

**Appendix D**  
**Well and Boring Logs**

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	<b>PROJECT NUMBER</b> <b>161844.A0.ZZ</b>	<b>BORING NUMBER</b> <b>GP-1 (9/01)</b>	SHEET 1 OF 1
<b>SOIL BORING LOG</b>			

<b>PROJECT :</b> Northwest Pipe Company	<b>LOCATION :</b> Portland, Oregon
<b>ELEVATION :</b> _____	<b>DRILLING CONTRACTOR :</b> Cascade Drilling
<b>DRILLING METHOD AND EQUIPMENT USED</b> Geoprobe	
<b>WATER LEVELS</b> 15'	<b>START :</b> 9/7/01 <b>END :</b> 9/7/01 <b>LOGGER :</b> Patrick Heins

DEPTH BELOW SURFACE (FT)		STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	CORE DESCRIPTION
INTERVAL (FT)	RECOVERY (IN)		
Headspace PID (ppm)			
0-0.5' 0.5'-16'  5  10  15 16'-20'  20	   1.3  1.1   1.1  1.0  0.9	          Water level     	Asphalt (3") and Poorly graded coarse gravel ( <b>GM</b> ) brown, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist  Soil sample collected at 6 feet          Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated  Water sample collected at 19 feet <b>BORING TERMINATED AT DEPTH OF 20 FEET</b>
25  30  35  40			Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips

	<b>PROJECT NUMBER</b> <b>161844.A0.ZZ</b>	<b>BORING NUMBER</b> <b>GP-2 (9/01)</b>	SHEET 1 OF 1
SOIL BORING LOG			

<b>PROJECT :</b> Northwest Pipe Company	<b>LOCATION :</b> Portland, Oregon
<b>ELEVATION :</b> _____	<b>DRILLING CONTRACTOR :</b> Cascade Drilling
<b>DRILLING METHOD AND EQUIPMENT USED</b> Geoprobe	
<b>WATER LEVELS</b> 15'	<b>START :</b> 9/10/01 <b>END :</b> 9/10/01 <b>LOGGER :</b> Patrick Heins

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION
		Headspace PID (ppm)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
5	0-0.75' 0.75'-16'	0.3  0.3		Asphalt (3") & Poorly graded coarse gravel ( <b>GM</b> ) brown, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
10		0.4		
15	16'-20'	0.6	Water level	Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated
20		28.0		Soil sample collected at 18 feet Water sample collected at 19 feet <b>BORING TERMINATED AT DEPTH OF 20 FEET</b>
25				Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips
30				
35				
40				

	<b>PROJECT NUMBER</b> <b>161844.A0.ZZ</b>	<b>BORING NUMBER</b> <b>GP-3 (9/01)</b>	SHEET 1 OF 1
<b>SOIL BORING LOG</b>			

<b>PROJECT :</b> Northwest Pipe Company	<b>LOCATION :</b> Portland, Oregon
<b>ELEVATION :</b> _____	<b>DRILLING CONTRACTOR :</b> Cascade Drilling
<b>DRILLING METHOD AND EQUIPMENT USED</b> Geoprobe	
<b>WATER LEVELS 15'</b>	<b>START :</b> 9/7/01 <b>END :</b> 9/7/01 <b>LOGGER :</b> Patrick Heins

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION
		Headspace PID (ppm)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
5	0-0.75' 0.75'-3' 3'-3.5' 3.5'-16'	1.3   1.4		Poorly graded coarse gravel ( <b>GM</b> ) black, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist Silty sand layer ( <b>SM</b> ) with small fragments of charred wood, moist, black Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
10		0.8		
15	16'-20'	0.8	Water level	Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, gray, saturated
20		0.5		Water sample collected at 19 feet <b>BORING TERMINATED AT DEPTH OF 20 FEET</b>
25				Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips
30				
35				
40				

	<b>PROJECT NUMBER</b> <b>161844.A0.ZZ</b>	<b>BORING NUMBER</b> <b>GP-4 (9/01)</b>	SHEET 1 OF 1
<h2 style="margin: 0;">SOIL BORING LOG</h2>			

<b>PROJECT :</b> Northwest Pipe Company	<b>LOCATION :</b> Portland, Oregon
<b>ELEVATION :</b> _____	<b>DRILLING CONTRACTOR :</b> Cascade Drilling
<b>DRILLING METHOD AND EQUIPMENT USED</b> Geoprobe	
<b>WATER LEVELS</b> 12'	<b>START :</b> 9/7/01 <b>END :</b> 9/7/01 <b>LOGGER :</b> Patrick Heins

	DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION
			Headspace PID (ppm)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
		0-0.25'			Concrete
5		0.25'-14'	1.1		Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
			1.0		
10			1.2		
				Water level	
15		14'-16'	2.4		Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, gray, saturated Water sample collected at 15 feet <b>BORING TERMINATED AT DEPTH OF 16 FEET</b>
20					Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips
25					
30					
35					
40					

	<b>PROJECT NUMBER</b> <b>161844.A0.ZZ</b>	<b>BORING NUMBER</b> <b>GP-5 (9/01)</b>	SHEET 1 OF 1
<b>SOIL BORING LOG</b>			

<b>PROJECT :</b> Northwest Pipe Company	<b>LOCATION :</b> Portland, Oregon
<b>ELEVATION :</b> _____	<b>DRILLING CONTRACTOR :</b> Cascade Drilling
<b>DRILLING METHOD AND EQUIPMENT USED</b> Geoprobe	
<b>WATER LEVELS 12'</b>	<b>START :</b> 9/10/01 <b>END :</b> 9/10/01 <b>LOGGER :</b> Patrick Heins

	DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION
			Headspace PID (ppm)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
5	0-0.75' 0.75'-2.5' 2.5'-11'		7.1  0.1		Asphalt Poorly graded coarse gravel ( <b>GM</b> ) brown, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
10	11'-12' 12'-16'		0.1  0.1	Water level	Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, gray, moist with wood fib Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, gray, saturated
15					Water sample collected at 15 feet <b>BORING TERMINATED AT DEPTH OF 16 FEET</b>
20					Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips
25					
30					
35					
40					

	<b>PROJECT NUMBER</b> <b>161844.A0.ZZ</b>	<b>BORING NUMBER</b> <b>GP-6 (9/01)</b>	SHEET 1 OF 1
<b>SOIL BORING LOG</b>			

<b>PROJECT :</b> Northwest Pipe Company	<b>LOCATION :</b> Portland, Oregon
<b>ELEVATION :</b> _____	<b>DRILLING CONTRACTOR :</b> Cascade Drilling
<b>DRILLING METHOD AND EQUIPMENT USED</b> Geoprobe	
<b>WATER LEVELS 15'</b>	<b>START :</b> 9/10/01 <b>END :</b> 9/10/01 <b>LOGGER :</b> Patrick Heins

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	CORE DESCRIPTION  SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.			
	RECOVERY (IN)	Headspace	PID (ppm)					
						RECOVERY (IN)		
						RECOVERY (IN)		
0-4'	8"	1.5		Poorly graded coarse gravel ( <b>GM</b> ) brown, dry				
4'-5'				Silty sand ( <b>SM</b> ) perdominatly fine grained, brown, moist Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist				
5'-19'		0.8						
10			1.1	Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated				
15			0.7					
			1.7					
19'-20'				Silty sand ( <b>SM</b> ) perdominatly fine grained, brown, moist Water sample collected at 19'				
20				<b>BORING TERMINATED AT DEPTH OF 20 FEET</b>				
25				Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips				
30								
35								
40								

PROJECT NUMBER  
161844.A0.ZZ

BORING NUMBER  
GP-7 (9/01) SHEET 1 OF 1

## SOIL BORING LOG

PROJECT : Northwest Pipe Company LOCATION : Portland, Oregon  
 ELEVATION : DRILLING CONTRACTOR : Cascade Drilling  
 DRILLING METHOD AND EQUIPMENT USED Geoprobe  
 WATER LEVELS 15' START : 9/7/01 END :9/7/01 LOGGER : Patrick Heins

DEPTH BELOW SURFACE (FT)			STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION
INTERVAL (FT)	RECOVERY (IN)	Headspace PID (ppm)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
0-16'				
5		0.9		
10		1.0		
15		0.8		
16'-20'		1.1	Water level	Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated
20		1.3		Water sample collected at 19 feet BORING TERMINATED AT DEPTH OF 20 FEET
25				Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips
30				
35				
40				

	PROJECT NUMBER <b>161844.A0.ZZ</b>	BORING NUMBER <b>GP-01</b>	SHEET 1 OF 1
<h2 style="margin: 0;">SOIL BORING LOG</h2>			

PROJECT : Northwest Pipe Company	LOCATION : Portland, Oregon
ELEVATION : _____	DRILLING CONTRACTOR : <u>Geo Tech Inc.</u>
DRILLING METHOD AND EQUIPMENT USED <u>Geoprobe</u>	
WATER LEVELS <u>11'</u>	START : <u>8/29/02</u> END : <u>8/29/02</u> LOGGER : <u>Patrick Heins</u>

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION
		Headspace PID (ppm)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
5	0-8" 8"-2.2' 2.2'-6'	0.3		Asphalt Poorly graded coarse gravel ( <b>GM</b> ) brown, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, dry
10	6'-12'	0.3		Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
15	12'-16'	0.4	Water level	Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated
15		0.4		Water sample collected at 15 feet <b>BORING TERMINATED AT DEPTH OF 16 FEET</b>
20				Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips
25				
30				
35				
40				

	<b>PROJECT NUMBER</b> <b>161844.A0.ZZ</b>	<b>BORING NUMBER</b> <b>GP-02</b>	SHEET 1 OF 1
<b>SOIL BORING LOG</b>			

<b>PROJECT :</b> Northwest Pipe Company	<b>LOCATION :</b> Portland, Oregon
<b>ELEVATION :</b> _____	<b>DRILLING CONTRACTOR :</b> Geo Tech Inc.
<b>DRILLING METHOD AND EQUIPMENT USED</b> Geoprobe	
<b>WATER LEVELS 12'</b>	<b>START :</b> 8/29/02 <b>END :</b> 8/29/02 <b>LOGGER :</b> Patrick Heins

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION
		Headspace PID (ppm)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
5	0-0.5' 0.5'-2' 2'-7'	1.7		Asphalt Poorly graded coarse gravel ( <b>GM</b> ) brown, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, dry
10	7'-12'	0.9		Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
15	12'-16'	1.8	Water level	Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated
		7.4		Water sample collected at 15 feet BORING TERMINATED AT DEPTH OF 16 FEET
20				Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips
25				
30				
35				
40				

	<b>PROJECT NUMBER</b> <b>161844.A0.ZZ</b>	<b>BORING NUMBER</b> <b>GP-03</b>	SHEET 1 OF 1
<b>SOIL BORING LOG</b>			

<b>PROJECT :</b> Northwest Pipe Company	<b>LOCATION :</b> Portland, Oregon
<b>ELEVATION :</b> _____	<b>DRILLING CONTRACTOR :</b> Geo Tech Inc.
<b>DRILLING METHOD AND EQUIPMENT USED</b> Geoprobe	
<b>WATER LEVELS</b> 11.5'	<b>START :</b> 8/29/02 <b>END :</b> 8/29/02 <b>LOGGER :</b> Patrick Heins

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION
		Headspace PID (ppm)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
5	0-0.67' 0.67'-1.5' 1.5'-4' 4'-12'	6.7		Asphalt Poorly graded coarse gravel ( <b>GM</b> ) brown, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
10		12		
		35		Soil sample collected at 9 feet
15	12'-16'	19	Water level	Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated  Water sample collected at 15 feet <b>BORING TERMINATED AT DEPTH OF 16 FEET</b>
20				Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips
25				
30				
35				
40				

	PROJECT NUMBER <b>161844.A0.ZZ</b>	BORING NUMBER <b>GP-04</b>	SHEET 1 OF 1
	<b>SOIL BORING LOG</b>		

PROJECT : Northwest Pipe Company	LOCATION : Portland, Oregon
ELEVATION : _____	DRILLING CONTRACTOR : Geo Tech Inc. _____
DRILLING METHOD AND EQUIPMENT USED Geoprobe	
WATER LEVELS 11.5'	START : 8/29/02    END :8/29/02    LOGGER : Patrick Heins

DEPTH BELOW SURFACE (FT)		STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	CORE DESCRIPTION  SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
INTERVAL (FT)	RECOVERY (IN) Headspace PID (ppm)		
0-0.5'			Asphalt
0.5'-1'			Poorly graded coarse gravel ( <b>GM</b> ) brown, dry
1'-5'	0.3		Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, dry
5'-11'	0.2		Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
12'-16'	0.1	Water level	Silty sand lens ( <b>SM</b> ) brown, moist ( ~1/4 thick at 11.5 bgs) Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated
	1.4		Water sample collected at 15 feet BORING TERMINATED AT DEPTH OF 16 FEET
			Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips

PROJECT NUMBER  
161844.A0.ZZ

BORING NUMBER  
GP-05  
SHEET 1 OF 1

# SOIL BORING LOG

PROJECT : Northwest Pipe Company LOCATION : Portland, Oregon  
 ELEVATION : DRILLING CONTRACTOR : Geo Tech Inc.  
 DRILLING METHOD AND EQUIPMENT USED Geoprobe  
 WATER LEVELS 13.5' START : 8/30/02 END :8/30/02 LOGGER : Patrick Heins

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			CORE DESCRIPTION
	INTERVAL (FT)	RECOVERY (IN)		
		Headspace	6"-6"-6" (N)	
		PID (ppm)		
0-0.75'				Poorly graded coarse gravel ( <b>GM</b> ) brown, dry
0.75'-2'		2.1		Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, dry
2'-10'		0.3	Soil sample taken	Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
5				
		2.1		
10				
10'-11'		2.4		Well graded sand ( <b>SW</b> ) gray, moist with weathered gravel 1/8"-1/2" diameter
11'-12'				Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
12'-13.5'		6.5	Soil sample taken	Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated
13.5'-14.2'		10.2	Water level	Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, gray, saturated
15				Water sample collected at 15 feet
				BORING TERMINATED AT DEPTH OF 16 FEET
20				Soil sampled continuously for logging purposes
				Abandoned by backfill with bentonite chips
25				
30				
35				
40				

PROJECT NUMBER  
**161844.A0.ZZ**

BORING NUMBER  
**GP-06** SHEET 1 OF 1

**SOIL BORING LOG**

PROJECT : Northwest Pipe Company LOCATION : Portland, Oregon  
 ELEVATION : DRILLING CONTRACTOR : Geo Tech Inc.  
 DRILLING METHOD AND EQUIPMENT USED Geoprobe  
 WATER LEVELS 12.5' START : 8/29/02 END :8/29/02 LOGGER : Patrick Heins

DEPTH BELOW SURFACE (FT)		STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	CORE DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
INTERVAL (FT)	RECOVERY (IN) Headspace PID (ppm)		
0-0.5'			Asphalt
0.5'-1'			Poorly graded coarse gravel ( <b>GM</b> ) brown, dry
1'-4'	0.1		Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, dry
4'-13'			Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
5		0	
10		0.1	
		Water level	
13'-16'	0.1		Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated
15			Water sample collected at 15 feet BORING TERMINATED AT DEPTH OF 16 FEET
20			Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips
25			
30			
35			
40			

	<b>PROJECT NUMBER</b> <b>161844.A0.ZZ</b>	<b>BORING NUMBER</b> <b>GP-07</b>	SHEET 1 OF 1
<b>SOIL BORING LOG</b>			

<b>PROJECT :</b> Northwest Pipe Company	<b>LOCATION :</b> Portland, Oregon
<b>ELEVATION :</b> _____	<b>DRILLING CONTRACTOR :</b> Geo Tech Inc.
<b>DRILLING METHOD AND EQUIPMENT USED</b> Geoprobe	
<b>WATER LEVELS 14'</b>	<b>START :</b> 8/29/02 <b>END :</b> 8/29/02 <b>LOGGER :</b> Patrick Heins

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION
		Headspace PID (ppm)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
5	0-0.5' 0.5'-1' 1'-5' 5'-16'	0   0		Asphalt Poorly graded coarse gravel ( <b>GM</b> ) brown, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, dry  Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
10		0.1		Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated
15		0.5	Water level	Water sample collected at 15 feet <b>BORING TERMINATED AT DEPTH OF 16 FEET</b>
20				Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips
25				
30				
35				
40				



	<b>PROJECT NUMBER</b> <b>161844.A0.ZZ</b>	<b>BORING NUMBER</b> <b>GP-09</b>
SHEET 1 OF 1		
<b>SOIL BORING LOG</b>		

PROJECT : Northwest Pipe Company	LOCATION : Portland, Oregon
ELEVATION : _____	DRILLING CONTRACTOR : Geo Tech Inc. _____
DRILLING METHOD AND EQUIPMENT USED Geoprobe	
WATER LEVELS 14'	START : 8/29/02    END :8/29/02    LOGGER : Patrick Heins

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)		RECOVERY (IN)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	CORE DESCRIPTION  SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	
	HEADSPACE	PID (ppm)				TEST RESULTS
5	0-0.2' 0.2'-1' 1'-4' 4'-12'	0.2			Asphalt Poorly graded coarse gravel ( <b>GM</b> ) brown, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist	
10	7'-12'	0.1				
15	12'-16'	0.1			Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated	
		0.7		Water level	1/16" layer of black silt ( <b>ML</b> ) Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated Water sample and duplicate sample collected at 15 feet	
20					BORING TERMINATED AT DEPTH OF 16 FEET Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips	
25						
30						
35						
40						



	<b>PROJECT NUMBER</b> <b>161844.A0.ZZ</b>	<b>BORING NUMBER</b> <b>GP-11</b>	SHEET 1 OF 1
<b>SOIL BORING LOG</b>			

<b>PROJECT :</b> Northwest Pipe Company	<b>LOCATION :</b> Portland, Oregon
<b>ELEVATION :</b> _____	<b>DRILLING CONTRACTOR :</b> Geo Tech Inc.
<b>DRILLING METHOD AND EQUIPMENT USED</b> Geoprobe	
<b>WATER LEVELS</b> 14'	<b>START :</b> 8/30/02 <b>END :</b> 8/30/02 <b>LOGGER :</b> Patrick Heins

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION
		Headspace PID (ppm)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.
5	0-0.5' 0.5'-5'	0.4		Poorly graded coarse gravel ( <b>GM</b> ) brown, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, dry
10	5'-12'	0.6		Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist
15	12'-16'	1.2		Soil sample collected at 11 feet Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated
		4.0	Water level	Water sample collected at 15 feet. Pumped dry 3 times during purging. <b>BORING TERMINATED AT DEPTH OF 16 FEET</b>
20				Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips
25				
30				
35				
40				

	<b>PROJECT NUMBER</b> <b>161844.A0.ZZ</b>	<b>BORING NUMBER</b> <b>GP-12</b>	SHEET 1 OF 1
<b>SOIL BORING LOG</b>			

<b>PROJECT :</b> Northwest Pipe Company	<b>LOCATION :</b> Portland, Oregon
<b>ELEVATION :</b> _____	<b>DRILLING CONTRACTOR :</b> Geo Tech Inc.
<b>DRILLING METHOD AND EQUIPMENT USED</b> Geoprobe	
<b>WATER LEVELS 14'</b>	<b>START :</b> 8/30/02 <b>END :</b> 8/30/02 <b>LOGGER :</b> Patrick Heins

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)		RECOVERY (IN)	STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION				
	Headspace	PID (ppm)				6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		
								TEST RESULTS	
								6"-6"-6" (N)	
5	0-0.5' 0.5'-4'	0.4			Poorly graded coarse gravel ( <b>GM</b> ) brown, dry Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, dry  Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist				
10	4'-11'	0.2			Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, moist				
15	11'-16'	2.4			Well graded sand ( <b>SW</b> ) ranging from medium to fine grained, brown, saturated  Soil sample collected at 13 feet				
19.3		19.3		Water level	Water sample collected at 15 feet <b>BORING TERMINATED AT DEPTH OF 16 FEET</b>				
20					Soil sampled continuously for logging purposes Abandoned by backfill with bentonite chips				
25									
30									
35									
40									



# Boring Number: GP-101

**Client:** Northwest Pipe Company  
**Project:** July 2004 Geoprobe  
**Location:** NW of maintenance, perforated pipe  
**Project Number:** 161844.A0.ZZ

**Driller:** Geo Tech Inc  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/21/04

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth (ft)	Comments
	Sample	Sample Type	Recovery (ft.)	PID (ppm)				
0						Ground Surface	0	
	1	GP	3.5'		Asphalt 4" Asphalt		1	
					GM 3/4" gravel fill with fines			
				0.0	SP Poorly graded sand, brown, moist, medium to fine grained sand			
5								
	2	GP	3.5'					
				0.4				
10								
	3	GP	5'		SP 1/4" Poorly graded sand, moist, dark gray, medium to fine grain sand		10	
					SP Poorly graded sand, brown, saturated, medium to fine grained sand			
				0.5				- Water level 13' bgs
					SP Poorly graded sand, dark gray, saturated, medium to fine grained sand		13	
15								- Top of temp screen
	4	GP	5'					
				0.4				- Water sample GP-101-72104-20 collected at 20' bgs
20					Geoprobe abandoned by filling with hydrated bentonite chips	End of Log	20	- Bottom of temp screen













# Boring Number: GP-102

Sheet: 1 of 1

**Client:** Northwest Pipe Company  
**Project:** July 2004 Geoprobe  
**Location:** South of Schnitzer Road  
**Project Number:** 161844.A0.ZZ

**Driller:** Geo Tech Inc  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/21/04

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth (ft)	Comments
	Sample	Sample Type	Recovery (ft.)	PID (ppm)				
0						Ground Surface		
0						<b>Asphalt</b>	0	
1	1	GP	4'			6" Asphalt	1	
2						<b>GM</b>		
2						3/4" - gravel fill with fines	2	
3						<b>SP</b>		
3						Poorly graded sand, brown, moist, medium to fine grained sand		
5					0.0			
7	2	GP	4.5'			<b>SM</b>	7	
7						3" silty sand, brown, moist		
8						<b>SP</b>		
8						Poorly graded sand, brown, saturated, medium to fine grained sand		
10					0.2			
13.8								- Water level 13.8' bgs
15								- Top of temp screen
15	3	GP	5'					
15								
20	4	GP	5'					
20								- Water sample GP-102-72104-20 collected at 20' bgs
20								- Bottom of temp screen
20						Geoprobe abandoned by filling with hydrated bentonite chips		
20						End of Log	20	



# Boring Number: GP-103

**Client:** Northwest Pipe Company  
**Project:** July 2004 Geoprobe  
**Location:** South of Schnitzer Road  
**Project Number:** 161844.A0.ZZ

**Driller:** Geo Tech Inc  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/21/04

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth (ft)	Comments
	Sample	Sample Type	Recovery (ft.)	PID (ppm)				
0						Ground Surface	0	
0					<b>GM</b> 3/4" gravel fill with fines		1	
1	1	GP	4'	0.0	<b>SP</b> Well graded sand, brown, moist, medium to fine grained sand			
5				0.0				
10	2	GP	4.5'	0.2				
15				0.1				
20	3	GP	3'					- Water level 14' bgs - Lost sampler down hole, moved boring 1' east to continue, abandoned hole with hydrated bentonite chips - Top of temp screen
	4	GP	5'					- Water sample GP-103-72104-20 collected at 20' bgs
20					Geoprobe abandoned by filling with hydrated bentonite chips	End of Log	20	- Bottom of temp screen



# Boring Number: GP-104

Sheet: 1 of 1

**Client:** Northwest Pipe Company  
**Project:** July 2004 Geoprobe  
**Location:** South of Schnitzer Road  
**Project Number:** 161844.A0.ZZ

**Driller:** Geo Tech Inc  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/21/04

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth (ft)	Comments
	Sample	Sample Type	Recovery (ft.)	PID (ppm)				
0						Ground Surface		
0					GM		0	
1	1	GP	5'		3/4" gravel fill with fines		1	
2					ML		2	
					Silt, light brown, dry, stiff, medium plasticity			
					SP			
					Poorly graded sand, brown, moist, medium to fine grained sand			
5								
10	2	GP	5'					
					ML		10	
					1/4" Silt, light brown, dry			
					SP			
					Poorly graded sand, brown, moist, medium to fine grained sand			
15	3	GP	5'					- Water level 14.6' bgs
								- Top of temp screen
20	4	GP	4.5'					- Water sample GP-104-72104-20 collected at 20' bgs
								- Bottom of temp screen
20					Geoprobe abandoned by filling with hydrated bentonite chips	End of Log	20	



# Boring Number: GP-106

**Client:** Northwest Pipe Company  
**Project:** July 2004 Geoprobe  
**Location:** East of plant entrance gate  
**Project Number:** 161844.A0.ZZ

**Driller:** Geo Tech Inc  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/21/04

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth (ft)	Comments
	Sample	Sample Type	Recovery (ft.)	PID (ppm)				
0						Ground Surface		
0					<b>Asphalt</b> 6" Asphalt		0	
1	1	GP	5'		<b>GM</b> 3/4" gravel fill with fines		1	
3					<b>SM</b> 8" band sandy silt, moist, brown		3	
3					<b>SP</b> Poorly graded sand, brown, saturated, medium to fine grained sand		3	
5								
10	2	GP	5'					
10								
15	3	GP	5'					
15					<b>ML</b> 1" Silt, 1/4" light brown, 1/2" gray, 1/4" light brown, moist		14	- Water level 15.6' bgs
15					<b>SP</b> Poorly graded sand, brown, moist, medium to fine grained sand			- Top of temp screen
17	4	GP	5'		<b>ML</b> 2" silt, dark gray, moist, with root structures		17	- Water sample GP-106-72104-20 collected at 20' bgs
17					<b>SP</b> Poorly graded sand, brown, saturated, medium to fine grained sand		19	
20					<b>SP</b> Poorly graded sand, dark gray, saturated, medium to fine grained sand		20	- Bottom of temp screen
					Geoprobe abandoned by filling with hydrated bentonite chips	End of Log		



# Boring Number: GP-107

Sheet: 1 of 1

Client: Northwest Pipe Company  
 Project: July 2004 Geoprobe  
 Location: NE of guard post  
 Project Number: 161844.A0.ZZ

Driller: Geo Tech Inc  
 Drilling Method: Geoprobe  
 Sampling Method: Continuous core  
 Logged by: Pat Heins  
 Start/Finish Date: 7/21/04

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth (ft)	Comments
	Sample	Sample Type	Recovery (ft.)	PID (ppm)				
0						Ground Surface		
0						<b>GM</b> 3/4" gravel fill with fines	0	
2	1	GP	4.5'			<b>ML</b> Silt, brown with green mottling, moist, stiff, low plasticity	2	
3						<b>SP</b> Poorly graded sand, brown, saturated, medium to fine grained sand	3	
5								
10	2	GP	4.5'					
15								- Water level 16' bgs - Top of temp screen
18	3	GP	5'					- Water sample GP-107-72104-20 collected at 20' bgs
20	4	GP	5'			<b>ML</b> 2" Silt, dark gray, moist, with wood fragments	18	
						<b>SM</b> Silty sand, gray, moist, medium to fine grained sand, with root structures	20	- Bottom of temp screen
						End of Log		Geoprobe abandoned by filling with hydrated bentonite chips



# Boring Number: GP-108

**Client:** Northwest Pipe Company  
**Project:** July 2004 Geoprobe  
**Location:** East of Bay 1 in employee parking area  
**Project Number:** 161844.A0.ZZ

**Driller:** Geo Tech Inc  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/21/04

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth (ft)	Comments
	Sample	Sample Type	Recovery (ft.)	PID (ppm)				
0						Ground Surface		
0						<b>GM</b> 3/4" gravel fill with fines	0	
2	1	GP	4.5'			<b>ML</b> Silt, light gray with light brown mottling, moist, Stiff, low plasticity	2	
4						<b>SP</b> Poorly graded sand, brown, moist, medium to fine grained sand	4	
5								
10	2	GP	4.5'					
12						<b>ML</b> 2" Silt, dark gray, moist	12	
15	3	GP	5'			<b>SM</b> Silty sand, brown, moist, medium to fine grained sand		- Water level 14' bgs
17						<b>SP</b> Poorly graded sand, dark gray, saturated, medium to fine grained sand	17	- Top of temp screen
20	4	GP	5'					- Water sample GP-108-72104-20 collected at 20' bgs
20								- Bottom of temp screen
					Geoprobe abandoned by filling with hydrated bentonite chips	End of Log	20	



# Boring Number: GP-109

Sheet: 1 of 1

**Client:** Northwest Pipe Company  
**Project:** July 2004 Geoprobe  
**Location:** East of Bay 2 in employee parking area  
**Project Number:** 161844.A0.ZZ

**Driller:** Geo Tech Inc  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/21/04









Depth (ft)	Sample Information				Soil Log	Soil Description	Depth (ft)	Comments
	Sample	Sample Type	Recovery (ft.)	PID (ppm)				
0						Ground Surface		
0						<b>GM</b> 3/4" gravel fill with fines	0	
1	1	GP	5'			<b>ML</b> Silt, brown with light gray and green mottling, moist, stiff, low plasticity	1	
3						<b>SP</b> Poorly graded sand, brown, moist, medium to fine grained sand	3	
5								
5	2	GP	4.5'			<b>ML</b> 2" Silt, dark gray, moist	11	
10						<b>SM</b> Silty sand, brown, moist, medium to fine grained sand		
10	3	GP	5'					
14						<b>ML</b> 1" Silt, 1/8" light brown, 3/4" olive gray, 1/8" light brown, moist	14	- Water level 14' bgs
15						<b>SP</b> Poorly graded sand, dark gray, saturated, medium to fine grained sand		- Top of temp screen
15	4	GP	5'					- Water sample GP-109-72104-20 collected at 20' bgs
20								- Bottom of temp screen
20					Geoprobe abandoned by filling with hydrated bentonite chips	End of Log	20	



# Boring Number: GP-110

**Client:** Northwest Pipe Company  
**Project:** July 2004 Geoprobe  
**Location:** East of Bay 3 in office parking area  
**Project Number:** 161844.A0.ZZ

**Driller:** Geo Tech Inc  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/21/04

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth (ft)	Comments
	Sample	Sample Type	Recovery (ft.)	PID (ppm)				
0						Ground Surface		
0						<b>Asphalt</b>	0	
1						6" Asphalt	1	
2						<b>GM</b> 3/4" gravel fill with fines	2	
5	1	GP	5'			<b>ML</b> Silt, light brown, moist, firm, low plasticity		
5						<b>SP</b> Poorly graded sand, brown, moist, medium to fine grained sand	5	
10	2	GP	5'					
10								
15	3	GP	5'					
15								- Water level 13' bgs
16						<b>ML</b> 2" Silt, dark gray, moist	16	- Top of temp screen
20	4	GP	5'			<b>SP</b> Silty sand, brown, moist, medium to fine grained sand		- Water sample GP-110-72104-20 collected at 20' bgs
20						Geoprobe abandoned by filling with hydrated bentonite chips	20	- Bottom of temp screen
						End of Log		



# Boring Number: GP-111

Sheet: 1 of 1

**Client:** Northwest Pipe Company  
**Project:** July 2004 Geoprobe  
**Location:** East of Bay 4 in office parking area  
**Project Number:** 161844.A0.ZZ

**Driller:** Geo Tech Inc  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/21/04

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth (ft)	Comments
	Sample	Sample Type	Recovery (ft.)	PID (ppm)				
0						Ground Surface		
0					Asphalt		0	
1	1	GP	4.5'		6" Asphalt		1	
2					GM		2	
3					3/4" gravel fill with fines		2	
4					SP		0.0	
5					Poorly graded sand, brown, moist, medium to fine grain sand		4	
6					ML		4	
7					3" silt, brown, moist		4	
8					SP		5	
9					Poorly graded sand, brown, moist, medium to fine grain sand		5	
10	2	GP	4.5'		ML		0.2	
11					6" Silt, dark gray, moist		7	
12					SM		8	
13					Silty sand, brown, moist, medium to fine grained sand		8	
14					ML		9	
15					8" Silt, 1" light brown, 5" dark gray, 2" light brown, moist		9	
16					SP		10	
17					Poorly graded sand, brown, moist, medium to fine grained sand		10	
18	3	GP	5'		ML		0.3	
19					8" Silt, 1" light brown, 5" dark gray, 2" light brown, moist		13	- Water level 13' bgs
20					SP		0.3	
21					Poorly graded sand, brown, moist, medium to fine grained sand		15	
22					SM		15	
23					Silty sand, dark brown, moist		16	- Top of temp screen
24					SP		16	
25					Poorly graded sand, brown, moist, medium to fine grained sand		16	
26	4	GP	5'		SP		0.3	
27					Poorly graded sand, brown, moist, medium to fine grained sand		19	- Water sample GP-110-72104-20 collected at 20' bgs
28					SP		19	
29					Poorly graded sand, dark gray, saturated, medium to fine grained sand		19	
30					SP		20	- Bottom of temp screen
31					Poorly graded sand, dark gray, saturated, medium to fine grained sand		20	- Bottom of temp screen
32					End of Log		20	Geoprobe abandoned by filling with hydrated bentonite chips





# Boring Number: GP-112

Sheet: 2 of 5

**Client:** Northwest Pipe Company  
**Project:** July 2004 Geoprobe  
**Location:** 100' ESE of monitoring well 1  
**Project Number:** 161844.A0.ZZ

**Driller:** Geo Tech Inc  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/22/04 to 7/23/04

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth (ft)	Comments
	Sample	Sample Type	Recovery (ft.)	PID (ppm)				
28	6	GP	5'		1.3 <b>SM</b> 1/8" Sandy silt, gray, moist <b>SP-SM</b> Poorly graded sand with some silt, gray, moist, medium to fine grained sand	28		
30					<b>ML</b> Silt, olive gray, moist, stiff, medium plasticity	30	- Set bottom depth of larger casing (3.25" O.D.) at 30', telescoped inside with 1.5" O.D. rod for deeper samples	
31	7	GP	4'		<b>ML</b> Silt, olive gray with light brown mottling, moist, stiff, medium plasticity <b>ML</b> Silt, olive gray, moist, stiff, medium plasticity, with some root structures at 33' to 35'	31		
35								
40	8	GP	4'		1.4			
45								
50	9	GP	4.5'		1.4			
	10	GP	5'		1.4			









Client: Northwest Pipe Company  
Project: Sept 2007 Geoprobe  
Location: Northwest Pipe Co  
Project Number: 358932.PH.0C

Driller: Boart Longyear  
Drilling Method: Geoprobe  
Sampling Method: Continuous core  
Logged by: Pat Heins  
Start/Finish Date: 9/26/07

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments	
	Sample	Sample Type	Recovery (ft)	PID (ppm)					
0						Ground Surface	0		
1	1	GP	3'	1.3		<b>GM</b> Gravel, light gray, dry, angular 3/4" and smaller with ~20% fines  <b>SP</b> Sand poorly graded, brown, moist to saturated, medium to fine grained sand			
5	2	GP	4'	1.6					
10	3	GP	5'	1.0					- Soil sample GP201-9-0 collected at 9' bgs  - Top of temp screen  - Water sample GP201-W-0 collected at 13' bgs
15						End of Log	15	- Bottom of temp screen	
20						<div style="border: 1px solid black; padding: 5px; width: fit-content;">             Geoprobe abandoned by filling with hydrated bentonite chips           </div>			





# Boring Number: GP-203

**Client:** Northwest Pipe Company  
**Project:** Sept 2007 Geoprobe  
**Location:** Northwest Pipe Co  
**Project Number:** 358932.PH.0C

**Driller:** Boart Longyear  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 9/26/07

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample	Sample Type	Recovery (ft)	PID (ppm)				
0						Ground Surface	0	
2.5	1	GP	2.5'	0.3	<p><b>GM</b> Gravel, light gray, dry, sub angular 3/4" and smaller with ~20% fines</p> <p><b>SP</b> Sand poorly graded, brown, moist, medium to fine grained</p> <p><b>ML</b> Silt, brown, moist, stiff, medium plasticity</p> <p><b>SP</b> Sand poorly graded, brown, moist, medium to fine grained</p>			
5	2	GP	5'	1.2				<ul style="list-style-type: none"> <li>- Soil sample GP203-8-0 collected at 8'bgs</li> <li>- Dup soil sample GP203-8-1 collected at 8'bgs</li> </ul>
11	3	GP	4'	1.1			11	<ul style="list-style-type: none"> <li>- Top of temp screen</li> <li>- Water sample GP203-W-0 collected at 13' bgs</li> <li>- Dup water sample GP203-W-1 collected at 13' bgs</li> </ul>
15						End of Log	15	<ul style="list-style-type: none"> <li>- Bottom of temp screen</li> </ul>
20								<div style="border: 1px solid black; padding: 5px; width: fit-content;">           Geoprobe abandoned by filling with hydrated bentonite chips         </div>



# Boring Number: GP-204

**Client:** Northwest Pipe Company  
**Project:** Sept 2007 Geoprobe  
**Location:** Northwest Pipe Co  
**Project Number:** 358932.PH.0C

**Driller:** Boart Longyear  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 9/26/07

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample	Sample Type	Recovery (ft)	PID (ppm)				
0						Ground Surface	0	
1	1	GP	4'	1.1	<p><b>GM</b> Gravel, light gray, dry, angular 3/4" and smaller with ~20% fines</p> <p>Wood, moist, remnant of large timber</p> <p><b>GM</b> Gravel, dark gray, moist, sub angular 3/4" and smaller with fines</p> <p><b>SP</b> Sand poorly graded, brown, moist to saturated, medium to fine grained</p>			
5	2	GP	3.5'	0.8				
10	3	GP	4.5'	0.8				
15						End of Log	15	<ul style="list-style-type: none"> <li>- Soil sample GP204-9-0 collected at 9' bgs</li> <li>- Top of temp screen</li> <li>- Water sample GP204-W-0 collected at 13' bgs</li> <li>- Bottom of temp screen</li> </ul>
20					<div style="border: 1px solid black; padding: 5px;">           Geoprobe abandoned by filling with hydrated bentonite chips         </div>			



# Boring Number: GP-205

**Client:** Northwest Pipe Company  
**Project:** Sept 2007 Geoprobe  
**Location:** Northwest Pipe Co  
**Project Number:** 358932.PH.0C

**Driller:** Boart Longyear  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 9/26/07





Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample	Sample Type	Recovery (ft)	PID (ppm)				
0						Ground Surface	0	
1	1	GP	3.5'	1.2		<p><b>GM</b> Gravel, light gray, dry, angular 3/4" and smaller with ~20% fines</p> <p><b>SP</b> Sand poorly graded with gravel, brown, moist, medium to fine grain sand, 1.5" and smaller rounded gravel</p> <p><b>SP</b> Sand poorly graded, brown, moist to saturated, medium to fine grained</p>		
5	2	GP	4.5'	0.8				
10	3	GP	4'	2.1				<p>- Soil sample GP205-9-0 collected at 9' bgs</p> <p>- Top of temp screen</p> <p>- Water sample GP205-W-0 collected at 13' bgs</p>
15						End of Log	15	- Bottom of temp screen
20						<div style="border: 1px solid black; padding: 5px; width: fit-content;">           Geoprobe abandoned by filling with hydrated bentonite chips         </div>		





Client: Northwest Pipe Company  
Project: Sept 2007 Geoprobe  
Location: Northwest Pipe Co  
Project Number: 358932.PH.0C

Driller: Boart Longyear  
Drilling Method: Geoprobe  
Sampling Method: Continuous core  
Logged by: Pat Heins  
Start/Finish Date: 9/26/07

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample	Sample Type	Recovery (ft)	PID (ppm)				
0						Ground Surface	0	
1	1	GP	1'	2.0		<b>GM</b> Gravel, light gray, dry, angular 3/4" and smaller with 20% fines  <b>SP</b> Sand poorly graded, brown, moist to saturated, medium to fine grained		- No sheen, no odor
5	2	GP	4'	2.3				- No sheen, no odor
10	3	GP	4.5'	63.2		<b>SP</b> Sand poorly graded, gray, saturated, medium to fine grained	 12	- Soil sample GP207-9-0 collected at 9' bgs - Top of temp screen - Heavy sheen, petroleum odor - Water sample GP207-W-0 collected at 13' bgs
15						End of Log	15	- Bottom of temp screen
20						<div style="border: 1px solid black; padding: 5px; width: fit-content;">             Geoprobe abandoned by filling with hydrated bentonite chips           </div>		



# Boring Number: GP-208

**Client:** Northwest Pipe Company  
**Project:** Sept 2007 Geoprobe  
**Location:** Northwest Pipe Co  
**Project Number:** 358932.PH.0C

**Driller:** Boart Longyear  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 9/27/07

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample	Sample Type	Recovery (ft)	PID (ppm)				
0					Asphalt, black, intact, good condition	0		
1	1	GP	1'	1.2	<b>GM</b> Gravel, light gray, dry, angular 3/4" and smaller with 20% fines <b>SP</b> Sand poorly graded, brown, moist to saturated, medium to fine grained		- No sheen, no odor	
5	2	GP	1'	1.3			- No sheen, no odor	
10							- Soil sample GP208-9-0 collected at 9'bgs	
11	3	GP	4'	2.1	<b>SP</b> Sand poorly graded, gray, saturated, medium to fine grained	11	- Top of temp screen - No sheen, no odor	
13					<b>ML</b> Silt, gray, moist, very soft, low plasticity Wood fiber, remainants of large timber	13	- Water sample GP208-W-0 collected at 13' bgs	
15					<b>ML</b> Silt, gray, moist, very soft, low plasticity <b>SP</b> Sand poorly graded, gray, saturated, medium to fine grained	15	- Bottom of temp screen	
20					End of Log Geoprobe abandoned by filling with hydrated bentonite chips			



# Boring Number: GP-209

**Client:** Northwest Pipe Company  
**Project:** Sept 2007 Geoprobe  
**Location:** Northwest Pipe Co  
**Project Number:** 358932.PH.0C

**Driller:** Boart Longyear  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 9/27/07

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample	Sample Type	Recovery (ft)	PID (ppm)				
0					Asphalt, black, intact, good condition	0		
1	1	GP	4.5'	1.1	<b>GM</b> Gravel, light gray, dry, angular 3/4" and smaller with 20% fines <b>SP</b> Sand poorly graded, brown, moist to saturated, medium to fine grained		- No sheen, no odor	
5	2	GP	4'	1.0			- No sheen, no odor	
10	3	GP	4'	1.2			- Soil sample GP209-9-0 collected at 9'bgs - Top of temp screen - No sheen, no odor - Water sample GP209-W-0 collected at 13' bgs	
15					End of Log	15	- Bottom of temp screen	
20					Geoprobe abandoned by filling with hydrated bentonite chips			



# Boring Number: GP-210

**Client:** Northwest Pipe Company  
**Project:** Sept 2007 Geoprobe  
**Location:** Northwest Pipe Co  
**Project Number:** 358932.PH.0C

**Driller:** Boart Longyear  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 9/27/07

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample	Sample Type	Recovery (ft)	PID (ppm)				
0						Ground Surface	0	
	1	GP	4.5'	1.0	<p>Asphalt, black, intact, good condition</p> <p><b>GM</b> Gravel, light gray, dry, angular 3/4" and smaller with 20% fines</p> <p><b>SP</b> Sand poorly graded, brown, moist, medium to fine grained</p>		- No sheen, no odor	
5	2	GP	5'	1.0				- No sheen, no odor
10					<p><b>ML</b> Silt, dark gray, moist, medium stiff, with wood fibers</p> <p><b>SP</b> Sand poorly graded, brown, moist to saturated, medium to fine grained</p> <p><b>ML</b> Silt, dark gray, moist, medium stiff, with wood fibers</p> <p><b>SP</b> Sand poorly graded, gray, saturated, medium to fine grained</p>	8	- Soil sample GP210-9-0 collected at 9' bgs	
	3	GP	4'	1.2				- Top of temp screen
								- No sheen, no odor
								- Water sample GP210-W-0 collected at 13' bgs
15						End of Log	15	- Bottom of temp screen
20					<div style="border: 1px solid black; padding: 5px; width: fit-content;">           Geoprobe abandoned by filling with hydrated bentonite chips         </div>			



# Boring Number: GP-211

**Client:** Northwest Pipe Company  
**Project:** Sept 2007 Geoprobe  
**Location:** Northwest Pipe Co  
**Project Number:** 358932.PH.0C

**Driller:** Boart Longyear  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 9/27/07

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample	Sample Type	Recovery (ft)	PID (ppm)				
0						Ground Surface	0	
1	1	GP	3'	1.1	<p><b>GM</b> Gravel, light gray, dry, angular 3/4" and smaller with ~20% fines</p> <p><b>SP</b> Sand poorly graded, brown, moist, medium to fine grained</p>		- No sheen, no odor	
5	2	GP	4'	1.3	<p><b>SM</b> Sandy silt, brown, moist, medium stiff</p> <p><b>SP</b> Sand poorly graded, brown, moist to saturated, medium to fine grained</p>	6	- No sheen, no odor	
10	3	GP	4'	1.0	<p><b>SP</b> Sand poorly graded, gray, saturated, medium to fine grained</p>	10	- Soil sample GP211-9-0 collected at 9'bgs - Dup soil sample GP211-9-1 collected at 9'bgs - Top of temp screen - No sheen, no odor - Water sample GP211-W-0 collected at 13' bgs - Dup water sample GP211-W-1 collected at 13' bgs	
15						End of Log	15	- Bottom of temp screen
20					<div style="border: 1px solid black; padding: 5px; width: fit-content;">           Geoprobe abandoned by filling with hydrated bentonite chips         </div>			



# Boring Number: GP-212

**Client:** Northwest Pipe Company  
**Project:** Sept 2007 Geoprobe  
**Location:** Northwest Pipe Co  
**Project Number:** 358932.PH.0C

**Driller:** Boart Longyear  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 9/27/07

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample	Sample Type	Recovery (ft)	PID (ppm)				
0						Ground Surface	0	
1	1	GP	2.5'	2.3		<b>GP</b> Gravel and sand, light gray, dry, angular 3/4" and smaller with medium to fine grained sand	2	- No sheen, no odor
2								
5								
6	2	GP	2'	8.6		<b>ML</b> Silt, brown, moist, loose	6	- No sheen, no odor
7						<b>SP</b> Sand poorly graded, brown, moist to saturated, medium to fine grained		
9								- Soil sample GP212-9-0 collected at 9'bgs
10								- Top of temp screen
13	3	GP	4'	4.5		<b>SP</b> Sand poorly graded, gray, saturated, medium to fine grained	13	- light sheen, slight petroleum odor - Water sample GP212-W-0 collected at 13' bgs
15								- Bottom of temp screen
15						End of Log	15	
20						Geoprobe abandoned by filling with hydrated bentonite chips		



# Boring Number: GP-213

**Client:** Northwest Pipe Company  
**Project:** Sept 2007 Geoprobe  
**Location:** Northwest Pipe Co  
**Project Number:** 358932.PH.0C

**Driller:** Boart Longyear  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 9/27/07

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample	Sample Type	Recovery (ft)	PID (ppm)				
0						Ground Surface	0	
	1	GP	4'	2.3	<p>Asphalt, black, good condition</p> <p><b>GP</b> Gravel, light gray, dry, angular 3/4" and smaller</p> <p><b>SP</b> Sand poorly graded, brown, moist to saturated, medium to fine grained</p>		- No sheen, no odor	
5	2	GP	4'	1.5				- No sheen, no odor
10	3	GP	4.5'	1.1				- Soil sample GP213-10-0 collected at 10'bgs - Top of temp screen - No sheen, no odor - Water sample GP213-W-0 collected at 13' bgs
15						End of Log	15	- Bottom of temp screen
20								



Geoprobe abandoned by filling with hydrated bentonite chips



# Boring Number: GP-214

**Client:** Northwest Pipe Company  
**Project:** Sept 2007 Geoprobe  
**Location:** Northwest Pipe Co  
**Project Number:** 358932.PH.0C

**Driller:** Boart Longyear  
**Drilling Method:** Geoprobe  
**Sampling Method:** Continuous core  
**Logged by:** Pat Heins  
**Start/Finish Date:** 9/27/07

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample	Sample Type	Recovery (ft)	PID (ppm)				
0						Ground Surface	0	
1	1	GP	3'	1.2	 <p> <b>GP</b>            Gravel, light gray, dry, angular 3/4" and smaller  <b>SP</b>            Sand poorly graded, brown, moist to saturated, medium to fine grained         </p>		- No sheen, no odor	
5	2	GP	3'	1.0				- No sheen, no odor
10	3	GP	4'	1.1				- Soil sample GP214-10-0 collected at 10'bgs - Top of temp screen  - No sheen, no odor  - Water sample GP214-W-0 collected at 13' bgs
15						End of Log	15	- Bottom of temp screen
20								

Geoprobe abandoned by filling with hydrated bentonite chips

NOTICE TO WATER WELL CONTRACTOR  
The original and first copy  
of this report are to be  
filed with the

STATE ENGINEER, SALEM, OREGON 97310  
within 30 days from the date  
of well completion.

MULTI WATER WELL REPORT

STATE OF OREGON

(Please type or print)

STATE ENGINEER  
SALEM, OREGON

State Well No.

State Permit No.

001824

RECEIVED

JAN 29 1973

2N/1W-35

(1) OWNER:

Name Beall Pipe & Tank Corp.  
Address 12005 N. Burgard Rd.  
Portland, Oregon

(2) TYPE OF WORK (check):

New Well  Deepening  Reconditioning  Abandon   
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary  Driven   
Cable  Jetted   
Dug  Bored

(4) PROPOSED USE (check):

Domestic  Industrial  Municipal   
Irrigation  Test Well  Other

CASING INSTALLED:

Threaded  Welded   
8" Diam. from 0 ft. to 216 ft. Gage .250  
" Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Gage \_\_\_\_\_  
" Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Gage \_\_\_\_\_

PERFORATIONS:

Perforated?  Yes  No.  
Type of perforator used Mills Knife  
Size of perforations 1/8 in. by 3 in.  
72 perforations from 195 ft. to 201 ft.  
perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

(7) SCREENS:

Well screen installed?  Yes  No  
Manufacturer's Name UOP Johnson  
Type 8" Telescoping Stainless Model No. 304  
Diam. 8" Slot size 020 Set from 215 ft. to 220 ft.  
2 ft. of 6" casing on top of screen with  
Diam. \_\_\_\_\_ Slot size \_\_\_\_\_ Set from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
self sealing packer on top.

(8) WELL TESTS:

Drawdown is amount water level is lowered below static level  
Was a pump test made?  Yes  No If yes, by whom?  
Yield: 201 gal./min. with 19 ft. drawdown after 1 hrs.  
290 " 28 " 1 "  
110 " 42 " 1 "  
Baller test gal./min. with \_\_\_\_\_ ft. drawdown after \_\_\_\_\_ hrs.  
Artesian flow g.p.m.  
Temperature of water \_\_\_\_\_ Depth artesian flow encountered \_\_\_\_\_ ft.

(9) CONSTRUCTION:

Well seal Material used Bentonite  
Well sealed from land surface to 30 ft.  
Diameter of well bore to bottom of seal 12" in.  
Diameter of well bore below seal 8 in.  
Number of sacks of cement used in well seal \_\_\_\_\_ sacks  
Number of sacks of bentonite used in well seal 5 sacks  
Brand name of bentonite International Gel  
Number of pounds of bentonite per 100 gallons of water 50 lbs./100 gals.  
Was a drive shoe used?  Yes  No Plugs \_\_\_\_\_ Size: location \_\_\_\_\_ ft.  
Did any strata contain unusable water?  Yes  No  
Type of water? \_\_\_\_\_ depth of strata \_\_\_\_\_  
Method of sealing strata off \_\_\_\_\_  
Was well gravel packed?  Yes  No Size of gravel: \_\_\_\_\_  
Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

(10) LOCATION OF WELL:

County Multnomah Driller's well number \_\_\_\_\_  
\_\_\_\_\_ 1/4 Section 35 T. 2N R. 1 W. W.M.  
Bearing and distance from section or subdivision corner \_\_\_\_\_

(11) WATER LEVEL: Completed well.

Depth at which water was first found 198 ft.  
Static level 16 ft. below land surface. Date 1/22/73  
Artesian pressure \_\_\_\_\_ lbs. per square inch. Date \_\_\_\_\_

(12) WELL LOG:

Diameter of well below casing 8"  
Depth drilled 250 ft. Depth of completed well 220 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Previously drilled	0	25	
Silty gray clay-soft	25	46	
Fine gray sand	46	64	
Gray silty clay	64	98	
Fine gray sand	98	118	
Gray silty clay	118	129	
Fine gray sand	129	133	
Gray silty clay	133	161	
Fine gray sand	161	174	
Cemented gravel	174	198	
Coarse sand & gravel	198	203	
Fine brown sand	203	209	
Fine black sand	209	212	
Med. fine & coars sand w/some fine gravel	212	221	
Blue silty clay/gravel seams	221	229	
Gray clay (soft)	229	240	
Firm gray-brown clay	240	258	
Soft gray clay	258		

Work started 11/3/72 \_\_\_\_\_ 19 Completed 1/22/73 \_\_\_\_\_ 19  
Date well drilling machine moved off of well 1/22/73 \_\_\_\_\_ 19

Drilling Machine Operator's Certification:

This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.

[Signed] \_\_\_\_\_ Date 1/24/73 19\_\_\_\_\_  
(Drilling Machine Operator)

Drilling Machine Operator's License No. 751

Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Name A. M. Janssen Drilling Co.  
(Person, firm or corporation) (Type or print)  
Address 21075 S. W. Tualatin Valley Hwy. Aloha, Ore.

[Signed] \_\_\_\_\_  
(Water Well Contractor)

Contractor's License No. 79 Date 1/24/73 \_\_\_\_\_ 19\_\_\_\_

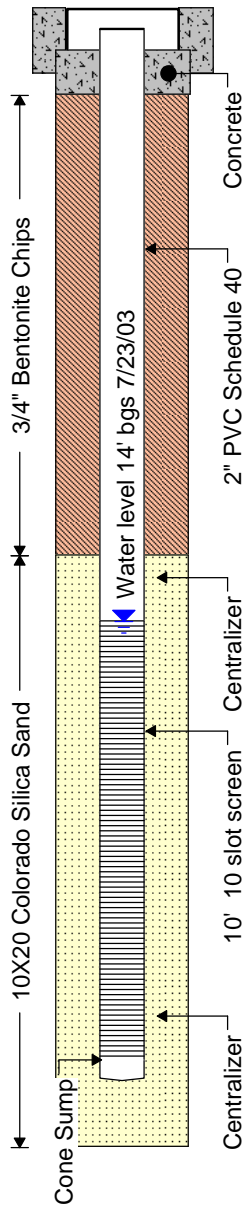


# Well Number: MW-1

**Client:** Northwest Pipe Company  
**Project:** Groundwater Investigation  
**Location:** North Portland  
**Project Number:** 161844.A0.ZZ

**Driller:** Geo-Tech Explorations  
**Drilling Method:** Hollow Stem Auger  
**Sampling Method:** Split Spoon  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/23/03

Depth (ft)	Sample Info					Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	Sample Type	Recovery (ft)	STP (6"-6"-6")	PID (ppm)					
0						Asphalt	Ground Surface	0.0		- Heavy duty Sherwood flush mount monument
1	1	SS	.5	8-13-17	0.8	GP/SW-SM 3/4" gravel with well graded sand, light brown, dry, medium to fine grain sand				- Ground elevation: 31.01' (NGVD '29)
5	2	SS	1	6-8-9	1.6	SP Poorly graded sand, light brown, moist, medium to fine grain sand				- Top of well casing elevation: 30.64' (NGVD '29)
	3	SS	1	4-4-5	0.8					- OWRD Well ID Number: L58982
10	4	SS	.75	4-4-4	0.7	SM Silty sand, light brown, moist, fine grain sand				- Start Card Number: 156646
	5	SS	1	3-4-5	6.8	SP Poorly graded sand, light brown, saturated, medium to fine grain sand				- Encountered fair amount of heaving at ~20'bgs. Water added to auger stem seems to
15	6	SS	1	2-2-3						- Water came from driller's rig, filled from Tualatin City water.
	7	SS	.75	3-3-6	6.5	SP/GP Poorly graded sand with 3/4" well weathered gravel, light brown, saturated (small piece of wood fiber)				
20	8	SS	1	2-6-6	8.4	SP Poorly graded sand, dark gray, saturated, medium to fine grain sand				
	9	SS	1	3-3-6	3.0					
25	10	SS	1.5	3-5-8	8.5	ML Silt, dark gray, moist				
30							End of Log			



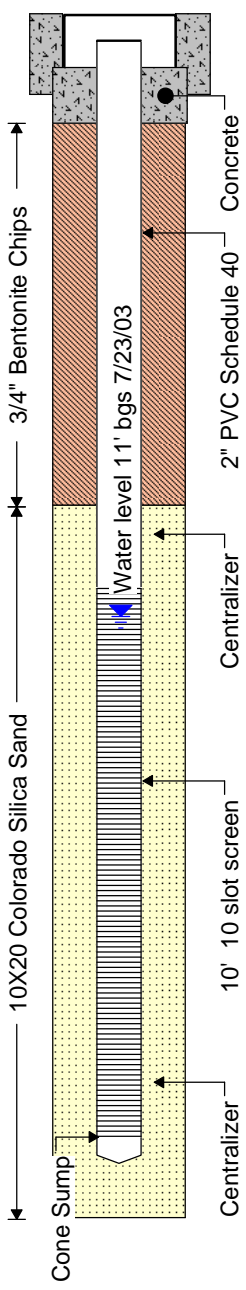


# Well Number: MW-2

**Client:** Northwest Pipe Company  
**Project:** Groundwater Investigation  
**Location:** North Portland  
**Project Number:** 161844.A0.ZZ

**Driller:** Geo-Tech Explorations  
**Drilling Method:** Hollow Stem Auger  
**Sampling Method:** Split Spoon  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/23/03

Depth (ft)	Sample Info					Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	Sample Type	Recovery (ft)	STP (6"-6"-6")	PID (ppm)					
0						Asphalt	Ground Surface	0.0		
1	1	SS	1	6-6-9	2.3	SP Poorly graded sand, light brown, moist, medium to fine grain sand				- Heavy duty Sherwood flush mount monument - Ground elevation: 27.97' (NGVD '29) - Top of well casing elevation: 27.67' (NGVD '29)
2	2	SS	1	4-4-5	1.8					- OWRD Well ID Number: L58983 - Start Card Number: 156647
3	3	SS	1.5	6-7-6	3.4					- Encountered fair amount of heaving at ~16' bgs. Water added to auger stem to reduce heave. - Water came from driller's rig, filled from Tualatin City water.
4	4	SS	1	3-4-4						
5	5	SS	1	4-4-8	1.7	SP Poorly graded sand, light brown, saturated, medium to fine grain sand				
6	6	SS	1	1-4-4	3.5	SP Poorly graded sand, gray, saturated, medium to fine grain sand				
7	7	SS	1	4-4-8	1.0	SW-SM/GP 3/4" gravel well weathered with well graded sand, gray, saturated				
8	8	SS	.75	1-1-2	2.5	SP Poorly graded sand, dark gray, saturated, medium to fine grain sand				
9	9	SS	1.5	0-1-3		ML Silt, gray, moist (bottom 4" brown mottled rust color), firm, medium plasticity				
							End of Log			





# Well Number: MW-3

**Client:** Northwest Pipe Company  
**Project:** Groundwater Investigation  
**Location:** North Portland  
**Project Number:** 161844.A0.ZZ

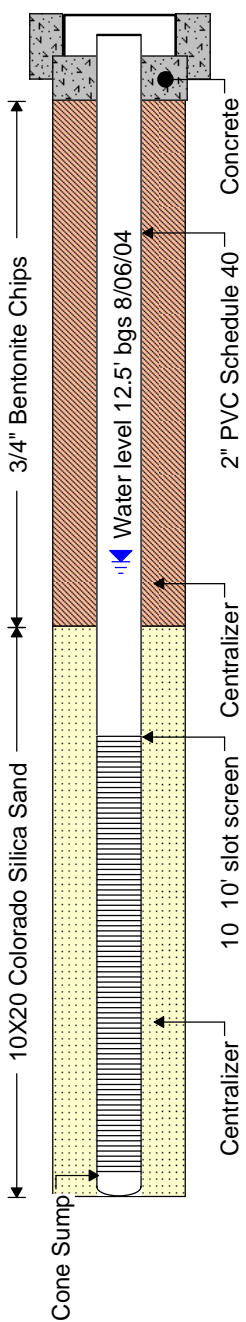
**Driller:** Geo-Tech Explorations  
**Drilling Method:** Hollow Stem Auger  
**Sampling Method:** Split Spoon  
**Logged by:** Pat Heins  
**Start/Finish Date:** 7/24/03

Depth (ft)	Sample Info					Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	Sample Type	Recovery (ft)	STP (6"-6"-6")	PID (ppm)					
0						Asphalt	Ground Surface	0.0		- Heavy duty Sherwood flush mount monument
1	1	SS	1	4-9-7	0.4	SP Poorly graded sand, light brown, moist, medium to fine grain sand		3/4" Bentonite Chips	Concrete	- Ground elevation: 29.40' (NGVD '29)
2										
5	2	SS	.66	5-7-6	0.6					
3										
10	3	SS	1.25	4-6-6	0.3	SP Poorly graded sand, light brown, saturated, medium to fine grain sand		2" PVC Schedule 40	- Top of well casing elevation: 29.16' (NGVD '29)	
4										
5	4	SS	1	3-5-5	0.2					
15	5	SS	1	2-4-6	0.4	SP Poorly graded sand, gray, saturated, medium to fine grain sand		10' 10 slot screen	- Encountered fair amount of heaving at ~20' bgs. Water added to auger stem to reduce	
6										
6	6	SS	1.5	3-3-4	0.3					
20	7	SS	1.5	5-7-7	0.7	ML Silt, gray, moist (root material), firm, medium plasticity		Cone Sump	- Water came from driller's rig, filled from Tualatin City water.	
8										
8	8	SS	1.5	3-3-5	0.4					
25	9	SS	0	2-2-3		ML Silt, gray, moist (root material), firm, medium plasticity		Centralizer	- Standard split spoon, no return, changed to 3" OD split spoon, no return	
9										
25	10	SS	1.5	2-2-2	0.6					
26.0						ML Silt, gray, moist (root material), firm, medium plasticity	End of Log	26.0		

**Client:** Northwest Pipe  
**Project:** Monitoring Wells 2004  
**Location:** North Portland  
**Project Number:** 161844.04.ZZ

**Driller:** Geo-Tech Explorations  
**Drilling Method:** HSA CME  
**Sampling Method:** Split Spoon  
**Logged by:** C. Augustine  
**Start/Finish Date:** 8/06/2004

Depth (ft)	Sample Info					Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	Sample Type	Recovery (ft)	STP (6"-6"-6")	PID (ppm)					
0							Ground Surface	0.0		-Heavy-duty Sherwood flush mount monument
						<b>Asphalt</b>				
	1	SS	1	4-5-6	1.0	<b>SP</b> Poorly graded SAND, orange-brown, dry, loose, medium grained sand, some fine - coarse		2.5		-Ground elevation: 30.70' (NGVD '29)
						<b>SP</b> Poorly graded SAND with gravel, orange, dry, loose, medium sand, some fine gravel		5.0		-Top of well casing elevation: 30.13' (NGVD '29)
	2	SS	1.3	4-5-5	2.4					OWRD Well ID Number: L67930
						<b>SP</b> Poorly graded SAND, orange-brown, dry, loose, fine to medium grained sand, some fine gravel 1/2"-3/4" in 5.0-5.5 feet layer		7.5		Start Card number: 167488
	3	SS	1.4	2-3-5	3.2					
						<b>SP</b> Poorly graded SAND, orange-brown, moist, loose, fine grained sand, some silt		13.0		
	4	SS	1.5	2-3-3	1.9					
						<b>OL</b> Organic SILT composed of woody vegetation with sand, gray, moist, firm, low plasticity		15.0		
	5	SS	1.5	2-2-3	1.6					
						<b>SM</b> SILTY SAND, dark brown, wet, soft fine grained sand		17.5		
	6	SS	1.5	3-3-4	4.0					Driller reports heaving at ~17 feet bgs, added water to stabilize the borehole
						<b>SM</b> Sand with Silt, dark orange-brown to brown, wet, soft, fine-medium sand, with wood.		20.0		
	7	SS	1.5	3-3-4	3.9					
						<b>SM</b> Poorly graded SAND with SILT, gray, wet, soft Fine sand		23.5		
	8	SS	1.5	1-1-1	3.9					
						<b>ML</b> SILT, grey, wet, firm, medium plasticity, low to no dilatancy		26.0		
	9	SS	1.3	2-2-3	2.4					
	10	SS	1.5	1-1-1	2.0					
	11	SS	1.5	3						
30							End of Log			



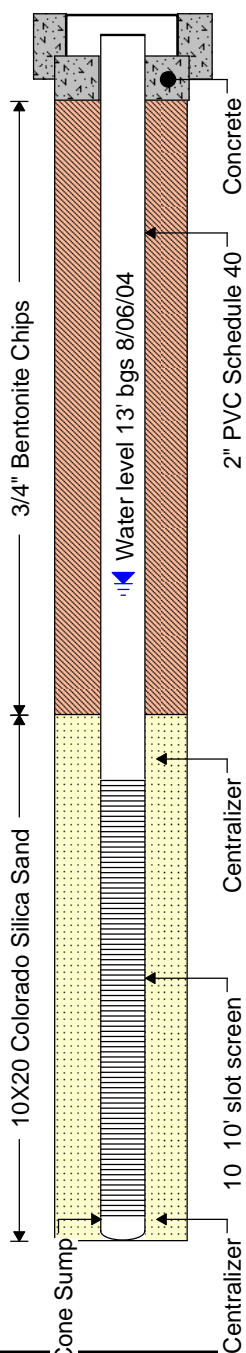


# Well Number: MW-5

**Client:** Northwest Pipe  
**Project:** Monitoring Wells 2004  
**Location:** North Portland  
**Project Number:** 161844.04.ZZ

**Driller:** Geo-Tech Explorations  
**Drilling Method:** HSA CME  
**Sampling Method:** Split Spoon  
**Logged by:** C. Augustine  
**Start/Finish Date:** 8/06/2004

Depth (ft)	Sample Info					Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	Sample Type	Recovery (ft)	STP (6"-6"-6")	PID (ppm)					
0							Ground Surface	0.0		-Heavy-duty Sherwood flush mount monument
2.5	1	SS	1.5	9-9-8	14.2	SP Poorly graded SAND, orange-brown, dry, loose, fine-med grained san, some gravel up to 1-inch	Asphalt	2.5		-Ground elevation: 30.79' (NGVD '29)
5.0	2	SS	1.2	5-6-9	5.2	SP Poorly graded SAND with gravel, orange, dry, loose fine - medium sand, gravel up to 1/2 inch in upper 6 inches of sample		5.0		-Top of well casing elevation: 30.38' (NGVD '29)
10.0	3	SS	1.5	3-4-5	2.4	SP Poorly graded SAND", orange-brown, dry, loose Fine to medium grained sand		10.0		OWRD Well ID Number: L67931
12.5	4	SS	1.5	4-5-5	2.0	SP Poorly graded SAND, orange-brown, moist, loose Fine to medium grained sand		12.5		Start Card number:167489
15.0	5	SS	1.5	4-4-4	6.1	SP Poorly graded SAND, orange-brown, moist, loose Fine to medium grained sand		15.0		
17.5	6	SS	1.5	3-5-6		SP/SM Poorly graded SAND with Silt, orange, moist, loose Fine-medium grained sand		17.5		Driller reports heaving at ~17 feet bgs, added water to stabilize the borehole
20.0	7	SS	1.5	4-5-6	1.0	ML SILT, orange brown to grey, moist, soft, low to no plasticity in upper 6-inches		20.0		
22.5	8	SS	1.5	2-5-7	1.0	SP Poorly graded SAND, dark brown, wet, loose, fine to medium sand, some silt		22.5		
25.0	9	SS	1.5	4-6-8	2.0	SP Poorly Graded Sand, dark orange-brown to brown, wet, soft, some silt		25.0		
27.5	10	SS	1.5	3-3-4	1.2	SP/SM Poorly graded SAND with SILT, orange brown to gray wet, very soft		27.5		
30.0	11	SS	1.5	1-1-1		SP Poorly graded SAND, orange brown to grey, wet, soft, some silt in lower 6-inches		30.0		



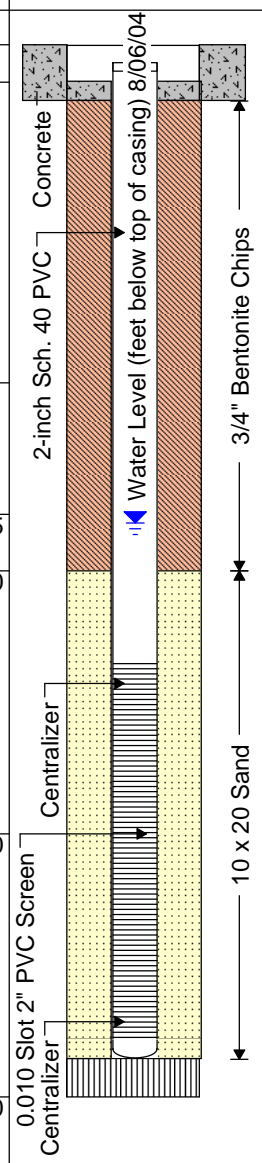


# Well Number: MW-6

**Client:** Northwest Pipe  
**Project:** Geoprobe/MW install  
**Location:** near GP112  
**Project Number:** 161844.A0.ZZ

**Driller:** Geotech  
**Drilling Method:** Hollow Stem Auger Mobile B59  
**Sampling Method:** Split Spoon  
**Logged by:** Chris Augustine  
**Start/Finish Date:** 12/20/2004

Depth (ft)	Sample Info					Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	Sample Type	Recovery (ft)	STP (6"-6"-6")	PID (ppm)					
0							Ground Surface	0.0		
							Asphalt overlying 3/4 " gravel			
	SS1	SS	1.0	5-10-9	0.2		<b>SP</b> Poorly graded SAND, brown, dry to moist, loose, trace silt (<10%)		Concrete	No sheen, no odor
5									2-inch Sch. 40 PVC	No sheen, no odor
	SS2	SS	1.0	3-7-9	0.2					No sheen, no odor
	SS3	SS	0	5-7-8	0.2					No sheen, no odor
10							<b>SP-SM</b> Sand with silt, brown, moist, loose, silt <10%	9.0		No sheen, no odor
	SS4	SS	1.5	3-5-5	0.4					No sheen, no odor
	SS5	SS	1.5	4-6-6	2.1		<b>SM</b> Silty SAND, brown, moist to wet, loose	12.5		No sheen, no odor
15								14.0		Water Encountered @ 14.0 feet No sheen, no odor
	SS6	SS	1.5	3-5-8	0.7		<b>SP</b> Poorly graded SAND, brown, wet, loose, trace silt			No sheen, no odor
	SS7	SS	1.5	4-5-5	20.8				Centralizer	No sheen, no odor
20										No sheen, no odor
	SS8	SS	1.5	2-4-8	0.8					No sheen, no odor
	SS9	SS	1.5	3-4-5	0.0		<b>SM</b> Silty Sand, grey, wet, loose, sand fine, silt 15%	21.0		No sheen, no odor
25										No sheen, no odor
	SS10	SS	1.5	1-2-2	0.2					No sheen, no odor
	SS11	SS	1.5	1-2-2	0.0					No sheen, no odor
30							<b>ML</b> SILT, grey brown, wet, firm, low to medium plasticity, no dilatancy, trace fine sand	28.0		No sheen, no odor
	SS12	SS	1.5	1-2-2	0.0					No sheen, no odor
35							End of Log	30.5		





# Well Number: MW-7

**Client:** Northwest Pipe  
**Project:** Stained Soil  
**Location:** North Portland  
**Project Number:** 358932.TT.06

**Driller:** Cascade Drilling  
**Drilling Method:** Direct Push  
**Sampling Method:** Continuous Core  
**Logged by:** Bruce Pratt  
**Start/Finish Date:** 5/31/12

Depth (ft)	Sample Info		Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	STP (6"-6"-6")					
0				Ground Surface	0		
1				<b>GP</b> Poorly graded SAND and GRAVEL, brown, dry, loose, fine -med grain sand. Gravel up to 1-inch			-Heavy-duty Sherwood flush mount monument -Ground elevation: 26.79' (COP) -Top of well casing elevation: 26.37' (COP) OWRD Well ID Number
5				<b>SP</b> Poorly graded SAND, brown, dry, loose fine - medium grain sand	5		Start Card Number: 1016801
6				<b>SP</b> Poorly graded SAND, brown, moist to saturated, loose fine to medium grain sand	6		Geofabric observed at 7'bgs
2							Soil Sample GP302 collected 7'-8'
3							-9.5' bgs sheen observed in soil core
10							- 12' to 14.5' bgs heavy sheen observed in soil core
15							
18				End of Log	18		Background PID reading 1.5 to 1.7 ppm.
20							

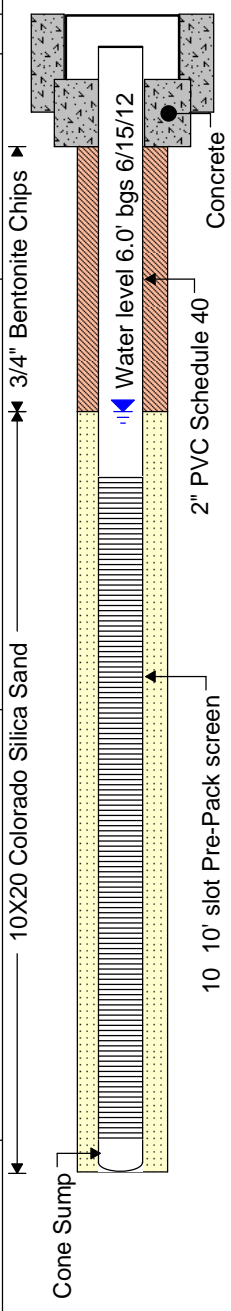


# Well Number: MW-8

**Client:** Northwest Pipe  
**Project:** Stained Soil  
**Location:** North Portland  
**Project Number:** 358932.TT.06

**Driller:** Cascade Drilling  
**Drilling Method:** Direct Push  
**Sampling Method:** Continuous Core  
**Logged by:** Bruce Pratt  
**Start/Finish Date:** 5/31/12

Depth (ft)	Sample Info		Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	STP (6"-6"-6")					
0				Ground Surface	0		
1			Asphalt				
1	1		GP Poorly graded SAND and GRAVEL, brown, dry, loose, fine -med grain sand. Gravel up to 1-inch				-Heavy-duty Sherwood flush mount monument -Ground elevation: 26.88' (COP) -Top of well casing elevation 26.36' (COP) OWRD Well ID Number
5			SP Poorly graded SAND, brown, dry to moist, loose fine - medium grain sand		4		Start Card Number: 1016802
2	2						Soil Sample GP306 collected 10.5' to 11.5' bgs
10			SP Poorly graded SAND", dark gray, saturated, loose fine to medium grain sand		11		No sheen at 10' bgs
3	3						Background PID 0.7 ppm
15							
17				End of Log	17		
20							





# Well Number: MW-9

Sheet: 1 of 1

**Client:** Northwest Pipe  
**Project:** Stained Soil  
**Location:** North Portland  
**Project Number:** 358932.TT.06

**Driller:** Cascade Drilling  
**Drilling Method:** Direct Push  
**Sampling Method:** Continuous Core  
**Logged by:** Bruce Pratt  
**Start/Finish Date:** 5/31/12

Depth (ft)	Sample Info		Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	STP (6"-6"-6")					
0				Ground Surface	0		
1			<b>Asphalt</b>				
3			<b>GP</b> Poorly graded SAND and GRAVEL, orange-brown, dry, loose, fine -med grain sand. Gravel up to 1-inch				
5			<b>SP</b> Poorly graded SAND, brown, dry to moist, loose fine - medium grain sand				
9			<b>SP</b> Poorly graded SAND, dark gray, saturated, loose fine to medium grain sand				
17			End of Log				

The diagram illustrates the well completion details from 0 to 17 feet depth. At the surface (0 ft), there is a heavy-duty Sherwood flush mount monument. The casing is concrete, with the top at an elevation of 25.75' (COP). The casing is 2" PVC Schedule 40. A water level is indicated at 6/15/12 with a blue arrow pointing to the level. The casing is surrounded by 3/4" bentonite chips. A 10' slot pre-pack screen is installed from 10' to 17' depth. The screen is 10X20 Colorado Silica Sand. A cone sump is located at the bottom of the well at 17 feet depth. The soil layers are: Asphalt (0-1 ft), GP (1-3 ft), SP (3-9 ft), and SP (9-17 ft). The water level is at 6/15/12.

-Heavy-duty Sherwood flush mount monument  
 -Ground elevation: 26.17' (COP)  
 -Top of well casing elevation 25.75' (COP)

OWRD Well ID Number

Start Card Number: 1016803

Soil Sample GP307 - 13' - 14' bgs

No sheen at 10' bgs

PID background 0.0 ppm