MONITORING WELL CONSTRUCTION REPORT

GIBRALTAR AND SAUK LANDFILLS
SKAGIT COUNTY, WASHINGTON

December 20, 1990
Project No. 8938

Prepared for

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HONG WEST & ASSOCIATES

• Geotechnical Engineering • Hydrogeology • Materials Testing • Construction Inspection •

December 20, 1989

R.W. Beck and Associates
2101 Fourth Avenue, Suite 600
Seattle, Washington 98121-2375

Attention: Robert Bingham, Principal-In-Charge

Re: Monitoring Well Construction Report
Gibraltar and Sauk Landfills, Skagit County, Washington

Dear Mr. Bingham:

This report documents the monitoring well construction Hong West & Associates supervised at the Sauk and Gibraltar landfills. Our report includes four sections and four appendices:

SECTION 1.0 SCOPE OF WORK AND AUTHORIZATION
SECTION 2.0 GIBRALTAR LANDFILL
SECTION 3.0 SAUK LANDFILL
SECTION 4.0 CONCLUSIONS AND RECOMMENDATIONS

APPENDIX A - MONITORING WELL CONSTRUCTION
APPENDIX B - GRAIN SIZE DISTRIBUTION CURVES
APPENDIX C - SUPPLY WELL LOGS
APPENDIX D - WATER QUALITY DATA

It has been a pleasure working on this project and we would like to extend special thanks to Robin LaRue of the Skagit County Public Works Department, Mark Ingham of R.W Beck and Associates and Ken Willis of the Skagit County Health Department for their valuable assistance and support in completing this project.

If you have any questions or if I can be of further service, please call me.

Respectfully submitted:

HONG WEST & ASSOCIATES

Lawrence M. West
Groundwater Geologist

LMW:ds
Enclosure

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SAUK AND GIBRALTAR LANDFILLS
SKAGIT COUNTY, WASHINGTON

MONITORING WELL CONSTRUCTION REPORT

This report documents the construction of monitoring wells at the Sauk and Gibraltar landfills in Skagit County, Washington. Partial funding for the monitoring well construction was obtained through the Washington State Department of Ecology (DOE) grant program.

SECTION 1 - SCOPE OF WORK AND AUTHORIZATION

The following Scope of Work was authorized in R.W. Beck and Associates' subconsultant agreement with Hong Consulting Engineers, Inc. dated August 24, 1989, under work order WV-0000-BD-AA.

TASK 1: Monitoring Well Design

- Site inspection by geohydrologist.
- Evaluation of groundwater flow direction from DOE and Skagit County Health Department data.
- Monitoring well design.
- Site location of monitoring wells.

TASK 2: Geologist/Site Engineering

Subtask 2A: Sauk Landfill Monitoring Well Installation Services

- Observation of critical well construction activities by on-site geologist.
- Logging of wells and other relevant geohydrologic information by site geologist.
- Maintain record of installation activities as required by WAC 173-160-150.
- Monitor for methane gas during drilling.

Subtask 2B: Gibraltar Landfill Monitoring Well Installation Services

- Observation of critical well construction activities by on-site geologist.
- Logging of wells and other relevant geohydrologic information by site geologist.
- Maintain record of installation activities as required by WAC 173-160-150.
- Monitor for methane gas during drilling.
- Direct the installation of two gas probes in each well at approximately 10- and 25-foot depths below landfill.

Subtask 2C: Documentation of Monitoring Well Installation

- Geologic and Hydrologic data obtained.
- Estimates of range of aquifer conductivity based on drill cuttings inspection.
- Letter report.

SECTION 2 - GIBRALTAR LANDFILL

The Gibraltar Landfill is located in the NE1/4, SW1/4, Township 34 North, Range 2 East, immediately south of Fidalgo School off Gibraltar Road (Refer to Figure 2-1, Location Map, Gibraltar Landfill). Figure 2-1 also shows the location of domestic wells near the Gibraltar Landfill.

The site occupies an old gravel pit (the eastern part of the gravel pit is still active) and the landfill has recently been covered with a low permeability cap (refer to Figure 2-2, Site Map). Site elevations range from approximately 240-265 feet above sea level. Thickness/depth of waste is unknown.

2.1 GIBRALTAR LANDFILL MONITORING SYSTEM SUMMARY

Four monitoring wells were installed at the Gibraltar Landfill during the period September 25, 1989 to October 6, 1989. One monitoring well, MW-1, was installed in a perched aquifer and the remainder of the monitoring wells were installed in a shallow confined aquifer. All of the wells were installed in downgradient locations. There is currently no upgradient monitoring well for either the perched aquifer or the shallow confined aquifer. Gas monitoring probes were installed in each of the wells. Table 2-1, Monitoring Well Specifics, Gibraltar Landfill, summarizes the significant well parameters. For additional details refer to Appendix A - Monitoring Well Construction.

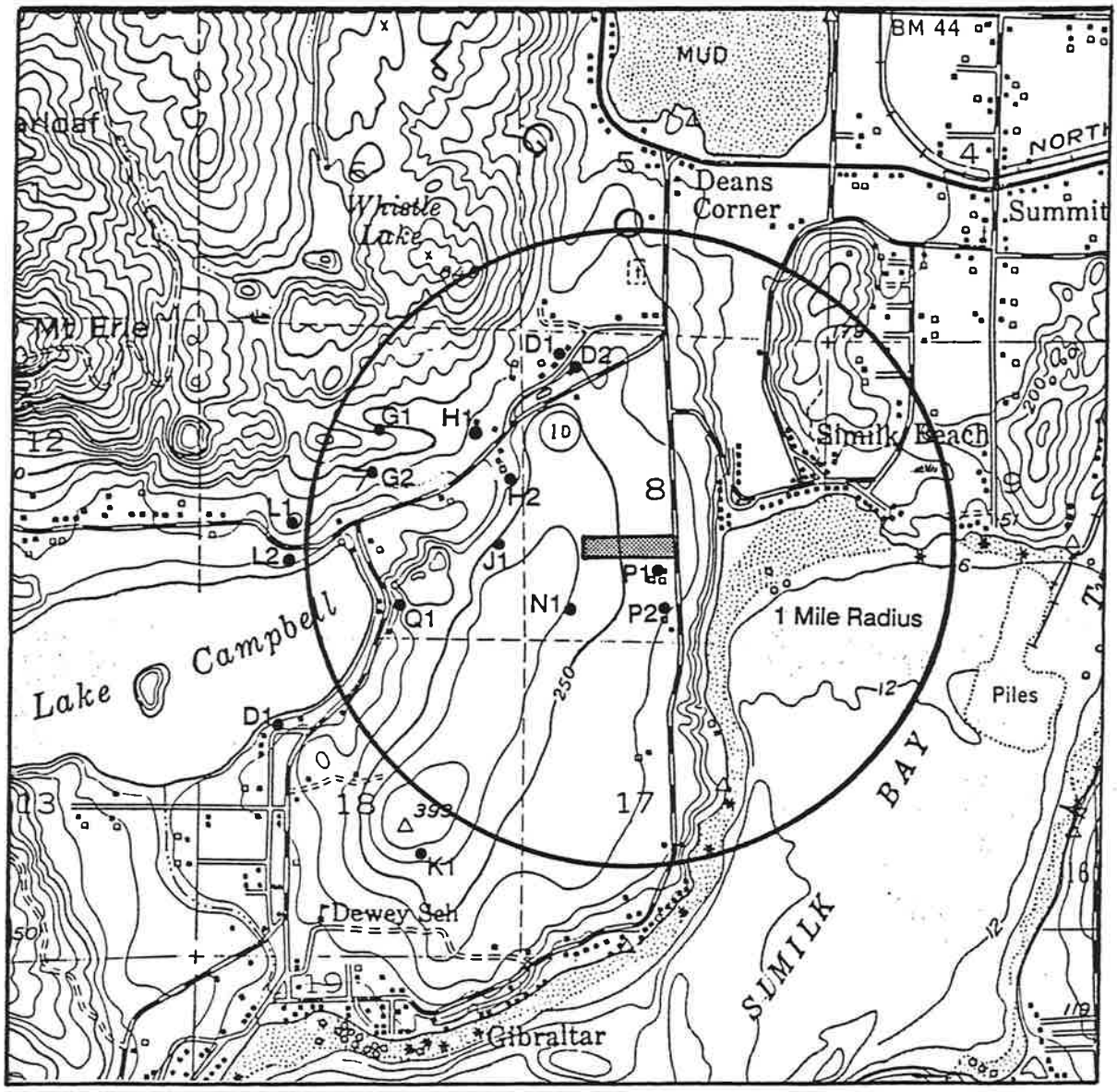
TABLE 2-1

Monitoring Well Specifics
Gibraltar Landfill

Well No.	Ground Surface Elevation Feet	Top of Casing Elevation Feet	Drill Depth Feet	Screen Depth Feet	Level Elevation Feet	Gas Probe Depth
MW-1	239.57	240.97	60	39-34	202-207	15
MW-2	254.28	256.73	200	185-175	77-82	10/25
MW-3	252.97	254.87	202	185-175	70-75	18/25
MW-4	239.25	240.55	198	180-170	60-70	25

All elevations are above sea level, USGS datum and the top of casing elevation includes Geoguard pump cap.

The Skagit County Health Department has installed dedicated Geoguard pumps in the three deep wells. The Health Department also performs quarterly sampling and water level measurements. Wellhead elevations were surveyed by the Skagit County Public Works Department. Table 2-2 presents water levels for fall 1989 and spring 1990.



Base: U.S.G.S. Deception Pass 15 Minute Quadrangle

Legend • D1 Well Landfill -N-	Skagit County Public Works Department Gibraltar Landfill Site and Well Location Map
Scale: 1 inch = 3000 feet	Figure 2-1

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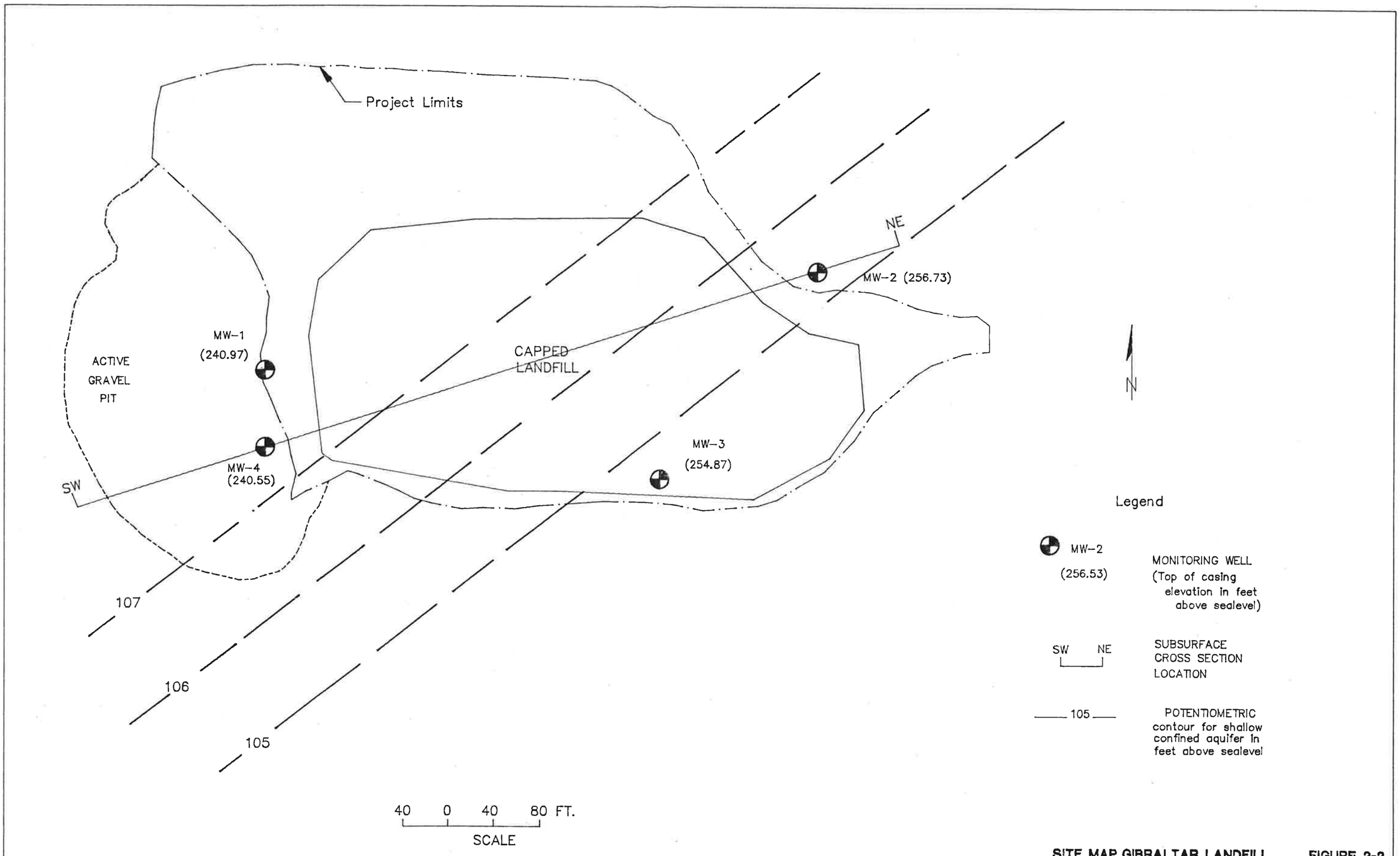

SITE MAP GIBRALTAR LANDFILL **FIGURE 2-2**

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TABLE 2-2

Groundwater Levels
Gibraltar Landfill

Well No.	Top of Casing Elevation Feet	October 31, 1989 Depth Feet	October 31, 1989 Elevation Feet	May 11, 1990 Depth Feet	May 11, 1990 Elevation Feet
MW-1	240.97	37.22	203.75	36.70	204.27
MW-2	256.73	151.12	105.61	149.90	106.83
MW-3	254.87	149.91	104.96	149.74	105.13
MW-4	240.55	133.00	107.55	132.56	107.99

Note: All elevations are above sea level, USGS datum.

2.2 REGIONAL SETTING

The Gibraltar Landfill is situated on the eastern side of Fidalgo Island. The area is predominantly covered by glacial debris overlying sedimentary and metamorphic bedrock. Bedrock is exposed within 1,500 to 3,000 feet northwest, north and northeast of the site. The nearest surface water bodies include Similk Bay, downslope, 2,000 feet to the southeast and Lake Campbell (elevation approximately 25 feet) 5,000 feet to the southwest.

2.3 SITE GEOLOGY

The site is underlain by glacial deposits consisting of light brown sand and gravel to about 160 feet (refer to Figure 2-3, Subsurface Cross Section, Gibraltar Landfill). Several silt stringers (typically less than one-foot thick) are also present between elevation 125 and 155 feet (refer to Appendix A - Well Logs).

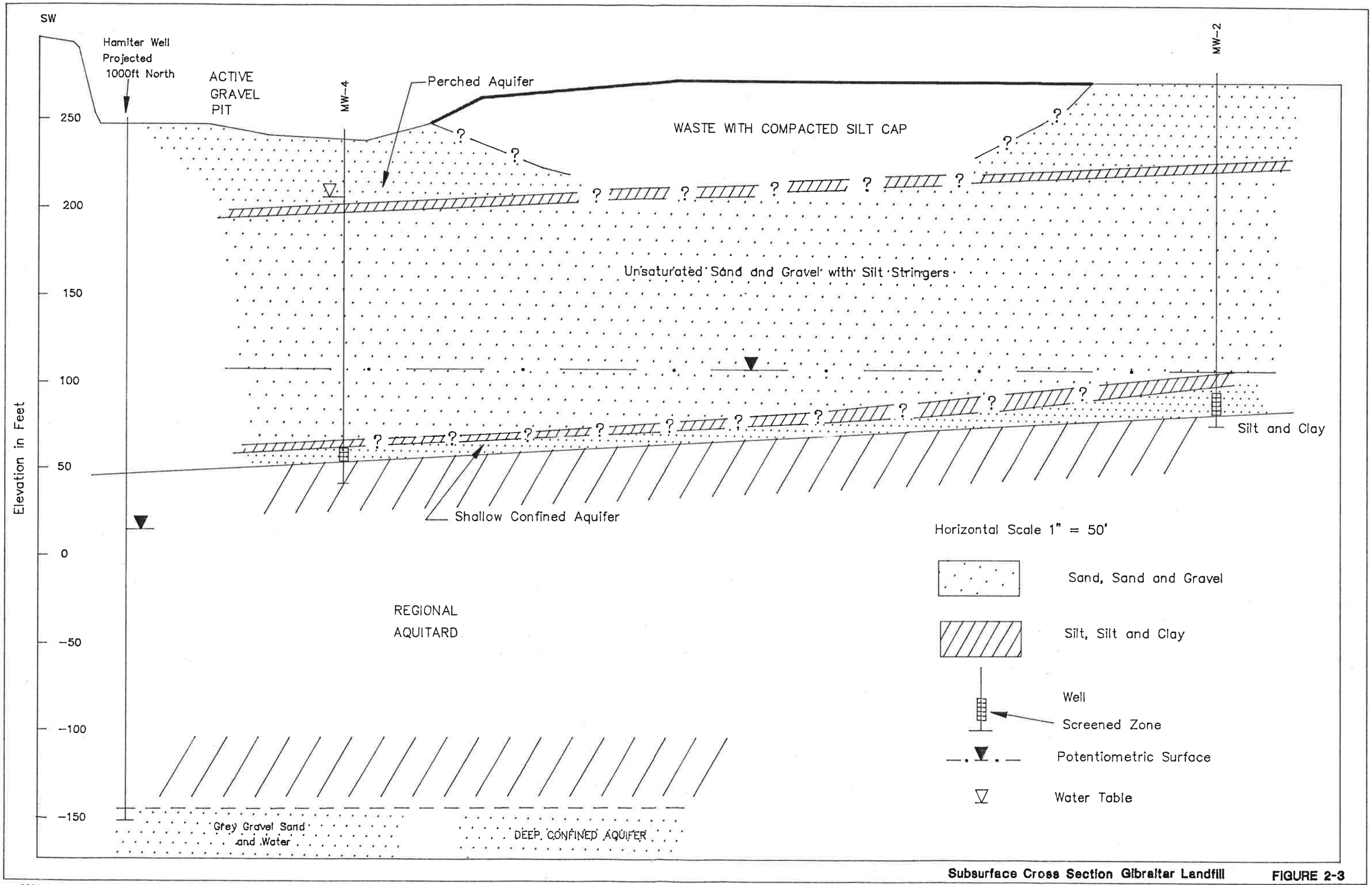
A prominent 3-5 foot thick silt layer was identified during drilling in all of the monitoring wells at a depth of approximately 40-45 feet (elevation 200 to 225 feet above sea level). The silt layer slopes to the west.

The brown sand and gravel is underlain by 20-35 feet of gray silty sand and silt, which is in turn underlain by approximately 200 feet of gray silt and clay (based on area water supply well logs).

Below the gray silt and clay are gray sands and gravels which constitute the principal water supply unit in the area.

2.4 GROUNDWATER OCCURRENCE AND FLOW

Several groundwater-bearing units have been identified beneath the Gibraltar Landfill including a shallow perched aquifer near the base of the fill, a shallow confined aquifer at approximately 160 feet and a deep confined aquifer approximately 400 feet.



Subsurface Cross Section Gibraltar Landfill **FIGURE 2-3**

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Perched Aquifer

On-site investigations indicate a perched aquifer at approximately elevation 203 feet above sea level (37 feet deep) on the west side of the landfill. The perching layer is the prominent silt unit at approximately 40 feet. Although the silt layer was identified in all the monitoring wells, perched water was identified only in monitoring wells MW-1 and MW-4 on the west side of the landfill.

Two domestic shallow dug wells (Hunter and Palm) southeast of the landfill tap a shallow perched aquifer. However, the water levels in the Hunter and Palm wells are elevation 215 feet and 207 feet respectively indicating that both wells are upgradient/upslope from the landfill or producing from different perched aquifers than the perched aquifer beneath the landfill. Groundwater flow in the perched aquifer is probably westerly, the same direction as the slope of the perching layer. Based on grain size distribution (Appendix B - Grain Size Distribution Curves), fines separation (due to drilling technique) and data from Powers (1981) the estimated hydraulic conductivity of the perched aquifer is on the order of $5x10^{-2}$ ft/minute. Water level measurements indicate less than one foot decrease in the perched aquifer's water table between fall 1989 and spring 1990.

Shallow Confined Aquifer

The uppermost areally extensive groundwater bearing unit is a confined aquifer approximately 160 feet deep. The confined aquifer is about 5 to 10 feet thick and occurs in gray silty sands at the top of a regional aquitard.

The confining unit for this aquifer appears to be numerous thin silt and sandy silt stringers near elevation 50 feet on the west side of the landfill and about elevation 75 on the east side of the landfill. The confining zone appears to be about 5 to 10 feet thick.

The potentiometric level of the shallow confined aquifer ranges from elevation 108 on the west side of the landfill to about elevation 104 on the east (refer to Figure 2-2, Site Map). Groundwater flow in the shallow confined aquifer is south 38 degrees east based on water levels measured October 31, 1989. Water level measurements indicate about a one foot decrease in potentiometric levels for the shallow confined aquifer between fall 1989 and spring 1990.

Based on grain size distribution, fines separation (due to drilling technique) and data from Powers (1981) the hydraulic conductivity of the shallow confined aquifer is on the order of $1x10^{-3}$ to $1x10^{-2}$ ft/minute. Water level data indicate a hydraulic gradient of approximately .01 ft/ft. The porosity of a silty sand is quite variable and difficult to quantify. However, based on the literature (Powers, 1981 and Walton, 1984) and our experience with similar material, a porosity of 30% is reasonable to assume for the silty sand of the shallow confined aquifer. Assuming a porosity of 30%, the groundwater flow rate can be calculated using Darcy's Law. Where: $V = Ki/n$ and V = velocity, K = hydraulic conductivity, i = gradient, n = porosity.

Therefore, the rate of groundwater flow beneath the Gibraltar Landfill = V = [(est .005 ft/min)(.01)/.30] (1440) = .25 ft/day or 90 feet per year.

Deep Confined Aquifer

The available data indicate the deep confined aquifer is separated from the shallow confined aquifer by a 200-foot thick regional aquitard of silt and clay (refer to Figure 2-3). The deep confined aquifer consists of gray gravelly sand at approximately 150 feet below sea level with a potentiometric level of approximately elevation 15 feet above sea level (based on Frank Hamiter well, 1,000 feet south of landfill).

Insufficient data are available to determine the direction and rate of flow in the deep confined aquifer. The deep confined aquifer is the principal water supply in the area.

2.5 GROUNDWATER USE

The Skagit County Health Department has identified 11 water supply wells within one mile of the landfill (refer to Figure 2-1). Most of these wells are west-northwest of the site. Five wells are within half a mile of the landfill. Refer to Table 2-3, Gibraltar Water Supply Wells for well distances and directions from the landfill (well locations are shown on Figure 2-1, well logs are included in Appendix C).

TABLE 2-3

Gibraltar Water Supply Wells

Well	Owner	Depth	Distance & Direction from Landfill
8P1	Robert Hunter	35ft	600ft SE
8P2	Warren Palm	15+ft	1,000ft SE
7J1	Wyman Tibbles	40ft	1,500ft W
7H2	Dan Tibbles	276ft	1,600ft WNW
8N1	Frank Hamiter	400ft	1,100ft SSW
8D1	Terry Buchanan	85ft	3,500ft NNW
8D2	Craig Ginnett	?	3,000ft NNW
7G1	Bob Tracy	400ft	4,000ft NW
7G2	Jim Hertzberg	270ft	4,000ft NW
7H1	Tom Wilson	330ft	2,500ft NW
7L1	George Mcleod	72ft	5,500ft W
7L2	Vernon Hilbert	76ft	5,500ft W
7Q1	Hallie Allen	79ft	3,500ft WSW
18D1	Clayton Lunz	291ft	6,000ft SW
18K1	David Kwan	?	6,000ft SSW

Based on the available information, all of the wells in the vicinity of the Gibraltar Landfill produce from either the shallow perched aquifer or the deep confined aquifer. There are no known water supply wells tapping the shallow confined aquifer. Available data suggest that it is unlikely that any wells in the would use the shallow confined aquifer for water supply due to its low yield potential.

2.6 GROUNDWATER QUALITY

The Skagit County Health Department sampled the Gibraltar monitoring wells in February 1990. Analytical results are included in Appendix D.

All of the wells exhibited groundwater quality impacts. Table 2-4 lists the parameters and concentrations indicative of groundwater contamination in Gibraltar monitoring wells. Vinyl Chloride in MW-1 exceeds EPA's Primary Drinking Water Standard (2.0 ug/l). Manganese in all four wells exceeds the Secondary Drinking Water Standard (.05 mg/l).

TABLE 2-4

Water Quality Parameters at Concentrations
Indicative of Contamination in Gibraltar Landfill Monitoring Wells
(April, 1990)

Parameter	MW-1	MW-2	MW-3	MW-4
Sulfate (mg/l)	102.0	67.8		63.6
Manganese (mg/l)	7.2	.178	.147	.304
Vinyl Chloride (ug/l)	2.2			
Chloroethane (ug/l)	1.3			
1,1-Dichloroethane (ug/l)	2.4			
2-Butanone MEK (ug/l)		94.0	30.0	37.0
Toluene (ug/l)				2.7
Conductivity (micromhos)	1984.0	729.0	603.0	727.0

The above data indicate groundwater impacts from previous landfill operations. The data represents only one sampling event and none of the wells represent background conditions.

SECTION 3 - SAUK LANDFILL

The Sauk Landfill is located in the NW1/4, NE1/4, Section 28, Township 35 North, Range 9 East approximately 6 miles east of Concrete, Washington, immediately southwest of Highway 20 (refer to Figure 3-1, Location Map). Figure 3-1 also shows the location of domestic wells near the Sauk Landfill.

The site occupies an old gravel pit and the landfill has recently been covered with a low permeability cap (refer to Figure 3-2, Site Map). Site elevations range from approximately 520-555 feet above sea level. Thickness/depth of waste is unknown.

3.1 SAUK LANDFILL MONITORING SYSTEM SUMMARY

Four monitoring wells were installed at the Sauk Landfill during the period October 12, 1989 to October 24, 1989. All four monitoring wells were installed in the uppermost aquifer. One well, MW-3, was installed in an upgradient position. The remaining three wells were installed in downgradient locations. Table 3-1, Monitoring Well Specifics, Sauk Landfill, summarizes the significant well parameters. For additional details refer to Appendix A - Monitoring Well Construction, Sauk and Gibraltar landfills.

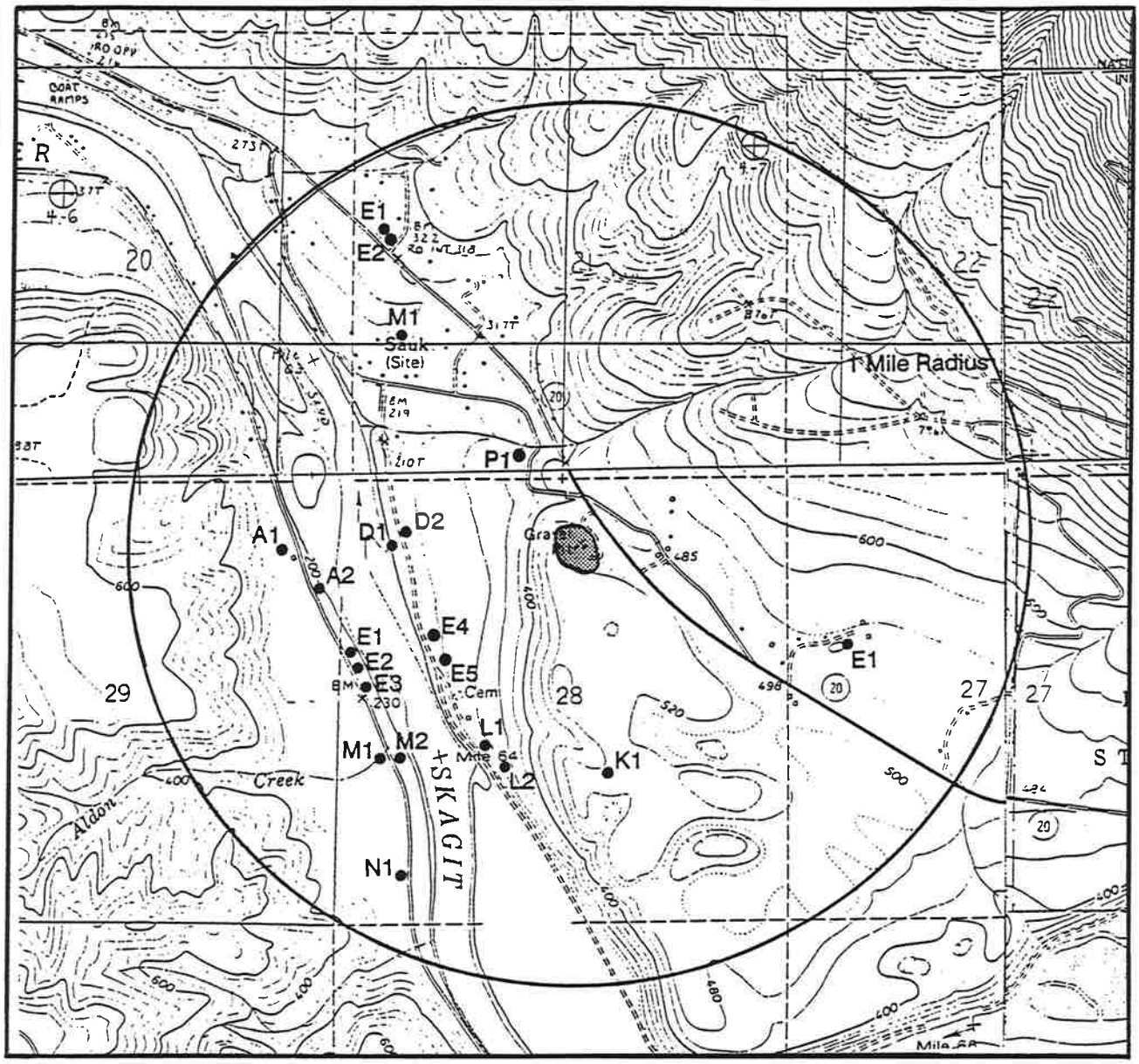
TABLE 3-1

Monitoring Well Specifics
Sauk Landfill

Well No.	Ground Surface Elevation Feet	Top of Casing Elevation Feet	Drill Depth Feet	Screen Depth Feet	Level Elevation Feet
MW-1	522.38	524.23	182	157-167	365-355
MW-2	524.22	526.07	182	155-165	369-359
MW-3	551.80	553.65	198	168-178	384-374
MW-4	528.14	530.04	178	158-168	370-360

Note: All elevations are above sea level, USGS datum. Top of casing includes a Geoguard pump cap.

The Skagit County Health Department has installed dedicated Geoguard pumps in the wells. The Health Department also performs quarterly sampling and water level measurements. Wellhead elevations were surveyed by the Skagit County Public Works Department. Table 3-2 presents water level measurements for fall 1989 and spring 1990.



Base: U.S.G.S. Lake Shannon, Rockport, Sauk Mountain and Finney Peak 7.5 Minute Quadrangles

Legend	Skagit County Public Works Department
• D1 Well	Sauk Landfill
Landfill	Site and Well Location Map
Scale: 1 inch = 2000 feet	Figure 3-1

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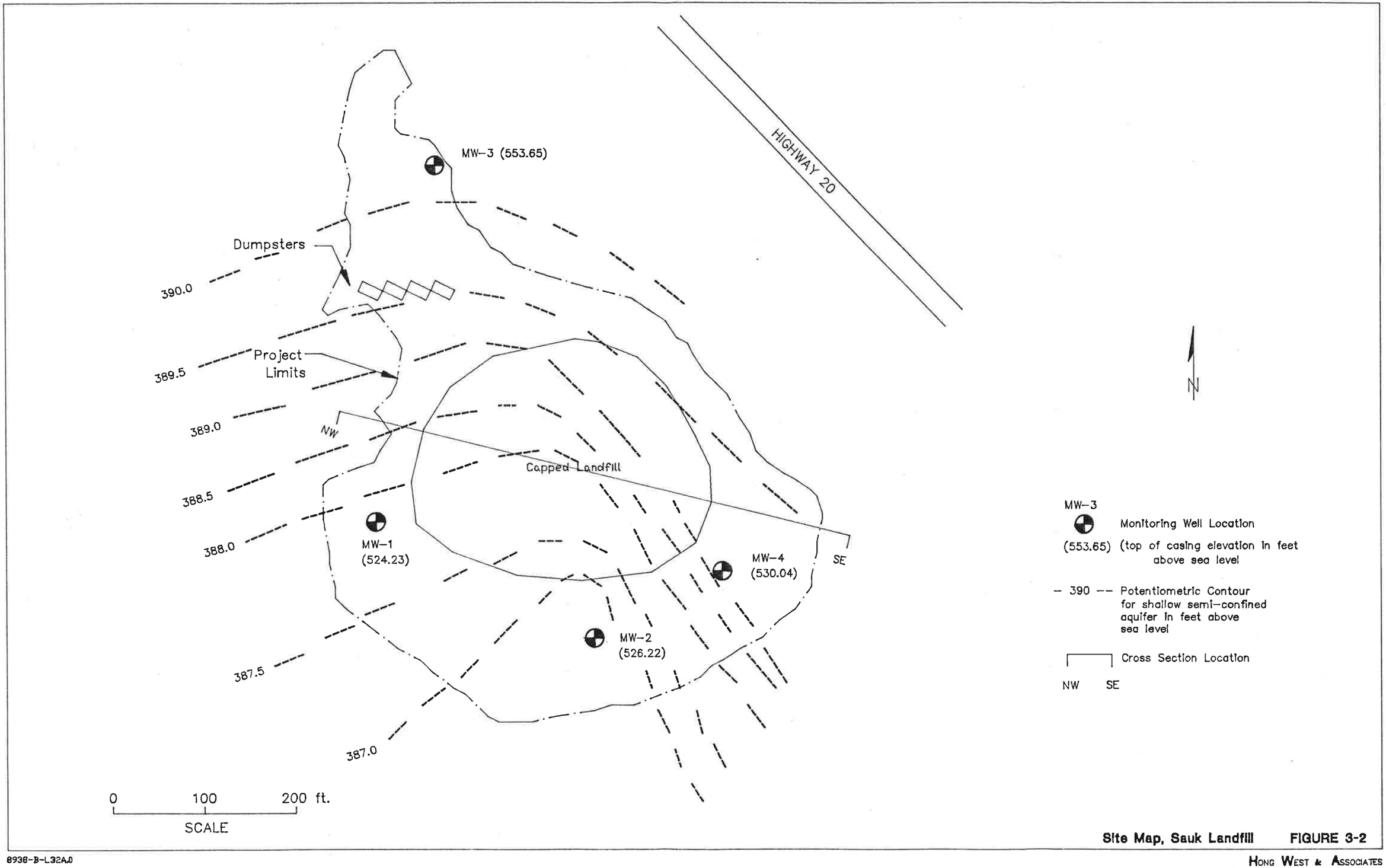

Site Map, Sauk Landfill **FIGURE 3-2**

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TABLE 3-2

Groundwater Levels
Sauk Landfill

Well No.	Top of Casing Elevation Feet	October 31, 1989 Depth Feet	October 31, 1989 Elevation Feet	May 17, 1990 Depth Feet	May 17, 1990 Elevation Feet
MW-1	524.23	151.45	372.78	135.92	388.31
MW-2	526.22	147.84	378.23	139.42	386.65
MW-3	553.65	176.81	376.84	163.42	390.23
MW-4	530.04	152.90	377.14	140.85	389.19

Note: All elevations are above sea level, USGS datum.

3.2 REGIONAL SETTING

The Sauk Landfill is situated in the upper Skagit valley approximately 2,000 feet north/northeast of the Skagit River. The river is approximately elevation 210 feet above sea level (asl), about 330 feet below the landfill. The area is covered by predominantly glacial and alluvial debris overlying metamorphic bedrock at an unknown depth. The nearest bedrock exposures are about 6,000 feet to the northeast on the flanks of Sauk Mountain.

3.3 SITE GEOLOGY

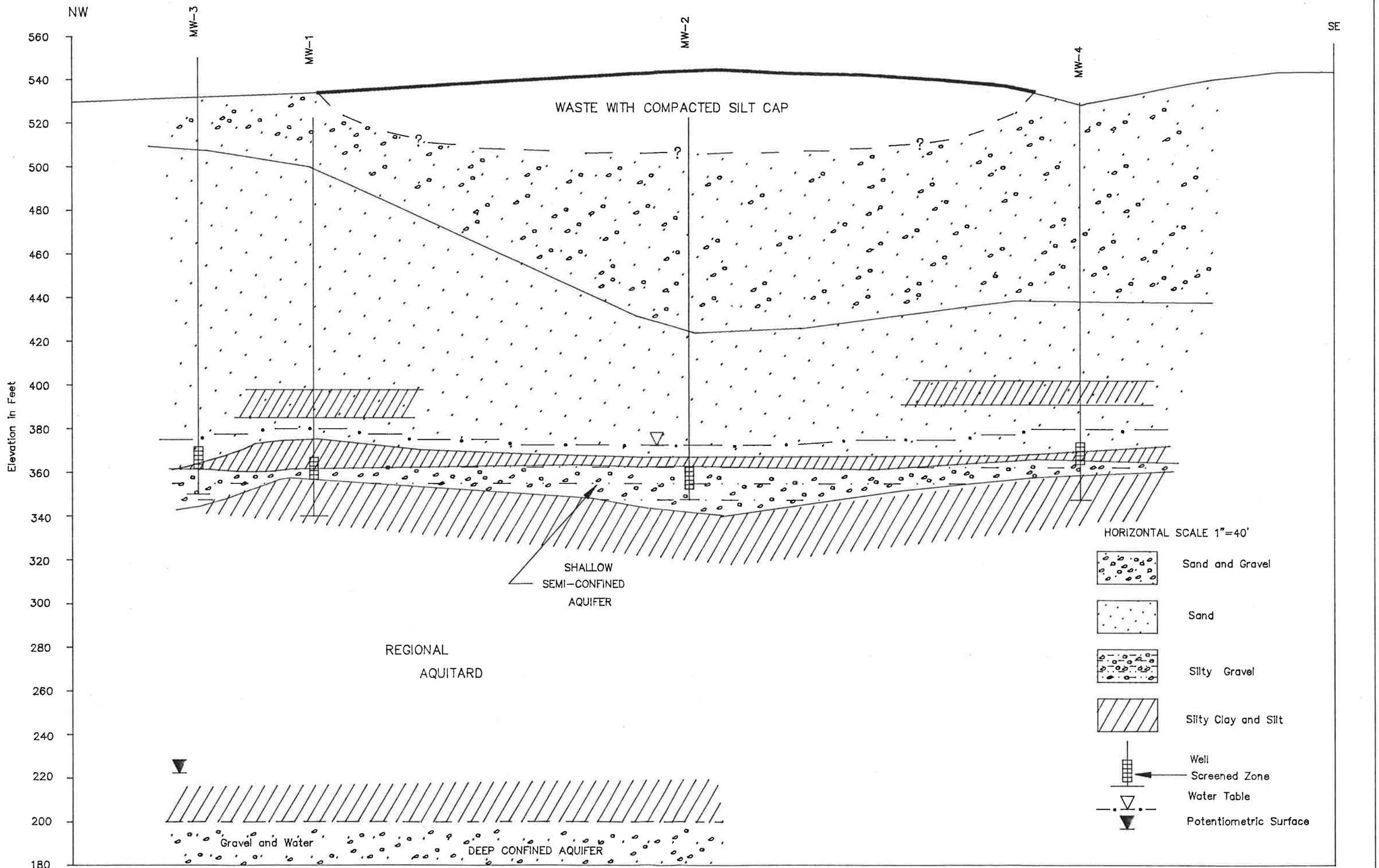
The site is underlain by glacio-fluvial deposits. Most of the material encountered in the boreholes appear to be glacial material which has been reworked and redeposited by the Skagit River. Subsurface exploration and existing domestic water well logs indicate five major units beneath the site: A Well Graded Sand and Gravel, a Poorly Graded Sand, a Silty Gravel, a Silt/Clay Strata and Deep Gravel Deposits.

Well Graded Sand and Gravel

Immediately below the landfill is well graded yellow-gray to olive-gray sand and gravel which varies in thickness from about 30 feet on the northwest side of the landfill to about 75 feet on the southeast side of the landfill. Cobbles and boulders are scattered throughout the unit (refer to Figure 3-3, Subsurface Cross Section).

Poorly Graded Sand

The upper gravel unit is underlain by a distinct pale yellowish-brown poorly graded sand with thin, infrequent silt stringers. The Poorly Graded Sand is about 140 feet thick on the western margin of the site narrowing to about 65 feet thick on the eastern margin. The unit becomes gravelly with depth (below elevation 390 asl).



Subsurface Cross Section Sauk Landfill **FIGURE 3-3**

8938L33-A-001

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A distinctive upper silt interbed, approximately 10 feet thick was identified in two of the four borings between elevation 390 and 400 feet asl. The interbed is discontinuous beneath the site and does not appear to be a perching layer.

The base of the Poorly Graded Sand is characterized by another distinctive silt layer at elevation 360 feet asl. This lower silt layer is only about 2-1/2 feet thick but appears to be continuous across the site. However, it was barely discernible in MW-3. The silt interbed has sufficient integrity to serve as a confining layer for the underlying uppermost aquifer.

Silty Gravel

The Silty Gravel is host to the uppermost aquifer and is encountered between elevation 350 and 360 feet asl. The Silty Gravel varies considerably in texture and was significantly coarser grained (less silt) in monitoring wells 1 and 3 than in wells 2 and 4. Monitoring wells 1 and 4 penetrated the full thickness of the Silty Gravel and were advanced into the underlying Clay/Silt Strata.

Clay/Silt Strata

Beneath the Silty Gravel is a gray to brown clayey silt to silty clay. This material appears to be a glacial lake deposit. A thin stringer of gray sand and gravel was identified in MW-1. The total thickness of the Clay/Silt Strata penetrated was about 20 feet. Nearby deep domestic well logs indicate the clay and silt unit is about 150 feet thick.

Deep Gravel Deposits

Domestic well logs show a gravel deposit beneath the Clay/Silt Strata near elevation 200 feet asl. The thickness of this unit is unknown.

3.4 GROUNDWATER OCCURRENCE AND FLOW

Two aquifers have been identified beneath the Sauk Landfill, a shallow semi-confined aquifer and a deep confined aquifer. Available data indicate that only the deep confined aquifer is used for water supply.

Shallow Semi-Confined Aquifer

Based on spring 1990 water level measurements by the Skagit County Health Department, the potentiometric level of the shallow confined aquifer ranges from elevation 395 to about elevation 386 feet above sea level (refer to Figure 3-2, Site Map). Water level differences between fall 1989 and spring 1990 indicate the potentiometric surface fluctuates erratically and to the extreme (15+ feet).

Groundwater flow in the shallow confined aquifer is south toward the Skagit River and appears to form a distinctive trough beneath the landfill. The average hydraulic gradient beneath the landfill ranges from .004 on the west side of the landfill to about .006 on the east side of the landfill.

The hydraulic conductivity of the shallow semi-confined aquifer appears to be quite low. Grain size distribution curves for samples of the silty gravel of the shallow semi-confined aquifer in MW-2 and MW-4 indicate very high uniformity coefficients (25+). Corresponding hydraulic conductivities based on Powers, 1981 are on the order of $1x10^{-4}$ to $1x10^{-3}$ ft/min. Drill cuttings from MW-3 indicate more uniform, sandier aquifer materials.

Based on the literature (Powers, 1981 and Walton, 1984) and our experience with similar material, a porosity of 25% is reasonable for the silty gravel of the shallow semi-confined aquifer. Assuming a porosity of 25%, an average hydraulic conductivity of .001 ft/min, and an average hydraulic gradient of .005, the rate of groundwater flow was calculated using Darcy's Law. Where: V = Ki/n and V = velocity, K = hydraulic conductivity, i = gradient, n = porosity.

Therefore, the rate of groundwater flow beneath the Sauk Landfill = V = [(.001 ft/min)(.005)/.25] (1440) = .03 ft/day or about 11 feet per year.

Deep Confined Aquifer

The available data indicate the deep confined aquifer is separated from the shallow confined aquifer by a 150-foot thick regional aquitard of silt and clay (refer to Figure 3-3). The deep confined aquifer consists of gray to brown sandy gravel at approximately 200 feet above sea level with a potentiometric level of approximately elevation 210 feet above sea level.

Water level data collected by the Skagit County Health Department indicate the direction of groundwater flow in the deep confined aquifer is approximately south 45 degrees west toward the Skagit River. The deep confined aquifer is the principal water supply in the area.

3.5 GROUNDWATER USE

The Skagit County Health Department has identified 18 water supply wells within one mile of the landfill (refer to Figure 3-1). Eight of these wells are on the south side of the river. Five wells are between the landfill and the river and in potentially downgradient locations. Refer to Table 3-3, Sauk Water Supply Wells, for well distance and direction from the landfill (well locations are shown on Figure 3-1, available well logs are included in Appendix C).

TABLE 3-3

Sauk Water Supply Wells

Well	Owner	Depth	Distance & Direction from Landfill
21E1	Dean Mallory	214	4,500 NW
21E2	Dan Rapp	?	4,500 NW
21M1	Robert Taylor	60	3,000 NW
21P1	Mark Berg	312	1,100 NW
27E1	Otto Von Borke	155	3,500 ESE
28D1	Bill Groth	60	2,000 W
28D2	George Theodoratus	46	2,000 W
28E1	Les Bridges	40	3,000 SW
28E2	Lester Thistle	40	3,000 SW
28E3	Walter Magini	40	3,000 SW
28E4	Randy Riggles	110	2,000 S
28E5	Henry Young	?	2,300 SW
28L1	Jack Albrech	260	2,500 SSW
28L2	Steve Hylen	140	2,500 SSW
28N1	James Fratello	50	4,500 SW
28M1	Bill Blunt	60	3,500 SW

TABLE 3-3 (continued)

Sauk Water Supply Wells

Well Owner		Depth	Distance & Direction from Landfill
28M2	Roy Miller	37	3,500
29A1	Jan Nottingham	60	3,500 E
29A2	Rose J. Crouch	37	3,000 E

Based on the available information, it appears that all of the wells (28D1, 28D2, 28L1, 28L2 and 28K1) potentially downgradient of the Sauk Landfill produce from a shallow river-fed unconfined aquifer or the deep confined aquifer. There are no known water supply wells tapping the shallow semi-confined aquifer. Available data suggest that it is unlikely that any wells in the area would use the shallow semi-confined aquifer for water supply due to its low yield potential. Insufficient data are available to determine the hydraulic relationship between the shallow semi-confined aquifer and the deep confined aquifer.

3.6 GROUNDWATER QUALITY

The Skagit County Health Department sampled the Sauk Landfill monitoring wells near the end of February, 1990. Downgradient monitoring wells 2 and 4 exhibited possible signs of contamination.

MW-2 registered 67 ug/l of total halogenated organics (TOX), 1.3 ug/l Cis 1,2-Dichloroethene and a conductivity of 956 micromhos. MW-3 registered 1.3 ug/l Trichlorofluoromethane and 1.4 ug/l of 1,1,1-Trichloroethane (refer to Appendix D for water quality data).

The high conductivity in MW-2 is indicative of groundwater contamination in this area. Typical groundwater conductivities are in the range of 100 to 300 micromhos. The TOX in MW-2 is also indicative of potential groundwater contamination (experience has shown that levels greater than 50 ug/l may indicate contamination). The three volatile organics identified are at concentrations barely above detection limits (1.0 ug/l). At these levels and for these parameters sample or laboratory contamination should not be ruled out.

SECTION 4 - CONCLUSIONS AND RECOMMENDATIONS

The following conclusions are based on the data and information obtained during this investigation and recommendations focus on the specific monitoring requirements outlined in WAC 173-304-490 Minimum Functional Standards for Solid Waste Handling (MFS):

4.1 GIBRALTAR LANDFILL

Four monitoring wells were installed at the Gibraltar Landfill, one monitoring well in a perched aquifer and three monitoring wells in a shallow confined aquifer.

Conclusions

1. Groundwater quality data indicate that landfill operations have impacted the perched aquifer and the shallow confined aquifer. Primary drinking water standards have been exceeded in the perched aquifer and Secondary drinking water standards have been exceeded in the shallow confined aquifer. Organic chemicals have been detected in both aquifers. The landfill has been capped and the concentration of elevated parameters should decrease over time.

2. Data provided by Skagit County Health Department indicate there are no downgradient wells producing from the shallow confined aquifer and no downgradient wells producing from the perched aquifer within a mile of the landfill.

3. The direction of groundwater flow in the shallow confined aquifer is to the southeast. Only one monitoring well accesses the perched aquifer, therefore the direction of groundwater flow in the perched aquifer is unknown. However, flow may follow the westerly slope of the perching layer.

4. The rate of groundwater flow in the perched aquifer is unknown. The rate of groundwater flow in the shallow confined aquifer is on the order of .25 ft/day.

5. None of the monitoring wells installed are in an upgradient (background) position. The available data indicate that it will not be possible to install an upgradient well in the perched aquifer. It may be feasible to site an upgradient (background) well in the shallow confined aquifer near the northwest corner of the site.

6. The single monitoring well in the perched aquifer is in a downgradient position. Additional downgradient monitoring wells for the perched aquifer will require off-site locations.

7. The three monitoring wells in the shallow confined aquifer are in downgradient positions.

Recommendations

1. A an upgradient monitoring well, approximately 200 feet deep, should be installed in the shallow confined aquifer.

2. Two to three test borings, approximately 50 feet deep, should be drilled in the active borrow pit immediately west of the landfill to determine if the perching layer and the perched aquifer continues to the west.

3. As/if appropriate, complete test borings as monitoring wells.

4. Continue sampling and analysis of monitoring system to establish statistically representative data base.

4.2 SAUK LANDFILL

Four monitoring wells were installed in the uppermost, shallow semi-confined, aquifer at the Sauk Landfill.

Conclusions

1. Groundwater quality data indicate that landfill operations have impacted the shallow semi-confined aquifer. The available data indicate that drinking water standards have not been exceeded in any of the monitoring wells. Organic chemicals have been detected in two wells. The landfill has been capped and the concentration of elevated parameters should decrease over time.

2. Data provided by the Skagit County Health Department indicate there are no downgradient wells producing from the shallow semi-confined aquifer.

3. Based on spring 1990 water levels, the direction of groundwater flow is to the south toward the Skagit River. The rate of groundwater flow is about .03 feet/day.

4. Groundwater levels exhibit extreme seasonal variations which may result in changes in the direction of groundwater flow.

5. The Sauk Landfill monitoring system meets the MFS requirement for one upgradient and three downgradient monitoring wells.

Recommendations

1. Continue sampling and analysis of monitoring system to establish statistically representative data base.

2. Sample and monitor domestic wells which may be downgradient of the landfill.

3. Re-evaluate the rate and direction of groundwater flow on a quarterly basis.

APPENDIX A
MONITORING WELL CONSTRUCTION
SAUK AND GIBRALTAR LANDFILLS

APPENDIX A

MONITORING WELL CONSTRUCTION
SAUK & GIBRALTAR LANDFILLS

Four monitoring wells were constructed at each landfill between September 25 and October 24, 1989. All drilling, well construction and development was supervised and inspected by Hong West & Associates' geologists. Drill hole logs were prepared on site by the geologist during well drilling and construction, and modified accordingly after reviewing samples in the laboratory/office. Refer to the accompanying well logs for lithologic and well construction details.

EQUIPMENT/DECONTAMINATION

Drilling for this project was performed with a Koehring Speedstar air rotary drill rig owned and operated by Hayes Drilling of Bow, Washington. The rig was equipped with a two-stage compressor capable of developing 700 cfm of air at 150 psi, a Tiger Tierra casing hammer adaptable to driving the casing in either direction, and a positive displacement mud pump used for proper bentonite slurry mixing and placement.

All drilling equipment was pressurized-hot water washed/steamed cleaned prior to entering and after leaving each landfill site. In addition, all downhole drilling tools were pressurized-hot water washed/steam cleaned between holes.

DRILLING

All borings were drilled using the "drill and drive" technique. A 6-inch diameter tricone bit was advanced 2-5 feet below the 6-inch steel drill casing after which the casing was pneumatically driven to the drilled depth. A 6-inch diameter drive shoe welded to the bottom of the initial length of 6-inch drill casing. In all wells, the drive shoe was cut and left in the hole a minimum of 5 feet below the bottom of the screen and bedded in bentonite. A 20-foot, 5-inch diameter stabilizer and 20-foot, 4-1/2 inch diameter drill rods were used to advance the boring. Cuttings were removed from the hole by air.

SAMPLING AND TESTING

Samples were collected at the end of the air discharge tube. Sampling intervals were typically every 5 feet or less. Samples were retained in wide-mouth plastic jars and after laboratory testing and inspection stored at the Public Works Department sample storage building in Mount Vernon.

Whenever a damp or moist formation was encountered, drilling was halted and the hole allowed to "rest" for 15 to 30 minutes to allow any free water to collect in the borehole. The well was then air surged to check if groundwater had been encountered. In some zones water was injected to clean the hole in the event drilled fines (silt and clay) were coating the formation.

Gas monitoring was performed during the drilling of each well to determine if any threat to personnel safety existed and if particular areas of the landfill sited were subject to gas migration. Explosive limit and % volume methane were measured with a GasTeck natural gas indicator. Readings were taken at drill casing connections and in the casing-surface annulus.

WELL COMPLETION

All monitoring wells were completed using threaded 2-inch PVC pipe as a riser and a 10-foot section of screen with 0.010-inch slot widths. A filter pack of Colorado 10/20 silica sand was placed around each screen and bentonite chips and a bentonite grout were used to seal and backfill the hole. The wells

at Gibraltar also contained one or two gas monitoring probes consisting of 1/2-inch diameter pvc pipe with 1/4-inch diameter Tygon tubing (refer to Figures A-1 and A-2 for details). Pea gravel was placed around each probe with bentonite chips and grout as a seal. As the pipe and backfill were placed, the 6-inch diameter drill casing was withdrawn from the hole. A 10-inch diameter security casing with a locking lid was installed at the surface and embedded in concrete.

DEVELOPMENT

All monitoring wells were developed using a single pipe airlift technique. Compressed air, filtered for both liquid and particulate matter, was conducted to the screened zone through a 3/4-inch threaded PVC pipe. The pipe was systematically raised and lowered over the screen during development. Samples of the water lifted during development were tested at regular intervals for pH and conductivity. Wells with insufficient water for airlift development were bailed. Development was continued until pH, temperature and conductivity stabilized.

WELLHEAD SURVEY

Wellhead elevations (top of 2-inch PVC well casings) were surveyed by the Skagit County Public Works Department to USGS datum.

GIBRALTAR MONITORING WELLS

The Gibraltar monitoring wells were constructed during the period September 25, 1989 to October 6, 1989. Table A-1 presents a summary of the Gibraltar monitoring well construction details.

TABLE A-1

Monitoring Well Specifics
Gibraltar Landfill

Well No.	Ground Surface Elevation Feet	Top of Casing Elevation Feet	Drill Depth Feet	Screen Depth Feet	Level Elevation Feet	Gas Probe Depth
MW-1	239.57	240.97	60	39-34	202-207	15
MW-2	254.28	256.73	200	185-175	77-82	10/25
MW-3	252.97	254.87	202	185-175	70-75	18/25
MW-4	239.25	240.55	198	180-170	60-70	25

Note: All elevations are above sea level, USGS datum. Top of casing includes Geoguard pump cap.

Monitoring Well #1 (MW-1): This well was drilled, installed, and developed between September 25 and September 26, 1989.

Groundwater was found perched on a silt layer encountered between 37 and 40 feet, with a static water level measured at 35.4 feet. The hole was continued to a final depth of 60 feet to check for any additional aquifers. The hole was backfilled from 60 to 40 feet with bentonite chips.

The bottom of the screen was placed at 39 feet. A gas monitoring probe was installed at a depth of 15 feet in a 3/8-inch pea gravel filter pack.

Development of the well was discontinued after one hour due to the low capacity of the well. This well will require additonal bailer development before sampling.

A pH of 6.45 and a conductivity reading of 1700 micromhos was recorded after the well stabilized.

Monitoring Well #2 (MW-2): This well was drilled, installed, and developed between September 27 and September 29, 1989. Measurable groundwater was not encountered in this boring until a silty fine sand layer was penetrated at a depth of 165 feet, just below a 2-foot thick confining layer of sandy silt. This aquifer continued to a depth of 192 feet where a stiff clayey silt to silty clay was encountered. The bottom of the screen was set at a depth of 185 feet. The bentonite seal was placed to 166 feet isolating the aquifer. The water level in the well after completion was 147.3 feet indicating approximately 20 feet of confining pressure. Gas monitoring probes were placed at 10 feet and 25 feet.

After the installation was completed, the well was developed for a period of three hours until the discharge had cleared, and stable pH and conductivity readings were obtained. After development a pH of 8.40 and a conductivity of 630 micromhos was recorded.

Monitoring Well #3 (MW-3): This well was drilled, installed, and developed between October 2 and October 4, 1989. Measurable groundwater was encountered in this boring at a depth of 172 feet, in a silty fine sand just below a 5-foot thick confining layer of silty clay. This aquifer continued to a depth of 191 feet where a sandy silt was encountered. The screen was set with the tip at a depth of 185 feet. The bentonite seal was placed to 170 feet to isolate the aquifer. The water level after completion was 147.6 feet indicating approximately 25 feet of confining pressure. Gas monitoring probes were installed at 18 feet and 25 feet.

After the installation was completed, the well was developed for a period of two hours until the return had cleared and stable pH and conductivity readings were obtained. After development a pH of 8.64 and a conductivity of 418 micromhos was recorded.

Monitoring Well #4 (MW-4): This well was drilled, installed, and developed between October 4 and October 6, 1989. Groundwater was first encountered in this boring in a silty fine sand layer at a depth of about 175 feet. This aquifer continued to a depth of 188 feet where a clayey silt silt was encountered. The screen was set with the tip at a depth of 180 feet. The bentonite seal was placed to 165 feet isolating the aquifer. Static water level after completion was 131.3 feet indicating 44 feet of confining pressure. One gas monitoring probe was installed at 25 feet.

After the installation was completed, the well was developed for a period of two hours until the return had cleared and stable pH and conductivity readings were obtained. After development a pH of 8.41 and a conductivity of 1010 micromhos was recorded.

SAUK LANDFILL

Sauk monitoring wells were constructed during the period October 12, 1989 to October 24, 1989. Poor access required road work which was provided by Skagit County Department of Public Works. Table A-2 presents a summary of the Sauk monitoring well construction details.

TABLE A-2

Monitoring Well Specifics
Sauk Landfill

Well No.	Ground Surface Elevation Feet	Top of Casing Elevation Feet	Drill Depth Feet	Screen Depth Feet	Level Elevation Feet
MW-1	522.38	524.23	182	157-167	365-355
MW-2	524.22	526.07	182	155-165	369-359
MW-3	551.80	553.65	198	168-178	384-374
MW-4	528.14	530.04	178	158-168	370-360

Note: All elevations are above sea level, USGS datum. Top of casing includes Geoguard pump cap.

Monitoring Well #1 (MW-1): This well was drilled, installed, and developed between October 12 and October 13, 1989. First groundwater was found confined in a sandy fine - medium gravel layer between 164 and 166 feet, with a static water level measured at 145.6 feet. The bottom of the screen was placed at 168 feet.

After completion the well was developed for seven hours. Bentonite grout invaded the gravel pack and air-water jetting was used to develop the well until discharge was clear. The well was then bailed for three hours. A pH of 7.02 and a conductivity reading of 150 micromhos was recorded after well development.

Monitoring Well #2 (MW-2): This well was drilled, installed, and developed between October 17 and October 18, 1989. Groundwater was first encountered in a gravelly fine to medium sand between 145 and 170 feet, with a static water level measured at 149.2 feet. The bottom of the screen was placed at a depth of 165 feet.

Because of a very low volume of return, development was discontinued after two and a half hours. The well was then later bailed for approximately one hour until the discharge was clear. A pH reading of 8.12 and a conductivity reading of 270 micromhos was recorded.

Monitoring Well #3 (MW-3): This well was drilled, installed, and developed between October 19 and October 20, 1989. Groundwater was first encountered in a sandy gravel to gravelly sand between 160 and 190 feet, with a static water level measured at 174.7 feet. The bottom of the screen was placed at a depth of 188 feet.

Because of a very low volume of return, development was discontinued after two hours. The well was then later bailed for approximately one hour until the discharge was clear. A pH reading of 7.82 and a conductivity reading of 120 micromhos was recorded.

Monitoring Well #4 (MW-4): This well was drilled, installed, and developed between October 23 and October 24, 1989. First groundwater was encountered in a silty fine sand to sandy gravel between 153 and 178 feet, with a static water level measured at 150.2 feet. The bottom of the screen was placed at a depth of 168 feet.

Like the previous wells, development was discontinued after two hours because of a very low volume of return. The well was then later bailed for approximately one hour until the discharge was clear. A pH reading of 7.82 and a conductivity reading of 120 micromhos was recorded.

GIBRALTAR MONITORING WELL LOGS

HONG WEST & ASSOCIATES

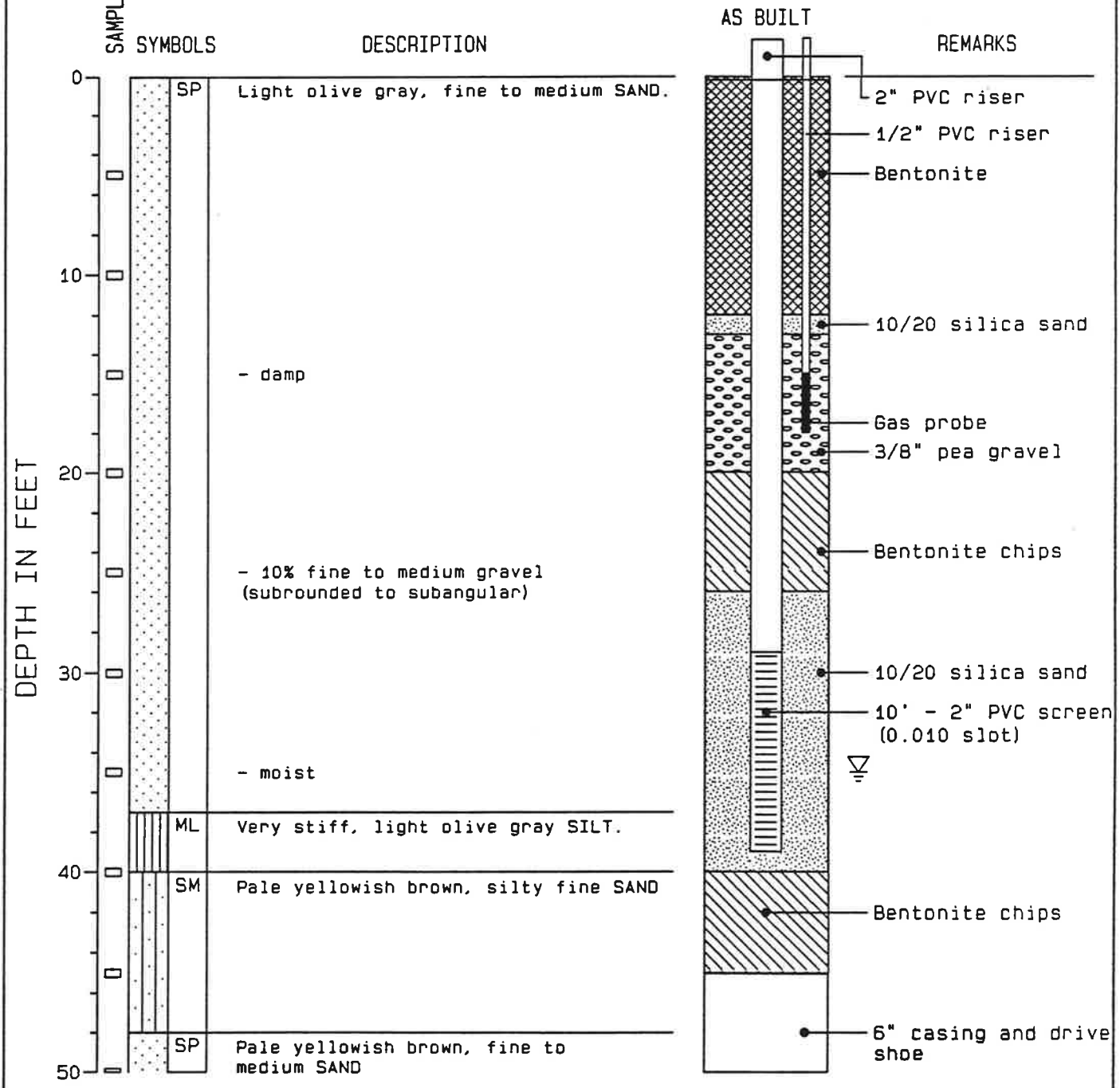
P.O. BOX 598, LYNNWOOD, WASHINGTON 98046, (206) 743-4774

DRILLING COMPANY: HAYES DRILLING AND PUMP
DRILLING METHOD: AIR ROTARY
SAMPLING METHOD: GRAB SAMPLE FROM AIR DISCHARGE TUBE

WELL LOG

LOGGED BY: LMW

TOTAL DEPTH: 60 FEET
DATE STARTED: 09-25-89
DATE FINISHED: 09-26-89

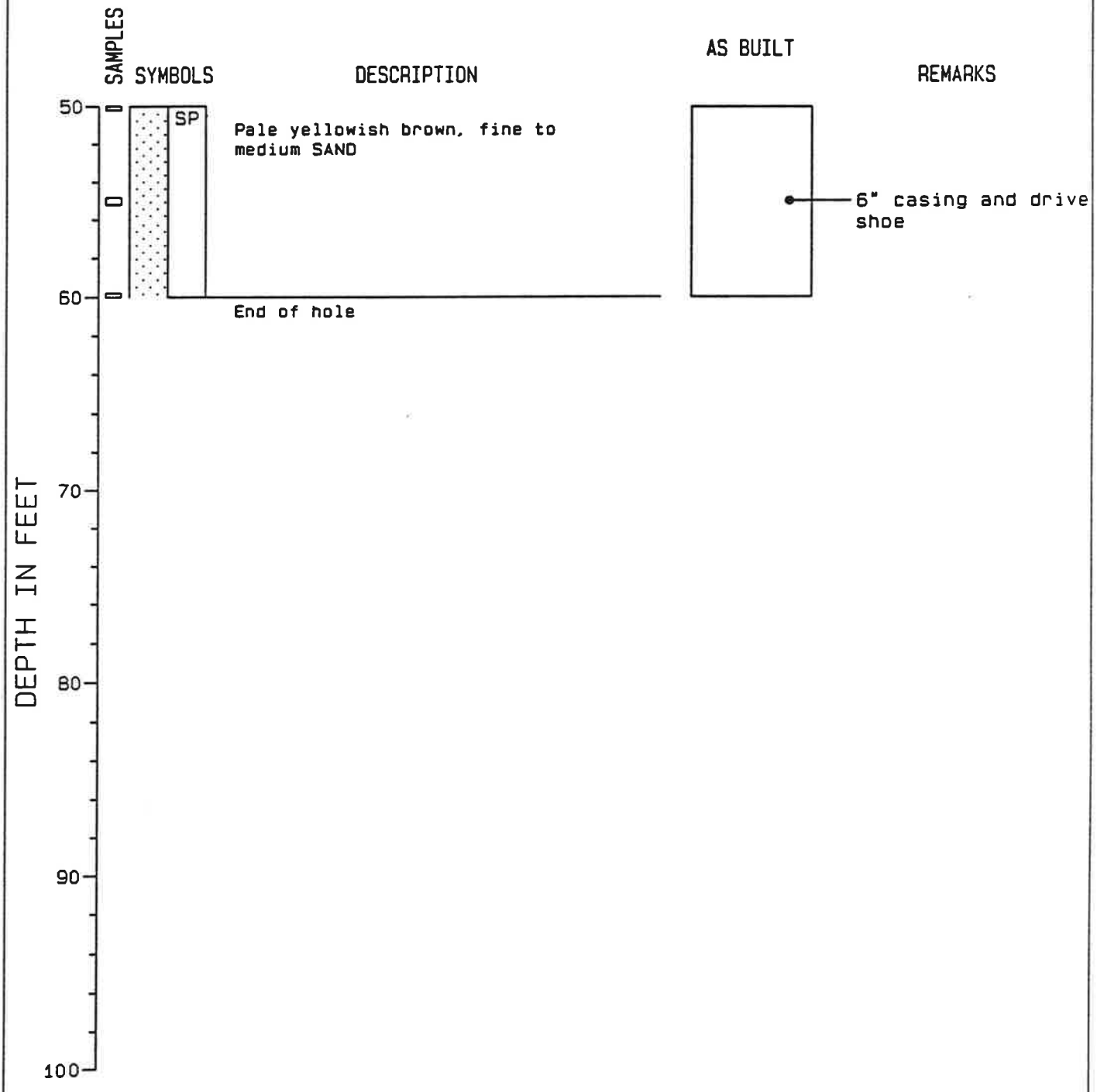


PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 239.57 ft.
TOP OF WELL CASING: 240.97 ft.

WELL MW-1

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG



PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 239.57 ft.
TOP OF WELL CASING: 240.97 ft.

WELL MW-1

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES

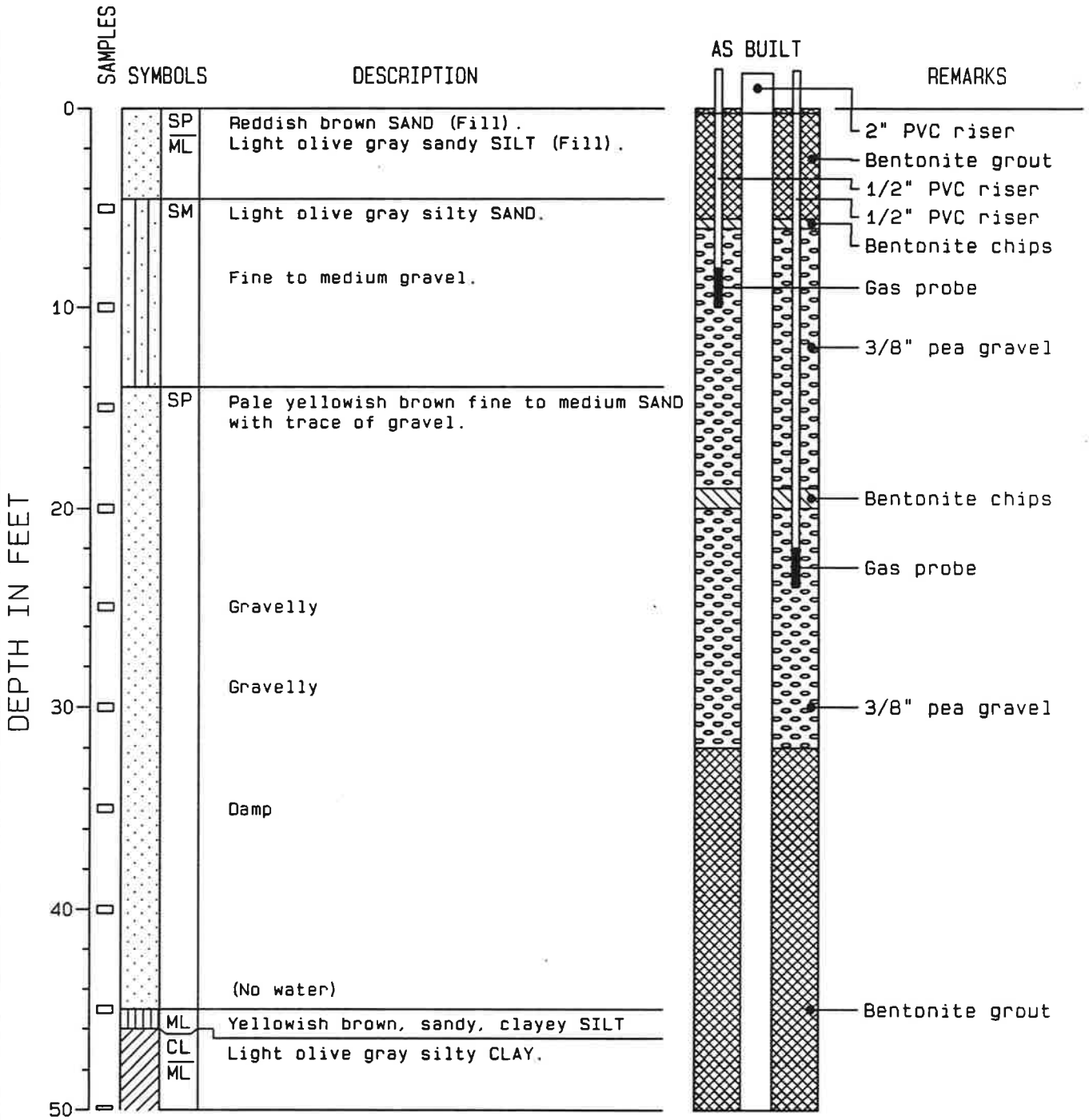
P.O. BOX 598, LYNNWOOD, WASHINGTON 98046, (206) 743-4774

WELL LOG

LOGGED BY: PNW

DRILLING COMPANY: HAYES DRILLING AND PUMP
DRILLING METHOD: AIR ROTARY
SAMPLING METHOD: GRAB SAMPLE FROM AIR DISCHARGE TUBE

TOTAL DEPTH: 198 FEET
DATE STARTED: 09-27-89
DATE FINISHED: 09-28-89

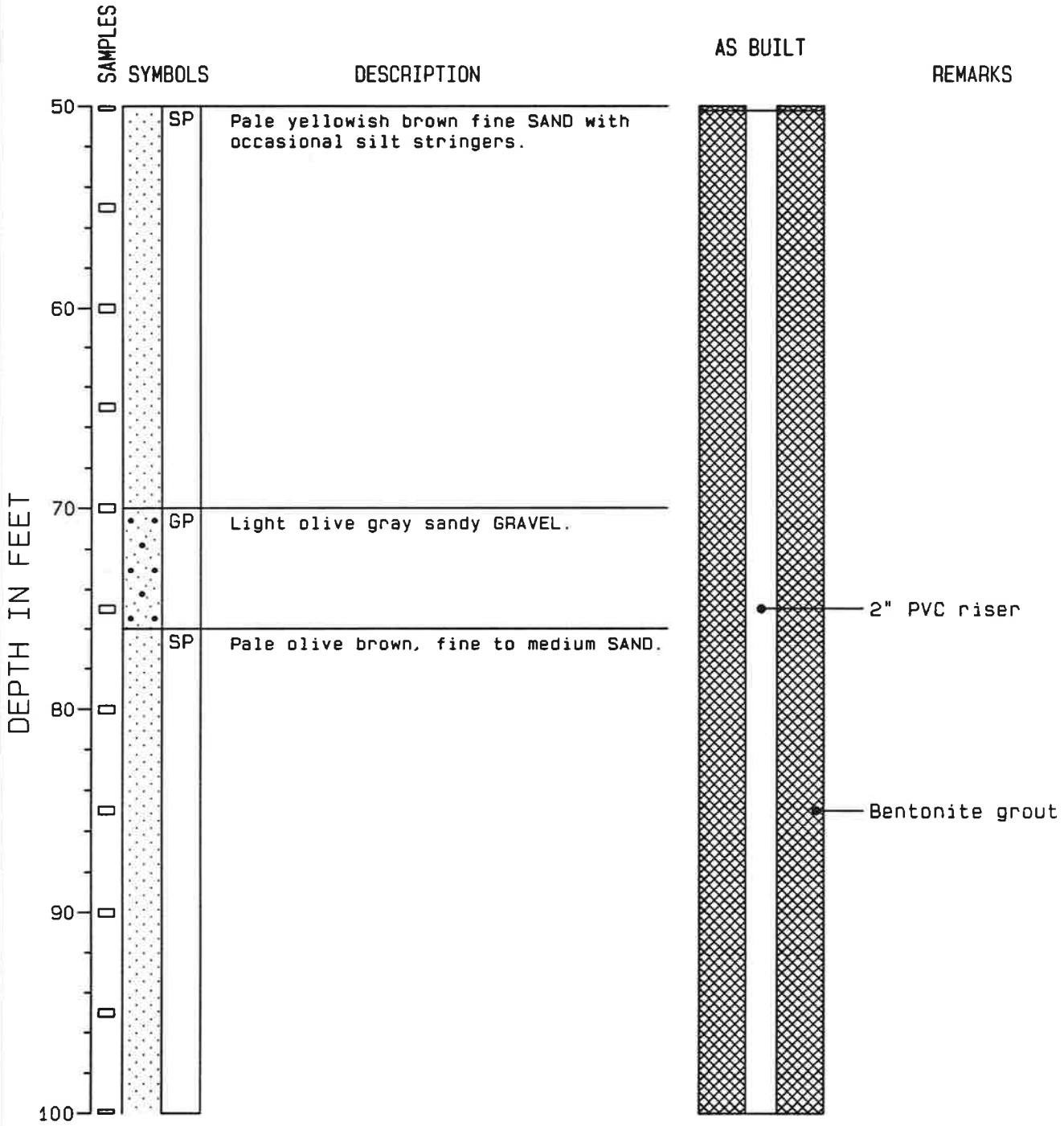


PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 254.28 ft.
TOP OF WELL CASING: 256.73 ft.

WELL MW-2

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

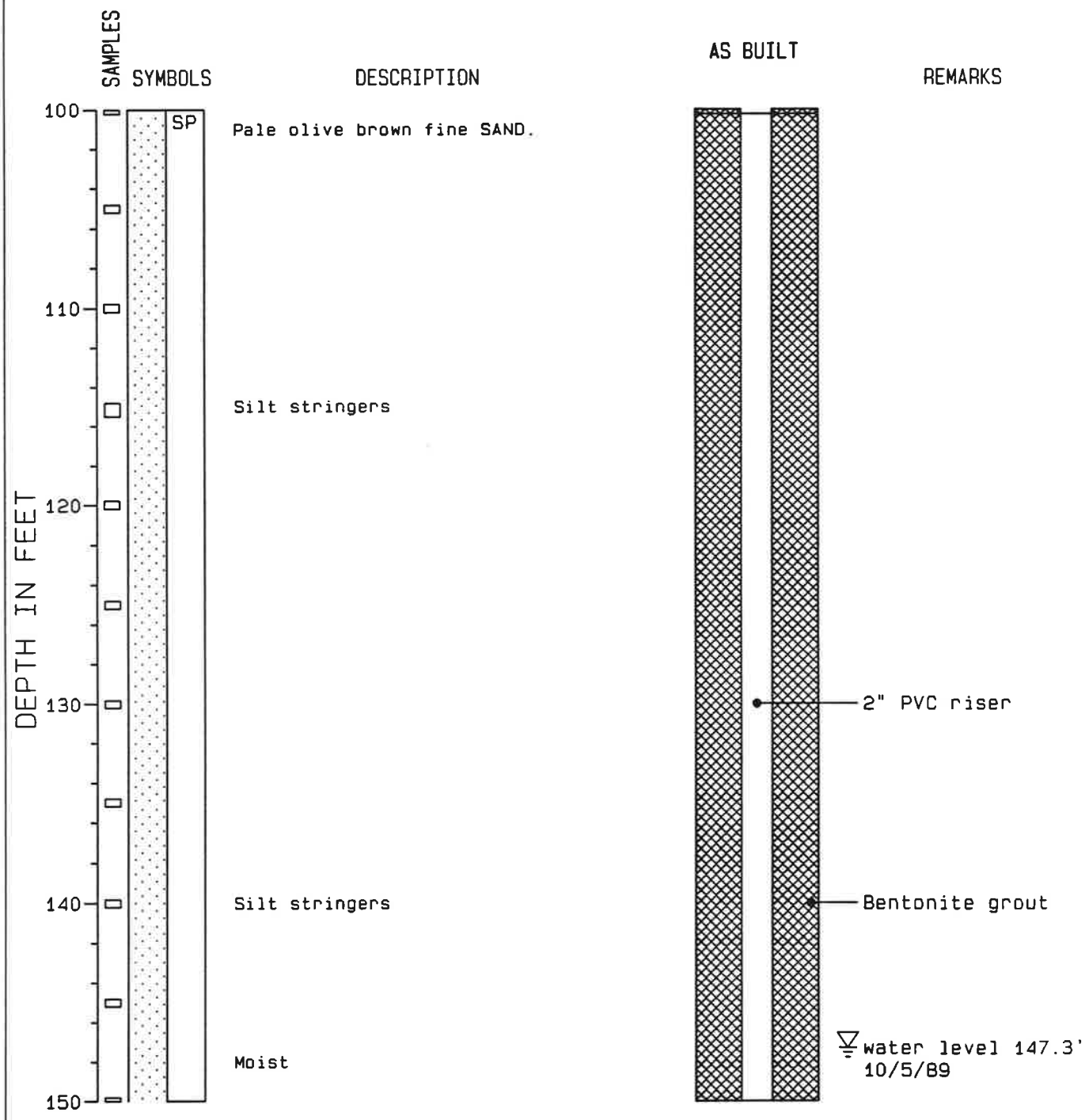


PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 254.28 ft.
TOP OF WELL CASING: 256.73 ft.

WELL MW-2

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

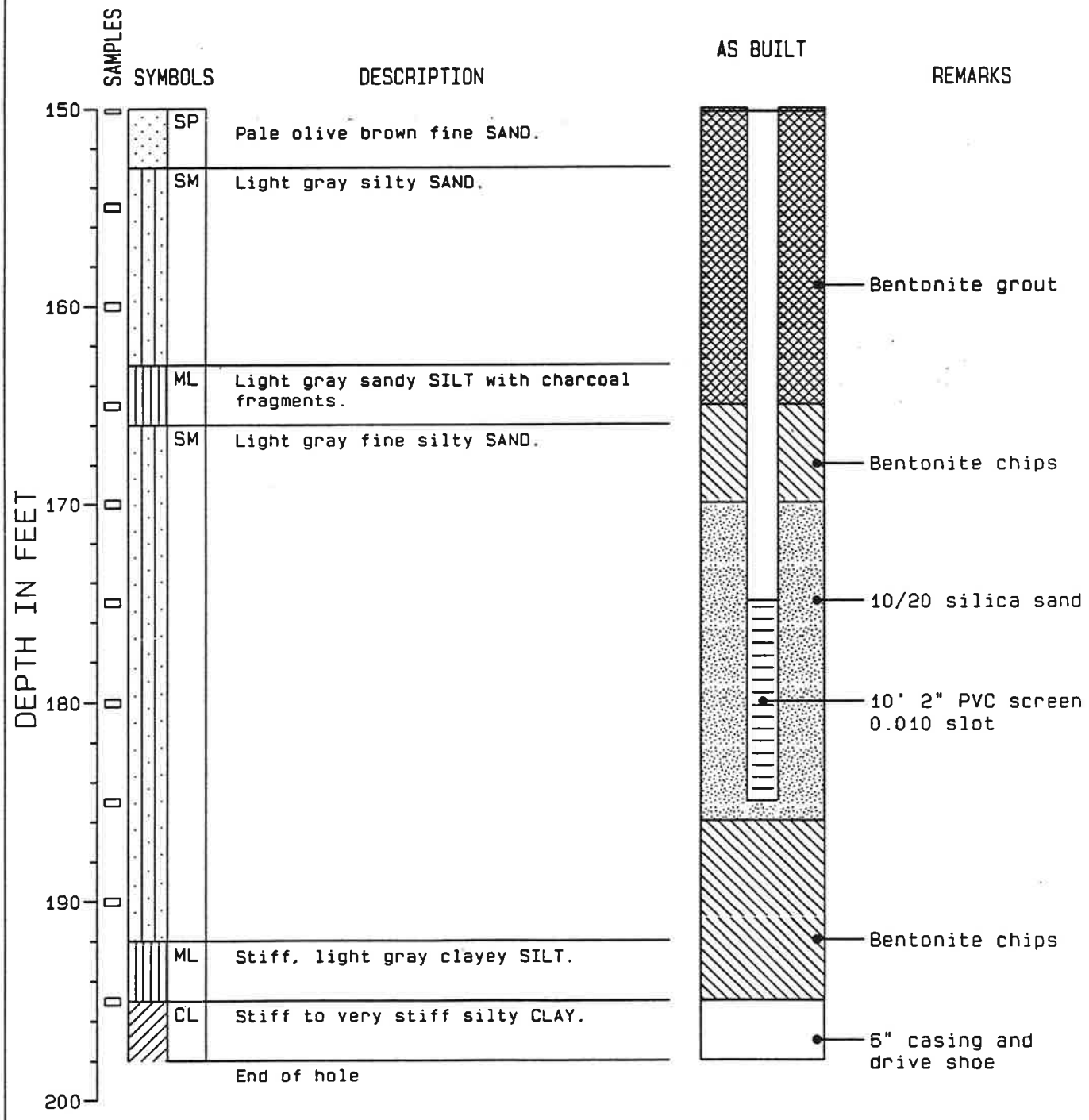


PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 254.28 ft.
TOP OF WELL CASING: 256.73 ft.

WELL MW-2

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG



PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 254.28 ft.
TOP OF WELL CASING: 256.73 ft.

WELL MW-2

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES

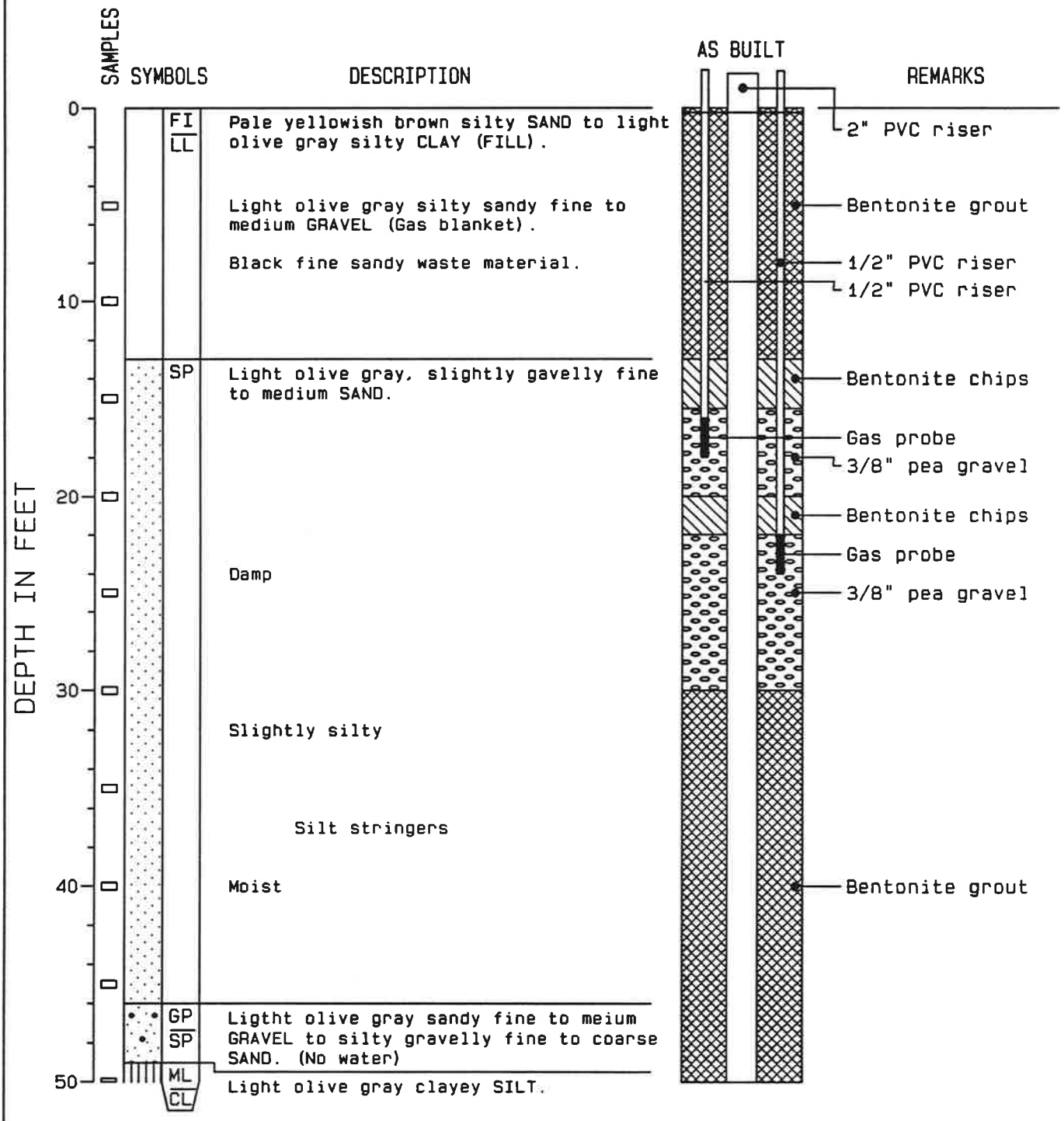
P.O. BOX 598, LYNNWOOD, WASHINGTON 98046, (206) 743-4774

WELL LOG

LOGGED BY: PNW

DRILLING COMPANY: HAYES DRILLING AND PUMP
DRILLING METHOD: AIR ROTARY
SAMPLING METHOD: GRAB SAMPLE FROM AIR DISCHARGE TUBE

TOTAL DEPTH: 202 FEET
DATE STARTED: 10-02-89
DATE FINISHED: 10-03-89

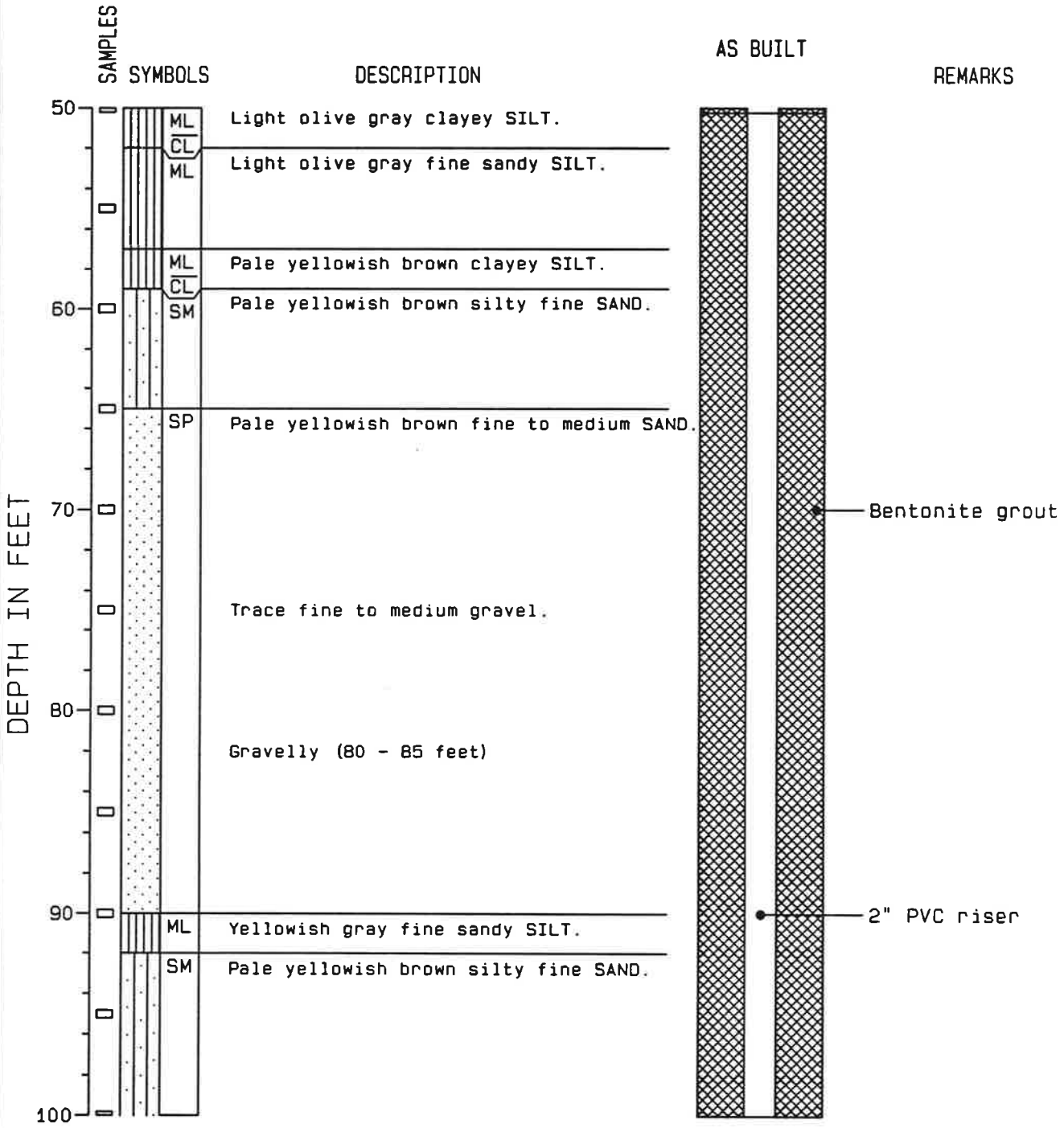


PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 252.97 ft.
TOP OF WELL CASING: 254.87 ft.

WELL MW-3

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

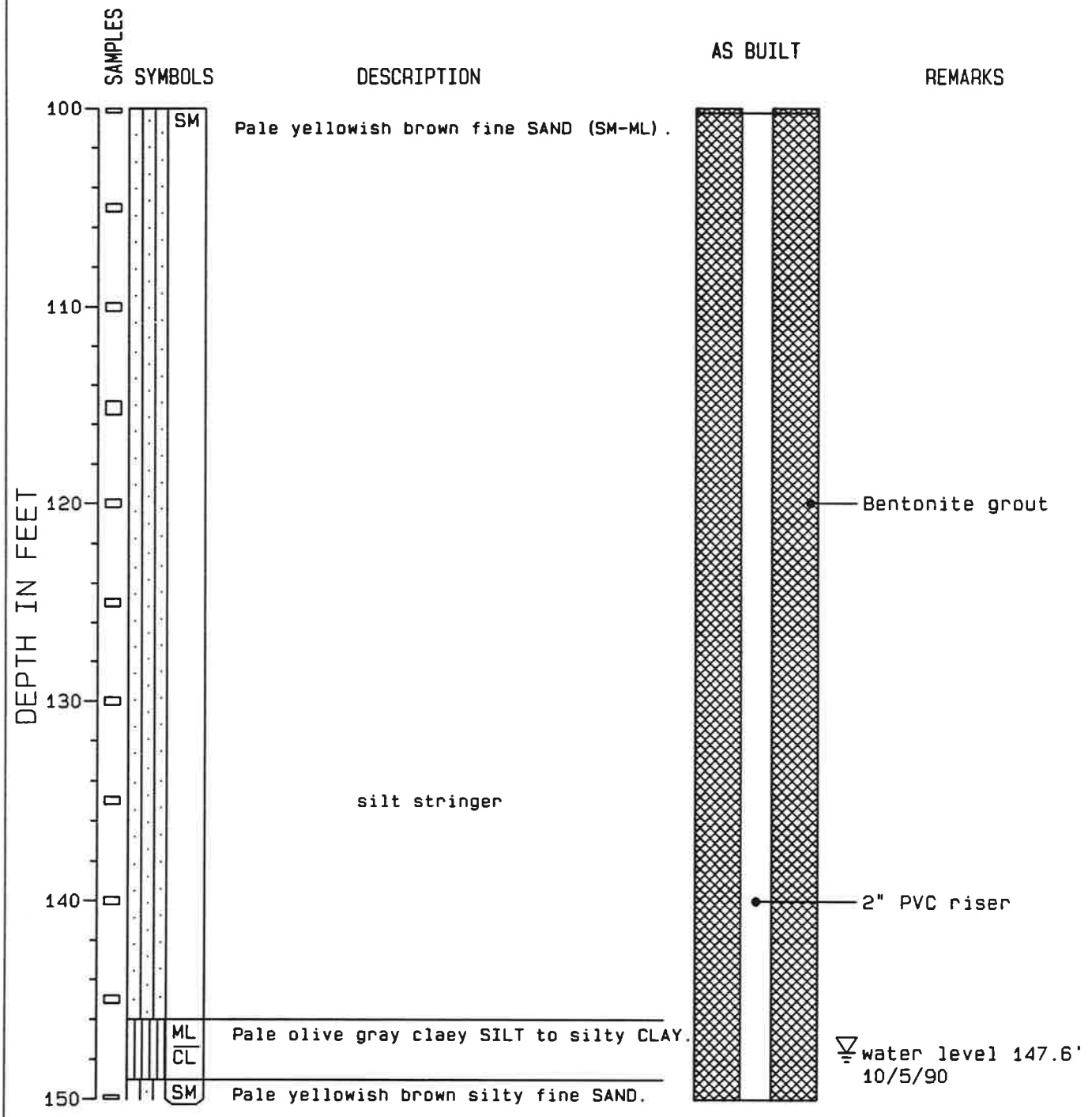


PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 252.97 ft.
TOP OF WELL CASING: 254.87 ft.

WELL MW-3

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

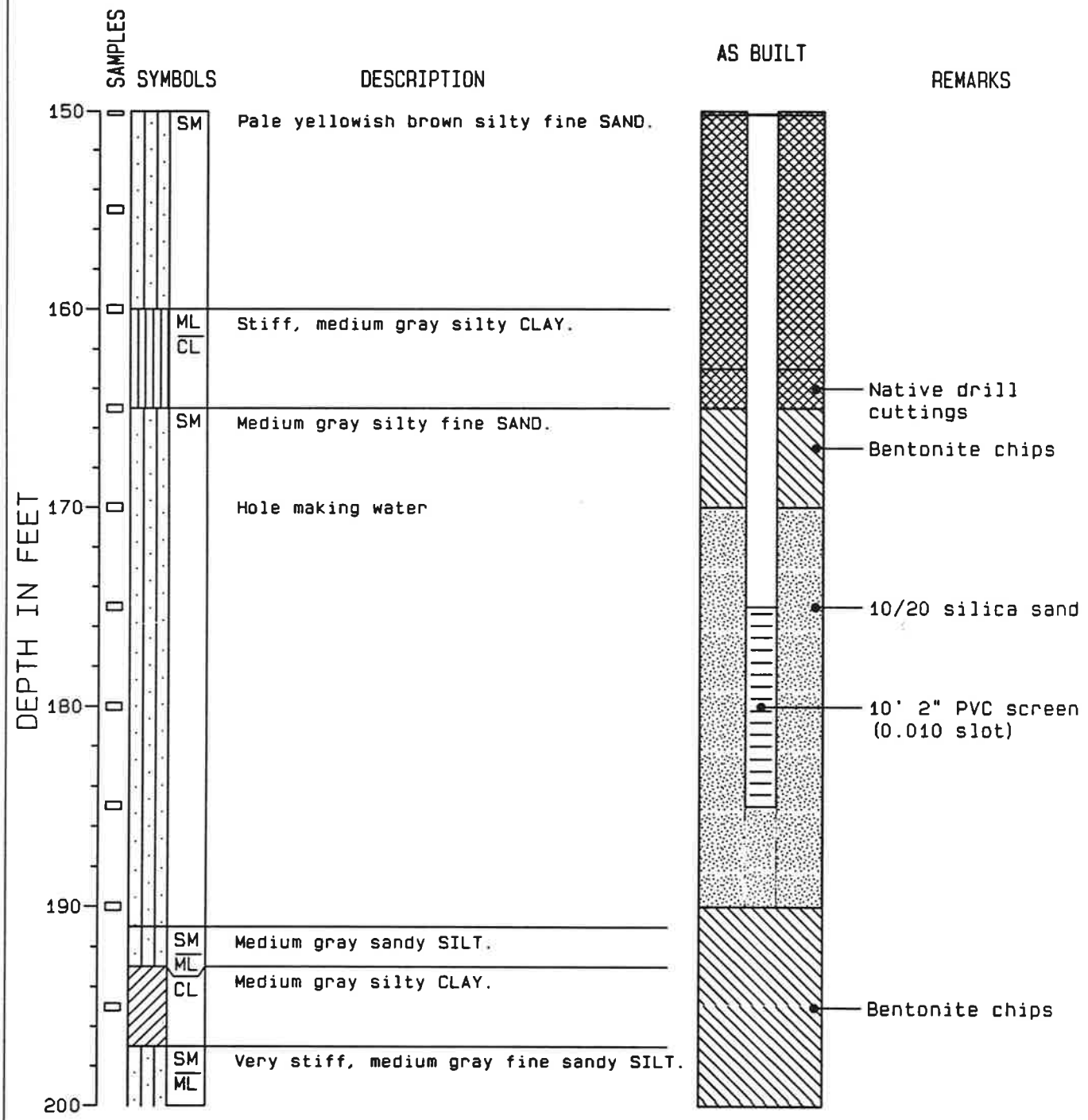


PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 252.97 ft.
TOP OF WELL CASING: 254.87 ft.

WELL MW-3

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

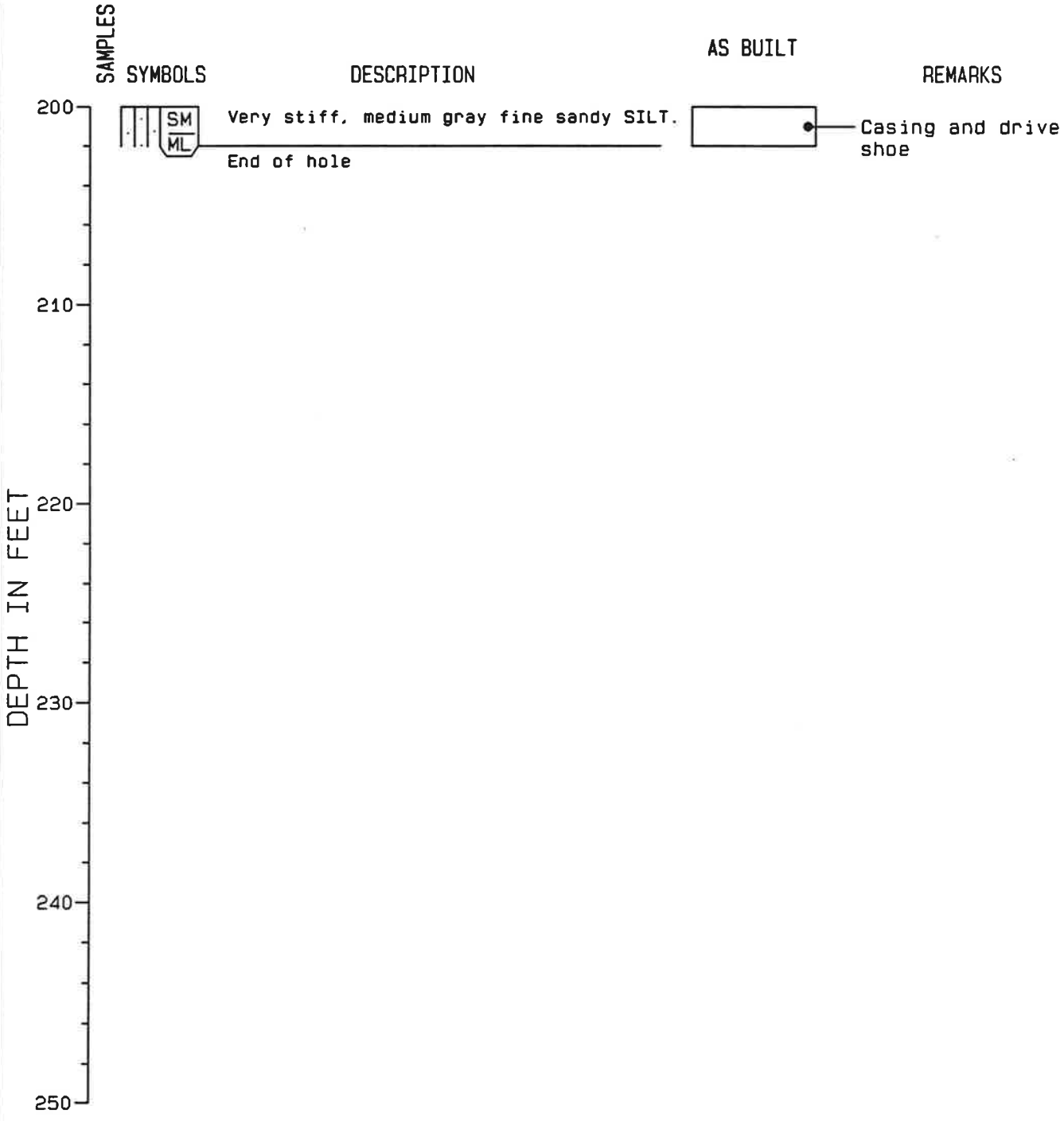


PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 252.97 ft.
TOP OF WELL CASING: 254.87 ft.

WELL MW-3

PROJECT NUMBER: B938

HONG WEST & ASSOCIATES
WELL LOG



PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 252.97 ft.
TOP OF WELL CASING: 254.87 ft.

WELL MW-3

PROJECT NUMBER: 8938

PAGE: 5 OF 5

HONG WEST & ASSOCIATES

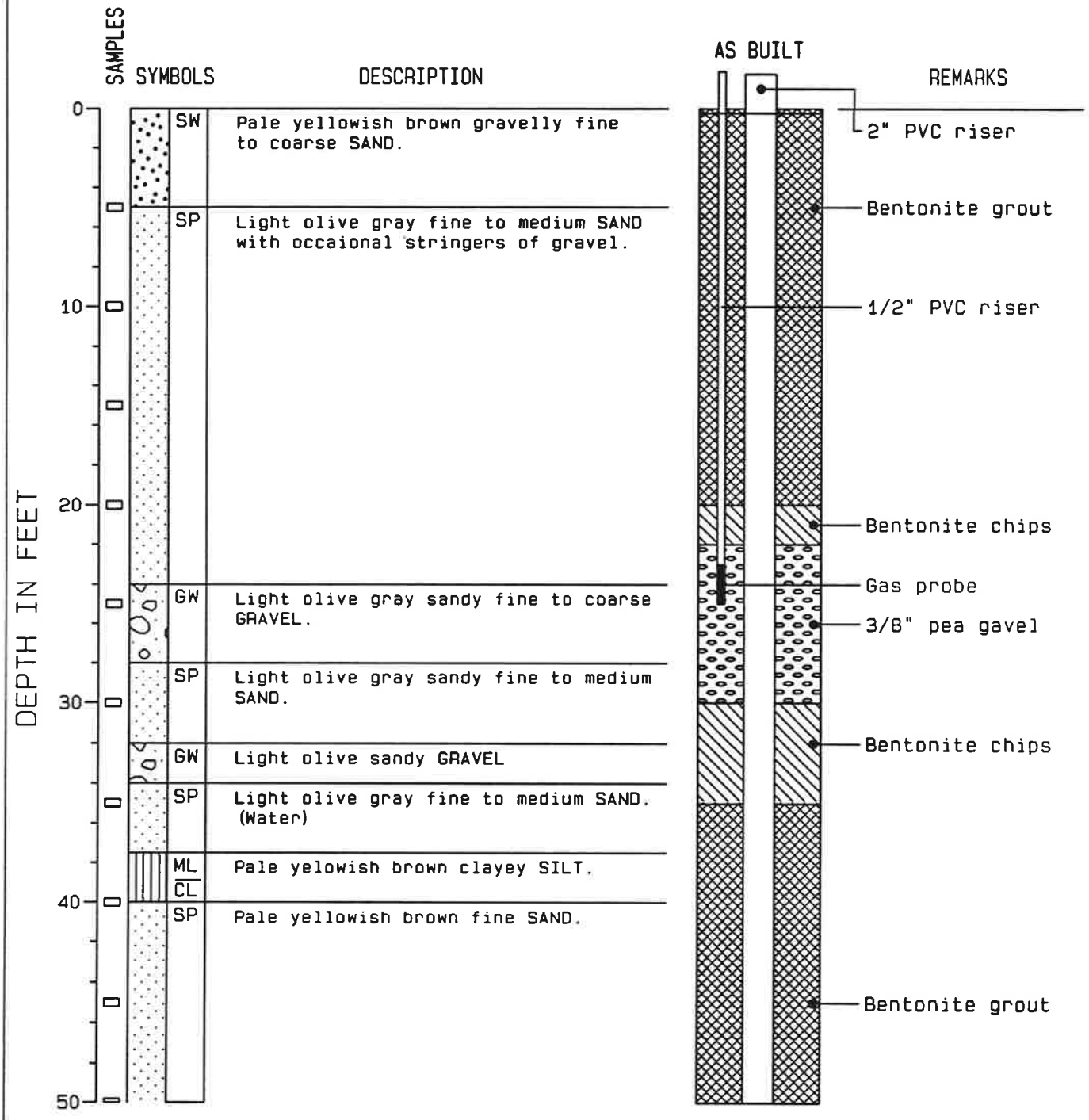
P.O. BOX 598, LYNNWOOD, WASHINGTON 98046, (206) 743-4774

WELL LOG

LOGGED BY: PNW

DRILLING COMPANY: HAYES DRILLING AND PUMP
DRILLING METHOD: AIR ROTARY
SAMPLING METHOD: GRAB SAMPLE FROM AIR DISCHARGE TUBE

TOTAL DEPTH: 198 FEET
DATE STARTED: 10-04-89
DATE FINISHED: 10-06-89

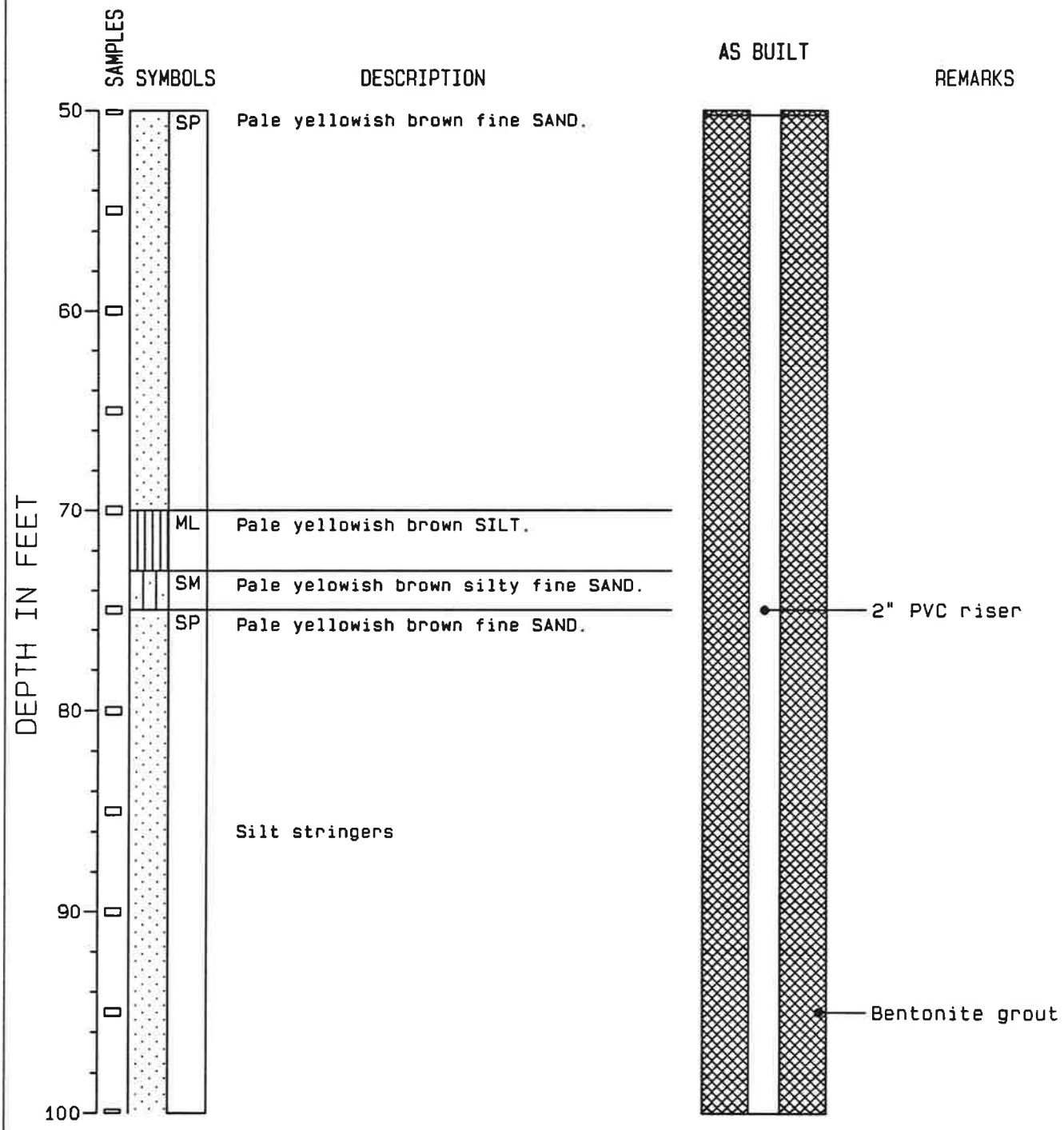


PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 239.25 ft.
TOP OF WELL CASING: 240.55 ft.

WELL MW-4

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

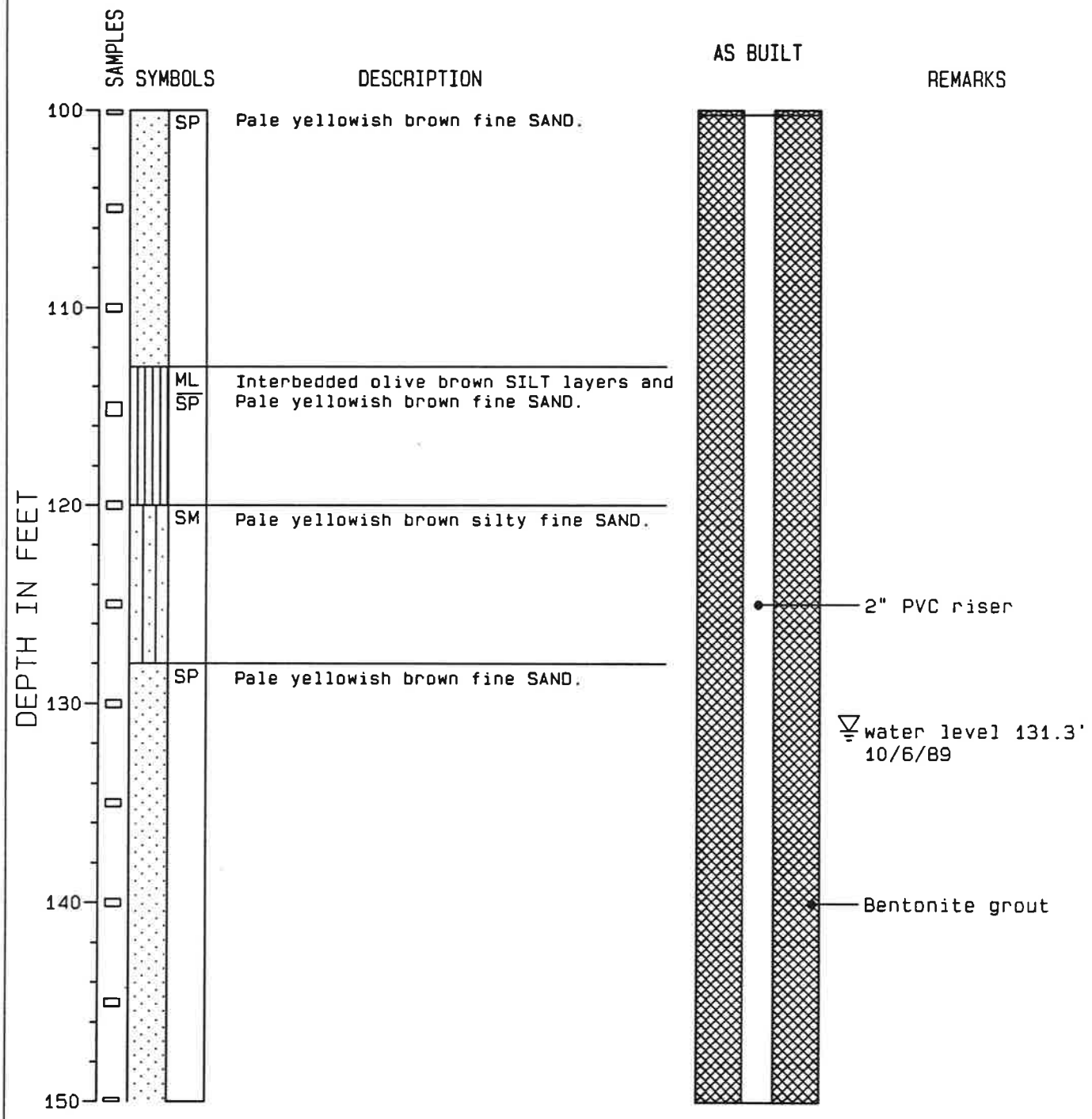


PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 239.25 ft.
TOP OF WELL CASING: 240.55 ft.

WELL MW-4

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

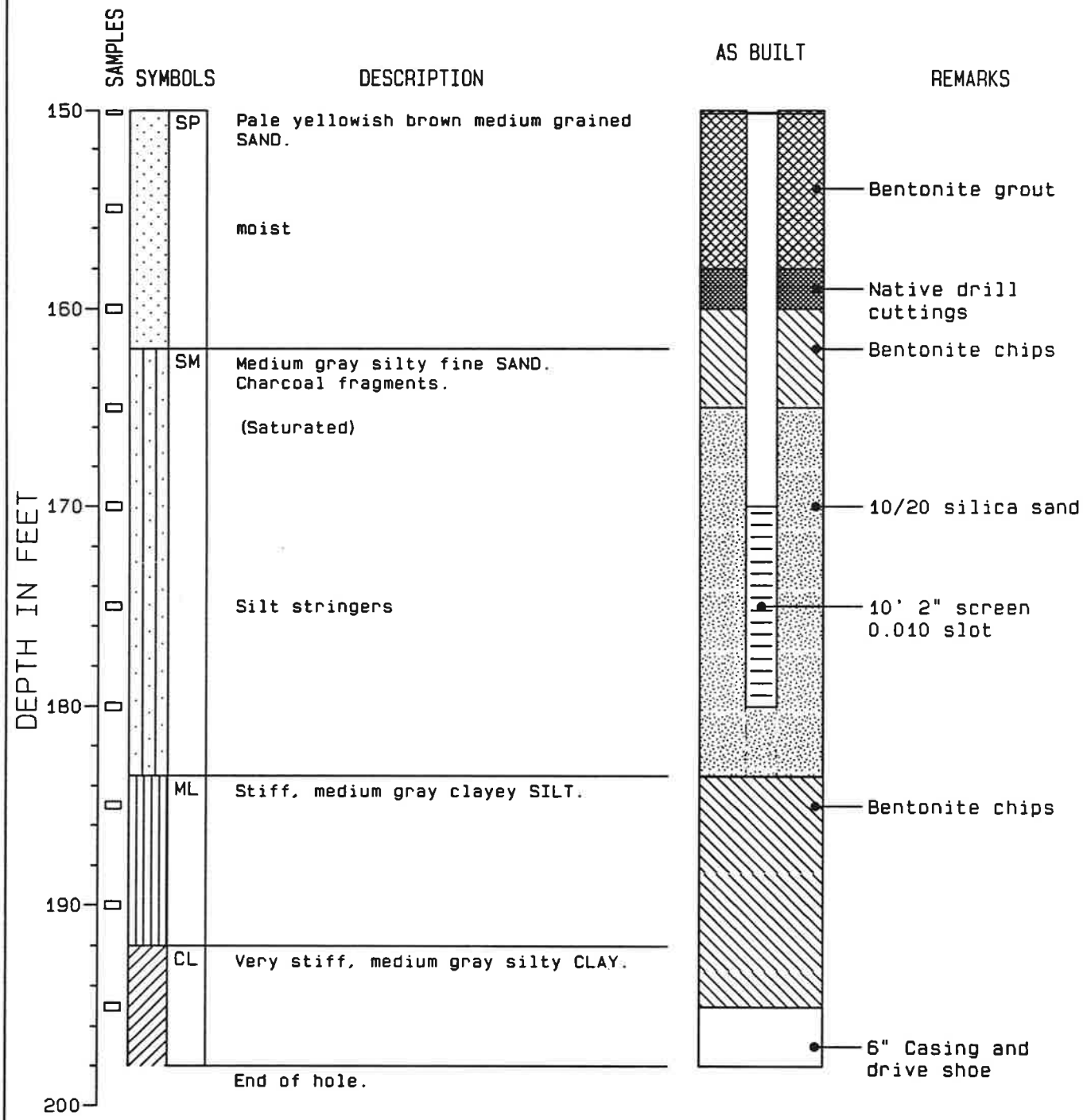


PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 239.25 ft.
TOP OF WELL CASING: 240.55 ft.

WELL MW-4

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG



PROJECT: GIBRALTER LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 239.25 ft.
TOP OF WELL CASING: 240.55 ft.

WELL MW-4

PROJECT NUMBER: 8938

PAGE: 4 OF 4

SAUK MONITORING WELL LOGS

HONG WEST & ASSOCIATES

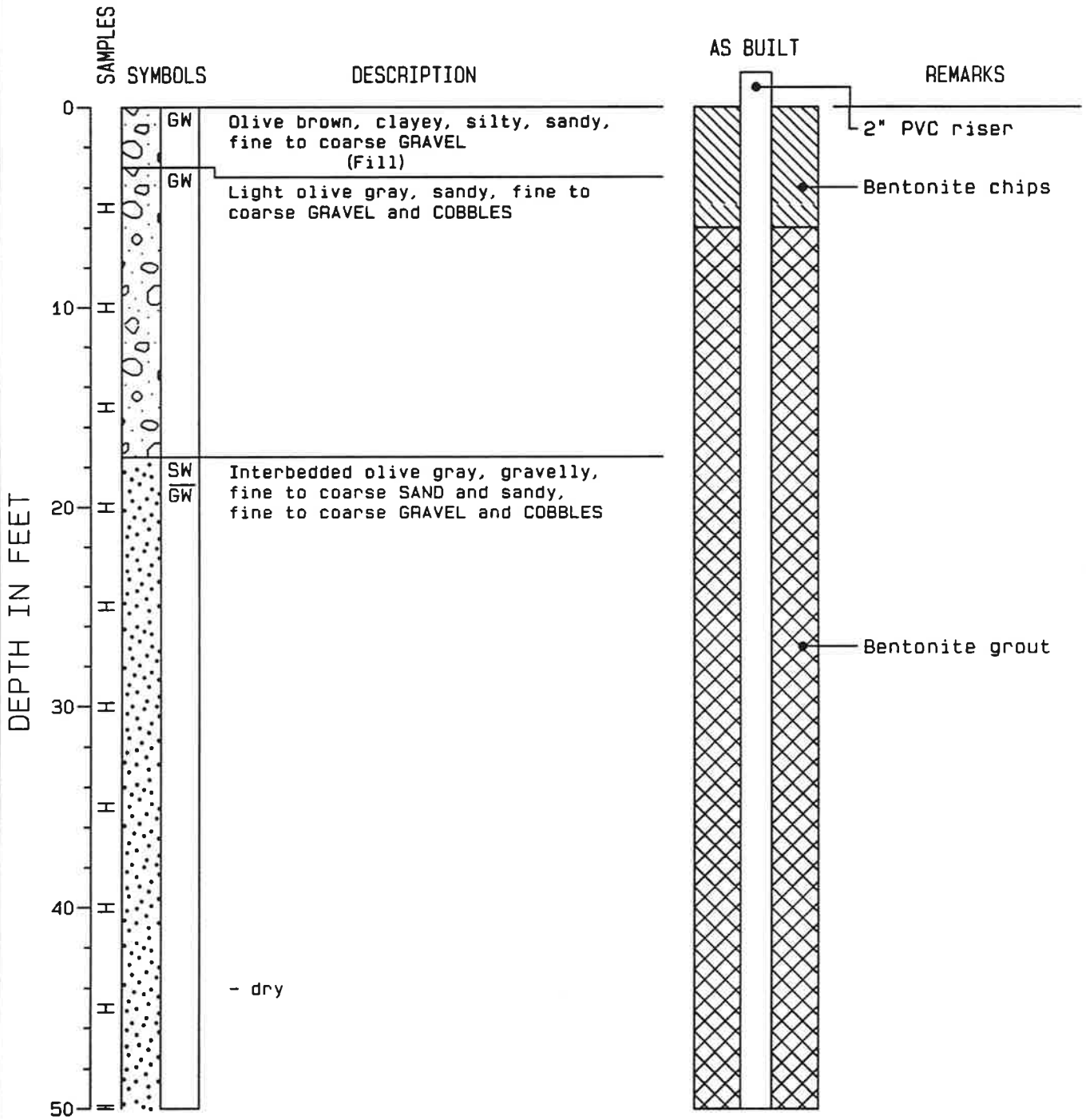
P.O. BOX 598, LYNNWOOD, WASHINGTON 98046, (206) 743-4774

WELL LOG

LOGGED BY: PAUL WHITE

DRILLING COMPANY: Hayes Drilling & Pump
DRILLING METHOD: Air Rotary - Tricone
SAMPLING METHOD: GRAB SAMPLE FROM AIR DISCHARGE TUBE

TOTAL DEPTH: 182 FEET
DATE STARTED: 10/11/89
DATE FINISHED: 10/16/89

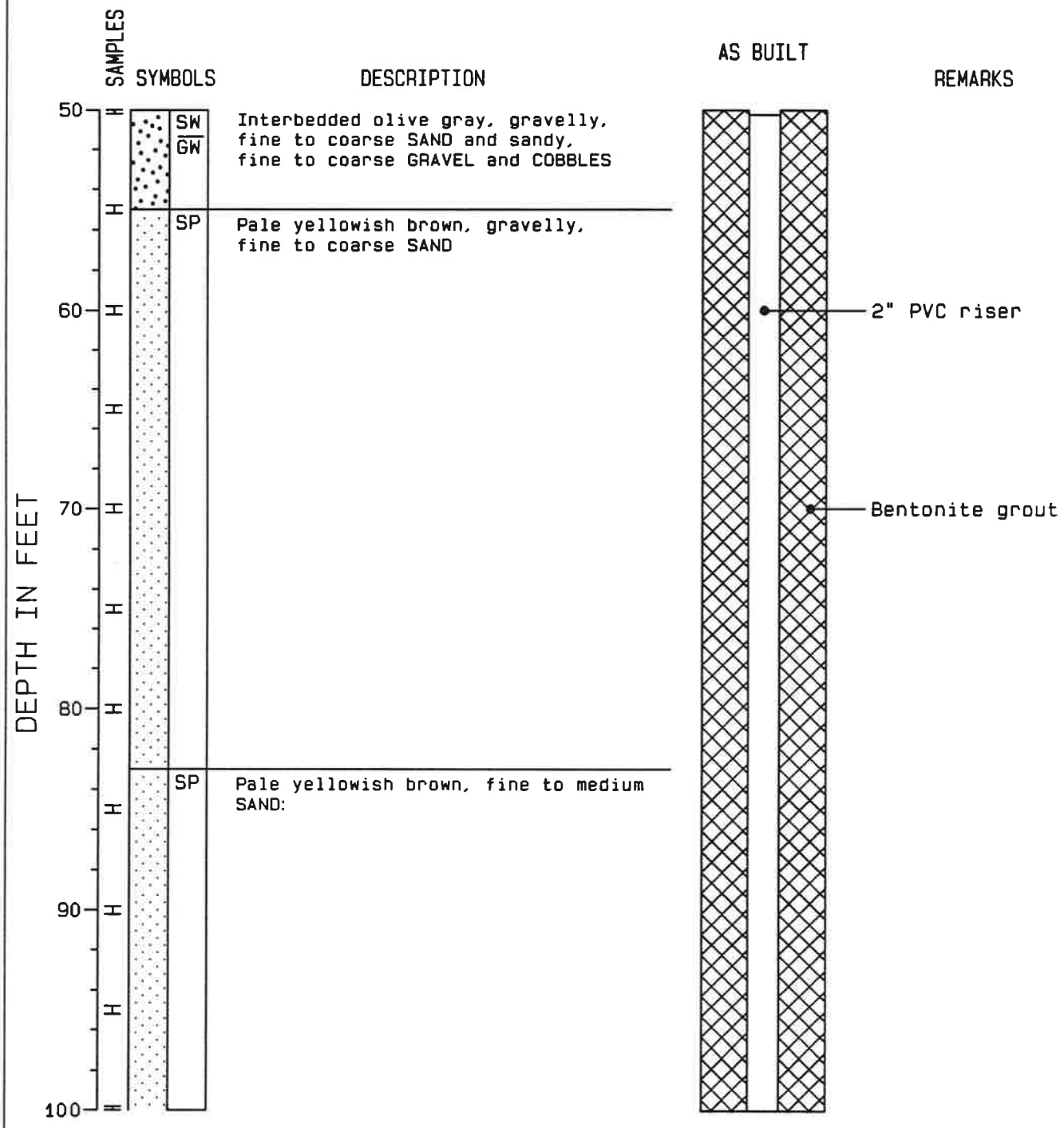


PROJECT: SAUK LANDFILL
LOCATION: SKAGIT COUNTY, WASHINGTON
SURFACE ELEVATION: 522.38 ft.
TOP OF WELL CASING: 524.23 ft.

WELL MW-1

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

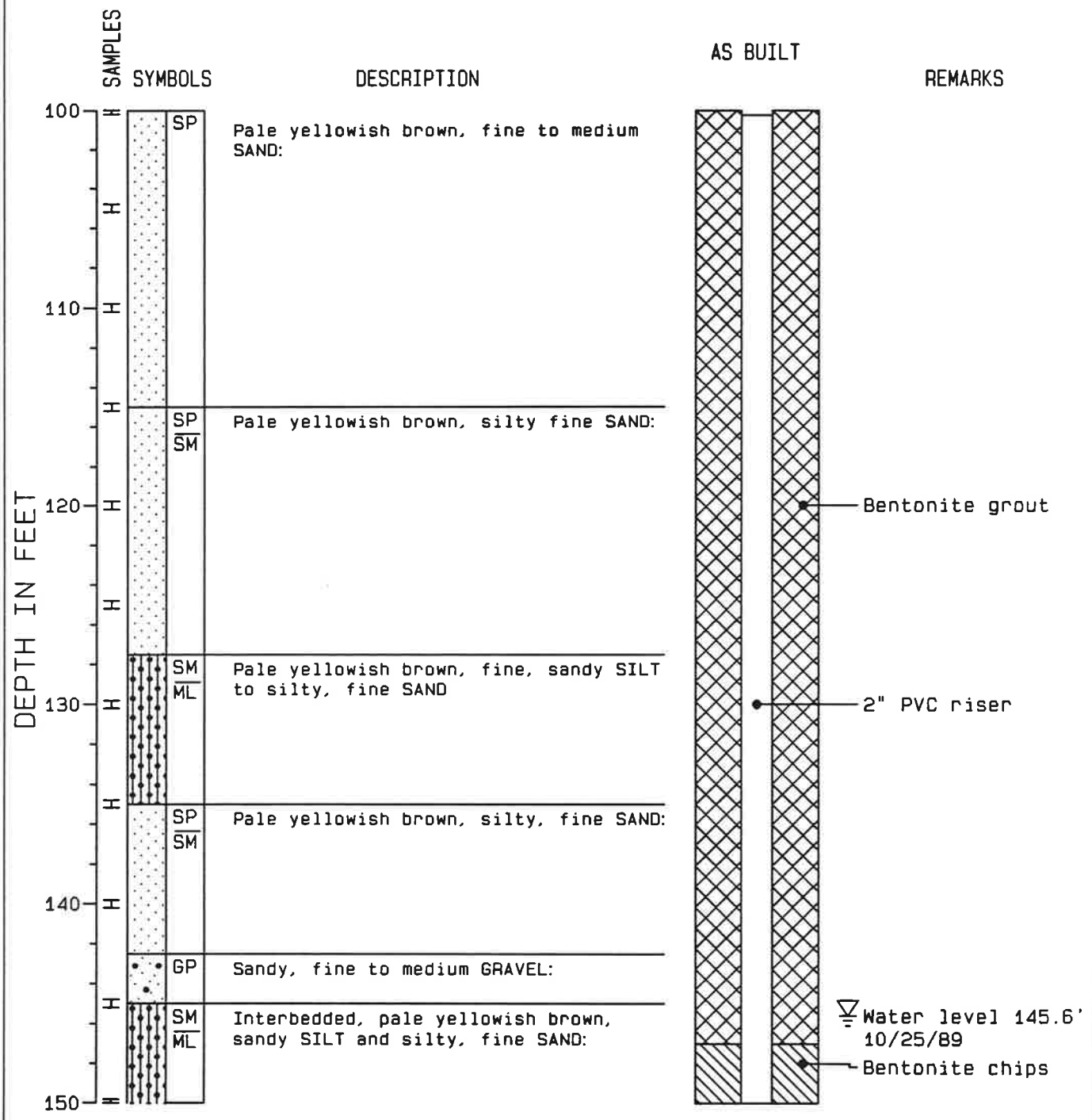


PROJECT: SAUK LANDFILL
LOCATION: SKAGIT COUNTY, WASHINGTON
SURFACE ELEVATION: 522.38 ft.
TOP OF WELL CASING: 524.23 ft.

WELL MW-1

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

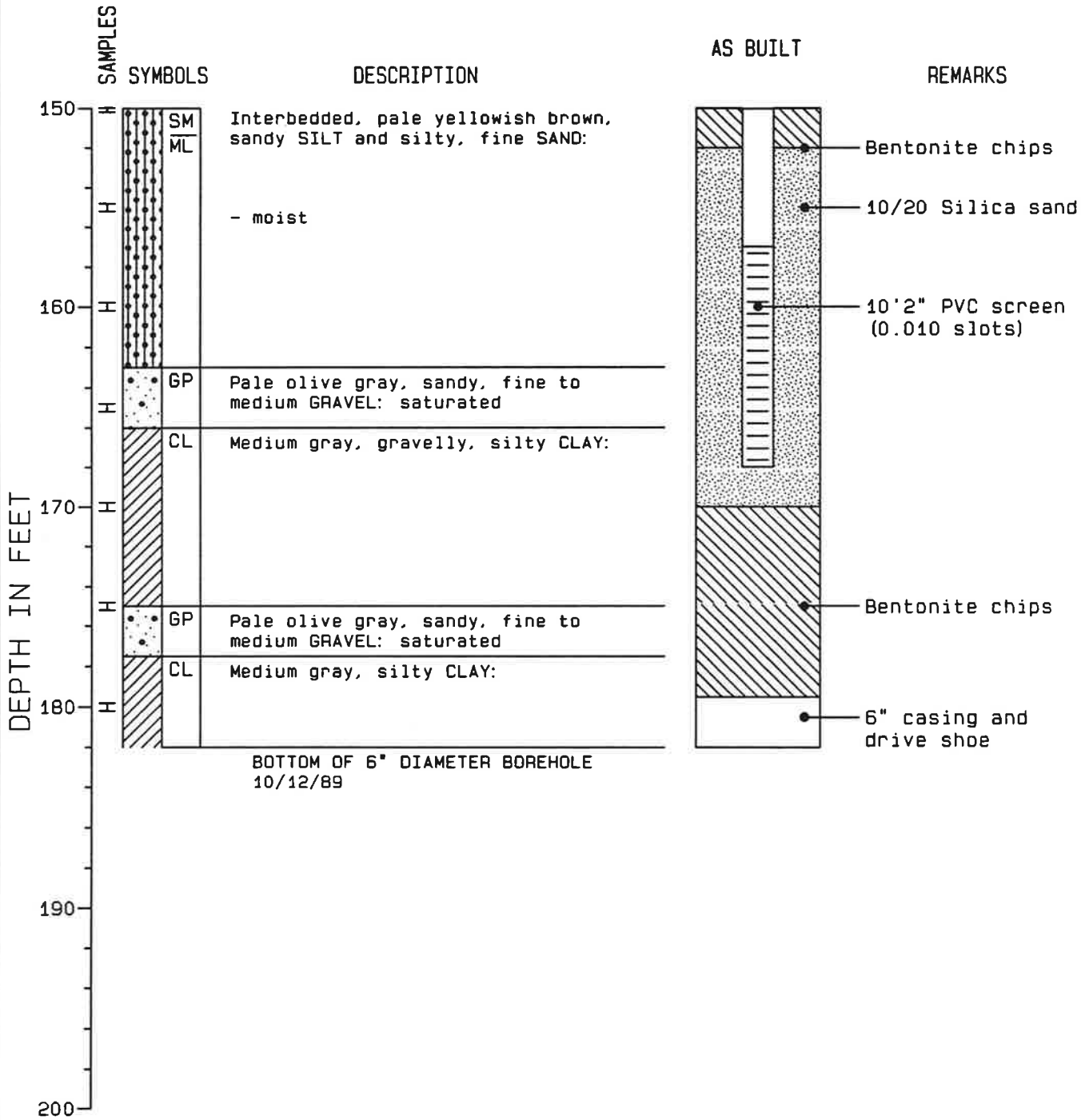


PROJECT: SAUK LANDFILL
LOCATION: SKAGIT COUNTY, WASHINGTON
SURFACE ELEVATION: 522.38 ft.
TOP OF WELL CASING: 524.23 ft.

WELL MW-1

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG



PROJECT: SAUK LANDFILL
LOCATION: SKAGIT COUNTY, WASHINGTON
SURFACE ELEVATION: 522.38 ft.
TOP OF WELL CASING: 524.23 ft.

WELL MW-1

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES

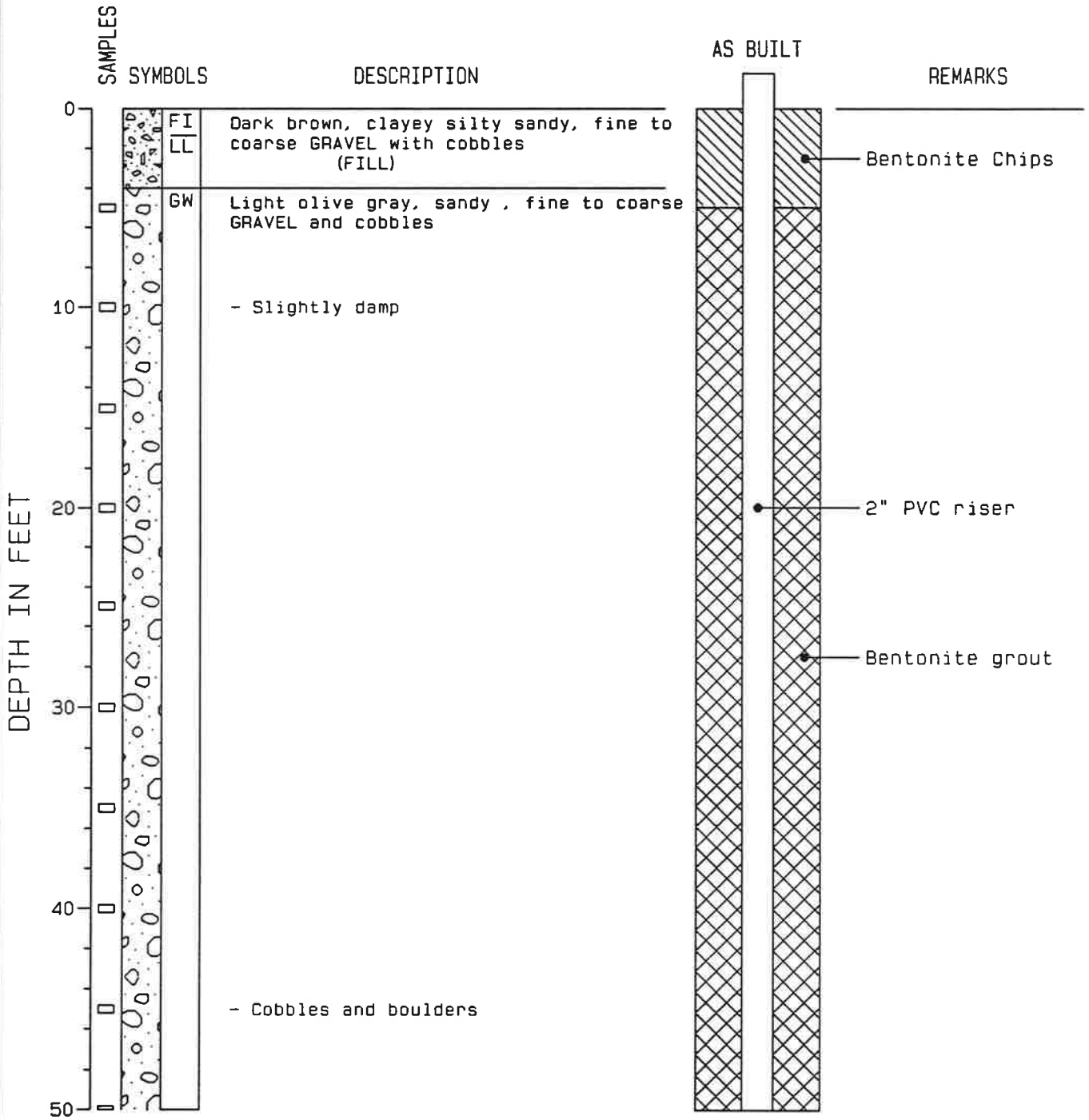
P.O. BOX 598, LYNNWOOD, WASHINGTON 98046, (206) 743-4774

WELL LOG

LOGGED BY: Paul White

DRILLING COMPANY: Hayes Drilling & Pump
DRILLING METHOD: Air Rotary - Tricone
SAMPLING METHOD: Grab Sample From Air Discharge Tube

TOTAL DEPTH: 182 FEET
DATE STARTED: 10/17/89
DATE FINISHED: 10/18/89

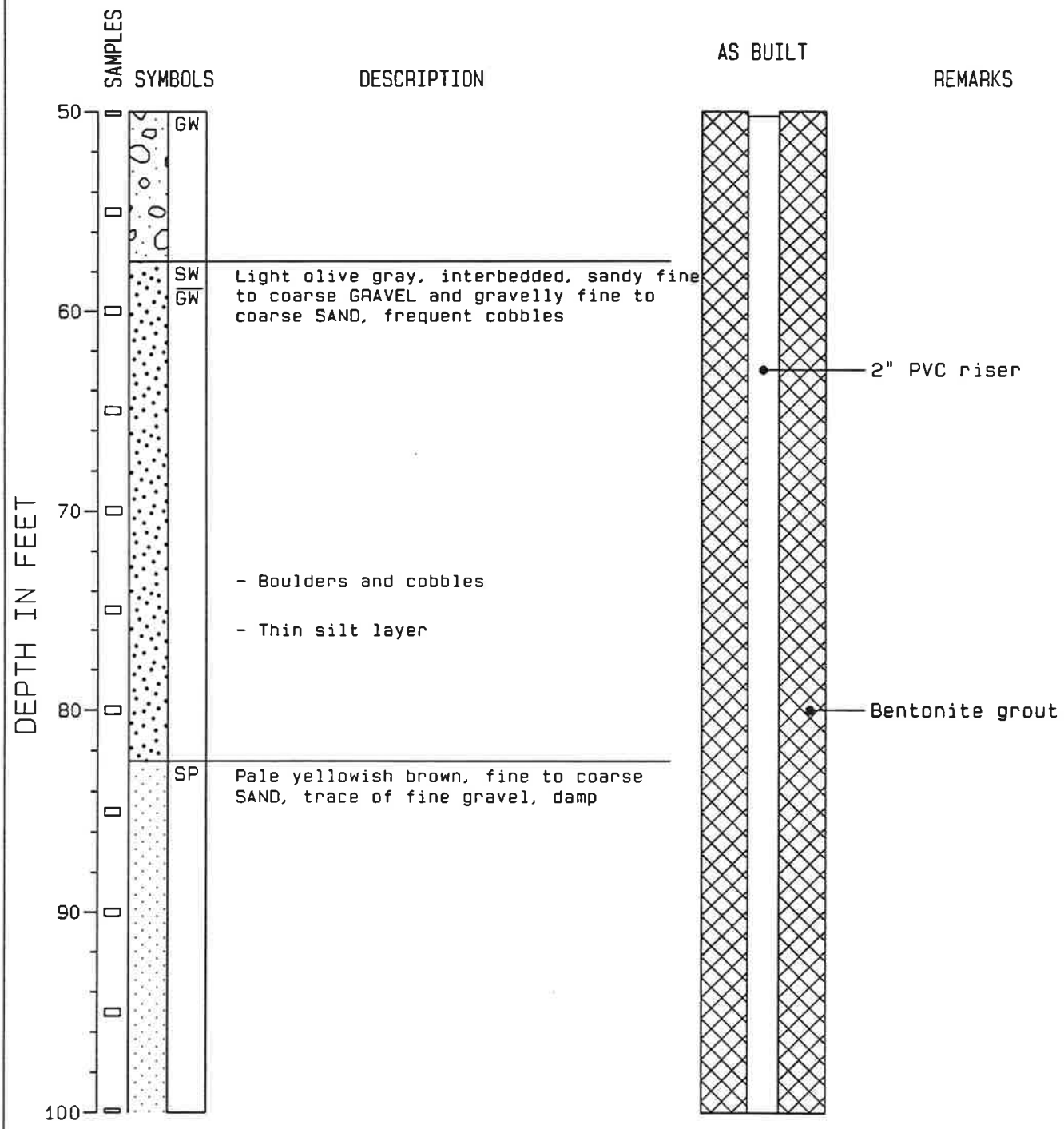


PROJECT: Sauk Landfill
LOCATION: Skagit County, Washington
SURFACE ELEVATION: 524.22 ft.
TOP OF WELL CASING: 526.07 ft.

WELL MW-2

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

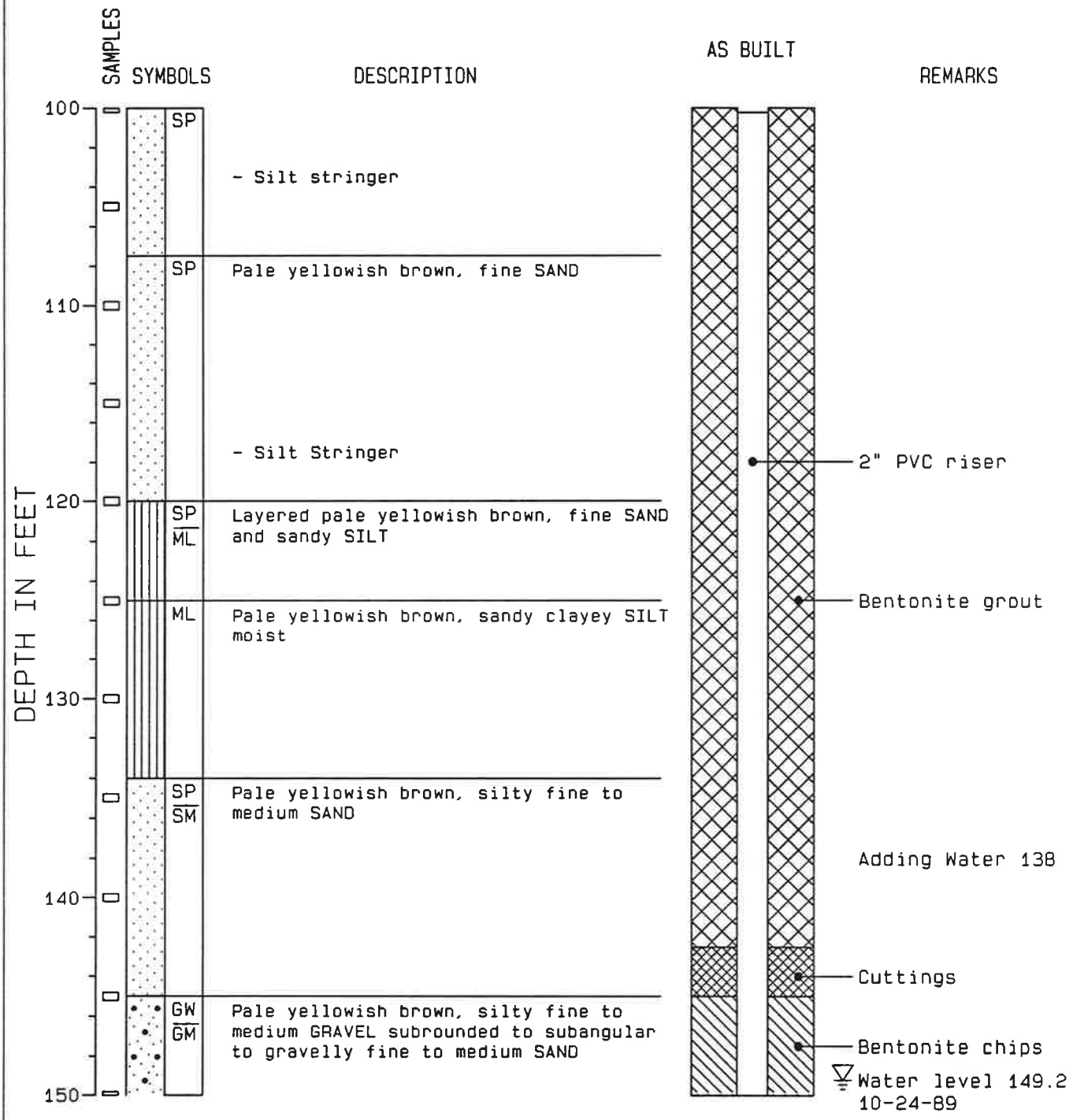


PROJECT: Sauk Landfill
LOCATION: Skagit County, Washington
SURFACE ELEVATION: 524.22 ft.
TOP OF WELL CASING: 526.07 ft.

WELL MW-2

PROJECT NUMBER: B938

HONG WEST & ASSOCIATES
WELL LOG

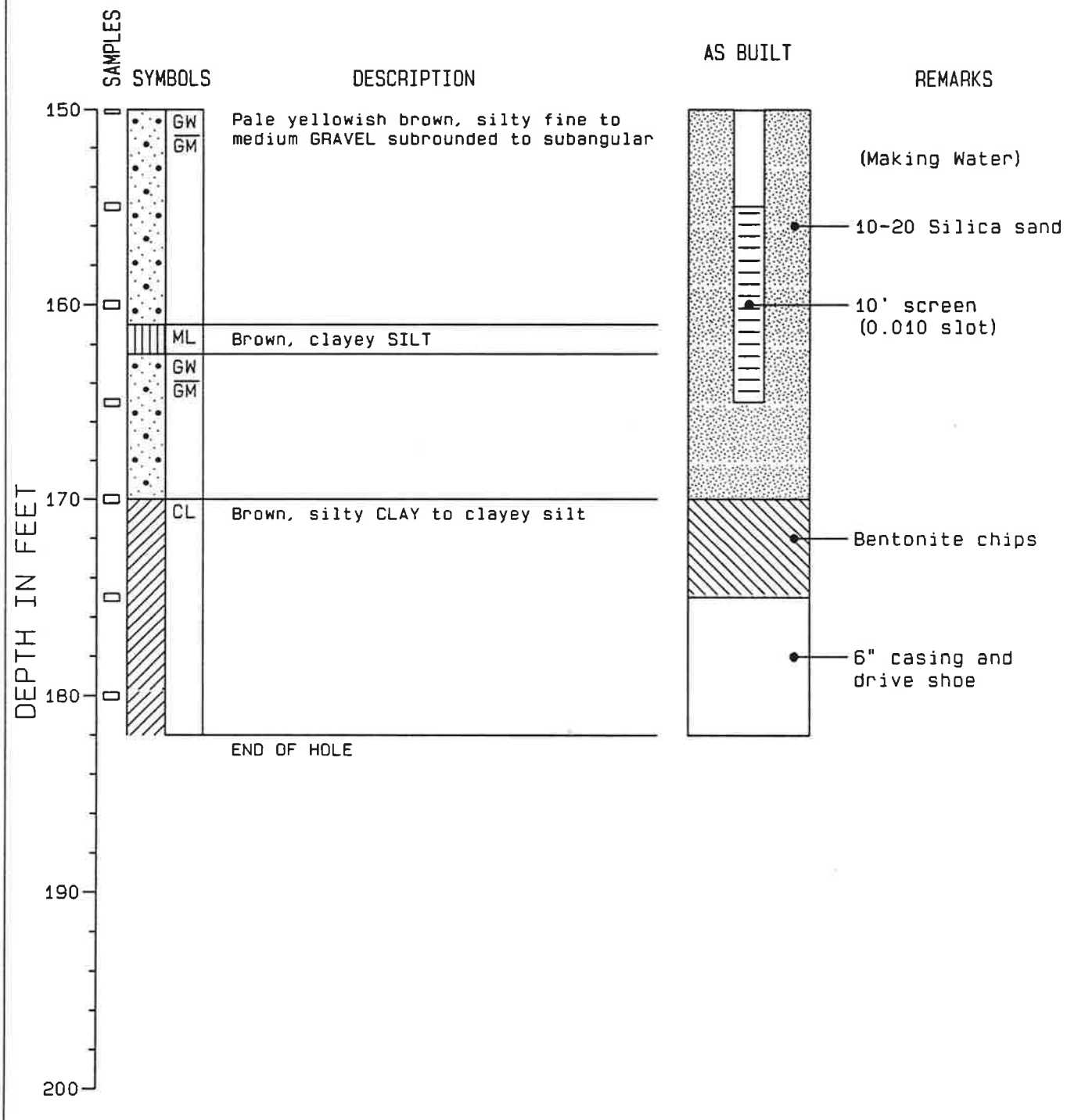


PROJECT: Sauk Landfill
LOCATION: Skagit County, Washington
SURFACE ELEVATION: 524.22 ft.
TOP OF WELL CASING: 526.07 ft.

WELL MW-2

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG



PROJECT: Sauk Landfill
LOCATION: Skagit County, Washington
SURFACE ELEVATION: 524.22 ft.
TOP OF WELL CASING: 526.07 ft.

WELL MW-2

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES

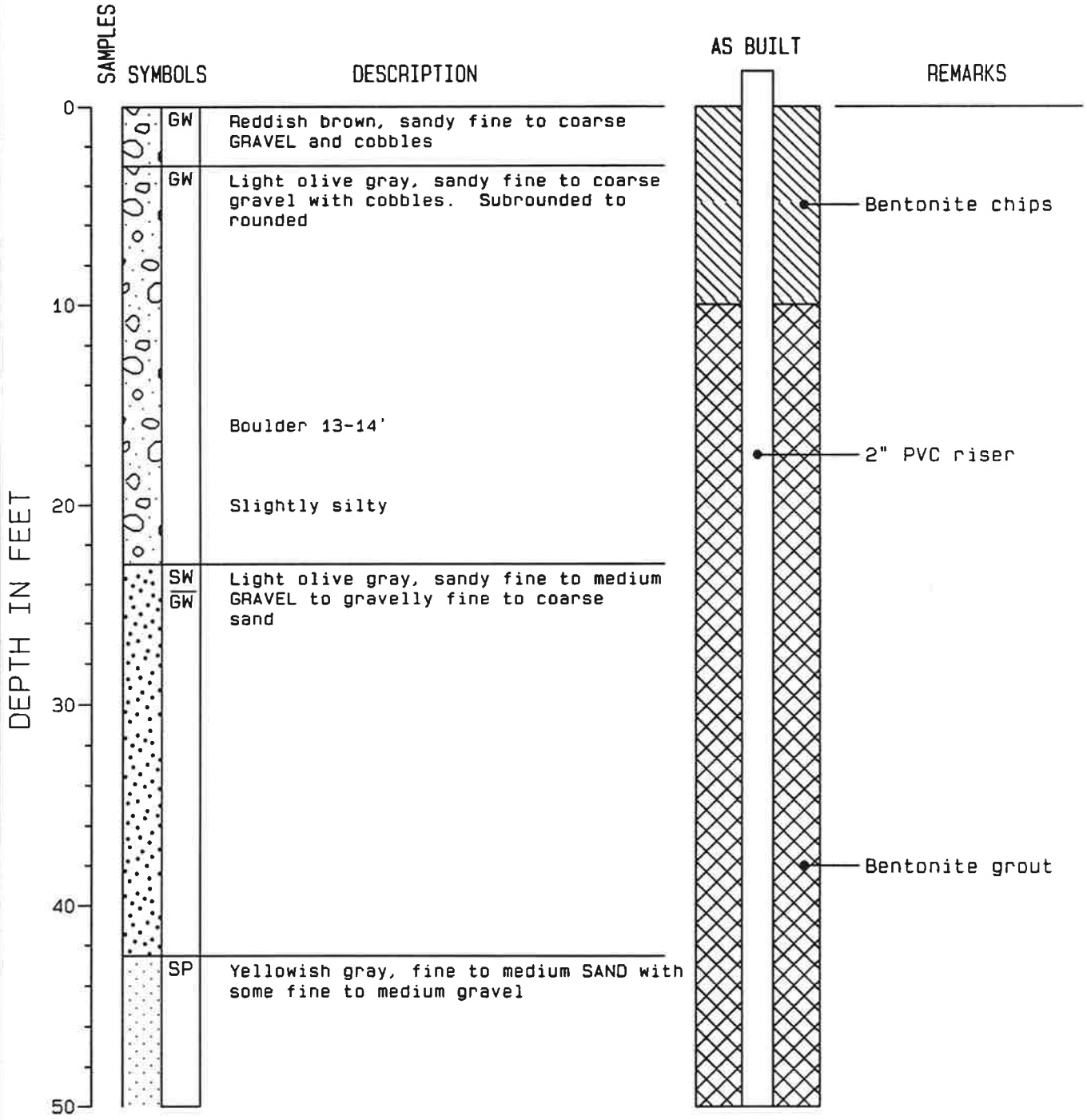
P.O. BOX 598, LYNNWOOD, WASHINGTON 98046, (206) 743-4774

WELL LOG

LOGGED BY: Paul White

DRILLING COMPANY: Hayes Drilling & Pump
DRILLING METHOD: Air Rotary - Tricone
SAMPLING METHOD: Grab Sample From Air Discharge Tube

TOTAL DEPTH: 198 FEET
DATE STARTED: 10/19/89
DATE FINISHED: 10/20/89

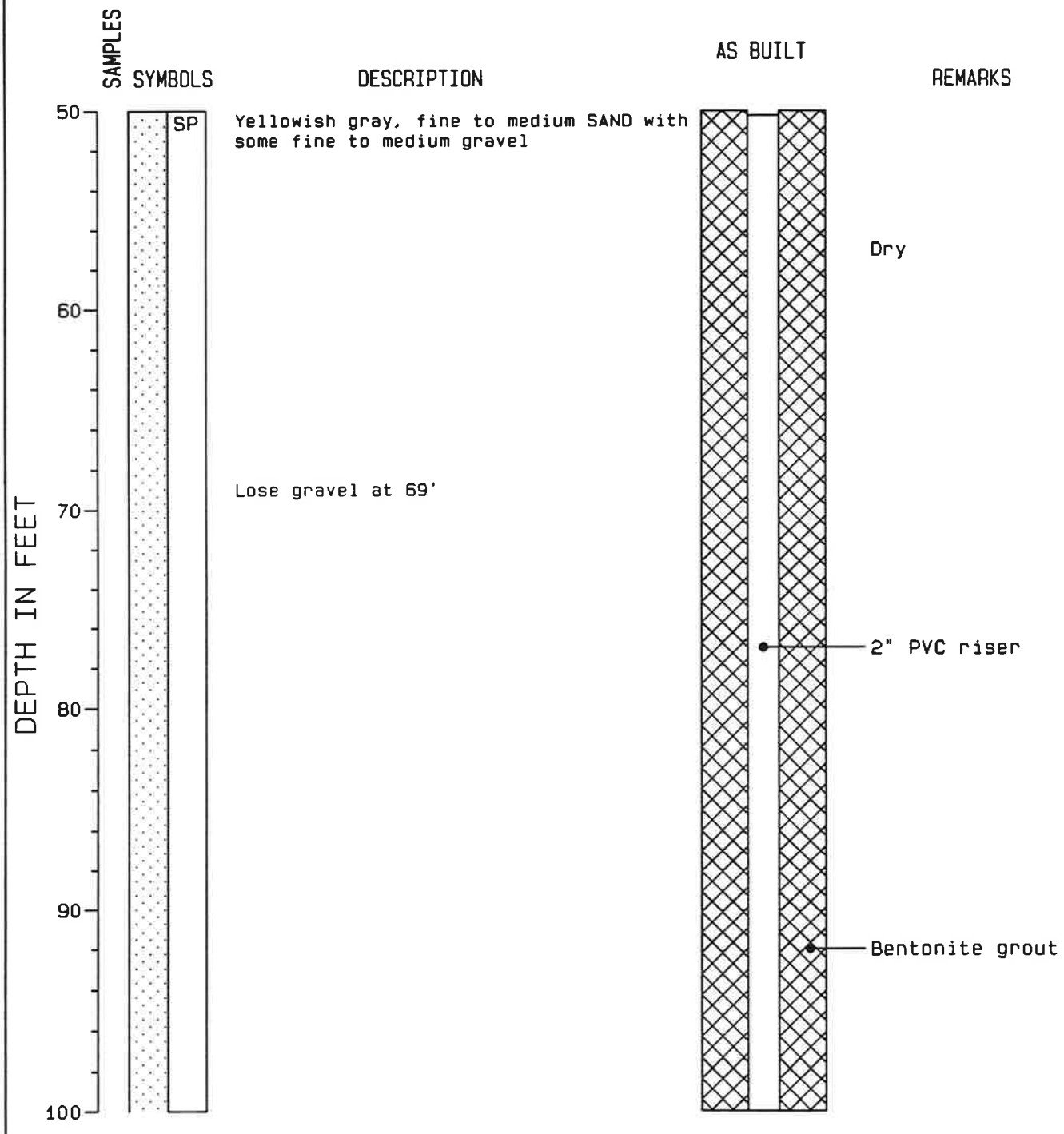


PROJECT: Sauk Landfill
LOCATION: Skagit County, WA
SURFACE ELEVATION: 551.80 ft.
TOP OF WELL CASING: 553.65 ft.

WELL MW-3

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

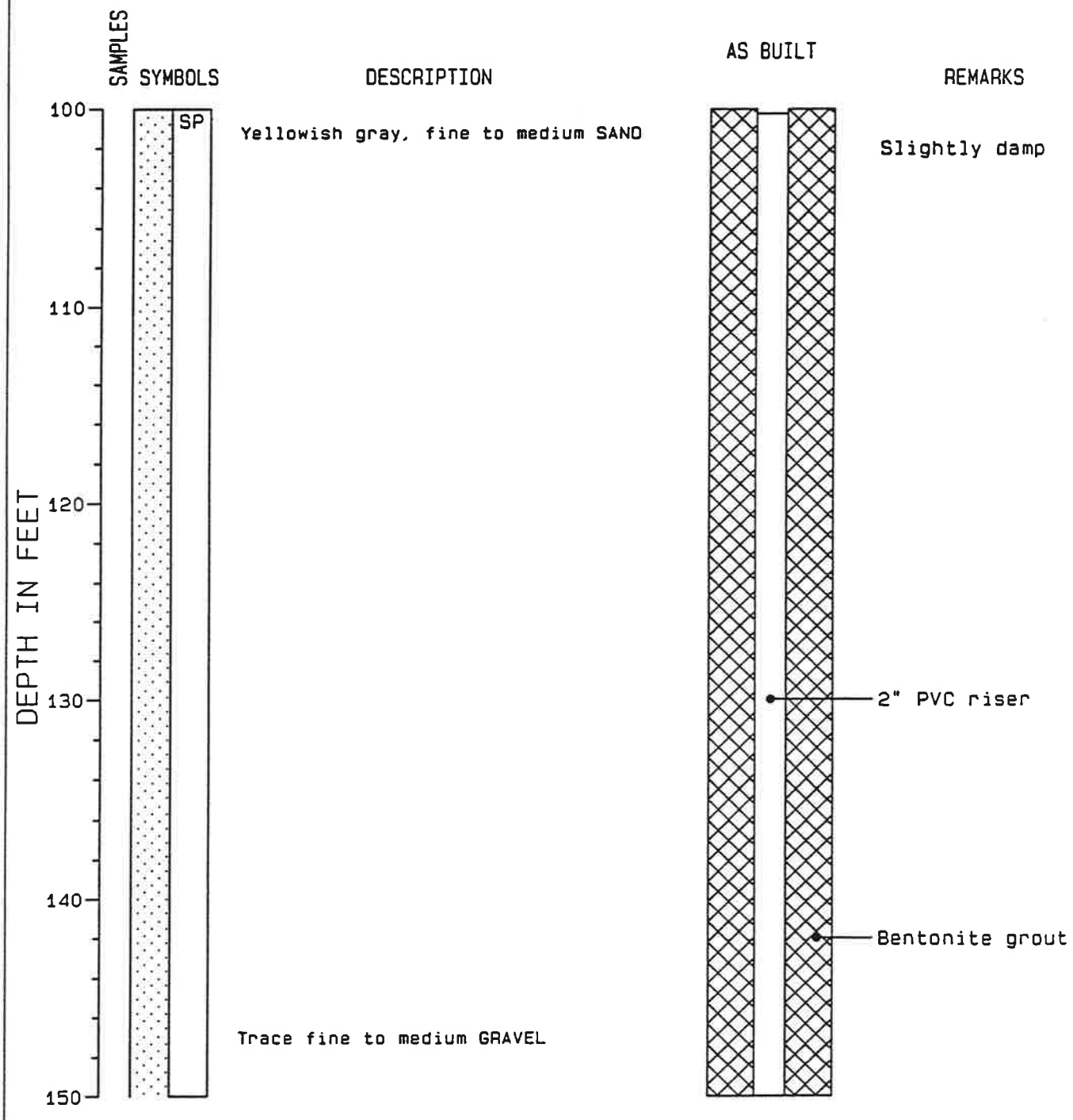


PROJECT: Sauk Landfill
LOCATION: Skagit County, WA
SURFACE ELEVATION: 551.80 ft.
TOP OF WELL CASING: 553.65 ft.

WELL MW-3

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

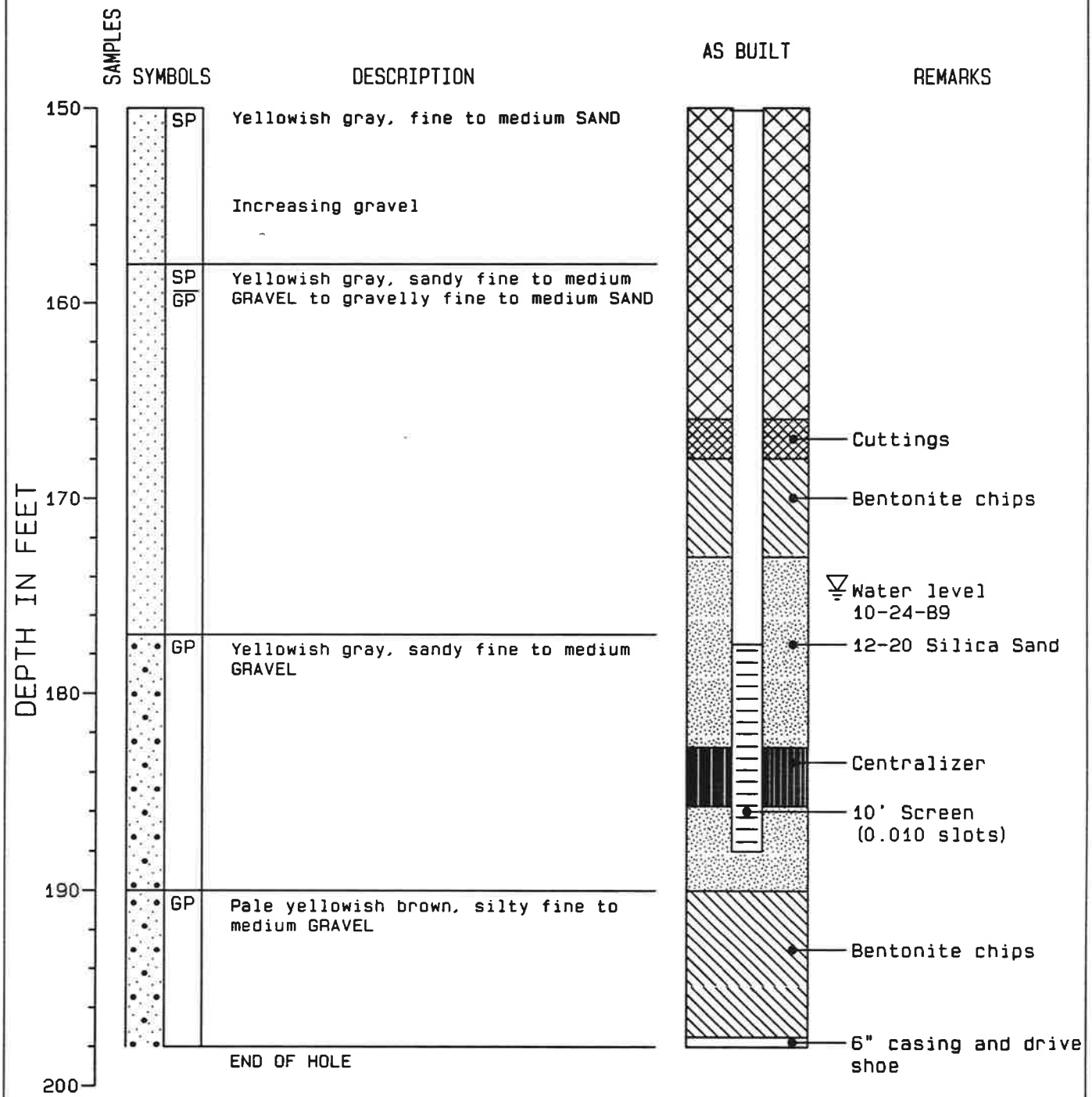


PROJECT: Sauk Landfill
LOCATION: Skagit County, WA
SURFACE ELEVATION: 551.80 ft.
TOP OF WELL CASING: 553.65 ft.

WELL MW-3

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG



PROJECT: Sauk Landfill
LOCATION: Skagit County, WA
SURFACE ELEVATION: 551.80 ft.
TOP OF WELL CASING: 553.65 ft.

WELL MW-3

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES

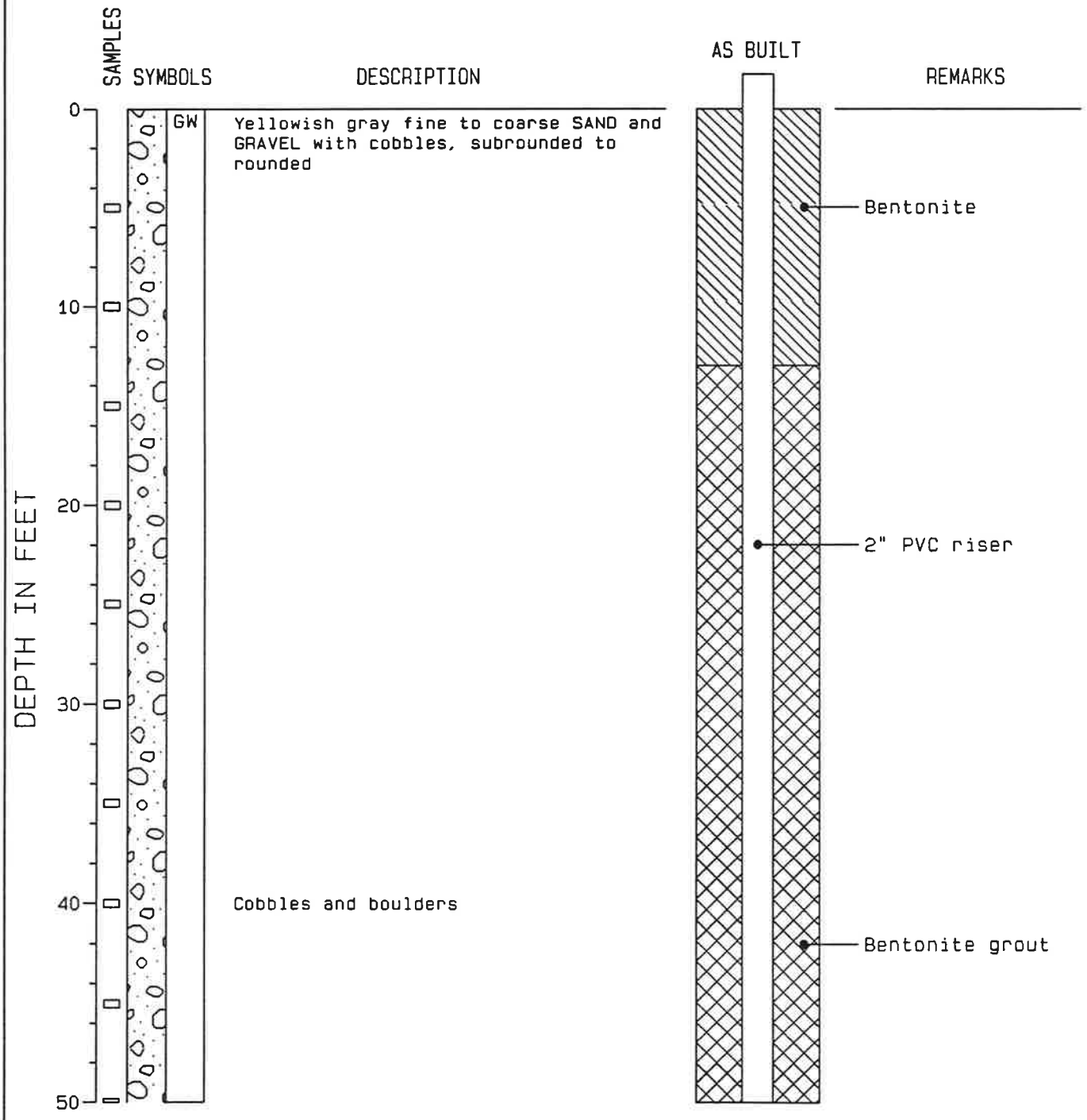
P.O. BOX 598, LYNNWOOD, WASHINGTON 98046, (206) 743-4774

WELL LOG

LOGGED BY: PAUL WHITE

DRILLING COMPANY: Hayes Drilling and Pump
DRILLING METHOD: Air Rotary - Tricone
SAMPLING METHOD: GRAB SAMPLE FROM AIR DISCHARGE TUBE

TOTAL DEPTH: 178 FEET
DATE STARTED: 10-23-89
DATE FINISHED: 10-24-89

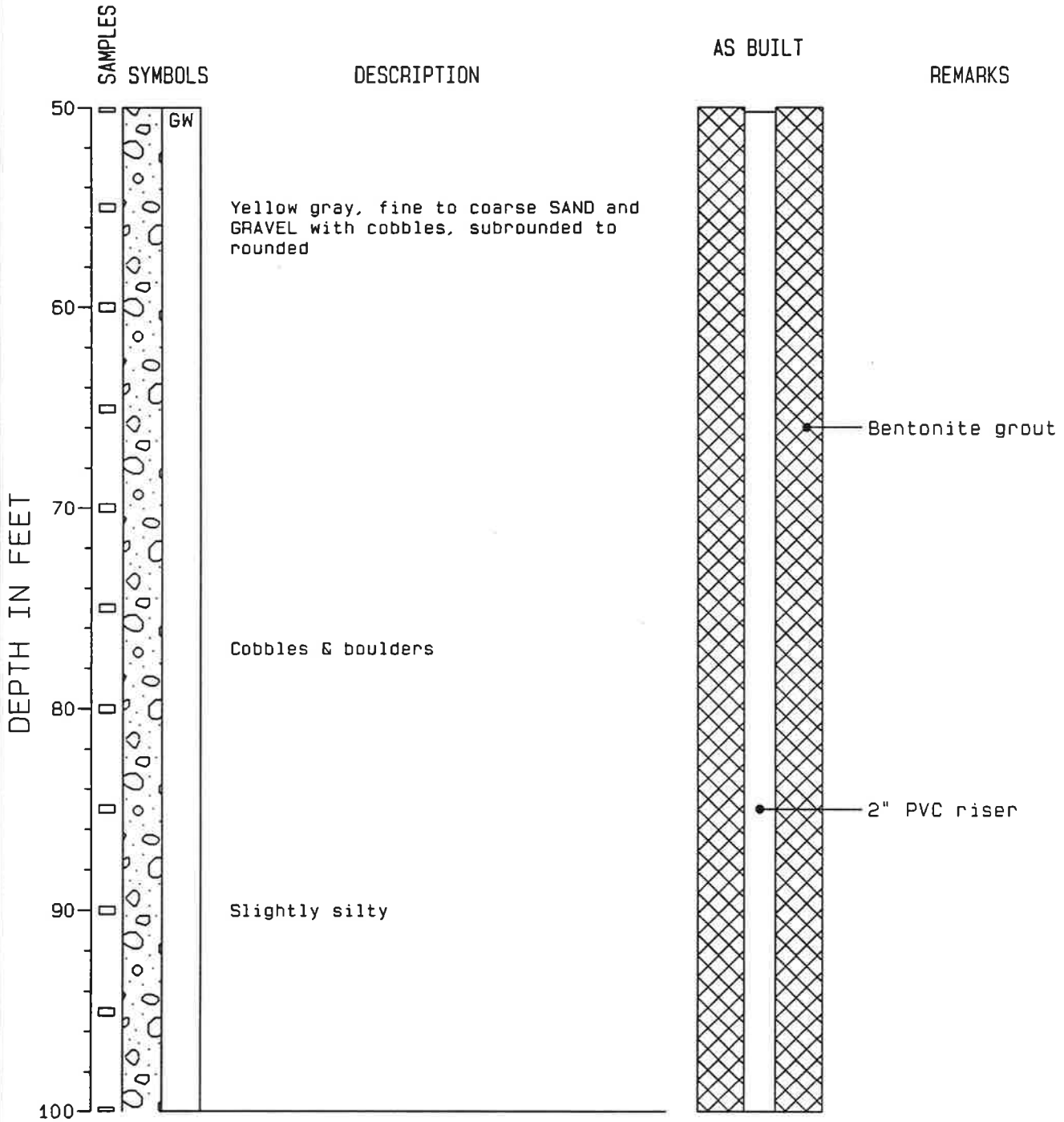


PROJECT: SAUK LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 528.14 ft.
TOP OF WELL CASING: 530.04 ft.

WELL MW-4

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

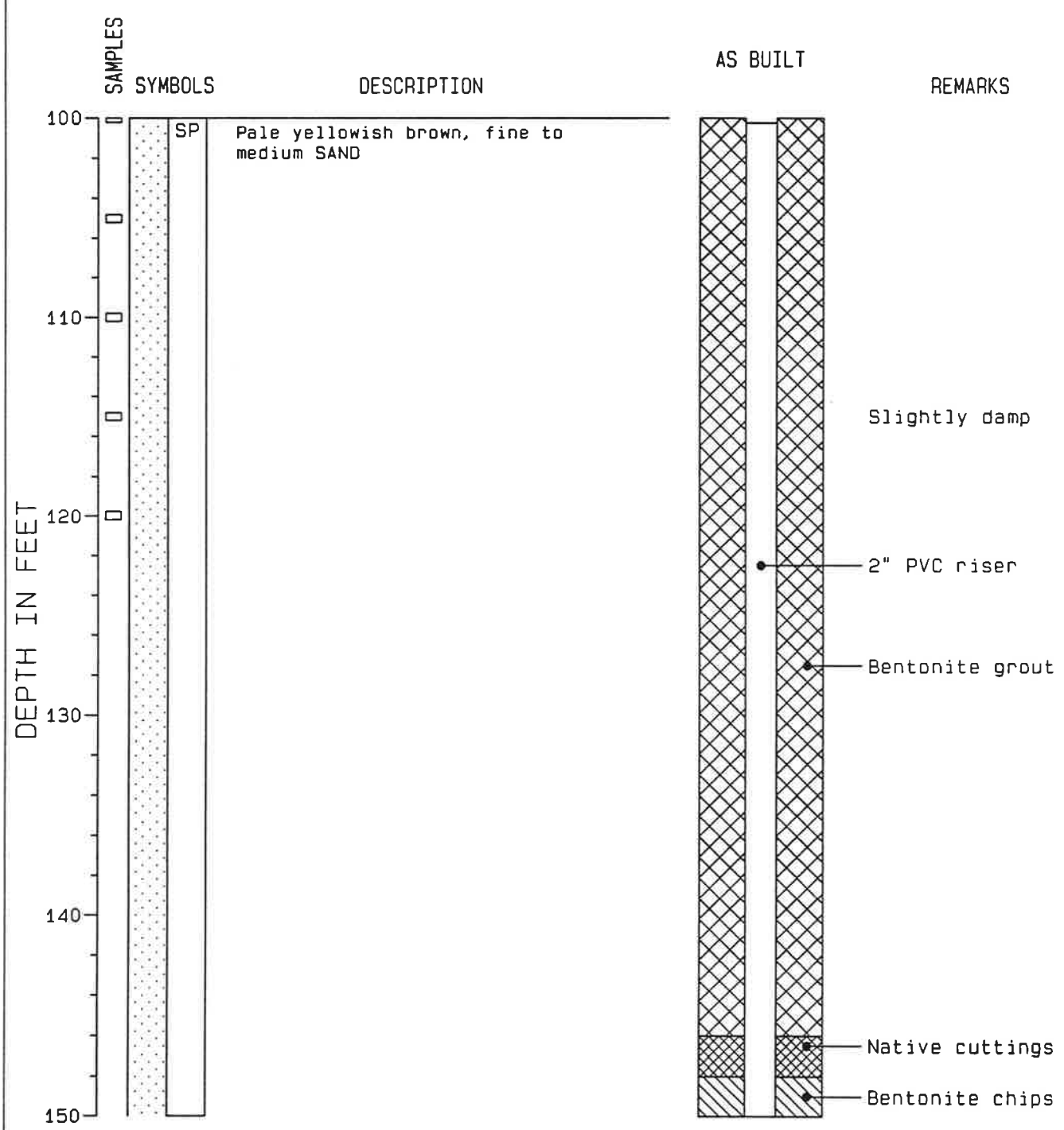


PROJECT: SAUK LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 528.14 ft.
TOP OF WELL CASING: 530.04 ft.

WELL MW-4

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

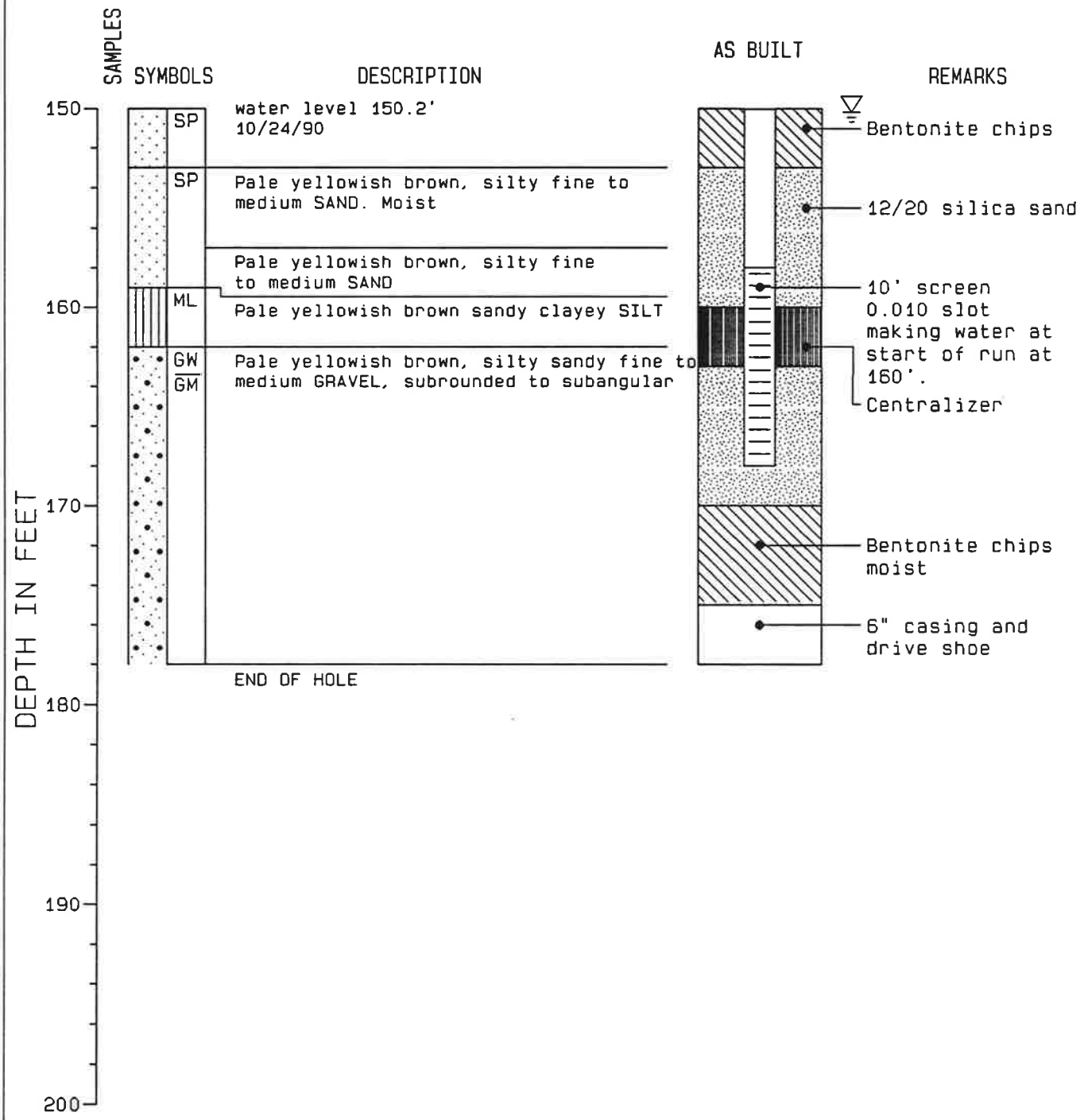


PROJECT: SAUK LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 528.14 ft.
TOP OF WELL CASING: 530.04 ft.

WELL MW-4

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES
WELL LOG

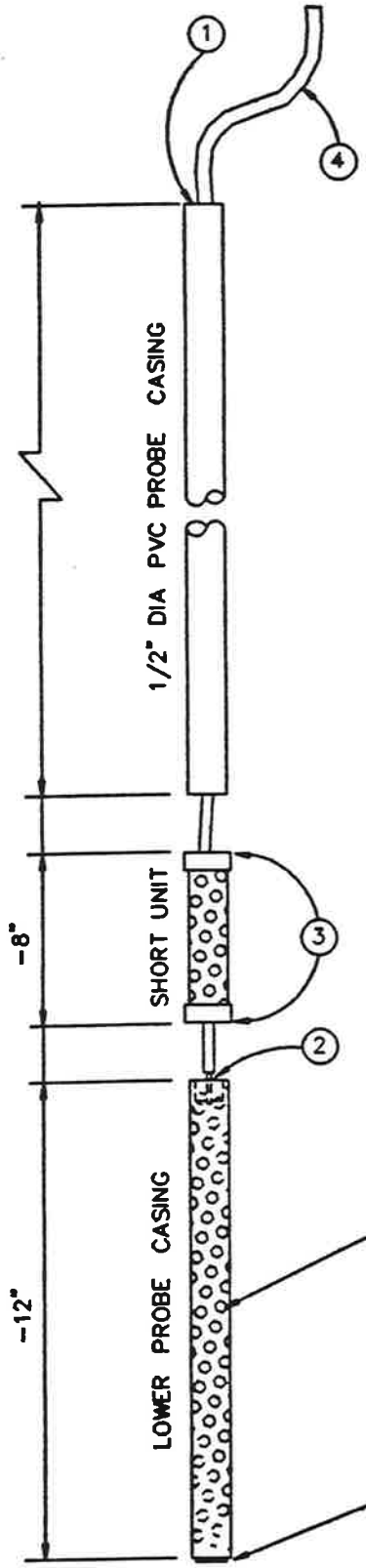


PROJECT: SAUK LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 528.14 ft.
TOP OF WELL CASING: 530.04 ft.

WELL MW-4

PROJECT NUMBER: 8938

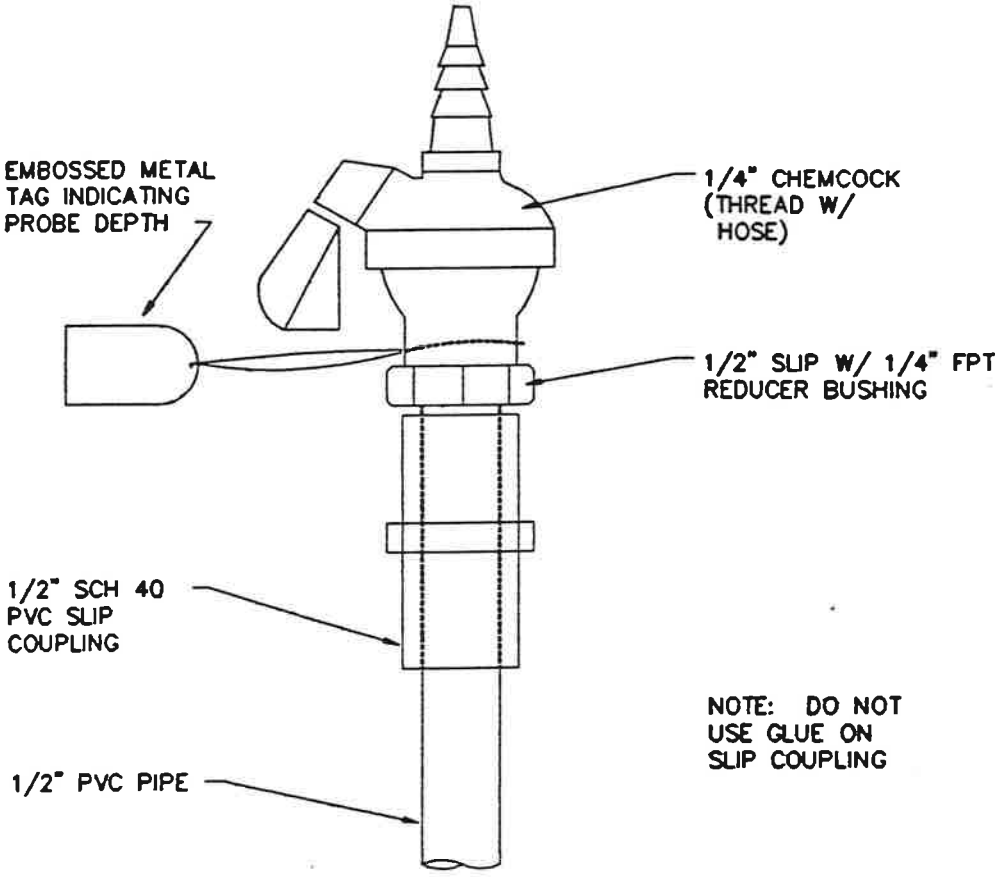
GAS PROBE DETAILS



ASSEMBLY STEPS:

1. FEED TYGON OR CLEAR VINYL TUBING THROUGH UPPER PROBE CASING AND SHORT UNIT.
2. ATTACH TUBING TO NIPPLE IN SINGLE HOLE RUBBER STOPPER AT TOP OF LOWER PROBE CASING.
3. CEMENT UPPER AND LOWER PROBE CASINGS TO SHORT UNIT.
4. CUT-OFF EXCESS TUBING FOLLOWING COMPLETE ASSEMBLY LEAVING 6" OF TUBING).

TYPICAL GAS PROBE ASSEMBLY



PROBE CAP ASSEMBLY DETAIL

APPENDIX B

GRAIN SIZE DISTRIBUTION CURVES

HONG CONSULTING ENGINEERS, INC.

• Geotechnical Engineering • Material Testing • Construction Quality Control Inspection •

GRAIN SIZE DISTRIBUTION

Project: Gibraltar Landfill

Project Number: 8938

Date Tested: 10-10-89

Remarks: Gray, poorly graded SAND (SP)

Test Hole Number: MW-1 S-1

Depth: 35'

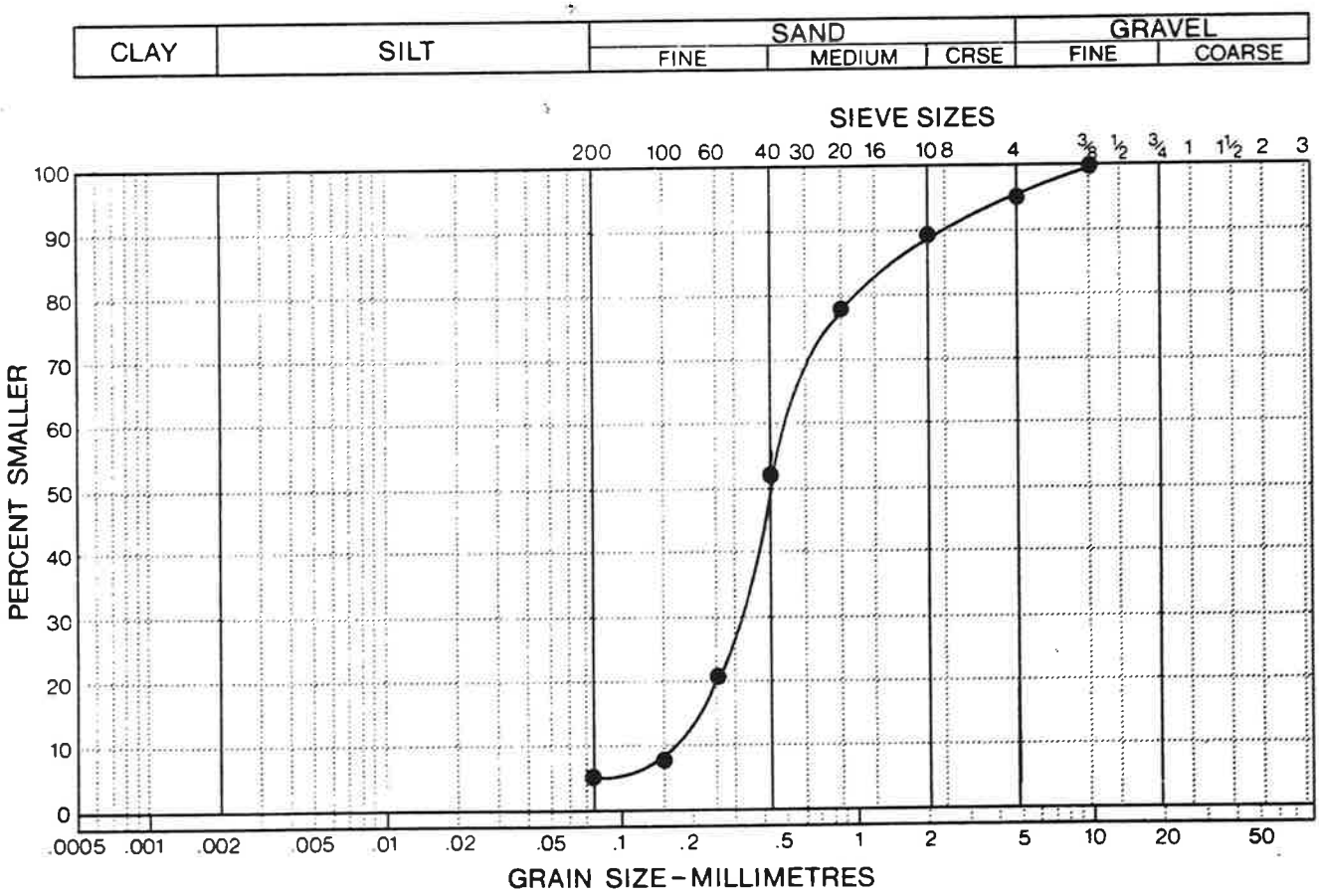
Sample Description

Gravel: 4.1

Sand: 90.8

Silt: 5.1

Clay:



Reviewed By:

All tests performed in accordance with ASTM

HONG CONSULTING ENGINEERS, INC.

• Geotechnical Engineering • Material Testing • Construction Quality Control Inspection •

GRAIN SIZE DISTRIBUTION

Project: Gibraltar Landfill

Project Number: 8938

Date Tested: 10-10-89

Remarks: Gray, poorly graded SAND with silt (SP-SM)

Test Hole Number: MW-4 S-1

Depth: 55 - 60"

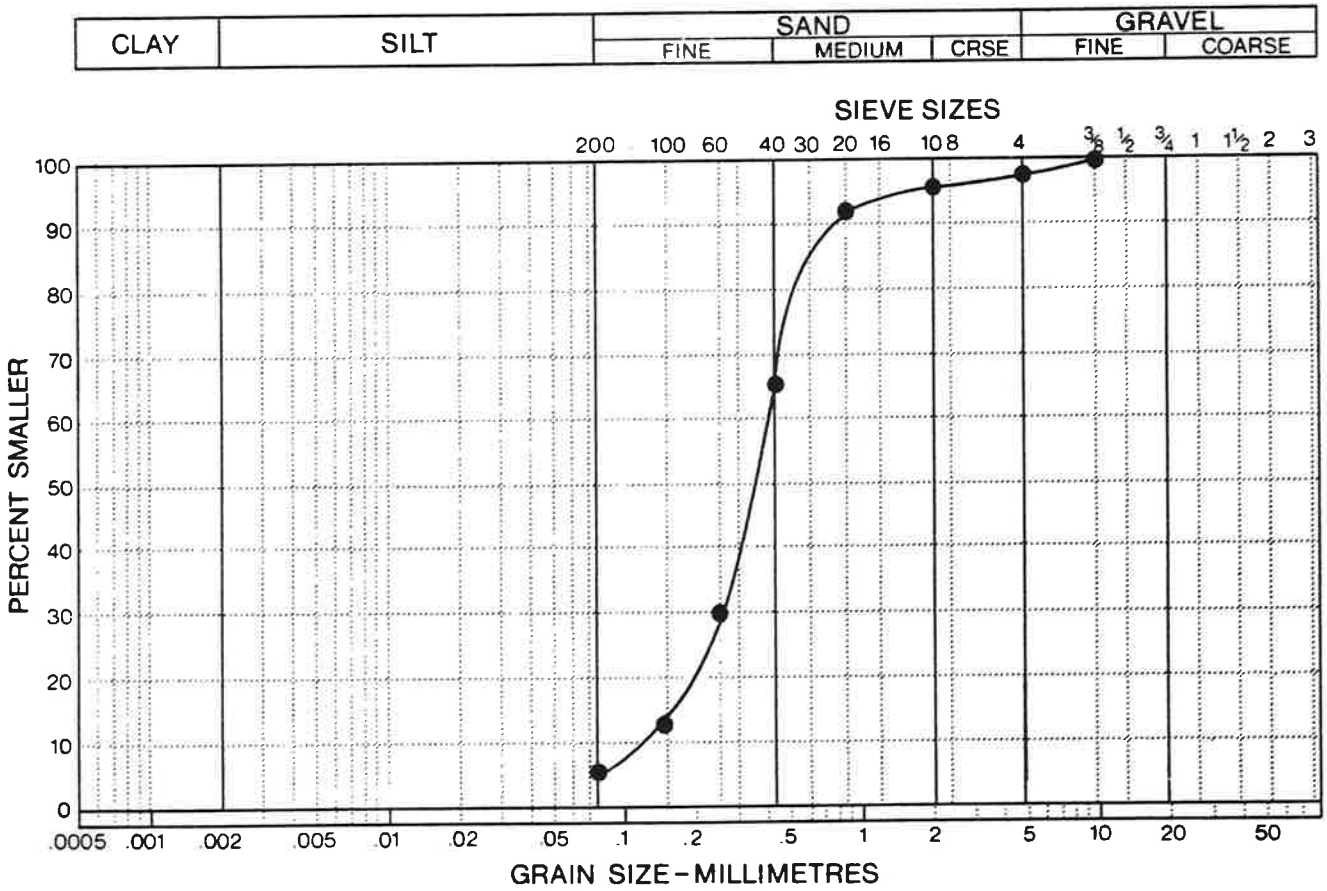
Sample Description

Gravel: 2.2

Sand: 91.9

Silt: 5.9

Clay:



Reviewed By:

All tests performed in accordance with ASTM

HONG CONSULTING ENGINEERS, INC.

• Geotechnical Engineering • Material Testing • Construction Quality Control Inspection •

GRAIN SIZE DISTRIBUTION

Project: Gibraltar Landfill

Project Number: 8938

Date Tested: 10-10-89

Remarks: Gray, poorly graded SAND with silt (SP-SM)

Test Hole Number: MW-4 S-2

Depth: 170'

Sample Description

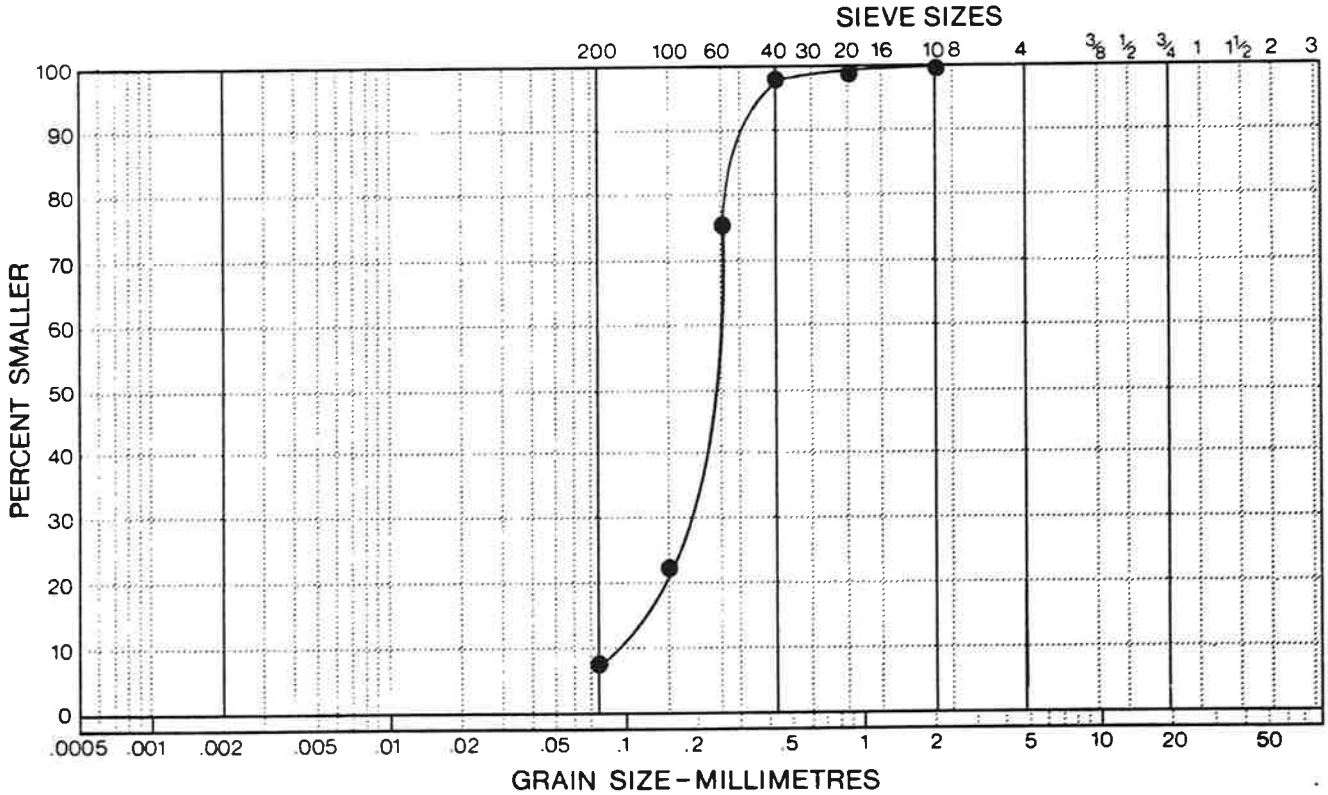
Gravel:

Sand: 92.5

Silt: 7.5

Clay:

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	CRSE	FINE	COARSE



Reviewed By:

All tests performed in accordance with ASTM

HONG CONSULTING ENGINEERS, INC.

• Geotechnical Engineering • Material Testing • Construction Quality Control Inspection •

GRAIN SIZE DISTRIBUTION

Project: Skagit Co. Sauk Landfill

Test Hole Number: MW-2

Depth: 160'

Project Number: 8938

Sample Description

Date Tested: 11-2-89

Gravel: .2

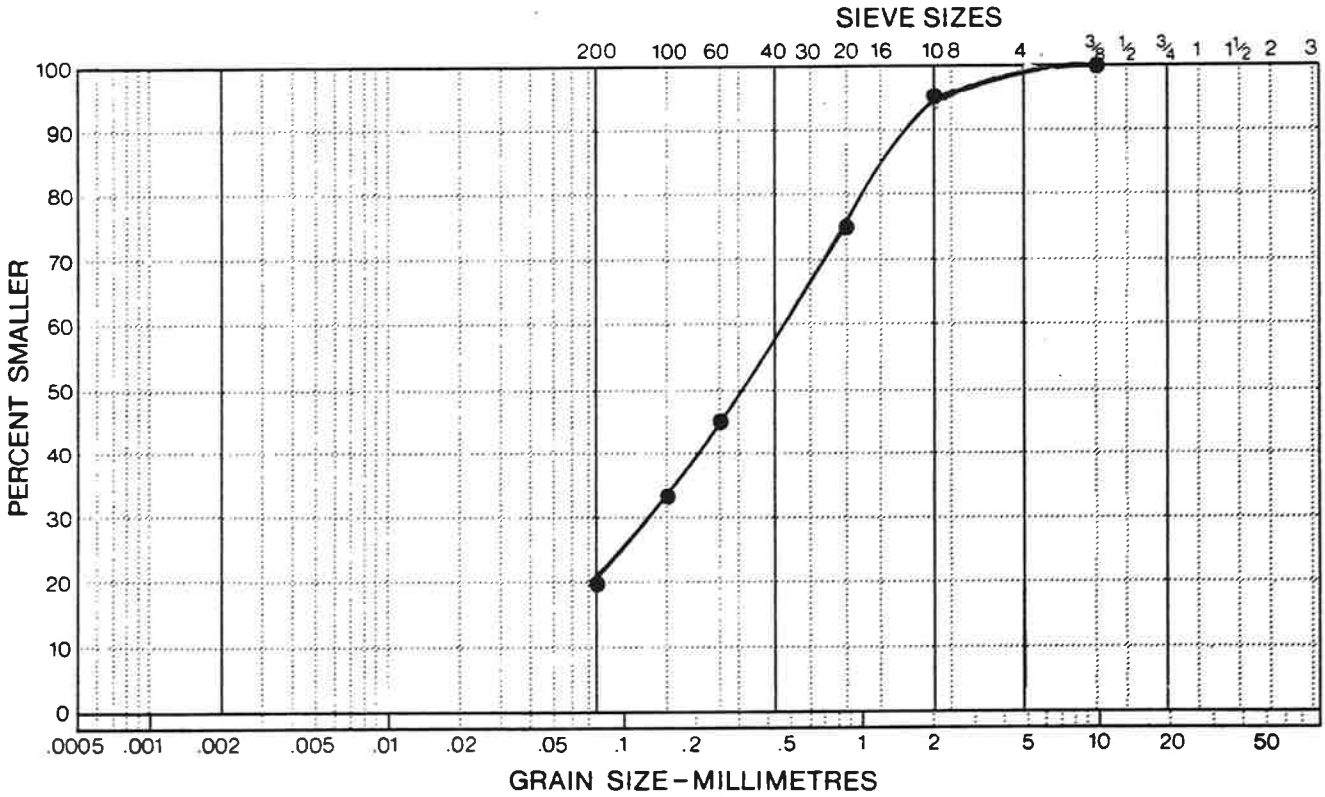
Remarks: Brown, silty SAND (SM)

Sand: 80.1

Silt: 19.7

Clay:

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	CRSE	FINE	COARSE



Reviewed By:

All tests performed in accordance with ASTM

HONG CONSULTING ENGINEERS, INC.

• Geotechnical Engineering • Material Testing • Construction Quality Control Inspection •

GRAIN SIZE DISTRIBUTION

Project: Skagit Co., Sauk Landfill

Test Hole Number: MW-4

Depth: 165'

Project Number: 8938

Sample Description

Date Tested: 11-2-89

Gravel: 25.7

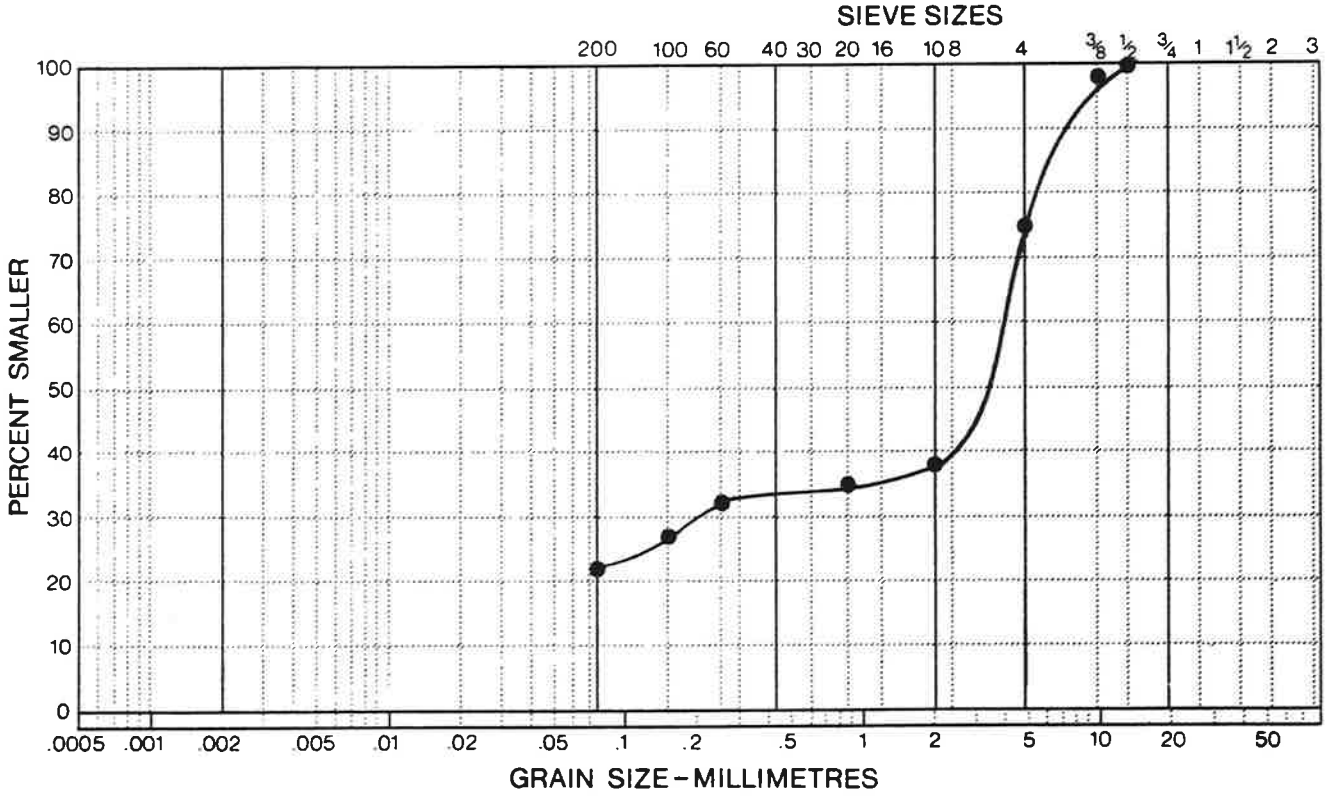
Remarks: Brown, silty SAND with gravel (SM)

Sand: 53.1

Silt: 21.2

Clay:

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	CRSE	FINE	COARSE



Reviewed By:

All tests performed in accordance with ASTM

APPENDIX C
WATER SUPPLY WELL LOGS

GIBRALTAR LANDFILL LOGS

Dug Wells (Gibraltar Area)

Robert Hunter
1376 Gibraltar Road
Anacortes, WA 98221
293-3862

Dug Well 35'
Concrete Sides
No well log on file

8/24/87
Letter Mailed

#3

24.83' ▼

USGS G.S.E. 239.56

Wyman Tibbles
1353 Highway 20
Anacortes, WA 98221
293-2861

Dug Well 40'

No well log on file

8/21/87
Letter Mailed

#3

AL HOWARD

DUG WELL
80 FT.
well log on file

NE¼ of NE¼ of SW¼ of SEC 18, T34, R 2 EWM.

Terry Buchanan
507 Miller Road
Anacortes, WA 98221
293-3891

Dug Well 85'
Concrete tile 36"
Well log on file

8/20/87
Letter Mailed

William Woodruff
505 Miller Road
Anacortes, WA 98221
293-2872

Dug Well 95'

No well log on file

8/24/87
~~Letter Mailed~~
Permission given

Third Copy — Driller's Copy

STATE OF WASHINGTON

Permit No. ....

(1) OWNER: Name Al Howard Address

(2) LOCATION OF WELL: County Skagit NE¼ of NE¼ SW¼ Sec. 18 T. 34 N., R. 2E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well (if more than one).... 1
New well [X] Method: Dug [X] Bored [ ]
Deepened [ ] Cable [ ] Driven [ ]
Reconditioned [ ] Rotary [ ] Jetted [ ]

(5) DIMENSIONS: Diameter of well 36 inches.
Drilled ft. Depth of completed well ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 36 " Diam. from 0 ft. to 80 ft.
Threaded [ ] " Diam. from ft. to ft.
Welded [ ] " Diam. from ft. to ft.

Perforations: Yes [X] No [ ]
Type of perforator used screens
SIZE of perforations ½ in. by 80 in.
8 perforations from 77½ ft. to 80 ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes [ ] No [ ]
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes [X] No [ ] Size of gravel: pea
Gravel placed from 60 ft. to 80 ft.

Surface seal: Yes [X] No [ ] To what depth? 18 ft.
Material used in seal concrete
Did any strata contain unusable water? Yes [ ] No [X]
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 60 ft. below top of well Date 2/26/80
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [X] If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes [ ] No [ ]

Approx 40 gals/min. Recovery 15 min.

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
topsoil	0'	1'
compact sand	1'	60'
water bearing sand	60'	80'

Work started 2/24, 19 80 Completed 2/27, 19 80

WELL DRILLER'S STATEMENT:

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

NAME Al Torie Well Digging
(Person, firm, or corporation) (Type or print)

Address 2803 - 128th N.E. Marysville.

[Signed] Al Torie
(Well Driller)

License No. 0502 Date 6/2, 19 80

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name Terry Buchannon Address 507 Miller Rd Anacortes 98221

(2) LOCATION OF WELL: County Skagit NW¼ NW¼ Sec 8 T 34 N., R 2 E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well [X] Method: Dug [X] Bored [ ]
Deepened [ ] Cable [ ] Driven [ ]
Reconditioned [ ] Rotary [ ] Jetted [ ]

(5) DIMENSIONS: Diameter of well 36 inches.
Drilled ..... ft. Depth of completed well 85 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 36" Diam. from 0 ft. to 85 ft.
Threaded [ ] ....." Diam. from ..... ft. to ..... ft.
Welded [ ] ....." Diam. from ..... ft. to ..... ft.

Perforations: Yes [X] No [ ]
Type of perforator used screens
SIZE of perforations 1/2 in. by 8 in.
8 perforations from 82½ ft. to 85 ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes [X] No [ ]
Manufacturer's Name .....
Type ..... Model No .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes [X] No [ ] Size of gravel: pea
Gravel placed from 70 ft. to 85 ft.

Surface seal: Yes [X] No [ ] To what depth? 18 ft.
Material used in seal Concrete
Did any strata contain unusable water? Yes [ ] No [X]
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 72 ft. below top of well Date 2/19/80
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [X] If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 2/23/80
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes [ ] No [ ]
Approximately 900 gal. in 24 hours.

(10) WELL LOG:
Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Topsoil	0'	1'
Dashpoint sand	1'	70'
Coarse sand	70'	85'

RECEIVED JUN 2 1980
AUG 6 1980
SKAGIT CO. HEALTH DEPT.

Work started 2/19, 19 80 Completed 2/23, 19 80

WELL DRILLER'S STATEMENT:

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

NAME Al Tonie Well Drilling
(Person, firm, or corporation) (Type or print)

Address 2803-128th N.E. Marysville

[Signed] Al Tonie
(Well Driller)

License No. 0502 Date 6/23, 1980

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

DRILLED WELLS (Gibralter Area)

p. 1

A

GEORGE McLEOD
419 CAMPBELL LAKE ROAD
Anacortes, WA 98221

DRILLED
58'

NW¼, SW¼
LOT 3 SEC 7, T 34, R 2E
Except West 880'

EDWARD LAVINE
Box 633
1583 SNEECOSH Rd
La Conner, WA 98257

DRILLED
70'

NW¼ NW¼ Sec 7, T 34, R 2
BTN of West Lot #1

VERNON HILBERT
428 Lake Campbell Rd
Anacortes, WA 98221

DRILLED
74'

W½ Govt Lot 4
Sec 7 T 34 R 2

HALLIE ALLEN
409 Campbell Lake ROAD
Anacortes, WA 98224

DRILLED
74-79'

SW¼ SE¼
Sec 7, T 34 R 2E WM

5/18/87 JM

DRILLED WELLS p 2

Craig Ginnett
510 Miller Road
Anacortes, WA 98221
293-5854

Drilled Well ?
No well log on file

8/24/87
Letter Mailed

James Lyle
523 Miller Road
Anacortes, WA 98221
293-4937

Drilled Well 150'
Steel 6" casing
No well log on file

8/24/87
Permission given

Jim Hertzberg
462 Deer Lane
Anacortes, WA 98221

DRILLED
270'

NW1/4 NE1/4
Sec 7, T34, R2E

Dan Tibbles
1358 Tibbles Lane
Anacortes, WA 98221
293-7201

Drilled Well 276'
Steel Casing
No well log on file

8/21/87
~~Letter Mailed~~
X/E

#4

CLAYTON LUNZ
1428 Commercial Rd
Anacortes, WA 98221

DRILLED
291'

NW1/4, NW1/4
Sec 18, T34, R2

Tom Wilson
Deer Lane
Anacortes, WA 98221
No Phone

Drilled Well 330'
Steel Casing 6"
Well log on file

8/20/87
Letter Mailed

5/18/89 JM

DRILLED WELLS
Q.3

BOB TRACY
467 DEER LANE
Anacortes, WA 98221

DRILLED
400'

SW 1/4 NE 1/4
Sec 7, T 34, R 2

Frank Hamiter
630 Hamiter Lane
Anacortes, WA 98221
Unlisted phone

Drilled Well 400'
Steel Casing 6"
Well log on file

8/20/87
Letter Mailed

#7

#5

Mark Tibbles
1370 Tibbles Lane
Anacortes, WA 98221
293-5087

~~Drilled Well?~~ ?? DRILLED WELL?
No well log on file

8/21/87
Letter Mailed

Michael D. Ensign
2014 32nd St.
Anacortes, WA 98221
293-4406

Well?
No well log on file

8/21/87
Letter Mailed

Palm

15.70" I
GSE 222.80

Dug well shallow

#4

~~#3~~

Third Copy — Driller's Copy

WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name George Moreland Address 419 Campbell Lk. Rd Anacortes, Wash.

(2) LOCATION OF WELL: County Skagit THAT PORTION OF LOT 3 Sec. 7 T. 34 N., R. 2E W.M.

Bearing and distance from section or subdivision corner NW¼, SW¼ EXCEPT THE WEST 880 FEET

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....

New well ☒ Method: Dug ☐ Bored ☐

Deepened ☐ Cable ☒ Driven ☐

Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches. Drilled 72 ft. Depth of completed well 58 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ..... " Diam. from ..... ft. to ..... ft.

Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.

Welded ☒ 6 " Diam. from +1 ft. to -53 ft.

Perforations: Yes ☐ No ☒

Type of perforator used .....

SIZE of perforations ..... in. by ..... in.

..... perforations from ..... ft. to ..... ft.

..... perforations from ..... ft. to ..... ft.

..... perforations from ..... ft. to ..... ft.

Screens: Yes ☒ No ☐

Manufacturer's Name Johnson

Type Stainless Steel Model No. 304

Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....

Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.

Material used in seal .....

Did any strata contain unusable water? Yes ☐ No ☒

Type of water? ..... Depth of strata .....

Method of sealing strata off .....

(7) PUMP: Manufacturer's Name Goulds

Type: Submersible HP ½

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.

Static level 28 ft. below top of well Date 9-22-76

Artesian pressure ..... lbs. per square inch Date .....

Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☒ If yes, by whom? .....

..... gal./min. with ..... ft. drawdown after ..... hrs.

" " "

" " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Water Level	Time	Water Level	Time	Water Level

Date of test .....

Bailer test 4½ gal./min. with 24 ft. drawdown after 4 hrs.

Artesian flow ..... g.p.m. Date .....

Temperature of water ..... Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Hardpan	0'	24'
Hardpan & boulders	24'	46'
Gravel & boulders	46'	53'
Sand, Water	53'	58'
Gravel & Rocks cemented	58'	68'
Bed rock	68'	72'

Work started 9-16, 19 76 Completed 10-4, 19 76

WELL DRILLER'S STATEMENT:

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

NAME RADKE WELL DRILLING (Person, firm, or corporation) (Type or print)

Address 1632 McConnel Rd. Mt. Vernon

[Signed] R.O. Radke (Well Driller)

License No. 0417 Date 10-8, 19 76

7356—OS—(Rev. 4-71).

(USE ADDITIONAL SHEETS IF NECESSARY)

34/02-7D

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. 98257

(1) OWNER: Name Edward Lavine Address Box 633, 1583 Sneeoosh Rd. LaConner, WA.

(2) LOCATION OF WELL: County Skagit NW¼ NW¼ Sec. 7 T. 34 N., R. 2 W.M.

Bearing and distance from section or subdivision corner NTN of Government Lot #1

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6" inches.
Drilled 70 ft. Depth of completed well 70 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from 0 ft. to 70 ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☐ ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 39' ft. below top of well Date 11-10-83
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 8 gal./min. with 15' ft. drawdown after — hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Top Soil	0	2
Brown Clay	2	20
Blue Clay & Gravel	20	60
Water & Gravel	60	70
Blue Clay	70	75

DEC 21 1983
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started 11-10-83, 19..... Completed 11-10-83, 19.....

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP & DRILLING, INC.
(Person, firm, or corporation) (Type or print)

Address Box 422, Burlington, WA. 98233

[Signed] H. Kess Fowler
(Well Driller)

License No. 1192 Date 11-11-83, 19.....

(USE ADDITIONAL SHEETS IF NECESSARY)

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. 34/2-7

Permit No. ....

(1) OWNER: Name Vernon Hilbert Address 428 Lake Campbell Rd. Anacortes, 98221

(2) LOCATION OF WELL: County Skagit W ½ Govt. lt 4¼ ¼ Sec. 7 T. 34 N., R. 2 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 76 ft. Depth of completed well 74 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 74 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☐ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal CEMENT
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name Aquatrol Doc.
Type: Submersible H.P. ½

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 23 ft. below top of well Date 6-24-82
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test April
Bailer test 5 gal./min. with 50 ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Gravel and clay	0	17
Blue clay	17	63
Gravel, clay and water	63	74
Rock	74	76

Work started June 24, 19 82 Completed June 24, 19 82

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP AND DRILLING
(Person, firm, or corporation) (Type or print)

Address P.O. Box 422 Burlington, 98233

[Signed] R. C. Johnson
(Well Driller)

License No. 0222 Date June 29, 1982

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

3

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

39/02-7R
Application No. .....

Permit No. .....

(1) OWNER: Name Hallie Allen Address 409 Campbell Lake Rd Conc.

(2) LOCATION OF WELL: County Skagit – SW¼ SE¼ Sec 7 T 34 N., R 2 E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☑ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well ..... inches.
Drilled 79 ft. Depth of completed well ..... ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ..... " Diam. from ..... ft. to ..... ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☑ 6 " Diam. from 0 ft. to 74 ft.

Perforations: Yes ☐ No ☑
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☑ No ☐
Manufacturer's Name Hallen
Type Slotted Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. 6 Slot size 25 from 74 ft. to 79 ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☑ No ☐ To what depth? 18 ft.
Material used in seal Bentonite clay
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name Hallen
Type: Submersible H.P. ½

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 44 ft. below top of well Date .....
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 5 gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
topsoil	0	4
hard clay clay	4	60
cemented gravel	60	61
fine sand	61	63
brown clay	63	68
cemented sand w/clay	68	74
coarse sand w/gravel	74	79

RECEIVED
SEP 5 1985
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started 5-24 19 85 Completed 5-28 19 85

WELL DRILLER'S STATEMENT:

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

NAME Bar Well Drilling Inc.
(Person, firm, or corporation) (Type or print)

Address 555 Isley Rd. Bellingham

[Signed] Hiram Limit
(Well Driller)

License No. 266 Date 6-5 19 85

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

File Original and First Copy with Department of Ecology
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Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

B

Application No. .....

Permit No. .....

(1) OWNER: Name Jim Hettzberg Address 462 Deer Lane Anacortes, 98221

(2) LOCATION OF WELL: County Skagit NW ¼ NE ¼ Sec. 7 T. 34 N., R. 2E W.M.

Bearing and distance from section or subdivision corner Lot 6 Campbell Lake Estates

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 270 ft. Depth of completed well 270 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 11 ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☒ ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? Casing "Rock" to 270 ft.
Material used in seal .....
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name Jacuzzi Bro.
Type: Submersible H.P. 3/4

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 200 ft. below top of well Date 9-5-79
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 3 gal./min. with 70 ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Top soil	0	10
Rock	10	270
Water at 240		

40 V. ... 1979 ...

Work started Sept. 4, 19 79 Completed Sept 5, 19 79

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP AND DRILLING
(Person, firm, or corporation) (Type or print)

Address P.O. Box 422 Burlington, 98233

[Signed] R. C. Johnson
(Well Driller)

License No. 0222 Date Sept. 6, 1979

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

3

Second Copy — Owner's Copy
Third Copy — Driller's Copy

STATE OF WASHINGTON

Permit No. ....

(1) OWNER: Name Clayton Lunz Address 1428 Commercial Rd., Anacortes 98221

(2) LOCATION OF WELL: County Skagit — NW¼ NW¼ Sec 18 T 34 N., R 2E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 291 ft. Depth of completed well 291 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 286 ft.
Threaded ☐ ____ " Diam. from ____ ft. to ____ ft.
Welded ☐ ____ " Diam. from ____ ft. to ____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used ____
SIZE of perforations ____ in. by ____ in.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.

Screens: Yes ☒ No ☐ Manufacturer's Name Houston Well Screen
Type Stainless Model No ____
Diam. 6 Slot size 10 from 286 ft. to 291 ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ____
Gravel placed from ____ ft. to ____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Clay & Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ____ Depth of strata ____
Method of sealing strata off ____

(7) PUMP: Manufacturer's Name Jacuzzi Bro.
Type: Submersible H.P. 3/4

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 3 ft. below top of well Date 5-19-77
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? ____
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ____
Bailer test 12 gal./min. with 200 ft. drawdown after ____ hrs.
Artesian flow ____ g.p.m. Date ____
Temperature of water ____ Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Brown Sand & Clay	0	30
Blue Clay	30	290

RECEIVED
SEP 4 1977

Work started 5-9-77, 19 Completed 5-19-77, 19

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP & DRILLING, INC.
(Person, firm, or corporation) (Type or print)

Address Burlington 98233

[Signed] R. C. Johnson
(Well Driller)

License No. 223-02-7387 Date 5-25-77, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

34/02-07H

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Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

Mail: 608 35th St. Anacortes 98221

(1) OWNER: Name Tom Wilson Address Deer Lane Anacortes 98221

(2) LOCATION OF WELL: County Skagit SE ¼ NE ¼ Sec. 7 T. 34 N., R. 2 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well [X] Method: Dug [ ] Bored [ ]
Deepened [ ] Cable [ ] Driven [ ]
Reconditioned [ ] Rotary [X] Jetted [ ]

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 330 ft. Depth of completed well 330 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 17 ft.
Threaded [ ] ..... " Diam. from ..... ft. to ..... ft.
Welded [ ] ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes [ ] No [X]
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes [ ] No [X]
Manufacturer's Name .....
Type ..... Model No .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes [ ] No [X] Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes [X] No [ ] To what depth? 17 ft.
Material used in seal Cement
Did any strata contain unusable water? Yes [ ] No [X]
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 15 ft. below top of well Date 8-21-79
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [ ] If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 13 gal./~~min.~~ hr with 325 ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes [ ] No [X]

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Topsoil & Clay	0	17
Rock	17	330

RECEIVED
JUN 27 1980
SKAGIT CO. HEALTH DEPT.

Work started ....., 19..... Completed ....., 19.....

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP AND DRILLING
(Person, firm, or corporation) (Type or print)

Address P.O. Box 422 Burlington, 98233

[Signed] R.C. Johnson
(Well Driller)

License No. 0222 Date Sept. 4, 19 79

(USE ADDITIONAL SHEETS IF NECESSARY)

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

C 34/02/07 C
Application No. .....
Permit No. .....

(1) OWNER: Name Bob Tracy Address 467 Deer Ln. Anacortes Wa. 98221

(2) LOCATION OF WELL: County Skagit — SW ¼ NE ¼ Sec. 7 T. 34 N., R. 2 W.M.
Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐ Added Depth

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☐ Method: Dug ☐ Bored ☐
Deepened ☑ Cable ☐ Driven ☐
Reconditioned ☑ Rotary ☑ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 250 ft. Depth of completed well 400 ft.

(6) CONSTRUCTION DETAILS: None — 1st 20' in 1979
Casing installed: ☑ " Diam. from ..... ft. to ..... ft.
Threaded ☐ " Diam. from ..... ft. to ..... ft.
Welded ☑ " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☑
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☑
Manufacturer's Name .....
Type ..... Model No .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☑ No ☐ To what depth? ~~18~~ ft. ← In first 18' in 1979
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name Jacuzzi
Type: Submersible HP 1½

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 1 ft. below top of well Date 6-19-86
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☑ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Air ~~Bailer~~ test 1GPM gal./min. with 360 ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:
Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
~~Deepened Well~~		
~~Granite~~	150	~~400~~
Water 1 G P M		
1979		

RECEIVED
JUL 3 1986
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started 6-18- 19 86 Completed 6-19- 1986

WELL DRILLER'S STATEMENT:

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

NAME Dahlman Pump & Well Drilling Inc.
(Person, firm, or corporation) (Type or print)

Address P O Box 422 Burlington Wa. 98233

[Signed] H Ken Fowler
(Well Driller)

License No. 1192 Date 6-23- 1986

File Original and First Copy with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's Copy

WATER WELL REPORT #7

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Frank Hamiter Address 630 Hamiter Lane, Anacortes, Wash.

(2) LOCATION OF WELL: County Skagit — SW ¼ SW ¼ Sec. 8 T. 34 N., R. 2 E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 400 ft. Depth of completed well 400 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +2 ft. to 400 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Puddeling clay
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 235 ft. below top of well Date 8-14-85
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 5 gal./min. with 100 ft. drawdown after 2 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Topsoil	0	3
Brown sandy clay	3	10
Gray clay	10	18
Brown clay and gravel	18	22½
Brown sand and gravel	22½	54
Tan clay	54	59
Tan sandy clay and gravel	59	74
Brown sand , little clay	74	125
Brown sand and gravel, little clay	125	160
Gray sand , clay and wood	160	165
Gray sand and clay	165	168
Sand and clay layers with wood	168	225
Gray clay	225	245
Gray clay and few clam shells	245	240½
Gray clay	240½	340
Gray clay and gravel	340	396
Gray sand gravel and water		
15 gpm @ 397 ft.	396	399
Gray gravel sand and water		
25 gpm @ 400 ft.	399	400
Course gravel and trace of clay	400	

Work started 8-12-85, 19 Completed 8-14, 1985

WELL DRILLER'S STATEMENT:

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

NAME Hayes Well Drilling & Pumps Inc.
(Person, firm, or corporation) (Type or print)

Address 1415 Colony Rd. Bow, Washington

[Signed] Steve Gilbert
(Well Driller)

License No. 769 Date 8-15, 19 85

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

SAUK LANDFILL LOGS

35/1-21E

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Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Dean Mallory Address 944 Adams Dr., Concrete Wa. 98237

(2) LOCATION OF WELL: County Skagit — SW¼ NW¼ Sec 21 T 35 N., R 9 W.M.

Bearing and distance from section or subdivision corner PTN-SW¼-NW¼ ARA TR 3 SIT PLT 10-7-75

AF=328832

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☑ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 214 ft. Depth of completed well 214 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 214 ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☐ ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☑
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☑
Manufacturer's Name .....
Type ..... Model No .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☑ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name Jacuzzi
Type: Submersible H.P 3/4

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 160 ft. below top of well Date 9-7-83
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☑ No ☐ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 5 gal./min. with 50 ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date 9-6-83
Temperature of water ..... Was chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Brown Clay - Gravel	0	150
Gravel	150	164
Blue Clay @ravel	164	180
Blue Clay - Gravel	180	212
Water Gravel	212	214

RECEIVED
OCT 19 1983
DEPARTMENT OF ECOLOGY
NW REGION

Work started 9-6-83 19 Completed 9-7-83 19

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP & DRILLING INC.
(Person, firm, or corporation) (Type or print)

Address PO. Box 422, BURLINGTON WA 98233

[Signed] H. Ken Fowler
(Well Driller)

License No. 1192 Date 9-8- , 19 83

(USE ADDITIONAL SHEETS IF NECESSARY)

35/09-21M

File Original and First Copy with Department of Ecology
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Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Robert Taylor Address 4831 Sauk Store Road Concrete, 98237

(2) LOCATION OF WELL: County Skagit S1/2 - NW¼ SW¼ Sec 21 T 35 N., R 9 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well [X] Method: Dug [ ] Bored [ ]
Deepened [ ] Cable [ ] Driven [ ]
Reconditioned [ ] Rotary [X] Jetted [ ]

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 60 ft. Depth of completed well 60 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 60 ft.
Threaded [ ] " Diam. from ft. to ft.
Welded [ ] " Diam. from ft. to ft.

Perforations: Yes [ ] No [X]
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes [ ] No [X]
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes [ ] No [X] Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes [X] No [ ] To what depth? 18 ft.
Material used in seal Cement
Did any strata contain unusable water? Yes [ ] No [X]
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 44 ft. below top of well Date 11-15-81
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [X] If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 15 gal./min. with 4 ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes [ ] No [X]

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Brown clay	0	22
Brown clayand gravel	22	28
Sand and gravel	28	55
Water and gravel	55	60

Work started Nov. 18, 19 81 Completed Nov 18, 19 81

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP AND DRILLING
(Person, firm, or corporation) (Type or print)

Address P.O. Box 422 Burlington, 98233

[Signed] R. C. Dahlman
(Well Driller)

License No. 0222 Date Nov 19 81

(USE ADDITIONAL SHEETS IF NECESSARY)

35/09/21R

File Original and First Copy with Department of Ecology
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WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name Mark Berg Address 4908 Hiway 20 Concrete Wa. 98237

(2) LOCATION OF WELL: County Skagit SE ¼ SE ¼ Sec 21 T 35 N., R 9 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☑ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 312 ft. Depth of completed well 312 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from 0 ft. to 312 ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☑ ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☑
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☑
Manufacturer's Name .....
Type ..... Model No .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☑ No ☐ To what depth? 17 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 280 ft. below top of well Date 1-30-86
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☑ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
~~Bailer test~~ 10 GPM gal./min. with 20 ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Dirty Sand-Gravel	0	93
Brown Clay-Sand	93	97
Blue Clay	97	110
Brown Clay-Gravel	110	120
Blue Clay	120	187
Brown Clay	187	225
Brown Clay-Gravel	225	298
Blue Clay	298	306
Brown Clay-Gravel Water	306	312

RECEIVED
FEB 14 1986
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started 1-28- 19 86 Completed 1-30- 19 86

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP & WELL DRILLING INC.
(Person, firm, or corporation) (Type or print)

Address P O BOX 422 Burlington Wa. 98233

[Signed] H Kay Fowler
(Well Driller)

License No. 1192 Date 1-31- 19 86

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 05-1-20

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name Von Borcke, Otto Address Route 1, Box 229, Concrete 98237

(2) LOCATION OF WELL: County Skagit — SW ¼ NW ¼ Sec 27 T 35 N., R 9E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 155 ft. Depth of completed well 155 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 155 ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☒ ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 18' ft.
Material used in seal Clay + Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name Jaquzzi Bros.
Type: Submersible H.P ½

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 68' ft. below top of well Date 1-28-77
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 3 ½ gal./min. with 75 ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Top soil		1"
Dirty Sand & Gravel	0'	60"
Clay & Gravel	60	62
Dirty Sand & Gravel	62	115
Brown Clay & Gravel	115	130
Sand & Gravel	130	149
Sand & Gravel	149	155

Work started 1-24-77 19.... Completed 1-28-77 19....

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP & DRILLING, INC.
(Person, firm, or corporation) (Type or print)

Address Burlington 98233

[Signed] R. C. Johnson
(Well Driller)

License No. 223-02-7387 Date 2-2-77, 19....

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—1

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

35/09/28 D
Application No. .....

Permit No. ~~Loc 4799-3 Sauk Valley Hwy Concrete Wa.~~

(1) OWNER: Name Bill Groth Address P O Box 159 Oak Harbor

(2) LOCATION OF WELL: County Skagit NW ¼ NW ¼ Sec 28 T 35 N., R 9 W.M.

Bearing and distance from section or subdivision corner 4012-000-002-006

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☑ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 60 ft. Depth of completed well 60 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 60 ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☑ ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☑
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☑
Manufacturer's Name .....
Type ..... Model No .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☑ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 32 ft. below top of well Date 1-27-86
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☑ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Test 30 GPM gal./min. with 8 ft. drawdown after ..... hrs.
" flow ..... g.p.m. Date .....
...ture of water ..... Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Brown Clay - Gravel	0	50
Gravel - Water	50	60

RECEIVED
FEB 7 1986
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started 1-28- 19 86 Completed 1-28 19 86

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP & WELL DRILLING INC
(Person, firm, or corporation) (Type or print)

Address P O Box 422 Burlington Wa. 98233

[Signed] H Ken Fowler
(Well Driller)

License No. 1192 Date 1-29- 19 86

(USE ADDITIONAL SHEETS IF NECESSARY)

3

35/09-28 D

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name George Theodoratus Address 3593 Hiway 20 Concrete, WA. 98237

(2) LOCATION OF WELL: County Skagit — NW¼ NW¼ Sec. 28 T. 35 N., R. 9 W.M.
Bearing and distance from section or subdivision corner Sauk City Road

(3) PROPOSED USE: Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well [X] Method: Dug [ ] Bored [ ]
Deepened [ ] Cable [ ] Driven [ ]
Reconditioned [ ] Rotary [X] Jetted [ ]

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 46 ft. Depth of completed well 46 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from 0 ft. to 46 ft.
Threaded [ ] ..... " Diam. from ..... ft. to ..... ft.
Welded [X] ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes [ ] No [X]
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes [ ] No [X]
Manufacturer's Name .....
Type ..... Model No .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes [ ] No [X] Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes [X] No [ ] To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes [ ] No [X]
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .....
Static level 20 ft. below top of well Date 12-23-86
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [X] If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
[illegible]: 20 gal./min. with 15 ft. drawdown after ..... hrs.
[illegible] ..... g.p.m. Date .....
[illegible] of water ..... Was a chemical analysis made? Yes [ ] No [X]

(10) WELL LOG:
Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Dirty Sand & Brown Clay	0	37
and gravel		
Gravel & Water	37	46

RECEIVED
APR 07 1987
DEPARTMENT OF ECOLOGY

Work started 12-23-86 19 Completed 12-23-86 19

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP & WELL DRILLING, INC.
(Person, firm, or corporation) (Type or print)

Address Box 422, Burlington, WA. 98233

[Signed] Theodore Dahlman
(Well Driller)

License No. 0623 Date 12-23-86, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

35/09-28C

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Les Bridges Mail: 3417 36th W., Seattle 98199 Address .....

(2) LOCATION OF WELL: County Skagit ¼ ¼ Sec 28 T 35 N., R 9E W.M.

Bearing and distance from section or subdivision corner Tract 17 - Skagit Steelhead Tracts

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....

New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 40 ft. Depth of completed well 40 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 40 ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☒ ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Cement
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 20 ft. below top of well Date 7-31-79
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 15 gal./min. with 13 ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date 7-31-79
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Sand	0	10
Clay & Gravel	10	35
Water & Gravel	35	40

NOV 1 1979
DEPT. OF ECOLOGY

Work started July 31, 19 ..... Completed July 31, 19 79

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP & DRILLING, INC.
(Person, firm, or corporation) (Type or print)

Address Burlington 98233

[Signed] R. C. Johnson
(Well Driller)

License No. 122 Date 8-2-79, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Lester B. Thistle Mail: 1031 Raymond Bellingham, 98225 Address Old Steelhead Tracts Concrete, 98237

(2) LOCATION OF WELL: County Skagit ¼ ¼ Sec 28 T. 35 N., R. 9E W.M.

Bearing and distance from section or subdivision corner Lot 19 Steelhead Tracts

(3) PROPOSED USE: Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well [X] Method: Dug [ ] Bored [ ]
Deepened [ ] Cable [ ] Driven [ ]
Reconditioned [ ] Rotary [ ] Jetted [ ]

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 40 ft. Depth of completed well 40 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 40 ft.
Threaded [ ] ..... " Diam. from ..... ft. to ..... ft.
Welded [ ] ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes [ ] No [X]
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes [ ] No [X]
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes [ ] No [X] Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes [X] No [ ] To what depth? 18 ft.
Material used in seal Cement
Did any strata contain unusable water? Yes [ ] No [X]
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 23 ft. below top of well Date 7-31-79
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [ ] If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 15 gal./min. with 13 ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes [ ] No [ ]

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Sand	0	10
Clay and gravel	10	35
Water and gravel	35	40

RECEIVED SEP 4 1979 DEPT OF ECOLOGY

Work started July 31, 19 79 Completed July 31, 19 79

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP AND DRILLING
(Person, firm, or corporation) (Type or print)

Address P.O. Box 422 Burlington, Wa. 98233

[Signed] R. C. Johnson
(Well Driller)

License No. 0222 Date Aug. 7, 19 79

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Walter Mangini Address Mail: 1231 Madison Way Alderwood Manor, 98036

(2) LOCATION OF WELL: County Skagit — ¼ ¼ Sec 28 T 35 N., R 9E W.M.

Bearing and distance from section or subdivision corner Skagit Steelhead Trucks #26 & 27

(3) PROPOSED USE: Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well [X] Method: Dug [ ] Bored [ ]
Deepened [ ] Cable [ ] Driven [ ]
Reconditioned [ ] Rotary [X] Jetted [ ]

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 40 ft. Depth of completed well 40 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 40 ft.
Threaded [ ] " Diam. from ft. to ft.
Welded [ ] " Diam. from ft. to ft.

Perforations: Yes [ ] No [X]
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes [ ] No [X]
Manufacturer's Name
Type Model No
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes [ ] No [X] Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes [X] No [ ] To what depth? 18 ft.
Material used in seal Cement
Did any strata contain unusable water? Yes [ ] No [X]
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 22 ft. below top of well Date 8-1-79
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [X] If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 8-1-79
Bailer test 15 gal./min. with 10 ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes [ ] No [X]

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Sand	0	10
Clay and gravel	10	35
Water and gravel	35	40

NOV 1 1979
DEPT. OF ECOLOGY

Work started Aug. 1, 1979 Completed Aug. 1, 1979

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP AND DRILLING
(Person, firm, or corporation) (Type or print)

Address P.O. Box 422 Burlington, 98233

[Signed] R.C Johnson
(Well Driller)

License No. 0222 Date Aug. 2, 1979

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

35/09E-28 E4

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name Randy Riggles Address 1061 Evergreen Hill Lane Concrete Wa. 9823

(2) LOCATION OF WELL: County Skagit NW¼ SE¼ Sec 28 T. 35 N., R. 9E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☑ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 110 ft. Depth of completed well 110 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 110 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☑ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☑
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☑
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☑ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☑ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 82 ft. below top of well Date 7-2-85
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☑ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 30 GPM gal./min. with 15 ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Dirty Sand & Gravel	0	100
Water & Gravel	100	110

RECEIVED
AUG 14 1985
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started 7-2- 19 85 Completed 7-2- 19 85

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP & WELL DRILLING INC.
(Person, firm, or corporation) (Type or print)

Address P O Box 422 Burlington Wa. 98233

[Signed] [illegible]
(Well Driller)

License No. 1192 Date 7-3- 1985

(USE ADDITIONAL SHEETS IF NECESSARY)

File Original and First Copy with Department of Ecology
Second Copy -- Owner's Copy
Third Copy -- Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Jack Albrecht Address Mail: 126 W. Miller, Concrete, WA 98237

(2) LOCATION OF WELL: County Skagit Gov. Lot 4 ¼ NE¼ SW¼ Sec 28 T 35 N., R 9 W.M.

Bearing and distance from section or subdivision corner .....

(3) PROPOSED USE: Domestic [X] Industrial [ ] Municipal [ ] Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well (if more than one) .....

New well [X] Method: Dug [ ] Bored [ ]
Deepened [ ] Cable [ ] Driven [ ]
Reconditioned [ ] Rotary [X] Jetted [ ]

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 260 ft. Depth of completed well 260 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 240 ft.
Threaded [ ] ..... " Diam. from ..... ft. to ..... ft.
Welded [ ] ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes [ ] No [X]
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes [ ] No [X]
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes [ ] No [X] Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes [X] No [ ] To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes [ ] No [X]
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name Jacuzzi Bro.
Type: Submersible H.P. 1½

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 210 ft. below top of well Date 11-16-78
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [X] If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test ..... gal./min. with 30 ft. drawdown after ..... hrs.
Artesian ..... g.p.m. Date .....
Temp. ..... water ..... Was a chemical analysis made? Yes [ ] No [X]

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Sand	0	25
Gravel and Sand	25	105
Blue clay	105	115
Brown clay	115	125
Blue clay	125	170
Gravel and Clay	170	240
Water and Gravel	240	260

Work started Nov. 13 19 78 Completed Nov. 16 19 78

WELL DRILLER'S STATEMENT:

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

NAME Dahlman Pump and Drilling (Person, firm, or corporation) (Type or print)

Address Box 422 Burlington, Washington 98233

[Signed] R. C. Johnson (Well Driller)

License No. 0222 Date Nov. 21, 19 78

(USE ADDITIONAL SHEETS IF NECESSARY)

35709-202

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) **OWNER:** Name Steve Hylen Mail: POBox 622 Concrete 98237 Address .....

(2) **LOCATION OF WELL:** County Skagit Ptn. Gv. Lt. 4 ¼ ¼ Sec. 28 T. 35 N., R. 09 W.M.

Bearing and distance from section or subdivision corner NE¼, SW¼

(3) **PROPOSED USE:** Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) **TYPE OF WORK:** Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) **DIMENSIONS:** Diameter of well 6 inches.
Drilled 140 ft. Depth of completed well 140 ft.

(6) **CONSTRUCTION DETAILS:**

Casing installed: 6 " Diam. from 0 ft. to 140 ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☐ ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) **PUMP:** Manufacturer's Name .....
Type: ..... H.P. .....

(8) **WATER LEVELS:** Land-surface elevation above mean sea level .... ft.
Static level 83 ft. below top of well Date 3-27-80
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 30 gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... Date .....
Temperature of water ..... Was a ..... analysis made? Yes ☐ No ☒

(10) **WELL LOG:**

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Dirty sand and gravel	0	15
Silty sand	15	42
Brown clay and gravel	42	102
Gravel and water	102	140

Work started March 21, 19 80 Completed March 21, 19 80

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP AND DRILLING
(Person, firm, or corporation) (Type or print)

Address P.O.Box 422 Burlington, 98233

[Signed] K. C. Johnson
(Well Driller)

License No. 0222 Date March 25, 19 80

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. 35107-23N

Permit No. ....

(1) OWNER: Name James Fratello Address Route 1, Box 237, Concrete 98237

(2) LOCATION OF WELL: County ~~Snohomish Co.~~ SKAGIT — SW ¼ SW ¼ Sec 28 T 35 N., R 9 W.M.

Bearing and distance from section or subdivision corner N330' of Lot 6 W of Road

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 56 ft. Depth of completed well 56 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 56 ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☐ ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 28 ft. below top of well Date 7-16-76
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 30 gal./min. with 10 ft. drawdown after — hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Topsoil	0	1
Dirty Sand & Gravel	1	22
Rocks	22	24
Sand & Gravel	24	28
Clay & Gravel	28	43
Clean Sand & Water	43	56

Work started 7-12-76, 19 Completed 7-16-76, 19

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP & DRILLING, INC.
(Person, firm, or corporation) (Type or print)

Address Burlington 98233

[Signed] [illegible] (Well Driller)

License No. 22[illegible] Date 7-19-76, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy 35/9E/28/M

WATER WELL REPORT

STATE OF WASHINGTON

Application No. 53107 - 53117

Permit No. ....

(1) OWNER: Name Bill Blunt Address Route 1, Concrete 98237

(2) LOCATION OF WELL: County Skagit Lot 5 – NW¼ SW¼ Sec 28 T 35 N., R 09 W.M.

Bearing and distance from section or subdivision corner Less ptn. lying btw Co Rd & Skagit River & Skagit Steelhead Trks

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....

New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☒ Driven ☐ Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches. Drilled 60 ft. Depth of completed well 59 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 59 ft.

Threaded ☐ ." Diam. from ft. to ft.

Welded ☒ ." Diam. from ft. to ft.

Perforations: Yes ☐ No ☒

Type of perforator used

SIZE of perforations in. by in.

perforations from ft. to ft.

perforations from ft. to ft.

perforations from ft. to ft.

Screens: Yes ☐ No ☒

Manufacturer's Name

Type Model No

Diam. Slot size from ft. to ft.

Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:

Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 10' ft.

Material used in seal Bentonite

Did any strata contain unusable water? Yes ☐ No ☐

Type of water? Depth of strata

Method of sealing strata off

(7) PUMP: Manufacturer's Name

Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.

Static level 40 ft. below top of well Date 10-7-75

Artesian pressure lbs. per square inch Date

Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☐ If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

" " " "

" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test

Bailer test 16 gal./min. with 10 ft. drawdown after hrs.

Artesian flow g.p.m. Date

Temperature of ... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Top soil	0	5
Sand & Gravel	5	11
Boulders	11	14
Dirty Sand & Gravel	14	49
Sand & Gravel	49	60

Work started 10-2-75 19 Completed 10-7-75 19

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP & DRILLING, INC.
(Person, firm, or corporation) (Type or print)

Address Burlington 98233

[Signed] K. C. Johnson
(Well Driller)

License No. 223-02-7387 Date 10-13-75 19

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—C ... (Rev. 4-71).

3

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. 35107-28M

Permit No. ....

(1) OWNER: Name Roy Miller Address 2210-22nd St. Everett (Mail Address P.O. Box 635 Everett Wn. 98201)

(2) LOCATION OF WELL: County SKAGit ¼ ¼ Sec. 28 T. 35 N., R. 9 E. W.M.

Bearing and distance from section or subdivision corner Govt Lot 5 Sec. 28

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 37 ft. Depth of completed well 37 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from 0 ft. to 37 ft.
Threaded ☐ ." Diam. from ft. to ft.
Welded ☒ ." Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☐ No ☒ To what depth? ft.
Material used in seal
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name Jacuzzi
Type: Jet H.P. ½

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 23 ft. below top of well Date
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 0 gal./min. with 5 ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Topsoil	0	10
Wet Gravel	10	32
Gravel	32	37

Work started 4-11 19 73 Completed 4-12 19 73

WELL DRILLER'S STATEMENT:

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

NAME Dahlman Pump & Drilling (Person, firm, or corporation) (Type or print)

Address Burlington 7823

[Signed] R. C. Johnson (Well Driller)

License No. 223-02-738? Date 4/ , 19 73

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71)

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. 53674-17A

Permit No.

(1) OWNER: Name Nottingham, Jan
Mail: 953 W. Aultfield Rd - Oak Harbor, 98277
~~Mail: 5099 50th N.W. Oak Harbor, WA 98277~~
Address Prop: 4779-1 Sauk Valley Rd. Concrete, WA

(2) LOCATION OF WELL: County Skagit NE ¼ NE ¼ Sec. 29 T 35 N., R. 9 W.M.
Bearing and distance from section or subdivision corner Lots 9 & 10 Skagit Steel Lead Tracts

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6" inches.
Drilled 60 ft. Depth of completed well 60 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6" Diam. from 0 ft. to 60 ft.
Threaded ☐ ____" Diam. from ____ ft. to ____ ft.
Welded ☒ ____" Diam. from ____ ft. to ____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations ____ in. by ____ in.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 30' ft. below top of well Date 4-9-81
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 4/9/81
Bailer test 50 gal./min. with 10 ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Sand	0	25
Gravel & Brown Clay	25	54
Gravel & Water	54	60

Work started 4-9, 19 81 Completed 4-9, 19 81

WELL DRILLER'S STATEMENT:

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

NAME DAHLMAN PUMP & DRILLING
(Person, firm, or corporation) (Type or print)

Address Box 422 Burlington, WA 98233

[Signed] R. C. Johnson
(Well Driller)

License No. 0222 Date 4-13-81, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

3

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

Rose J.

WATER WELL REPORT

STATE OF WASHINGTON

Application No. ~~35/0 29~~ 35/09-29A

Permit No. 98221

(1) OWNER: Name ~~James~~ A. Crouch Address 1211 - 11th Anacortes

(2) LOCATION OF WELL: County Skagit NE ¼ NE ¼ Sec 29 T 35 N., R 2E W.M.

Bearing and distance from section or subdivision corner: Lot 35 Steelhead Tract

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 36½ ft. Depth of completed well 36½ ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 36½ ft.
Threaded ☐ .... " Diam. from .... ft. to .... ft.
Welded ☐ .... " Diam. from .... ft. to .... ft.

Perforations: Yes ☐ No ☒
Type of perforator used ....
SIZE of perforations .... in. by .... in.
.... perforations from .... ft. to .... ft.
.... perforations from .... ft. to .... ft.
.... perforations from .... ft. to .... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ....
Type .... Model No. ....
Diam. .... Slot size .... from .... ft. to .... ft.
Diam. .... Slot size .... from .... ft. to .... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ....
Gravel placed from .... ft. to .... ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Bentonite & Cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? .... Depth of strata ....
Method of sealing strata off ....

(7) PUMP: Manufacturer's Name Jacuzzi Bro.
Type: Jet H.P. ½

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 21 ft. below top of well Date ....
Artesian pressure .... lbs. per square inch Date ....
Artesian water is controlled by .... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? ....
Yield: .... gal./min. with .... ft. drawdown after .... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ....
Bailer test 13 gal./min. with 15 ft. drawdown after .... hrs.
Artesian flow .... g.p.m. Date ....
Temperature of water .... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Sand Clay & Gravel	0	18
Gravel & Clay	18	35
Gravel	35	37

Work started 8-14, 1973 Completed 8-14, 1973

WELL DRILLER'S STATEMENT:

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

NAME Dahlman Pump & Drilling (Person, firm, or corporation) (Type or print)

Address Burlington 98233

[Signed] R. C. Johnson (Well Driller) 757-5555

License No. ~~223-62-7387~~ — 0223 — Date 8-16, 1973

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

APPENDIX D

WATER QUALITY DATA

SAUK AND GIBRALTAR LANDFILLS

(February, 1990)

SAMPLING CODE/NOMENCLATURE

MONITORING WELL NUMBER	SAMPLE ID
Gibraltar MW-1	WELL #5-G
Gibraltar MW-2	WELL 1-G
Gibraltar MW-3	WELL 2-G
Gibraltar MW-4	WELL #3-G
Sauk MW-1	WELL 4-S
Sauk MW-2	WELL 3-S
Sauk MW-3	WELL 7-S
Sauk MW-4	WELL 2-S

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
WORK ORDER #: K90672

Inorganic Parameters
mg/L

Sample Name:			MW-4G	field blank	MW-1G
Lab Code:			Well #3-G 672-1	Well #4-G 672-2	Well #5-G 672-3
	Method	MRL			
Chloride	300.0	0.2	41.0	ND	12.0
COD	410.1	5	8	6	27
Nitrogen, Ammonia	350.3	0.05	0.14	ND	ND
Nitrogen, Nitrate	300.0	0.2	ND	ND	ND
Nitrogen, Nitrite	300.0	0.2	ND	ND	ND
Sulfate	300.0	0.2	63.6	0.2	102
TOC	415.1	0.1	1.0	0.9	4.3

ND means None Detected at or above the MRL
MRL means Method Reporting Limit

Approved by Jeff Clinton Date 3-29-90

1317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
WORK ORDER #: K90672

Inorganic Parameters
mg/L

Sample Name:			Hamiter Well #6-G	Dan Tibbles Well #7-G	Mark Tibbles Well #8-G	Method Blank
Lab Code:			672-4	672-5	672-6	672-MB
	Method	MRL				
Chloride	300.0	0.2	35.2	22.9	19.5	ND
COD	410.1	5	10	11	13	ND
Nitrogen, Ammonia	350.3	0.05	0.45	ND	0.34	ND
Nitrogen, Nitrate	300.0	0.2	ND	1.47	ND	ND
Nitrogen, Nitrite	300.0	0.2	ND	ND	ND	ND
Sulfate	300.0	0.2	13.1	26.3	7.8	ND
TOC	415.1	0.1	1.5	2.5	2.0	ND

ND means None Detected at or above the MRL
MRL means Method Reporting Limit

Approved by Jeff Christen Date 3-29-90

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
WORK ORDER #: K90672

Dissolved Metals
mg/L

Sample Name:			MW-4G	Blank	MW-1G
Lab Code:			Well #3-G 672-1	Well #4-G 672-2	Well #5-G 672-3
	Method	MRL			
Iron	200.7	0.02	0.02	0.02	0.11
Manganese	200.7	0.005	0.304	ND	7.20
Zinc	200.7	0.01	ND	ND	0.02

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Jeff Christian Date 3-29-90

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
WORK ORDER #: K90672

Dissolved Metals
mg/L

Sample Name:			Hamiter	Dan Tibbles	Mavik
Lab Code:			Well #6-G	Well #7-G	Well #8-G
			672-4	672-5	672-6
	Method	MRL			
Iron	200.7	0.02	0.43	0.02	0.21
Manganese	200.7	0.005	0.084	0.010	0.032
Zinc	200.7	0.01	0.20	0.02	0.32

MRL means Method Reporting Limit

Approved by _____ Date 3-29-90

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
WORK ORDER #: K90672

Total Metals
mg/L

Sample Name:			MW-4G	Blank	MW-1G
Lab Code:			Well #3-G 672-1	Well #4-G 672-2	Well #5-G 672-3
	Method	MRL			
Arsenic	206.2	0.005	0.005	ND	0.016
Barium	200.7	0.005	0.050	ND	0.304
Cadmium	200.7	0.002	ND	ND	0.003
Chromium	200.7	0.005	ND	ND	0.029
Lead	239.2	0.002	ND	ND	0.023
Mercury	245.1	0.0005	ND	ND	ND
Selenium	270.2	0.005	ND	ND	ND
Silver	200.7	0.01	ND	ND	ND

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Jeff Christian Date 3-29-90

1317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
DATE ANALYZED: 03/02/90
WORK ORDER #: K90672

Volatile Organic Analytes
EPA Method 8240
µg/L (ppb)

Sample Name:		Trip Blank	Method Blank
Lab Code:		672-7	672-MB
Compound	MRL		
Chloromethane	1	ND	ND
Vinyl Chloride	1	ND	ND
Bromomethane	1	ND	ND
Chloroethane	1	ND	ND
Trichlorofluoromethane	1	ND	ND
Freon 113	10	ND	ND
1,1-Dichloroethene	1	ND	ND
Acetone	10	ND	ND
Carbon Disulfide	1	ND	ND
Methylene Chloride	10	ND	ND
Trans 1,2-Dichloroethene	1	ND	ND
Cis 1,2-Dichloroethene	1	ND	ND
2-Butanone (MEK)	10	ND	ND
1,1-Dichloroethane	1	ND	ND
Chloroform	1	ND	ND
1,1,1-Trichloroethane	1	ND	ND
Carbon Tetrachloride	1	ND	ND
Benzene	1	ND	ND
1,2-Dichloroethane	1	ND	ND
Vinyl Acetate	10	ND	ND
Trichloroethene	1	ND	ND
1,2-Dichloropropane	1	ND	ND
Bromodichloromethane	1	ND	ND
2-Chloroethylvinyl ether	10	ND	ND
Trans 1,3-Dichloropropene	1	ND	ND
2-Hexanone	10	ND	ND
4-Methyl-2-Pentanone (MIBK)	10	ND	ND
Toluene	1	ND	ND
Cis 1,3-Dichloropropene	1	ND	ND
1,1,2-Trichloroethane	1	ND	ND
Tetrachloroethene	1	ND	ND
Dibromochloromethane	1	ND	ND
Chlorobenzene	1	ND	ND
Ethylbenzene	1	ND	ND
Styrene	1	ND	ND
Total Xylenes	1	ND	ND
Bromoform	1	ND	ND
1,1,2,2-Tetrachloroethane	1	ND	ND
1,3-Dichlorobenzene	1	ND	ND
1,4-Dichlorobenzene	1	ND	ND
1,2-Dichlorobenzene	1	ND	ND

MRL means Method Reporting Limit
ND means None Detected at or above the MRL

Approved by Dave Ehlman Date 3/29/90

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COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
DATE ANALYZED: 03/02/90
WORK ORDER #: K90672

Volatile Organic Analytes
EPA Method 8240
µg/L (ppb)

Sample Name:		MW-4G Well #3-G	Blank Well #4-G	MW-1G Well #5-G	
Lab Code:		672-1	672-2	672-3	
Compound	MRL				
Chloromethane	1	ND	ND	ND	
Vinyl Chloride	1	ND	ND	2.2	—
Bromomethane	1	ND	ND	ND	
Chloroethane	1	ND	ND	1.3	—
Trichlorofluoromethane	1	ND	ND	ND	
Freon 113	10	ND	ND	ND	
1,1-Dichloroethene	1	ND	ND	ND	
Acetone	10	ND	ND	ND	
Carbon Disulfide	1	ND	ND	ND	
Methylene Chloride	10	ND	ND	ND	
Trans 1,2-Dichloroethene	1	ND	ND	ND	
Cis 1,2-Dichloroethene	1	ND	ND	ND	
2-Butanone (MEK)	10	37	ND	ND	
1,1-Dichloroethane	1	ND	ND	2.4	—
Chloroform	1	ND	ND	ND	
1,1,1-Trichloroethane	1	ND	ND	ND	
Carbon Tetrachloride	1	ND	ND	ND	
Benzene	1	ND	ND	ND	
1,2-Dichloroethane	1	ND	ND	ND	
Vinyl Acetate	10	ND	ND	ND	
Trichloroethene	1	ND	ND	ND	
1,2-Dichloropropane	1	ND	ND	ND	
Bromodichloromethane	1	ND	ND	ND	
2-Chloroethylvinyl ether	10	ND	ND	ND	
Trans 1,3-Dichloropropene	1	ND	ND	ND	
2-Hexanone	10	ND	ND	ND	
4-Methyl-2-Pentanone (MIBK)	10	ND	ND	ND	
Toluene	1	2.7	ND	ND	—
Cis 1,3-Dichloropropene	1	ND	ND	ND	
1,1,2-Trichloroethane	1	ND	ND	ND	
Tetrachloroethene	1	ND	ND	ND	
Dibromochloromethane	1	ND	ND	ND	
Chlorobenzene	1	ND	ND	ND	
Ethylbenzene	1	ND	ND	ND	
Styrene	1	ND	ND	ND	
Total Xylenes	1	ND	ND	ND	
Bromoform	1	ND	ND	ND	
1,1,2,2-Tetrachloroethane	1	ND	ND	ND	
1,3-Dichlorobenzene	1	ND	ND	ND	
1,4-Dichlorobenzene	1	ND	ND	ND	
1,2-Dichlorobenzene	1	ND	ND	ND	

MRL means Method Reporting Limit
ND means None Detected at or above the MRL

Approved by Dave Ehlenfeldt Date 3/29/90

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
DATE ANALYZED: 03/06/90
WORK ORDER #: K90672

Total Organic Halogens (TOX)
EPA Method 9020
µg/L (ppb)

Sample Name	Lab Code	MRL	Measured Concentration
Well #3-G	672-1	5	ND
Well #4-G	672-2	5	56 —
Well #5-G	672-3	5	16 — MW-1G
Well #6-G	672-4	5	ND
Well #7-G	672-5	5	9 —
Well #8-G	672-6	5	ND
Method Blank	672-MB	5	ND

ND means None Detected at or above the MRL
MRL means Method Reporting Limit

Approved by Dave Edelman Date 3/29/90

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APPENDIX A

LABORATORY QC RESULTS

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COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
WORK ORDER #: K90672

QA/QC Report
Duplicate Results
Inorganic Parameters
mg/L

Sample Name: Well #3-G
Lab Code: 672-1

	Method	MRL	A	B	Average	% Relative Difference
Nitrogen, Ammonia	350.3	0.05	0.14	0.15	0.14	7
TOC	415.1	0.1	1.0	1.1	1.0	10

MRL means Method Reporting Limit

Approved by [signature] Date 3-29-90

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COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
WORK ORDER #: K90672

QA/QC Report
Matrix Spike Results
Inorganic Parameters
mg/L

Sample Name: Well #3-G
Lab Code: 672-1

	Spike Level	MRL	Unspiked Sample Result	Spiked Sample Result	% Recovery
TOC	3.6	0.1	1.0	4.8	106

MRL means Method Reporting Limit

Approved by Jeff Cluthers Date 3-29-90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
WORK ORDER #: K90672

QA/QC Report
Duplicate Results
Total Metals
mg/L

Sample Name: Well #5-G
Lab Code: 672-3

	Method	MRL	A	B	Average	% Relative Difference
Arsenic	206.2	0.005	0.005	0.005	0.005	<1
Barium	200.7	0.005	0.304	0.300	0.302	1
Cadmium	200.7	0.002	0.003	ND	0.003	-
Chromium	200.7	0.005	0.029	0.027	0.028	7
Lead	239.2	0.002	ND	ND	ND	-
Selenium	270.2	0.005	ND	ND	ND	-
Silver	200.7	0.01	ND	ND	ND	-

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Jeff Christian Date 3-29-90

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COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
WORK ORDER #: K90672

QA/QC Report
Matrix Spike Results
Total Metals
mg/L

Sample Name: Well #5-G
Lab Code: 672-3MS

Element	Spike Level	MRL	Sample Result	Spike Result	% Recovery
Arsenic	0.04	0.005	0.005	0.041	90
Barium	2.0	0.005	0.304	2.24	97
Cadmium	0.05	0.002	0.003	0.045	84
Chromium	0.2	0.005	0.029	0.215	93
Lead	0.02	0.002	ND	0.018	90
Selenium	0.01	0.005	ND	0.009	90
Silver	0.05	0.01	ND	0.048	96

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by _____ Date 3-29-90

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COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
WORK ORDER #: K90672

QA/QC Report
Method Blank Summary
Total and Dissolved Metals
mg/L

Sample Name:	Method	MRL	Method Blank
Arsenic	206.2	0.005	ND
Barium	200.7	0.005	ND
Cadmium	200.7	0.002	ND
Chromium	200.7	0.005	ND
Iron	200.7	0.02	ND
Lead	239.2	0.002	ND
Manganese	200.7	0.005	ND
Mercury	245.1	0.0005	ND
Selenium	270.2	0.005	ND
Silver	200.7	0.01	ND
Zinc	200.7	0.01	ND

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Jeff Ulm Date 3-29-90

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COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 03/01/90
DATE ANALYZED: 03/02/90
WORK ORDER #: K90672

QA/QC Report
Surrogate Recovery Summary
Volatile Organic Analytes
EPA Method 8240

		Percent Recovery		
Sample Name	Lab Code	1,2-Dichloroethane - D_4	Toluene - D_8	Bromofluorobenzene
Method Blank	672-MB	107	99.5	92.1
Well #3-G	672-1	104	92.5	90.6
Well #4-G	672-2	108	93.0	99.2
Well #5-G	672-3	111	92.0	102
Trip Blank	672-7	110	97.1	104
EPA % Acceptance Criteria:		76-114	88-110	86-115

Approved by Dave Eleleman / Date 3/29/90

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/21-23/90
WORK ORDER #: K90557

Inorganic Parameters
mg/L

Parker MW-4S

Sample Name: / Lab Code:	Method	MRL	Well 15-I 557-4	Well 1-S 557-5	Well 2-S 557-6
Chloride	300.0	0.2	16.2	0.85	3.98
COD	410.1	5	12	ND	ND
Nitrogen, Ammonia	350.3	0.05	1.34	0.07	ND
Nitrogen, Nitrate	300.0	0.2	ND	0.83	0.53
Nitrogen, Nitrite	300.0	0.2	ND	ND	ND
Sulfate	300.0	0.2	0.21	1.84	1.34
TOC	415.1	0.1	3.9	0.3	0.2

ND means None Detected at or above the MRL
MRL means Method Reporting Limit

Approved by Mike Sletten Date 3/20/90

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/23-24/90
WORK ORDER #: K90557

Inorganic Parameters
mg/L

Sample Name:			MW-2S Well 3-S	MW-1S Well 4-S	Blank Well 5-S
Lab Code:			557-7	557-8	557-9
	Method	MRL			
Chloride	300.0	0.2	4.64	1.66	ND
COD	410.1	5	24	ND	ND
Nitrogen, Ammonia	350.3	0.05	0.09	ND	ND
Nitrogen, Nitrate	300.0	0.2	ND	0.55	ND
Nitrogen, Nitrite	300.0	0.2	ND	ND	ND
Sulfate	300.0	0.2	8.55	2.73	ND
TOC	415.1	0.1	7.7	0.3	1.2

ND means None Detected at or above the MRL
MRL means Method Reporting Limit

Approved by Mike Skelton Date 3/20/90

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/24/90
WORK ORDER #: K90557

Inorganic Parameters
mg/L

Sample Name:			Sauk Mtn Estates	MW-3S	Mauk Beach
Lab Code:			Well 6-S 557-10	Well 7-S 557-11	Well-8S 557-12
	Method	MRL			
Chloride	300.0	0.2	0.92	1.86	0.95
COD	410.1	5	ND	ND	ND
Nitrogen, Ammonia	350.3	0.05	ND	ND	ND
Nitrogen, Nitrate	300.0	0.2	0.42	0.45	0.41
Nitrogen, Nitrite	300.0	0.2	ND	ND	ND
Sulfate	300.0	0.2	3.87	2.02	10.9
TOC	415.1	0.1	0.3	0.2	0.1

ND means None Detected at or above the MRL
MRL means Method Reporting Limit

Approved by Mike Skelton Date 3/20/90

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/24-27/90
WORK ORDER #: K90557

Inorganic Parameters
mg/L

Sample Name:			Heavy Vening Well 9S	MW-26 Well 1-G	MW-36 Well 2-G
Lab Code:			557-13	557-14	557-15
	Method	MRL			
Chloride	300.0	0.2	1.06	24.1	32.9
COD	410.1	5	ND	ND	ND
Nitrogen, Ammonia	350.3	0.05	ND	0.14	0.13
Nitrogen, Nitrate	300.0	0.2	0.53	ND	ND
Nitrogen, Nitrite	300.0	0.2	ND	ND	ND
Sulfate	300.0	0.2	3.18	67.8	24.1
TOC	415.1	0.1	ND	0.6	0.7

ND means None Detected at or above the MRL
MRL means Method Reporting Limit

Approved by Mike Sutton Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/21-23/90
WORK ORDER #: K90557

Dissolved Metals
mg/L

Sample Name: / Lab Code:	Method	MRL	Well 15-I 557-4	Parker Well 1-S 557-5	MW-2S Well 3-S 557-7
Iron	200.7	0.02	14.0	ND	0.03
Manganese	200.7	0.005	2.05	ND	1.19
Zinc	200.7	0.01	ND	ND	ND

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Mike Sletten Date 3/20/90

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/23-24/90
WORK ORDER #: K90557

Dissolved Metals
mg/L

Sample Name:			Well 4-S (MW-15)	Well 5-S (Blank)	Well 6-S (South Mtn Estates)
Lab Code:			557-8	557-9	557-10
	Method	MRL			
Iron	200.7	0.02	ND	0.10	0.07
Manganese	200.7	0.005	0.029	ND	ND
Zinc	200.7	0.01	ND	ND	0.12

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Mike Pelton Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/24/90
WORK ORDER #: K90557

Dissolved Metals
mg/L

Sample Name:			MW-3S	Mark Berg	Henry Young
Lab Code:			Well 7-S	Well-8S	Well 9-S
			557-11	557-12	557-13
	Method	MRL			
Iron	200.7	0.02	ND	0.06	0.16
Manganese	200.7	0.005	ND	ND	ND
Zinc	200.7	0.01	ND	0.30	0.26

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Mike Sletton Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/27/90
WORK ORDER #: K90557

Dissolved Metals
mg/L

Sample Name:			MW-26 Well 1-G	MW-36 Well 2-G
Lab Code:			557-14	557-15
	Method	MRL		
Iron	200.7	0.02	ND	0.02
Manganese	200.7	0.005	0.178	0.147
Zinc	200.7	0.01	ND	ND

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Mike Skelton Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/23/90
WORK ORDER #: K90557

Total Metals
mg/L

Sample Name:			MW-4 Well 2-S	MW-2 Well 3-S	MW-1 Well 4-S
Lab Code:			557-6	557-7	557-8
	Method	MRL			
Arsenic	206.2	0.005	ND	ND	ND
Barium	200.7	0.005	0.013	0.173	0.062
Cadmium	200.7	0.002	ND	ND	ND
Chromium	200.7	0.005	ND	ND	0.011
Lead	239.2	0.002	ND	ND	ND
Mercury	245.1	0.0005	ND	ND	ND
Selenium	270.2	0.005	ND	ND	ND
Silver	200.7	0.010	ND	ND	ND

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Mike Skelton Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/23-27/90
WORK ORDER #: K90557

Total Metals
mg/L

Sample Name:			MW-4	MW-2	MW-1	MW-3
Lab Code:	Method	MRL	Well 2-S 557-9	Well 3-S 557-11	Well 4-S 557-14	Well 2-G 557-14
Arsenic	206.2	0.005	ND	ND	0.014	0.020
Barium	200.7	0.005	ND	0.007	0.062	0.046
Cadmium	200.7	0.002	ND	ND	ND	ND
Chromium	200.7	0.005	ND	ND	ND	ND
Lead	239.2	0.002	ND	ND	ND	ND
Mercury	245.1	0.0005	ND	ND	ND	ND
Selenium	270.2	0.005	ND	ND	ND	ND
Silver	200.7	0.010	ND	ND	ND	ND

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Mike Skelton Date 3/20/90

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/21/90
DATE ANALYZED: 03/05/90
WORK ORDER #: K90557

Total Organic Halogens (TOX)
EPA Method 9020
µg/L (ppb)

Sample Name	Lab Code	MRL	Measured Concentration
Well #12-I	557-1	5	48
Well #13-I	557-2	5	18
Well #14-I	557-3	5	336
Well #15-I	557-4	5	9

MRL means Method Reporting Limit

Approved by Mike Sutton Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/23/90
DATE ANALYZED: 03/05/90
WORK ORDER #: K90557

Total Organic Halogens (TOX)
EPA Method 9020
µg/L (ppb)

Sample Name	Lab Code	MRL	Measured Concentration
Well 1-S	557-5	5	ND
Well 2-S	557-6	5	ND
Well 3-S	557-7	5	(67) MW-2
Well 4-S	557-8	5	ND

MRL means Method Reporting Limit
ND means None Detected at or above the MRL

Approved by Chris Elliott Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/24/90
DATE ANALYZED: 03/05/90
WORK ORDER #: K90557

Total Organic Halogens (TOX)
EPA Method 9020
μg/L (ppb)

Sample Name	Lab Code	MRL	Measured Concentration
Well 5-S	557-9	5	ND
Well 6-S	557-10	5	ND
Well 7-S	557-11	5	ND
Well-8S	557-12	5	ND
Well-9S	557-13	5	ND

MRL means Method Reporting Limit
ND means None Detected at or above the MRL

Approved by Colin Elliott Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/27/90
DATE ANALYZED: 03/05/90
WORK ORDER #: K90557

Total Organic Halogens (TOX)
EPA Method 9020
µg/L (ppb)

Sample Name	Lab Code	MRL	Measured Concentration
Well 1-G	557-14	5	ND
Well 2-G	557-15	5	ND

MRL means Method Reporting Limit
ND means None Detected at or above the MRL

Approved by Colin Elliott Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/23/90
DATE ANALYZED: 02/27/90
WORK ORDER #: K90557

Volatile Organic Analytes
EPA Method 8240
µg/L (ppb)

MW-4S MW-2S MW-1S

Sample Name:		Well 2-S	Well 3-S	Well 4-S
Lab Code:		557-6	557-7	557-8
Compound	MRL			
Chloromethane	1	ND	ND	ND
Vinyl Chloride	1	ND	ND	ND
Bromomethane	1	ND	ND	ND
Chloroethane	1	ND	ND	ND
Trichlorofluoromethane	1	1.3	ND	ND
Freon 113	10	ND	ND	ND
1,1-Dichloroethene	1	ND	ND	ND
Acetone	10	ND	ND	ND
Carbon Disulfide	1	ND	ND	ND
Methylene Chloride	10	ND	ND	ND
Trans 1,2-Dichloroethene	1	ND	ND	ND
Cis 1,2-Dichloroethene	1	ND	1.3	ND
2-Butanone (MEK)	10	ND	ND	ND
1,1-Dichloroethane	1	ND	ND	ND
Chloroform	1	ND	ND	ND
1,1,1-Trichloroethane	1	1.4	ND	ND
Carbon Tetrachloride	1	ND	ND	ND
Benzene	1	ND	ND	ND
1,2-Dichloroethane	1	ND	ND	ND
Vinyl Acetate	10	ND	ND	ND
Trichloroethene	1	ND	ND	ND
1,2-Dichloropropane	1	ND	ND	ND
Bromodichloromethane	1	ND	ND	ND
2-Chloroethylvinyl ether	10	ND	ND	ND
Trans 1,3-Dichloropropene	1	ND	ND	ND
2-Hexanone	10	ND	ND	ND
4-Methyl-2-Pentanone (MIBK)	10	ND	ND	ND
Toluene	1	ND	ND	ND
Cis 1,3-Dichloropropene	1	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND
Dibromochloromethane	1	ND	ND	ND
Chlorobenzene	1	ND	ND	ND
Ethylbenzene	1	ND	ND	ND
Styrene	1	ND	ND	ND
Total Xylenes	1	ND	ND	ND
Bromoform	1	ND	ND	ND
1,1,2,2-Tetrachloroethane	1	ND	ND	ND
1,3-Dichlorobenzene	1	ND	ND	ND
1,4-Dichlorobenzene	1	ND	ND	ND
1,2-Dichlorobenzene	1	ND	ND	ND

MRL means Method Reporting Limit
ND means None Detected at or above the MRL

Approved by Colin Elliott Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/24-24/90
DATE ANALYZED: 02/27/90
WORK ORDER #: K90557

Volatile Organic Analytes
EPA Method 8240
µg/L (ppb)

MW-26

Sample Name:		Well 5-S	Well 7-S	Well 1-G
Lab Code:		557-9	557-11	557-14
Compound	MRL			
Chloromethane	1	ND	ND	ND
Vinyl Chloride	1	ND	ND	ND
Bromomethane	1	ND	ND	ND
Chloroethane	1	ND	ND	ND
Trichlorofluoromethane	1	ND	ND	ND
Freon 113	10	ND	ND	ND
1,1-Dichloroethene	1	ND	ND	ND
Acetone	10	ND	ND	ND
Carbon Disulfide	1	ND	ND	ND
Methylene Chloride	10	ND	ND	ND
Trans 1,2-Dichloroethene	1	ND	ND	ND
Cis 1,2-Dichloroethene	1	ND	ND	ND
2-Butanone (MEK)	10	ND	ND	94
1,1-Dichloroethane	1	ND	ND	ND
Chloroform	1	ND	ND	ND
1,1,1-Trichloroethane	1	ND	ND	ND
Carbon Tetrachloride	1	ND	ND	ND
Benzene	1	ND	ND	ND
1,2-Dichloroethane	1	ND	ND	ND
Vinyl Acetate	10	ND	ND	ND
Trichloroethene	1	ND	ND	ND
1,2-Dichloropropane	1	ND	ND	ND
Bromodichloromethane	1	ND	ND	ND
2-Chloroethylvinyl ether	10	ND	ND	ND
Trans 1,3-Dichloropropene	1	ND	ND	ND
2-Hexanone	10	ND	ND	ND
4-Methyl-2-Pentanone (MIBK)	10	ND	ND	ND
Toluene	1	ND	ND	7.8
Cis 1,3-Dichloropropene	1	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND
Dibromochloromethane	1	ND	ND	ND
Chlorobenzene	1	ND	ND	ND
Ethylbenzene	1	ND	ND	ND
Styrene	1	ND	ND	ND
Total Xylenes	1	ND	ND	ND
Bromoform	1	ND	ND	ND
1,1,2,2-Tetrachloroethane	1	ND	ND	ND
1,3-Dichlorobenzene	1	ND	ND	ND
1,4-Dichlorobenzene	1	ND	ND	ND
1,2-Dichlorobenzene	1	ND	ND	ND

MRL means Method Reporting Limit
ND means None Detected at or above the MRL

Approved by Colin Elliott Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/27/90
DATE ANALYZED: 02/28/90
WORK ORDER #: K90577

Volatile Organic Analytes
EPA Method 8240
µg/L (ppb)

MW-3G

Sample Name:		Well 2-G	Method Blank
Lab Code:		557-15	557-MB (4)
Compound	MRL		
Chloromethane	1	ND	ND
Vinyl Chloride	1	ND	ND
Bromomethane	1	ND	ND
Chloroethane	1	ND	ND
Trichlorofluoromethane	1	ND	ND
Freon 113	10	ND	ND
1,1-Dichloroethene	1	ND	ND
Acetone	10	ND	ND
Carbon Disulfide	1	ND	ND
Methylene Chloride	10	ND	ND
Trans 1,2-Dichloroethene	1	ND	ND
Cis 1,2-Dichloroethene	1	ND	ND
2-Butanone (MEK)	10	30	ND
1,1-Dichloroethane	1	ND	ND
Chloroform	1	ND	ND
1,1,1-Trichloroethane	1	ND	ND
Carbon Tetrachloride	1	ND	ND
Benzene	1	ND	ND
1,2-Dichloroethane	1	ND	ND
Vinyl Acetate	10	ND	ND
Trichloroethene	1	ND	ND
1,2-Dichloropropane	1	ND	ND
Bromodichloromethane	1	ND	ND
2-Chloroethylvinyl ether	10	ND	ND
Trans 1,3-Dichloropropene	1	ND	ND
2-Hexanone	10	ND	ND
4-Methyl-2-Pentanone (MIBK)	10	ND	ND
Toluene	1	ND	ND
Cis 1,3-Dichloropropene	1	ND	ND
1,1,2-Trichloroethane	1	ND	ND
Tetrachloroethene	1	ND	ND
Dibromochloromethane	1	ND	ND
Chlorobenzene	1	ND	ND
Ethylbenzene	1	ND	ND
Styrene	1	ND	ND
Total Xylenes	1	ND	ND
Bromoform	1	ND	ND
1,1,2,2-Tetrachloroethane	1	ND	ND
1,3-Dichlorobenzene	1	ND	ND
1,4-Dichlorobenzene	1	ND	ND
1,2-Dichlorobenzene	1	ND	ND

MRL means Method Reporting Limit
ND means None Detected at or above the MRL

Approved by Colin Elliott Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE ANALYZED: 02/22,23,27/90
WORK ORDER #: K90557

Method Blank Summary
Volatile Organic Analytes
EPA Method 8240
µg/L (ppb)

Sample Name:		Method Blank	Method Blank	Method Blank
Lab Code:		557-MB (1)	557-MB (2)	557-MB (3)
Compound	MRL			
Chloromethane	1	ND	ND	ND
Vinyl Chloride	1	ND	ND	ND
Bromomethane	1	ND	ND	ND
Chloroethane	1	ND	ND	ND
Trichlorofluoromethane	1	ND	ND	ND
Freon 113	10	ND	ND	ND
1,1-Dichloroethene	1	ND	ND	ND
Acetone	10	ND	ND	ND
Carbon Disulfide	1	ND	ND	ND
Methylene Chloride	10	ND	ND	ND
Trans 1,2-Dichloroethene	1	ND	ND	ND
Cis 1,2-Dichloroethene	1	ND	ND	ND
2-Butanone (MEK)	10	ND	ND	ND
1,1-Dichloroethane	1	ND	ND	ND
Chloroform	1	ND	ND	ND
1,1,1-Trichloroethane	1	ND	ND	ND
Carbon Tetrachloride	1	ND	ND	ND
Benzene	1	ND	ND	ND
1,2-Dichloroethane	1	ND	ND	ND
Vinyl Acetate	10	ND	ND	ND
Trichloroethene	1	ND	ND	ND
1,2-Dichloropropane	1	ND	ND	ND
Bromodichloromethane	1	ND	ND	ND
2-Chloroethylvinyl ether	10	ND	ND	ND
Trans 1,3-Dichloropropene	1	ND	ND	ND
2-Hexanone	10	ND	ND	ND
4-Methyl-2-Pentanone (MIBK)	10	ND	ND	ND
Toluene	1	ND	ND	ND
Cis 1,3-Dichloropropene	1	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND
Dibromochloromethane	1	ND	ND	ND
Chlorobenzene	1	ND	ND	ND
Ethylbenzene	1	ND	ND	ND
Styrene	1	ND	ND	ND
[illegible]l Xylenes	1	ND	ND	ND
[illegible]romoform	1	ND	ND	ND
1,1,2,2-Tetrachloroethane	1	ND	ND	ND
1,3-Dichlorobenzene	1	ND	ND	ND
1,4-Dichlorobenzene	1	ND	ND	ND
1,2-Dichlorobenzene	1	ND	ND	ND

MRL means Method Reporting Limit
ND means None Detected at or above the MRL

Approved by Edwin Elliott Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/27/90
WORK ORDER #: K90557

QA/QC Report
Duplicate Results
Dissolved Metals
mg/L

Sample Name: Well 12-I
Lab Code: 557-1

	Method	MRL	A	B	Average	% Relative Difference
Iron	200.7	0.02	44.5	42.3	43.4	5
Manganese	200.7	0.005	4.15	3.94	4.04	5
Zinc	200.7	0.01	ND	ND	ND	-

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Mike Skelton Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/21/90
WORK ORDER #: K90557

QA/QC Report
Matrix Spike Results
Dissolved Metals
mg/L

Sample Name: Well 12-I
Lab Code: 557-1MS

Element	Spike Level	MRL	Sample Result	Spike Result	% Recovery
Iron	1.0	0.02	44.5	44.5	NC
Manganese	0.5	0.005	4.15	4.55	80
Zinc	0.5	0.01	ND	0.50	100

ND means None Detected at or above MRL
MRL means Method Reporting Limit
NC means Not Calculated; sample value greater than 4 times the spike level.

Approved by Mike Sletto Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/21-27/90
WORK ORDER #: K90557

QA/QC Report
Method Blank Summary
Dissolved Metals
mg/L

Sample Name:	Method	MRL	Method Blank
Iron	200.7	0.02	ND
Manganese	200.7	0.005	ND
Zinc	200.7	0.01	ND

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Mike Shelton Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/26/90
WORK ORDER #: K90557

QA/QC Report
Duplicate Results
Total Metals
mg/L

Sample Name: Well 2-S
Lab Code: 557-6

	Method	MRL	A	B	Average	% Relative Difference
Arsenic	206.2	0.005	ND	ND	ND	-
Barium	200.7	0.005	0.013	0.013	0.013	<1
Cadmium	200.7	0.002	ND	ND	ND	-
Chromium	200.7	0.005	ND	ND	ND	-
Lead	239.2	0.002	ND	ND	ND	-
Selenium	270.2	0.005	ND	ND	ND	-
Silver	200.7	0.010	ND	ND	ND	-

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Mike Skelton Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/26/90
WORK ORDER #: K90557

QA/QC Report
Matrix Spike Results
Total Metals
mg/L

Sample Name: Well 2-S
Lab Code: 557-6MS

Element	Spike Level	MRL	Sample Result	Spike Result	% Recovery
Arsenic	0.04	0.005	ND	0.039	98
Barium	2.0	0.005	0.013	2.18	108
Cadmium	0.05	0.002	ND	0.048	96
Chromium	0.2	0.005	ND	0.203	101
Lead	0.02	0.002	ND	0.019	95
Selenium	0.01	0.005	ND	0.010	100
Silver	0.05	0.01	ND	0.051	102

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Mike Patton Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/21-27/90
WORK ORDER #: K90557

QA/QC Report
Method Blank Summary
Total Metals
mg/L

Sample Name:	Method	MRL	Method Blank
Arsenic	206.2	0.005	ND
Barium	200.7	0.005	ND
Cadmium	200.7	0.002	ND
Chromium	200.7	0.005	ND
Lead	239.2	0.002	ND
Mercury	245.1	0.0005	ND
Selenium	270.2	0.005	ND
Silver	200.7	0.01	ND

ND means None Detected at or above MRL
MRL means Method Reporting Limit

Approved by Michael Shelton Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/26/90
WORK ORDER #: K90557

QA/QC Report
Duplicate Results
Inorganic Parameters
mg/L

Sample Name: Well 1-S
Lab Code: 577-5

	Method	MRL	A	B	Average	% Relative Difference
Chloride	300.0	0.2	0.8	0.8	0.8	<1
COD*	410.1	5	30	31	30	3
Nitrogen, Nitrate	300.0	0.2	0.8	0.8	0.8	<1
Nitrogen, Nitrite	300.0	0.2	ND	ND	ND	-
Sulfate	300.0	0.2	1.8	1.8	1.8	1
TOC	415.1	0.1	9.3	9.4	9.4	1

ND means None Detected at or above the MRL
MRL means Method Reporting Limit

* Duplicate data on 557-1

Approved by Mike Stelter Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/26/90
WORK ORDER #: K90557

QA/QC Report
Matrix Spike Results
Inorganic Parameters
mg/L

Sample Name: Well 1-S
Lab Code: 557-5

	Spike Level	MRL	Unspiked Sample Result	Spiked Sample Result	% Recovery
Chloride	3	0.2	0.8	3.6	93
Nitrogen, Nitrate	3	0.2	0.8	3.7	97
Nitrogen, Nitrite	3	0.2	ND	2.9	97
Sulfate	3	0.2	1.8	4.4	87
TOC	3.6	0.1	9.3	13.2	108

ND means None Detected at or above the MRL
MRL means Method Reporting Limit

Approved by Mike Stelton Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/21/90
DATE ANALYZED: 02/23/90
WORK ORDER #: k90557

QA/QC Report
Surrogate Recovery Summary
Volatile Organic Analytes
EPA Method 8240

		Percent Recovery		
Sample Name	Lab Code	1,2-Dichloroethane - D_4	Toluene - D_8	Bromofluorobenzene
Method Blank	557-MB	105	102	101
Well #14-I	557-3	105	100	104
EPA % Acceptance Criteria:		76-114	88-110	86-115

Approved by Colin Elliott Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/21/90
DATE ANALYZED: 02/22/90
WORK ORDER #: k90557

QA/QC Report
Surrogate Recovery Summary
Volatile Organic Analytes
EPA Method 8240

		Percent Recovery		
Sample Name	Lab Code	1,2-Dichloroethane - D_4	Toluene - D_8	Bromofluorobenzene
Method Blank	557-MB	98.7	98.0	98.7
Well #15-I	557-4	104	98.2	108
EPA % Acceptance Criteria:		76-114	88-110	86-115

Approved by Colin Elliott Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/23-27/90
DATE ANALYZED: 02/27/90
WORK ORDER #: k90557

QA/QC Report
Surrogate Recovery Summary
Volatile Organic Analytes
EPA Method 8240

		Percent Recovery		
Sample Name	Lab Code	1,2-Dichloroethane - D_4	Toluene - D_8	Bromofluorobenzene
Method Blank	557-MB	92.3	94.3	99.7
Well 2-S	557-6	94.1	94.4	100
Well 3-S	557-7	86.1	93.1	103
Well 4-S	557-8	96.5	91.4	103
Well 5-S	557-9	88.3	95.2	104
Well 7-S	557-11	93.6	92.4	106
Well 1-G	557-14	95.3	94.9	108
Well 4-S	557-8MS	88.7	94.4	102
Well 4-S	557-8DMS	76.8	89.5	98.5
EPA % Acceptance Criteria:		76-114	88-110	86-115

Approved by Colin Elliott Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/27/90
DATE ANALYZED: 02/28/90
WORK ORDER #: k90557

QA/QC Report
Surrogate Recovery Summary
Volatile Organic Analytes
EPA Method 8240

		Percent Recovery		
Sample Name	Lab Code	1,2-Dichloroethane - D_4	Toluene - D_8	Bromofluorobenzene
Method Blank	557-MB	93.9	96.0	97.4
Well 2-G	557-15	83.0	96.4	99.4
EPA % Acceptance Criteria:		76-114	88-110	86-115

Approved by Colin Elliott Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/21/90
DATE ANALYZED: 02/27/90
WORK ORDER #: K90557

QA/QC Report
Matrix Spike Summary
Volatile Organic Analytes
EPA Method 8240
µg/L (ppb)

SAMPLE NAME: Well 4-S
LAB CODE: 577-8MS/DMS

Compound	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Spike Percent Recovery MS	Spike Percent Recovery DMS	EPA % Acceptance Criteria
1,1-Dichloroethene	100	ND	96.3	88.5	96.3	88.5	61-145
Trichloroethene	100	ND	96.5	94.0	96.5	94.0	71-120
Chlorobenzene	100	ND	96.0	93.2	96.0	93.2	75-130
Toluene	100	ND	85.8	83.2	85.8	83.2	76-125
Benzene	100	ND	85.3	86.2	85.3	86.2	76-127

ND means None Detected

Approved by Colin Elliott Date 3/20/90

COLUMBIA ANALYTICAL SERVICES, INC.

CLIENT: Skagit County Health Dept.
SUBMITTED BY: Ken Willis
PROJECT: Skagit County
SAMPLE DESCRIPTION: Water

DATE RECEIVED: 02/21/90
DATE ANALYZED: 03/05/90
WORK ORDER #: K90557

QA/QC Report
Matrix Spike Summary
Total Organic Halogens
EPA Method 9020
µg/L (ppb)

Sample Name	Lab Code	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Spike Percent Recovery MS	Spike Percent Recovery DMS
Well 13-I	577-2	100	18	115	115	98	98

ND means None Detected

Approved by Colin Ellcott Date 3/20/90

Feb. / Mar. 1990

Well #	code	static water elev.	Date	date sampled	temp.	conductivity	pH
MW-1S		138' 10 3/8"	3/2/90	all to top of pump assembly cap			
MW-2S		141' 4"	3/2/90				
MW-4S		143' 1/8"	3/2/90				
MW-3S			3/2/90				
MW-2G		150' 1"	3/5/90		"	"	"
MW-3G		149' 10 1/2"	3/5/90				
MW-1G		36' 8 3/4"	3/5/90	to top of casing			
MW-4G		133'	3/5/90				

Feb., 1990

Well #	code	static water elev. Date	date sampled	temp.	conductivity	pH
B-9	1-I	~~2/6/90~~	2/6/90	48.0	873	6.52
B-4	2-I		2/6/90	48.4	366	7.12
B-10	3-I		2/7/90	47.1	291	7.49
B-11	4-I		2/7/90	46.4	426	7.24
B-13	6-I		2/13/90	46.8	811	6.35
B-12	5I		2/13/90	46.4	239	7.14
B-6	7-I		2/13/90	52.0	1614	5.96
B-1	8 I		2/13/90	~~44.5~~	203	7.13
B-8	9-I		2/14/90	39.9	854	6.82
B-2	10-I		2/14/90	47.8	1511	6.04
B-3	11-I		2-14-90	47.8	1002	6.12
Chamberlain	14-I		2/20/90	50.9	4610	5.99
OW-D	12-I		2/20/90	48.7	465	6.42
[illegible]	[illegible]		[illegible]	46.5	399	[illegible]
B-5	13-I		2-20-90	48.2	439	6.55
James Parker + well	1-S	Sauk ↓	2-21-90	44.6	47.8	6.80
B-4	2-S		2/21/90	47.1	185	6.15
MW-2	3-S		2/21/90	52.2	956	6.51 *
MW-1	4-S		2/21/90	46.6	151	6.57
Field blank	5-S		2/22/90	NA	NA	NA
Sauk Mtn. Estates	6-S		2/22/90	44.2	142	6.82

well #	code	Date	Temp	Cond	pH
MW-3S	7-S	2/22/90	47.8	111	6.11
Berg	8-S	2/22/90	52.3	295	7.62
Young	9-S	2/22/90	46.0	163	6.71
MW-2G	1-G	2/26/90	52.7	729	7.88
MW-3G	2-G	2/26/90	49.6	603	7.96
MW-4G	3-G	2/28/90	53.1	727	8.42
MW-1G	5G	36' 9¾" 2/28/90 - bailed >3½ hrs.	54.5	1984	6.61
Field blank	4G	2/28/90	NA	NA	NA
Hamiter well	6-G	2/28/90	52.7	575	8.27
Dan Tibbles	7-G	2/28/90	49.6	543	7.85
Mark Tibbles	8-G	2/28/90	52.9	443	8.48