DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
REPORT OF EXAMINATION
Application for Permit
Water Right Control Number G1-27463

PRIORITY DATE	APPLICATION NO.	PERMIT NO.	CERTIFICATE NO.
May 4, 1994	G1-27463		

NAME
Freeland Water & Sewer District

ADDRESS/STREET	CITY/STATE	ZIP CODE
PO Box 222	Freeland, WA	98249

PUBLIC WATERS TO BE APPROPRIATED

SOURCE	WRIA	COUNTY
Well	6	ISLAND

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	100	80

QUANTITY, PURPOSE OF USE, PERIOD OF USE
80.00 acre-feet, Municipal, Year round as needed

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
1475 west and 900 south of the northeast corner of Section 14, Township 29N Range 2E W.M. Island County

SOURCE	QTR/QTR	SECTION	TOWNSHIP	RANGE
Well Freeland Water & Sewer District	NW 1/4 NE 1/4	14	29N	02E

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
[Attachment 1 shows location of the authorized place of use and point(s) of diversion or withdrawal]

The place of use (POU) of this water right is the service area described in the most recent Water System Plan/Small Water System Management Program approved by the Washington State Department of Health, so long as **Freeland Water & Sewer Dist** is and remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

DESCRIPTION OF PROPOSED WORKS

Freeland currently operates multiple wells with municipal-scale works. See current water system plan for details.`

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE	COMPLETE PROJECT BY THIS DATE	WATER PUT TO FULL USE BY THIS DATE
Begun	December 31, 2029	December 31, 2029

PROVISIONS

STANDARD PROVISIONS

1. **Measurements, Monitoring, Metering and Reporting**
   1.1. An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", WAC 173-173.

   1.2. Reported water use data shall be submitted via the Internet. To set up an Internet reporting account, access https://fortress.wa.gov/ecy/wrx/wrx/Meteringx/. If you do not have Internet access, contact the Northwest Region Office for forms to submit your data.

   1.3. WAC 173-173 describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements". http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html

1.4. In order to maintain a sustainable supply of water, pumping must be managed so that static water levels do not progressively decline from year to year. Water levels shall be measured and recorded monthly, using a consistent methodology. The length of the pumping period or recovery period prior to each measurement shall be constant, and shall be included in the record. Data for the previous year shall be submitted by January 31 to the Department of Ecology.

Static water levels data shall be submitted in digital format and shall include the following elements:

1. Unique Well ID Number
2. Measurement date and time
3. Measurement method (air line, electric tape, pressure transducer, etc.)
4. Well status (pumping, recently pumped, etc.)
5. Water level accuracy (to nearest foot, tenth of foot, etc.)
6. Description of the measuring point (top of casing, sounding tube, etc.)
7. Measuring point elevation above or below land surface to the nearest 0.1 foot
8. Land surface elevation at the well head to the nearest foot.
9. Static water level below measuring point to the nearest 0.1 foot.

2. **Department of Health Requirements**
Prior to any new construction or alterations of a public water supply system, the State Board of Health rules require public water supply owners to obtain written approval from the Office of Drinking Water of the Washington State Department of Health. Please contact the Office of Drinking Water at Northwest Drinking Water Operations, 20435 72nd Avenue S, Suite 200, K17-12, Kent, WA 98032-2358, (253) 396-6750, prior to beginning (or modifying) your project.

3. **Municipal Place of Use**
If the criteria in RCW 90.03.386(2) are not met and a Water System Plan/Small Water System Management Program was approved after September 9, 2003, the place of use of this water right reverts to the service area described in that document. If the criteria in RCW 90.03.386(2) are not met and no Water System Plan/Small Water System Management Program has been approved after September 9, 2003, the place of use reverts to the last place of use described by The Department of Ecology in a water right authorization

4. **Chloride Monitoring**
In November of each year, the following information shall be submitted in writing to the Department of Ecology, Northwest Region Office, Bellevue, Washington.

April and September measurements from the subject well(s) of:

- Chloride and conductivity (the chemical analysis shall be performed by a state-accredited laboratory)
- Depth to static water level (with pump off long enough to allow for stabilization)
- The chloride/conductivity sampling and the static water level measurement shall be conducted concurrently.

This data collection will assist the applicant and Ecology in determining if actions are necessary to prevent an increasing trend in chloride concentrations (an indicator of seawater intrusion). Preventative actions may include – reducing the instantaneous pumping rate, reducing the annual volume pumped, scheduling pumping to coincide with low tides, raising the pump intake, and/or limiting the number of service connections.

5. **Easement and Right-of-Way**
The water source and/or water transmission facilities are not wholly located upon land owned by the applicant. Issuance of a water right change authorization by this department does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtaining such a right is a private matter between applicant and owner of that land.

6. **Water Use Efficiency**
Use of water under this authorization shall be contingent upon the water right holder's maintenance of efficient water delivery systems and use of up-to-date water conservation practices consistent with established regulation requirements and facility capabilities.

7. **Schedule and Inspections**
Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the project location, and to inspect at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.

FINDINGS OF FACT AND ORDER

Upon reviewing the investigator's report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I find the water right permit as recommended will not be detrimental to existing rights or the public welfare.

Therefore, I ORDER the requested permit under Application No. G1-27463, subject to existing rights and the provisions specified above.

You have a right to appeal this decision. To appeal this you must:

- File your appeal with the Pollution Control Hearings Board within 30 days of the "date of receipt" of this document. Filing means actual receipt by the Board during regular office hours.
- Serve your appeal on the Department of Ecology within 30 days of the "date of receipt" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of this document that you are appealing with your *Notice of Appeal*.
- Serve and file your appeal in paper form; electronic copies are not accepted.

1. To file your appeal with the Pollution Control Hearings Board

Mail appeal to:

The Pollution Control Hearings Board
PO Box 40903
Olympia WA 98504-0903

OR

Deliver your appeal in person to:

The Pollution Control Hearings Board
4224 – 6th Ave SE Rowe Six, Bldg 2
Lacey WA 98503

2. To serve your appeal on the Department of Ecology

Mail appeal to:

The Department of Ecology
Appeals Coordinator
P.O. Box 47608
Olympia WA 98504-7608

OR

Deliver your appeal in person to:

The Department of Ecology
Appeals Coordinator
300 Desmond Dr SE
Lacey WA 98503

3. And send a copy of your appeal to:

Andrew B. Dunn, LG, LHG
Section Manager
Water Resources Program -- Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov . To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser .

If you have any questions, please contact Noel Philip of Ecology at (425) 649-7044.

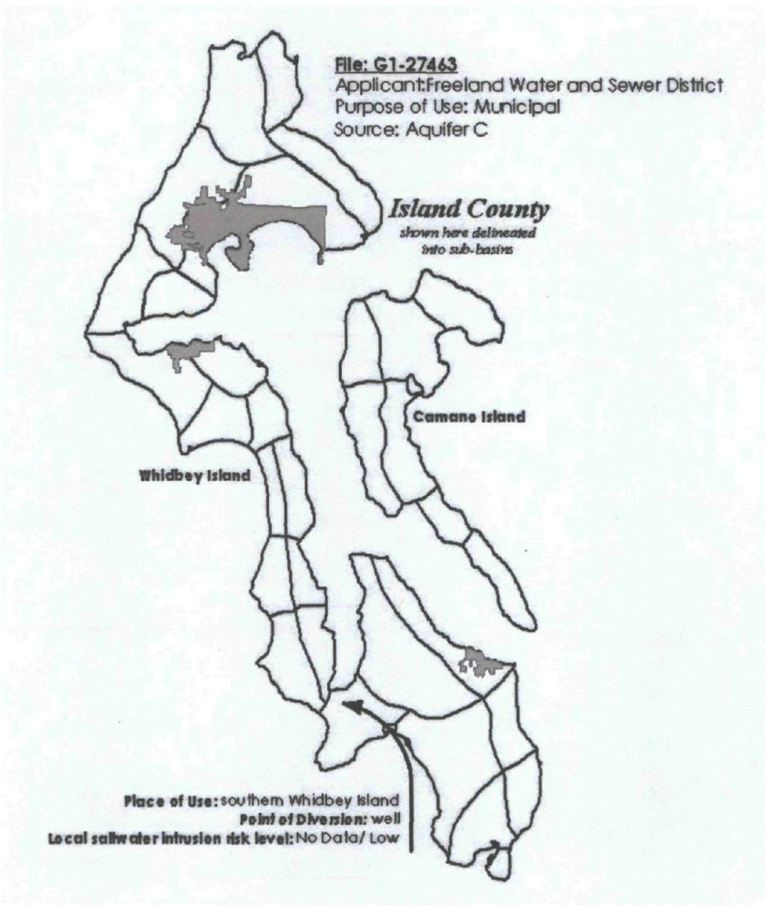
Signed at Bellevue, Washington, this 13th day of October, 2009.

Andrew B. Dunn, LG, LHG
Section Manager
Water Resources Program
Northwest Region Office

Background

Groundwater App #:	G1-27463
Applicant Name:	Freeland Water and Sewer District
Priority Date:	May 4, 1994
Source:	Well
Purpose of Use:	Municipal
Period of Use:	Year-round continuous
Notice of Publication:	Whidbey News Times, December 30, 2006, January 6, 2007
Protests:	None received during 30-day protest period
SEPA Compliance:	Exempt

Steve Arnold (Arnold) submitted Groundwater Application G1-27463 to the Department of Ecology to appropriate state waters May 4, 1994. Arnold assigned the application to Freeland Water and Sewer District (FWSD) 01/23/2009. The well is located in NW ¼ , NE ¼ of Section 14, Township 29N, Range 2E, Island County (Attachment 1). FWSD applies for permit to appropriate water to serve the water district, and in addition, the Sunnyview Farms System, where the original applicant planned water service. The current (as of memorandum date) place of use is shared with service from the Harbor Hill Water System. Any changes to the place of use can be included by updating the water system plan. FWSD already serves three connections in the Sunnyview Farms place of use.



INVESTIGATION

Whidbey Island Hydrogeology

As noted by Easterbrook (1968), Whidbey Island is generally composed of unconsolidated Pleistocene glacial and interglacial deposits overlying Tertiary and older bedrock. The Island County Groundwater Management Plan, Part A, Technical Memorandum, (GWMP) describes the groundwater flow system on Whidbey Island as a series of discontinuous water-bearing zones (sand and gravel aquifers) surrounded by zones of lower-permeable glacial sediments (silt, clay and till aquitards). All recharge to the system originates as precipitation falling on the surface of the island. Groundwater generally flows downward in the inland portions of the island then outward through the aquifers toward the coast and offshore. In these discharge areas, groundwater generally flows from deeper to shallower aquifer zones and then discharges to the sea where the aquifers intersect a cliff, beach face or ocean bottom.

The series of aquifers on Whidbey Island is complex, resulting from the deposition and erosion patterns created by at least three glaciation and three inter-glaciation periods. Although the USGS has designated five aquifer zones, termed A (oldest) through E (youngest), these zones are laterally discontinuous, vary in depth and thickness, and may be interconnected at various locations. The degree of connection with marine waters is also likely variable. As a result, the effect of withdrawing groundwater from any particular depth and location could have widely variable impacts on nearby wells and on the potential for seawater intrusion.

Hydrogeology Near G1-27463

The Arnold well is approximately 4,950 feet southeast of Holmes Harbor, Puget Sound, on southern Whidbey Island. Easterbrook describes the Whidbey Formation as glacial deposits consisting of horizontally and cross-bedded layers of sand, silt, and clay with two distinct organic (peat) layers. The well likely penetrates Aquifer C, the hydrogeologic unit commonly appearing near sea-level on Whidbey Island. The entire unit is described as a zone containing many small, separate aquifers; not one laterally continuous water-bearing zone.

Although it's been issued a unique Ecology Well Tag ID, no well log is found in Ecology's Well log Database for the Arnold well, however, a well log was supplied by the applicant. A measurement of depth performed during the

step test shows the well is 235 feet deep, with a screened interval 15 feet long. The database shows wells in the same area at similar depth with water levels beneath dry alluvium underlying a confining layer (Attachment 2). Taking these wells to exhibit unconfined conditions, the same can be inferred for the Arnold well.

Water Availability

The well was subjected to a step rate pump test that suggests water is available at the amount for which the applicant applied. Joel Purdy, a licensed Washington State hydrogeologist (#588) supervised the test and recorded data with a downhole datalogger, and manual electric-tape readings. Data submitted by the applicant allow use of working head in the well during pumping at varying rates to determine relative specific capacity and maximum theoretical yield. Figure 1 shows the relationship between theoretical yield, specific capacity and drawdown in an ideal unconfined aquifer.

Maximum drawdown is the total head in the well; 35 feet in this case. The conservative assumption made for this report is the 10-foot screen scenario. It is obvious the maximum drawdown should never be obtained in the well. In fact, it is ill-advised to pump a well to close to the top of the screen (where pump intakes are typically set), potentially damaging the pump by pumping air. In order to reduce or eliminate the hazard of drawing the water below the pump intake, enough working head must remain above the pump intake. For this reason, five feet of working head is chosen as adequate, and maximum drawdown for capacity calculations is truncated to 20 feet.

By using this figure as a baseline for available water, reasonable assumptions can be made to determine whether the well will yield 100 gpm safely (i.e. with enough working head to not pump air and be sustainable through time). The well sustained 2.6 feet (ft) drawdown while pumping 40 gpm, and 6.0 feet (ft) drawdown at 65 gpm. 2.6 feet represents about 13% maximum drawdown and 6.0 ft represents approximately 30% . This translates to about 25% and 50% of maximum theoretical yield, respectively.

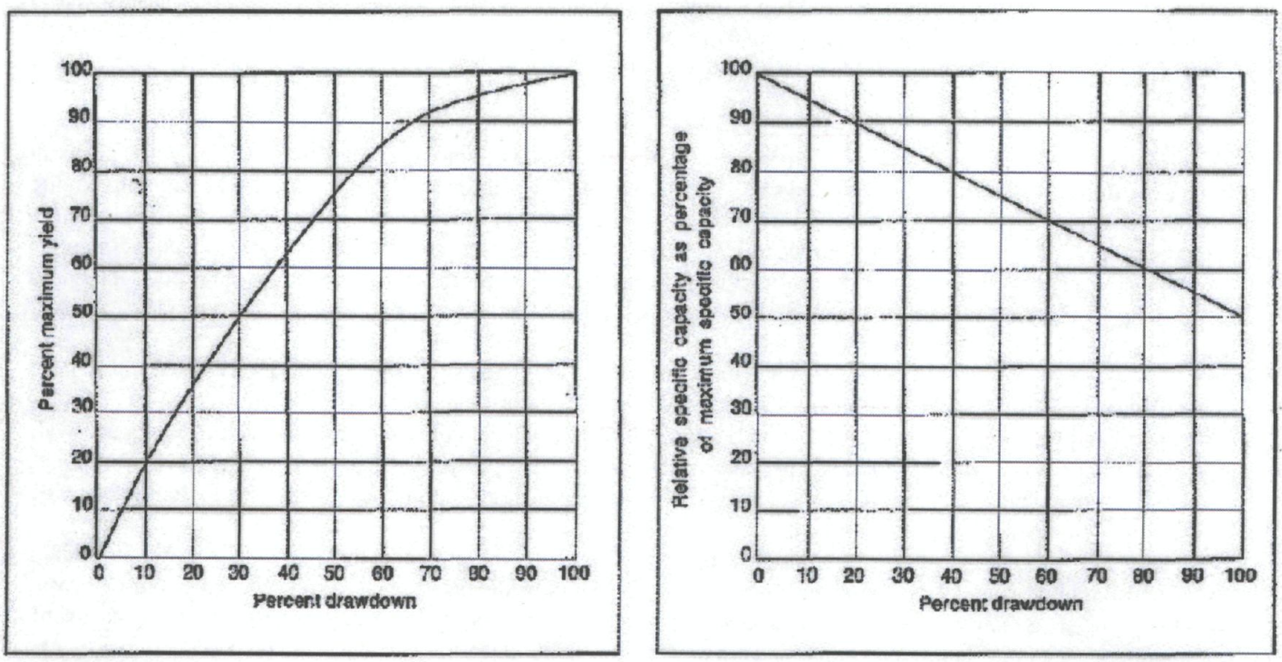


Figure 1. Relationship between percent drawdown and theoretical maximum yield and specific capacity of wells in unconfined aquifers. Modified from Driscoll, 1986.

Extrapolating maximum specific capacity and pump rate from the well from the step test figures yields obtainable maximums of 120 and 130 gpm, respectively.

The well produced 40 gpm with 2.6 feet of drawdown, or 15.3 gpm/ft. At a pumping rate of 65 gpm, it produced 10.8 gpm/ft. Using the curve on the right (Figure 1), 2.6 (13%) and 6.02 ft drawdown (30%) relates to a relative specific capacity of about 95% and 85%, respectively. This suggests maximums of about 16.1 gpm/ft and12.7 gpm/ft, when dividing relative specific capacities by their corresponding percentages. Using maximum drawdown of 20 feet (100%), the aquifer would produce 5 gpm/ft to achieve the target 100 gpm. If this represents 50% specific capacity (10 gpm/ft), it seems likely the well will provide Freeland with 100 gpm.

After a discourse with representatives for Freeland regarding future expansion and water needs, parties of interest (including Ecology) determined 80 afy is appropriate for this water right permit based on a half-time duty schedule for the Arnold well. This will not fully serve Freeland's growth. However, it will provide Freeland ample water for growth at 20 connections per year (per Freeland's water system plan, 2004) through 2022. During this time Water Right Application G1-28039 can be pursued for an additional water appropriation permit.

Potential for Seawater Intrusion

The greatest threat to groundwater in Island County is seawater intrusion. The potential for seawater intrusion relates to the elevation of the groundwater (or potentiometric surface) relative to sea level. Aquifers having little or no groundwater head above sea level are susceptible to intrusion. Other factors such as recharge rate, pumping rate,

aquifer transmissivity, hydraulic gradient, seasonal variation, and the geometry of the aquifer can influence the distribution and magnitude of seawater intrusion resulting from any particular withdrawal. Increasing concentrations of chloride in groundwater can be an indication of seawater intrusion. Unaffected groundwater in Island County generally contains a chloride concentration between 10-20 mg/L. Concentrations of 100 mg/L or greater provide evidence of seawater intrusion unless other sources of chloride are present such as naturally occurring hard groundwater.

The Island County Health Department ranking system classifies the area of withdrawal as high to very high risk for seawater intrusion. While the subject wells themselves show no signs of seawater intrusion, long term pumping may encourage the advancement of the saltwater-freshwater interface throughout the lifetime of the permit, to say nothing of water use in perpetuity. Such an event would impair the use of wells along the coast. Impairment is discussed in the next section.

Water quality data from samples taken throughout the test from the well shows little variation. The most recent data from samples collected in 2005 show similar chemistry levels: 23, 21, and 20 mg/L chlorides and 420, 430, 420 mhos conductivity. Regular, diligent monitoring and reporting will describe the current health and help administrators prevent degradation of the aquifer.

Impairment Considerations

Groundwater wells at greatest risk of potential impairment are those which are completed in the same aquifer zone as the subject well, located in close proximity to the subject well, and also located hydrogeologically down-gradient from the subject well. As water in the aquifer travels toward wells located down-gradient from the subject well, the subject well may potentially capture this water and impair the production of down-gradient wells. Also, surface water diversions located within a close proximity of the subject well may potentially be impacted by the groundwater withdrawal, depending upon hydraulic continuity of the aquifer and surface water body. An arbitrarily, yet conservatively chosen area of one-half mile (1/2-mile) is used to define "close proximity." This value is justified experimentally based on current and historical pump test data showing negligible drawdown, and therefore unlikely impairment to wells or surface water diversions, induced by groundwater withdrawal at distances of 1000 feet in most cases. Furthermore, it is widely understood the aquifer systems in Island County are not laterally continuous, suggesting physical barriers exist in addition to limiting hydraulic conditions.

The Department of Ecology Water Rights Application Tracking System (WRATS) and Well Log databases and the Island County Hydrogeology database (March 2003) show the existence of 4 water right certificates and permits, and 19 water right claims within a 1/2-mile radius of the Arnold Well. Some of the 33 wells of record within one half mile are likely tied to these water rights, and some are likely exempt from the application process. Still others may be sources for existing water right certificates or claims under a different name.

A water right claim is a statement describing the beneficial use of water occurring prior to the adoption of the water right codes and is not authorized by a state-issued permit or certificate. It is unknown whether the nearby claims are valid, not valid, or once valid and now relinquished back to the state. Department of Ecology cannot verify the validity of these claims, as water right claims can only be confirmed in an adjudication by the Washington State Superior Court. Should the source ever be adjudicated, and the claims held to be valid, it's possible the municipal use permit issued to Freeland could be diminished in water rate or volume to accommodate senior water right holders. The Exempt withdrawal of public groundwater is defined in RCW 90.44.050.

Washington water law does not consider drawdown to be an impairment of existing water rights, unless the affected wells fully penetrate the aquifer and can no longer produce their allocations. The aquifer shows adequate capability to produce water in the amount requested, and recover fully. The aquifer test occurred during the regular duty cycles of nearby wells; an unfortunate occurrence for testing aquifer properties. However, this is advantageous in judging whether catastrophic dewatering might occur from multiple withdrawals. None were noted from pumping the Arnold well. Therefore, impairment to any senior water rights due to pumping of the Arnold wells is deemed unlikely.

Public Interest Considerations

Factors considered in determining whether this use of water is in the public interest include but were not limited to: consideration given to exempt wells; existing water right certificates, applications, and claims; potential impacts to the aquifer subject to withdrawal as it pertains to drawdown and water quality (i.e. sea-water intrusion); beneficial use of water as a resource defined in this report. No detriment to the public interest could be identified during the investigation of the subject application. Available data show existing wells in the area are not expected to be impaired by the anticipated operation of the subject well.

Consideration of Protests and Comments

No protests were filed against this application.

CONCLUSIONS

Based on the hydrogeologic evaluation and preliminary assessment of potential impairment to existing rights, Ecology recommends groundwater application G1-27463 be approved for an allocation of 80 acre-feet per year and 100 gpm.

Provisions to the permit should include regular monitoring of chloride levels and static water levels in April and September each year. Metering the source is also necessary, and the applicant should report the water quality and metering data yearly. I recommend that the application for permit be approved in the amounts and within the limitations listed below and subject to the provisions beginning on Page 2, et seq.

Purpose of Use and Authorized Quantities

The amount of water recommended is a maximum limit and the water user may only use that amount of water within the specified limit that is reasonable and beneficial:

- 100 gpm
- 80 acre-feet per year
- Municipal, year round as needed.

Point of Withdrawal

NW¼, NE¼, Section 14, Township 29 North, Range 2 E.W.M.

Place of Use

As described on Page 1 of this Report of Examination.

Report by: _____ Date 10/07/2009

Noel S. Philip
Water Resources Program

If you need this publication in an alternate format, please call Water Resources Program at (360) 407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

CG RT - 5825
Appli 7797
Permit 7499

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT

WELL LOG No /

Date October 5, 1967

Record by Driller

Source Driller's record

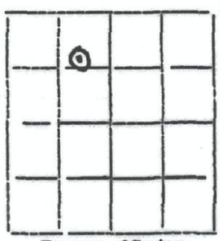


Diagram of Section

Location State of WASHINGTON

County Island

Area

Map

NE ¼ NW ¼ sec 14 T 29N R 2E E W

Drilling Co Alton L Nelson

Address Route 2, Box 492, Oak Harbor, Wash

Method of Drilling Driven Date Dec 15 1965

Owner Freeland Water District

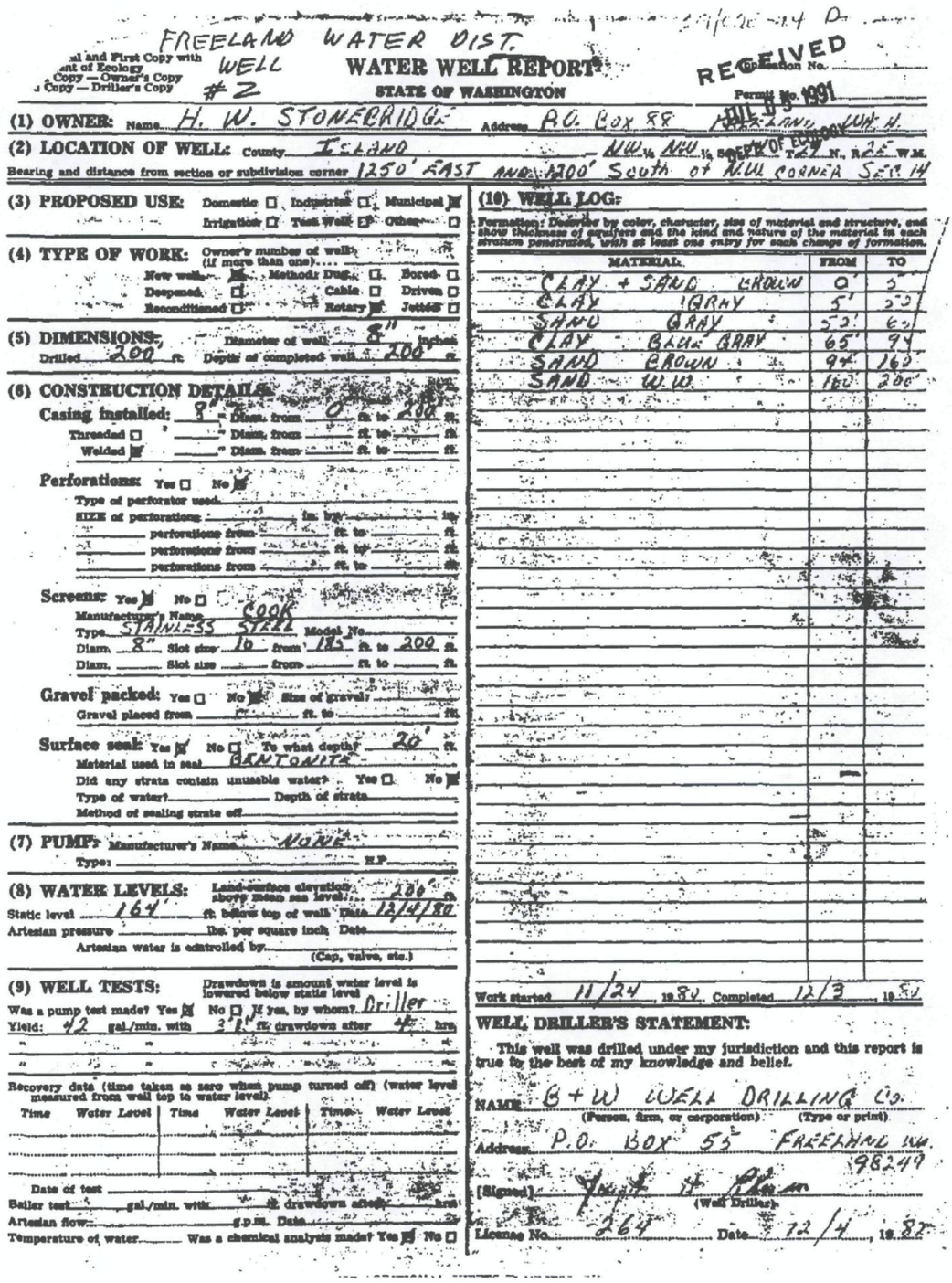
Address Freeland, Washington

Land surface, datum ft above below Dims 6" x 257'

SWL 243' 12-15-65

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	(Transcribe driller's terminology literally but paraphrase as necessary in parentheses If material water bearing so state and record static level if reported Give depths in feet below land surface datum unless otherwise indicated Correlate with stratigraphic column if feasible Following log of materials list all casings perforations screens etc)		
	Municipal		
	Sand, Dirty	0	42
	Clay, Sandy, brown	42	47
	Clay, sandy, blue	47	58
	Clay, blue	58	92
	Clay, sandy, blue	92	106
	Sand, dirty	106	118
	Clay	118	127
	Clay, sandy	127	156
	Sand, dry	156	233
	Sand, clean	233	260
	Clay, gravelly	260	
	Casing 10" from 0' to 50'		
	8" from 50' to 250'		
	Surface seal 0' to 10'		
	concrete		

Turn up Sheet of sheets



FREELAND WATER DIST. WELL #2

WATER WELL REPORT

STATE OF WASHINGTON

RECEIVED

Application No.

Permit No. 1991

(1) OWNER: Name H. W. STONEBRIDGE Address P.O. BOX 88 FREELAND WA.

(2) LOCATION OF WELL: County ISLAND NW¼ NW¼ Sec. 14 T. 29 N., R. 2E W.M.

Bearing and distance from section or subdivision corner 1250' EAST AND 1200' South of N.W. CORNER SEC. 14

(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 8" inches. Drilled 200 ft. Depth of completed well 200 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8" Diam. from 0 ft. to 200 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 COOK

Type STAINLESS STEEL Model No.

Diam. 8" Slot size 10 from 185 ft. to 200 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 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 NONE

Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level 220'

Static level 164' ft. below top of well Date 12/4/80

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? Driller

Yield: 42 gal./min. with 3' 1" ft. drawdown after 4 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 ☐

(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
CLAY + SAND BROWN	0'	5'
CLAY GRAY	5'	53'
SAND GRAY	53'	65'
CLAY BLUE GRAY	65'	94'
SAND BROWN	94'	160'
SAND W.W.	160'	200'

Work started 11/24 19 80 Completed 12/3 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 B+W WELL DRILLING CO. (Person, firm, or corporation) (Type or print)

Address P.O. BOX 55 FREELAND WA. 98249

[Signed] (Well Driller)

License No. 264 Date 12/4 19 80

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

WELL DRILLING
ADVISORY SERVICE
WELL TESTING

JAMES L. BELL
WATER WELL
DRILLING
FORMERLY JAMES J. BELL & SON EST. 1936

6116 FOURTH AVENUE SO.
SEATTLE 8, WASH.
OFFICE:
PA 3-2466
RESIDENCE:
CH 3-8271

Island County
WATER WELL REPORT

29N-02E-14C

October 13, 1967

Ideal Investments, Inc.
Box 223
Clinton, Washington 98236

#1

Well Log

0	-	8	Fill
8	-	30	Brown clay and sand
30	-	61	Blue clay and silt
61	-	171	Brown clay and sand
171	-	185	Brown sand
185	-	208	Coarse brown sand and gravel, water bearing

5' of 6" No. 16 slot Johnson Everdur screen with 4" bail-down fittings. 6' of 5" pipe on top with figure K packer.

Total depth of well 208'
Static water level 178' pumping 15 G.P.M.
Draw-down of 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

Start Card No. 043878

21/2E/11 Q

Water Right Permit No. _____

(1) OWNER: Name P THORNTON Address 1842 E Hiwy 525 FREELAND

(2) LOCATION OF WELL: County ISLAND SW ¼ SE ¼ Sec. 11 T. 29 N., R. 2E W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 1842 E Hiwy 525 FREELAND 98249

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

(4) TYPE OF WORK: Owner's number of well (if more than one) 1

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

(5) DIMENSIONS: Diameter of well 6 inches. Drilled 166 feet. Depth of completed well 166 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 161 ft. Welded ☒

Liner installed ☐ " Diam. from ft. to ft.

Threaded ☐ " 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 COOK

Type STAINLESS Model No.

Diam. 6 Slot size 10 from 161 ft. to 166 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 - BENTO

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 170 ft.

Static level 145 ft. below top of well Date 8-91

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 gal./min. with 10 ft. drawdown after — hrs.

Airtest gal./min. with stem set at ft. for hrs.

Artesian flow g.p.m. Date

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

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

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 information.

MATERIAL	FROM	TO
SANDY CLAY	0	55
DIRTY SAND	55	100
SANDY CLAY	100	110
SAND	110	145
WATER IN SAND	145	166

ISLAND COUNTY B.O.H. REGS.

WELL LOCATED WITH 100' RADIUS

RECEIVED

AUG 27 1991

DEPT. OF ECOLOGY

Work started Aug 19 Completed 8-7 19 91

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME WHIDREY WELL (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address OAK HARBOR WA

(Signed) [signature] (WELL DRILLER) License No. 129

Contractor's Registration No. [illegible] Date Aug 19 91

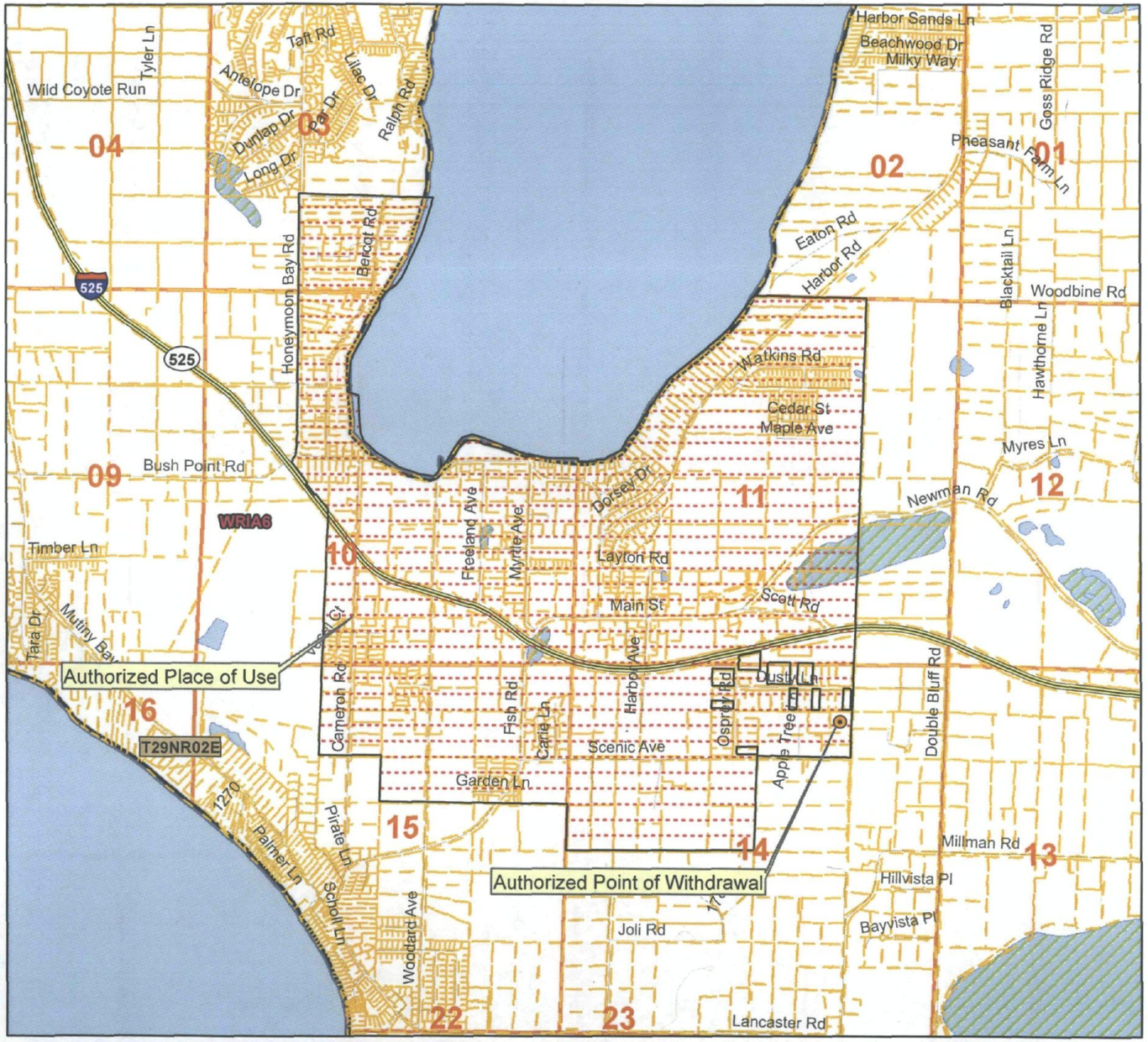
(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1320-

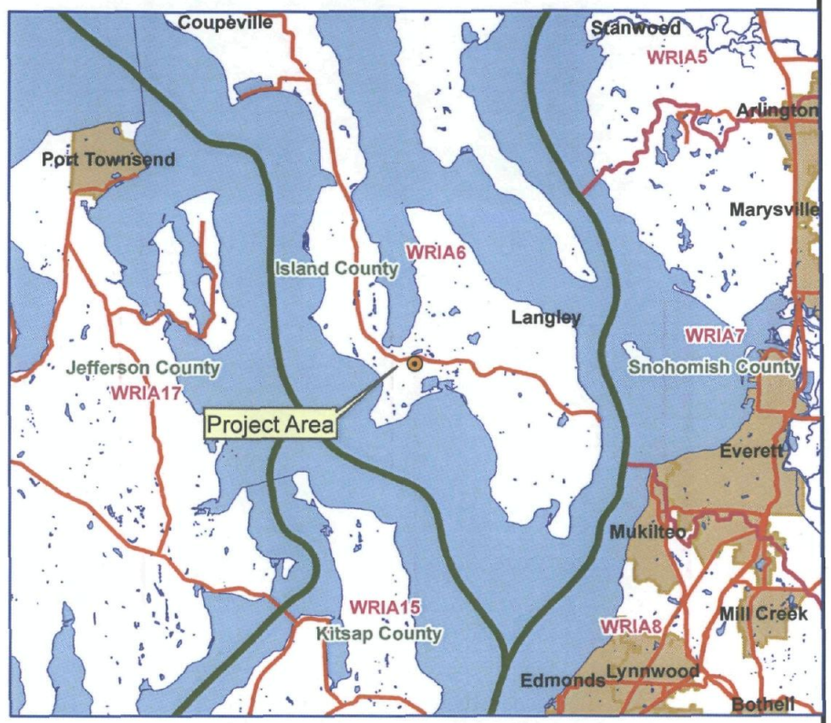
The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

Freeland Water & Sewer District
Permit Number G1-27463
Sec.14, T 29N, R 02E W.M.
WRIA 6 - Island County

DEPARTMENT OF ECOLOGY
State of Washington



1,500 750 0 1,500 3,000 4,500
Feet



5 2.5 0 5 10
Miles

Legend

- County
- WRIA
- Highways
- Townships
- cities
- Sections
- Authorized Point of Withdrawal
- Authorized Place of Use

Place of use and point(s) of diversion/withdrawal are as defined on the cover sheet under the headings, 'LOCATION OF DIVERSION/WITHDRAWAL' and 'LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED.'

Attachment 1