LEGEND

- COBBLES AND GRAVEL
- SANDY GRAVEL
- GRAVELLY SAND
- SAND
- DIAMICTON
- SILT - CLAY
- PEAT
- BEDROCK
- SILTY

DRILLING METHOD : Air Rotary

SAMPLING METHOD : Continuous

WATER LEVEL				
DATE				
TIME				

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
		As Above:	
	155	Brown, medium to coarse SAND--Qvds	
	160		▼
	165		
	170		
	175		

NOTES:

PROJECT NO. 8412-08
BORING NO. SS&G#1
ELEVATION 505'
PAGE 7 **OF** 15

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
• KIRKLAND, WASHINGTON 98033 • 206-827-7701

LEGEND

- COBBLES AND GRAVEL
- SANDY GRAVEL
- GRAVELLY SAND
- SAND
- DIAMICTON
- SILT - CLAY
- PEAT
- BEDROCK
- SILTY

DRILLING METHOD : Air Rotary

SAMPLING METHOD : Continuous

WATER LEVEL				
DATE				
TIME				

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
	180	As Above	
	185	Grey, silty SAND with some clay--Qvds	
	190		
	195		
	200	Brown, medium SAND --Qvds	

NOTES:

PROJECT NO. 8412-06
BORING NO. SS&G#1
ELEVATION 505'
PAGE 8 **OF** 15

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
KIRKLAND, WASHINGTON 98033 • 206-827-7701

LEGEND

 COBBLES AND GRAVEL

 SANDY GRAVEL

 GRAVELLY SAND

 SAND

 DIAMICTON

 SILT - CLAY

 PEAT

 BEDROCK

 SILTY

DRILLING METHOD: Air Rotary

SAMPLING METHOD: Continuous

WATER LEVEL				
DATE				
TIME				

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
	205	As Above	
	210		
	215		
	220		
	225		

NOTES:

PROJECT NO. 8412-06
BORING NO. SS&G#1
ELEVATION 505'
PAGE 9 OF 15

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
• KIRKLAND, WASHINGTON 98033 • 206-827-7701

LEGEND

- COBBLES AND GRAVEL
- SANDY GRAVEL
- GRAVELLY SAND
- SAND
- DIAMICTON
- SILT - CLAY
- PEAT
- BEDROCK
- SILTY

DRILLING METHOD : Air Rotary

SAMPLING METHOD : Continuous

WATER LEVEL				
DATE				
TIME				

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
		As Above	
	230	Grey, silty very fine SAND --Qvds	
	235	Grey, silty CLAY with scattered GRAVEL --Qvds	
	240		
	245	Interbedded grey SILT and SAND --Qpvu	
	250		

NOTES:

PROJECT NO. 8412-06
BORING NO. SS&G#1
ELEVATION 505'
PAGE 10 **OF** 15

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
• KIRKLAND, WASHINGTON 98033 • 206-827-7701

LEGEND

COBBLES AND GRAVEL
SANDY GRAVEL
GRAVELLY SAND
SAND
DIAMICTON
SILT - CLAY
PEAT
BEDROCK
SILTY

DRILLING METHOD : Air Rotary

SAMPLING METHOD : Continuous

WATER LEVEL				
DATE				
TIME				

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
	255	As Above	
	260		
	265	Grey to brown GRAVEL with Cobbles --Qpvu	
	270		
	275		

NOTES:

PROJECT NO. 8412-06
BORING NO. SS&G#1
ELEVATION 505'
PAGE 11 OF 15

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
• KIRKLAND, WASHINGTON 98033 • 206-827-7701

LEGEND

- COBBLES AND GRAVEL
- SANDY GRAVEL
- GRAVELLY SAND
- SAND
- DIAMICTON
- SILT - CLAY
- PEAT
- BEDROCK
- SILTY

DRILLING METHOD : Air Rotary

SAMPLING METHOD : Continuous

WATER LEVEL				
DATE				
TIME				

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
	280	Grey, silty, very fine SAND--Qpvu	
	285	Interbedded, grey, silty SAND with brown sandy GRAVEL--Qpvu	
	290		
	295		
	300	Grey SILT--Qpvu	

NOTES:

PROJECT NO. 8412-06
BORING NO. SS&G#1
ELEVATION 505'
PAGE 12 **OF** 15

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
KIRKLAND, WASHINGTON 98033 • 206-827-7701

LEGEND

- COBBLES AND GRAVEL
- SANDY GRAVEL
- GRAVELLY SAND
- SAND
- DIAMICTON
- SILT - CLAY
- PEAT
- BEDROCK
- SILTY

DRILLING METHOD : Air Rotary

SAMPLING METHOD : Continuous

WATER LEVEL				
DATE				
TIME				

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
	305	Silty, fine SAND with scattered GRAVEL and abundant wood chips	
	310		
	315		
	320		
	325		

NOTES:

PROJECT NO. 8412-06
BORING NO. SS&G#1
ELEVATION 505'
PAGE 13 **OF** 15

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
137½ PARK LANE • KIRKLAND, WASHINGTON 98033 • 206-827-7701

LEGEND

- COBBLES AND GRAVEL
- SANDY GRAVEL
- GRAVELLY SAND
- SAND
- DIAMICTON
- SILT - CLAY
- PEAT
- BEDROCK
- SILTY

DRILLING METHOD : Air Rotary

SAMPLING METHOD : Continuous

WATER LEVEL				
DATE				
TIME				

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
	330	As Above	
	335		
	340		
	345	Dry, very silty, gravelly, fine SAND to SANDY GRAVEL	
	350		

NOTES:

PROJECT NO. 8412-06
BORING NO. SS&G#1
ELEVATION 505'
PAGE 14 OF 15

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
137½ PARK LANE • KIRKLAND, WASHINGTON 98033 • 206-827-7701

LEGEND

- COBBLES AND GRAVEL
- SANDY GRAVEL
- GRAVELLY SAND
- SAND
- DIAMICTON
- SILT - CLAY
- PEAT
- BEDROCK
- SILTY

DRILLING METHOD : Air Rotary

SAMPLING METHOD : Continuous

WATER LEVEL				
DATE				
TIME				

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
	355	As Above	
	360		
	365	Gravelly, medium to coarse SAND	
	370		
TD	375		

NOTES:

PROJECT NO. 8412-06
BORING NO. SS&G#1 SS46#1
ELEVATION 505'
PAGE 15 **OF** 15

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
137½ PARK LANE • KIRKLAND, WASHINGTON 98033 • 206-827-7701

LEGEND


SANDY GRAVEL WITH COBBLES


SANDY GRAVEL


POORLY SORTED SAND


WELL SORTED SAND


DIAMICTON


SILT - CLAY


PEAT


BEDROCK


SILTY

DRILLING METHOD: Air Rotary

SAMPLING METHOD: Grab

WATER LEVEL				
DATE				
TIME				

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
	10		
	20	Brown gravel and coarse sand.	
	30	Brown gravel with sand, high % of fractured rock chips.	
	40	Brown gravel with coarse sand.	
	50	Brown gravel/cobbles with coarse sand, rock fragments.	

NOTES: 8" surface casing to 20'; 6" casing surface to TD; 8" casing later pulled. Surface seal from 0-20'.

PROJECT NO. 9206-15W
BORING NO. SS&G #3
ELEVATION ~476
PAGE 1 **OF** 4

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
• KIRKLAND, WASHINGTON 98033 • 206-827-7701

LEGEND


SANDY GRAVEL WITH COBBLES


SANDY GRAVEL


POORLY SORTED SAND


WELL SORTED SAND


DIAMICTON


SILT - CLAY


PEAT


BEDROCK


SILTY

DRILLING METHOD: Air Rotary

SAMPLING METHOD: Grab

WATER LEVEL				
DATE				
TIME				

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
	60	Brown sandy gravel with cobbles, rock fragments	
	70	Brown gravel with cobbles with interbedded coarse sand, rock fragments.	
	80	Gray-brown gravel with coarse sand, rock fragments.	
	90	Gray gravel with rock fragments with trace sand.	
	100	Gray gravel with rock fragments with trace sand.	

NOTES:

PROJECT NO. 9206-15W
BORING NO. SS&G #3
ELEVATION ~476
PAGE 2 **OF** 4

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
• KIRKLAND, WASHINGTON 98033 • 206-827-7701

LEGEND


SANDY GRAVEL WITH COBBLES


SANDY GRAVEL


POORLY SORTED SAND


WELL SORTED SAND


DIAMICTON


SILT - CLAY


PEAT


BEDROCK


SILTY

DRILLING METHOD: Air Rotary

SAMPLING METHOD: Grab

WATER LEVEL				
DATE				
TIME				

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
	100	Gray gravel with rock fragments with trace sand.	
	110	Brown coarse sand and gravel with some rock fragments.	
	120	Brown coarse sand with some gravel and rock fragments.	
	130	Brown coarse sand with rock fragments and some gravel.	
	140	Grayish-brown gravel with rock fragments and trace sand.	
	150	Gray gravel with sand and rock fragments and some silt	

NOTES:

PROJECT NO. 9206-15W
BORING NO. SS&G #3
ELEVATION ~476
PAGE 3 **OF** 4

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
• KIRKLAND, WASHINGTON 98033 • 206-827-7701

LEGEND

- SANDY GRAVEL WITH COBBLES
- SANDY GRAVEL
- POORLY SORTED SAND
- WELL SORTED SAND
- DIAMICTON
- SILT - CLAY
- PEAT
- BEDROCK
- SILTY

DRILLING METHOD: Air Rotary

SAMPLING METHOD: Grab

		while drilling	
WATER LEVEL	~70	163.25	
DATE	6/25/92	6/26/92	
TIME	12:10	1:30pm	

STRATA	DEPTH	DESCRIPTION	WATER TABLE(S)
		@155 dark brown fine to medium sand with some scattered gravel.	
	160	Dark brown medium sand and thin layers of silt inter-bedded in gray gravel with coarse sand.	
		@165 dark brown medium sand.	▼
	170	Dark brown medium sand, wet.	▽ WD
		@175 brown fine to medium sand and silt, saturated.	
	180	Brown fine to medium sand, silt, and clay, woody fragments, saturated.	
		@185 brown fine sand and silt, saturated.	
	190	Gray-brown fine to coarse sand with some silt.	
		@195 brown fine to coarse sand and silt.	
	200	Brown fine to medium sand.	

NOTES: 10' of No 12 screen installed from 188'-198'.

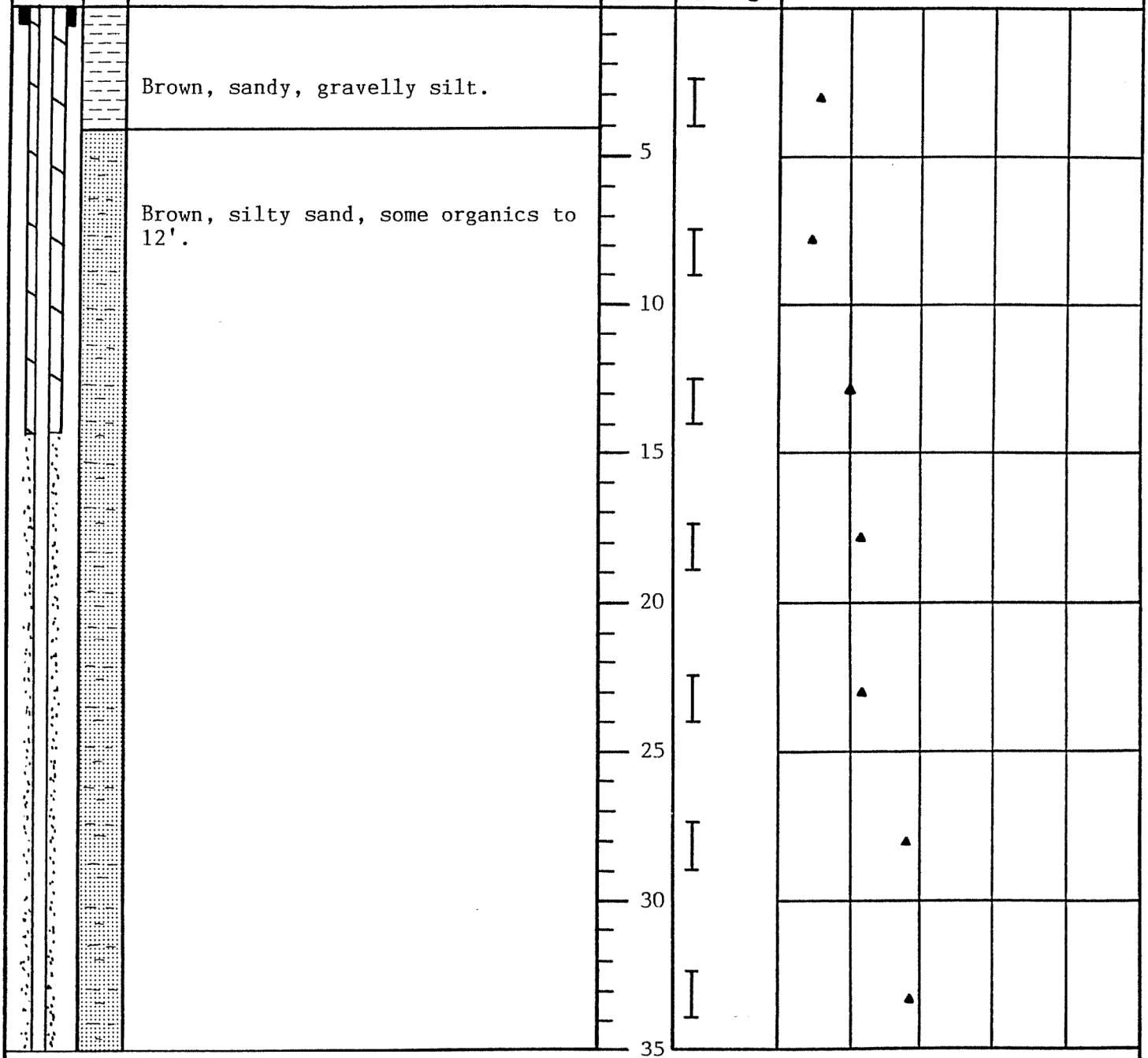
PROJECT NO. 9206-15W
BORING NO. SS&G #3
ELEVATION ~476
PAGE 4 **OF** 4

DRILLING LOG

ASSOCIATED EARTH SCIENCES, INC.
ECONOMIC GEOLOGISTS / ENGINEERING GEOLOGISTS
• KIRKLAND, WASHINGTON 98033 • 206-827-7701

EXPLORATION BORING LOG

EB-1
Page 1 of 2



Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

W92229A	10/92	

Snoqualmie Shallow
Aquifer Evaluation
Snoqualmie, Washington

ASSOCIATED EARTH SCIENCES, INC

EXPLORATION BORING LOG

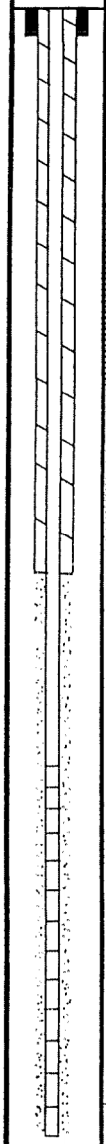
WELL COMPL.	GRAPH	SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENERATION RESISTANCE Blows/Foot 10 20 30 40
		Brown, silty sand.	40			
		Brown, fine sandy silt.				
		BOH @ 44'	45			
		Note: 2" PVC - casing; 10 slot, 2" PVC - screen; 12" flush monument; sand packed. Surface El.: 421'				

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Snoqualmie Shallow Aquifer Evaluation Snoqualmie, Washington	W92229A	10/92

ASSOCIATED EARTH SCIENCES, INC

EXPLORATION BORING LOG EB-2



SEDIMENT DESCRIPTION	DEPTH
Medium brown, organic silt with scattered, fine sand.	
Tan, fine sand with organic silt.	5
Brown, gravelly, fine to medium sand.	10
Heavily oxidized at 17½'-19'.	15
@26' wood fragment.	20
	25
BOH @ 29'	30

Note: 2" PVC - casing;
10 slot, 2" PVC - screen;
12" flushed monument;
sandpacked.
Surface El.: 416.5'

SAMPLE | GROUND WATER

STANDARD PENERATION RESISTANCE
Blows/Foot
10 20 30 40

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Snoqualmie Shallow Aquifer Evaluation Snoqualmie, Washington	W92229A	10/92

ASSOCIATED EARTH SCIENCES, INC

EXPLORATION BORING LOG EB-5

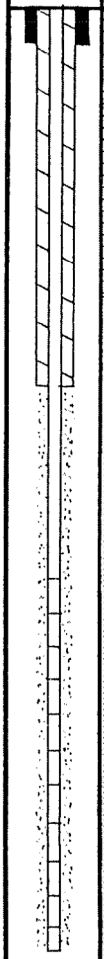
WELL COMPL.	GRAPH	SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENERATION RESISTANCE Blows/Foot 10 20 30 40
		Brown silt and clay, scattered organics. (Fill)				
		Topsoil overlying mottled tan silt, widely scattered organics. (Fill)	5			
		Brown, sandy silt, organic rich. (Fill)				
		Tan to brown, micaceous, sandy silt, scattered organics.	10			
			15			
		Tan to brown, micaceous, coarse silt, scattered organics.	20			
		Gray, micaceous silt, scattered organics.				
		Gray, silty clay, scattered organics.	25			
		Gray, silty clay, scattered organics.	30			
		BOH @ 31½'				
		Note: 2" PVC - casing; 10 slot, 2" PVC - screen; 12" flushed monument ; sandpacked.				
		Surface El.: 416.30'	35			

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Snoqualmie Shallow Aquifer Evaluation Snoqualmie, Washington	W92229A	10/92

ASSOCIATED EARTH SCIENCES, INC

EXPLORATION BORING LOG EB-6



SEDIMENT DESCRIPTION	DEPTH
Medium brown silt, trace fine sand, blocky texture.	
Light brown silt, trace fine sand, blocky texture, scattered organics.	5
Brown, very silty, fine sand, micaceous.	
Brown, slightly silty, fine sand, scattered organics.	10
Dark brown, fine sand, trace silt, scattered organics.	
Dark brown, fine to medium sand, scattered organics.	15
Gray, gravelly, fine to medium sand, scattered organics.	
	20
	25
BOH @ 26½'	
Note: 2" PVC - casing; 10 slot, 2" PVC - screen; 12" flushed monument ; sand-packed. Surface El.: 415.32'	30
	35

SAMPLE | GROUND WATER

STANDARD PENERATION RESISTANCE
Blows/Foot
10 20 30 40

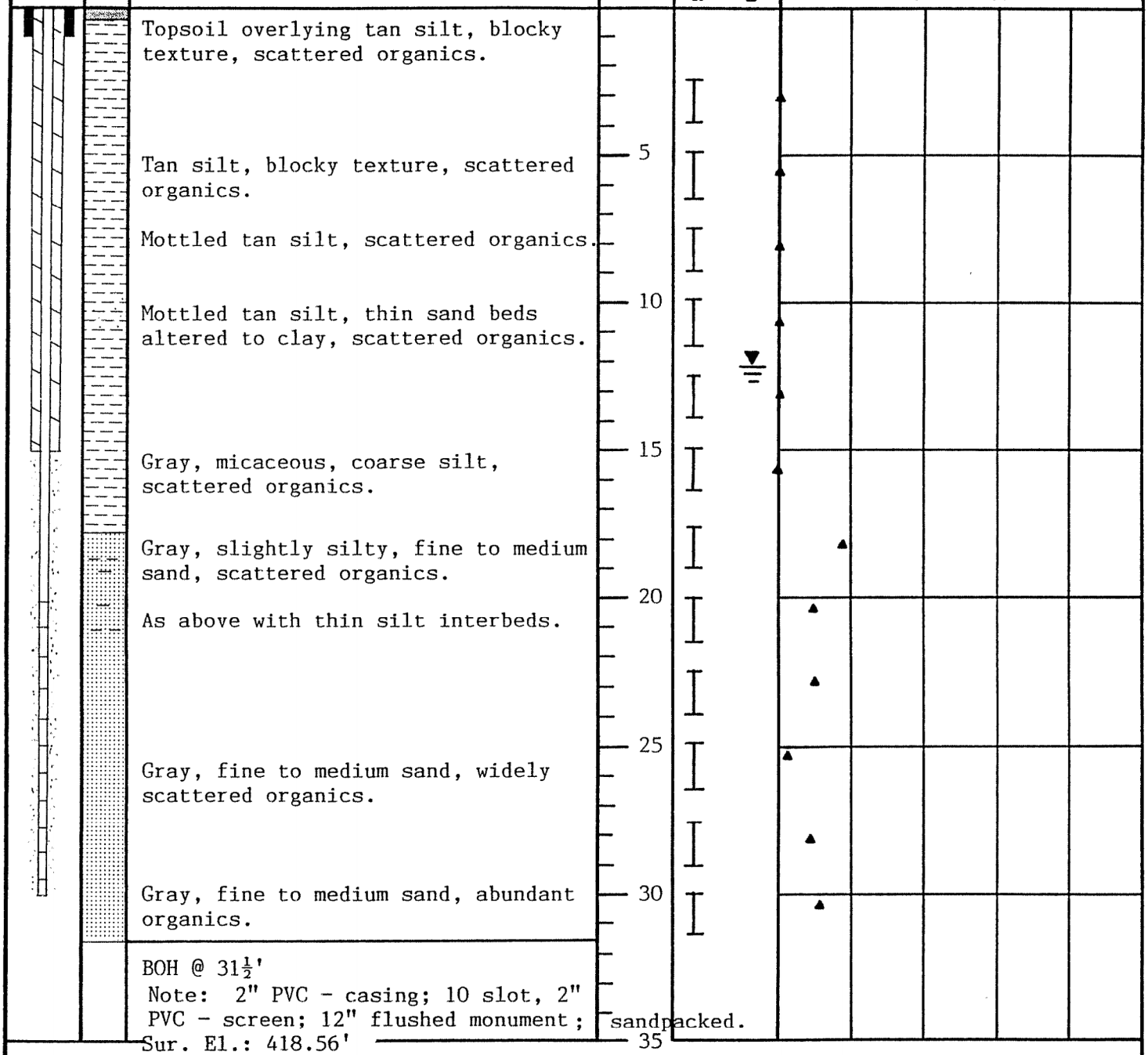
Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

W92229A	10/92	

Snoqualmie Shallow
Aquifer Evaluation
Snoqualmie, Washington

ASSOCIATED EARTH SCIENCES, INC

EXPLORATION BORING LOG EB-7



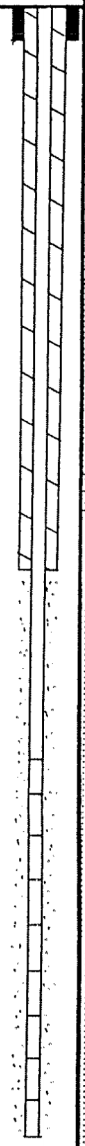
Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

W92229A	10/92	

Snoqualmie Shallow
Aquifer Evaluation
Snoqualmie, Washington

ASSOCIATED EARTH SCIENCES, INC

EXPLORATION BORING LOG EB-8



SEDIMENT DESCRIPTION	DEPTH
Tan silt, blocky texture, scattered organics.	
Tan, very fine sand with thin silt interbeds, scattered organics.	5
Tan to brown fine sand, scattered organics.	10
Tan, interbedded silt and oxidized fine to medium sand.	
Brown, micaceous, fine to medium sand.	15
Brown, fine to coarse sand.	
Brown, slightly gravelly, fine to coarse sand, oxidized.	20
Brown, fine to coarse sand, oxidized	
Brown, fine to coarse sand with gray silt and fine sand interbeds, scattered organics.	25
Brown, fine to medium sand, some silt.	30
BOH @ 31½' Note: 2" PVC - casing; 10 slot, 2" PVC - screen; 12" flushed monument ; sandpacked. Sur.El.: 418.42'	35

SAMPLE | GROUND WATER

STANDARD PENERATION RESISTANCE
Blows/Foot
10 20 30 40

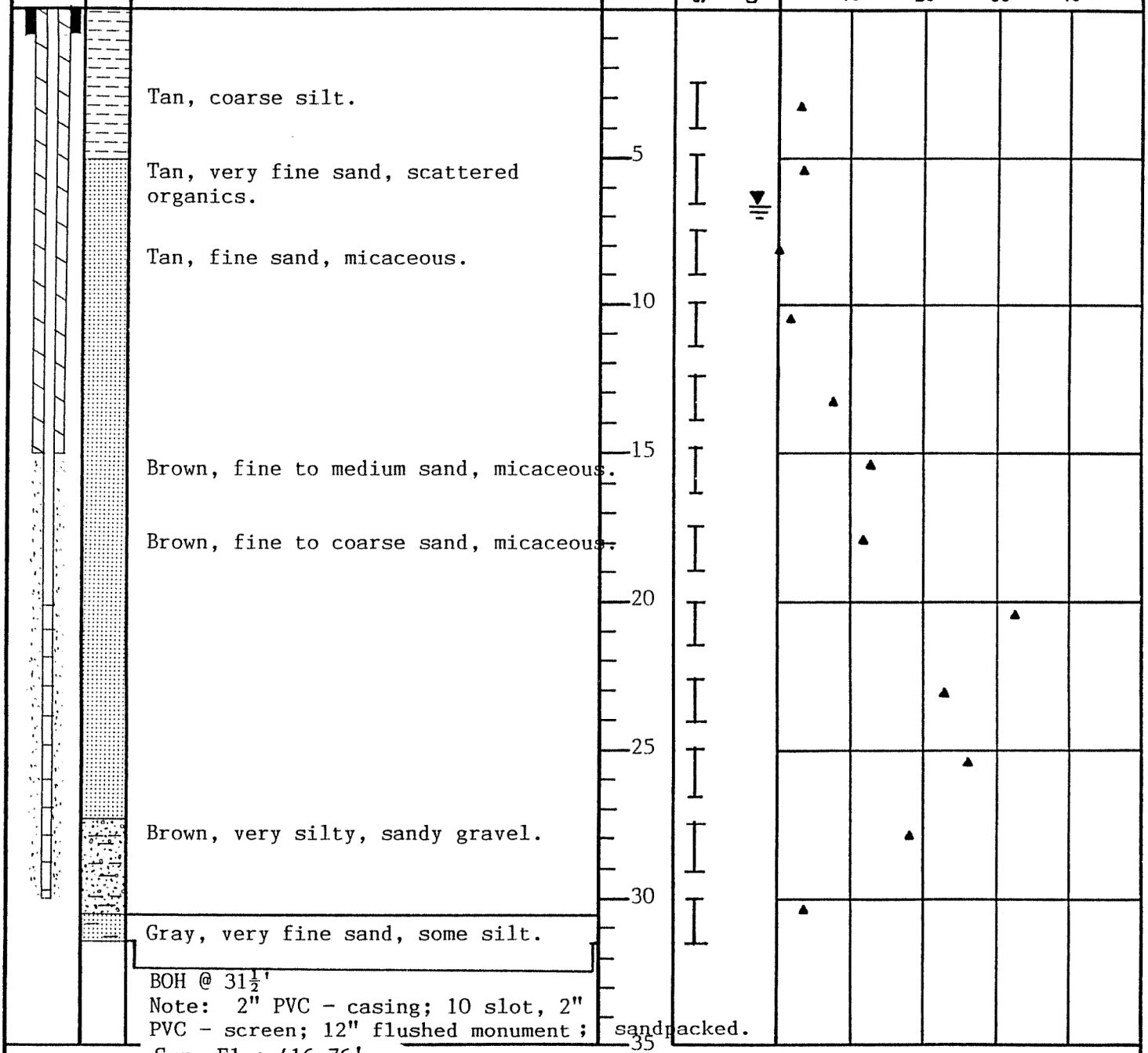
Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

W92229A	10/92	

Snoqualmie Shallow
Aquifer Evaluation
Snoqualmie, Washington

ASSOCIATED EARTH SCIENCES, INC

EXPLORATION BORING LOG EB-9



BOH @ 31½'
Note: 2" PVC - casing; 10 slot, 2" PVC - screen; 12" flushed monument ; sandpacked.
Sur. El.: 416.76'

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Snoqualmie Shallow Aquifer Evaluation Snoqualmie, Washington	W92229A	10/92

ASSOCIATED EARTH SCIENCES, INC

EXPLORATION BORING LOG EB-10

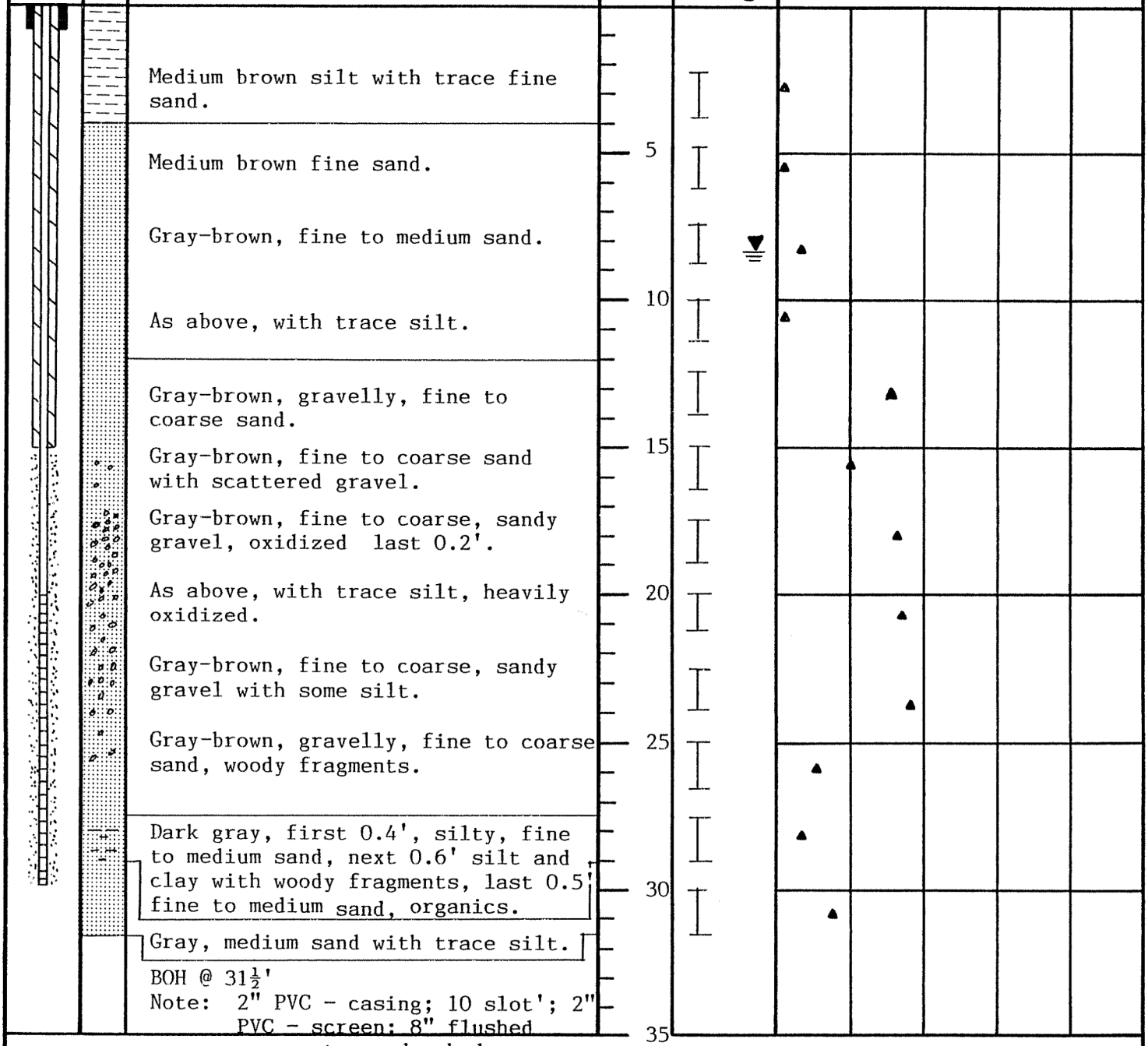
WELL COMPL.	GRAPH	SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENERATION RESISTANCE Blows/Foot 10 20 30 40
		Medium brown, coarse silt to very fine sand, organics.				
		As above.	5			
		As above.				
		Gray-brown, fine to coarse sand with scattered gravel.			▼	
		Gray-brown, fine to coarse sand and gravel.	10			
		Gray-brown, gravelly, fine to medium sand.				
		Gray-brown, fine to coarse sand and gravel.	15			
		As above, heavily oxidized 18.7'-19'.				
		Gray-brown, gravelly, fine to coarse sand.	20			
		Gray-brown, fine to coarse sand and gravel, trace silt at 23½'-24', oxidized at 24'.				
		Gray-brown, first ½' fine to coarse sand, last 1' fine to coarse sand and gravel with trace silt.	25			
		Gray, fine to coarse sand and gravel with some silt.				
		Gray, fine to coarse sand, inter-bedded with sandy gravel.	30			
		BOH @ 31½' Note: 2" PVC - casing; 10 slot; 2" PVC - screen; 8" flushed monument; sandpacked.	35			

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Snoqualmie Shallow Aquifer Evaluation Snoqualmie, Washington	W92229F	8/93

ASSOCIATED EARTH SCIENCES, INC

EXPLORATION BORING LOG EB-11

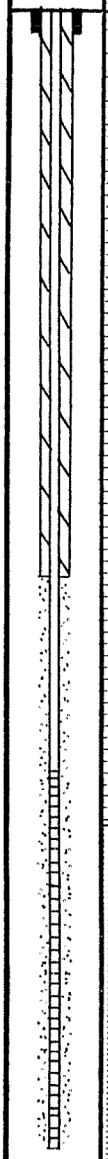


Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Snoqualmie Shallow Aquifer Evaluation Snoqualmie, Washington	W92229F	8/93

ASSOCIATED EARTH SCIENCES, INC

EXPLORATION BORING LOG EB-12



SEDIMENT DESCRIPTION	DEPTH
Medium brown silt with trace fine sand, organics.	
As above.	5
Medium brown silt, organics.	
As above, oxidized.	10
As above.	
First 0.6' medium-brown, oxidized silt with trace fine sand.	15
Last 0.9' gray, clayey silt, organics.	
As above.	
As above.	20
Gray, fine sand, some organics.	
As above.	25
As above, with trace silt.	
As above.	30
BOH @ 31½' Note: 2" PVC - casing; 10 slot'; 2" PVC - screen; 8" flushed monument; sandpacked.	35

SAMPLE | GROUND WATER

STANDARD PENERATION RESISTANCE
Blows/Foot
10 20 30 40

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Snoqualmie Shallow Aquifer Evaluation Snoqualmie, Washington	W92229F	8/93

ASSOCIATED EARTH SCIENCES, INC

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab Samples
Elevation:
Boring Diameter:
Drilling Contractor:
Page 1 of 4 Boring No. OBW-1

Water Level			
Date			
Time			

Strata	Depth	Description	Well Compl..
	10	Brown SAND AND GRAVEL.	
	20		
	30		
	40		
	50		

NOTES: Lithologic information from driller's log.

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab Samples
Elevation:
Boring Diameter:
Drilling Contractor:
Page 2 of 4 Boring No. OBW-1

Water Level			
Date			
Time			

Strata	Depth	Description	Well Compl..
	60	Brown SAND AND GRAVEL.	
	70		
	80		
	90		
	100		

NOTES: Lithologic information from driller's log.

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab Samples
Elevation:
Boring Diameter:
Drilling Contractor:
Page 3 of 4 Boring No. OBW-1

Water Level			
Date			
Time			

Strata	Depth	Description	Well Compl..
	160	Brown SAND AND GRAVEL.	
	170		
	180		
	190		
	200		

NOTES: Lithologic information from driller's log.

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab Samples
Elevation:
Boring Diameter:
Drilling Contractor:
Page 4 of 4 Boring No. OBW-1

Water Level			
Date			
Time			

Strata	Depth	Description	Well Compl..
	160	Brown SAND AND GRAVEL.	
	170		
	180		
	190		
	200	BOH @ 200'	

NOTES: Lithologic information from driller's log.

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab Samples
Elevation:
Boring Diameter:
Drilling Contractor:
Page 1 of 4 Boring No. OBW-2

Water Level			
Date			
Time			

Strata	Depth	Description	Well Compl..
	10	Brown SAND AND GRAVEL.	
	20		
	30		
	40		
	50		

NOTES: Lithologic information from driller's log.

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab Samples
Elevation:
Boring Diameter:
Drilling Contractor:
Page 2 of 4 Boring No. OBW-2

Water Level			
Date			
Time			

Strata	Depth	Description	Well Compl..
	60	Brown SAND AND GRAVEL.	
	70		
	80		
	90		
	100		

NOTES: Lithologic information from driller's log.

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab Samples
Elevation:
Boring Diameter:
Drilling Contractor:
Page 3 of 4 Boring No. OBW-2

Water Level			
Date			
Time			

Strata	Depth	Description	Well Compl..
	160	Brown SAND AND GRAVEL.	
	170		
	180		
	190		
	200		

NOTES: Lithologic information from driller's log.

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab Samples
Elevation:
Boring Diameter:
Drilling Contractor:
Page 4 of 4 Boring No. OBW-2

Water Level			
Date			
Time			

Strata	Depth	Description	Well Compl..
	160	Water bearing SAND AND GRAVEL at 154'.	
	170	BOH @ 160'	
	180		
	190		
	200	BOH @ 200'	

NOTES: Lithologic information from driller's log.

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH00005C	OBW-3	1 of 10

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing):
Surface Elevation (ft):
Water Level Elevation:
Date Start/Finish: 09/12/00,9/21/2000
Drilling/Equipment: Hayes Dirlling / Gefco Speedstor 30K
Hole Diameter (in): 6"
Hammer Weight/Drop: Mud Rotary

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
5						**Vashon Recessional Deltaic Deposits "Tokul Creek Delta"** Brown, SILTY fine to medium SAND with occasional coarse sand and gravel.
10						
15						Black-gray, fine to coarse GRAVEL.
20						
25						
30						
35						
40						Black-gray, fine to coarse GRAVEL.
45						
50						
55						
60						
65						
70						
75						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 00005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH00005C	OBW-3	2 of 10

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing):
Surface Elevation (ft):
Water Level Elevation:
Date Start/Finish: 09/12/00,9/21/2000
Drilling/Equipment: Hayes Dirlling / Gefco Speedstor 30K
Hole Diameter (in): 6"
Hammer Weight/Drop: Mud Rotary

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
85						Black-gray, medium to coarse SAND.
90						
95						
100						
105						
110						Black-gray, fine to coarse GRAVEL.
115						
120						Black-gray, fine to coarse GRAVEL.
125						
130						
135						
140						
145						
150						
155						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level ()
Water Level at time of drilling (ATD)

Logged by:
Approved by:

NWWELL 00005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH00005C	OBW-3	3 of 10

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing):
Surface Elevation (ft):
Water Level Elevation:
Date Start/Finish: 09/12/00,9/21/2000
Drilling/Equipment: Hayes Dirlling / Gefco Speedstor 30K
Hole Diameter (in): 6"
Hammer Weight/Drop: Mud Rotary

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
165						Black-gray, fine to coarse GRAVEL.
170						
175						
180						
185						
190						
195						
200						Black-gray, fine to coarse GRAVEL.
205						
210						
215						
220						
225						
230						
235						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 00005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH00005C	OBW-3	4 of 10

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing):
Surface Elevation (ft):
Water Level Elevation:
Date Start/Finish: 09/12/00,9/21/2000
Drilling/Equipment: Hayes Dirlling / Gefco Speedstor 30K
Hole Diameter (in): 6"
Hammer Weight/Drop: Mud Rotary

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
245						Black-gray, medium to coarse SAND with gravel.
250						
255						
260						
265						Gray, SILTY fine to medium SAND with gravel.
270						
275						
280						
285						Black-gray, medium to coarse SAND with gravel.
290						
295						
300						
305						
310						
315						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 00005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH00005C	OBW-3	5 of 10

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing):
Surface Elevation (ft):
Water Level Elevation:
Date Start/Finish: 09/12/00,9/21/2000
Drilling/Equipment: Hayes Dirlling / Gefco Speedstor 30K
Hole Diameter (in): 6"
Hammer Weight/Drop: Mud Rotary

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
325						Gray SILT with occasional fine to medium sand.
330						
335						
340						
345						
350						
355						
360						**Undifferentiated Olympia/pre-Olympia Lacustrine and Fluvial Deposits**
365						Gray SILT with occasional fine to medium sand.
370						
375						
380						
385						
390						
395						

NOTE FOR MOVE PTB TO 325' compare to ? PW-8 This is way off

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 00005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH00005C	OBW-3	6 of 10

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing):
Surface Elevation (ft):
Water Level Elevation:
Date Start/Finish: 09/12/00,9/21/2000
Drilling/Equipment: Hayes Dirlling / Gefco Speedstor 30K
Hole Diameter (in): 6"
Hammer Weight/Drop: Mud Rotary

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
405						Gray SILT with occasional fine to medium sand.
410						
415						
420						
425						
430						
435						
440						Gray SILT with occasional fine to medium SAND.
445						
450						
455						
460						
465						
470						Black-gray, medium to coarse SAND.
475						Gray SILT with occasional fine to medium SAND.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 00005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH00005C	OBW-3	7 of 10

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing):
Water Level Elevation:
Drilling/Equipment: Hayes Dirlling / Gefco Speedstor 30K
Hammer Weight/Drop: Mud Rotary

Location: Snoqualmie, WA
Surface Elevation (ft):
Date Start/Finish: 09/12/00,9/21/2000
Hole Diameter (in): 6"

Depth (ft)	Water Level	WELL CONSTRUCTION	S T	Blows/ 6"	Graphic Symbol	DESCRIPTION
485						
490						
495						
500						
505						
510						
515						
520						
525						
530						
535						
540						
545						
550						
555						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 00005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH00005C	OBW-3	8 of 10

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing):
Surface Elevation (ft):
Water Level Elevation:
Date Start/Finish: 09/12/00,9/21/2000
Drilling/Equipment: Hayes Dirlling / Gefco Speedstor 30K
Hole Diameter (in): 6"
Hammer Weight/Drop: Mud Rotary

Depth (ft)	Water Level	WELL CONSTRUCTION	S T	Blows/ 6"	Graphic Symbol	DESCRIPTION
565						
570						
575						
580						Gray SILT with occasional fine to medium SAND.
585						
590						
595						
600						
605						
610						
615						
620						
625						
630						
635						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 00005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH00005C	OBW-3	9 of 10

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing):
Surface Elevation (ft):
Water Level Elevation:
Date Start/Finish: 09/12/00,9/21/2000
Drilling/Equipment: Hayes Dirlling / Gefco Speedstor 30K
Hole Diameter (in): 6"
Hammer Weight/Drop: Mud Rotary

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
645						
650						
655						**Undifferentiated Olympia/pre-Olympia Coarse-Grained Fluvial Deposits** Black-gray, medium to coarse SAND with occasional gravel.
660						
665						
670						
675						
680						
685						
690						
695						
700						
705						**Tertiary Bedrock** Black-gray basalt with occasional red and white rock pieces (Basalt Flow Top).
710						
715						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level ()
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 00005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH00005C	OBW-3	10 of 10

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing):
Surface Elevation (ft):
Water Level Elevation:
Date Start/Finish: 09/12/00,9/21/2000
Drilling/Equipment: Hayes Dirlling / Gefco Speedstor 30K
Hole Diameter (in): 6"
Hammer Weight/Drop: Mud Rotary

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
725						Black-gray basalt (Basalt Flow)
730						Boring terminated at 730 feet on 9/21/2000 Boring grouted and sealed.
735						
740						
745						
750						
755						
760						
765						
770						
775						
780						
785						
790						
795						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 00005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	SS&G-2	1 of 5

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): ~474'
Water Level Elevation: 310'
Drilling/Equipment: Air Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): 474'
Date Start/Finish: March 1988,April 1988
Hole Diameter (in): 8"

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
5		8" diameter well casing 0-332'				**Vashon Recessional Deltaic Deposits "Tokul Creek Delta"** Brown, SANDY GRAVEL.
10						
15						
20						
25						
30						
35						
40						
45						
50						
55						
60						
65						
70						
75						

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level ()
Water Level at time of drilling (ATD)

Logged by:
Approved by:

NWWELL 02005C-2.GPJ BORING.GDT 1/5/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	SS&G-2	2 of 5

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): ~474'
Water Level Elevation: 310'
Drilling/Equipment: Air Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): 474'
Date Start/Finish: March 1988,April 1988
Hole Diameter (in): 8"

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
85						
90						
95						
100						
105						
110						
115						
120		8" diameter well casing 0-332'				
125						
130						
135						
140						
145						
150						
155						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 02005C-2.GPJ BORING.GDT 1/5/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	SS&G-2	3 of 5

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): ~474'
Water Level Elevation: 310'
Drilling/Equipment: Air Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): 474'
Date Start/Finish: March 1988,April 1988
Hole Diameter (in): 8"

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
165						Brown, SILTY SAND with gravel.
170						
175						
180						
185						
190						
195						
200		8" diameter well casing 0-332'				
205						
210						
215						
220						Blue, SILTY SAND, occasional gravel.
225						
230						
235						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 02005C-2.GPJ BORING.GDT 1/5/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	SS&G-2	4 of 5

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): ~474'
Water Level Elevation: 310'
Drilling/Equipment: Air Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): 474'
Date Start/Finish: March 1988,April 1988
Hole Diameter (in): 8"

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
245						
250						
255						
260						
265						
270						As above.
275						
280		8" diameter well casing 0-332'				
285						
290						
295						
300						
305						Gray SAND with gravel.
310						
315						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level ()
Water Level at time of drilling (ATD)

Logged by:
Approved by:

NWWELL 02005C-2.GPJ BORING.GDT 1/5/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	SS&G-2	5 of 5

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): ~474'
Water Level Elevation: 310'
Drilling/Equipment: Air Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): 474'
Date Start/Finish: March 1988,April 1988
Hole Diameter (in): 8"

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
325		8" diameter well casing 0-332'				
330						
335		8" diameter 10-slot well screen 332'-344'				
340						
345		8" diameter 80-slot well screen 344'-354'				
350						
355						Boring terminated at 354 feet on April 1988
360						
365						
370						
375						
380						
385						
390						
395						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 02005C-2.GPJ BORING.GDT 1/5/04

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab
Elevation: 450'
Boring Diameter:
Drilling Contractor:
Page 1 of 12 Boring No. TW-5

Water Level	139'	167'	139'	181'	
Date	9/27/	9/30/	10/3/	11/6	
Time	3:00	8:30	9:00	8:30	

Strata	Depth	Description	Well Compl..
	10	0 to 49' Brown to gray, silty, sandy GRAVEL. Fast smooth drilling.	
	20		
	30		
	40		
	50	@ 50' to 130' Brown, silty SAND with some gravel (dirty sand). Fast, smooth drilling.	

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab
Elevation: 450'
Boring Diameter:
Drilling Contractor:
Page 2 of 12 Boring No. TW-5

Water Level	139'	167'	139'	181'	
Date	9/27/	9/30/	10/3/	11/6	
Time	3:00	8:30	9:00	8:30	

Strata	Depth	Description	Well Compl..
	60	@ 50' to 130' Brown, silty SAND with some gravel (dirty sand). Fast, smooth drilling.	
	70		
	80		
	90		
	100		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab
Elevation: 450'
Boring Diameter:
Drilling Contractor:
Page 3 of 12 Boring No. TW-5

Water Level	139'	167'	139'	181'	
Date	9/27/	9/30/	10/3/	11/6	
Time	3:00	8:30	9:00	8:30	

Strata	Depth	Description	Well Compl..
	110	@ 50' to 130' Brown, silty SAND with some gravel (dirty sand). Fast, smooth drilling.	
	120	Slight increase in gravel.	
	130	@ 120' to 215' gray, coarse, sandy GRAVEL with some silt and scattered cobbles. Medium rough drilling.	
	140		
	150		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab
Elevation: 450'
Boring Diameter:
Drilling Contractor:
Page 4 of 12 Boring No. TW-5

Water Level	139'	167'	139'	181'	
Date	9/27/	9/30/	10/3/	11/6	
Time	3:00	8:30	9:00	8:30	

Strata	Depth	Description	Well Compl..
	160	@ 120' to 215' gray, coarse, sandy GRAVEL with some silt and scattered cobbles. Medium rough drilling.	▽ While Drilling
	170		
	180		
	190		
	200		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab
Elevation: 450'
Boring Diameter:
Drilling Contractor:
Page 5 of 12 Boring No. TW-5

Water Level	139'	167'	139'	181'	
Date	9/27/	9/30/	10/3/	11/6	
Time	3:00	8:30	9:00	8:30	

Strata	Depth	Description	Well Compl..
	210	@ 120' to 215' gray, coarse, sandy GRAVEL with some silt and scattered cobbles. Medium rough drilling.	
	220	@ 215' to 250' gray, coarse, sandy GRAVEL with trace silt. Slow rough drilling. Heaving sands and gravels.	100 gpm ▽ While Drilling
	230		
	240		
	250		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab
Elevation: 450'
Boring Diameter:
Drilling Contractor:
Page 6 of 12 Boring No. TW-5

Water Level	139'	167'	139'	181'	
Date	9/27/	9/30/	10/3/	11/6	
Time	3:00	8:30	9:00	8:30	

Strata	Depth	Description	Well Compl..
	260	@ 250' to 425' gray, silty SAND with some gravel. Slow to medium rough drilling. Some clasts of blue silt/clay. Heaving conditions.	
	270		
	280		
	290		
	300	@ 300 no gravel. Fast smooth drilling.	

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab
Elevation: 450'
Boring Diameter:
Drilling Contractor:
Page 7 of 12 Boring No. TW-5

Water Level	139'	167'	139'	181'	
Date	9/27/	9/30/	10/3/	11/6	
Time	3:00	8:30	9:00	8:30	

Strata	Depth	Description	Well Compl..
	310	@ 250' to 425' gray, silty SAND with some gravel. Slow to medium rough drilling. Some clasts of blue silt/clay. Heaving conditions. @ 300' no gravel; fast smooth drilling.	▽ While Drilling
	320		
	330		
	340		
	350		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab
Elevation: 450'
Boring Diameter:
Drilling Contractor:
Page 8 of 12 Boring No. TW-5

Water Level	139'	167'	139'	181'	
Date	9/27/	9/30/	10/3/	11/6	
Time	3:00	8:30	9:00	8:30	

Strata	Depth	Description	Well Compl..
	360	@ 250' to 425' gray, silty SAND with some gravel. Slow to medium rough drilling. Some clasts of blue silt/clay. Heaving conditions. @ 300' no gravel; fast smooth drilling.	
	370		
	380	@ 380' organics with trace clay clasts.	
	390		▽ While Drilling
	400		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab
Elevation: 450'
Boring Diameter:
Drilling Contractor:
Page 9 of 12 Boring No. TW-5

Water Level	139'	167'	139'	181'	
Date	9/27/	9/30/	10/3/	11/6	
Time	3:00	8:30	9:00	8:30	

Strata	Depth	Description	Well Compl..
	410	@ 250' to 425' gray, silty SAND with some gravel. Slow to medium rough drilling. Some clasts of blue silt/clay. Heaving conditions. @ 300' no gravel; fast smooth drilling.	
	420		
	430	@ 425' to 500' gray, gravelly, silty, fine to coarse SAND with some silt/clay clasts. No hammer needed to drive casing.	75 gpm ▽ While Drilling
	440		
	450		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab
Elevation: 450'
Boring Diameter:
Drilling Contractor:
Page 10 of 12 Boring No. TW-5

Water Level	139'	167'	139'	181'	
Date	9/27/	9/30/	10/3/	11/6	
Time	3:00	8:30	9:00	8:30	

Strata	Depth	Description	Well Compl..
	460	@ 425' to 500' gray, gravelly, silty, fine to coarse SAND with some silt/clay clasts. No hammer needed to drive casing.	
	470		
	480		
	490		
	500		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab
Elevation: 450'
Boring Diameter:
Drilling Contractor:
Page 11 of 12 Boring No. TW-5

Water Level	139'	167'	139'	181'	
Date	9/27/	9/30/	10/3/	11/6	
Time	3:00	8:30	9:00	8:30	

Strata	Depth	Description	Well Compl..
		@ 500' to 510' gray, silty, fine SAND with trace gravel.	
	510	@ 510' to 540' gray, gravelly SAND with some silt. Alternating hard and easy drilling.	
	520		
	530		
	540	@ 540' to 560' gray GRAVEL with some silt.	
	550		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Strata

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Air Rotary
Sampling Method: Grab
Elevation: 450'
Boring Diameter:
Drilling Contractor:
Page 12 of 12 Boring No. TW-5

Water Level	139'	167'	139'	181'	
Date	9/27/	9/30/	10/3/	11/6	
Time	3:00	8:30	9:00	8:30	

	Depth	Description	Well Compl..
	560	@ 540' to 560' gray GRAVEL with some silt.	
	570	@ 560' to 580' BEDROCK, black basalt and purple andesite.	
	580		
	590	BOH @ 580'	
	600		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method:
Elevation: 428'
Boring Diameter:
Drilling Contractor:
Page 1 of 12 Boring No. TW-6

Water Level					
Date					
Time					

Strata	Depth	Description	Well Compl..
	10	@ 0' to 35' medium dense, damp, brown, sandy GRAVEL with trace silt and some cobbles and boulders. Added water.	
	20		
	30		
	40	@ 35' to 90' brown, slightly silty, coarse SAND with some gravel. Less cobbles and gravel. Casing falling as drilling.	
	50		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method:
Elevation: 428'
Boring Diameter:
Drilling Contractor:
Page 2 of 12 Boring No. TW-6

Water Level					
Date					
Time					

Strata	Depth	Description	Well Compl..
	60	@ 35' to 90' brown, slightly silty, coarse SAND with some gravel. Less cobbles and gravel. Casing falling as drilling.	
	70		
	80		
	90		
	100	@ 90' gray, silty, well sorted, fine SAND. Smooth drilling.	

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method:
Elevation: 428'
Boring Diameter:
Drilling Contractor:
Page 3 of 12 Boring No. TW-6

Water Level					
Date					
Time					

Strata	Depth	Description	Well Compl..
	110		
	120		
	130		
	140		
	150	Brownish-gray, fine to coarse SAND AND GRAVEL with some cobbles with trace silt to 211'. Unit taking lots of water. Hammer needed.	

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method:
Elevation: 428'
Boring Diameter:
Drilling Contractor:
Page 4 of 12 Boring No. TW-6

Water Level					
Date					
Time					

Strata	Depth	Description	Well Compl..
	160	Brownish-gray, fine to coarse SAND AND GRAVEL with some cobbles with trace silt to 211'. Unit taking lots of water. Hammer needed.	
	170		
	180		
	190		
	200		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method:
Elevation: 428'
Boring Diameter:
Drilling Contractor:
Page 5 of 12 Boring No. TW-6

Water Level					
Date					
Time					

Strata	Depth	Description	Well Compl..
	210	@ 211' dark blue to gray SAND AND GRAVEL with some cobbles and some clasts of blue to gray silt. Able to drill some open hole.	
	220		
	230		
	240		
	250		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method:
Elevation: 428'
Boring Diameter:
Drilling Contractor:
Page 6 of 12 Boring No. TW-6

Water Level					
Date					
Time					

Strata	Depth	Description	Well Compl..
	260		
	270	Dark gray, silty, fine to coarse SAND with scattered gravel and cobbles. Cobbles up to 8"-10" with silt adhering to them. (Lodgement Till)	
	280		
	290		
	300		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method:
Elevation: 428'
Boring Diameter:
Drilling Contractor:
Page 7 of 12 Boring No. TW-6

Water Level					
Date					
Time					

Strata	Depth	Description	Well Compl..
	310	Dark gray, silty, fine to coarse SAND with scattered gravel and cobbles. Cobbles up to 8"-10" with silt adhering to them. (Lodgement Till)	
		@ 315' gray, silty, fine SAND with some scattered gravel.	
	320	Greenish-gray, clayey SILT with some scattered gravel.	
	330		
	340		
	350		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method:
Elevation: 428'
Boring Diameter:
Drilling Contractor:
Page 8 of 12 Boring No. TW-6

Water Level					
Date					
Time					

Strata	Depth	Description	Well Compl..
	360	Greenish-gray, clayey SILT with some scattered gravel.	
	370		
	380		
	390		
	400	Unit becoming siltier.	

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method:
Elevation: 428'
Boring Diameter:
Drilling Contractor:
Page 9 of 12 Boring No. TW-6

Water Level					
Date					
Time					

Strata	Depth	Description	Well Compl..
	410	Gray, clayey SILT with trace very fine sand and occasional scattered gravel. Trace wood fragments.	
	420	Gray, silty, very fine SAND with trace wood fragments.	
	430		
	440		
	450		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method:
Elevation: 428'
Boring Diameter:
Drilling Contractor:
Page 10 of 12 Boring No. TW-6

Water Level					
Date					
Time					

Strata	Depth	Description	Well Compl..
	460	Gray, silty, very fine SAND.	
	470		
	480		
		Gray, sandy GRAVEL with some silt and cobbles. Rough drilling. Strata is not producing much water.	
	490	Gray, silty, fine SAND. Some heaving.	
	500		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method:
Elevation: 428'
Boring Diameter:
Drilling Contractor:
Page 11 of 12 Boring No. TW-6

Water Level					
Date					
Time					

Strata	Depth	Description	Well Compl..
		Gray, slightly silty, fine SAND.	
	510		
	520		
	530	@ 530' increase in gravels.	
	540	@ 540' gray, slightly silty SAND with scattered gravel.	
	550		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Strata

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method:
Elevation: 428'
Boring Diameter:
Drilling Contractor:
Page 12 of 12 Boring No. TW-6

Water Level					
Date					
Time					

Depth	Description	Well Compl..
560	Gray, slightly silty SAND with scattered gravel.	
570	Gray GRAVEL with some sand and trace silt.	
580		
	Gray, silty SAND with some scattered gravel and cobbles. (Lodgement Till) Able to drill open hole.	
590	Purple, andesitic TILL and weathered BEDROCK. Black BASALT (BEDROCK).	
	BOH @ 590'	
600		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method: Bailer Grab and Split
Elevation: 436.55'
Boring Diameter: 20" 0'-415'; 16" 415'-564'
Drilling Contractor: Armstrong Drilling, Inc.
Page 1 of 12 Boring No. TW-7

Water Level	150.11	149.60	149.63		
Date	5/13/94	5/26/94	6/7/94		
Time	7:10 AM	11:30 AM	1:13 PM		

Strata	Depth	Description	Well Compl..
		Yellow-brown, gravelly SAND with trace silt and some cobbles.	
		Yellow-brown, gravelly SAND with cobbles and some silt.	
	10	Yellow-brown, gravelly SAND with some cobbles and some silt.	Surface Seal
	20	Yellow-brown, gravelly SAND with some silt and trace cobbles.	
	30	Yellow-brown, fine to coarse SAND with gravel and some silt.	20" Steel Casing
	40		
		Yellow-brown, gravelly SAND with trace of silt.	
	50		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method: Bailer Grab and Split
Elevation: 436.55'
Boring Diameter: 20" 0'-415'; 16" 415'-564'
Drilling Contractor: Armstrong Drilling, Inc.
Page 2 of 12 Boring No. TW-7

Water Level	150.11	149.60	149.63		
Date	5/13/94	5/26/94	6/7/94		
Time	7:10 AM	11:30 AM	1:13 PM		

Strata	Depth	Description	Well Compl..
		Yellow-brown, fine to coarse SAND with gravel and silt.	20" Steel Casing
	60	Yellow-brown, gravelly SAND with some silt.	
		Yellow-brown, gravelly SAND with some silt and some cobbles.	
	70	Yellow-brown, gravelly SAND with some cobbles and some silt.	
	80	Yellow-brown, sandy GRAVEL with cobbles and some silt.	
	90		
		Yellow-brown, sandy GRAVEL with some cobbles and trace silt.	
	100		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method: Bailer Grab and Split
Elevation: 436.55'
Boring Diameter: 20" 0'-415'; 16" 415'-564'
Drilling Contractor: Armstrong Drilling, Inc.
Page 3 of 12 Boring No. TW-7

Water Level	150.11	149.60	149.63		
Date	5/13/94	5/26/94	6/7/94		
Time	7:10 AM	11:30 AM	1:13 PM		

Strata	Depth	Description	Well Compl..
		Yellow-brown, sandy GRAVEL with some cobbles and trace silt.	
		Yellow-brown, sandy GRAVEL with some silt and some cobbles.	
	110		
	120	Gray-brown, gravelly SAND.	20" Steel Casing
		Gray, gravelly SAND with trace silt and some cobbles.	
		Yellow-brown and gray, gravelly SAND with some cobbles and some silt.	
	130		
		Gray-brown, gravelly SAND with some silt and a few cobbles.	
	140		
	150		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method: Bailer Grab and Split
Elevation: 436.55'
Boring Diameter: 20" 0'-415'; 16" 415'-564'
Drilling Contractor: Armstrong Drilling, Inc.
Page 4 of 12 Boring No. TW-7

Water Level	150.11	149.60	149.63		
Date	5/13/94	5/26/94	6/7/94		
Time	7:10 AM	11:30 AM	1:13 PM		

Strata	Depth	Description	Well Compl..
	160	Gray-brown, gravelly SAND with some silt.	20" Steel Casing
	170	Gravelly SAND with some cobbles grading into sandy GRAVEL with cobbles.	
	180	Dark gray, sandy GRAVEL with cobbles.	
	190	Gray-brown, gravelly SAND with some silt and trace cobbles.	
	200	Dark gray, gravelly SAND with some silt and trace cobbles. Dark gray, gravelly SAND with some cobbles.	

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method: Bailer Grab and Split
Elevation: 436.55'
Boring Diameter: 20" 0'-415'; 16" 415'-564'
Drilling Contractor: Armstrong Drilling, Inc.
Page 5 of 12 Boring No. TW-7

Water Level	150.11	149.60	149.63		
Date	5/13/94	5/26/94	6/7/94		
Time	7:10 AM	11:30 AM	1:13 PM		

Strata	Depth	Description	Well Compl..
	210	Gray-brown, gravelly SAND with some silt. Siltier lenses present.	20" Steel Casing
	220		
	230		
	240	Gray-brown, gravelly, silty SAND.	
	250	Brown, sandy GRAVEL to silty SAND with gravel.	

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method: Bailer Grab and Split
Elevation: 436.55'
Boring Diameter: 20" 0'-415'; 16" 415'-564'
Drilling Contractor: Armstrong Drilling, Inc.
Page 6 of 12 Boring No. TW-7

Water Level	150.11	149.60	149.63		
Date	5/13/94	5/26/94	6/7/94		
Time	7:10 AM	11:30 AM	1:13 PM		

Strata	Depth	Description	Well Compl..
		Brown, sandy GRAVEL with cobbles and trace silt..	20" Steel Casing
	260	Some heaving 260'-270'.	
	270	Gray, cobbly, gravelly, very silty SAND (till-like); hard drilling.	
	280	Gray, gravelly SAND with silt. Able to drive and bail without drilling.	
	290		
	300		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Strata

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method: Bailer Grab and Split
Elevation: 436.55'
Boring Diameter: 20" 0'-415'; 16" 415'-564'
Drilling Contractor: Armstrong Drilling, Inc.
Page 7 of 12 Boring No. TW-7

Water Level	150.11	149.60	149.63		
Date	5/13/94	5/26/94	6/7/94		
Time	7:10 AM	11:30 AM	1:13 PM		

Depth	Description	Well Compl..
310	Gray, gravelly SAND with silt. Able to drive and bail without drilling.	20" Steel Casing
320		
330	Gray, cobbly, sandy, silty GRAVEL. Very dense, hard drilling. "Till-like." Top 16" Casing 328'-4"	
340	Top Cement Grout 16" to 20" @ 340'	16" Steel Casing
350		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Strata

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method: Bailer Grab and Split
Elevation: 436.55'
Boring Diameter: 20" 0'-415'; 16" 415'-564'
Drilling Contractor: Armstrong Drilling, Inc.
Page 8 of 12 Boring No. TW-7

Water Level	150.11	149.60	149.63		
Date	5/13/94	5/26/94	6/7/94		
Time	7:10 AM	11:30 AM	1:13 PM		

Depth	Description	Well Compl..
360	Gray, cobbly, sandy, silty GRAVEL. Very dense, hard drilling. "Till-like."	16" Steel Casing
370		
	Gray, very silty SAND.	
380	Gray, cobbly, sandy, silty GRAVEL. Very dense, hard drilling.	
390		
	@ 394' large cobbles/boulders	
400		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method: Bailer Grab and Split
Elevation: 436.55'
Boring Diameter: 20" 0'-415'; 16" 415'-564'
Drilling Contractor: Armstrong Drilling, Inc.
Page 9 of 12 Boring No. TW-7

Water Level	150.11	149.60	149.63		
Date	5/13/94	5/26/94	6/7/94		
Time	7:10 AM	11:30 AM	1:13 PM		

Strata	Depth	Description	Well Compl..
	410	Gray, silty, fine SAND. @ 405'-409' large cobbles.	
	420	Gray, sandy SILT. Bottom 20" Casing @ 415'	
	430	Gray, clay-rich, sandy SILT with lenses of fine sand.	16" Steel Casing
	440		
	450		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Strata

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method: Bailer Grab and Split
Elevation: 436.55'
Boring Diameter: 20" 0'-415'; 16" 415'-564'
Drilling Contractor: Armstrong Drilling, Inc.
 Boring No. TW-7

Water Level	150.11	149.60	149.63		
Date	5/13/94	5/26/94	6/7/94		
Time	7:10 AM	11:30 AM	1:13 PM		

Depth	Description	Well Compl..
460	Gray, clay-rich, sandy SILT with lenses of fine sand.	16" Steel Casing
470		
480	Gray, clayey SILT with scattered lenses of fine sand, trace peat, local gravelly zones.	
490		
500		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method: Bailer Grab and Split
Elevation: 436.55'
Boring Diameter: 20" 0'-415'; 16" 415'-564'
Drilling Contractor: Armstrong Drilling, Inc.
Page 11 of 12 Boring No. TW-7

Water Level	150.11	149.60	149.63		
Date	5/13/94	5/26/94	6/7/94		
Time	7:10 AM	11:30 AM	1:13 PM		

Strata	Depth	Description	Well Compl..
	510	Gray, clayey SILT with scattered lenses of fine sand, trace peat, local gravelly zones. Top 10" Riser Flanged to 12"	10" Riser
	520	Gray, cobbly GRAVEL with silt/clay matrix. Top Screen 516'-7"	
	530	Gray, gravelly, fine SAND with silt; coarsens with depth. Bottom 16" Casing @ 527'-7"	10" Pipe Size, 50 Slot, Stainless Steel Screen
	540	Gray, cobbly, sandy GRAVEL with thin lenses of silty, fine sand.	8-12 Colorado Sand
	550		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

LEGEND

- Sandy gravel with cobbles
- Sandy gravel
- Poorly sorted sand
- Well sorted sand
- Bedrock
- Diamicton
- Peat
- Silt-clay
- Silt

Strata

Project Name: Snoqualmie North Well Field
Project Number: W93199K
Drilling Method: Cable Tool
Sampling Method: Bailer Grab and Split
Elevation: 436.55'
Boring Diameter: 20" 0'-415'; 16" 415'-564'
Drilling Contractor: Armstrong Drilling, Inc.
Page 12 of 12 Boring No. TW-7

Water Level	150.11	149.60	149.63		
Date	5/13/94	5/26/94	6/7/94		
Time	7:10 AM	11:30 AM	1:13 PM		

Depth	Description	Well Compl..
	Gray, cobbly, sandy GRAVEL with thin lenses of silty, fine sand.	
	"Till-like", gravelly, silty SAND (hard silt matrix).	
560	Very hard, gravelly SAND with large cobbles.	Top Tailpipe 556'-5" Cement Plug 558'-564'
	Maroon, gray-green, and black, basaltic flows/flow breccia BEDROCK.	
	BOH @ 564'	
570		
580		
590		
600		

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Drilling Log

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH01005C	PW-8	1 of 9

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): 502.19'
Water Level Elevation: 244' bgs
Drilling/Equipment: Hokkaido/Cable Tool and Dual Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): ~500'
Date Start/Finish: November 2000, July 2001
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/6"	Graphic Symbol	DESCRIPTION
0		12" and 16" diameter steel casing inside 20" diameter casing 0-409' bgs				**Vashon Recessional Deltaic Deposits "Tokul Creek Delta"**
5						Brown, fine to coarse SAND with fine to coarse gravel and silt.
10						With cobbles (very hard drilling).
15						Brown gravel and cobbles with sand and silt.
20						
25						Brown, fine to coarse SAND with gravel and occasional cobbles (drilling easier).
30						With silt.
35						With cobbles and boulders at 36'.
40						Cobble zone at 42' (hard drilling).
45						Gravel and cobbles with fine to coarse sand.
50						Brown, fine to coarse SAND and GRAVEL with cobbles and silt.
55						
60						Brown, fine to coarse SAND with gravel, cobbles, and silt.
65						
70						
75						Becoming brown-gray.

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (08/14/01)
Water Level at time of drilling (ATD)

Logged by: DJB
Approved by:

NWWELL 01005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH01005C	PW-8	2 of 9

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing): 502.19'
Surface Elevation (ft): ~500'
Water Level Elevation: 244' bgs
Date Start/Finish: November 2000,July 2001
Drilling/Equipment: Hokkaido/Cable Tool and Dual Rotary
Hole Diameter (in): Variable
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
85						
90						Brown-gray, fine to coarse SAND with fine to coarse gravel, cobbles, and silt.
95						Becoming brown.
100						
105						
110						
115						Increase in silt content at 114'. Brown, fine to coarse SAND with gravel and silt.
120		12" and 16" diameter steel casing inside 20" diameter casing 0-409' bgs				
125						Brown, fine to coarse SAND with silt, gravel, and cobbles.
130						Brown, SILTY fine to coarse SAND with fine to coarse gravel and occasional cobbles (increase in gravel content).
135						
140						Increase in cobble content.
145						
150						
155						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (08/14/01)
- Water Level at time of drilling (ATD)

Logged by: DJB

Approved by:

NWWELL 01005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH01005C	PW-8	3 of 9

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): 502.19'
Water Level Elevation: 244' bgs
Drilling/Equipment: Hokkaido/Cable Tool and Dual Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): ~500'
Date Start/Finish: November 2000, July 2001
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
						Brown, SILTY fine to coarse SAND with gravel.
165						
170						
						Becoming gray at 173'.
175						Gray, SILTY fine to coarse SAND with fine to coarse gravel and cobbles.
180						Gray-brown, fine to coarse SAND with fine to coarse gravel and cobbles.
185						Becoming brown with silt.
190						Gray-brown, fine to coarse SAND with fine to coarse gravel, occasional cobbles and trace silt.
195						Becoming brown.
						Becoming gray-brown. Less silt content.
200		12" and 16" diameter steel casing inside 20" diameter casing 0-409' bgs				
205						Increase in silt content at 204'.
						Becoming coarser at 208'.
210						
215						
220						
225						
						Brown, unsorted, SILTY fine to coarse SAND with gravel. Brown, fine to coarse SAND with gravel and cobbles.
230						
235						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

Water Level (08/14/01)

Water Level at time of drilling (ATD)

Logged by: DJB

Approved by:

NWWELL 01005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH01005C	PW-8	4 of 9

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): 502.19'
Water Level Elevation: 244' bgs
Drilling/Equipment: Hokkaido/Cable Tool and Dual Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): ~500'
Date Start/Finish: November 2000,July 2001
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
	▼					Gray-brown, fine to medium SAND with gravel and cobbles.
245						Consolidated peat layer; C^{14} dating > 41,240 bp.
250						
255						
	▽					
260						Cobble zone at 261' and 265'.
265						
270						
275						Becoming gray at 274'. Cobble zone at 276'.
280		12" and 16" diameter steel casing inside 20" diameter casing 0-409' bgs				
285						
290						
295						Gray, SILTY fine to medium SAND with trace gravel.
300						
305						Grading into SILTY fine SAND with trace gravel.
310						Occasional cobbles at 310'.
315						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
▽ Water Level (08/14/01)
▼ Water Level at time of drilling (ATD)

Logged by: DJB
Approved by:

NWWELL 01005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH01005C	PW-8	5 of 9

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing): 502.19'
Surface Elevation (ft): ~500'
Water Level Elevation: 244' bgs
Date Start/Finish: November 2000,July 2001
Drilling/Equipment: Hokkaido/Cable Tool and Dual Rotary
Hole Diameter (in): Variable
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
325						
330						
335						
340						
345						
350						
355						
360		12" and 16" diameter steel casing inside 20" diameter casing 0-409' bgs				**Undifferentiated Olympia/pre-Olympia Lacustrine Deposits** Gray, CLAYEY SILT to CLAYEY fine SAND.
365						
370						
375						Harder drilling below 373'.
380						
385						
390						
395						Wood fragment at 395'. C^{14} dating > 40,380 bp.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (08/14/01)
- Water Level at time of drilling (ATD)

Logged by: DJB

Approved by:

NWWELL 01005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH01005C	PW-8	6 of 9

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): 502.19'
Water Level Elevation: 244' bgs
Drilling/Equipment: Hokkaido/Cable Tool and Dual Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): ~500'
Date Start/Finish: November 2000,July 2001
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	S T	Blows/ 6"	Graphic Symbol	DESCRIPTION
405		12" and 16" diameter steel casing inside 20" diameter casing 0-409' bgs				Containing trace gravel and coarse sand.
410		12" diameter steel casing inside 16" diameter steel casing 409'-557' bgs				
415						
420						
425						
430						
435						
440						
445						
450						As above.
455						
460						Gray, SILTY fine SAND. Coarsening to fine to medium SAND with depth, trace gravel.
465						Boulder at 465'.
470						Gray, SILTY SAND and GRAVEL with cobbles and interbedded silt layers.
475						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (08/14/01)
Water Level at time of drilling (ATD)

Logged by: DJB
Approved by:

NWWELL 01005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH01005C	PW-8	7 of 9

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing): 502.19'
Surface Elevation (ft): ~500'
Water Level Elevation: 244' bgs
Date Start/Finish: November 2000,July 2001
Drilling/Equipment: Hokkaido/Cable Tool and Dual Rotary
Hole Diameter (in): Variable
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
485						Gray, SILTY fine SAND with trace gravel and cobbles.
490						**Undifferentiated Olympia/pre-Olympia Fine-Grained Fluvial Deposits**
495						Gray, fine SAND with silt, trace gravel.
500						
505						
510						
515		12" diameter steel casing inside 16" diameter steel casing 409'-557' bgs				
520						
525						
530						
535						
540						As above.
545						
550						
555		12" diameter steel casing 0-627' bgs				

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (08/14/01)
- Water Level at time of drilling (ATD)

Logged by: DJB

Approved by:

NWWELL 01005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH01005C	PW-8	8 of 9

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): 502.19'
Water Level Elevation: 244' bgs
Drilling/Equipment: Hokkaido/Cable Tool and Dual Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): ~500'
Date Start/Finish: November 2000,July 2001
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
565						Gray, SILTY fine to medium SAND with interbedded SILT.
570						
575						Gray, SILTY fine SAND.
580						
585						
590		12" diameter steel casing 0-627' bgs				
595						
600						**Undifferentiated Olympia/pre-Olympia Coarse-Grained Fluvial Deposits**
605						Gray SAND and GRAVEL with cobbles and trace silt.
610		8" diameter 30-slot stainless steel well screen 609'-631'				
615						
620						
625						At 727.5', cable tool refusal; change to dual rotary drill rig.
630		No filter pack 8" diameter 50-slot stainless steel well screen 631'-694'				As above.
635						

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (08/14/01)
Water Level at time of drilling (ATD)

Logged by: DJB
Approved by:

NWWELL 01005.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH01005C	PW-8	9 of 9

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): 502.19'
Water Level Elevation: 244' bgs
Drilling/Equipment: Hokkaido/Cable Tool and Dual Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): ~500'
Date Start/Finish: November 2000,July 2001
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
645						
650						
655		8" diameter 50-slot stainless steel well screen 631'-694'				
660						
665						
670		No filter pack				
675						Gray, fine to coarse SAND with gravel and cobbles, trace silt.
680						
685						
690						
695		Tailpipe 694'-700'				**Tertiary Bedrock** Black BASALT.
700						
705						
710						Boring terminated at 710 feet on July 2001 For detailed well completion schematic see Figure 10.
715						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (08/14/01)
Water Level at time of drilling (ATD)

Logged by: DJB
Approved by:

NWWELL 01005.GPJ BORING.GDT 1/8/04

EXPLORATION BORING LOG

Number BH-1

SEDIMENT DESCRIPTION ELEVATION 423'	DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows/Foot 10 20 30 40
1" Gravels (Fill)				
Wet, dark brown, silty, fine to medium SAND. (Fill)				
Moist, brown to gray SILT. (Qa)	5	I		37 ▲ ①
Moist to wet, gray SILT. (Qa)	10	I		18 ▲ ①
Moist, gray, fine SAND. (Qvrs)	15	I		29 ▲ ①
Moist, gray, stratified, coarse SILT to very fine SAND. (Qvrs)	20	I		47 ▲ ①
BOH @ 21-1/2'				
I ① Dames & Moore California Modified Ring Sampler (140 lb. hammer)	25			
	30			

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By CJK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. G94236A
March 1995

EXPLORATION BORING LOG

Number BH-3

SEDIMENT DESCRIPTION ELEVATION 423'	DEPTH	SAMPLE / GROUND WATER	STANDARD PENETRATION RESISTANCE Blows/Foot 10 20 30 40
1/4" to 1" Gravels (Fill)			
Moist, dark brown, silty, fine to coarse SAND with gravel. (Fill) Limited sample return. Increase in gravel content below 9'.	5		65/ 12" ▲
Moist, tan and brown, mottled, silty, gravelly, fine to coarse SAND. (Fill)	10		▲ 31
Moist, brown, fine to medium SAND, minor gravel upper 6" of sample. (Qvrs)	15	*	19 ▲ ①
Moist, brown, fine to medium SAND. (Qvrs)	20		18 ▲ ①
BOH @ 21-1/2'	25		
	30		

Split spoon sampler

① Dames & Moore California Modified Ring Sampler (140 lb. hammer)

* No sample return with split spoon 15' to 16-1/2'; rock in driveshoe. Re-sampled with Dames & Moore Ring Sampler.

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By CJK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. G94236A
March 1995

EXPLORATION BORING LOG

Number BH-4

SEDIMENT DESCRIPTION ELEVATION 422'	DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows/Foot 10 20 30 40
Wet, black, odoriferous, organic SAND AND SILT with minor plastic debris. (Fill)				
Moist, brown, mottled, silty, fine to coarse SAND. (Fill)	5			6 ▲
Wet, brown, mottled, silty, fine to coarse SAND with gravel and organics. (Fill?)	10	②		53/ 12" ▲ ①
Moist, brown, fine to medium SAND. (Qvrs)	15			17 ▲ ①
Moist, brown, fine to medium SAND with minor gravel and organics. (Qvrs)	20	②		51/ 12" ▲ ①
Moist, brown, fine to medium SAND. (Qvrs)	25			20 ▲ ①
BOH @ 26-1/2'	30			

I Split spoon sampler

I ① Dames & Moore California Modified Ring Sampler (140 lb. hammer)

② Sample sloughed out of rings; placed in bags. No undisturbed sample recovered.

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By CJK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. G94236A
March 1995

EXPLORATION BORING LOG

Number BH-5

SEDIMENT DESCRIPTION ELEVATION 435'	DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows/Foot 10 20 30 40
Topsoil.				
Moist, brown, oxidized, sandy GRAVEL to gravelly SAND. (Qvrg)	5			▲ 34
Moist, brown, sandy GRAVEL. (Qvrg)	10			
Moist, brown, fine to medium SAND. (Qvrs)				19 ▲
Moist, brown, fine to medium SAND with minor gravel. (Limited sample return with ring sample; rock in drive-shoe) (Qvrs)	15			38 ▲ ①
Moist, brown, fine to medium SAND. (Qvrs)	20			27 ▲ ①
Moist, brown, fine to medium SAND. (Qvrs)	25			19 ▲ ①
BOH @ 26-1/2'				
Split spoon sampler	30			
① Dames & Moore California Modified Ring Sampler (140 lb. hammer)				

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

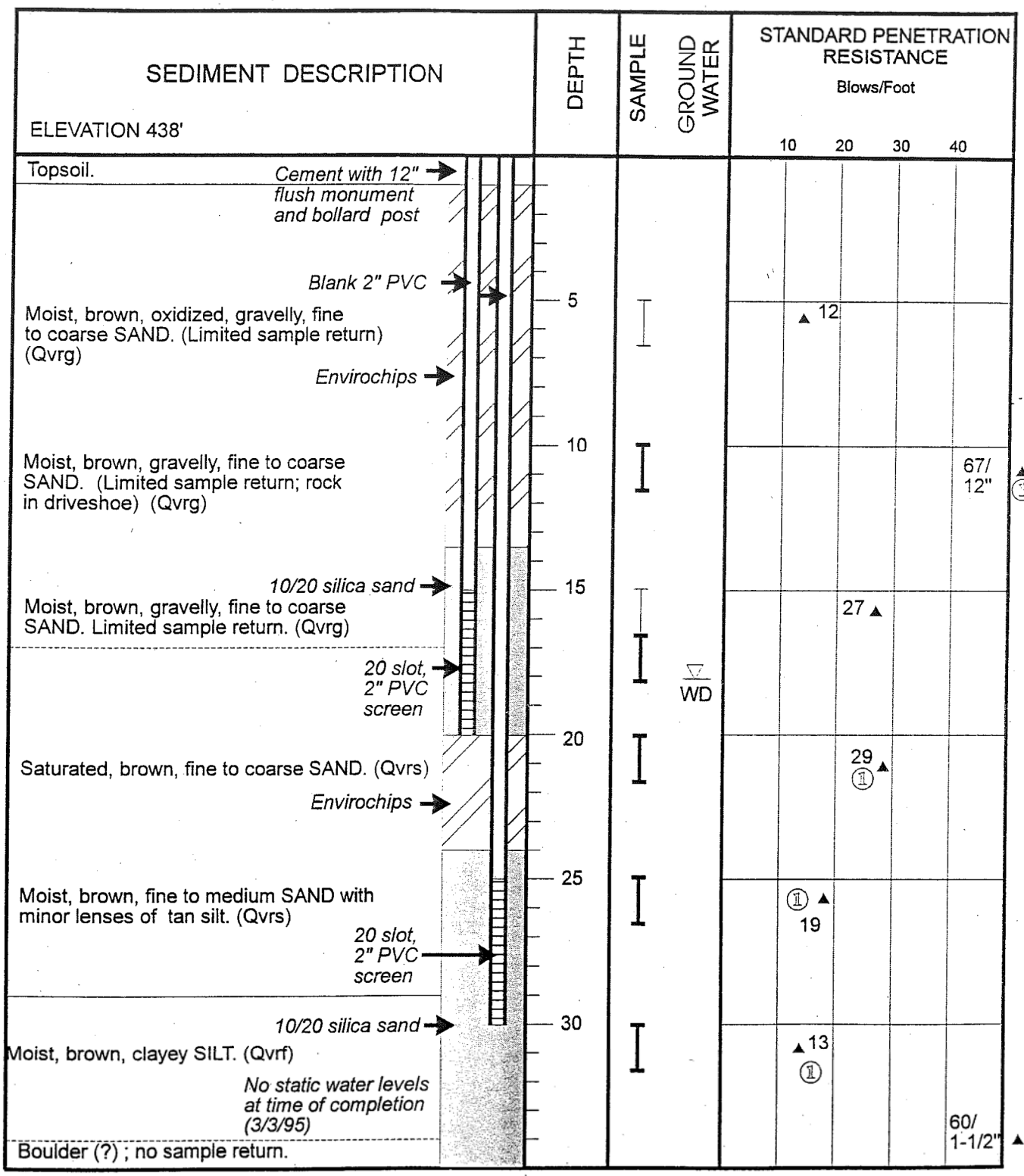
Reviewed By GSK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. G94236A
March 1995

EXPLORATION BORING LOG

Number OBW-4 (BH-6) Page 1 of 2



Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. G94236A
March 1995

EXPLORATION BORING LOG

Number OBW-4 (BH-6) Page 2 of 2

SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows/Foot 10 20 30 40
BOH @ 35' Refusal	40			
I Split spoon sampler				
I ① Dames & Moore California Modified Ring Sampler (140 lb. hammer)	45			
WD Ground water encountered while drilling				
DOE Well ID #ABN-114				

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By CJK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. G94236A
March 1995

EXPLORATION BORING LOG

Number BH-7 Page 1 of 2

SEDIMENT DESCRIPTION ELEVATION 416' ±	DEPTH	SAMPLE	GROUND WATER	DAMES & MOORE RING SAMPLER PENETRATION RESISTANCE WITH 140 LB. HAMMER Blows/Foot 10 20 30 40
Surface: Soft, wet, brown, clayey SILT. (Flood Plain Deposits)				
Moist, brown, fine SAND. (Flood Plain Deposits)	5	I		▲ 11
Wet, brown, gravelly SAND, trace to some silt.	10	I		17▲
Saturated, brown, gravelly SAND, trace to some silt.	15	I		▲ 10
Saturated, rusty brown, strongly mottled, gravelly SAND.	20	I		▲ 33
Saturated, rusty brown, mottled, gravelly, medium to coarse SAND. Becomes dark gray below 26'.	25	I		▲ 40
Saturated, gray, gravelly, medium to coarse SAND.	30	I		80 ▲

Ancestral South Fork Channel (?) Deposits

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By CSK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant - Pump Station
Snoqualmie, Washington
Project No. G94263B
March 1995

EXPLORATION BORING LOG

Number BH-7 Page 2 of 2

SEDIMENT DESCRIPTION	DEPTH	SAMPLE / GROUND WATER	DAMES & MOORE RING SAMPLER PENETRATION RESISTANCE WITH 140 LB. HAMMER Blows/Foot 10 20 30 40
Saturated, as above. (Ancestral South Fork Channel (?) Deposits)			35
Saturated, as above.	40		50
Saturated, as above with some silt.	45		66
Wet, gray, clayey SILT, trace heaved sand in upper part of sample. (Lacustrine (?) Deposits)	50		8
BOH @ 51-1/2'	55		
I Dames & Moore California Modified Ring Sampler (140 lb. hammer)	60		
	65		

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By CJK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant - Pump Station
Snoqualmie, Washington
Project No. G94263B
March 1995

EXPLORATION BORING LOG

Number OBW-1

SEDIMENT DESCRIPTION ELEVATION 423.6'	DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows/Foot 10 20 30 40
Moist, brown, silty, fine SAND. (Fill?) Rocks in tip affected blow counts.	5			50/ 5-1/2"
No recovery. Rocks in tip. Driller reported change at approximately 7-1/2' to 8' to silty material.				
No recovery. Rocks in tip.	10		WD	
Damp, gray SILT with sand, gravel. (Lodgement Till) Approximate 3" recovery.				50/ 3" ①
Damp, gray, sandy SILT to silty SAND with gravel. (Lodgement Till) Approximate 6" recovery.	15			50/ 6" ①
Damp, gray, silty SAND with gravel. (Lodgement Till) Approximate 6" recovery.				50/ 5" ①
Saturated, brown SAND AND GRAVEL with silt. (Qva)	20			50/ 4" ①
BOH @ 23' Note: Probable bedrock at approximately 23'. Twisted off auger in hole. Hole abandoned.	25			
WD = while drilling Split spoon sampler ① Dames & Moore California Modified Ring Sampler (140 lb. hammer)	30			

Qvt

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

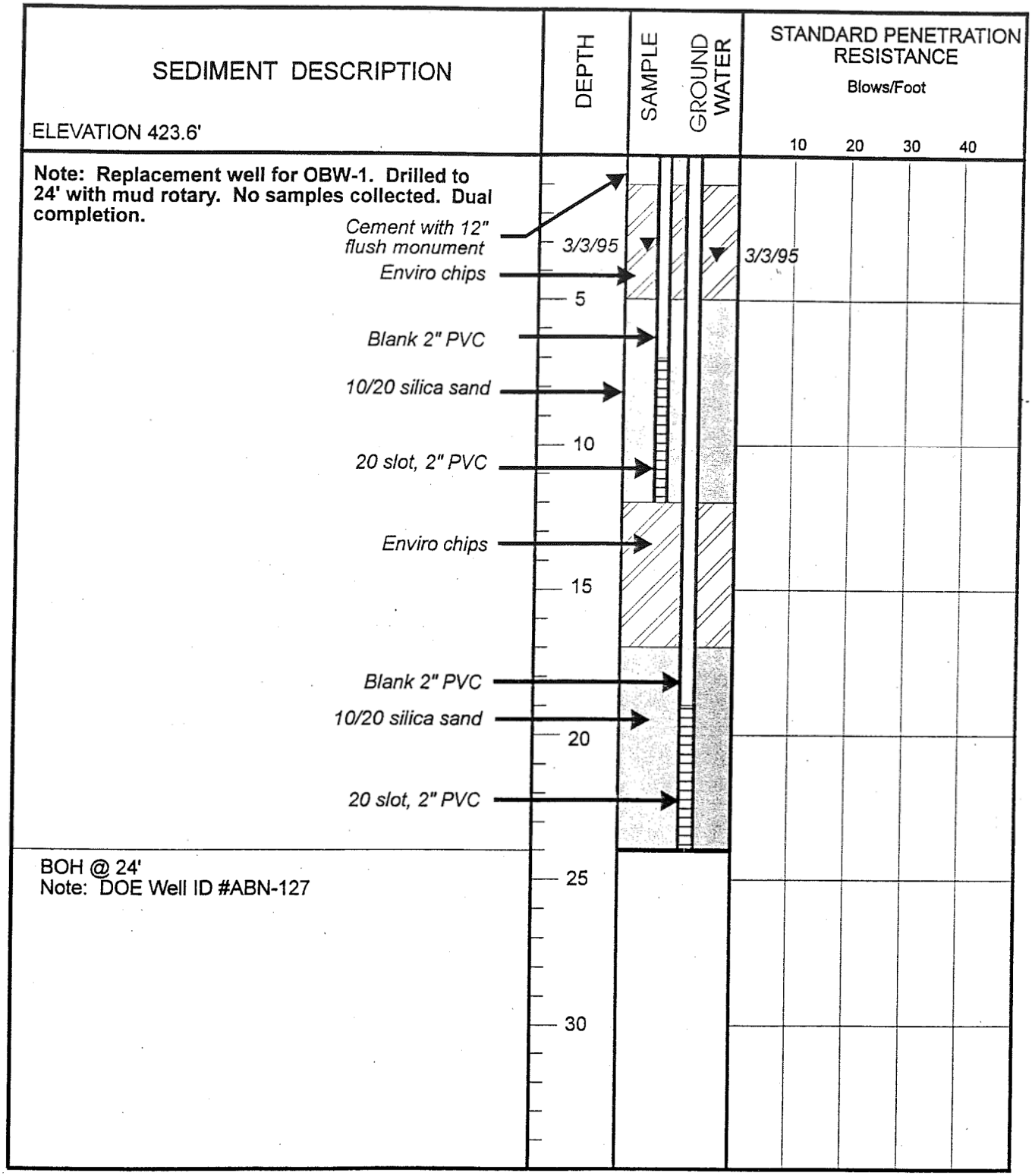
Reviewed By GJK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. W94236A
February 1995

EXPLORATION BORING LOG

Number OBW-1B



Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By CTK

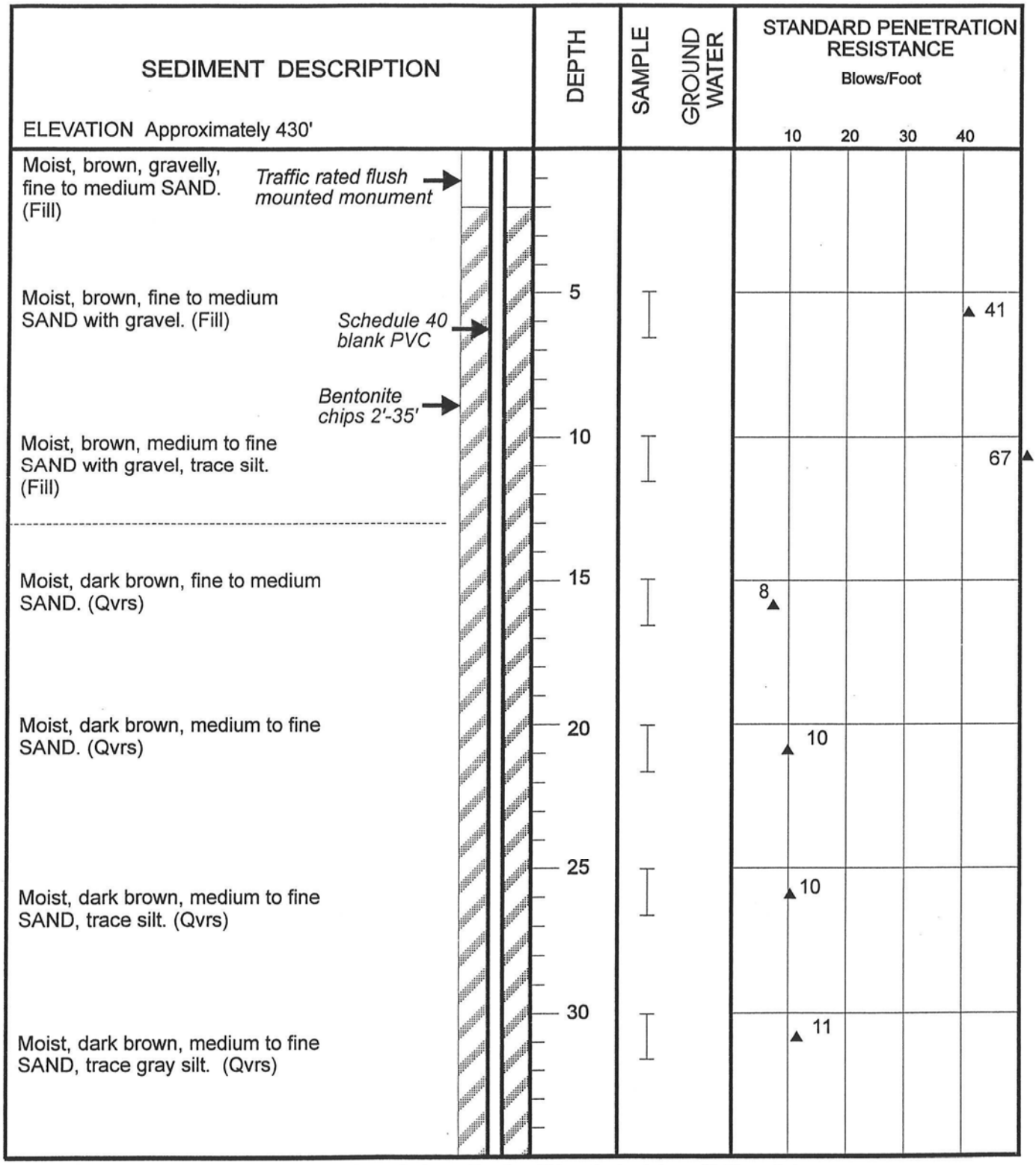
Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. W94236A
February 1995

RNM

EXPLORATION BORING LOG

Number OBW-2A Page 1 of 2



Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. W94263C
July 1996

EXPLORATION BORING LOG

Number OBW-2A Page 2 of 2

SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows/Foot (10 20 30 40)
Moist, dark brown, medium to fine SAND, trace gray silt. (Qvrs)				▲12
Colorado silica sand 35' to 51-1/2' →				
Moist, dark brown, medium to fine SAND, trace silt. (Qvrs)	40			▲12
0.020 Slot Schedule 40 screen 40'-50' →				
Moist, dark brown, medium to fine SAND, trace gray silt. (Qvrs)	45		▼ 07/27/96	▲12
Saturated, brown, medium to fine SAND with gray silt. (Qvrs)	50			▲14
BOH @ 51-1/2' Note: DOE Well ID #ACJ290 replacement for OBW-2 DOE Well ID #ABN-126 which was abandoned.	55			
	60			
	65			

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

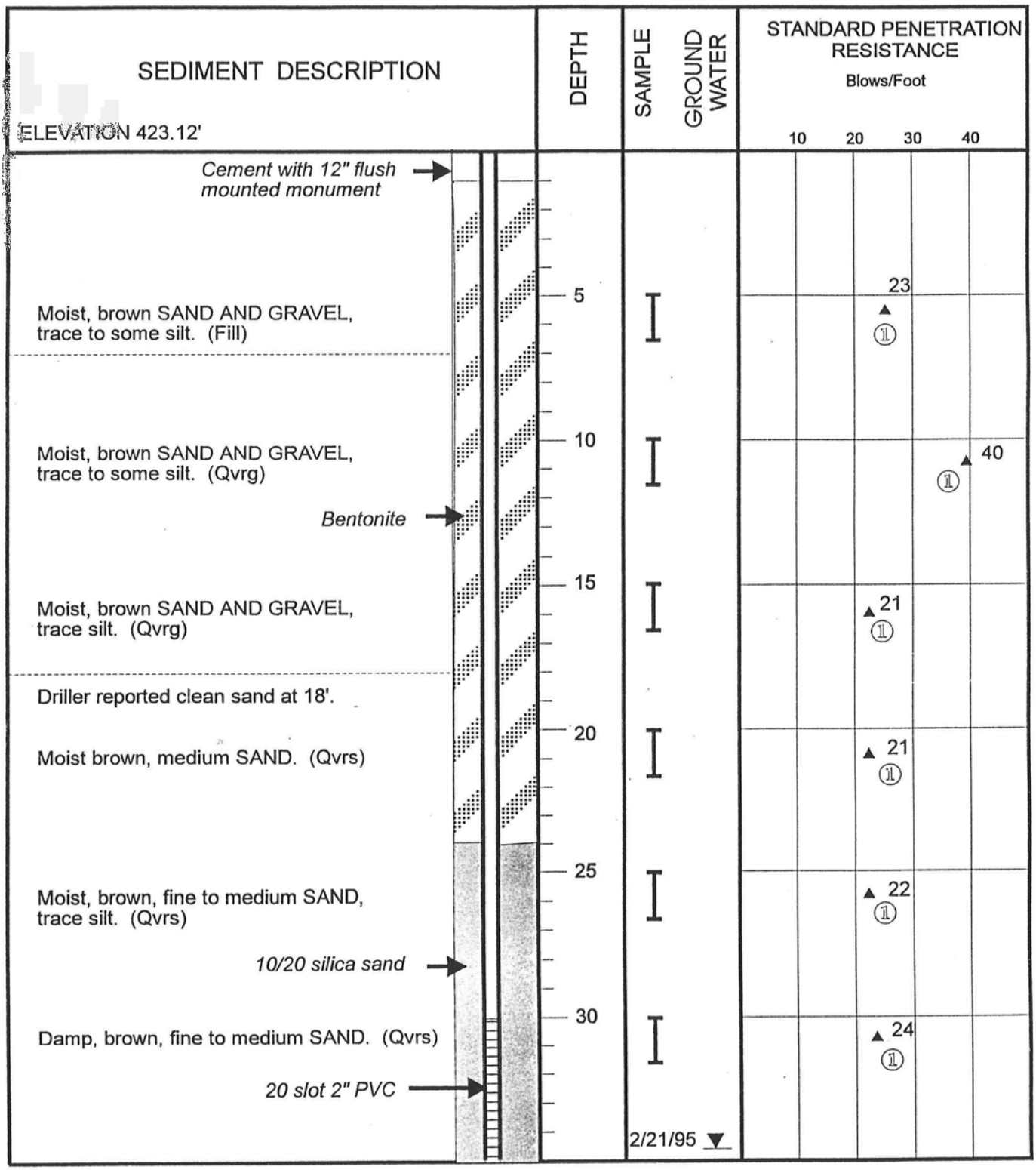
Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. W94263C
July 1996

EXPLORATION BORING LOG

Number OBW-2 Page 1 of 2



Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

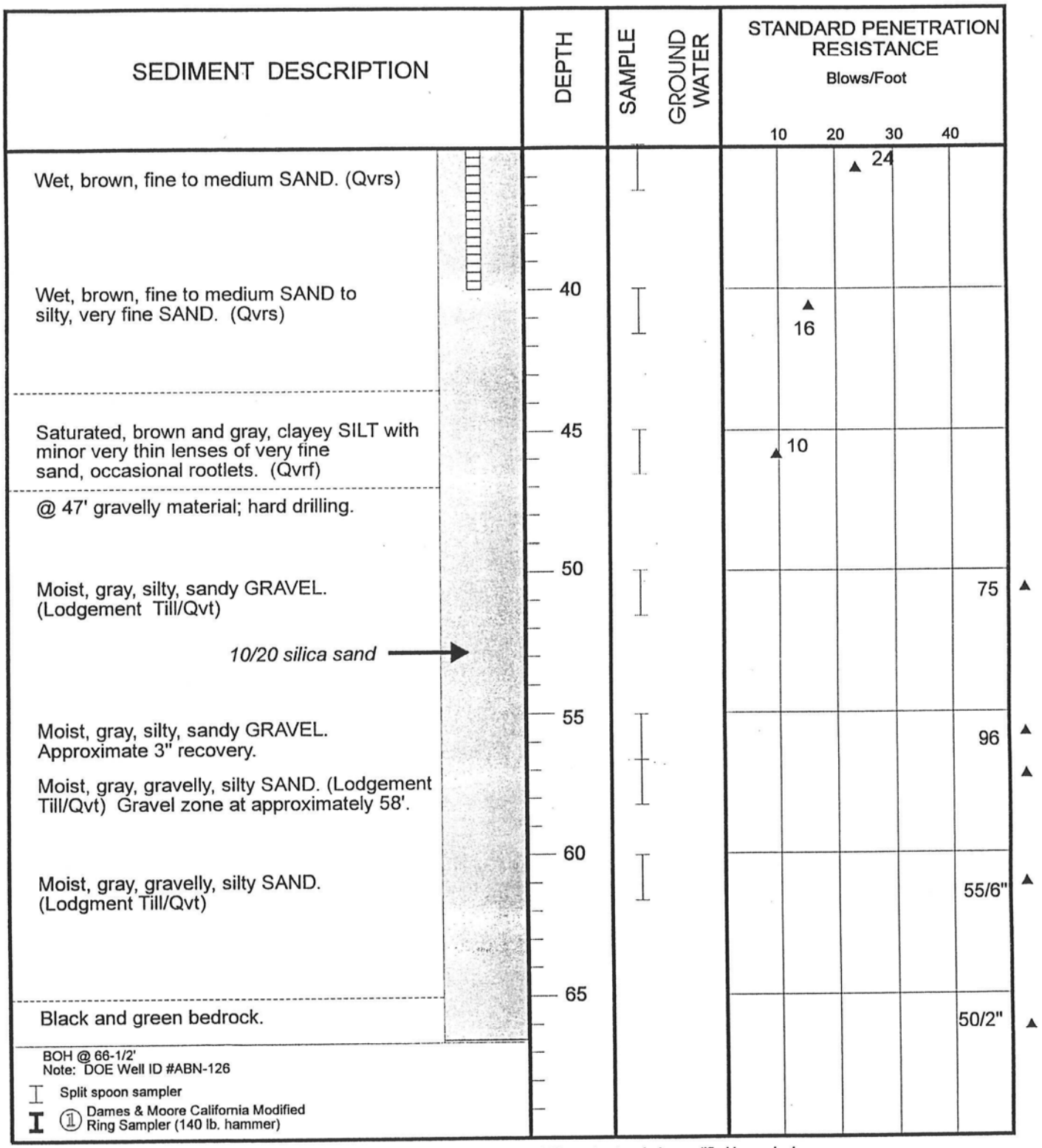
Reviewed By CSK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. W94236A
February 1995

EXPLORATION BORING LOG

Number OBW-2 Page 2 of 2



Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

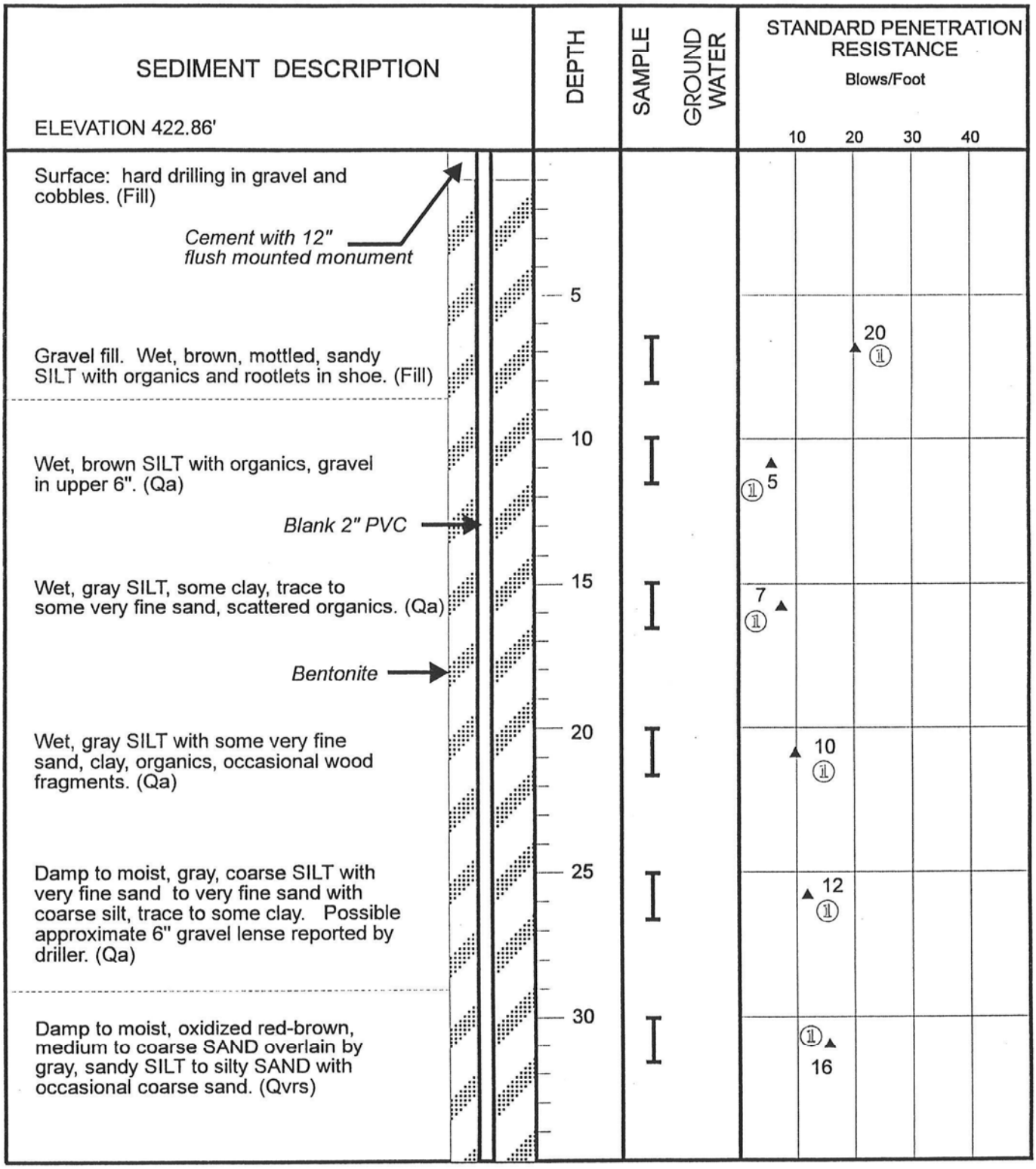
Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. W94236A
February 1995

EXPLORATION BORING LOG

Number OBW-3 Page 1 of 3



Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

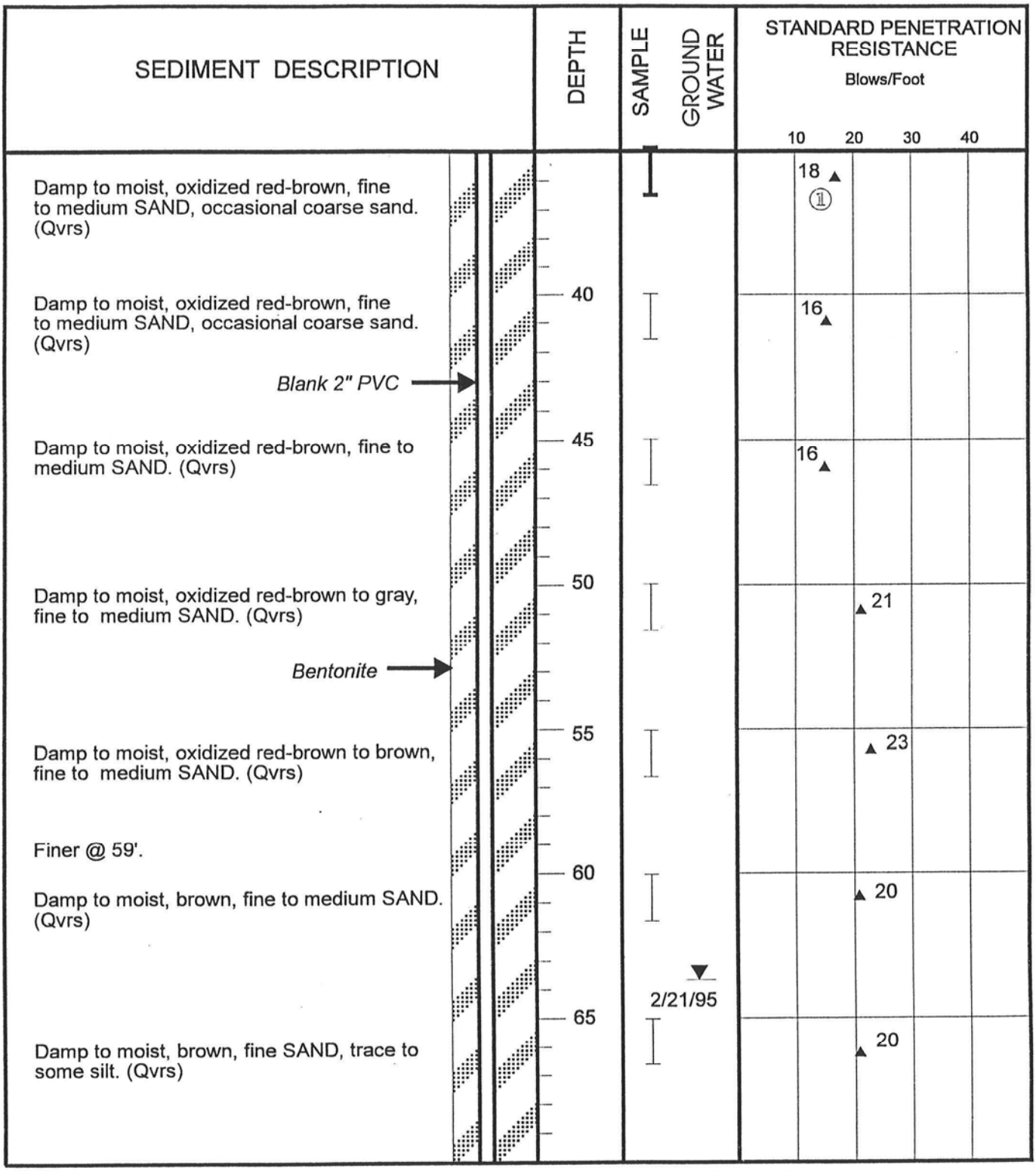
Reviewed By CSK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. W94236A
February 1995

EXPLORATION BORING LOG

Number OBW-3 Page 2 of 3



Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

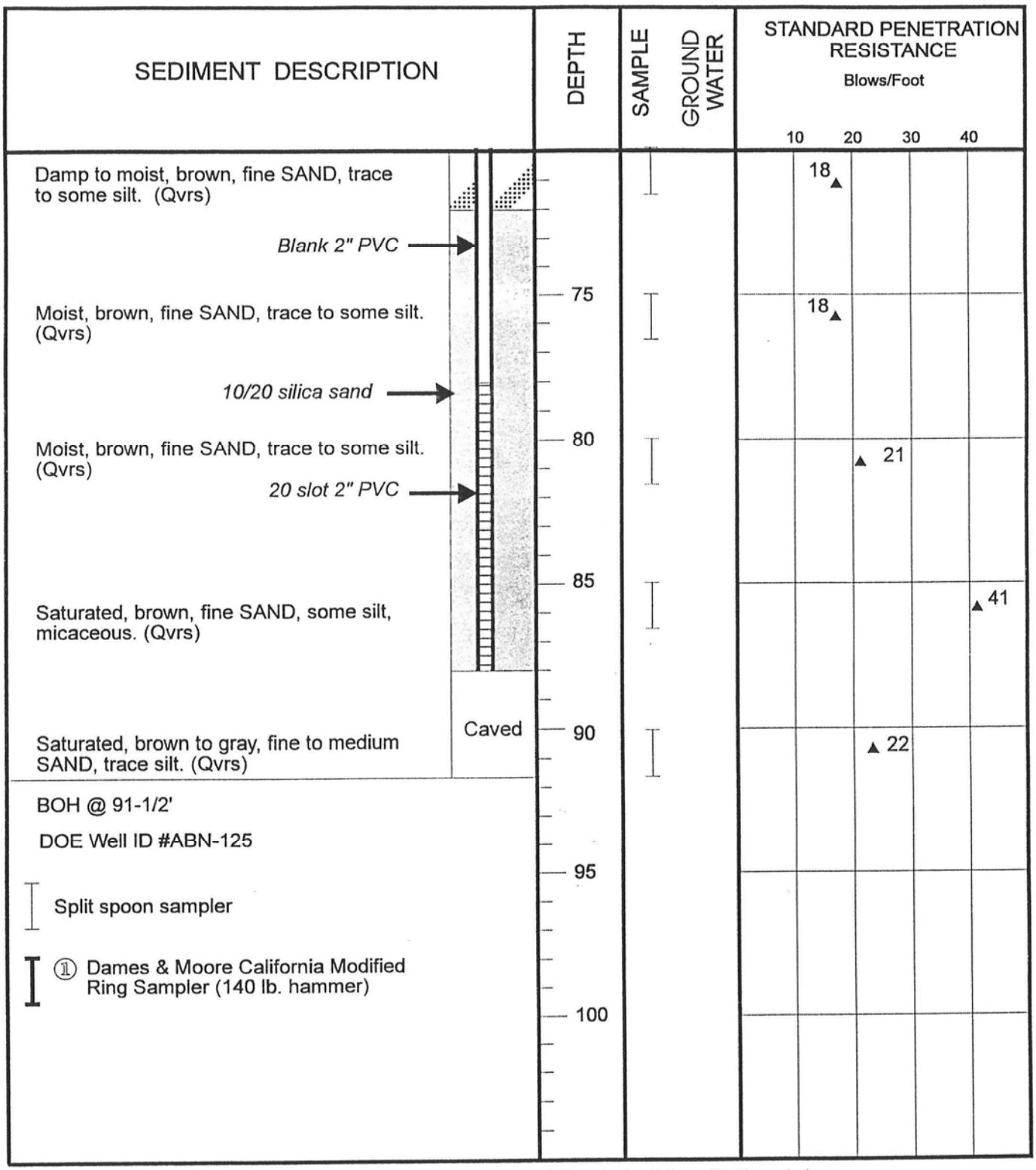
Reviewed By CJK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. W94236A
February 1995

EXPLORATION BORING LOG

Number OBW-3 Page 3 of 3



Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

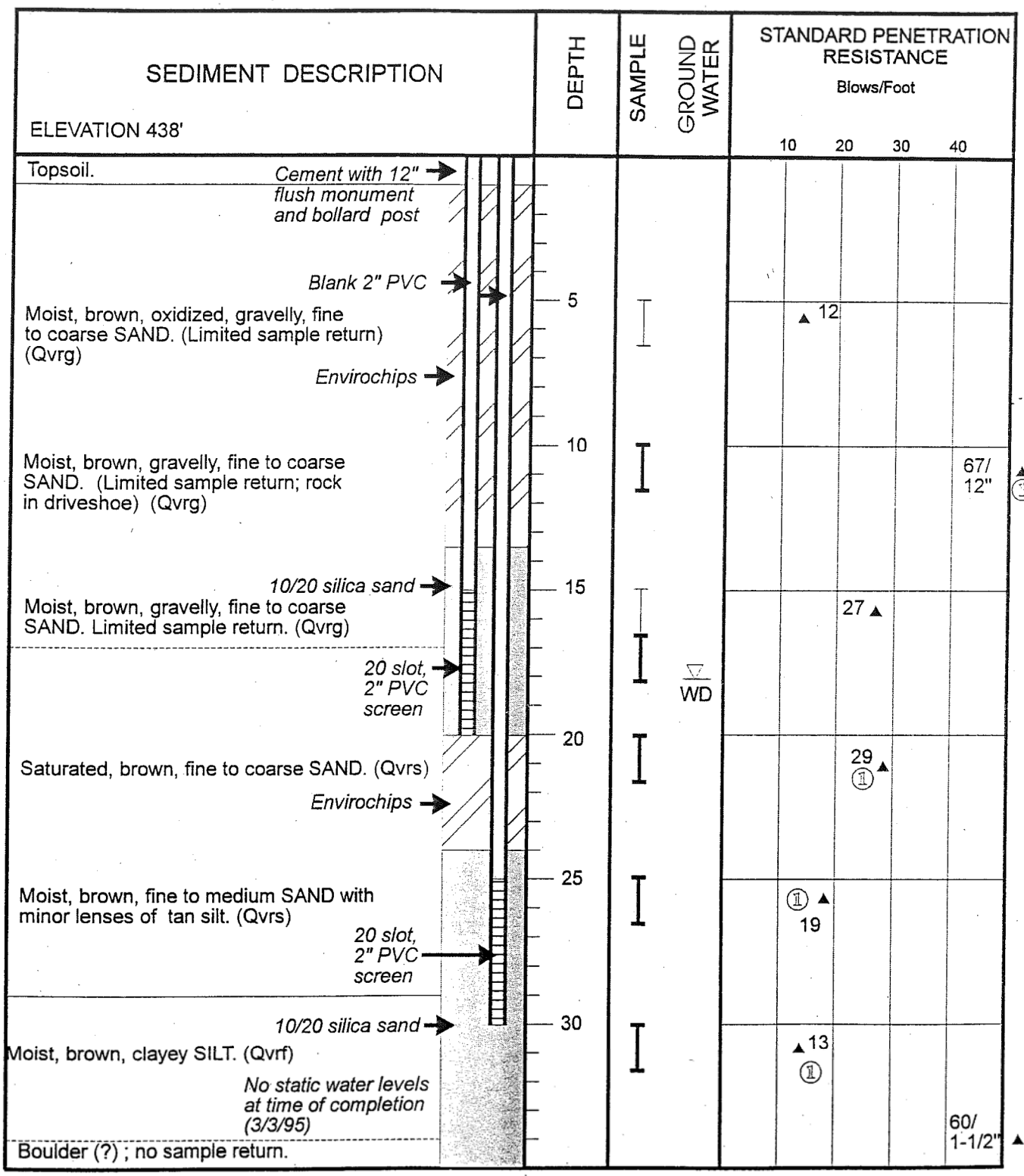
Reviewed By CJK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. W94236A
February 1995

EXPLORATION BORING LOG

Number OBW-4 (BH-6) Page 1 of 2



Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. G94236A
March 1995

EXPLORATION BORING LOG

Number OBW-4 (BH-6) Page 2 of 2

SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows/Foot 10 20 30 40
BOH @ 35' Refusal	40			
I Split spoon sampler				
I ① Dames & Moore California Modified Ring Sampler (140 lb. hammer)	45			
WD Ground water encountered while drilling				
DOE Well ID #ABN-114				

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By CJK

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. G94236A
March 1995

EXPLORATION BORING LOG

Number OBW-5

SEDIMENT DESCRIPTION	DEPTH	SAMPLE	WELL COMPLETION	STANDARD PENETRATION RESISTANCE Blows/Foot (10 20 30 40)
Cement w/12" Flush Monument				
Envirochips (Bentonite)				
Wet, brown, mottled, clayey SILT with some fine sand. Cobbles at 6'.	5			3/21/95 ▼ 15 ▲
2" PVC Blank				
Moist, gray, cobbly, silty, gravelly SAND. Large cobbles at 13-1/2' at contact. (Subglacial (?) Deposits)	10			50/5"
20 Slot 2" PVC Screen				
Moist, gray, gravelly, silty SAND. (Lodgement Till?/Qvt))	15			50/6"
10/20 Silica Sand				
No sample.	20			50/1"
BOH @ 21-1/2' Note: Bentonite chips fell back into well; screened 10' to 15'; bottom 2' plugged. DOE Well ID #ABN-109	25 30			

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Waste Water Treatment Plant
Snoqualmie, Washington
Project No. W94263A
March 1995

EXPLORATION BORING LOG

Number B-1 Page 1 of 2

SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE (Split Spoon Sampler) Blows/Foot 10 20 30 40
Wet, brown cobbles. (Fill)				
Moist, brown, slightly silty, fine SAND with minor organics *Flood Plain Deposits*	5			4
Moist, brown, gravelly, fine to coarse SAND.	10			23
Moist to wet, brown, fine to coarse SAND with minor gravel.	15			8
Saturated, brown, highly oxidized in areas, fine to coarse SAND with gravel.	20		WD	16
8" log at 23-1/2'; near refusal. Saturated, brown, fine to coarse SAND with minor gravel.	25			21
Saturated, brown, oxidized in zones, fine to medium SAND. Containing minor pieces of wood.	30			7

Ancestral South Fork Channel (?) Deposits

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Pump Station
Snoqualmie, Washington
Project No. G95125A
June 6, 1995

EXPLORATION BORING LOG

Number B-1 Page 2 of 2

SEDIMENT DESCRIPTION		DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE (Split Spoon Sampler) Blows/Foot 10 20 30 40
Saturated, brown, oxidized in zones, fine to medium SAND grading into fine to coarse SAND. Containing minor pieces of wood and organics.	*Ancestral South Fork Channel (?) Deposits*				▲ 21
Saturated, brown, fine to coarse SAND.		40			▲ 14
Saturated, brown, fine to coarse SAND.		45			▲ 21
Saturated, brown, fine to coarse SAND.		50			▲ 4
Saturated, blue-gray, silty CLAY. Containing occasional very thin beds of organics.	*Lacuatrine Deposits*				
Saturated, blue-gray, silty CLAY.		55			▲ 3
Saturated, blue-gray, silty CLAY.		60			▲ 2
Saturated, blue-gray, silty CLAY.		65			▲ 0-Pushed
BOH @ 66-1/2' Note: Water added 25' to 50' due to heaving sands. WD = water encountered while drilling					

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Pump Station
Snoqualmie, Washington
Project No. G95125A
June 6, 1995

EXPLORATION BORING LOG

Number B-2 Page 1 of 2

SEDIMENT DESCRIPTION		DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE (Split Spoon Sampler) Blows/Foot 10 20 30 40
Wet, brown oxidized GRAVEL AND COBBLES. (Fill)					
Moist, brown, slightly silty, fine SAND with occasional gravel. (Limited sample return)	*Flood Plain Deposits*	5			▲ 4*
Moist, brown, slightly silty, fine SAND with occasional gravel. (Limited sample return)		10			6*▲
Moist, brown, oxidized, fine to medium SAND with occasional gravel.	*Ancestral South Fork Channel (?) Deposits*	15		▽ WD	15▲
Saturated, brown-black, locally silty, fine to medium SAND, slightly micaceous and containing minor pieces of wood.		20			▲ 3
Saturated, brown and gray in zones, locally oxidized, fine to medium SAND, slightly micaceous and containing very thin beds of organics.		25			9▲
Saturated, brown, fine to coarse SAND grading into gray, fine to medium SAND.		30			▲ 14

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Pump Station
Snoqualmie, Washington
Project No. G95125A
June 6, 1995

EXPLORATION BORING LOG

Number B-2 Page 2 of 2

SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE (Split Spoon Sampler) Blows/Foot 10 20 30 40
Saturated, brown, highly oxidized in zones, fine to coarse SAND. *Ancestral South Fork Channel (?) Deposits*				17 ▲
Saturated, brown, fine to coarse SAND containing minor organics.	40			18 ▲
Saturated, blue-gray, silty CLAY. *Lacustrine Deposits*	45			▲ 2
BOH @ 46-1/2' Note: Water added 25' to 45' due to heaving sands.				
WD = water encountered while drilling	50			
* = rock in driveshoe	55			
	60			
	65			

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Pump Station
Snoqualmie, Washington
Project No. G95125A
June 6, 1995

EXPLORATION BORING LOG

Number B-3 Page 1 of 2

SEDIMENT DESCRIPTION		DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE (Split Spoon Sampler) Blows/Foot 10 20 30 40
Wet, brown to black, organic, gravelly SAND. (Topsoil)					
Moist, brown, slightly silty, fine SAND with minor organics.	*Flood Plain Deposits*	5			0 - Pushed
Moist, brown, slightly silty, fine SAND with minor organics.		10			▲ 3
Moist, brown, slightly oxidized, fine to medium SAND, slightly micaceous.	*Ancestral South Fork Channel (?) Deposits*	15			0 - Pushed
Saturated, brown, slightly silty, fine to coarse SAND. Containing minor gravel and pieces of wood.		20		▽ WD	▲ 2
Saturated, brown-gray, silty, fine to medium SAND with abundant pieces of wood and minor organics.		25			▲ 4
Saturated, gray, locally silty, fine to medium SAND.		30			▲ 5

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Pump Station
Snoqualmie, Washington
Project No. G95125A
June 6, 1995

EXPLORATION BORING LOG

Number B-3 Page 2 of 2

SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE (Split Spoon Sampler) Blows/Foot 10 20 30 40
Saturated, gray, fine to medium SAND grading into fine to coarse SAND.				▲ 10
Saturated, gray, slightly silty, fine to medium SAND grading into brown, oxidized, fine to coarse SAND.	40			▲ 22
Saturated, brown, fine to coarse SAND (Limited in-place sample due to heaving sands)	45			▲ 16**
Ancestral South Fork Channel (?) Deposits				
Saturated, blue-gray CLAY. *Lacustrine Deposits*	50			▲ 0 - Pushed
BOH @ 51-1/2'				
WD = water encountered while drilling	55			
** = Auger plugged due to heaving sands. Blow counts may not be representative of in-place conditions.	60			
	65			

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Pump Station
Snoqualmie, Washington
Project No. G95125A
June 6, 1995

EXPLORATION BORING LOG

Number ESB-1C Page 1 of 3

SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows/Foot 10 20 30 40
Moist, brown, fine SAND. (Extrapolated from ESB-1B and drill cuttings)	5			
Moist to wet, brown, sandy GRAVEL. (Extrapolated from ESB-1B and drill cuttings)	10			
	15			
Saturated, brown to red-brown, gravelly, medium to coarse SAND.	20		WD	1
Log encountered 21' to 24'; difficult drilling.				
Saturated, gray, fine to medium SAND with wood pieces. Limited sample return, may be heave.	25			16 (heave?)
Log encountered 28' to 30'; difficult drilling.				
Saturated, brown-gray, slightly silty, fine to coarse SAND with wood pieces.	30			20

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

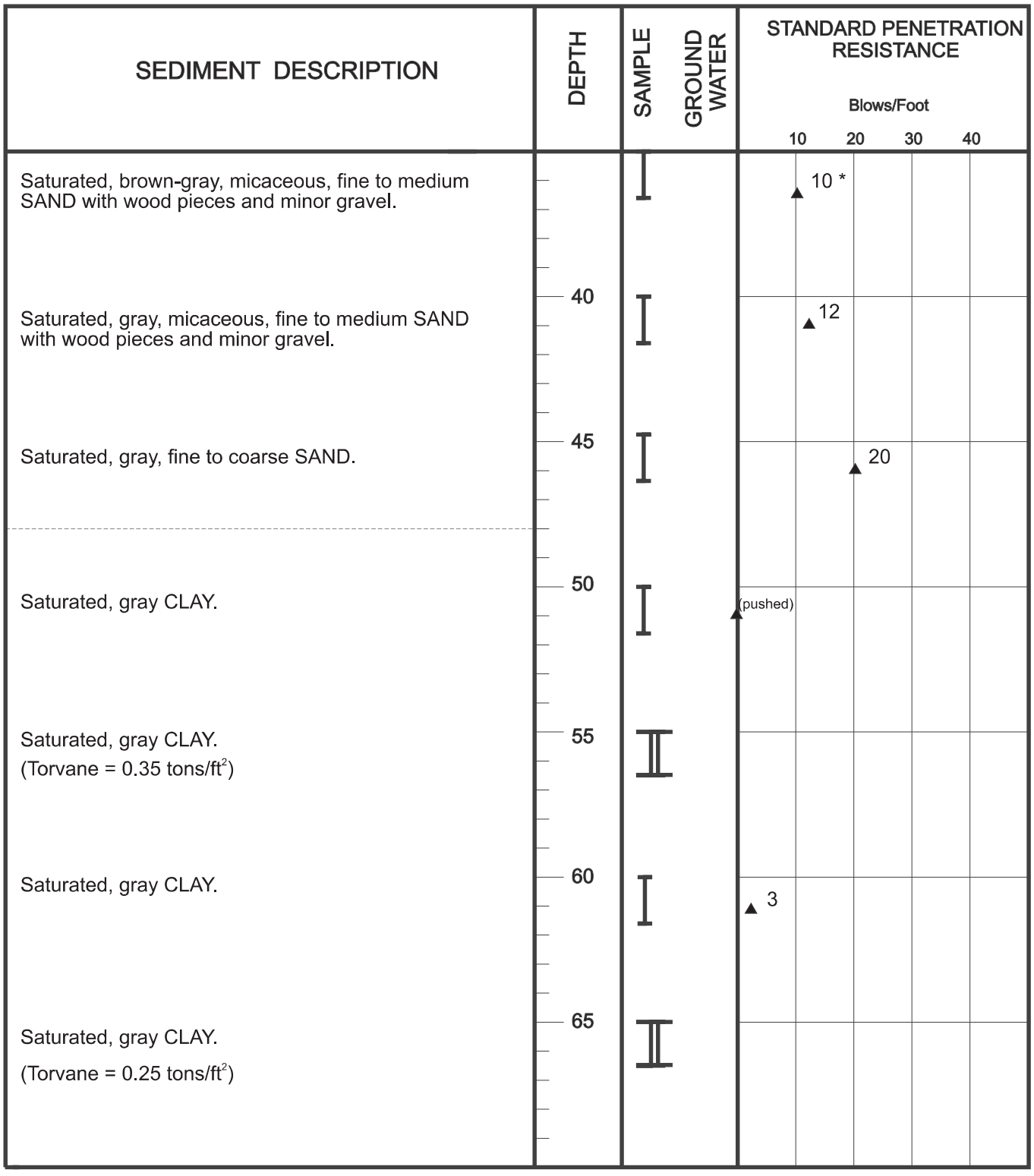
Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Lift Station
Snoqualmie, Washington
Project No. H95125A
September 1995

EXPLORATION BORING LOG

Number ESB-1C Page 2 of 3



Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Lift Station
Snoqualmie, Washington
Project No. H95125A
September 1995

EXPLORATION BORING LOG

Number ESB-1C Page 3 of 3

SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows/Foot 10 20 30 40
Saturated, gray CLAY.				▲2
Saturated, gray, slightly sandy CLAY. (Torvane = 0.20 tons/ft²)	75			
Saturated, gray, fine to medium SAND.	80			▲1
Due to heave, unable to sample below 80'. Based on drilling action encountering gravel at 84'. At 91' drilling becomes harder (possible lodgement till).	85			
	90			
BOH @ 95'	95			
Note: Refusal. Drilled with Hollow Stem Auger. Sand heave binding up augers. 25' of heave at BOH.				
WD = water encountered while drilling. * = rock in drive shoe	100			
Split spoon sampler				
Shelby tube sampler				

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretations, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Reviewed By

Associated Earth Sciences, Inc.
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
Phone: 206-827-7701
Fax: 206-827-5424

Snoqualmie Lift Station
Snoqualmie, Washington
Project No. H95125A
September 1995

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-1	1 of 2

Project Name: Snoqualmie Bedrock Mining
Location: King County, WA
Elevation (Top of Well Casing): 625.68
Surface Elevation (ft): N/A
Water Level Elevation:
Date Start/Finish: 07/08/02,07/08/02
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hole Diameter (in): 6
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	S T	Blows/ 6"	Graphic Symbol	DESCRIPTION
		10" diameter bentonite surface seal (bentonite pellets) 0-18'				Surface materials: Dark brown, fine SAND. **Vashon Recessional Delta Deposits**
5						Loose gravels with cobbles. Driller notes losing air into formation
10						
15						Driller adding small amount of water. Dark brown, SANDY GRAVEL, abundant cuttings.
20		6" diameter steel casing +2'-69'				
25						Dry, brown, fine to medium SAND, trace gravel.
30						Driller notes softer, possible small amount water not noted in sample.
35						Dry, brown, fine to coarse SAND, trace gravel.
40						Damp, brown, fine to medium SAND, trace gravel.
45						Damp, brown, fine to medium SAND, little gravel, trace silt. Minor increase in silt content.
50		6" diameter steel casing +2'-69'				Moist, brown, GRAVELLY fine to medium SAND with trace to some silt.
55	▼					Color change at ~ 52' to gray. Driller adding water. Gray, SILTY, GRAVELLY, fine to medium SAND.
60						
65						
70		K-packer 66.5'-67' 6" diameter telescoping stainless steel screen 0.012" slot width 67'-72'				Becoming interbedded gray SAND/SILT with trace gravel. Gray, fine to medium SAND with trace silt. Gray SILT.
75		6" diameter telescoping stainless steel screen 0.014" slot width 72'-77'				Color change at ~74' to gray-brown, increase in gravel. Saturated, gray-brown GRAVEL with minor sand, abundant cuttings.
		Gravel fill 77'-78'				Cobble at 78'.
80		Abandoned 6" diameter steel casing backfilled with bentonite 78'-87'				Gray GRAVEL (cuttings) with minor brown to white gravel (mainly andesite with minor intrusive volcanic [diorite?] gravels).

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH
Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/29/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-1	2 of 2

Project Name: Snoqualmie Bedrock Mining
Location: King County, WA
Elevation (Top of Well Casing): 625.68
Surface Elevation (ft): N/A
Water Level Elevation:
Date Start/Finish: 07/08/02,07/08/02
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hole Diameter (in): 6
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
						Gray GRAVEL (cuttings) with minor clasts of quartz, diorite.
90		Bentonite pellets as backfill 87'-94'				**Mt. Persis Formation** Gray ANDESITE.
95						Boring terminated at 94 feet on 07/08/02 Well completed on 07/09/02.
100						
105						
110						
115						
120						
125						
130						
135						
140						
145						
150						
155						
160						
165						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH

Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/29/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-2a	1 of 2

Project Name: Snoqualmie Bedrock Mining
Location: King County, WA
Elevation (Top of Well Casing): 625.71
Surface Elevation (ft): N/A
Water Level Elevation:
Date Start/Finish: 07/09/02,07/11/02
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hole Diameter (in): 6
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	S T	Blows/ 6"	Graphic Symbol	DESCRIPTION
		Well abandoned with bentonite 0-139'				Surface material: dark brown SAND. **Vashon Recessional Delta Deposits**
10						Light brown, fine to medium SAND, little gravel, little coarse sand. Drilling adding small amount of water. Dark brown, SANDY GRAVEL.
15						Dark gray and green GRAVEL with little brown sand.
20						Brown to gray GRAVEL with trace sand, abundant cuttings. Grades to SAND.
25						Damp, brown, fine to medium SAND.
30						
35						Slower drilling - losing air into formation, driller adding water. Brown, fine to medium SAND with few coarse sand, few gravel.
40						Brown, fine to coarse SAND, little gravel.
45						Brown, SANDY GRAVEL, trace silt.
50						As above. Increase in silt content.
55	▼					Brown, SANDY GRAVEL with some silt. Color change to gray, increase in silt content.
60						Color change to brownish gray. Gray to brown-gray, SILTY, GRAVELLY SAND.
65						Brown, SILTY fine to medium SAND with gravel. At 66', thin layers of gray SILT interbedded with brown, fine to medium SAND, trace gravel. At 68', layer of brown-gray, medium to coarse SAND with trace gravel.
70						Boulder-andesite ~72'-73' Color change to green-gray.
75						Gray GRAVEL with fine to coarse SAND, little silt. At ~77', gray-brown color, abundant orange gravel clasts.
80		Well abandoned with bentonite 0-139'				At ~79', color change to brown. Brown-gray, SANDY GRAVEL, trace silt. Color change to gray. Increase in silt content 82'-83'.

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level ()
Water Level at time of drilling (ATD)

Logged by: JAH/LBK
Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/29/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-2a	2 of 2

Project Name: Snoqualmie Bedrock Mining
Location: King County, WA
Elevation (Top of Well Casing): 625.71
Surface Elevation (ft): N/A
Water Level Elevation:
Date Start/Finish: 07/09/02,07/11/02
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hole Diameter (in): 6
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
						Gray, SANDY GRAVEL with few silt.
						Mt. Persis Formation
90						At 87', driller notes edge of bedrock. Gray ANDESITE (cuttings).
95						
100						Gray to green ANDESITE.
105						Driller noted a bit softer at ~104.5'; hard again at ~105'.
110						Driller notes looser at ~111'.
115						Slower drilling, smaller cuttings at ~117'.
120		Well abandoned with bentonite 0-139'				Gray to green ANDESITE.
125						
130						
135						
140						Boring terminated at 139 feet on 07/11/02
145						
150						
155						
160						
165						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level ()
Water Level at time of drilling (ATD)

Logged by: JAH/LBK
Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/29/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-2b	1 of 4

Project Name: Snoqualmie Bedrock Mining
Location: King County, WA
Elevation (Top of Well Casing): 625.71
Surface Elevation (ft): N/A
Water Level Elevation:
Date Start/Finish: 07/18/02,07/23/02
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hole Diameter (in):
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/6"	Graphic Symbol	DESCRIPTION
		10" diameter bentonite surface seal (bentonite quick grout 0-95' and bentonite chips 95'-97.5') 0-97.5'				Surface material: Dark brown, fine SAND.
						Vashon Recessional Delta Deposits
5						Driller adding water throughout. No Recovery
10		6" diameter steel casing +2'-97.5'				Brown-gray, GRAVELLY medium to coarse SAND, little cobbles.
15						Brown, GRAVELLY fine to coarse SAND. Driller notes material is softer at 16', possibly finer sand.
20						
						Brown, GRAVELLY fine to coarse SAND, trace cuttings.
25						Brown, fine to medium SAND, little gravel.
30						Brown, fine to medium SAND, trace gravel.
35						
40						Poor recovery - brown, fine to medium SAND, trace gravel, silt.
						Brown, fine to medium SAND, trace silt.
45						Brown, fine to medium SAND, trace gravel, silt.
50						Brown, fine to medium SAND with little gravel, few silt.
						Color change to gray, silt content increases.
55	▼					Gray, SILTY fine SAND with little gravel.
60						
65						
70						Gray, SILTY fine SAND/SANDY SILT with little gravel (clasts of gray, sandy silt in cuttings). At ~71', slow drilling - increase in gravel content.
75						Gray, SILTY, SANDY GRAVEL. At ~76', color change to gray-brown. Water discharge at casing switch - gray-brown. Slow drilling.
80		10" diameter bentonite surface seal (bentonite quick grout 0-95' and bentonite				Gray to gray-brown, SANDY GRAVEL with cobbles. At 82', becoming gray.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH/RNS
Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/30/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-2b	2 of 4

Project Name: Snoqualmie Bedrock Mining
Location: King County, WA
Elevation (Top of Well Casing): 625.71
Surface Elevation (ft): N/A
Water Level Elevation:
Date Start/Finish: 07/18/02,07/23/02
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hole Diameter (in):
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/6"	Graphic Symbol	DESCRIPTION
		chips 95'-97.5') 0-97.5'				Gray GRAVEL with little medium to coarse sand (mainly andesite, trace conglomerate, plutonic, sandstone).
						Mt. Persis Formation
90	▽	6" diameter steel casing +2'-97.5'				Driller notes bedrock at ~88'. Gray to green ANDESITE, trace orange, white clasts.
95						
		Drilling openhole into bedrock 97.5'-310'				
100						Gray to green ANDESITE.
105						
110						
115						
120						
125						Driller notes slightly harder at ~123' for thin zone.
130						Driller notes slightly harder from ~129' to ~135'.
135						Driller notes softer from 135' to 139'.
						Driller notes slightly harder.
140	▼					At 141', driller notes fractures; small amount of water encountered (estimated <1 gpm by driller).
145						As above, but wet.
						Driller notes harder at ~148'.
150						As above, but damp.
						Driller notes soft spot - thin zone at ~152'; possible fracture.
155						
160		Drilling openhole into bedrock 97.5'-310'				Gray to green ANDESITE.
165						At ~166', driller adding water.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH/RNS

Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/30/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-2b	3 of 4

Project Name: Snoqualmie Bedrock Mining
Location: King County, WA
Elevation (Top of Well Casing): 625.71
Surface Elevation (ft): N/A
Water Level Elevation:
Date Start/Finish: 07/18/02,07/23/02
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hole Diameter (in):
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
175						Driller notes looser from ~173' to 180'.
180						Harder drilling from 180'-205'.
185						Greenish gray ANDESITE, minor sulfides.
190						
195						
200						As above; minor calcite.
205						Greenish gray ANDESITE.
210						
215						As above - minor pyrite (disseminated).
220						Greenish gray ANDESITE.
225						
230	▼					Moderate amount of ground water at 230'. Driller estimates a minimum of 5-7 gpm.
235						Lighter shade of greenish gray ANDESITE with minor sulfides; drills easier than above. Chlorite on microfractures, trace sulfides on occasional fractures.
240		Drilling openhole into bedrock 97.5'-310'				236'-240' - softer drilling, ground water increasing in GPM above clays. Gray to black ANDESITE; some chips are breccia fragments with minor sulfides (transition to welded tuff?)
245						At 243', alteration - clays. Greenish gray ANDESITE with clays; subrounded andesitic grains.
250						Light gray to dark gray ANDESITE - substantial decrease in clay content.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH/RNS

Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/30/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-2b	4 of 4

Project Name: Snoqualmie Bedrock Mining
Location: King County, WA
Elevation (Top of Well Casing): 625.71
Surface Elevation (ft): N/A
Water Level Elevation:
Date Start/Finish: 07/18/02,07/23/02
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hole Diameter (in):
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
260						At 255', clay content increases again; zone of alteration - volcanics altered to light gray. Clay is light gray. Unaltered greenish gray chips also present (andesite). At 260', zone of light gray CLAY with fragments of highly altered volcanics, which range in color from light bluish gray to greenish gray. Clasts subrounded.
265	▼					At 263', dark greenish gray ANDESITIC tuff - clay decreases. Driller notes small amount of water. Light to dark gray ANDESITE.
270						Dark brown (hematitic interflow [tuff?). Dark gray tuff. At 272', dark gray-brown ANDESITIC tuff.
275						Dark gray-brown ANDESITIC tuff.
280						Dark brown to gray (andesitic?) tuff with green phenocrysts.
285						Dark greenish gray ANDESITE.
290						Harder driller at 292'.
295						Dark gray (slightly greenish) ANDESITE. Harder drilling
300						Dark blackish gray ANDESITE with minor light blue, soft, friable vein fragments (talc?). Hard drilling.
305						
310						Boring terminated at 310 feet on 07/23/02
315						
320						
325						
330						
335						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH/RNS

Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/30/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-3	1 of 4

Project Name: Snoqualmie Bedrock Mining
Elevation (Top of Well Casing): 565.02
Water Level Elevation:
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hammer Weight/Drop: N/A

Location: King County, WA
Surface Elevation (ft): N/A
Date Start/Finish: 07/12/02,07/17/02
Hole Diameter (in): 6

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
0		10" diameter bentonite surface seal (perma plug/bentonite pellets) 0-17.5'				Surface material: Brown SAND, GRAVEL, and COBBLES (Fill).
						Vashon Recessional Delta Deposits
5						Damp, brown, fine to medium SAND with gravel and coarse sand, trace silt. Driller adding water.
10						Brown, SANDY GRAVEL with cobbles, difficult drilling. Cobble zone from 10.5'-14'. At ~11', 10" casing jammed between cobbles; cutting casing - will drill open hole with 10" drill bit to 18' for surface seal. Brown GRAVEL with cobbles, abundant cuttings.
15						
20		6" diameter steel casing +2'-301.5'				Brown, GRAVELLY fine to coarse SAND with little cobbles.
25						Brown, fine to coarse SAND with trace gravel.
						Slight increase in gravel content. Driller adding water.
30						Gray-brown, medium to coarse SAND with gravel.
						Only occasional cobbles below 30'.
35						Brown, fine to coarse SAND with gravel (poor recovery of gravel - losing air into formation).
40						Gray-brown, medium to coarse SAND with little gravel.
45						Gray-brown, GRAVELLY medium to coarse SAND.
50						
55						
60						Brown, medium to coarse SAND with little gravel.
						Increase in gravel from ~63'-64'.
65						
70						
75						Brown, fine to coarse SAND with little gravel.
80						Brown, GRAVELLY fine to coarse SAND. Difficult drilling from 81'-90'.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH/SS

Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/30/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-3	2 of 4

Project Name: Snoqualmie Bedrock Mining
Location: King County, WA
Elevation (Top of Well Casing): 565.02
Surface Elevation (ft): N/A
Water Level Elevation:
Date Start/Finish: 07/12/02,07/17/02
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hole Diameter (in): 6
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/6"	Graphic Symbol	DESCRIPTION
						No Recovery - losing air/water into formation.
90		6" diameter steel casing +2'-301.5'				
						Gray-brown, medium to coarse SAND with little gravel.
95						Gray-brown, GRAVELLY fine to coarse SAND.
100						As above with few silt.
105						
						Rough, slow drilling - driller notes cobble zone from 108'-113'.
110						Gray-brown, SANDY GRAVEL.
						Driller noted increase in fines below 113', hole standing open better.
115						Gray-brown GRAVEL with sand.
120						Gray-brown GRAVEL with medium to coarse sand.
						Poor recovery.
125						Driller adding foam to improve recovery.
						From ~128' to ~137', no recovery.
130						
135						
						Gray-brown, SANDY GRAVEL/GRAVELLY SAND.
140						Gray-brown, SANDY GRAVEL.
145						
150						
						Increase in fine to medium sand content.
155						
160						Gray-brown, GRAVELLY medium to coarse SAND.
165						Gray-brown, GRAVELLY medium to coarse SAND.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH/SS

Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/30/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-3	3 of 4

Project Name: Snoqualmie Bedrock Mining
Location: King County, WA
Elevation (Top of Well Casing): 565.02
Surface Elevation (ft): N/A
Water Level Elevation:
Date Start/Finish: 07/12/02,07/17/02
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hole Diameter (in): 6
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
175		6" diameter steel casing +2'-301.5'				
180						Increase in fine to medium sand content from 177'-179'.
185						Poor recovery - slow drilling at ~182'.
190						
195						Gray-brown, GRAVELLY fine to coarse SAND/SANDY GRAVEL.
200						Poor recovery. Continued slow drilling.
205						Better recovery and drilling speed faster.
210						Gray-brown, fine to coarse SANDY GRAVEL (few cuttings).
215						Driller noted sand from 214'-216'. Gray-brown, GRAVELLY fine to coarse SAND with few silt (some fine content lost due to added water; possible interbeds of silt). Driller noted silt from ~216'-217'.
220						Slow drilling - poor recovery. Driller noted entering clean gravel at 219'. Gray-brown, fine to coarse SANDY GRAVEL (abundant cuttings).
225						Drilling very slow from 220' - ~224'. Increased sand, drilling/recovery increase. Gray-brown, fine to coarse SAND with gravel (fewer cuttings).
230						Drilling slower. Gray-brown, fine to coarse SAND, little gravel (fewer cuttings).
235						Gray-brown, fine to coarse SAND, little gravel, little silt (possible interbeds of silt).
240						As above, but brown. Drilling very slow, increase in gravel content.
245						Gray-brown, GRAVELLY fine to coarse SAND (abundant cuttings). Thin layer of fine SAND and SILT.
250		6" diameter steel casing +2'-301.5'				Gray-brown, GRAVELLY fine to coarse SAND, little silt (fewer cuttings). Drilling faster, good recovery.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH/SS

Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/30/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-3	4 of 4

Project Name	Snoqualmie Bedrock Mining	Location	King County, WA
Elevation (Top of Well Casing)	565.02	Surface Elevation (ft)	N/A
Water Level Elevation		Date Start/Finish	07/12/02,07/17/02
Drilling/Equipment	Aquatech Well Drilling and Pumps / Air Rotary	Hole Diameter (in)	6
Hammer Weight/Drop	N/A		

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
260	▼					Interbedding of fine SAND and SILT. Driller notes possibly (perched?) water over silt from ~250' to ~255'. Gray-brown, GRAVELLY medium to coarse SAND with interbeds of fine sand with silt. At ~259', brown silt clasts. No water at casing switch. Brown, coarse SAND with brown silt and gray-brown gravel.
265						Gray-brown, GRAVELLY medium to coarse SAND with fine sand and silt.
270						Brown, fine to medium SAND layer, trace brown silt. Brown, fine to coarse SAND with gray-brown gravel and little brown silt. Interbeds of fine SAND with some silt and GRAVEL.
275						Gray-brown, fine to coarse SAND.
280						Driller notes within water table. Blew out hole and let sit for 20 minutes. Did not detect water in hole, possibly at top of water table. Gray-brown, fine to coarse SAND, trace gravel.
285						Gray-brown, fine to coarse SAND, trace gravel, trace silt.
290	▼					Measured water depth at 291.5' below top of casing; ~289 below ground surface. Gray-brown, fine to coarse SAND with gray-brown gravel, little silt. Interbeds of fine SAND with trace silt.
295	▽					As above.
300		K-packer 299.5'-300' 6" diameter telescoping stainless steel screen 0.012" slot width 300'-305'				Drilling slow - cobble zone, very little recovery from 302' - ~307'.
305		6" diameter telescoping stainless steel screen 0.014" slot width 305'-310'				Gray-brown, GRAVELLY medium to coarse SAND/SANDY GRAVEL with some fine sand, trace gray-brown silt; discharge water more gray (abundant cuttings).
310		Hole caved 310'-318'				Gray-brown, fine to coarse SAND with gray-brown gravel, gray silt. Interbeds of fine SAND and SILT from ~310'-315'.
315						Gray-brown, fine to coarse SAND with silt, trace gravel; gray silt clasts noted. Cobble zone at 315'. At 318', stop drilling, pulled up casing to 310'.
320						Boring terminated at 318 feet on 07/17/02 Well completed on 07/18/02.
325						
330						
335						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH/SS

Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/30/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-3	1 of 4

Project Name: Snoqualmie Bedrock Mining
Elevation (Top of Well Casing): 565.02
Water Level Elevation:
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hammer Weight/Drop: N/A

Location: King County, WA
Surface Elevation (ft): N/A
Date Start/Finish: 07/12/02,07/17/02
Hole Diameter (in): 6

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
0		10" diameter bentonite surface seal (perma plug/bentonite pellets) 0-17.5'				Surface material: Brown SAND, GRAVEL, and COBBLES (Fill).
						Vashon Recessional Delta Deposits
5						Damp, brown, fine to medium SAND with gravel and coarse sand, trace silt. Driller adding water.
10						Brown, SANDY GRAVEL with cobbles, difficult drilling. Cobble zone from 10.5'-14'. At ~11', 10" casing jammed between cobbles; cutting casing - will drill open hole with 10" drill bit to 18' for surface seal. Brown GRAVEL with cobbles, abundant cuttings.
15						
20		6" diameter steel casing +2'-301.5'				Brown, GRAVELLY fine to coarse SAND with little cobbles.
25						Brown, fine to coarse SAND with trace gravel.
						Slight increase in gravel content. Driller adding water.
30						Gray-brown, medium to coarse SAND with gravel.
						Only occasional cobbles below 30'.
35						Brown, fine to coarse SAND with gravel (poor recovery of gravel - losing air into formation).
40						Gray-brown, medium to coarse SAND with little gravel.
45						Gray-brown, GRAVELLY medium to coarse SAND.
50						
55						
60						Brown, medium to coarse SAND with little gravel.
						Increase in gravel from ~63'-64'.
65						
70						
75						Brown, fine to coarse SAND with little gravel.
80						Brown, GRAVELLY fine to coarse SAND. Difficult drilling from 81'-90'.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH/SS

Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/30/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-3	2 of 4

Project Name: Snoqualmie Bedrock Mining
Location: King County, WA
Elevation (Top of Well Casing): 565.02
Surface Elevation (ft): N/A
Water Level Elevation:
Date Start/Finish: 07/12/02,07/17/02
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hole Diameter (in): 6
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/6"	Graphic Symbol	DESCRIPTION
						No Recovery - losing air/water into formation.
90		6" diameter steel casing +2'-301.5'				
						Gray-brown, medium to coarse SAND with little gravel.
95						Gray-brown, GRAVELLY fine to coarse SAND.
100						As above with few silt.
105						
						Rough, slow drilling - driller notes cobble zone from 108'-113'.
110						Gray-brown, SANDY GRAVEL.
						Driller noted increase in fines below 113', hole standing open better.
115						Gray-brown GRAVEL with sand.
120						Gray-brown GRAVEL with medium to coarse sand.
						Poor recovery.
125						Driller adding foam to improve recovery.
						From ~128' to ~137', no recovery.
130						
135						
						Gray-brown, SANDY GRAVEL/GRAVELLY SAND.
140						Gray-brown, SANDY GRAVEL.
145						
150						
						Increase in fine to medium sand content.
155						
160						Gray-brown, GRAVELLY medium to coarse SAND.
165						Gray-brown, GRAVELLY medium to coarse SAND.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH/SS

Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/30/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-3	3 of 4

Project Name: Snoqualmie Bedrock Mining
Location: King County, WA
Elevation (Top of Well Casing): 565.02
Surface Elevation (ft): N/A
Water Level Elevation:
Date Start/Finish: 07/12/02,07/17/02
Drilling/Equipment: Aquatech Well Drilling and Pumps / Air Rotary
Hole Diameter (in): 6
Hammer Weight/Drop: N/A

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
175		6" diameter steel casing +2'-301.5'				
180						Increase in fine to medium sand content from 177'-179'.
185						Poor recovery - slow drilling at ~182'.
190						
195						Gray-brown, GRAVELLY fine to coarse SAND/SANDY GRAVEL.
200						Poor recovery. Continued slow drilling.
205						Better recovery and drilling speed faster.
210						Gray-brown, fine to coarse SANDY GRAVEL (few cuttings).
215						Driller noted sand from 214'-216'. Gray-brown, GRAVELLY fine to coarse SAND with few silt (some fine content lost due to added water; possible interbeds of silt). Driller noted silt from ~216'-217'.
220						Slow drilling - poor recovery. Driller noted entering clean gravel at 219'. Gray-brown, fine to coarse SANDY GRAVEL (abundant cuttings).
225						Drilling very slow from 220' - ~224'. Increased sand, drilling/recovery increase. Gray-brown, fine to coarse SAND with gravel (fewer cuttings).
230						Drilling slower. Gray-brown, fine to coarse SAND, little gravel (fewer cuttings).
235						Gray-brown, fine to coarse SAND, little gravel, little silt (possible interbeds of silt).
240						As above, but brown. Drilling very slow, increase in gravel content.
245						Gray-brown, GRAVELLY fine to coarse SAND (abundant cuttings). Thin layer of fine SAND and SILT.
250		6" diameter steel casing +2'-301.5'				Gray-brown, GRAVELLY fine to coarse SAND, little silt (fewer cuttings). Drilling faster, good recovery.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH/SS

Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/30/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KG99312A	MW-3	4 of 4

Project Name	Snoqualmie Bedrock Mining	Location	King County, WA
Elevation (Top of Well Casing)	565.02	Surface Elevation (ft)	N/A
Water Level Elevation		Date Start/Finish	07/12/02,07/17/02
Drilling/Equipment	Aquatech Well Drilling and Pumps / Air Rotary	Hole Diameter (in)	6
Hammer Weight/Drop	N/A		

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
260	▼					Interbedding of fine SAND and SILT. Driller notes possibly (perched?) water over silt from ~250' to ~255'. Gray-brown, GRAVELLY medium to coarse SAND with interbeds of fine sand with silt. At ~259', brown silt clasts. No water at casing switch. Brown, coarse SAND with brown silt and gray-brown gravel.
265						Gray-brown, GRAVELLY medium to coarse SAND with fine sand and silt.
270						Brown, fine to medium SAND layer, trace brown silt. Brown, fine to coarse SAND with gray-brown gravel and little brown silt. Interbeds of fine SAND with some silt and GRAVEL.
275						Gray-brown, fine to coarse SAND.
280						Driller notes within water table. Blew out hole and let sit for 20 minutes. Did not detect water in hole, possibly at top of water table. Gray-brown, fine to coarse SAND, trace gravel.
285						Gray-brown, fine to coarse SAND, trace gravel, trace silt.
290	▼					Measured water depth at 291.5' below top of casing; ~289 below ground surface. Gray-brown, fine to coarse SAND with gray-brown gravel, little silt. Interbeds of fine SAND with trace silt.
295	▽					As above.
300		K-packer 299.5'-300' 6" diameter telescoping stainless steel screen 0.012" slot width 300'-305'				Drilling slow - cobble zone, very little recovery from 302' - ~307'.
305		6" diameter telescoping stainless steel screen 0.014" slot width 305'-310'				Gray-brown, GRAVELLY medium to coarse SAND/SANDY GRAVEL with some fine sand, trace gray-brown silt; discharge water more gray (abundant cuttings).
310		Hole caved 310'-318'				Gray-brown, fine to coarse SAND with gray-brown gravel, gray silt. Interbeds of fine SAND and SILT from ~310'-315'.
315						Gray-brown, fine to coarse SAND with silt, trace gravel; gray silt clasts noted. Cobble zone at 315'. At 318', stop drilling, pulled up casing to 310'.
320						Boring terminated at 318 feet on 07/17/02 Well completed on 07/18/02.
325						
330						
335						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (3/17/03)
- Water Level at time of drilling (ATD)

Logged by: JAH/SS

Approved by:

NWWELL 99312A-1.GPJ BORING.GDT 4/30/03

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 1	1 of 7

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing): 421.82'
Surface Elevation (ft): 420'
Water Level Elevation: 374'
Date Start/Finish: April 1973,April 1973
Drilling/Equipment: Cable Tool
Hole Diameter (in): Variable
Hammer Weight/Drop: Adapted from Driller's Log

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
5		16" diameter well casing 0-98'				**Recent Snoqualmie River Deposits** Brown CLAY.
10						
15						
20						**Vashon Recessional Lake Snoqualmie Deposits** Blue SAND with silt.
25						
30						
35						
40						
45	▽					
50						Blue, SILTY fine SAND.
55						
60						
65						
70						
75						

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
▽ Water Level (08/14/01)
▼ Water Level at time of drilling (ATD)

Logged by:
Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 1	2 of 7

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): 421.82'
Water Level Elevation: 374'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Adapted from Driller's Log

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: April 1973,April 1973
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	S T	Blows/ 6"	Graphic Symbol	DESCRIPTION
85						
90		16" diameter well casing 0-98'				Blue, SILTY fine SAND.
95						
100		12" diameter well casing 98'-435'				Blue SILT.
105						
110						
115						
120						
125						
130						
135						
140						Blue, SILTY CLAY.
145						
150						
155						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (08/14/01)
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 1	3 of 7

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): 421.82'
Water Level Elevation: 374'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Adapted from Driller's Log

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: April 1973,April 1973
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	S T	Blows/ 6"	Graphic Symbol	DESCRIPTION
165						
170						
175						
180						Blue, SILTY CLAY.
185						
190						
195						
200		12" diameter well casing 98'-435'				
205						
210						
215						
220						
225						
230						
235						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (08/14/01)
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 1	4 of 7

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): 421.82'
Water Level Elevation: 374'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Adapted from Driller's Log

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: April 1973,April 1973
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	S T	Blows/ 6"	Graphic Symbol	DESCRIPTION
245						
250						
255						
260						
265						
270						Blue, SILTY fine SAND.
275						Blue CLAY.
280		12" diameter well casing 98'-435'				**Undifferentiated Olympia/pre-Olympia Lacustrine Deposits** Blue, SANDY CLAY.
285						
290						
295						
300						
305						
310						
315						

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (08/14/01)
Water Level at time of drilling (ATD)

Logged by:
Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 1	5 of 7

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): 421.82'
Water Level Elevation: 374'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Adapted from Driller's Log

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: April 1973,April 1973
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	S T	Blows/ 6"	Graphic Symbol	DESCRIPTION
325						
330						
335						
340						
345						
350						
355						
360		12" diameter well casing 98'-435'				
365						
370						
375						
380						**Undifferentiated Olympia/pre-Olympia Fine-Grained Fluvial Deposits** Blue, SILTY fine SAND, occasional gravel.
385						
390						
395						

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (08/14/01)
Water Level at time of drilling (ATD)

Logged by:
Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 1	6 of 7

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): 421.82'
Water Level Elevation: 374'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Adapted from Driller's Log

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: April 1973,April 1973
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
405						
410		12" diameter well casing 98'-435'				
415						
420						
425						
430						
435		8" diameter well casing 435'-515'				
440						
445						Blue, fine to coarse SAND with gravel and silt.
450						
455						
460						
465						
470						
475						Blue, coarse SAND with gravel and silt.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (08/14/01)
Water Level at time of drilling (ATD)

Logged by:
Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 1	7 of 7

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing): 421.82'
Water Level Elevation: 374'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Adapted from Driller's Log

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: April 1973,April 1973
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
485		8" diameter well casing 435'-515'				
490						
495						
500						Blue, SILTY fine to coarse SAND with gravel (till-like).
505						
510						
515		8" diameter 60-slot well screen 515'-528'				**Undifferentiated Olympia/pre-Olympia Coarse-Grained Fluvial Deposits** Blue, fine to coarse SAND with gravel, trace silt.
520						
525						
530		8" diameter 50-slot well screen 528'-538'				
535						
540		Tailpipe 538'-545'				**Tertiary Bedrock** Light-green, gray ANDESITE.
545						Boring terminated at 545 feet on April 1973
550						
555						

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (08/14/01)
Water Level at time of drilling (ATD)

Logged by:
Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 2	1 of 8

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing):
Water Level Elevation: 350'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Grab

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: June-22-1995,July-12-1995
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
0		12" diameter steel well casing 0-475'				**Recent Snoqualmie River Deposits** Brown to gray, SILTY SAND, occasional gravel and organics (roots).
5						
10						
15						
20		10" diameter steel well casing 0-521' (NOTE: 10" casing extend inside 12" casing from 0-475')				
25						
30						
35						**Vashon Recessional Lake Snoqualmie Deposits** Gray, SANDY SILT, occasional gravel and organics (wood).
40						
45						
50	▽					
55						
60						
65						
70						
75						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- ▽ Water Level (08/14/01)
- ▼ Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 2	2 of 8

Project Name: Snoqualmie Ridge North Well Field
Location: Snoqualmie, WA
Elevation (Top of Well Casing):
Surface Elevation (ft): 420'
Water Level Elevation: 350'
Date Start/Finish: June-22-1995,July-12-1995
Drilling/Equipment: Cable Tool
Hole Diameter (in): Variable
Hammer Weight/Drop: Grab

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
85						Gray, SANDY SILT, occasional gravel and organics (wood).
90						
95						Wood at 95' - C^{14} = 5,720 years bp.
100		12" diameter steel well casing 0-475'				Gray CLAY with varying amounts of silt; occasional sand, organic material (wood), and concentrations.
105						
110						
115						
120		10" diameter steel well casing 0-521' (NOTE: 10" casing extend inside 12" casing from 0-475')				
125						
130						
135						
140						
145						
150						
155						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level (08/14/01)
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 2	3 of 8

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing):
Water Level Elevation: 350'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Grab

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: June-22-1995,July-12-1995
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
165						
170						
175						
180		12" diameter steel well casing 0-475'				
185						
190						
195						
200		10" diameter steel well casing 0-521' (NOTE: 10" casing extend inside 12" casing from 0-475')				Gray CLAY with varying amounts of silt; occasional sand, organic material (wood), and concentrations.
205						
210						
215						
220						
225						
230						
235						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level (08/14/01)
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 2	4 of 8

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing):
Water Level Elevation: 350'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Grab

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: June-22-1995,July-12-1995
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
245						
250						
255						
260		12" diameter steel well casing 0-475'				Gray CLAY with varying amounts of silt; occasional sand, organic material (wood), and concretions.
265						
270						
275						
280		10" diameter steel well casing 0-521' (NOTE: 10" casing extend inside 12" casing from 0-475')				
285						
290						**Undifferentiated Olympia/pre-Olympia Lacustrine Deposits** Gray SILT.
295						
300						
305						
310						Gray, fine to medium SAND, trace silt.
315						Gray CLAY.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (08/14/01)
Water Level at time of drilling (ATD)

Logged by:
Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 2	5 of 8

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing):
Water Level Elevation: 350'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Grab

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: June-22-1995,July-12-1995
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
325						
330						Gray CLAY.
335						
340		12" diameter steel well casing 0-475'				
345						
350						
355						
360		10" diameter steel well casing 0-521' (NOTE: 10" casing extend inside 12" casing from 0-475')				
365						
370						**Undifferentiated Olympia/pre-Olympia Fine-Grained Fluvial Deposits** Gray, SILTY fine SAND, occasional organics (wood).
375						
380						
385						
390						
395						Gray, fine SAND with silt, occasional gravel and organics (wood).

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level (08/14/01)
- Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 2	6 of 8

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing):
Water Level Elevation: 350'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Grab

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: June-22-1995,July-12-1995
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	S T	Blows/ 6"	Graphic Symbol	DESCRIPTION
405						
410						Gray, fine SAND with silt, occasional gravel and organics (wood).
415						
420		12" diameter steel well casing 0-475'				
425						Gray, SILTY fine SAND with organics (wood).
430						
435						
440		10" diameter steel well casing 0-521' (NOTE: 10" casing extend inside 12" casing from 0-475')				
445						
450						
455						
460						
465						Gray, fine SAND with silt, occasional organics (wood).
470						
475						Wood at 474' - C^{14} > 41,940 years bp.

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (08/14/01)
Water Level at time of drilling (ATD)

Logged by:
Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 2	7 of 8

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing):
Water Level Elevation: 350'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Grab

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: June-22-1995,July-12-1995
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
485		10" diameter steel well casing 0-521' (NOTE: 10" casing extend inside 12" casing from 0-475')				
490						Gray, fine SAND with silt, occasional organics (wood).
495						
500						
505						
510						**Undifferentiated Olympia/pre-Olympia Coarse-Grained Fluvial Deposits** Gray, fine to coarse SAND with fine to coarse gravel, trace silt.
515						
520		9.5" diameter 20-slot well screen 521'-524'				
525		9.5" diameter 40-slot well screen 524'-529'				
530		9.5" diameter 60-slot well screen 529'-535'				Gray, fine to coarse GRAVEL with fine to coarse sand, occasional cobbles.
535		9.5" diameter steel well casing 535'-548'				
540						Gray, fine to medium SAND with silt, occasional gravel.
545						Gray, fine to coarse SAND and GRAVEL with cobbles.
550		9.5" diameter 100-slot well screen 548'-556'				
555		Tailpipe 556'-564'				

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (08/14/01)
Water Level at time of drilling (ATD)

Logged by:
Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH02005C	-City of Snoqualmie No. 2	8 of 8

Project Name: Snoqualmie Ridge North Well Field
Elevation (Top of Well Casing):
Water Level Elevation: 350'
Drilling/Equipment: Cable Tool
Hammer Weight/Drop: Grab

Location: Snoqualmie, WA
Surface Elevation (ft): 420'
Date Start/Finish: June-22-1995,July-12-1995
Hole Diameter (in): Variable

Depth (ft)	Water Level	WELL CONSTRUCTION	S T	Blows/ 6"	Graphic Symbol	DESCRIPTION
565		Tailpipe 556'-564' Gravel backfill 564'-574'				Gray, fine to coarse SAND with silt and gravel.
570						**Tertiary Bedrock** BEDROCK
575						Boring terminated at 574 feet on July-12-1995
580						
585						
590						
595						
600						
605						
610						
615						
620						
625						
630						
635						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

Water Level (08/14/01)

Water Level at time of drilling (ATD)

Logged by:

Approved by:

NWWELL 02005C-1.GPJ BORING.GDT 1/8/04

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH070569A	OBW-4	1 of 14

Project Name: Tokul Creek Water Right
Elevation (Top of Well Casing): ~550'
Water Level Elevation:
Drilling/Equipment: Hayes Drilling/Air & Mud Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): ~550'
Date Start/Finish: 11/11/09,12/21/09
Hole Diameter (in): 6"

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
		0 to 554 1/2 feet, 6 inches stainless steel well casing 10-inch-diameter borehole 0 to 14 feet 8-inch-diameter borehole 14 to 28 feet Concrete and bentonite surface seal 0 to 18 feet				**Vashon Recessional Outwash - Tokul Creek Deltaic Deposits** Brown, silty fine to coarse GRAVEL; few organics.
						Brown, fine to coarse GRAVEL, little silt, few fine to coarse sand, occasional cobble and boulder; using drilling foam.
5						
						Brown, fine to coarse GRAVEL, few fine to coarse sand, occasional cobble and boulder; abundant cuttings.
10						
						Gray-brown, fine to coarse GRAVEL, few fine to coarse sand, occasional cobble and boulder; abundant cuttings.
15						Gray-brown, fine to coarse SAND, little fine to coarse sand; abundant cuttings.
20		18 to 28 feet native slough fills annular space between 8-inch-diameter borehole and 6-inch-diameter casing				Same as above.
25						Gray-brown, fine to coarse GRAVEL, few fine to coarse sand; abundant cuttings.
30						Gray-brown, fine to coarse SAND; abundant cuttings.
35						Gray-brown, fine to coarse SAND, little fine to coarse gravel; abundant cuttings.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level ()
Water Level at time of drilling (ATD)

Logged by: LBK/FSM
Approved by:

NWWELL- B 070569A.GPJ BORING.GDT 8/27/13

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH070569A	OBW-4	2 of 14

Project Name: Tokul Creek Water Right
Elevation (Top of Well Casing): ~550'
Water Level Elevation:
Drilling/Equipment: Hayes Drilling/Air & Mud Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): ~550'
Date Start/Finish: 11/11/09,12/21/09
Hole Diameter (in): 6"

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
						Gray-brown, fine to coarse SAND, few gravel; abundant cuttings; continue to use drilling foam (as on previous page).
45						Same as above.
50						Gray-brown, fine to coarse SAND, little fine to coarse gravel; abundant cuttings.
55						Gray-brown, fine to coarse GRAVEL, trace sand; abundant cuttings.
60						Gray-brown, fine to coarse GRAVEL, few sand; abundant cuttings.
65						Gray-brown, fine to coarse GRAVEL, little coarse sand, trace fine to medium sand; abundant cuttings.
70						Same as above.
75						Gray-brown, fine to coarse GRAVEL, trace sand; abundant cuttings.

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level ()
Water Level at time of drilling (ATD)

Logged by: LBK/FSM
Approved by:

NWWELL- B 070569A.GPJ BORING.GDT 8/27/13

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH070569A	OBW-4	3 of 14

Project Name	Tokul Creek Water Right	Location	Snoqualmie, WA
Elevation (Top of Well Casing)	~550'	Surface Elevation (ft)	~550'
Water Level Elevation		Date Start/Finish	11/11/09,12/21/09
Drilling/Equipment	Hayes Drilling/Air & Mud Rotary	Hole Diameter (in)	6"
Hammer Weight/Drop	N/A		

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
						Gray-brown, fine to coarse GRAVEL, little fine to coarse sand; abundant cuttings; continue to use drilling foam (as on previous page).
85						Same as above.
90						Gray-brown, fine to coarse SAND; abundant cuttings.
95						Gray-brown, fine to coarse GRAVEL, trace sand; abundant cuttings.
100						Gray-brown, fine to coarse GRAVEL, little medium to coarse sand; abundant cuttings.
105						Same as above.
110						Gray-brown, fine to coarse SAND; abundant cuttings.
115						Same as above.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

Water Level ()

Water Level at time of drilling (ATD)

Logged by: LBK/FSM

Approved by:

NWWELL- B 070569A.GPJ BORING.GDT 8/27/13

Associated Earth Sciences, Inc.

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH070569A	OBW-4	4 of 14

Project Name: Tokul Creek Water Right
Elevation (Top of Well Casing): ~550'
Water Level Elevation:
Drilling/Equipment: Hayes Drilling/Air & Mud Rotary
Hammer Weight/Drop: N/A

Location: Snoqualmie, WA
Surface Elevation (ft): ~550'
Date Start/Finish: 11/11/09,12/21/09
Hole Diameter (in): 6"

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
						Gray-brown, fine to coarse GRAVEL; abundant cuttings.
125						Same as above.
130						Gray-brown, fine to coarse GRAVEL, few medium to coarse sand; abundant cuttings.
135						Gray-brown, medium to coarse SAND, few fine to coarse gravel; abundant cuttings.
140						Gray-brown, fine to coarse GRAVEL; little coarse sand; abundant cuttings.
145						Same as above.
150						Same as above.
155						Same as above.

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level ()
Water Level at time of drilling (ATD)

Logged by: LBK/FSM
Approved by:

NWWELL- B 070569A.GPJ BORING.GDT 8/27/13