



July 2, 1995

Kathy Bahnick
Port of Seattle, Engineering Department
P. O. Box 1209
Seattle, WA 98111

Re: Subsurface Investigation
Port of Seattle Terminal 115 Property

Dear Ms. Bahnick:

GeoScience Management, Inc. (GSM) is pleased to submit this report documenting the results of our recent subsurface investigation at the Terminal 115 property. The investigation was conducted during the period March through early June 1995 under Professional Services Agreement Number P-950137 with the Port of Seattle (Port). The work was conducted in general accordance with GSM's proposal to the Port, and subsequent discussions regarding modifications to the scope of work. Field work, drilling, laboratory analysis, and miscellaneous site work were performed by Quest, Inc., Cascade Drilling, Inc., North Creek Analytical, Inc. and Freidman and Bruya, Inc., CEcon Corporation, INCA Engineers, Inc. and Locating Inc., respectively, under contract to GSM.

INTRODUCTION

The project site is located at the northeast corner of West Marginal Way SW, and SW Front Street in Seattle Washington, and is part of the Port of Seattle's (Port) Terminal 115 property (Figure 1). The site currently contains one empty warehouse structure with attached office space and shed. According to information supplied by the Port of Seattle, the original structure was apparently built by Materials Reclamation Company, Inc. (d.b.a. Maralco Aluminum) about 1952. A later addition was built on the north side of the structure in approximately the early 1970's. Architectural drawings obtained by the Port indicate that an 8,000-gallon fuel oil underground storage tank was installed immediately adjacent to the original building on the east side. An apparent 4-inch diameter fill pipe and vent line were visible behind the building during a site visit on March 3, 1995, at the approximate locations shown on the architectural drawings.

PREVIOUS SITE INVESTIGATION

In November 1994, AGRA Earth and Environmental Technologies, Inc. (AGRA) conducted a geotechnical evaluation of the site for a prospective tenant who planned to install a card-lock fueling

Table 1
Port of Seattle - Terminal 115
Monitoring Well Survey and Depth to Water Data

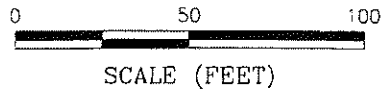
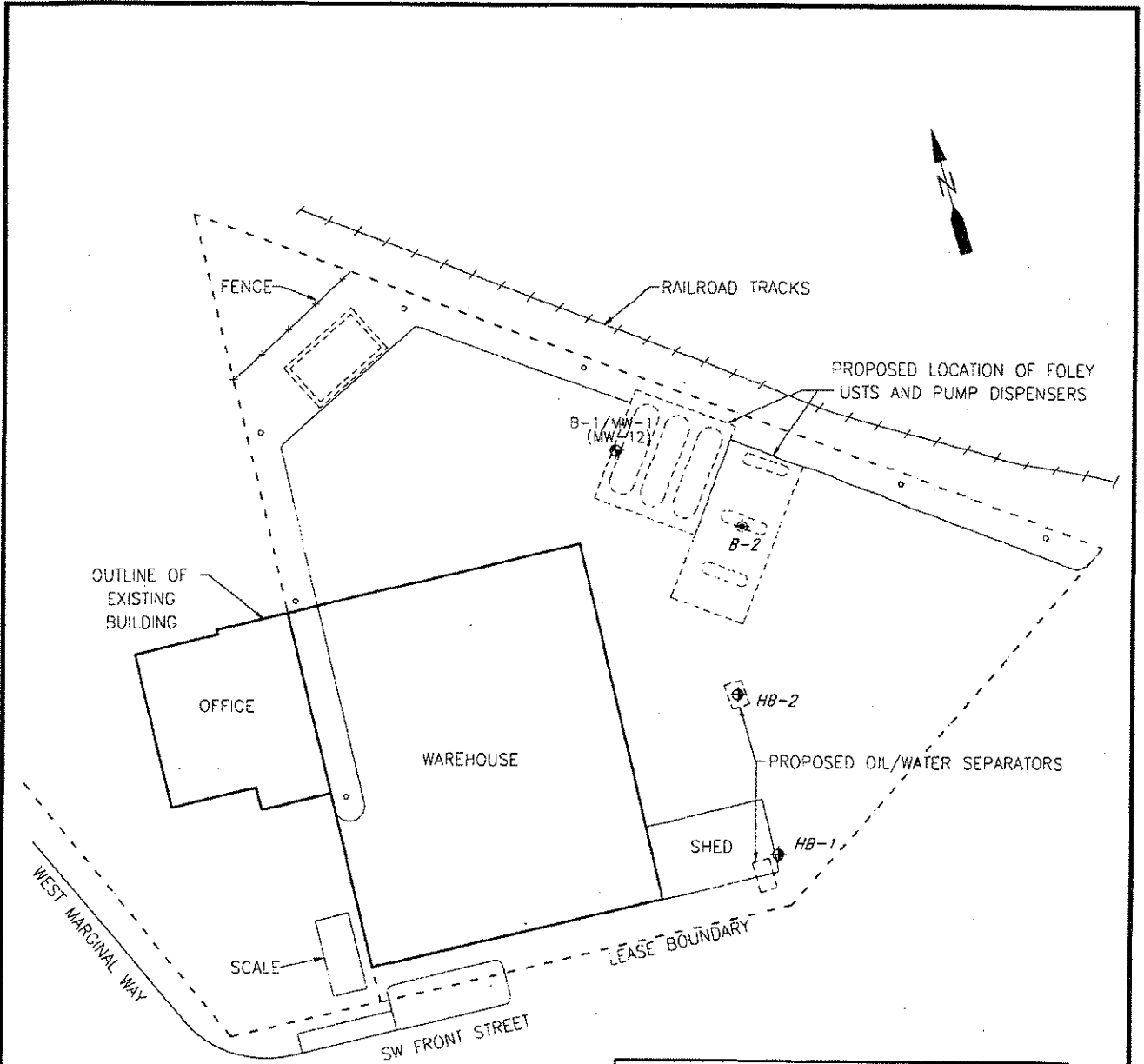
Monitoring Well Number	Coordinates	Description of Measuring Point	Elevations (in Feet)	Depth to Product hTOC (in Feet)	Depth to Water hTOC (in Feet)	Water Level Elevation (in Feet)	Date Water Measured
MW-12	N: 1105.70 E: 30478.06	N. Edge Casing Rim PVC (Black Mark)	20.09 19.78	7.65	8.00	Not Calc.	4/14/95
MW-13	N: 1114.95 E: 30421.21	Tag on Casing Rim PVC (Black Mark)	20.03 19.71	4.68	15.03		4/14/95
MW-14	N: 1057.81 E: 30482.72	Tag on Casing Rim PVC (Black Mark)	20.19 19.58	6.64	12.94		4/14/95
MW-15	N: 1072.37 E: 30526.70	Tag on Casing Rim PVC (Black Mark)	19.97 19.53	4.79	14.74		4/14/95
MW-16	N: 1123.38 E: 30493.70	Tag on Casing Rim PVC (Black Mark)	21.23 20.8	5.74	15.06		4/14/95
MW-17	N: 1025.97 E: 30488.27	Tag on Casing Rim PVC (Black Mark)	20.32 19.81	6.98	12.83		4/14/95
MW-18	N: 1089.78 E: 30466.39	Tag on Casing Rim PVC (Black Mark)	20.24 19.91	6.65	6.66	13.25	4/14/95

Notes:
Survey coordinates from information provided by the Port of Seattle
Referenced to the Seattle Tide Lands Grid and Mean Low Low Water.

Table 2
Port of Seattle - Terminal 115
Laboratory Analytical Results

Sample Number	Sample Date	Sample Depth	WTPH-D	Comments
Hand Auger Borings - Soil (mg/kg)				
HB-1	Not sampled - Maximum depth was 3.5 feet bgs.			No odors
HB-2 @ 7'	3/22/95	7	900	Hydrocarbon-like odor
HB-3	3/22/95	6	N/A	No odors
HB-4	3/22/95	3	N/A	No odors
HB-5 @ 4'	3/22/95	4	8,600	Hydrocarbon-like odor
HB-6 @ 7'	3/23/95	7	ND	No odors
HB-7	3/23/95	7	N/A	No odors
HB-8 @ 4.5'	3/23/95	4.5	3,300	Hydrocarbon-like odor
HB-9 @ 5.5'	3/23/95	5.5	ND	No odors
HB-10	Not Sampled - Maximum depth was 4 feet bgs.			No odors
HB-11 @ 7'	3/23/95	7	ND	No odors
HB-12 @ 4.5'	4/21/95	4.5	52	No odors
Soil Borings - Soil (mg/kg)				
SB-3 @ 6'	4/7/95	6	N/A	No odors
Monitoring Well Borings - Soil (mg/kg)				
MW-2 @ 5' (MW-13)	4/7/95	5	ND	No odors
MW-3 @ 5' (MW-14)	4/7/95	5	N/A	Hydrocarbon-like odor
MW-4 @ 5' (MW-15)	4/7/95	5	ND	No odors
MW-5 @ 5' (MW-16)	4/7/95	5	21	No odors
MW-6 @ 5' (MW-17)	4/7/95	5	ND	No odors
MW-7 @ 5' (MW-18)	4/7/95		N/A	Hydrocarbon-like odor
Hand Auger Borings - Groundwater (mg/L)				
HB-6	4/14/95	N/A	0.34 (D-4)	No odors
Monitoring Wells - Groundwater (mg/L)				
MW-12 (MW-1)	4/14/95	N/A	Product	Hydrocarbon-like odor
MW-13 (MW-2)	4/14/95	N/A	0.31	No odors
MW-14 (MW-3)	4/14/95	N/A	5.4 (D-3)	Hydrocarbon-like odor
MW-15 (MW-4)	4/14/95	N/A	1.3 (D-3, D-4)	No odors
MW-16 (MW-5)	4/14/95	N/A	1.7 (D-3, D-4)	No odors
MW-17 (MW-6)	4/14/95	N/A	0.57 (D-3)	No odors
MW-18 (MW-7)	4/14/95	N/A	Product	Hydrocarbon-like odor

Notes: MW-1 was installed by AGRA in 1994. The well was renamed as MW-12 to conform with the Port of Seattle Terminal 115 Well Numbering Program.
 MW-13 (MW-2) - Well number in accordance with Port of Seattle Well Numbering Program. (Laboratory reports).
 WTPH-D means Total Petroleum Hydrocarbons in the diesel range.
 All reported concentrations are mg/kg (soil) and mg/L (water) which approximate parts per million (ppm) concentrations.
 D-3 means results partially due to individual peak(s) eluting in the diesel/motor oil carbon range.
 D-4 means laboratory detected complex mixture of diesel and oil-range organics.
 N/A means Not Analyzed
 ND Means Not Detected



EXPLANATION	
B-1/MW-1 (MW-12)	◆ BORING/MONITORING WELL BY AGRA (1994). (RENAMED MW-12 BY THE PORT OF SEATTLE)
B-2	◆ SOIL BORING BY AGRA (1994)
HB-1	◆ HAND BORING BY AGRA (1994)
○	LAMP POST

DWGFDLEY-C REV-9506042057 DSK-00001007 TID-0.641816

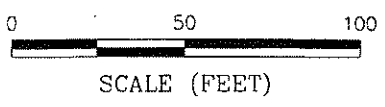
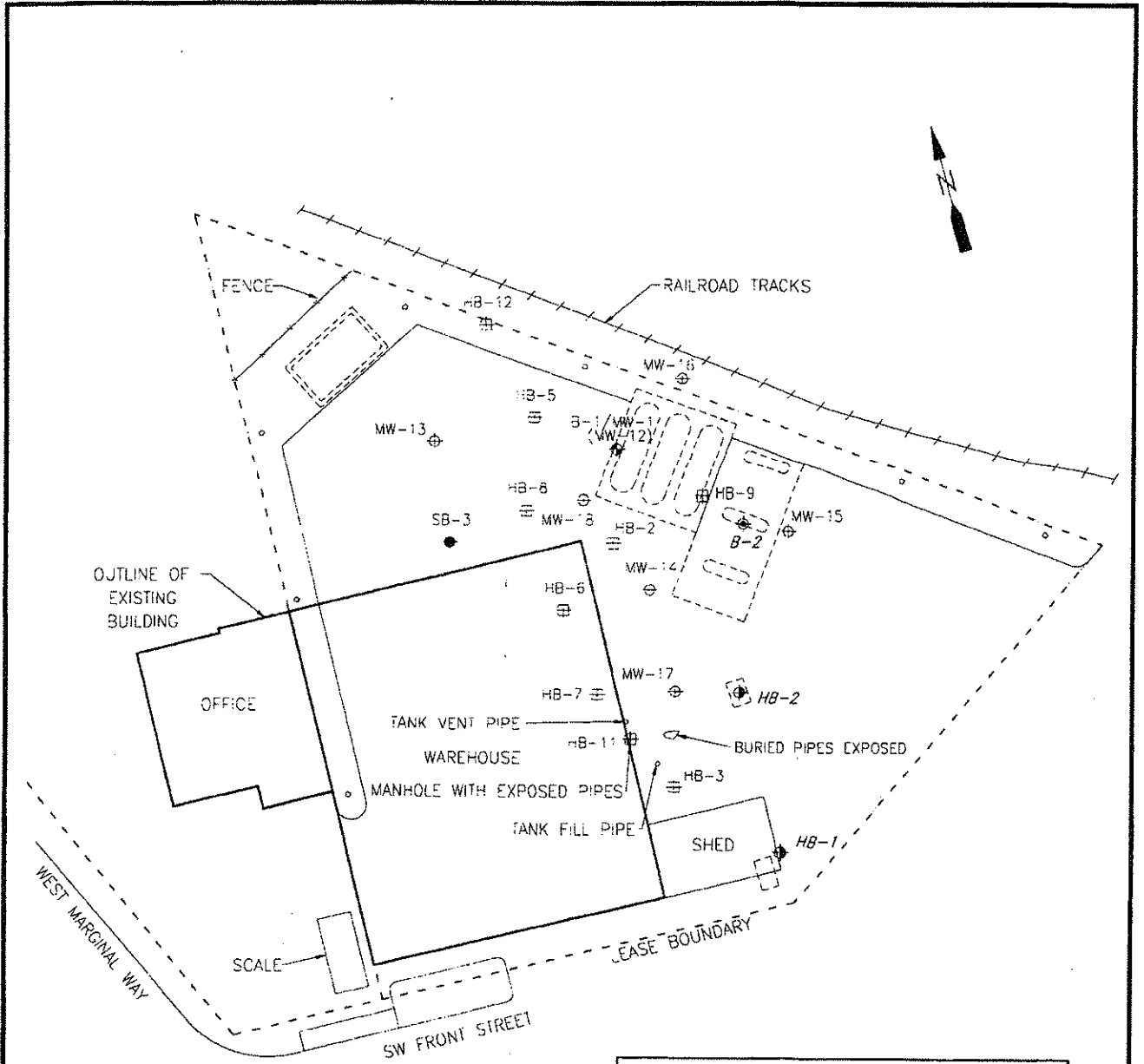
BASE MAP FROM AGRA 1994



GeoScience Management, Inc.
Environmental Consulting Services
 18608 89th Avenue NE
 Bothell, Washington 98011

W.O. _____
 DESIGN _____
 DRAWN PJM, HWS
 DATE 04/95
 SCALE 50'-1" A SIZE


FIGURE 2
PORT OF SEATTLE – TERMINAL 115
PROPOSED FOLEY CARDLOCK FACILITY
SEATTLE, WASHINGTON
PREVIOUS INVESTIGATION



EXPLANATION	
B-1/MW-1 (MW-12)	◆ BORING/MONITORING WELL BY AGRA (1994). (RENAMED MW-12 BY THE PORT OF SEATTLE)
B-2	● SOIL BORING BY AGRA (1994)
HB-1	⊕ HAND BORING BY AGRA (1994)
MW-13	⊕ SOIL BORING/MONITORING WELL
HA-5	⊕ HAND AUGER BORING
SB-3	● SOIL BORING
○	LAMP POST

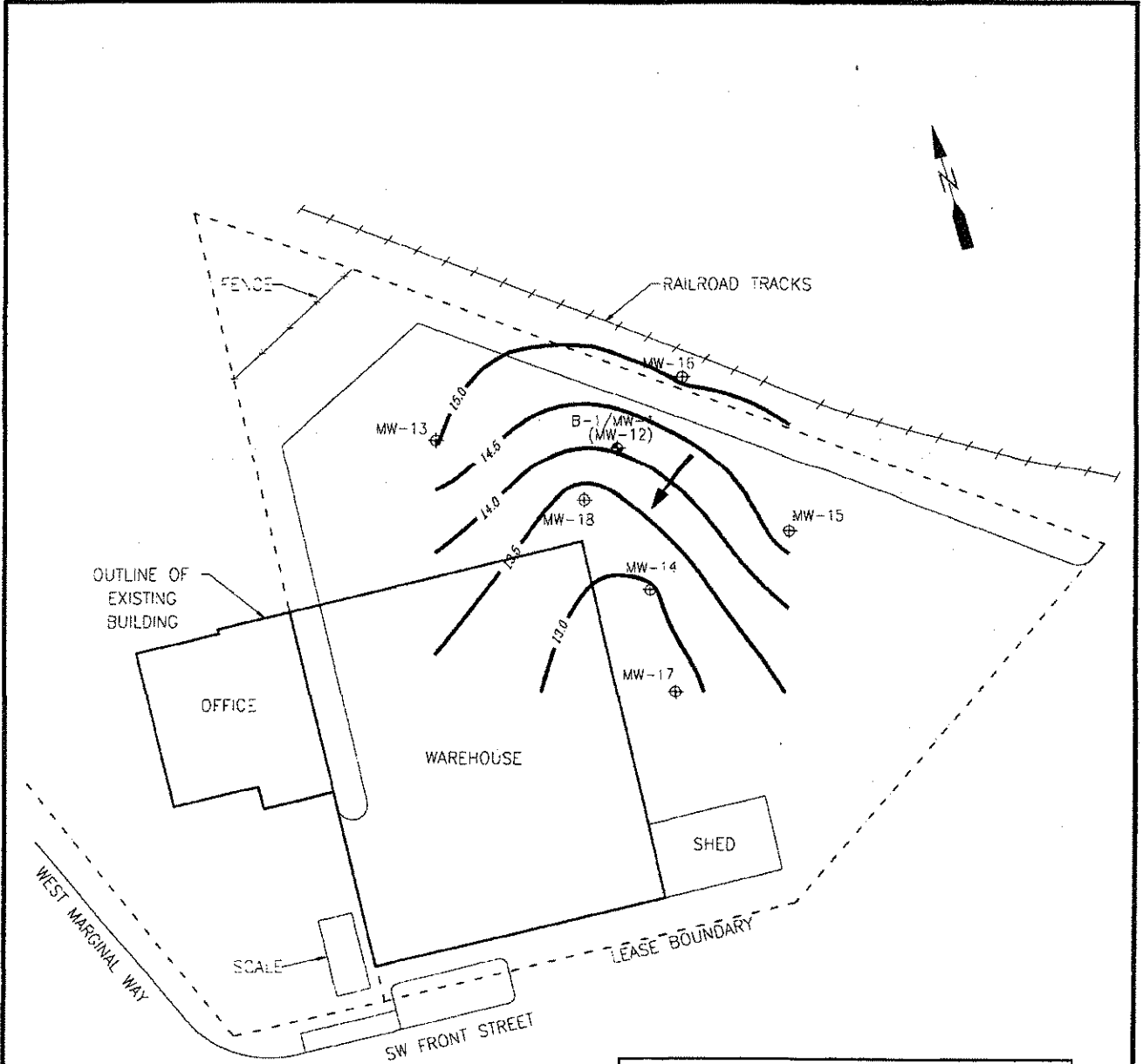
DWGFoley-C REV:950604.2057 DSK:00001007 T1D0.641816

BASE MAP FROM AGRA 1994

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 Bothell, Washington 98011

W.O. _____
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 DRAWN PJM, HWS
 DATE 04/95
 SCALE 50'-1" A SIZE

FIGURE 3
 PORT OF SEATTLE - TERMINAL 115
 PROPOSED FOLEY CARDLOCK FACILITY
 SEATTLE, WASHINGTON
 SITE AND EXPLORATION PLAN

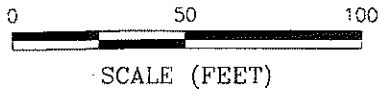


WEST MARGINAL WAY

SCALE

SW FRONT STREET


LEASE BOUNDARY



EXPLANATION	
B-1/MW-1 (MW-12) ◆	BORING/MONITORING WELL BY AGRA (1994). (RENAMED MW-12 BY THE PORT OF SEATTLE)
↓	WATER LEVEL ELEVATION CONTOURS AND FLOW DIRECTION. DATA WERE KRIGED AND SMOOTHED USING GOLDEN SOFTWARE.
MW-13 ⊕	SOIL BORING/MONITORING WELL
* MW-12 WAS NOT USED DUE TO PRESENCE OF PRODUCT	

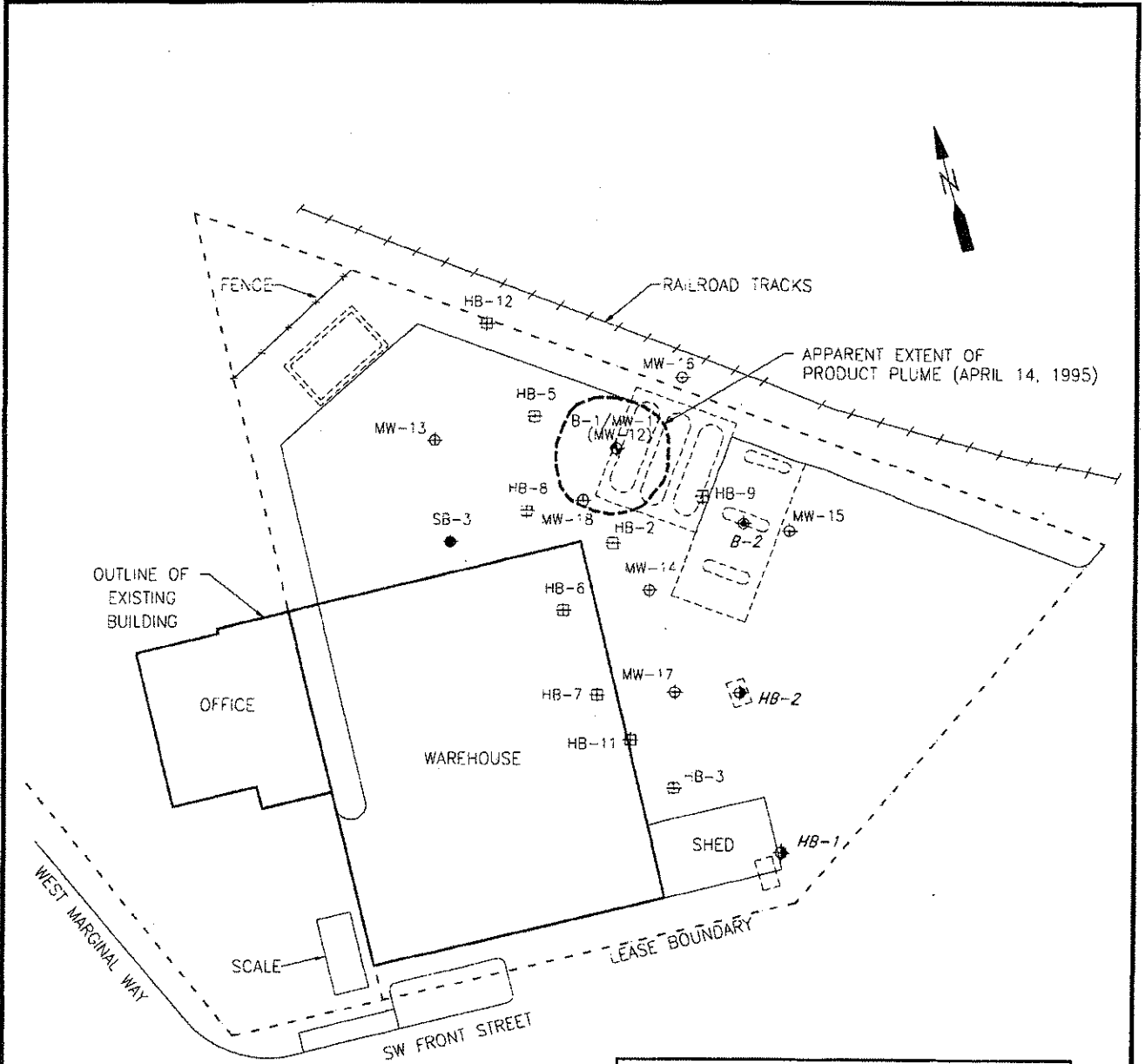
DWGFDLEY-C REV 950604.2057 DSK:00001C57 TID:641816

BASE MAP FROM AGRA 1994

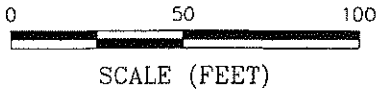
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Environmental Consulting Services
 18608 89th Avenue NE
 Bothell, Washington 98011

W.O. _____
 DESIGN _____
 DRAWN PJM, HWS
 DATE 04/95
 SCALE 50'-1" A SIZE

FIGURE 4
 PORT OF SEATTLE - TERMINAL 115
 PROPOSED FOLEY CARDLOCK FACILITY
 SEATTLE, WASHINGTON
 WATER LEVEL ELEVATIONS (APRIL-1995)




EXPLANATION	
B-1/MW-1 (MW-12)	✦ BORING/MONITORING WELL BY AGRA (1994). (RENAMED MW-12 BY THE PORT OF SEATTLE)
B-2	✦ SOIL BORING BY AGRA (1994)
HB-1	✦ HAND BORING BY AGRA (1994)
MW-13	✦ SOIL BORING/MONITORING WELL
-A-5	⊕ HAND AUGER BORING
SB-3	◆ SOIL BORING



DWG/OLEY-C REV:950604.2057 DSK:0001007 T10-0641816

BASE MAP FROM AGRA 1994

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 Bothell, Washington 98011

W.O. _____
 DESIGN _____
 DRAWN PJM, HWS
 DATE 04/95
 SCALE 50'-1" A SIZE

FIGURE 5
 PORT OF SEATTLE - TERMINAL 115
 PROPOSED FOLEY CARDLOCK FACILITY
 SEATTLE, WASHINGTON
 APPARENT EXTENT OF PRODUCT PLUME



GeoScience Management Inc.
Environmental Consulting Services
18608 89th Avenue NE
Bothell, Washington 98011

Geologic Borehole Log/Well Construction

Project Number
J-1002.01

Well No. /
MW-13 (MW-2)

Sheet
1 of 1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date April 7, 1995 to April 7, 1995
Driller/Equip Cascade Drilling / Hollow Stem Auger
Sampler/Method C. Generous / Split spoon
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elev NS
TOC Elevation 19.71
Northing 1114.95
Easting 30421.21
Hole Depth 14.00
Hole Diam 8"

Depth feet	Well Construction/ Borehole Abandonment	Sample Data			USCS	Material Graphic	Soil Description
		Name	PID	Blow Cnt/ft			
0 - 1.5	8" Flush mount Well vault with concrete seal					CONCRETE	
1.5 - 2.5	2" Sch 40 PVC					SW Gravelly Sand, fine to medium sand and fine to coarse gravel, brown, (loose) damp, no odor. (FILL)	
2.5 - 3.5	Bentonite seal					ML Clayey Silt, gray, stiff, moist, no odor. (FILL?)	
3.5 - 6.5		MW2@5		16			
6.5 - 7.5						SM Sandy Silt, fine sand, gray, very stiff, wet, no odor. (FILL?)	
7.5 - 12.5	.01' screen 10/20 silica sand	MW2@7.5		22			
12.5 - 14.0	Slip cap w/ SS screw	MW2@12.5		11		ML Clayey Silt, brown, stiff, roots and wood fragments, moist to wet, no odor.	
14.0						Bottom of boring at 14.0 ft.	

NOTES: Samples were collected using a 3" OD split spoon sample with a 300 lb hammer. Hand excavated from 0 to 4 feet.



Water Level (At Time of Drilling)

Figure No: B-1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date April 7, 1995 to April 7, 1995
Driller/Equip Cascade Drilling / Hollow Stem Auger
Sampler/Method C. Generous / Split spoon
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elevation
TOC Elevation
North
East
Hole Depth
Hole Diameter

Depth feet	Well Construction/ Borehole Abandonment	Sample Data				Material Graphic	Soil Description
		Name	PID	Blow Cntz/ft	USCS		
0 - 1	8" Flush mount Well vault with concrete seal					Asphalt	
1 - 4	2" Sch 40 PVC Bentonite seal					Pea Gravel	
4 - 6.5		MW3@5		14	ML	Silty Sand, gray, (medium dense), slightly moist, no odor.	
6.5 - 7.5						Wet at 6.5 feet.	
7.5 - 8	.01' screen 10/20 silica sand	MW3@7.5		15	SM	Sandy Silt, with fine sand, gray, stiff, wet, petroleum odor. (FILL?)	
8 - 12.5		MW3@12.5		19	ML	Clayey Silt, brown, (very stiff), roots and organic material. no odor.	
12.5 - 14	Slip cap w/ SS screw					Bottom of boring at 14.0 ft.	

NOTES: Samples were collected using a 3" OD split spoon sample with a 300 lb hammer. Hand excavated from 0 to 4 feet.



GeoScience Management Inc.
Environmental Consulting Services
18608 89th Avenue NE
Bothell, Washington 98011

Geologic Borehole Log/Well Construction

Project Number
J-1002.01

Well Number
MW-15 (MW-4)

Sheet
1 of 1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date April 7, 1995 to April 7, 1995
Driller/Equip Cascade Drilling / Hollow Stem Auger
Sampler/Method C. Generous / Split spoon
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elev NS
TOC Elevation 19.53
Northing 1072.37
Easting 30526.70
Hole Depth 14.00
Hole Diam 8"

Depth feet	Well Construction/ Borehole Abandonment	Sample Data			USCS	Material Graphic	Soil Description
		Name	PID	Blow Cnt/ft			
0 - 1.5	8" Flush mount Well vault with concrete seal				SM	Asphalt Pea Gravel Silty Sand, gray, moist, no odor. (FILL)	
1.5 - 3.5	2" Sch 40 PVC Bentonite seal						
3.5 - 4.5					ML	Clayey Silt, gray, (stiff), moist, no odor. (FILL)	
4.5 - 6.5		MW4@5		9			
6.5 - 7.0					ML	Wet at 7.0 feet.	
7.0 - 8.5		MW4@7.5		11		Sandy Silt, gray, (stiff), wet, no odor (FILL?)	
8.5 - 12.5	.01' screen 10/20 silica sand						
12.5 - 14.0		MW4@12.5		18	ML	Silt, with fine sand and clay, gray, stiff, wet, slight petroleum-like odor.	
14.0	Slip cap w/ SS screw					Bottom of boring at 14.0 ft.	

NOTES: Samples were collected using a 3" OD split spoon sample with a 300 lb hammer. Hand excavated from 0 to 4 feet.



Water Level (At Time of Drilling)

Figure No: B-3



GeoScience Management Inc.
Environmental Consulting Services
18608 89th Avenue NE
Bothell, Washington 98011

Geologic Borehole Log/Well Construction

Project Number
J-1002.01

Well Number
MW-16 (MW-5)

Sheet
1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date April 7, 1995 to April 7, 1995
Driller/Equip Cascade Drilling / Hollow Stem Auger
Sampler/Method C. Generous / Split spoon
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elevation
TOC Elevation
North
East
Hole Diameter
Hole Diameter

Depth feet	Well Construction/ Borehole Abandonment	Sample Data				Material Graphic	Soil Description
		Name	PID	Blow Cnt/ft	USCS		
0 - 2	8" Flush mount Well vault with concrete seal					SW	Silty/Gravel, brown, (loose), moist, no odor. (FILL)
2 - 4	2" Sch 40 PVC Bentonite seal						
4 - 7.0		MW5@5		10		SM	Silty Sand, fine to medium, mottled brown white and moist, no odor. (FILL)
7.0 - 8.0							Wet at 7.0 feet.
8.0 - 12.5	.01' screen 10/20 silica sand	MW5@7.5		11		SM	Silty Sand, with gravel, gray, medium dense, wet, no odor.
12.5 - 14.0	Slip cap w/ SS screw	MW5@12.5		13		ML	Clayey SIL, gray/brown, stiff, cohesive, roots and or moist to wet, no odor.
14.0							Bottom of boring at 14.0 ft.

NOTES: Samples were collected using a 3" OD split spoon sample with a 300 lb hammer. Hand excavated from 0 to 4 feet.



Water Level (At Time of Drilling)

Figure No: 1



GeoScience Management Inc.
Environmental Consulting Services
18608 89th Avenue NE
Bothell, Washington 98011

Geologic Borehole Log/Well Construction

Project Number
J-1002.01

Well Number
MW-17 (MW-6)

Sheet
1 of 1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date April 7, 1995 to April 7, 1995
Driller/Equip Cascade Drilling / Hollow Stem Auger
Sampler/Method C. Generous / Split spoon
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elev NS
TOC Elevation 19.81
Northing 1025.97
Easting 30488.27
Hole Depth 14.00
Hole Diam 8"

Depth feet	Well Construction/ Borehole Abandonment	Sample Data			USCS	Material Graphic	Soil Description
		Name	PID	Blow Cnt/ft			
0 - 1.5	8" Flush mount Well vault with concrete seal					CONCRETE	
1.5 - 3.5	2" Sch 40 PVC Bentonite seal				SW	Sand and Gravel, brown, (loose to medium dense), moist, no odor. (FILL)	
3.5 - 7.5		MW6@5		20			
7.5 - 12.5	.01' screen 10/20 silica sand	MW6@7.5		22	ML	Clayey Silt, gray, very stiff, moist to wet, no odor (FILL) Wet at 8.0 feet.	
12.5 - 14.0	Slip cap w/ SS screw	MW6@12.5		27	GP ML	Pea Gravel (FILL) Clayey Silt, brown, very stiff, roots and organic matter, moist to wet, no odor.	
14.0						Bottom of boring at 14.0 ft.	

NOTES: Samples were collected using a 3" OD split spoon sample with a 300 lb hammer. Hand excavated from 0 to 4 feet.



Water Level (At Time of Drilling)

Figure No: B-5



GeoScience Management Inc.
Environmental Consulting Services
18608 89th Avenue NE
Bothell, Washington 98011

Geologic Borehole Log/Well Construction

Project Number
J-1002.01

Well Number
MW-18 (v1W-7)

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date April 7, 1995 to April 7, 1995
Driller/Equip Cascade Drilling / Hollow Stem Auger
Sampler/Method C. Generous / Split spoon
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elevation
TOC Elevation
North East
Hole Diameter

Depth feet	Well Construction/ Borehole Abandonment	Sample Data			USCS	Material Graphic	Soil Description
		Name	PID	Blow Cnt/ft			
0 - 1	8" Flush mount Well vault with concrete seal				SM	CONCRETE	
1 - 4	2" Sch 40 PVC Bentonite seal					Silty Sand, brown, (medium dense), moist, brick fr (FILL)	
4 - 5.5		MW7@5		19	ML	Clayey Silt, gray, (very stiff), moist to wet, petroleu (FILL?)	
5.5 - 7.5		MW7@7.5		22	SM	Silty Sand, gray, moist to wet, petroleum-like odor	
7.5 - 8.0	.01' screen					Wet at 8.0 feet.	
8.0 - 12	10/20 silica sand						
12 - 13.5		MW7@12.5		11	ML	Clayey Silt, gray, (stiff), wet, petroleum-like odor.	
13.5 - 14	Slip cap w/ SS screw					Bottom of boring at 14.0 ft.	

NOTES: Samples were collected using a 3" OD split spoon sample with a 300 lb hammer. Hand excavated from 0 to 4 feet.

Water Level (At Time of Drilling)

Figure No:



GeoScience Management Inc.
Environmental Consulting Services
18608 89th Avenue NE
Bothell, Washington 98011

Geologic Borehole Log/Well Construction

Project Number
J-1002.01

Well No.
HB- 4

Sheet
1 of 1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date March 22, 1995 to March 22, 1995
Driller/Equip C. Generous / Hand Auger
Sampler/Method C. Generous / Hand Auger
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elev NS
TOC Elevation NS
Northing 0.00
Easting 0.00
Hole Depth 7.00
Hole Diam 3"

Depth feet	Well Construction/ Borehole Abandonment	Sample Data			USCS	Material Graphic	Soil Description
		Name	PID	Blow Cnt/ft			
0 - 0.5	Concrete					Asphalt	
0.5 - 1.5						Pea Gravel	
1.5 - 2.0					ML	Sandy Silt, brick fragments, brown, (stiff), moist, no odor (FILL).	
2.0 - 4.5	Hydrated bentonite chips					Becomes gray at 2 ft.	
4.5 - 6.0					ML	Clayey Silt, gray, (stiff), moist to wet, no odor. (FILL?)	
6.0 - 6.3		HB2@6	51			Petroleum-like odor at 6 ft. Wet at 6.3 feet.	
6.3 - 7.0		HB2@6.5	79				
7.0 - 7.0						Bottom of boring at 7.0 ft.	

NOTES: Samples were collected using a 3" OD hand auger.



Water Level (At Time of Drilling)

Figure No: B-7



GeoScience Management Inc.
Environmental Consulting Services
18608 89th Avenue NE
Bothell, Washington 98011

Geologic Borehole Log / Well Construction

Project Number
J-1002.01

Well Number
HB-3

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date March 22, 1995 to March 22, 1995
Driller/Equip C. Generous / Hand Auger
Sampler/Method C. Generous / Hand Auger
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elevation
TOC Elevation
North
East
Hole Diameter
Hole Depth

Depth feet	Well Construction/ Borehole Abandonment	Sample Data				Material Graphic	Soil Description
		Name	PID	Blow Cnt/ft	USCS		
0	Concrete					Concrete	
0.5					ML	Sandy Silt, brick fragments, brown, (stiff), moist, r	
2							
3	Hydrated bentonite chips	HB3@3					Becomes gray at 3 ft.
4							
6		HB3@6			ML	Clayey Silt, gray, (stiff), moist to wet, no odor. (FI)	
7						Organic matter.	
7.0						Wet at 7.0 feet.	
7.0						Bottom of boring at 7.0 ft.	
8							
10							
12							
14							

NOTES: Samples were collected using a 3" OD hand auger.



Water Level (At Time of Drilling)

Figure No:



GeoScience Management Inc.
Environmental Consulting Services
18608 89th Avenue NE
Bothell, Washington 98011

Geologic Borehole Log/Well Construction

Project Number
J-1002.01

Well No
HB- 5

Sheet
1 of 1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date March 22, 1995 to March 22, 1995
Driller/Equip C. Generous / Hand Auger
Sampler/Method C. Generous / Hand Auger
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elev NS
TOC Elevation NS
Northing 0.00
Easting 0.00
Hole Depth 5.00
Hole Diam 3"

Depth feet	Well Construction/ Borehole Abandonment	Sample Data			USCS	Material Graphic	Soil Description
		Name	PID	Blow Cnt/ft			
0 - 1	Concrete				SM	Concrete	
1 - 4	Hydrated bentonite chips	HB5@3		X		Sand, fine to coarse with small, gravel and brick fragments, brown, (loose), moist, no odor (FILL).	
4 - 5		HB5@4		X	ML	Clayey Silt, (stiff), moist to wet, no odor. (FILL?) Petroleum-like odor, wet at 4 ft	
5.0						Bottom of boring at 5.0 ft.	
6							
8							
10							
12							
14							

NOTES: Samples were collected using a 3" OD hand auger.



Water Level (At Time of Drilling)

Figure No: B-9



GeoScience Management Inc.
Environmental Consulting Services
18608 89th Avenue NE
Bothell, Washington 98011

Geologic Borehole Log/Well Construction

Project Number
J-1002.01

Well Number
HB-6

Sheet
1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date March 23, 1995 to March 23, 1995
Driller/Equip C. Generous / Hand Auger
Sampler/Method C. Generous / Hand Auger
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elevation
TOC Elevation
North
East
Hole Depth
Hole Diameter

Depth feet	Well Construction/ Borehole Abandonment	Sample Data					Soil Description
		Name	PID	Blow Cnt/ft	USCS	Material Graphic	
0 - 1	Concrete					Concrete	Concrete
1 - 7	Hydrated bentonite chips					ML	Silt, brown, (stiff), moist, no odor (FILL).
7		HB6@7					Wet at 7 feet, gray.
7 - 8						ML	Sandy Silt, fine gravel, gray, (stiff), wet, no odor.
8							Bottom of boring at 8.0 ft.
10							
12							
14							

NOTES: Samples were collected using a 3" OD hand auger.



Water Level (At Time of Drilling)

Figure No.:



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Bothell, Washington 98011

Geologic Borehole Log/Well Construction

Project Number
J-1002.01

Well No.
HB- /

Sheet
1 of 1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date March 23, 1995 to March 23, 1995
Driller/Equip C. Generous / Hand Auger
Sampler/Method C. Generous / Hand Auger
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elev NS
TOC Elevation NS
Northing 0.00
Easting 0.00
Hole Depth 9.00
Hole Diam 3"

Depth feet	Well Construction/ Borehole Abandonment	Sample Data			USCS	Material Graphic	Soil Description
		Name	PID	Blow Cnt/ft			
0 - 1	Concrete				ML	Concrete	
1 - 3.5	Hydrated bentonite chips	HB7@3			ML	Sandy Silt with Small Gravel, brown, (stiff), moist, no odor (FILL).	
3.5 - 8		HB7@7				Clayey Silt, brown, (stiff), moist, no odor. (FILL?)	Becomes gray at 5 ft.
8 - 9		HB7@8.5					Wet at 8 feet.
9.0							Bottom of boring at 9.0 ft.
10 - 14							

NOTES: Samples were collected using a 3" OD hand auger.



Water Level (At Time of Drilling)

Figure No: B-11



GeoScience Management Inc.
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Bothell, Washington 98011

Geologic Borehole Log/^WWell Construction

Project Number
J-1002.01

Well Number
HB-8

Sheet
1 of 1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date March 23, 1995 to March 23, 1995
Driller/Equip C. Generous / Hand Auger
Sampler/Method C. Generous / Hand Auger
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elevation
TOC Elevation
Northing
Easting
Hole Depth
Hole Diameter

Depth feet	Well Construction/ Borehole Abandonment	Sample Data			USCS	Material Graphic	Soil Description
		Name	PID	Blow Cnt/ft			
0 - 1	Concrete				Concrete	Concrete	
1 - 2					ML	Clayey Silt with brick fragments, gray, (stiff), moist, Petroleum-like odor at 2 ft.	
2 - 4	Hydrated bentonite chips	HB8@3	38	☒	ML	Sandy Silt, gray, (stiff), moist to wet, petroleum-like Wet at 4 feet.	
4 - 5		HB8@4.5	71	☒			
5 - 14						Bottom of boring at 5.0 ft.	

NOTES: Samples were collected using a 3" OD hand auger.



Water Level (At Time of Drilling)

Figure No: E



GeoScience Management Inc.
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Geologic Borehole Log/SM Well Construction

Project Number
J-1002.01

Well Number
HB-9

Sheet
1 of 1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date March 23, 1995 to March 23, 1995
Driller/Equip C. Generous / Hand Auger
Sampler/Method C. Generous / Hand Auger
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elev NS
TOC Elevation NS
Northing 0.00
Easting 0.00
Hole Depth 7.00
Hole Diam 3"

Depth feet	Well Construction/ Borehole Abandonment	Sample Data					Soil Description
		Name	PID	Blow Cnt/ft	USCS	Material Graphic	
0 - 1	Concrete					Concrete	Concrete
1 - 2					SM		Fine to Medium Sand with Gravel, brown, (loose), wet, no odor (FILL).
2 - 7	Hydrated bentonite chips	HB9@3			ML		Clayey Silt, gray, (stiff), moist, no odor. Wet at 5 feet.
5.5 - 7		HB9@5.5					
7.0							Bottom of boring at 7.0 ft.
8 - 14							

NOTES: Samples were collected using a 3" OD hand auger.



Water Level (At Time of Drilling)

Figure No: B-13



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18608 89th Avenue NE
Bothell, Washington 98011

Geologic Borehole Log/Well Construction

Project Number
J-1002.01

Well Number
HB-11

Sheet
1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date March 23, 1995 to March 23, 1995
Driller/Equip C. Generous / Hand Auger
Sampler/Method C. Generous / Hand Auger
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elevation
TOC Elevation
North
East
Hole Depth
Hole Diameter

Depth feet	Well Construction/ Borehole Abandonment	Sample Data					Soil Description
		Name	PID	Blow Cnt/ft	USCS	Material Graphic	
0 - 1	Concrete					ML	Clayey Silt, brown, (stiff), moist, no odor (FILL?). Wet at 7 feet. Bottom of boring at 8.0 ft.
1 - 2							
2 - 3							
3 - 4	Hydrated bentonite chips	HB11@3		⊗			
4 - 5							
5 - 6							
6 - 7							
7 - 8		HB11@7		⊗			
8 - 10							
10 - 12							
12 - 14							

NOTES: Samples were collected using a 3" OD hand auger.

Water Level (At Time of Drilling)

Figure No. :



GeoScience Management Inc.
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Geologic Borehole Log/^WWell Construction

Project Number
J-1002.01

Well Number
HB-12

Sheet
1 of 1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date April 19, 1995 to April 19, 1995
Driller/Equip C. Generous / Hand Auger
Sampler/Method C. Generous / Hand Auger
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elev NS
TOC Elevation NS
Northing 0.00
Easting 0.00
Hole Depth 4.00
Hole Diam 3"

Depth feet	Well Construction/ Borehole Abandonment	Sample Data					Soil Description
		Name	PID	Blow Cnt/ft	USCS	Material Graphic	
0	Concrete				SW		Sand, fine to coarse gravel, brown, (loose), moist, no odor (FILL).
2	Hydrated bentonite chips	HB12@3 HB12@3.5					Wet at 4 feet, no odor. Bottom of boring at 4.0 ft.
6							
8							
10							
12							
14							

NOTES: Samples were collected using a 3" OD hand auger.



Water Level (At Time of Drilling)

Figure No: B-15



GeoScience Management Inc.
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Bothell, Washington 98011

Geologic Borehole Log/Well Construction

Project Number
J-1002.01

Well Identifier
SB-3

Sheet
1

Project Name Port of Seattle
Project Location Terminal 115
Start/End Date April 7, 1995 to April 7, 1995
Driller/Equip Cascade Drilling / Hollow Stem Auger
Sampler/Method C. Generous / Split spoon
Survey Datum Seattle Tideland Grid & Mean Low-Low Water elevation

Surface Elevation
TOC Elevation
North
East
Hole Depth
Hole Diameter

Depth feet	Well Construction/ Borehole Abandonment	Sample Data				USCS	Material Graphic	Soil Description
		Name	PID	Blow Cnt/ft				
0 - 1	Concrete					ML	CONCRETE	
1 - 4	Hydrated bentonite chips							Clayey Silt, stiff, gray, moist with rubble fragments.
5 - 6		SB3@5		13				
7 - 8		SB3@7.5		18		ML		Sandy Silt, gray, very stiff, wet, no odor. (FILL?)
9.0								Bottom of boring at 9.0 ft.
10 - 14								

NOTES: Samples were collected using a 3" OD split spoon sample with a 300 lb hammer. Hand excavated from 0 to 4 feet.



Water Level (At Time of Drilling)

Figure No: