<2	<6	<6	13	<6	<280	<1400	<6	<6	<6	11	11	<5
c-1,2-Dichloroethene	ppb	<6	<5	<5	<6	<6	<290	<290	<49	<6	<6	<6	<6	<6	<6	<5	<6	<280	<1400	<6	<6	<6	<2	<5	<5
2,2-Dichloropropane	ppb	<6	<5	<5	<6	<6	<290	<290	<49	<6	<6	<6	<6	<6	<6	<5	<6	<280	<1400	<6	<6	<6	<5	<5	<5
2-Butanone	ppb	<6	<5	<5	<6	910	5400	1900	1100	<6	<3	<6	<6	<6	<6	<5	<6	6400	29000	<6	<6	<6	<3	<5	<5
Chloroform	ppb	<6	<5	<5	<6	<6	<290	<290	<49	<6	<6	<6	<6	<6	<6	<5	<1	<280	<1400	<2	<6	<6	<5	<5	<5
1,1,1-Trichloroethane	ppb	63	<5	<4	11	90	<290	5000	53	140	<6	<6	<3	<6	<6	12	10	<280	<1400	20	<6	74	36	25	22
1,2-Dichloroethane	ppb	<6	<5	<5	<6	<6	<290	<290	<49	<6	<6	<6	<6	<6	<6	<5	<6	<280	<1400	<6	<6	<6	<5	<5	<5
Trichloroethene	ppb	<6	<5	<5	23	<6	<290	<290	<49	<3	<6	<2	<6	<1	9	<2	<2	<280	<1400	<4	<6	<1	44	8	<2
4-Methyl-2-pentanone	ppb	<6	<5	<5	<6	23	<290	<290	<49	<6	<6	<6	<6	<2	<6	<5	<6	<170	<660	<6	<6	<6	<5	<5	<5
t-1,3-Dichloropropene	ppb	<6	<5	<5	<6	<6	<290	<290	<49	<6	<6	<6	<6	<6	<6	<5	<6	<280	<1400	<6	<6	<6	<5	<5	<5
Tetrachloroethene	ppb	<6	<5	<5	<6	8	<290	550	<49	<6	<6	<6	<6	<6	<6	<4	<6	<280	<1400	<6	<6	<6	<5	<5	<5
1,3,5-Trimethylbenzene	ppb	<6	<5	<5	<6	13	<290	<290	<49	<6	<6	16	<6	<6	<6	<5	<6	<280	<1400	<6	<6	<6	<5	<5	<5
1,2,4-Trimethylbenzene	ppb	<6	<5	<5	<6	26	<290	<120	<49	<6	<6	29	<6	<6	<6	<5	<6	<280	<1400	<6	<6	<6	<5	<5	<5
n-Butylbenzene	ppb	<6	<5	<5	<6	7	<290	<290	<49	<6	<6	<6	<6	<6	<6	<5	<6	<280	<1400	<6	<6	<6	<5	<5	<5
Naphthalene	ppb	<6	<5	<5	<6	13	<290	<290	<49	<3	<6	23	<6	<6	<6	<5	<6	<280	<1400	<6	<6	<6	<5	<5	<5

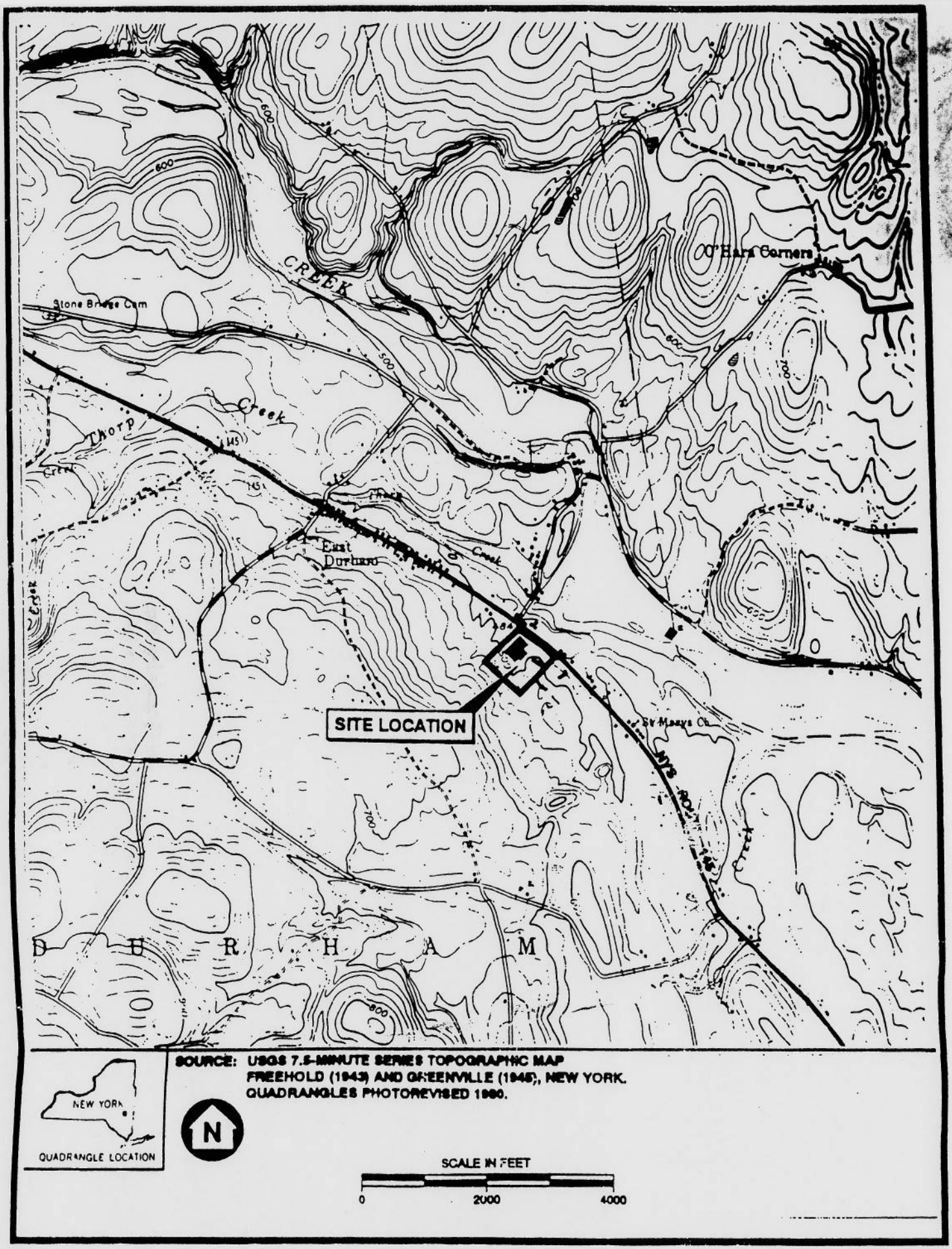

SB-11
SB-10
SB-16
SB-19
SB-15
SB-7
SB-20
GP-9
SS-13
4"ø PERF. DRAINS
REMOVE ABANDONED FUEL PUMP
REMOVE TREES
GRAVEL
SIDE-SLOPE 1:1 (TYP.)
SB-14
CONC.
EXCAVATE TO EL 483.0
CHEMICAL STORAGE BUILDING
(TO BE DEMOLISHED)
GP-8
SB-8
EXCAVATE TO EL 480.0
EDGE OF CONCRETE
PW-1
MW-106D
MW-106S
TP-128
SB-6
SS-12
SB-5
CONC. SLAB
SS-11
TP-120
TP-118
REMOVE TREES
REMOVE TREES
SB-4
SB-3
SB-2
487
487
WAREHOUSE/TRUCK


SB-11
SB-10
SB-16
SB-15
SB-19
SB-20
SB-7
SS-13
GP-9
GP-8
SB-8
SB-14
SB-6
SS-12
SB-5
SS-11
SB-4
SB-3
SB-2
TP-120
TP-118
PW-1
MW-106D
MW-106S
4"ø PERF. DRAINS
REMOVE ABANDONED FUEL PUMP
REMOVE TREES
GRAVEL
SIDE-SLOPE
1:1 (TYP.)
CHEMICAL STORAGE BUILDING
(TO BE DEMOLISHED)
EXCAVATE TO EL. 483.0
EXCAVATE TO EL. 480.0
CONC.
CONC. SLAB
EDGE OF CONCRETE
REMOVE TREES
REMOVE TREES
WAREHOUSE/TRUCK
487
487

APPENDIX C

DRAWINGS

Figure 1-1	General Site Location Map
Figure 1-2	Local Site Location Map
Figure 1-3	Recovery Well - Cross Section



SOURCE: USGS 7.5-MINUTE SERIES TOPOGRAPHIC MAP
FREEHOLD (1943) AND GREENVILLE (1945), NEW YORK.
QUADRANGLES PHOTOREVISED 1980.

LOCATION PLAN

SCALE: 1"=2000'

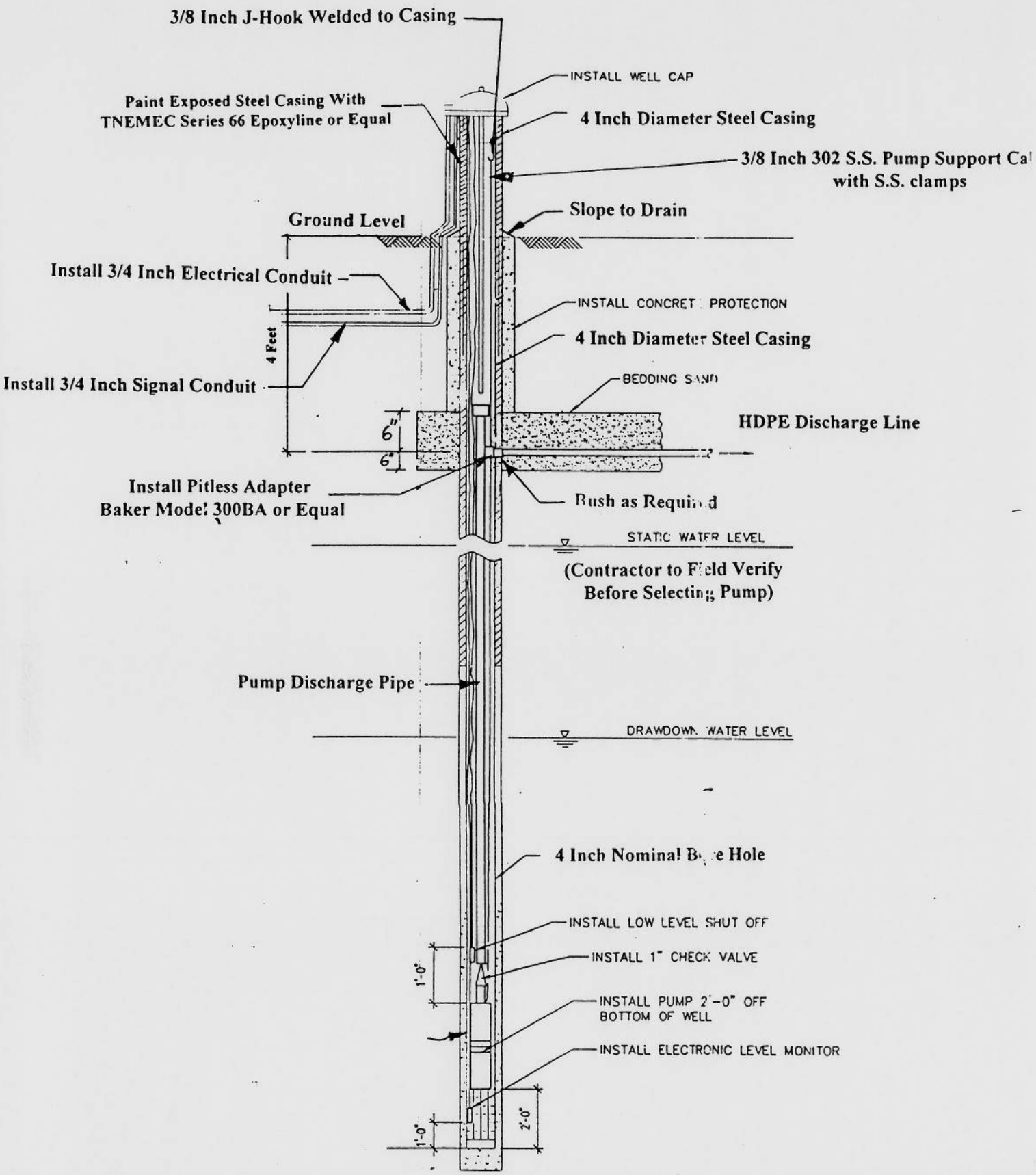
Figure 1-1

MALCOLM PIRNIE

BECKER ELECTRONICS SITE (# 4-20-007)
DURHAM, NEW YORK

RECOVERY WELL AND MONITORING WELL LOCATIONS

FIGURE 1-2



Well Construction Detail

Not to Scale

Figure 1-3

APPENDIX D

WELL LOGS

MALCOLM PIRNIE — TEST BORING LOG

BORING No. PW-1

PROJECT Becker Electronics	LOCATION East Durham, New York
CLIENT	
DRILLING CONTRACTOR	
PURPOSE Monitoring Well Installation	
WELL MATERIAL	
DRILLING METHOD(S)	
DRILL RIG TYPE Ingersoll Rand T2W	
GROUND WATER DEPTH '	
MEASURING POINT	
DATE OF MEASUREMENT	

	SAMPLE	CORE	CASING
TYPE			
DIA.	"		
WEIGHT	#		
FALL	"		

SHEET 1 OF 4	
PROJECT No.	0266327
MEAS. PT. ELEV.	
GROUND ELEV.	
DATUM	
DATE STARTED	5/15/97
DATE FINISHED	5/15/97
DRILLER	American Auger
PIRNIE STAFF	Laura Clayton

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
2	1.5/2.0	24 38 21 21			Till- red-brn silt with fine gravel. Grades to brn silt with fine gravel. Moist	2.0		Roller Bit 9 7/8" to 19 feet.
4								
6	0.7/2.0	4 24 28 28			Brown silt w/ fine gravel. Wet	5.0		
8						7.0		
10								
12								
14								
16	?/2.0	29 34 0/50			Rock at 16 feet - siltstone, shale	16.0		
18						17.0		Competent rock at 19 feet. Rock

MALCOLM PIRNIE	TEST BORING LOG	BORING No. PW-1
PROJECT Becker Electronics	LOCATION East Durham, New York	SHEET 2 OF 4
CLIENT		PROJECT No. 0266327

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22								socket drilled 6.0 feet into competent rock to 21.0 feet. Air hammer 8" open rock hole from 19.0 to 25. 8 " temporary pvc riser from 25' to ground surface.
						23.0		6 " schedule 5 steel casing w/ pvc end cap inside temp. casing
24								
						25.0		Ream open rock hole below pvc from 25 ' to 84.6 feet using a 6 " air hammer.
26								
28								
30								
32								
34								
36								
38								
40								
42					Rock - gray	42.0		
						43.0		
44					Rock - red/brown shale	45.0		

MALCOLM PIRNIE	TEST BORING LOG	BORING No. PW-1
PROJECT Becker Electronics	LOCATION East Durham, New York	SHEET 3 OF 4
CLIENT		PROJECT No. 0266327

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
						46.0		
48								
50					Rock - grey shale	50.0		
						51.0		
52								
54								
56								
58					Rock - red-brown	58.0		
60						60.0		
62								
64								
					Rock - red-brown	65.0		
66						66.0		
68								
70								

MALCOLM PIRNIE	TEST BORING LOG	BORING No. PW-1
PROJECT Becker Electronics	LOCATION East Durham, New York	SHEET 4 OF 4
CLIENT		PROJECT No. 0266327

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
					Rock - gray	72.0		
						73.0		
74								
76								
78								
80								
82								
					Rock - gray	83.0		
84						84.0		84.6

MALCOLM PIRNIE	TEST BORING LOG	BORING No. OW-1
PROJECT Becker Electronics	LOCATION East Durham, New York	SHEET 1 OF 3
CLIENT		PROJECT No. 0266327
DRILLING CONTRACTOR		MEAS. PT. ELEV.
PURPOSE Monitoring Well Installation		GROUND ELEV.
WELL MATERIAL		DATUM
DRILLING METHOD(S)	SAMPLE / CORE / CASING	DATE STARTED 5/15/97
DRILL RIG TYPE Ingersoll Rand T2W	TYPE	DATE FINISHED 5/15/97
GROUND WATER DEPTH '	DIA. "	DRILLER American Auger
MEASURING POINT	WEIGHT #	PIRNIE STAFF Laura Clayton
DATE OF MEASUREMENT	FALL "	

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
2	0.6/2.0	27 50/0.4			Till- red-brn silt with fine gravel. Grades to brn silt with medium to coarse gray gravel. Trace organics. Moist	2.0		Roller Bit 9 7/8" to 19.0 feet.
4								
6	0.65/2.0	50 6 50/0.3			Till- moist brown silt with fine gravel. Rock fragments in bottom of spoon.	5.0		
8					Boulder	7.0		
10								
12	1.7/2.0	16 18 23 25			Till- very wet brn silt w/ fine, medium, and coarse gravel. Trace clay. Large cobbles.	11.0		
14						13.0		
16					Rock - Gray siltstone, shale	16.0		Competent rock at 15 feet. Rock socket drilled 4.0 feet into competent rock to 19 feet.
18								Air hammer 6" open rock hole from

MALCOLM PIRNIE	TEST BORING LOG	BORING No. OW-1
PROJECT Becker Electronics	LOCATION East Durham, New York	SHEET 2 OF 3
CLIENT		PROJECT No. 0266327

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
								19.0 to 23.0 feet. 4 " pvc riser from 23' to ground surface.
						21.0		
22					Rock - red-brown siltstone, shale.	21.0		
						23.0		Ream open rock hole below pvc from 23 ' to 68.0 feet using a 4" air hammer.
24						24.0		
						25.0		
26								
28								
30								
32								
34					Rock - red-brown siltstone, shale.	34.0		
						35.0		
36								
38								
40								
42								
44					Rock - grey shale	43.0		
						45.0		

MALCOLM PIRNIE

TEST BORING LOG

BORING No. OW-1

PROJECT **Becker Electronics** | LOCATION **East Durham, New York** | SHEET **3** OF **3**

CLIENT | PROJECT No. **0266327**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
48					Rock - grey shale	47.0		
						49.0		
50								
52								
54								
					Rock - grey shale	55.0		
56						56.0		
58					Rock - red-brown	58.0		
						59.0		
60								
62								
64								
66								
68							68.0	
						68.0		Open hole rock well 23' to 68.0 feet.

MALCOLM PIRNIE	TEST BORING LOG	BORING No. OW-2
PROJECT Becker Electronics	LOCATION East Durham, New York	SHEET 1 OF 3
CLIENT		PROJECT No. 0266327
DRILLING CONTRACTOR		MEAS. PT. ELEV.
PURPOSE Monitoring Well Installation		GROUND ELEV.
WELL MATERIAL		DATUM
DRILLING METHOD(S)	SAMPLE / CORE / CASING	DATE STARTED 5/14/97
DRILL RIG TYPE Ingersoll Rand T2W	TYPE	DATE FINISHED 5/14/97
GROUND WATER DEPTH '	DIA. "	DRILLER American Auger
MEASURING POINT	WEIGHT #	PIRNIE STAFF Laura Clayton
DATE OF MEASUREMENT	FALL "	

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
2	1.3/2.0	27 16 23 36			Till- red-brn silt with fine gravel. Grades to brn silt with medium to coarse gray gravel. Moist	2.0		Roller Bit 9 7/8" to 17.5 feet.
4								
6	0.7/2.0	7 19 26 50/0.2			As above. Wet	5.0		
8					Gray gravel and silt in cuttings	7.0 8.0		
10								
12	?/2.0	28 50/0			Till- very wet brn silt w/ fine, medium, and coarse gravel. Trace clay. Large cobbles.	11.0 12.0		
14					Rock - Gray siltstone, shale	14.0		Competent rock at 14 feet. Rock socket drilled 3.5 feet into competent rock to 17.5 foot.
16						15.0		
18								Roller bit 6" open rock hole from 17.5 to 45. 4 " pvc riser from 45' to ground surface.

MALCOLM PIRNIE

TEST BORING LOG

BORING No. OW-2

PROJECT Becker Electronics | LOCATION East Durham, New York | SHEET 2 OF 3

CLIENT | PROJECT No. 0266327

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
					Rock - red-brown siltstone, shale.			
						21.0		
22								
24								
26								
28								
30					Rock - red-brown siltstone, shale.	30.0		
						31.0		
32								
34								
36								
38								
40					Rock - red-brown siltstone, shale.	40.0		
						41.0		
42								
								43.0
44								
								45.0
								Ream open rock hole below pvc

MALCOLM PIRNIE	TEST BORING LOG	BORING No. OW-2
PROJECT Becker Electronics	LOCATION East Durham, New York	SHEET 3 OF 3
CLIENT		PROJECT No. 0266327

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
								from 45 ' to 68.2 feet using a 3 7/8" roller bit.
48								
50					Rock - red-brown siltstone, shale.	50.0		
						51.0		
52								
54								
					Rock - grey shale	55.0		
56						56.0		
58					Rock - red-brown	58.0		
60						60.0		
62								
64								
					Rock - red-brown	65.0		
66						66.0		
68								
							68.2	Open hole rock well 45 to 68.2 feet.

MALCOLM PIRNIE — TEST BORING LOG — BORING No. OW-3

PROJECT	Becker Electronics	LOCATION	East Durham, New York
CLIENT			
DRILLING CONTRACTOR			
PURPOSE	Monitoring Well Installation		
WELL MATERIAL			
DRILLING METHOD(S)			
DRILL RIG TYPE	Ingersoll Rand T2W		
GROUND WATER DEPTH	'		
MEASURING POINT			
DATE OF MEASUREMENT			

	SAMPLE	CORE	CASING
TYPE			
DIA.	"		
WEIGHT	#		
FALL	"		

SHEET	1 OF 3
PROJECT No.	0266327
MEAS. PT. ELEV.	
GROUND ELEV.	
DATUM	
DATE STARTED	5/14/97
DATE FINISHED	5/14/97
DRILLER	American Auger
PIRNIE STAFF	Laura Clayton

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
2	1.2/2.0	6 18 24 24			Till- red-brn silt with fine gravel. Grades to brn silt with fine gravel. Moist	2.0		Roller Bit 9 7/8" to 17 feet.
4								
6	0.7/2.0	19 23 27 18			Brown silt w/ fine gravel. Wet	5.0		
						7.0		
8					Rock at 8 feet - siltstone, shale	8.0		
						9.0		
10								
12								Competent rock at 12 feet. Rock socket drilled into competent rock to 17 foot.
14								
16								
18								Air hammer 6" open rock hole from 17.0 to 45. 4 " pvc riser from 45' to ground surface.

MALCOLM PIRNIE	TEST BORING LOG	BORING No. OW-3
PROJECT Becker Electronics	LOCATION East Durham, New York	SHEET 2 OF 3
CLIENT		PROJECT No. 0266327

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22								
24								
26								
28								
30					Rock - gray shale.	30.0		
						31.0		
32								
34								
36								
38								
40								
42								
								43.0
44								
								45.0
					Rock - grey shale	45.0		Ream open rock hole below pvc

MALCOLM PIRNIE	TEST BORING LOG	BORING No. OW-3
PROJECT Becker Electronics	LOCATION East Durham, New York	SHEET 3 OF 3
CLIENT		PROJECT No. 0266327

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
						46.0		from 45 ' to 67.8 feet using a 3 7/8" roller bit.
48								
50								
52								
54								
					Rock - grey shale	55.0		
56						56.0		
58					Rock - red-brown	58.0		
60						60.0		
62								
64								
					Rock - red-brown	65.0		
66						66.0		
								67.8
								Open hole rock well 45 to 67.8 feet.

MALCOLM PIRNIE	TEST BORING LOG	BORING No. OW-4
PROJECT Becker Electronics	LOCATION East Durham, New York	SHEET 1 OF 3
CLIENT		PROJECT No. 0266327
DRILLING CONTRACTOR American Auger and Ditch		MEAS. PT. ELEV.
PURPOSE Monitoring Well Installation		GROUND ELEV.
WELL MATERIAL		DATUM
DRILLING METHOD(S)	SAMPLE / CORE / CASING	DATE STARTED 5/15/97
DRILL RIG TYPE Ingersoll Rand T2W	TYPE	DATE FINISHED 5/15/97
GROUND WATER DEPTH '	DIA. "	DRILLER American Auger
MEASURING POINT	WEIGHT #	PIRNIE STAFF Laura Clayton
DATE OF MEASUREMENT	FALL "	

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
2	0.6/2.0	10 6 5 4			Till- red-brn silt with fine gravel. Grades to brn silt with fine gravel. Moist	2.0		Roller Bit 9 7/8" to 15 feet.
4								
6	0.65/2.0	23 11 5 5			Brown silt w/ fine gravel. Wet	5.0		
8						7.0		
10	?/2.0	14 9 9 11						
12								
14					Rock at 13 feet - siltstone, shale	13.0		
16						14.0		Competent rock at 15 feet. Rock socket drilled 6.0f eet into competent rock to 21.0 feet.
18								Air hammer 6" open rock hole from 21.0 to 45. 4 " pvc riser from 45' to ground surface.

MALCOLM PIRNIE	TEST BORING LOG	BORING No. OW-4
PROJECT Becker Electronics	LOCATION East Durham, New York	SHEET 2 OF 3
CLIENT		PROJECT No. 0266327

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
22								
24								
26								
28								
30								
32								
34								
36								
38								
40								
42								
44					Rock - grey shale	45.0	43.0 / 45.0	Ream open rock hole below pvc

MALCOLM PIRNIE	TEST BORING LOG	BORING No. OW-4
PROJECT Becker Electronics	LOCATION East Durham, New York	SHEET 3 OF 3
CLIENT		PROJECT No. 0266327

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
						46.0		from 45 ' to 68.1 feet using a 3 7/8" roller bit.
48								
50								
52								
54								
56								
58					Rock - red-brown	58.0		
60						60.0		
62								
64								
66					Rock - red-brown	65.0		
						66.0		
68								68.1 Open hole rock well 45 to 68.1 feet.
						68.0		

APPENDIX E

EFFLUENT TESTING RESULTS

PROJECT: BECKER ELECTRONIC
145 E. DURHAM, NY
SITE #: 4-20-007
MONTHLY GROUNDWATER SAMPLING

		TOTAL INFLUENT												
Analyte	**Units**	**4/12/01**	**4/19/01**	**4/26/01**	**5/3/01**	**5/10/01**	**5/17/01**	**5/24/01**	**5/31/01**	**6/27/01**	**7/26/01**	**8/22/01**	**9/24/01**	**10/26/01**
Vinyl Chloride	ppb	**22**	**13**	**13**	**8**	**13**	<20	**11**	**10**	**11**	**10**	<50	<25	**10**
Chloroethane	ppb	**40**	**24**	<25	**14**	**22**	<20	**21**	**16**	**17**	**15**	**16**	<25	<25
1,1-Dichloroethene	ppb	**220**	**150**	**190**	**79**	**150**	**170**	**190**	**170**	**150**	**120**	**190**	**140**	**160**
Acetone	ppb	**44**	<50	**27**	<25	<40	#	<25	<50	<25	<25	<50	<25	<25
Carbon disulfide	ppb	<50	<50	<25	<25	<40	#	<25	<50	<25	<25	<50	<25	<25
Methylene Chloride	ppb	**82**	**46**	**44**	**22**	**37**	**34**	**54**	<50	**36**	**18**	**60**	**16**	**21**
1,1-Dichloroethane	ppb	**970**	**680**	**710**	**320**	**660**	**560**	**650**	**520**	**540**	**500**	**680**	**530**	**600**
c-1,2-Dichloroethene	ppb	**250**	**170**	**180**	**70**	**120**	**120**	**150**	**110**	**110**	**92**	**170**	**97**	**90**
2-Butanone	ppb	<50	**22**	**49**	<25	<40	#	**22**	<50	<25	<25	<50	<25	<25
1,1,1-Trichloroethane	ppb	**930**	**810**	**840**	**940**	**770**	**750**	**1000**	**790**	**720**	**560**	**1200**	**710**	**860**
Trichloroethene	ppb	**150**	**150**	**140**	**68**	**130**	**140**	**180**	**150**	**150**	**100**	**210**	**120**	**110**
4-Methyl-2-pentanone	ppb	<50	<50	**7**	<25	<40	#	<25	<50	<25	<25	<50	<25	<25
Toluene	ppb	**10**	**14**	**12**	**6**	**9**	<20	**18**	<50	**14**	<25	**23**	**6**	<25
Tetrachloroethene	ppb	<50	<50	<25	<25	<40	<20	<25	<50	<25	<25	<50	<25	<25
2-Hexanone	ppb	<50	<50	**6**	<25	<40	#	<25	<50	<25	<25	<50	<25	<25
1,2-Dibromo-3-chloropropane	ppb	<50	<50	**11**	<25	<40	<20	<25	<50	<25	<25	<50	<25	<25

NOTE:

* **All results reported in ug/L (ppb)**

* **Analytes presented are those detected.**

* **Method 8260 on all samples.**

* **5/3/01 last well sample**

\# **Sample met EPA Method 524**

PROJECT: BECKER ELECTRONICS
145 E. DURHAM, NY
SITE #: 4-20-007
MONTHLY GROUNDWATER SAMPLING

		TOTAL EFFLUENT													
Analyte	**Units**	**4/12/01**	**4/19/01**	**4/26/01**	**5/3/01**	**5/10/01**	**5/17/01**	**5/24/01**	**5/31/01**	**6/27/01**	**7/26/01**	**8/22/01**	**9/24/01**	**10/26/01**	Discharge Limits
Vinyl Chloride	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	10
Chloroethane	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	10
1,1-Dichloroethene	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5
Acetone	ppb	11	2	2	2	<5	<5	3	<5	<5	<5	<5	<5	<5	50
Carbon disulfide	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5
Methylene Chloride	ppb	7	<5	<5	<5	<5	<5	<5	<5	<5	3	<5	<5	<5	10
1,1-Dichloroethane	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5
c-1,2-Dichloroethene	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5
2-Butanone	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	50
1,1,1-Trichloroethane	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5
Trichloroethene	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	10
4-Methyl-2-pentanone	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5
Toluene	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5
Tetrachloroethene	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	10
2-Hexanone	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5
1,2-Dibromo-3-chloropropane	ppb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5
IRON	ppb											32.6	168	217	
TSS	ppb											ND	ND	ND	
TDS	ppb											210	250	240	

NOTE:

* **All results reported in ug/L (ppb)**

* **Analytes presented are those detected.**

* **Method 8260 on all samples.**

* **5/3/01 last well sample**

**Sample met EPA Method 524**

12/17/01