915063

Work Plan

EXTRACTION WELL DECOMMISSIONING
CHERRY FARM SITE (NYSDEC SITE NO. 9-15-063)
RIVER ROAD SITE (NYSDEC SITE NO. 9-15-031)

Tonawanda, New York

SUBMITTED TO:

NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION

SUBMITTED BY:

CHERRY FARM/RIVER ROAD SITE
Potentially Responsible Parties

PREPARED BY:

PARSONS
180 Lawrence Bell Drive, Suite 104
Williamsville, New York 14221
(716) 633-7074 Fax (716) 633-7195

December 2004

Work Plan

EXTRACTION WELL DECOMMISSIONING
CHERRY FARM SITE (NYSDEC SITE NO. 9-15-063)
RIVER ROAD SITE (NYSDEC SITE NO. 9-15-031)

Tonawanda, New York

Submitted To:

New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation

Submitted By:

Cherry Farm/River Road Site
Potentially Responsible Parties

Prepared By:

PARSONS
180 Lawrence Bell Drive, Suite 104
Williamsville, New York 14221
Phone: (716) 633-7074
Fax: (716) 633-7195

REVIEWED AND APPROVED BY:

Project Manager: Mark S. Raybuck 12/1/04
Date

Technical Manager: Stephen A. Rosello 12/1/04
Date

December 2004

OBJECTIVE

Nine of the 11 deep extraction wells at the Cherry Farm/River Road Site (Site) will be properly abandoned. This action will minimize the potential for vertical migration of chemical constituents along the wells and well construction materials. This work plan has been prepared to document the procedures for well decommissioning and surface restoration. It has been prepared in adherence to the New York State Department of Environmental Conservation (NYSDEC) Guidance Document entitled "Groundwater Monitoring Well Decommissioning Procedures" dated April 2003.

BACKGROUND

A total of eleven (11) groundwater extraction wells ranging from 38 to 54 feet in depth were installed at the Site in 1996. The wells were installed, at the locations depicted on Figure 1, as groundwater extraction/remediation wells. The wells are constructed of 8-inch diameter stainless steel screen and riser. Monitoring well construction/boring logs are included as Appendix A and a summary of well dimensions and specifications is included as Table 1. These wells were completed at the surface with rectangular concrete well vaults approximately 4.5 feet in depth in order to house remedial equipment and piping and protect the equipment during the period of operation. A typical well construction/vault construction schematic is included as Figure 2.

In April 2004, Parsons recommended permanent shut-down and decommissioning of the 11 deep aquifer extraction wells, based on results of a groundwater upwelling study, completed in December 2002. Based on the results of the groundwater upwelling study, the discontinued use of the intermediate/deep groundwater extraction system will not have an adverse impact on the quality of the groundwater upwelling to the Niagara River. In a letter dated November 19, 2004, NYSDEC accepted the permanent shut-down of nine of the extraction wells.

SCOPE OF WORK

Introduction

Nine of the 11 extraction wells and vaults will be properly abandoned. RW-1, 2, 3, 6, 7, 8, 9, 10, and 11 will be abandoned. RW-4 and 5 will remain in place temporarily, but will not be operated. This work plan describes the activities associated with the well decommissioning program in accordance with NYSDEC guidance and standard engineering practices.

The well decommissioning activities will be conducted in general accordance with the guidance provided in the NYSDEC April 2003 document, as previously referenced. Anticipated tasks include selection of the well decommissioning method, preparation of a task-specific addendum to the existing Health and Safety Plan, and well decommissioning.

Well Decommissioning Method

The first step in selecting the well decommissioning process consists of reviewing all pertinent site information. This includes boring and well logs, field inspection sheets, and

laboratory analytical results performed on the site's soil and groundwater samples. This site information forms the basis for decisions throughout the decommissioning process. Field inspection of the wells prior to decommissioning will also be performed to verify the characteristics and conditions of the wells.

The primary rationale for well decommissioning is to prevent contaminant migration along the disturbed construction zone created by the well boring. This requires selection of a decommissioning procedure that takes into account factors such as:

1) The hydrogeological conditions at the well site.
2) The presence or absence of contamination in the groundwater in multiple zones.
3) The well construction details.

The four primary options for well decommissioning procedures approved by the NYSDEC consist of:

1) Casing pulling.
2) Over-drilling.
3) Grouting the casing in-place.
4) Perforating the casing followed by grouting in-place.

Parsons has evaluated Site data, as well as extraction well dimensions and specifications, and proposes decommissioning using a modification of the "grouting the casing in-place" procedures for the following reasons:

1) Well construction materials and dimensions, including well vault construction (see Figure 2) would make it difficult or impossible to entirely remove the casing or over-drill the casing.
2) Analytical data indicate lower concentrations of dissolved constituents with depth. The grouting in-place option will limit disturbance to the entire formation while still providing adequate protection against potential future vertical migration of chemical constituents.

Health and Safety

All field activities will be conducted in accordance with the existing January 2000 site-specific Health and Safety Plan (HASP) for operations, maintenance, and monitoring activities.

Materials Handling and Disposal

It is anticipated that most materials (other than displaced groundwater) can be directly disposed or cleaned and disposed offsite as construction/demolition material. This would include well casings and ancillary piping. Any water generated during abandonment will be transported to the onsite groundwater treatment plant for appropriate treatment and discharge.

Well Decommissioning

Any subsurface utilities will be located by contacting the Underground Facilities Protective Organization (UFPO) prior to doing any field work. As-built construction drawings will also be utilized to locate subsurface piping or electrical conduits. Field work will be performed in accordance with the HASP referenced above.

Electrical wiring in four of the extraction well vaults is connected to the sumps in the shallow groundwater extraction trench. This wiring and equipment will be removed from the well vaults and reinstalled at the surface near the vaults. Other electrical wiring and components associated with the extraction wells will be properly decommissioned.

The screened portion of each extraction well will be pressure-grouted either by sealing off the screened intervals with a packer or sealing the wells off at the well-head. This will be done to ensure that the pore space of the sand filter packs are filled, to form an effective barrier to potential vertical migration. The grout mixture typically used for backfilling is the standard grout mixture referenced in the NYSDEC guidance (Section 9.0) consisting of one 94-pound bag Type I Portland cement, 3.9 pounds powdered bentonite, and 7.8 gallons of potable water. This mixture results in a grout with a bentonite content of four percent by weight. A slow setting grout mixture or setting inhibitor may be required for pressure-grouting of the screened portion of each extraction well, to assure that grout enters and fills the pore space within the filter pack.

A mixing plant or similar equipment will be used to assure consistent, uniform grout mixture to the required specifications. Grout will be placed into the borehole at sufficient pressure to ensure complete infiltration of the filter pack (at least 2 times the hydrostatic pressure of the water column inside each well.) Volumes required to completely fill the inside of each well and the surrounding borehole (of the screened interval) will be calculated prior to the start of each well abandonment. An attempt will be made to inject a volume of grout that is at least 1.5 times greater than the actual casing (below the seal) and filter pack pore space volume. This will provide a safety factor, and ensure that the entire filter pack is sealed.

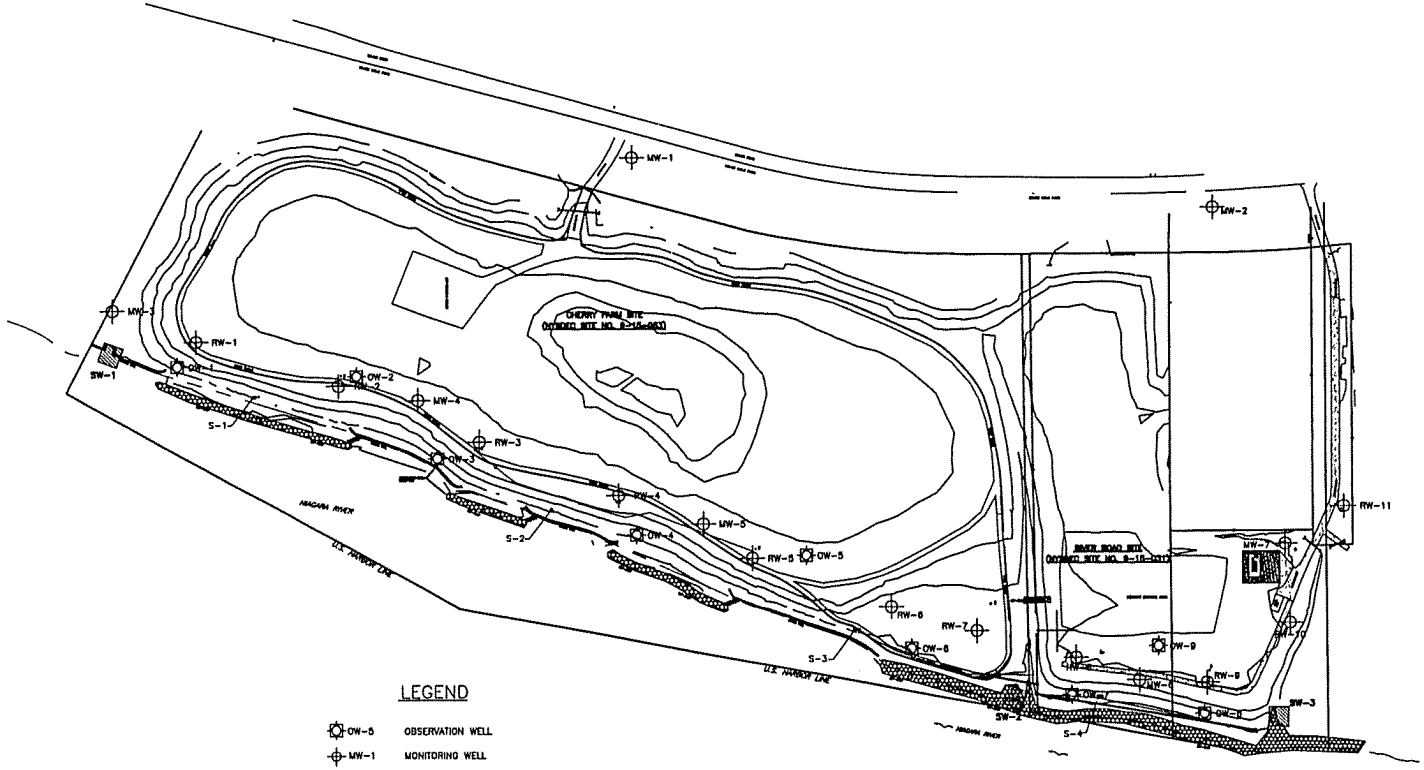
Following pressure grouting of the screened interval, the entire casing of each well will be tremie grouted up to the point at which the well riser meets the bottom of the well vault (typically 4.5 feet below grade). The remaining portion of the riser (within the vault) will be removed, along with all other remedial piping/equipment, and properly disposed offsite.

Any groundwater displaced during grout placement will be pumped via suction lift to a holding tank, and transported to the onsite groundwater treatment plant for treatment and discharge. At this time, the rate of settling will be observed. When the grout level stabilizes, the tremie pipe will be removed from the hole. As each section is removed, grout will be added to keep the desired level.

Upon completion of grouting, the final grout level must be at the interface with the bottom of the vault. The location will be evaluated after at least 24 hours, to confirm the grout level. If the level has fallen a foot or more, additional grout will be added.

Backfilling the Well Vaults

Refer to Figure 2 for typical as-built well vault specifications. Parsons proposes removal and off site disposal of all piping and non-salvageable equipment in each vault, including the access hatches and vent risers which stick up above grade, followed by placement of clean compactable fill, filling the vault to within one (1) foot of grade level, then placement of topsoil to match surrounding grade. Fill will be placed in one foot lifts and compacted.



LEGEND

OW-5	OBSERVATION WELL
MW-1	MONITORING WELL
RW-1	RECOVERY WELL AND VAULT
	SHALLOW GROUNDWATER INTERCEPTOR TRENCH
	GROUNDWATER CONVEYANCE PIPING
575	PROPOSED FINAL GRADE INDEX CONTOUR
SW-1	SURFACE WATER SAMPLE COLLECTION AREA
	RIP-RAP

300 150 0 300 600

SCALE: 1"=300'

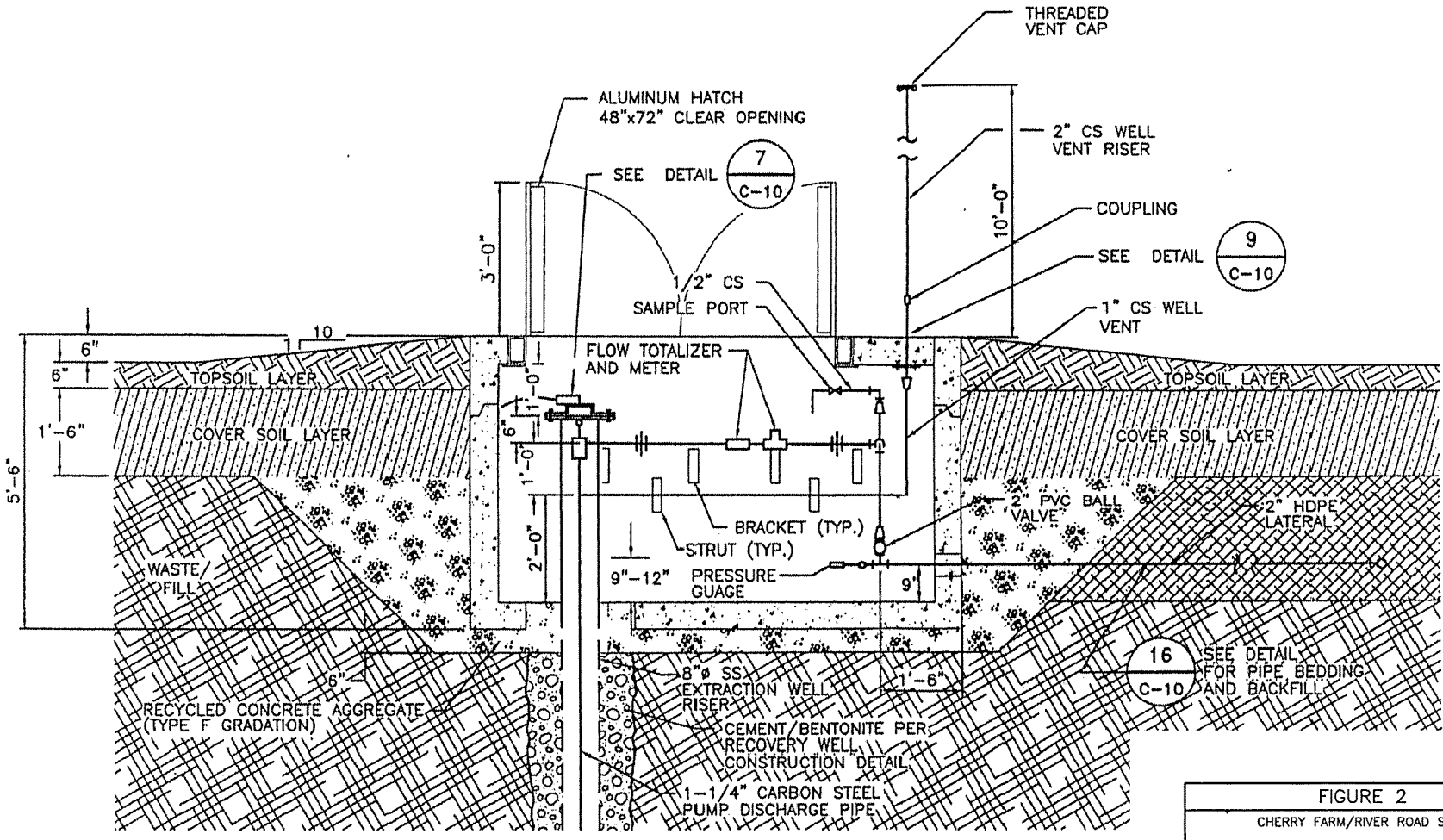
P:\441155\cad\SK-441155-F01.dwg, 11/01/04 at 11:05, MAB, 1=1
XREFs: CONT-TXT.DWG, 26671C01.DWG, TOP.DWG

FIGURE 1

CHERRY FARM/RIVER ROAD SITE

EXTRACTION SYSTEM LOCATION MAP

PARSONS
100 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716-633-7074



NOT TO SCALE

FIGURE 2

CHERRY FARM/RIVER ROAD SITE

TYPICAL RECOVERY WELL AND VAULT

PARSONS

180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716-633-7074

P:\441155\cad\SK-441155-F02.dwg, 11/01/04 at 12:22, MAB, 1=1
No XREFs

TABLE 1
Cherry Farm/River Road
Recovery Well Construction Data

Recovery Well	Ground Surface at Drill	Depth Drilled (ft)	Well Bottom Depth (ft)	Length of Riser + Sump Installed	Length of Screen Installed	Total Length (ft)	Cut to fit Vault	Well Total Depth at Riser	Top of Riser Elevation	Elevation Well Bottom	Asbuilt Elevations: Screen (from top of riser in vault) (1)				Filter Pack (bgs during drill) (2)				Bentonite Seal (bgs during drill) (2)			
											Bottom		Top		Bottom		Top		Bottom		Top	
											Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth
RW-1	581.47	49	46.5	34.95	15	49.95	2.1	47.85	581.82	533.97	538.97	42.85	553.97	27.85	532.47	49.35	558.97	22.5	558.97	22.5	563.97	17.5
RW-2	581.22	52	51.9	35	20.1	55.1	2.3	52.8	581.82	529.02	534.02	47.8	554.12	27.7	529.22	52.6	558.72	22.5	558.72	22.5	563.92	17.3
RW-3	581.67	52	52.85	35.1	20.15	55.25	1.3	53.95	582.30	528.35	533.35	48.95	553.5	28.8	529.67	52.63	557.82	23.85	557.82	23.85	563.97	17.7
RW-4	580.61	51.8	51.3	35	20.1	55.1	2.8	52.3	581.83	529.53	534.53	47.3	554.63	27.2	528.81	53.02	558.31	22.3	558.31	22.3	562.91	17.7
RW-5	580.56	54	51	35	20	55	2.3	52.7	582.05	529.35	534.35	47.7	554.35	27.7	526.56	55.49	558.56	22	558.56	22	562.86	17.7
RW-6	570.4	39.5	38.5	25	15.1	40.1	0.8	39.3	570.76	531.46	536.46	34.3	551.56	19.2	530.9	39.86	555.9	14.5	555.9	14.5	558.9	11.5
RW-7	570.1	39.2	38.9	25	15.1	40.1	0.7	39.4	570.67	531.27	536.27	34.4	551.37	19.3	530.9	39.77	555.2	14.9	555.2	14.9	559.1	11
RW-8	582.79	50	48.37	45.17	10.1	55.27	5.8	49.47	583.83	534.36	539.36	44.47	549.46	34.37	532.79	51.04	553.42	29.37	553.42	29.37	557.79	25
RW-9	582.82	50	47.9	40.9	10	50.9	1.75	49.15	583.86	534.71	539.71	44.15	549.71	34.15	532.82	51.04	553.92	28.9	553.92	28.9	558.82	24
RW-10	582.8	45	41.5	35	10.1	45.1	3.7	41.4	583.28	541.88	546.88	36.4	556.98	26.3	537.8	45.48	560.3	22.5	560.3	22.5	565.3	17.5
RW-11	581.9	45	42	35	10.1	45.1	3.8	41.3	581.22	539.92	544.92	36.3	555.02	26.2	536.9	44.32	559	22.9	559	22.9	564.4	17.5

(1) Screen depths and elevations were determined from the length of the well screen and riser and the as-built elevation of the top of the riser as-built in the well vault.
(2) Filter pack and bentonite seal depths and elevations were determined during well installation, measuring from a ground surface reference point of known elevation.

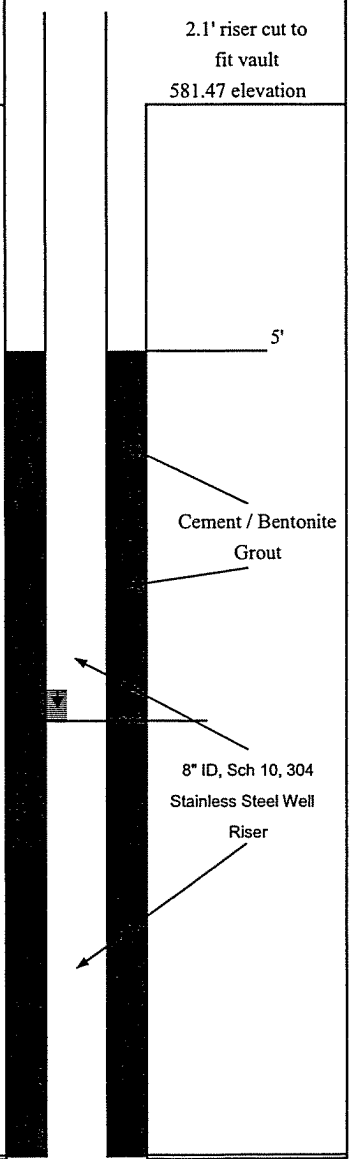
APPENDIX A

WELL LOGS

Contractor: SJB SERVICES					PARSONS ENGINEERING SCIENCE DRILLING RECORD	BORING NO. RW - 1
Driller: ART KOSKE						
Inspector: GEORGE HERMANCE					PROJECT NAME Cherry Farm/River Road	Sheet 1 of 3
Rig Type: CME 75-85 TRAC					PROJECT NUMBER 726673.41	Location: Northwest Corner - Cherry Farm
Method: VARIED						
					Weather Sunny,	
GROUNDWATER OBSERVATIONS						
Date					Date/Time Start 9/10/96 0930hrs	
From						
DTW					Date/Time Finish 9/16/96 1530 hrs	

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			
				1	
	SS-1	1	15	8	Black, Brown, Tan, medium to fine Sand, some (-) Silt,
				14	trace(+) roots, moist
		2		9	
				6	
	SS-2	3	12	6	Black, Brown, medium to fine Sand, trace (+) Silt, trace (-)
				8	clay, trace (-) fine Gravel, trash, plastic, moist
		4		7	
				4	
	SS-3	5	12	3	Black, Tan , medium to fine Sand, loose, moist,
				5	
		6		6	
				7	
	SS-4	7	4	7	Black, Tan , medium to fine Sand, cardboard, moist,
				8	
		8		6	
				1	
	SS-5	9	12	3	Black , medium to fine Sand, trace (-) glass, moist, cement
				5	
		10		4	
				1	
	SS-6	11	17	3	Black and Tan, medium to fine Sand, wet
				5	
		12		1	
				3	
	SS-7	13	15	4	Black and Tan, medium to fine Sand, trace (-) Slag, wet
				3	
		14		4	
				1	
	SS-8	15	20	3	Black and Tan, medium to fine Sand, trace (+) Silt, wet
				4	
		16		5	
				2	
	SS-9	17	24	3	Black and Tan, medium to fine Sand, trace (+) Silt, to 17.5'

WELL CONSTRUCTION

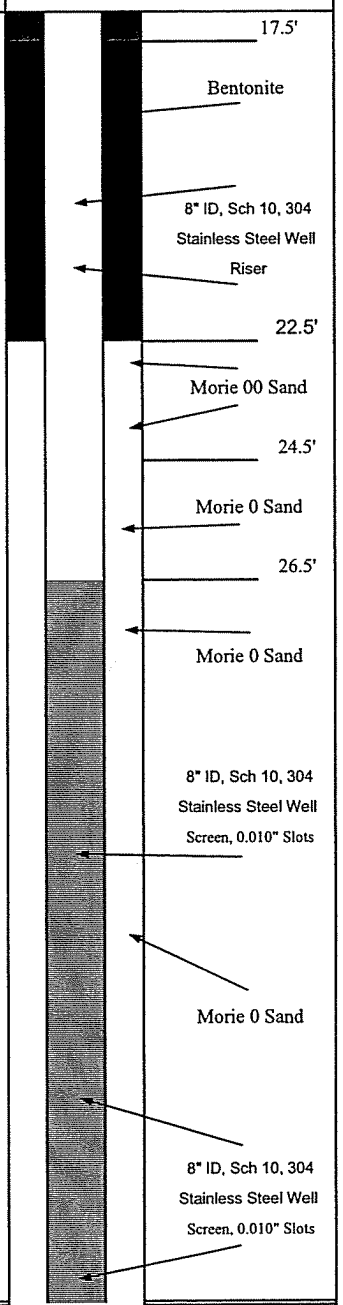


STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

Contractor: SJB SERVICES					PARSONS ENGINEERING SCIENCE DRILLING RECORD	BORING NO. RW - 1
Driller: ART KOSKE						
Inspector: GEORGE HERMANCE					PROJECT NAME Cherry Farm/River Road	Sheet 2 of 3
Rig Type: CME 75-85 TRAC					PROJECT NUMBER 726673.41	Location:
Method: VARIED						
GROUNDWATER OBSERVATIONS					Weather Sunny,	
Date					Date/Time Start 9/10/96 0930hrs	
From						
DTW					Date/Time Finish 9/16/96 1530 hrs	
Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL CONSTRUCTION
				5	then stained gray black, sandy Silt, moist, stiff, roots, wood	
		18		2	Top of Marsh Deposit at 17.5'	
				WOH		
	SS-10	19	14	WOH	Gray, medium to fine Sand, some Silt, trace roots, wet, loose,	
				1	roots in black Sand and Silt	
		20		1		
				1		
	SS-11	21	12	2	Gray, medium to fine Sand, some (-) Silt, trace (--) roots, wet	
				2		
		22		4		
				1		
	SS-12	23	18	1	Gray, medium to fine Sand, some (-) Silt, trace (--) roots, wet	
				2	dilatent	
		24		2		
				WOR		
	SS-13	25	18	2	Gray, medium to fine Sand, some (-) Silt, wet	
				1	dilatent	
		26		4		
				3		
	SS-14	27	15	9	Gray, medium to fine Sand, some (-) Silt, wet	
				11	dilatent, loose at bottom	
		28		11		
				1		
	SS-15	29	20	11	Gray, medium to fine Sand, some Silt, trace (-) fine Gravel,	
				13	wet, dilatent , gravel at 29.5'	
		30		19		
				1		
	SS-16	31	24	4	Gray, medium to fine Sand, some (-) Silt, wet	
				7	dilatent,	
		32		9		
				2		
	SS-17	33	12	7	Gray, medium to fine Sand, some (-) Silt, wet	
				6	dilatent,	
		34		5		
				3		
	SS-18	35	24	7	Gray, medium to fine Sand, some (-) Silt, wet	
				7	dilatent,	
		36		10		
				WOR		
	SS-19	37	24	WOH	Gray ,medium to fine Sand, trace Silt, wet, dilatent	
				1		
		38		1		
				WOR		



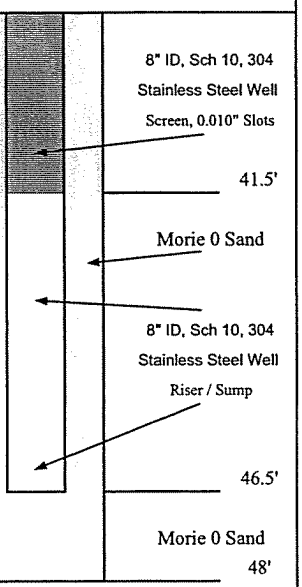
STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

Contractor: SJB SERVICES					PARSONS ENGINEERING SCIENCE DRILLING RECORD	BORING NO. RW - 1
Driller: ART KOSKE					PROJECT NAME Cherry Farm/River Road	Sheet 3 of 3
Inspector: GEORGE HERMANCE					PROJECT NUMBER 726673.41	Location:
Rig Type: CME 75-85 TRAC						
Method: VARIED					Weather Sunny,	
GROUNDWATER OBSERVATIONS					Date/Time Start 9/10/96 0930hrs	
Date						
From					Date/Time Finish 9/16/96 1530 hrs	
DTW						

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
	SS-20	39	14	WOR	Gray medium to fine Sand, trace(+) Silt, trace (+) Clay, some
				WOR	layering, soft, wet
		40		WOH	
				WOR	
	SS-21	41	18	WOH	Gray medium to fine Sand, some Silt in layers, trace Clay
				2	for the last 6"
		42		3	
				1	
	SS-22	43	6	1	Gray, Tan, Silt and Clay, wet
				1	
		44		1	
				WOR	
	SS-23	45	6	WOR	Gray, Tan, Silt and Clay, wet
				WOR	
		46		WOR	
				WOR	
	SS-24	47	0	WOR	No Recovery
				2	
		48		2	



WELL CONSTRUCTION

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

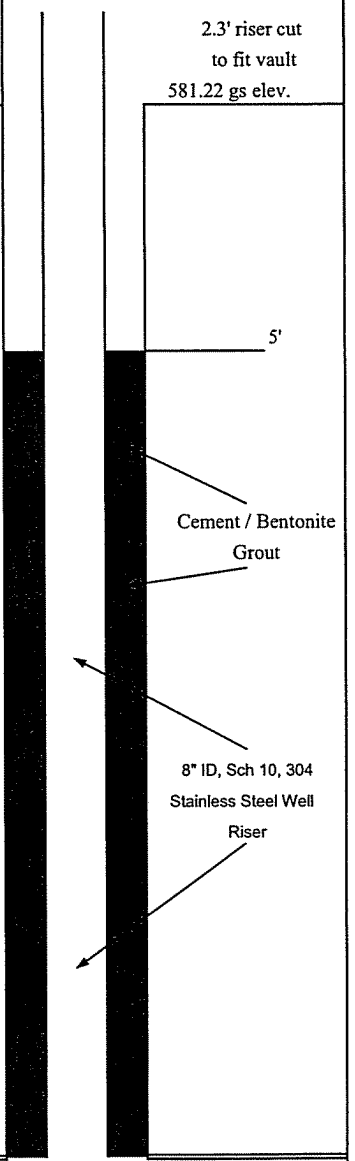
SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

Contractor:	SJB SERVICES				**PARSONS ENGINEERING SCIENCE DRILLING RECORD**	**BORING NO.** RW - 2
Driller:	ART KOSKE					
Inspector:	GEORGE HERMANCE				PROJECT NAME Cherry Farm/River Road	Sheet 1 of 3
Rig Type:	CME 75-85 TRAC				PROJECT NUMBER 726673.41	Location: Northwest Corner - Cherry Farm
Method:	VARIED					
					Weather Sunny, 60 degrees	
GROUNDWATER	OBSERVATIONS					
Date					Date/Time Start 9/16/96 0815hrs	
From						
DTW					Date/Time Finish 9/18/96 1130 hrs	

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			
				5	
	SS-1	1	15	17	Black, medium to fine Sand, some (-) Silt, wood, moist
				12	
		2		16	
				17	
	SS-2	3	24	21	Black, medium to fine Sand, some Silt, wood, trace (-) Clay,
				29	moist, fill
		4		31	
				10	
	SS-3	5	24	5	Black , medium to fine Sand, little Silt, trace Slag, wood,
				4	moist
		6		4	
				3	
	SS-4	7	24	4	Black, fine Sand, little(+) Silt, fill, wet at 7 feet
				3	
		8		2	
				1/12	
	SS-5	9	18		Black, medium to fine Sand, trace (+) Silt, wet , fill
				1	
		10		1	
				1	
	SS-6	11	20	1	Black, medium to fine Sand, little (+) Silt , trace very fine,
				1	gravel, wet, fill
		12		1	
				1	
	SS-7	13	24	1	Black, medium to fine Sand, little Silt, wet, fill
				1	
		14		2	
				1	
	SS-8	15	24	1	Black, medium to fine Sand, little (-) Silt, trace Clay, wet, fill
				5	
		16		6	
				1	
	SS-9	17	24	1	Black, medium to fine Sand, little (-) Silt, wet to 17.3'

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 2

Sheet 2 of 3

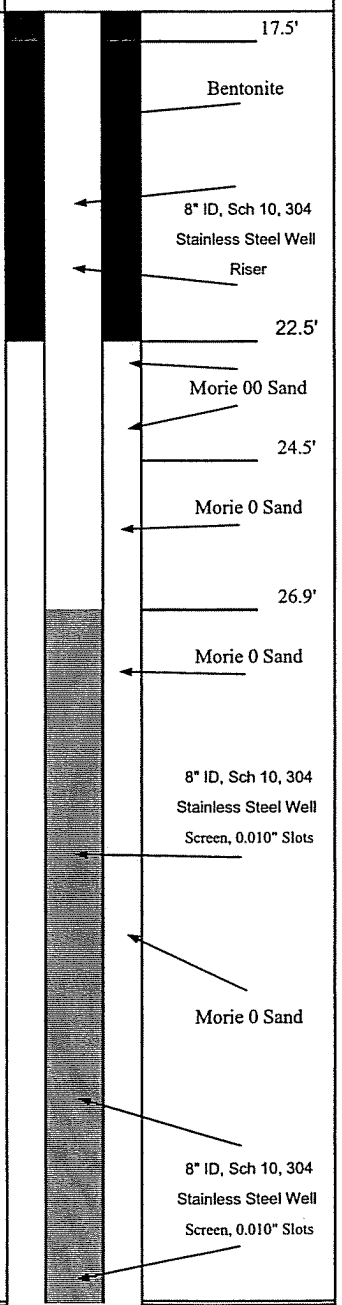
Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Location:	
Weather	Sunny, 60 degrees
Date/Time Start	9/16/96 0815hrs
Date/Time Finish	9/18/96 1130 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
				7	then stained black and gray fine Sand and Silt, trace Clay, roots,
		18		5	Top of Marsh Deposit at 17.3'
				1	
	SS-10	19	16	2	Gray, medium to fine Sand, some Silt, trace (+) roots,
				2	grass, wet
		20		3	
				2	
	SS-11	21	12	1	Gray, medium to fine Sand, some Silt, trace (+) roots, wet
				1	
		22		1	
				2	
	SS-12	23	14	2	Gray, medium to fine Sand, some (-) Silt, trace (--) roots to
				1	22.5', wet, dilatent
		24		2	
				2	
	SS-13	25	12	1	Gray, medium to fine Sand, some Silt, wet
				2	dilatent
		26		1	
				2	
	SS-14	27	24	2	Gray, medium to fine Sand, some Silt, wet
				5	dilatent, some color bands
		28		6	
				3	
	SS-15	29	6	10	Gray, medium to fine Sand, some (+) Silt, wet
				13	dilatent
		30		13	
				7	
	SS-16	31	22	10	Gray, medium to fine Sand, trace (+) Silt, wet
				7	dilatent,
		32		6	
				8	
	SS-17	33	24	12	Gray, fine Sand, little (-) Silt, wet
				14	dilatent,
		34		16	
				10	
	SS-18	35	24	14	Gray, fine Sand, little (-) Silt, wet
				14	dilatent,
		36		14	
				8	
	SS-19	37	24	7	Gray, medium to fine Sand, little Silt, to 37.5' then Gray
				2	medium to fine Sand layers with Clayey Silt, wet, dilatent
		38		3	
				3	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 2

Sheet 3 of 3

Location:

Contractor: SJB SERVICES
Driller: ART KOSKE
Inspector: GEORGE HERMANCE
Rig Type: CME 75-85 TRAC
Method: VARIED

PROJECT NAME Cherry Farm/River Road
PROJECT NUMBER 726673.41

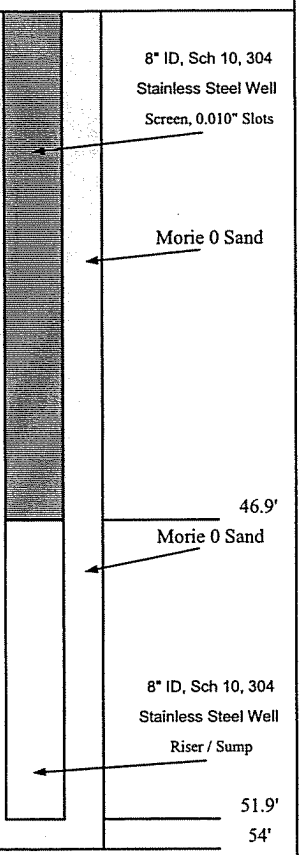
Weather Sunny, 60 degrees
Date/Time Start 9/16/96 0815hrs
Date/Time Finish 9/18/96 1130 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
	SS-20	39	14	2	Gray medium to fine Sand layered with tanish Clayey Silt
				2	wet, dilatent
		40		4	
				2	
	SS-21	41	12	2	Same as 38' to 40'
				2	
		42		3	
				2	
	SS-22	43	12	3	Gray medium to fine Sand layered with tanish Clayey Silt
				5	wet, dilatent
		44		6	
				3	
	SS-23	45	12	1	Same as 42' to 44'
				3	
		46		3	
				1	
	SS-24	47	6	1	Same as 44' to 46'
				2	
		48		1	
				4	
	SS-25	49	6	3	Running Sand, Clayey Silt in Shoe of Spoon
				5	
		50		6	
				3	
	SS-26	51	0	1	Running Sand
				9	
		52		14	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 3

Sheet 1 of 3

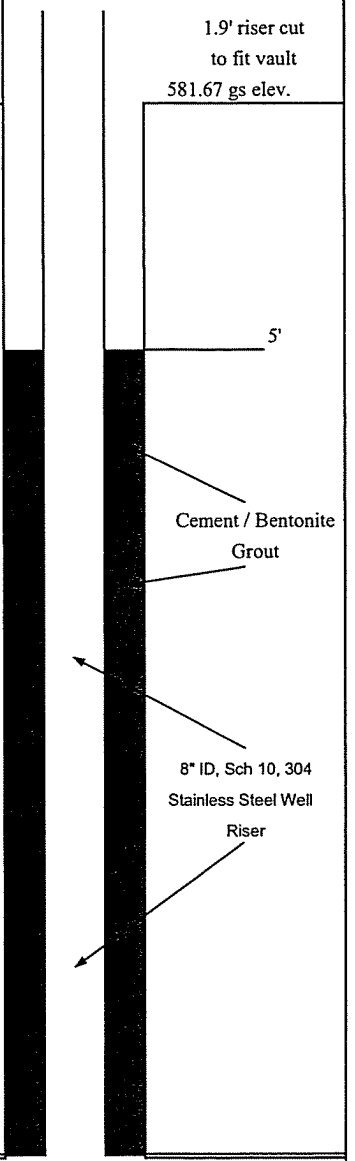
Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Location:	Northwest Center - Cherry Farm
Weather	Sunny,
Date/Time Start	9/19/96 0855hrs
Date/Time Finish	9/23/96 1000 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			
				3	
	SS-1	1	18	4	Black and Tan medium to fine Sand, dry, loose
				4	
		2		5	
				3	
	SS-2	3	16	4	Black, some Tan, medium to fine Sand, trace (-) Silty
				6	Clay, damp, loose
		4		7	
				4	
	SS-3	5	22	10	Brown clay then Black medium to fine Sand and SILT, trace
				18	(-) Clay, then back to medium to fine Sand, damp
		6		25	
				12	
	SS-4	7	20	11	Black and Tan medium to fine Sand, some(-) Silt, trace (-)
				10	Clay, damp to moist
		8		9	
				3	
	SS-5	9	16	3	Black and Tan medium to fine Sand, little (-) Silt, damp
				3	
		10		3	
				1	
	SS-6	11	20	1	Black and brown medium to fine Sand, little Silt, trace (-)
				2	Clay, wet at 10.5'
		12		2	
				50	
	SS-7	13	8	50/.3	Black and gray medium to fine Sand (slag), slag in shoe of
					spoon, wet
		14			
				18	
	SS-8	15	6	50/.3	Black, tan, red Slag, Sand, Silt, moist, wet
					easy drill past 15'
		16			
				25	
	SS-9	17	16	38	Black , brown, white, gray, Slag and Sand, some Silt

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 3

Sheet 2 of 3

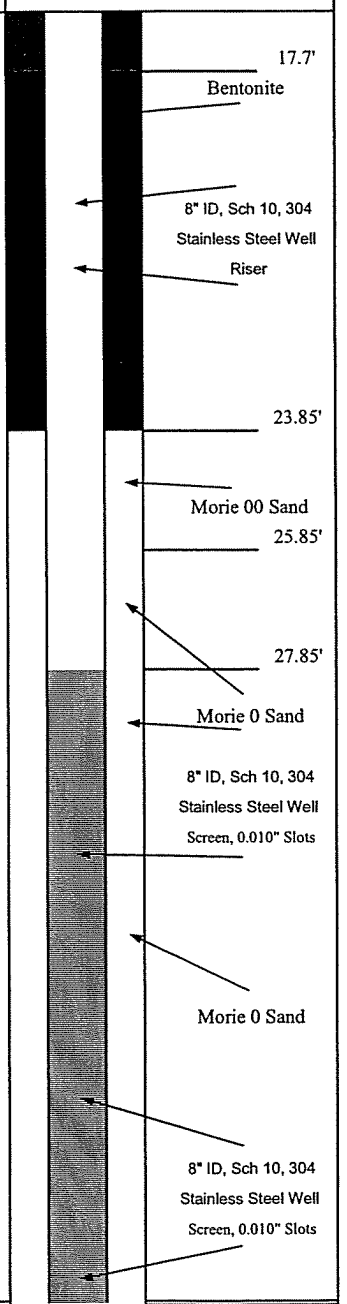
Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Location:	
Weather	Sunny,
Date/Time Start	9/19/96 0855hrs
Date/Time Finish	9/23/96 1000 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
				28	Top of Marsh Deposit at 17.5', Brown silty Sand, wet
		18		8	
				3	
	SS-10	19	16	4	Black, medium to fine Sand and Silt, little roots, to 18.5',
				3	wet 18.5', to 20' Gray, medium to fine SAND, little Silt, trace
		20		4	roots, wet
				3	
	SS-11	21	15	2	Gray, medium to fine Sand, some (-) Silt, trace (-) roots, wet
				2	dilatent
		22		2	
				2	
	SS-12	23	12	2	Gray, medium to fine Sand, little Silt, trace (-) roots to 23'
				2	wet, dilatent
		24		3	
				8	
	SS-13	25	0	4	No Recovery
				4	
		26		2	
				2	
	SS-14	27	18	1	Gray, medium to fine Sand, little Silt, trace (-) very fine
				2	Gravel, wet, dilatent
		28		4	
				5	
	SS-15	29	10	8	Gray, medium to fine Sand, little Silt, trace fine Gravel, and
				7	wet dilatent, fine Sand and Silt
		30		8	
				10	
	SS-16	31	2	8	Gray medium to fine Sand and Silt, wet, dilatent
				10	
		32		9	
				6	
	SS-17	33	18	8	Gray medium to fine Sand, little Silt, trace (-) very fine
				9	Gravel, wet, dilatent
		34		12	
				13	
	SS-18	35	0	13	No Recovery
				10	
		36		10	
				6	
	SS-19	37	18	4	Gray medium to fine Sand, trace (-) Silt, wet, dilatent
				4	
		38		5	
				3	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 3

Sheet 3 of 3

Location:

Contractor: SJB SERVICES
Driller: ART KOSKE
Inspector: GEORGE HERMANCE
Rig Type: CME 75-85 TRAC
Method: VARIED

PROJECT NAME Cherry Farm/River Road
PROJECT NUMBER 726673.41

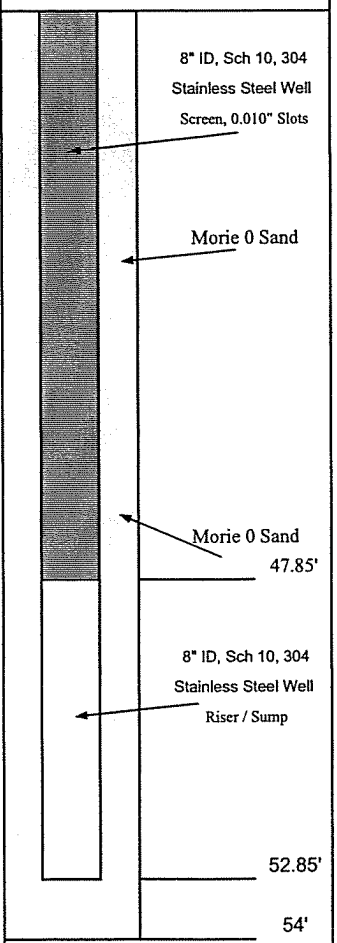
Weather Sunny,
Date/Time Start 9/19/96 0855hrs
Date/Time Finish 9/23/96 1000 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
	SS-20	39	18	1	Gray medium to fine Sand layered with Gray brown Clayey
				2	Silt, wet, dilatent, spacing <0.05'
		40		3	
				1	
	SS-21	41	14	1	Same as 38' to 40'
				5	
		42		4	
				5	
	SS-22	43	16	3	Gray medium to fine Sand layered with a red gray Silty Clay/
				2	Clayey Silt, wet, dilatent, spacing about 0.1'
		44		2	
				1	
	SS-23	45	18	1	Same as 42' to 44'
				2	
		46		1	
				3	
	SS-24	47	12	2	Same as 44' to 46', thicker layering
				1	
		48		2	
				2	
	SS-25	49	8	1	Gray red Silty Clay/Clayey Silt, wet, dilatent
				3	some fine Sand stringers
		50		1	
				3	
	SS-26	51	20	2	Same as 48' to 50'
				1	
		52		1	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 4

Contractor: SJB SERVICES
Driller: ART KOSKE
Inspector: GEORGE HERMANCE
Rig Type: CME 75-85 TRAC
Method: VARIED

PROJECT NAME Cherry Farm/River Road
PROJECT NUMBER 726673.41

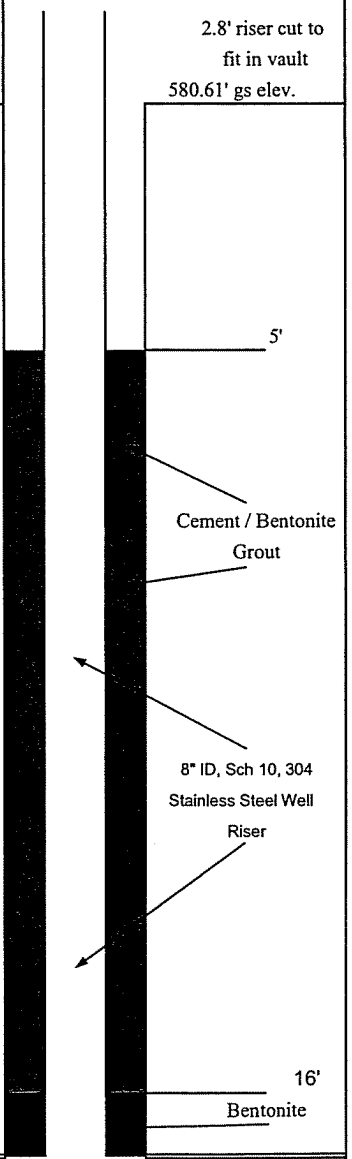
Sheet 1 of 3
Location: Cherry Farm

Weather Sunny, Cool
Date/Time Start 9/25/96 1000hrs
Date/Time Finish 9/27/96 1000 hrs

GROUNDWATER OBSERVATIONS				
Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			
				2	
	SS-1	1	18	3	Brown Clayey Silt, trace Sand, trace very fine Gravel, moist
				2	
		2		4	
				6	
	SS-2	3	18	7	Brown Clayey Silt to 2.5', then Black and Tan fine Sand, little
				19	Silt, trace Slag, gravel, moist
		4		22	
				5	
	SS-3	5	14	13	Black, Tan, Red medium to fine Sand, little Silt, slag, wood,
				17	damp
		6		29	
				27	
	SS-4	7	12	18	Black, Tan, Yellow, Red fine Sand, little Silt, slag, wood,
				13	moist, fill
		8		14	
				5	
	SS-5	9	16	5	Black and Tan, medium to fine Sand, little Silt, trace Slag
				2	moist, fill
		10		2	
				3	
	SS-6	11	24	12	Black fine Sand, little (-) Silt, trace Slag, fill, damp to wet
				6	
		12		3	
				3	
	SS-7	13	18	4	Black, Tan, medium to fine Sand, trace (+) Silt, wet, NAPL,
				4	fill
		14		1	
				1	
	SS-8	15	24	1	Black red and Brown, fine Sand, Silty Clay, wet, soft, NAPL
				1	stench
		16		1	
				woh	
	SS-9	17	24	woh	Stained Clayey Silt, Marsh Deposit changes to gray Sand and

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 4

Sheet 2 of 3

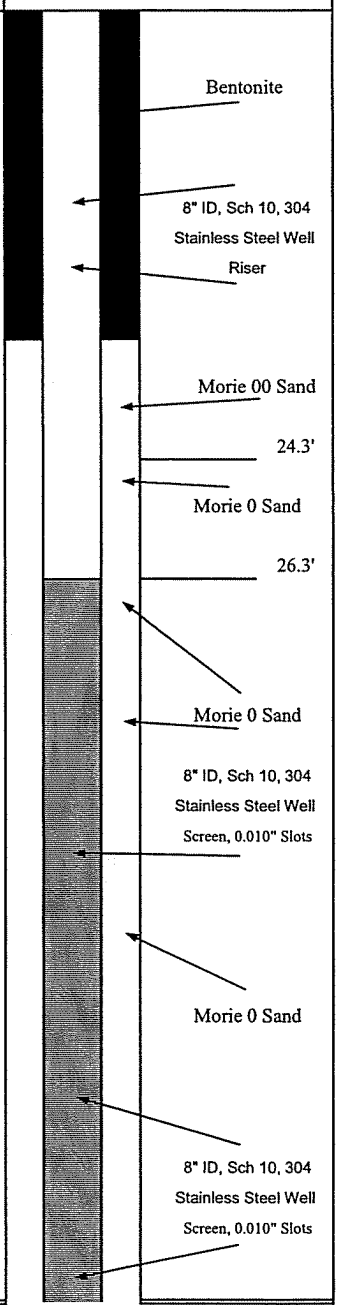
Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Location:	
Weather	Sunny, Cool
Date/Time Start	9/25/96 1000hrs
Date/Time Finish	9/27/96 1000 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
				WOH	Silt with roots at 18'.
		18		1	
				1/18	
	SS-10	19	15		Gray, medium to fine Sand, little Silt, wet, roots
		20		3	
				2	
	SS-11	21	20	2	Gray, medium to fine Sand, little (-) Silt, wet, roots
				3	
		22		6	
				2	
	SS-12	23	20	4	Gray fine Sand, little (-) Silt, wet, dilatent
				2	
		24		5	
				1	
	SS-13	25	24	2	Gray fine Sand, some (-) Silt, wet, dilatent
				1	
		26		3	
				3	
	SS-14	27	24	5	Gray fine Sand, some (-) Silt, wet, dilatent
				3	
		28		8	
				2	
	SS-15	29	18	7	Gray fine Sand, little (+) Silt, trace fine Gravel, wet
				9	
		30		13	
				6	
	SS-16	31	20	7	Gray fine Sand, little (-) Silt, trace (-) fine Gravel, wet, dilatent
				8	
		32		13	
				8	
	SS-17	33	12	4	Gray fine Sand, wet, dilatent
				5	
		34		5	
				10	
	SS-18	35	16	11	Gray fine Sand, trace (+) Silt, trace (-) very fine Gravel, wet
				10	dilatent
		36		11	
				7	
	SS-19	37	24	4	Gray fine Sand, little (-) Silt, trace (-) very fine Gravel, roots
				3	and shells, Silt banding at 37.8'
		38		3	
				1	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 4

Sheet 3 of 3

Location:

Contractor: SJB SERVICES
Driller: ART KOSKE
Inspector: GEORGE HERMANCE
Rig Type: CME 75-85 TRAC
Method: VARIED

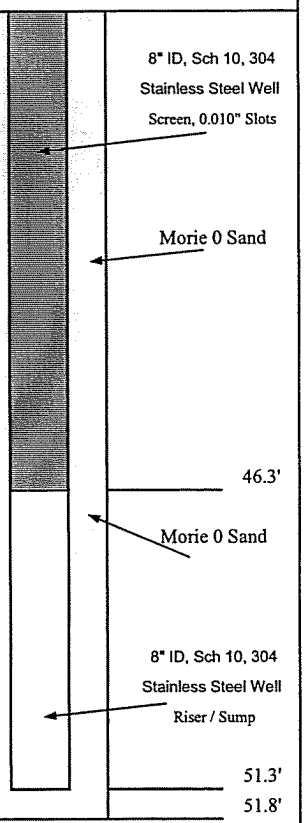
PROJECT NAME Cherry Farm/River Road
PROJECT NUMBER 726673.41

Weather Sunny, Cool
Date/Time Start 9/25/96 1000hrs
Date/Time Finish 9/27/96 1000 hrs

GROUNDWATER OBSERVATIONS				
Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
	SS-20	39	14	2	Gray medium to fine Sand interbedded with Brown, Tan
				2	Clayey Silt spaced at 0.1', sand beds vary in thickness
		40		4	
				4	
	SS-21	41	22	4	Gray medium to fine Sand, trace Silt bands, wet, dilatent
				5	
		42		5	
				4	
	SS-22	43	20	1	Gray fine Sand, interbedded with 0.1' thick layers of Silty Clay
				5	wet
		44		2	
				1	
	SS-23	45	16	3	Tan Silty Clay, interbedded with Gray fine Sand, wet
				1	
		46		1	
				woh/18	
	SS-24	47	18		Same as 44' to 46', but Gray fine Sand and Silt
		48		1	
				1	
	SS-25	49	6	1	Same as 46' to 48'
				1	
		50		1	
				1	
	SS-26	51	12	1	Same as 48' to 50' to refusal
				1	
		52		50/.2	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 5

Sheet 1 of 3

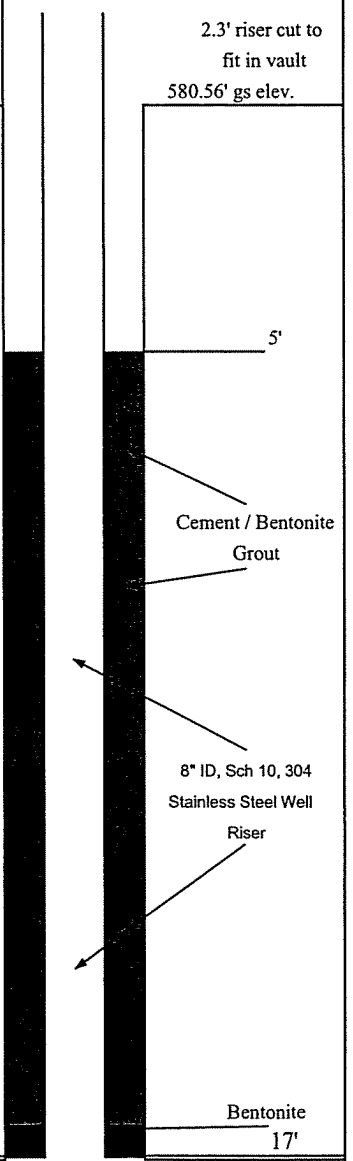
Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Location:	Cherry Farm
Weather	Cloudy, Rain, Wind, 60 degrees
Date/Time Start	9/27/96, 1545 hrs.
Date/Time Finish	9/30/96 1505 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			
				4	
	SS-1	1	10	4	Black and Brown, medium to fine Sand, moist
				3	
		2		2	
				6	
	SS-2	3	12	19	Black and Brown, medium to fine Sand, moist
				19	
		4		13	
				4	
	SS-3	5	16	7	Black and Tan, medium to fine Sand, moist
				7	
		6		5	
				3	
	SS-4	7	16	3	Black and Tan, medium to fine Sand, trace red fine Sand,
				3	moist
		8		3	
				1	
	SS-5	9	10	2	Black and Tan, medium to fine Sand, trace red fine Sand,
				2	moist fill
		10		1	
				2	
	SS-6	11	15	1	Dark Brown, black, fine Sand, little Silt
				2	
		12		4	
				20	
	SS-7	13	24	21	same as 10' to 12'
				19	
		14		15	
				2	
	SS-8	15	18	5	same as 10' to 12'
				4	
		16		5	
				2	
	SS-9	17	24	2	16' to 17' fill as above

WELL DIAGRAM



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 5

Sheet 2 of 3

Location:

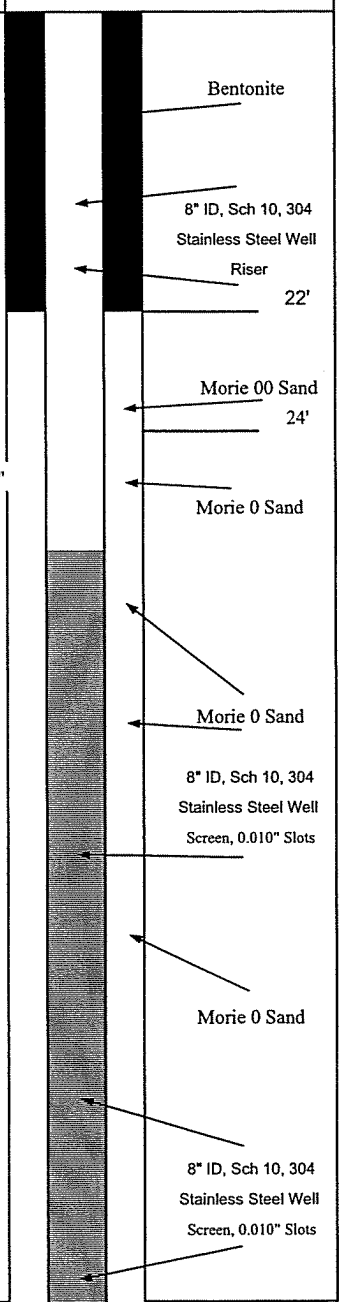
Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Weather	Cloudy, Rain, Wind, 60 degrees
Date/Time Start	9/27/96, 1545 hrs.
Date/Time Finish	9/30/96 1505 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
				1	17' to 18' dark red and brown Clay, fuel/salvent odor
		18		1	
				woh/18	
	SS-10	19	20		Dark red and brown Clay, oily odor, slight sheen, trace
					organics
		20		20	
				1/12	
	SS-11	21	14		Brown Black stained Clayey Silt, soft, wet, dilatent, NAPL
				1	
		22		1	
				woh/24	
	SS-12	23	24		Same as 20' to 22'
		24			
				1	
	SS-13	25	20	1	Brown and Gray, Clayey Sand, little Silt, wet, soft, all gray last 6"
				1	
		26		1	
				3	
	SS-14	27	18	5	Gray fine Sand and Silt, wet, dilatent
				9	
		28		9	
				3	
	SS-15	29	12	5	Gray fine Sand, some Silt, wet, dilatent
				5	
		30		6	
				5	
	SS-16	31	18	3	Gray fine Sand, little (-) Silt, wet, dilatent
				6	
		32		5	
				7	
	SS-17	33	24	4	Same as 30' to 32'
				8	
		34		9	
				8	
	SS-18	35	10	12	Gray fine Sand, little Silt, wet, dilatent
				13	
		36		13	
				8	
	SS-19	37	10	10	Gray fine Sand, little Silt, wet, dilatent
				12	
		38		14	
				13	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

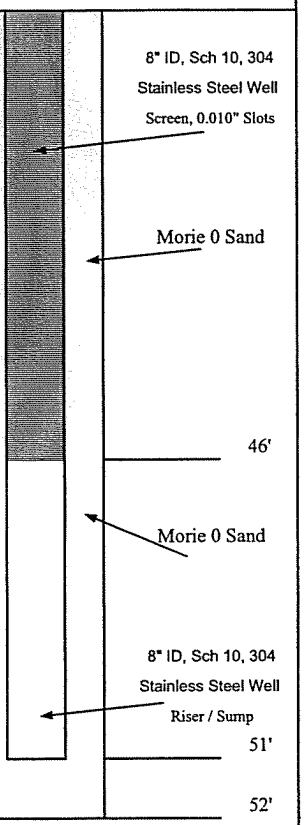
PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

Contractor:	SJB SERVICES				**PARSONS ENGINEERING SCIENCE DRILLING RECORD**	**BORING NO.**	RW - 5
Driller:	ART KOSKE						
Inspector:	GEORGE HERMANCE				PROJECT NAME Cherry Farm/River Road	Sheet 3 of 3	
Rig Type:	CME 75-85 TRAC				PROJECT NUMBER 726673.41	Location:	
Method:	VARIED						
					Weather Cloudy, Rain, Wind, 60 degrees		
GROUNDWATER	OBSERVATIONS						
Date					Date/Time Start 9/27/96, 1545 hrs.		
From							
DTW					Date/Time Finish 9/30/96 1505 hrs		

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
	SS-20	39	12	11	Gray medium to fine Sand, little Silt, wet, dilatent
				6	
		40		3	
				5	
	SS-21	41	10	7	Dark gray medium to fine Sand, layers of Silt, wet, dilatent
				9	
		42		11	
				5	
	SS-22	43	12	4	Same a 40' to 42'
				9	
		44		12	
				2	
	SS-23	45	0	2	No Recovery, Wash Only
				2	
		46		1	
				1	
	SS-24	47	6	3	Tan, brown Silty Clay layers with gray black medium to fine
				4	Sand, 'interbeds
		48		6	
				1	
	SS-25	49	6	2	Same as 46' to 48' with more Silt
				2	
		50		3	
				1	
	SS-26	51	10	4	Gray and Tan fine Sand and Silt, trace (+) Clay, wet, dilatent
				5	
		52		9	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 6

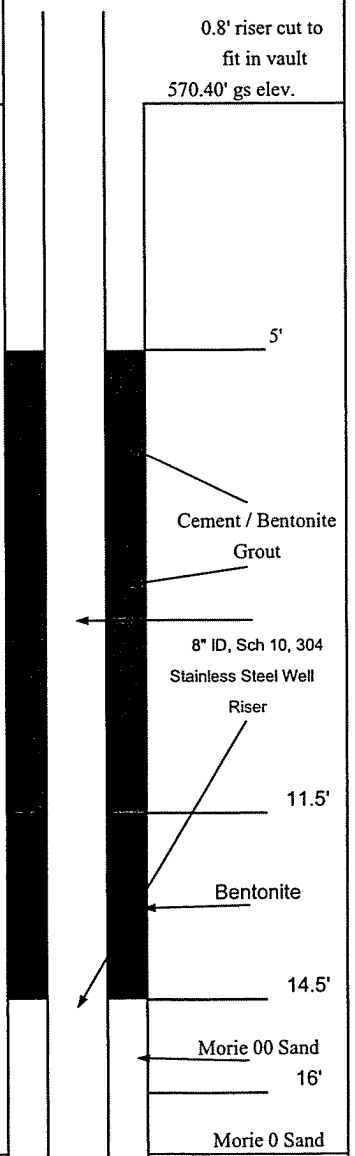
Sheet 1 of 3

Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Location:	Cherry Farm/ RiverRoad
Weather	Rain, 45 degrees
Date/Time Start	10/21/96, 0823 hrs.
Date/Time Finish	10/22/96 1700 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			
				woh	
	SS-1	1	18	5	Black medium to fine Sand, some Silt, wet, dilatent
				4	
		2		4	
				2	
	SS-2	3	24	1	Brown, Black medium to fine Sand for 6", then Gray Clay for
				1	12", then Red Clay for 6", Very strong odor "moth balls"
		4		1	
				woh/24	
	SS-3	5	0		No Recovery
		6			
				woh/24	
	SS-4	7	18		Red, Brown Silty Clay, trace (-) Sand, trace (-) Gravel, wet, soft
					Strong "moth ball" odor
		8			
				1	
	SS-5	9	24	1/18"	Red, Brown Clay and Silty Clay, naphthalene? odor, wet,soft
		10			
				1	
	SS-6	11	24	1/18"	Red, Brown Silt and Clay to 11', top of Marsh at 11', Black fine
					Sand and Silt, little(-) Clay, wet, soft, gray at 12'
		12			
				woh/24	
	SS-7	13	6		Black and Gray fine Sand, Black Silty Clay, wet, soft.
		14			
				1	
	SS-8	15	18	3	Gray medium to fine Sand, trace (+) Silt, wet, dilatent
				3	
		16		4	
				3	
	SS-9	17	18	2	Gray medium to fine Sand, trace (+) Silt, wet, dilatent



WELL DIAGRAM

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 6

Sheet 2 of 3

Location:

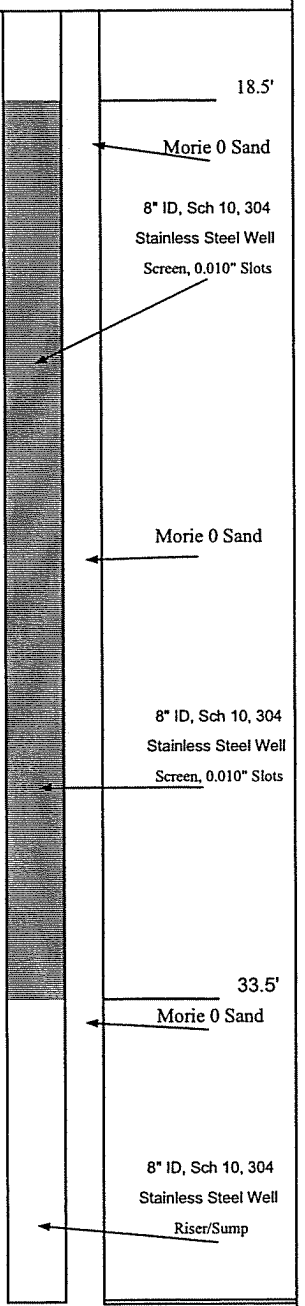
Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Weather	Rain, 45 degrees
Date/Time Start	10/21/96, 0823 hrs.
Date/Time Finish	10/22/96 1700 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
				4	
		18		3	
				2	
	SS-10	19	10	3	Gray medium to fine Sand, little (-) Silt, wet, dilatent
				3	
		20		3	
				2	
	SS-11	21	12	4	Gray fine Sand, trace (+) Silt, trace (-) very fine Gravel, wet
				4	dilatent
		22		8	
				2	
	SS-12	23	24	6	Same as 20' to 22'
				7	
		24		7	
				2	
	SS-13	25	14	4	Gray medium to fine Sand, trace Silt, trace (+) very fine Gravel,
				4	wet, dilatent
		26		9	
				2	
	SS-14	27	6	4	Gray medium to fine Sand, trace (-) Silt, wet, dilatent
				10	
		28		12	
				5	
	SS-15	29	12	7	Gray and Black Clay and fine Sand, trace (+) Silt, wet
				7	
		30		10	
				9	
	SS-16	31	0	2	No Recovery
				4	
		32		4	
				3	
	SS-17	33	6	2	Tan Silty Clay, wet, dilatent, soft
				1	
		34		1	
				2	
	SS-18	35	18	4	Tan Silty Clay, some fine Sand in layers, wet, soft
				2	
		36		3	
				1	
	SS-19	37	19	1	Gray, Tan Silty Clay, some Sand and Silt layers, wet
				2	
		38		1	
				5	

WELL CONSTRUCTION



STANDARD PENETRATION

SS = SPLIT SPOON

A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 6

Sheet 3 of 3

Location:

Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED

PROJECT NAME: Cherry Farm/River Road

PROJECT NUMBER: 726673.41

Weather: Rain, 45 degrees

Date/Time Start: 10/21/96, 0823 hrs.

Date/Time Finish: 10/22/96 1700 hrs

GROUNDWATER OBSERVATIONS				
Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
	SS-20	39	12	7	Tan Silty Clay to 38.5', then to 39.5' broken coarse to fine Sand
				30	and 'Gravel, Green Shale at 39.5', Top of Rock at 39.5'
		40		50/0	

WELL CONSTRUCTION

Morie 0 Sand

39.5'

STANDARD PENETRATION

SS = SPLIT SPOON

A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 7

Sheet 1 of 3

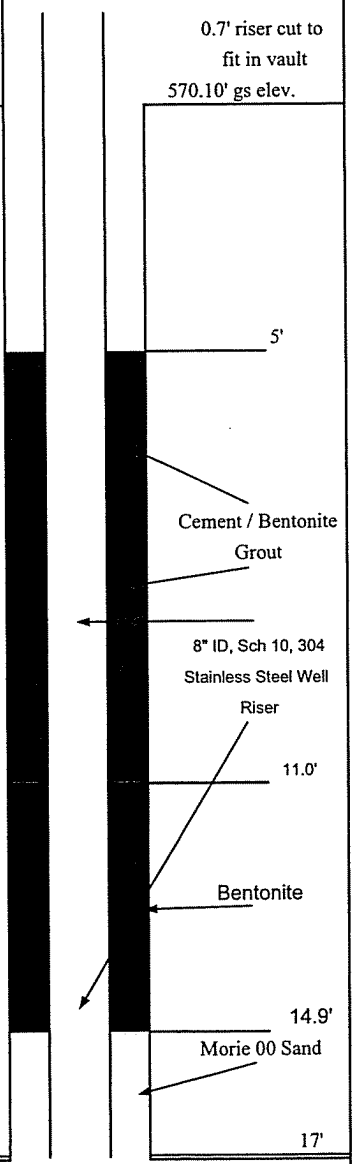
Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Location:	Cherry Farm/ RiverRoad
Weather	Partly Sunny, 45 degrees
Date/Time Start	10/23/96, 0854 hrs.
Date/Time Finish	10/24/96 1700 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			
				5	
	SS-1	1	12	12	Black medium to fine Sand, trace (-) Silt, Slag, moist
				15	
		2		15	
				50/0	
	SS-2	3	0		Probably Slag
		4			
				5	
	SS-3	5	16	4	Black Slag for 8", then Black Gray fine Sand and Silt, trace (+)
				2	roots, top of marsh deposit, reworked, wet
		6		2	
				3	
	SS-4	7	6	4	Brown, Gray medium to fine Sand, trace (+) Silt, trace roots,
				2	wet
		8		3	
				1	
	SS-5	9	16	1	Gray fine Sand and Silt, trace (+) roots, marsh deposit
				3	
		10		4	
				2	
	SS-6	11	6	5	Same as 8' to 10'
				3	
		12		4	
				2	
	SS-7	13	14	1	Gray medium to fine Sand, little(-) Silt, trace (-) roots, wet,
				3	dilatent
		14		5	
				2	
	SS-8	15	16	1	Gray medium to fine Sand, little Silt, wet, dilatent
				1	
		16		1	
				4	
	SS-9	17	24	5	Same as 14' to 16'

WELL DIAGRAM



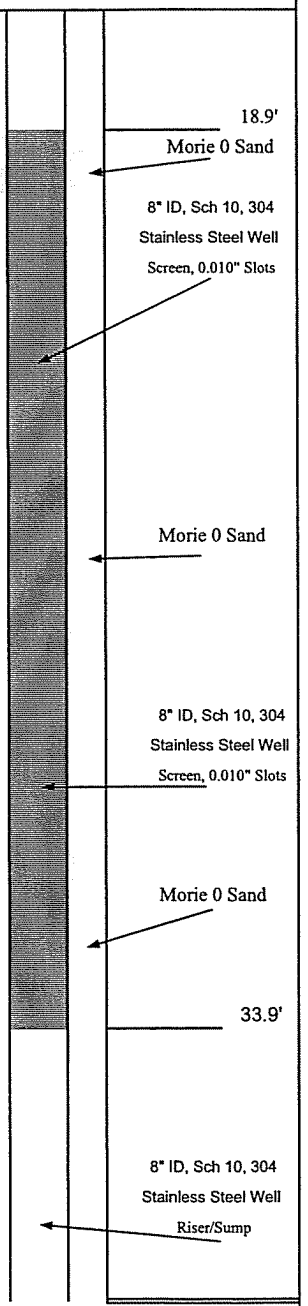
STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

Contractor: SJB SERVICES					**PARSONS ENGINEERING SCIENCE DRILLING RECORD**	BORING NO.	RW - 7
Driller: ART KOSKE							
Inspector: GEORGE HERMANCE					PROJECT NAME Cherry Farm/River Road	Sheet 2 of 3	
Rig Type: CME 75-85 TRAC					PROJECT NUMBER 726673.41	Location:	
Method: VARIED							
GROUNDWATER OBSERVATIONS					Weather Partly Sunny, 45 degrees		
Date					Date/Time Start 10/23/96, 0854 hrs.		
From '							
DTW					Date/Time Finish 10/24/96 1700 hrs		
Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL CONSTRUCTION	
				5			
		18		8			
				6			
	SS-10	19	24	3	Gray, fine Sand, trace (+) Silt, wet, dilatent		
				6			
		20		5			
				3			
	SS-11	21	10	4	Gray, fine Sand, trace (+) Silt, trace(-) very fine Gravel, wet,		
				8	dilatent		
		22		11			
				15			
	SS-12	23	24	12	Gray, medium to fine Sand, trace (-) Silt, trace (+) very fine		
				11	Gravel, wet		
		24		8			
				8			
	SS-13	25	12	8	Gray, medium to fine Sand, little Silt, trace (-) very fine Gravel		
				5	wet, dilatent		
		26		3			
				6			
	SS-14	27	6	5	Black and Gray fine Sand and Silt, wet, dilatent		
				6			
		28		10			
				5			
	SS-15	29	6	4	Same as 26' to 28' with some Silt stringers		
				7			
		30		10			
				5			
	SS-16	31	12	7	Black and Gray medium to fine Sand, some Silt, trace (+) very		
				6	fine Gravel, wet		
		32		8			
				5			
	SS-17	33	16	3	Same as 30' to 32'		
				4			
		34		4			
				3			
	SS-18	35	6	4	Dark gray medium to fine Sand, some Silt, trace(-) very fine		
				5	Gravel to 35' then Tan Silty Clay, wet		
		36		7			
				1			
	SS-19	37	6	3	Gray Tan Silt and Silty Clay, wet		
				2			
		38		3			
				5			



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 7

Sheet 3 of 3

Location:

Contractor: SJB SERVICES
Driller: ART KOSKE
Inspector: GEORGE HERMANCE
Rig Type: CME 75-85 TRAC
Method: VARIED

PROJECT NAME Cherry Farm/River Road
PROJECT NUMBER 726673.41

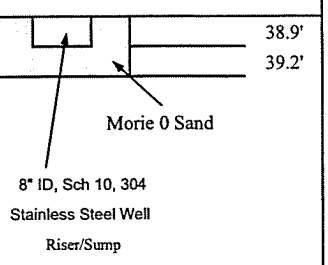
Weather Partly Sunny, 45 degrees
Date/Time Start 10/23/96, 0854 hrs.
Date/Time Finish 10/24/96 1700 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
	SS-20	39	12	4	Tan gray Silt to 39.2' then Green Shale,
				50/.2	Top of rock at 39.2'
		40			

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE DRILLING RECORD

BORING NO. RW - 8

Sheet 1 of 3

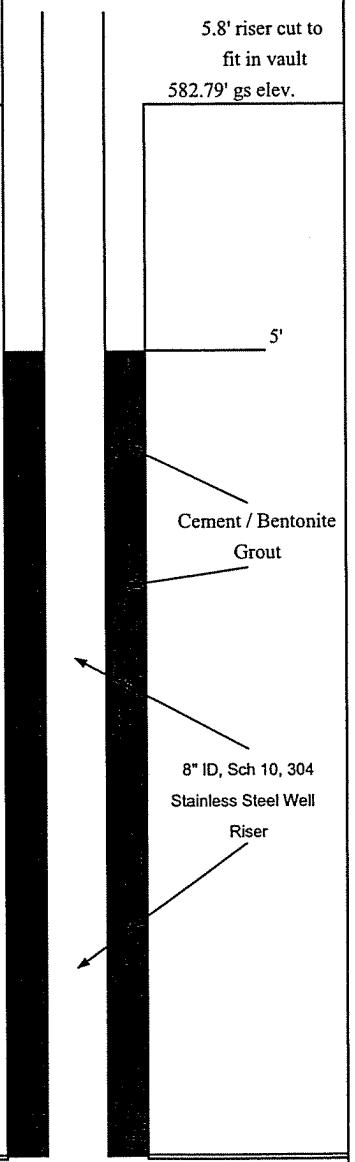
Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Location:	Cherry Farm
Weather	Overcast, 60 degrees
Date/Time Start	10/1/96, 1628 hrs.
Date/Time Finish	10/4/96 1025 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			
				7	
	SS-1	1	20	17	Black , Brown, Gray, wood, slag and Sand, moist
				8	
		2		7	
				17	
	SS-2	3	12	10	Gray, Black, Slag, some Sand, moist
				50	
		4		50/.2	
				50/0	
	SS-3	5	0		No Recovery
		6			
				50/.5	
	SS-4	7	6		Slag and Brick
		8			
				50/.4	
	SS-5	9	3		Slag, moist
		10			
				50	
	SS-6	11	12	50	Gray, Brown, Black, Green Slag, wet
				50/0	
		12			
				29	
	SS-7	13	12	50	Gray, Brown, Black, Green Slag, wet
				50/0	
		14			
				45	
	SS-8	15	10	50/.4	Gray and Tan Slag, wet
		16			
				34	
	SS-9	17	12	35	Gray Slag, wet

WELL DIAGRAM



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 8

Sheet 2 of 3

Location:

Contractor: SJB SERVICES
Driller: ART KOSKE
Inspector: GEORGE HERMANCE
Rig Type: CME 75-85 TRAC
Method: VARIED

PROJECT NAME Cherry Farm/River Road
PROJECT NUMBER 726673.41

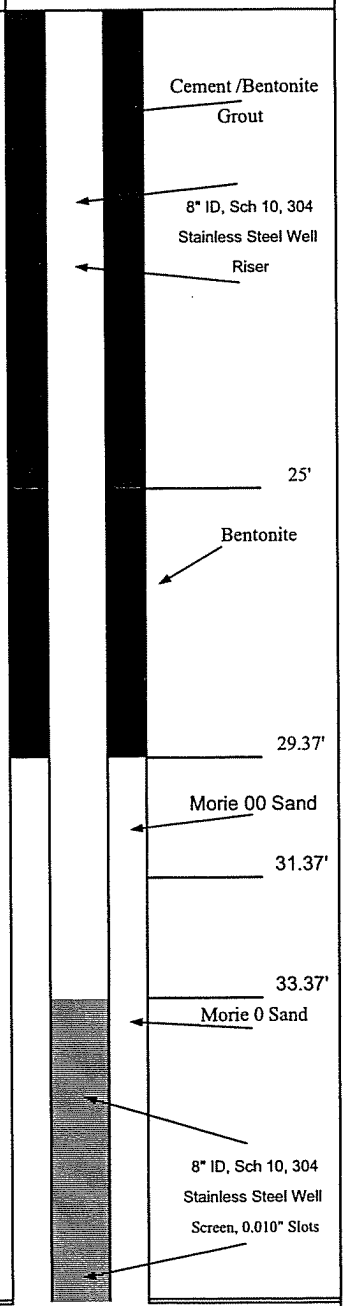
Weather Overcast, 60 degrees
Date/Time Start 10/1/96, 1628 hrs.
Date/Time Finish 10/4/96 1025 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
				50/.4	
		18			
				14	
	SS-10	19	15	18	Gray Slag, wet to 19', then Black Silty Sand and Clay, trace roots
				4	to 20'
		20		3	
				2	
	SS-11	21	12	2	Dark Gray fine Sand and Silt, trace (+) roots, wet, trace (-)
				1	Clay
		22		1	
				2	
	SS-12	23	24	1	Gray, Brown fine Sand and Silt, wet, trace (+) roots
				2	
		24		2	
				1	
	SS-13	25	20	2	Gray fine Sand, some Silt, trace (+) roots, wet
				1	
		26		4	
				1	
	SS-14	27	18	1	Gray fine Sand, some Silt, wet, dilatent
				1	
		28		1	
				2	
	SS-15	29	24	1	Gray fine Sand, some (-) Silt, trace (-) roots, wet, dilatent
				2	
		30		3	
				2	
	SS-16	31	24	2	Gray fine Sand, some (-) Silt, wet, dilatent
				5	
		32		5	
				2	
	SS-17	33	24	2	Same as 30' to 32'
				2	
		34		1	
				8	
	SS-18	35	20	10	Gray fine Sand, little (+) Silt, trace (-) very fine Gravel, wet,
				12	dilatent
		36		13	
				7	
	SS-19	37	24	9	Same as 34' to 36'
				7	
		38		11	
				2	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 8

Sheet 3 of 3

Contractor: SJB SERVICES
Driller: ART KOSKE
Inspector: GEORGE HERMANCE
Rig Type: CME 75-85 TRAC
Method: VARIED

PROJECT NAME Cherry Farm/River Road
PROJECT NUMBER 726673.41
Location:

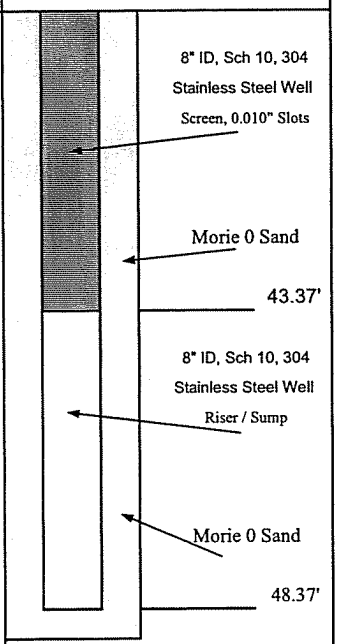
Weather Overcast, 60 degrees
Date/Time Start 10/1/96, 1628 hrs.
Date/Time Finish 10/4/96 1025 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
	SS-20	39	12	3	Gray fine Sand, little Silt, trace (+) Clay, trace (-) very fine
				2	Gravel, wet, dilatent
		40		4	
				3	
	SS-21	41	8	4	Same as 38' to 40'
				2	
		42		5	
				7	
	SS-22	43	12	8	Gray medium to fine SAND, trace (+) Silt, wet
				10	
		44		11	
				4	
	SS-23	45	6	3	Tan Clayey Silt with gray fine Sand layers, wet
				2	
		46		2	
				2	
	SS-24	47	12	1	Tan Silty Clay, trace (-) fine Sand in layers, wet, soft
				3	
		48		1	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 9

Sheet 1 of 3

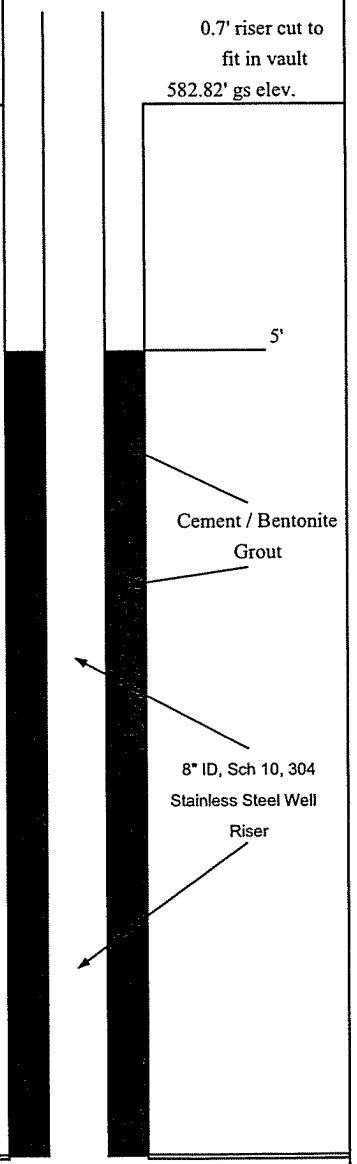
Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Location:	River Road
Weather	Partly Cloudy, 40 degrees
Date/Time Start	10/4/96, 1527 hrs.
Date/Time Finish	10/9/96 1715 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			
				6	
	SS-1	1	6	9	Black fine Sand, Silt, Slag, dry fill
				11	
		2		6	
				5	
	SS-2	3	6	5	Black and Red fine Sand, Slag, Gravel, dry fill
				5	
		4		11	
				6	
	SS-3	5	12	10	Red and Tan brick, Slag, fill, moist
				6	
		6		6	
				8	
	SS-4	7	12	12	Blue, white, Black, Tan, Slag, Sand, moist fill
				10	
		8		7	
				4	
	SS-5	9	8	6	Black and Pink, Slag, moist
				9	
		10		7	
				4	
	SS-6	11	12	4	Broken Slag, black Silt and Sand, moist
				4	
		12		4	
				8	
	SS-7	13	14	4	Black and Red Broken Slag, Sand, some Silt, wet at 13'
				3	
		14		50/.4	
				1	
	SS-8	15	6	4	Black Slag, wet
				8	
		16		6	
				4	
	SS-9	17	12	3	Black Slag, wet to 17'. Then Black fine Sand and Silt, wet,

WELL DIAGRAM



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 9

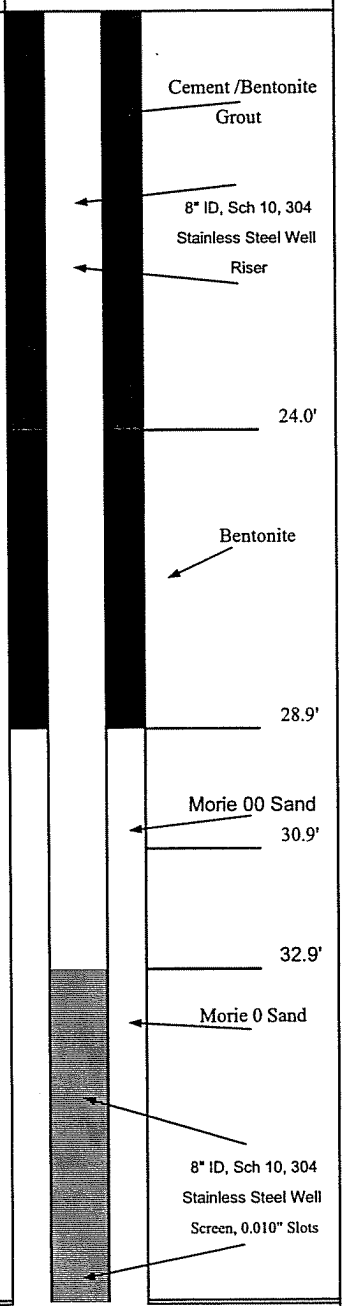
Sheet 2 of 3

Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Location:	
Weather	Partly Cloudy, 40 degrees
Date/Time Start	10/4/96, 1527 hrs.
Date/Time Finish	10/9/96 1715 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
				2	roots, 'Top of Marsh Deposit at 17'
		18		2	
				18	
	SS-10	19	0	20	No Recovery
				50/0	
		20			
				1	
	SS-11	21	18	1	Gray fine Sand, little Silt, trace (+) roots, wet, dilatent
				2	
		22		2	
				1	
	SS-12	23	18	2	Gray fine Sand, little Silt, trace (+) roots, wet, dilatent
				2	
		24		2	
				2	
	SS-13	25	12	3	Gray fine Sand, little Silt, trace (-) roots, wet, dilatent
				5	
		26		8	
				8	
	SS-14	27	20	14	Gray fine Sand, little (-) Silt, wet, dilatent
				13	
		28		13	
				5	
	SS-15	29	16	8	Gray fine Sand, trace (+) Silt, wet, dilatent
				9	
		30		10	
				5	
	SS-16	31	15	8	Same as 28' to 30'
				10	
		32		13	
				5	
	SS-17	33	22	9	Gray medium to fine Sand, trace (-) Silt, wet, dilatent
				12	
		34		18	
				13	
	SS-18	35	18	12	Gray medium to fine Sand, trace (-) Silt, trace (-) very fine
				11	Gravel, wet, dilatent
		36		13	
				15	
	SS-19	37	16	12	Same as 34' to 36'
				10	
		38		14	
				7	



WELL CONSTRUCTION

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 9

Sheet 3 of 3

Location:

Contractor: SJB SERVICES
Driller: ART KOSKE
Inspector: GEORGE HERMANCE
Rig Type: CME 75-85 TRAC
Method: VARIED

PROJECT NAME Cherry Farm/River Road
PROJECT NUMBER 726673.41

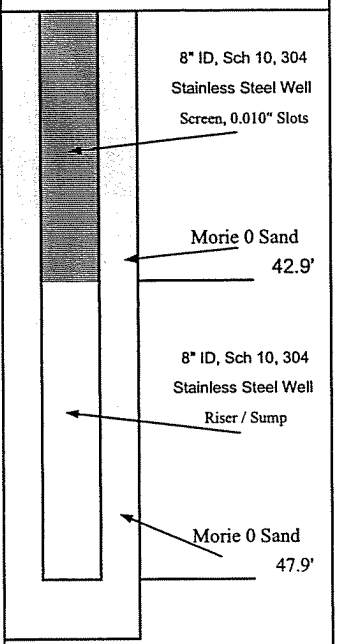
Weather Partly Cloudy, 40 degrees
Date/Time Start 10/4/96, 1527 hrs.
Date/Time Finish 10/9/96 1715 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
	SS-20	39	15	7	Gray medium to fine Sand, little (-) silt, trace(-) very fine
				6	Gravel, wet , dilatent
		40		7	
				5	
	SS-21	41	20	7	Gray medium to fine Sand, trace (+) very fine Gravel, trace (-)
				5	Silt, wet
		42		11	
				6	
	SS-22	43	24	10	Same as 40' to 42'
				7	
		44		8	
				6	
	SS-23	45	24	4	Gray fine Sand and Silt, trace Clay, wet
				3	
		46		4	
				2	
	SS-24	47	12	3	Gray medium to fine Sand, layered with Tan Silty Clay, wet
				1	
		48		2	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 10

Sheet 1 of 3

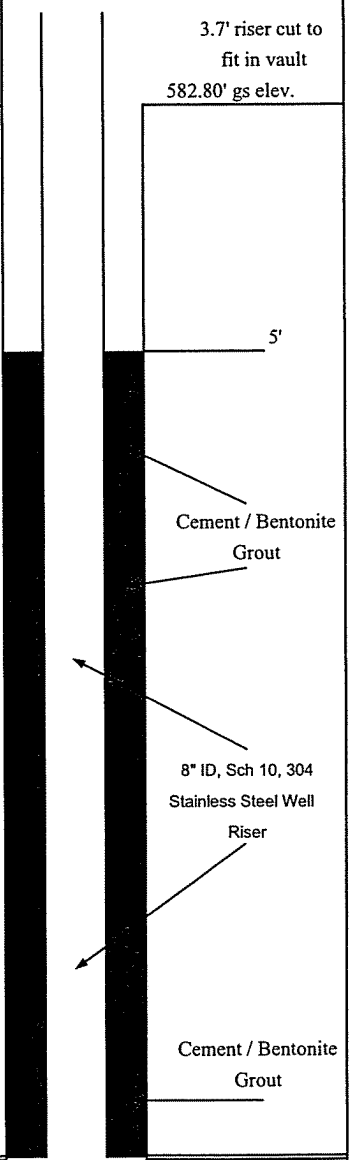
Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Location:	River Road
Weather	Clear, Cold, Calm, 40 degrees
Date/Time Start	10/15/96, 0800 hrs.
Date/Time Finish	10/18/96 1130 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			
				5	
	SS-1	1	2	10	Fill, soil, rock chips, coarse ground, dry
				11	
		2		8	
				20	
	SS-2	3	4	50/0	Fill as above, soil, gravel, rock debris, dry
		4			
				3	
	SS-3	5	6	3	light to dark gray, fine to medium Sand, little gravel, angular
				6	dry
		6		6	
				11	
	SS-4	7	18	27	6 to 6.5' as above
				40	6.5' to 8' light gray salt and pepper fine Sand, medium Gravel
		8		35	angular, lime like odor, loose, damp
				50/.5	
	SS-5	9	2		Light Gray, Pink, Green Fill, fine to medium Sand, fill, rock
					chips, lime odor, damp
		10			
				40	
	SS-6	11	12	50/.2	Light gray gravel and Sand, as above
		12			
				10	
	SS-7	13	4	50/.5	Strong alkali odor, gray fill as above
		14			
				50/.4	
	SS-8	15	4		Light gray salt and pepper loose Sand and Gravel, damp,
					alkali odor, damp
		16			
				40	
	SS-9	17	12	50/.3	light gray fine to medium Sand, medium gravel, angular

WELL DIAGRAM



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 10

Sheet 2 of 3

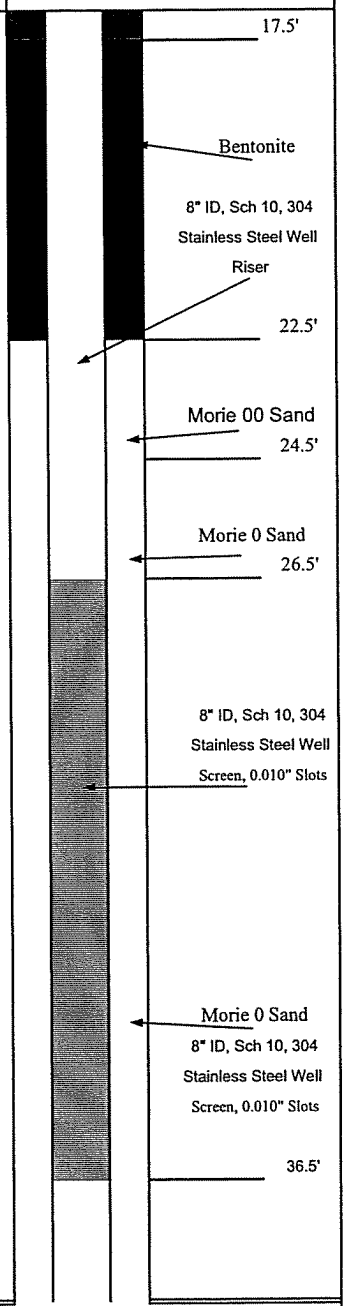
Location:

Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Weather	Clear, Cold, Calm, 40 degrees
Date/Time Start	10/15/96, 0800 hrs.
Date/Time Finish	10/18/96 1130 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
					trace to little Silt, wet at 16.5'
		18			
				1	
	SS-10	19	20	2	18' to 18.5' as above, 18.5' to 20' through black fine Sand,
				2	trace dark brown, gray, black, fine Sand and Silt, organic
		20		1	deposits
				4	
	SS-11	21	15	2	Black fine Sand and Silt, trace (-) Clay, trace (+) roots, wet
				2	
		22		1	
				3	
	SS-12	23	18	5	Black fine Sand and Silt, trace (-) Clay, wet
				4	
		24		6	
				2	
	SS-13	25	15	1	Black fine Sand and Silt,trace (-) Clay, wet and dilatent
				3	
		26		2	
				3	
	SS-14	27	18	2	Black fine Sand and Silt to 26.5' then Gray fine Sand, little Silt
				6	wet, dilatent
		28		7	
				2	
	SS-15	29	14	5	Gray fine Sand, little Silt, wet, dilatent, trace (-) roots in layers
				5	
		30		8	
				5	
	SS-16	31	10	7	Gray medium to fine Sand, little (-) Silt, wet, dilatent
				9	
		32		12	
				5	
	SS-17	33	18	7	Same as 30' to 32'
				9	
		34		12	
				4	
	SS-18	35	12	3	Gray medium to fine SAND, trace (+) Silt, wet, dilatent,
				6	
		36		4	
				1	
	SS-19	37	14	7	Gray medium to fine SAND, little (+) Silt in some layers, wet,
				8	dilatent
		38		5	
				6	



WELL CONSTRUCTION

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 10

Sheet 3 of 3

Location:

Contractor: SJB SERVICES
Driller: ART KOSKE
Inspector: GEORGE HERMANCE
Rig Type: CME 75-85 TRAC
Method: VARIED

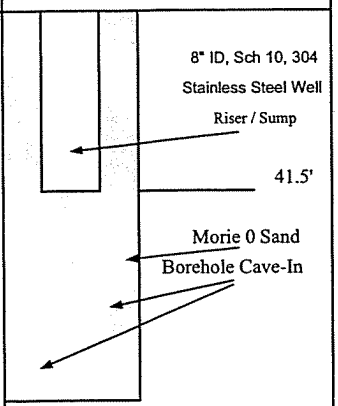
PROJECT NAME Cherry Farm/River Road
PROJECT NUMBER 726673.41

Weather Clear, Cold, Calm, 40 degrees
Date/Time Start 10/15/96, 0800 hrs.
Date/Time Finish 10/18/96 1130 hrs

GROUNDWATER OBSERVATIONS				
Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
	SS-20	39	12	4	Gray fine Sand with layers of Silt, trace (+) Clay, wet , dilatent
				2	
		40		3	
				3	
	SS-21	41	12	2	Gray fine Sand Layered with Tan Silty Clay, wet, dilatent
				1	
		42		3	
				2	
	SS-22	43	15	3	
				1	Same as 40' to 42'
		44		3	
				8	
	SS-23	45	10	5	Gray medium to fine SAND layered with Tan Silty Clay, wet
				6	
		46		4	
				5	
	SS-24	47	18	3	Same as 44' to 46'
				5	
		48		2	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 11

Sheet 1 of 3

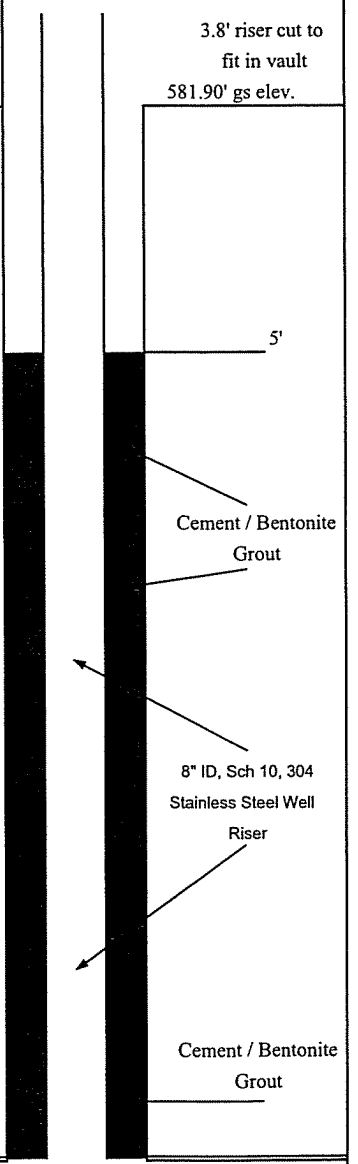
Contractor:	SJB SERVICES
Driller:	ART KOSKE
Inspector:	GEORGE HERMANCE
Rig Type:	CME 75-85 TRAC
Method:	VARIED
PROJECT NAME	Cherry Farm/River Road
PROJECT NUMBER	726673.41
Location:	River Road
Weather	Partly Cloudy, 40 degrees
Date/Time Start	10/10/96, 1135 hrs.
Date/Time Finish	10/14/96 1600 hrs

GROUNDWATER OBSERVATIONS

Date	01/00/00		
From			
DTW			

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			
				1	
	SS-1	1	12	1	Brown Clayey Silt, trace fine Gavel, moist, cover soil
				2	
		2		3	
				5	
	SS-2	3	20	6	Brown, Black Silty Clay, Black fine Sand, Slag, fill
				9	moist
		4		25	
				25	
	SS-3	5	6	50/.2	Bricks, Fill
		6			
				14	
	SS-4	7	16	24	Black, White, Blue, Gray, Slag and fine Sand, moist
				15	
		8		19	
				10	
	SS-5	9	16	13	Brown fine Sand, gray Slag, cement slag, damp
				12	
		10		10	
				6	
	SS-6	11	14	5	Brown fine Sand, gray Slag, cement slag, damp
				13	
		12		7	
				8	
	SS-7	13	2	50/.1	Brown fine Sand and Slag, wet, spoon is wet at 14'
		14			
				19	
	SS-8	15	8	50/.4	Gray Slag, wet
		16			
				9	
	SS-9	17	6	50/.4	Slag, wet

WELL DIAGRAM



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

Contractor: SJB SERVICES					**PARSONS ENGINEERING SCIENCE DRILLING RECORD**	**BORING NO.**	RW - 11
Driller: ART KOSKE							
Inspector: GEORGE HERMANCE					PROJECT NAME Cherry Farm/River Road	Sheet 2 of 3	
Rig Type: CME 75-85 TRAC					PROJECT NUMBER 726673.41	Location:	
Method: VARIED							
					Weather Partly Cloudy, 40 degrees		
GROUNDWATER OBSERVATIONS							
Date					Date/Time Start 10/10/96, 1135 hrs.		
From							
DTW					Date/Time Finish 10/14/96 1600 hrs		
Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	**FIELD IDENTIFICATION OF MATERIAL**	**WELL CONSTRUCTION**	
						17.5'	
		18					
				4			
	SS-10	19	24	3	Slag for 0.5' then Black Gray fine Sand and Silt, trace (+) roots,	Bentonite	
				2	trace (-) Clay. wet		
		20		2			
				3		8" ID, Sch 10, 304 Stainless Steel Well Riser	
	SS-11	21	0	2	No recovery		
				3			
		22		2			
				2			
	SS-12	23	8	3	Dark gray and Black, Sandy Silt, wet, trace (+) roots	22.9'	
				4			
		24		3		Morie 00 Sand	
				2			
	SS-13	25	12	4	Gray laminated fine Sand, some (-) Silt, wet, dilatent	25.1'	
				4			
		26		7		Morie 0 Sand	
				7			
	SS-14	27	18	7	Gray fine Sand, little Silt, wet, dilatent	27'	
				11			
		28		13			
				4			
	SS-15	29	16	5	Gray fine Sand, trace (+) Silt, wet, dilatent	8" ID, Sch 10, 304 Stainless Steel Well Screen, 0.010" Slots	
				7			
		30		8			
				7			
	SS-16	31	12	8	Gray fine Sand, trace (+) very fine Gravel, Trace (-) Silt, wet		
				6			
		32		5			
				5			
	SS-17	33	15	6	Gray medium to fine Sand to 33' , then Gray fine Sand layered		
				7	with light gray clayey silt, wet		
		34		10		Morie 0 Sand	
				2			
	SS-18	35	12	5	Gray fine Sand layered with light gray clayey silt, wet		
				3			
		36		2			
				5		8" ID, Sch 10, 304 Stainless Steel Well Screen, 0.010" Slots	
	SS-19	37	18	3	Same as 34' to 36'		
				2			
		38		2			
				2			

STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS ENGINEERING SCIENCE
DRILLING RECORD

BORING NO. RW - 11

Sheet 3 of 3

Location:

Contractor: SJB SERVICES
Driller: ART KOSKE
Inspector: GEORGE HERMANCE
Rig Type: CME 75-85 TRAC
Method: VARIED

PROJECT NAME Cherry Farm/River Road
PROJECT NUMBER 726673.41

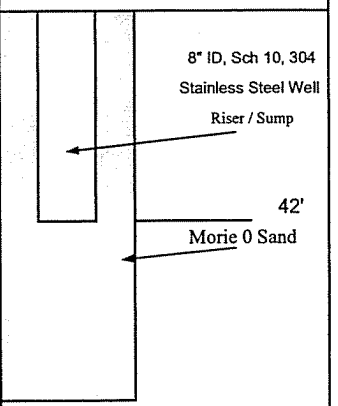
Weather Partly Cloudy, 40 degrees
Date/Time Start 10/10/96, 1135 hrs.
Date/Time Finish 10/14/96 1600 hrs

GROUNDWATER OBSERVATIONS

Date				
From				
DTW				

Photovac Reading	Sample I.D.	Sample Depth	Inches Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
	SS-20	39	17	2	Same as 36' to 38'
				2	
		40		3	
				4	
	SS-21	41	20	2	Tan, Gray Silty Clay with fine Sand lamina, wet
				1	
		42		1	
				1	
	SS-22	43	16	3	Same as 40' to 42'
				5	
		44		3	
				2	
	SS-23	45	14	20	Tan, Gray Silty Clay to 45' then Green Shale, TOR at 45'
				50/.2	

WELL CONSTRUCTION



STANDARD PENETRATION
SS = SPLIT SPOON
A = AUGER CUTTINGS

SUMMARY: Depth and elevation noted at time borehole was drilled

PARSONS

P:\441155\tech\well logs\cfwelllogs.xls