

**TECHNICAL MEMORANDUM**  
on the  
**HYDROGEOLOGY**  
of a  
**CARA**  
**(Critical Aquifer Recharge Area)**  
associated with the property of  
**Three Former City Wells**  
for the  
**City of La Center, Washington**

**location:**  
**Clark County Tax Parcel #'s**  
**258910000, 258913000, & 258968000**

**Date of Report:**  
February 18, 2022

**Work Done For:**  
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## 1.0 INTRODUCTION AND OBJECTIVE OF REPORT

The following memorandum summarizes an investigation of a CARA (Critical Aquifer Recharge Area) located north of the municipal boundary and within the Urban Growth Area of La Center, WA (see Figure 1 and 4). This CARA is associated with three former municipal wells located on property now privately owned. The investigation is specifically related to the proposed development of the three tax parcels 258913000, 258968000 and 258909000 each of which has one of the three former municipal wells located on them (see Figure 2). The intention of the owner of these three parcels is to consolidate parcels 25896800 and 258909000 through a lot-line adjustment and build an 1,840 square foot (SF) duplex on the consolidated property. The remaining parcel, 258913000, will have an 1,840 square foot single family residence constructed on it (source: City of La Center File# 2021-008-BLA). As a condition to the lot-line adjustment the City of La Center on May 13, 2021 required that the CARA designation associated with the former city wells be addressed. The focus of this memorandum is to present known hydrogeologic conditions associated with the project site and surrounding area as well as document the construction and final decommissioning of three municipal water wells. With the removal of the wells and sale of the property to private owner the need for a CARA has been removed and it is proposed in this technical memorandum that the CARA to be vacated.

## 2.0 CRITICAL AQUIFER RECHARGE AREA (CARA)

The Washington Administrative Code (WAC) [Chapter 365-190](#) uses the following definition for a CARA:

*“Areas with a critical recharging effect on aquifers used for potable water are areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water”.*

The area presently designated as a CARA associated with the project site is shown in Figure 4. Defining this area as a critical aquifer recharge area is considered to have originated from the presence of three municipal groundwater production wells installed by the City of La Center. Protection of water quality recharging this aquifer would justify this designation and the boundaries of the area would be set by criteria as designated in WDOE ‘Critical Aquifer Recharge Areas Guidance Document (2005). However, all three municipal water wells have been decommissioned and municipal water is now supplied to the city by Clark Public Utilities whose multiple sources are located far from the site (personal communication Barry Lovingood, civil engineer, Clark Public Utilities).

## 3.0 HYDROGEOLOGY

The local soil and hydrogeology surrounding and beneath the project property affects how and whether any contamination originating from the surface could enter the

underling aquifer. A migration pathway considered the most likely would be through water well borehole outside well casings. This potential pathway is addressed in this memorandum. Two primary sources of information on subsurface conditions have been used in the assessment of the project site, they are: USGS Water Supply Paper 1600 (Mundorff, 1964) and Well Report logs of wells in and near the project property (WDOE, Water Well Reports digital library).

The geology underlying the project site and surrounding area is a regional sedimentary unit referred to as the Troutdale Formation. This formation, in the 1964 USGS report, is divided into an upper member of sand and gravel and a lower member predominantly of silt and clay (see Figures 5 and 5a). Wells drilled on and near the project property are all drilled, from the surface to the bottom of the wells, into the lower member of the Troutdale Formation. Because of the finer grain size predominating, the lower member of the Troutdale Aquifer system is known for lower yield wells. The two wells on the project site (well #1 and #3) had yields of 75 gpm both with specific capacities of 0.88 gpm/ft-dd and well #2 had a yield of 200 gpm and specific capacity of 3.08 gpm/ft-dd. A characteristic of the lower Troutdale member is surface infiltration to the aquifer is impeded by the moderately low permeability of the overlying formation. Examples of this is a clay layer logged in the upper 68 feet of Wells #1 and #2 and a 29-foot-thick clay unit reported in project site Well #3.

Local groundwater table has been reported in the former municipal wells to be between 115 feet (elevation 275 feet) in 1954, and 171 feet (elevation 229) in 1984 (the last available measurement). Regional water table elevation and area water table contours are shown in Figure 3 (from the USGS, 1964). This figure shows the elevation of Wells #2 and #3 (identified as G2 and G3 by the USGS) being at approximate 400 feet and the water table at elevation of about 180 feet (considered too low compared to other measurements). However, Figure 3 shows the flow direction (arrows perpendicular to the water contours) beneath the project property to be south-southwest. This flow direction would have likely been used to define the upgradient outline of the CARA boundary for these public water wells (see Figure 4).

In the next section construction, lithology and decommissioning of the three project-site public wells are discussed. With the description of the wells incorporated with our understanding of the hydrogeologic characteristics of the area, a case is presented to remove the requirement for a CARA from this area as it is no longer needed to protect a public water system now abandoned.

#### **4.0 PROJECT SITE WELLS (FORMER CITY WATER WELLS)**

There are three former public groundwater production wells on the project site, one on each of the three original tax parcels (see Section 1.0 and Figure 2). In this report these wells are referred to here as Wells #1, #2 and #3 although other designations have been assigned to these wells by various authorities and a correlation of the well numbers to the wells is presented in Tables 1 and 2 (see Appendix B). The following summarizes each well construction, lithology and decommissioning.

#### 4.1 Well #1

The first well (identified here as Well #1a) has a Water Report number of 270260 (see Appendix C1). This well was drilled into tax parcel #258910000 to a reported depth of 231 feet in December, 1951. This well was tested and found capable of producing 75 gallons per minute (gpm) with a drawdown of 85 feet which calculates to a specific capacity of 0.88 gpm/ft dd. This is considered a low yield (and specific capacity) for a municipal well. The well log describes a lithology beginning with 68 feet of clay below the ground surface, followed by a 29-foot unit of clay and sand, overlying 123 feet of loose wet sand ('quicksand'), then a 4-foot-thick coarse water-bearing sand with some gravel at a depth of between 227 and 231 feet below grade. A steel casing for Well #1a extends from the surface to a reported depth of 229 feet (note: this is considered an error as later well work reported the casing extended to a depth of 255 feet). The original well casing had no perforations or well screen, requiring the well to draw water directly from the bottom of the well casing.

Documents obtained from the Washington Dept. of Ecology indicated the city commissioned a second (identified in this report as Well #1b with a Well Report ID# 8100 (see Appendix C1). This boring event occurred in October, 1953 and resulted in a borehole drilled to 490 feet (no casing installed below 100 feet). Flow on the boring resulted in a yield of only 12 gpm and according to the well report, the boring was 'abandoned'.

Alterations were recorded for Well #1a in July, 1980 (described below). In the interim, another project-site well (Well #2) was drilled and constructed (described in Section 4.2).

In 1980 the city had Well #1a altered in an effort to increase yield and decrease sand content in well water (see Well Report ID# 8101 in Appendix C1). This alteration involved perforating the well casing between the depths of 235 and 242 feet, telescoping a 6" slotted casing from 239 to 255 followed by installing a gravel filter pack between the 8" and 6" casings the depth of 255 up to 255 feet while the 8" casing was being pulled up to expose the slotted pipe to the aquifer. This work restored yield in Well #1a to 72 gpm and increased specific yield to 1.92 gpm/ft-dd. Then, sometime between 1980 and December, 2015 the city ceased to use Well #1a and the well was decommissioned in 2015 (see decommissioning Well Report ID #1313139, Appendix C1).

Decommissioning included cutting off the 8" steel casing at a depth of 221 feet and pulling the steel casing out while filling the borehole with 3/4" bentonite chips. Removal of the steel casing and plugging the bore hole with bentonite is a good technique for decommission a well because it reduces likelihood of any infiltration conduits remaining in the former well borehole outside the steel casing. Bentonite is a natural clay commonly used in decommissioning water wells because when hydrated by groundwater it swells and tightly seals surrounding pores and cavities. Hydrated bentonite has very low permeability (commonly used to seal the bottom of ponds and canals). Methods described in the decommissioning well report for Well #1a, indicates the drillers (license #1294) followed methods that met Washington State decommissioning standards as described in WAC 173-160-381.

In addition to the decommissioning of Well #1a, it should be noted the presence of the 68-foot-thick clay layer logged from the ground surface would act as a natural barrier to any surface contamination that might occur in the vicinity of the former well.

#### 4.2 Well #2

The second project site well (Well #2) was installed on tax parcel #258913000 (described as being 100 feet northeast of Well #1a). The well borehole was drilled to a depth of 252 feet in August, 1954. This well had an 8" diameter casing extending from the surface to a maximum depth of 252 feet. Well #2 was tested and found capable of producing 200 gallons per minute (gpm) with a drawdown of 65 feet (specific capacity of 3.08 gpm/ft dd). This is considered a good yield for the lower member of the Troutdale aquifer and more than twice that of Well #1a. The drill well log indicates the same stratigraphy as Well #1a, i.e., a 68-foot layer of clay underlying the property, followed by 29 feet of clay and sand, overlying 123 feet of loose wet sand ('quicksand'). The water bearing unit, however, was a 19-foot-thick coarse water-bearing sand with some gravel between 231 and 250 feet below grade. The well was bottomed in 'blue lava ash', considered here as clay (see well report ID 270759 in Appendix C1). The casing for Well #2 was perforated between the depths of 242 and 250 feet, in the water-bearing coarse sand and gravel zone.

Well #2 was used by the city from 1953, when it was installed, until some unknown time before December 10, 2015 when the well was decommissioned. The 'abandonment' log indicates the process followed that was used for Well #1a was also used for Well #2. All 252 feet of steel casing was removed and 3/4" diameter bentonite chips were poured into the borehole while the casing was being removed (see abandonment well report ID #1313208 in Appendix C1). As with Well #1a, the procedure described by the licensed driller meets State decommissioning guidelines.

#### 4.3 Well #3

The third well (Well #3) was installed on tax parcel #25896800. The borehole for this well was drilled to a maximum depth of 281 feet in November 1984. An 8" diameter steel casing extends from the surface to a depth of 223 feet where a stainless-steel telescoping screen with three intervals of slot sizes was installed from a depth of 220.25 feet to a final depth of 257 feet. The interval of borehole between 257 and 281 was filled with pea-gravel. The casing is reported to have been cut at a depth of 257 feet and presumed to have been pulled back to 223 feet to expose the stainless-steel screen to the surrounding aquifer. A gravel filter pack was reported as having been installed between 33.5 feet and 90 feet. However, this is considered an error as no water was logged in this zone and no screens are presumed to have been installed in that interval. It is presumed the gravel pack was placed behind the interval where the stainless-steel screen was installed (i.e., between 220'3" and 257').

A flow test was done on Well #3 using an air-lift drill stem set at 256 feet. Results indicated a yield of 75 gpm with an 85-foot drawdown (specific capacity of 0.88 gpm/ft-dd). The specific gravity of Well #3 was the same as that for Well #1.

Well #3 was available for use by the city until its decommissioning in December, 2015 (see 'abandonment' well report #1313048 in Appendix C1). The decommissioning of Well #3 occurred at the same time as Well #1 and #2. The well casing in Well #3 was cut off at a depth of 255 feet and the borehole was filled with ¾" bentonite chips as the steel casing was pulled out of the ground.

All three former city water wells were decommissioned in December of 2015 by the same licensed driller (license #1294) and based on the decommissioning logs all procedures followed State regulations for decommissioning water wells.

#### 4.4 Local Wells

A search of additional well reports was completed for an area within ¼ mile of the project site. Six well reports were found. The well locations of these wells are shown on Figure 2. Note that most wells were located only within the ¼ section and only within the section resulting in poor identification of actual well location. Wells ranged from 100 feet to 503 feet deep and yields of between 3 and 20 gpm. Well logs for these wells are presented in Appendix C2.

### 5.0 CONCLUSIONS AND RECOMMENDATIONS

The designation of the three tax parcels (258913000, 258968000 and 258909000) and surrounding area located adjacent and north of La Center municipal boundary as being in a Critical Aquifer Recharge Area is based on the presence of three La Center municipal groundwater wells all located in these three tax parcels. Since the formation of the CARA, these municipal wells have all been decommissioned and the property on which the city wells existed has been sold to private owners, preventing any future installation of municipal wells. Water well reports have been obtained for all three municipal wells from WDOE digital files. These reports show lithology of the aquifer and construction of wells.

Review of well construction, site lithology, hydrogeology and decommissioning process suggests that municipal use of groundwater from this property has ceased and will not occur in the future. The decommissioning of the wells is considered to have been done according to Washington State standards. Also, lithology of the area indicates that a unit of clay unit between 29 and 68-feet thick exists below the ground surface and is considered likely to act as a barrier to any future inadvertent releases of contaminants originating on the project property. Therefore, the conclusion of this memorandum is that the CARA is no longer necessary for the former municipal wells and could be vacated.

The proposed development of the three tax parcels on which the three municipal wells were located would be for residential use. The owner has indicated that a single-family dwelling and a duplex will be constructed on the property. These structures will obtain water from a municipal water system operated by Clark Public Utilities which obtain water far from the project site. Sewage from the new structures will be delivered to a municipal treatment plant through a pipe system located in North Fork Road, no drainfields are planned for this development.

Based on the findings and documents presented in this memorandum, it is our conclusion that the aquifer system will not be threatened by the proposed development and the City of La Center may consider vacating the CARA designation of the project property and surrounding area.



## 6.0 REFERENCES

1. Morgan, L., 2005, Critical Aquifer Recharge Areas Guidance Document, Washington State Department of Ecology, Water Quality Program, Publication #05-10-028.
2. Mundorff, M.J., 1964, Geology and Ground-Water Conditions of Clark County Washington, with a Description of a Major Alluvial Aquifer Along the Columbia River, Geological Survey Water-Supply Paper 1600

## 7.0 REPORT LIMITATIONS

Possession of this report, or a copy thereof, does not carry with it the right of publication. This report is solely for the use and information of the initial employer (client) unless otherwise noted in writing, and shall only be used with properly written qualification and in its entirety.

Data used in this report was developed based on data collected from one site visit and from data obtained from publicly available reports. RNSA has no authority over data developed by authors of reports or well logs and presumes data is correct and accurate. RNSA takes no responsibility for errors or omissions created by them.

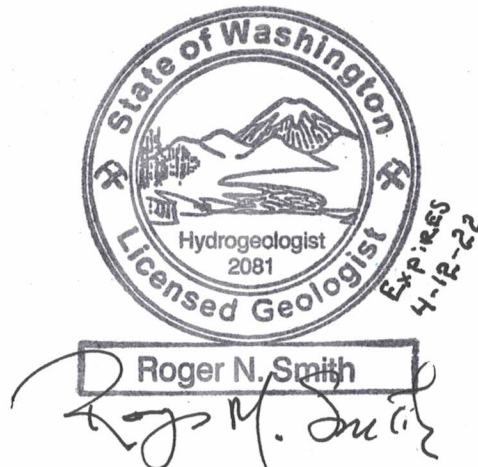
The liability of the consultant (RNSA), its employees and subcontractors are limited to the initial employer (client) only, and only up to the amount of the fee actually received for services provided.

Although data developed by RNSA and presented in this report were collected, analyzed and interpreted in accordance with generally accepted professional standards; extrapolation of the data based on subsurface soil and ground water sampling data does not guarantee similar conditions exist between observation and sampling points. No other warranty, express or implied, is made. Therefore, anyone using the information presented in this report does so at his or her own risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. Further, we do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

If conditions have not been identified during this study, such a finding, or lack thereof, should not therefore be construed as a guarantee of the absence of such conditions at or nearby a site, but rather the result of the services performed within the scope, limitations, and cost of the work assigned and performed.

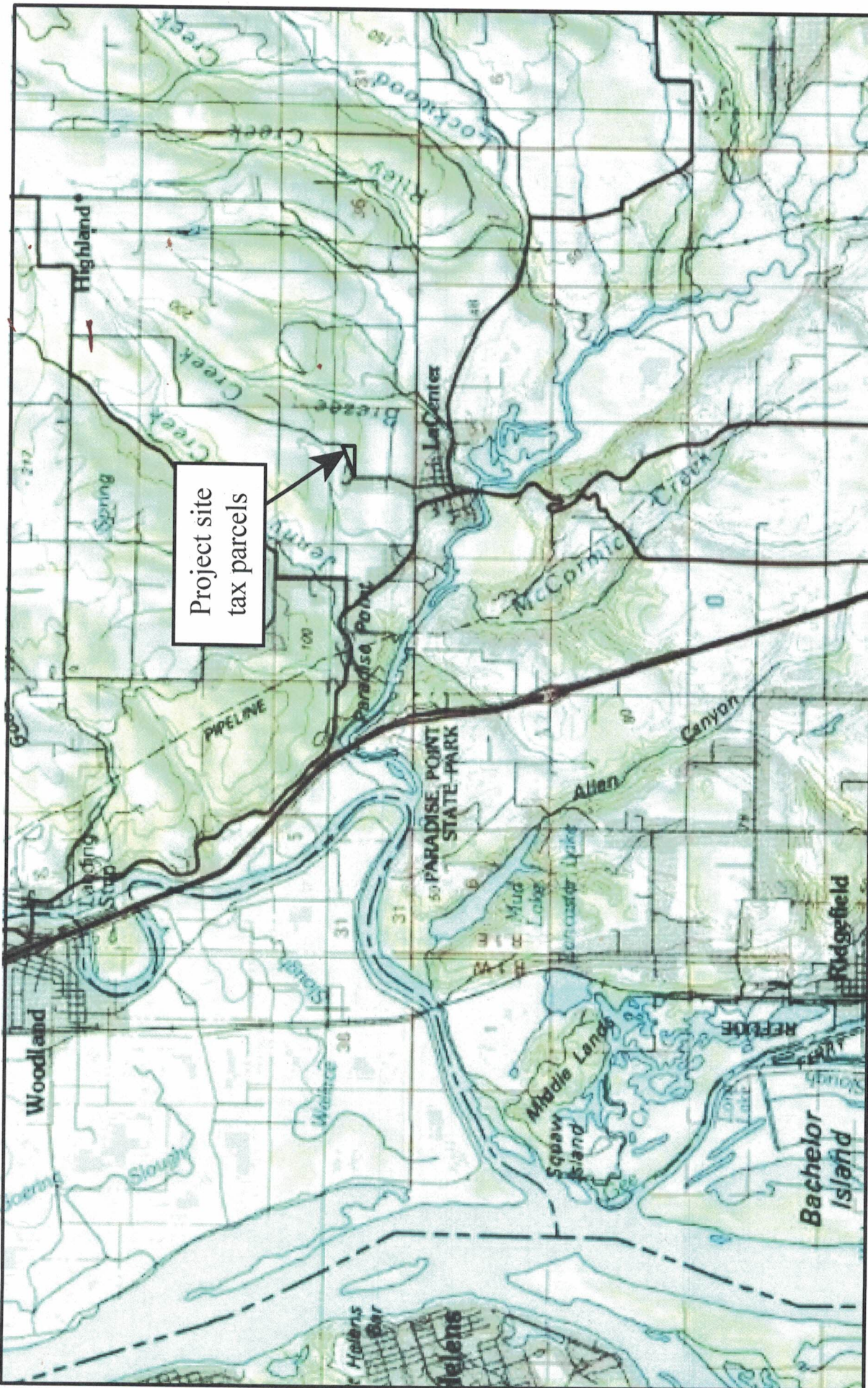
The above limiting conditions describe the assumptions and parameters under which a professional hydrogeological opinion is rendered. In accepting this opinion, the client understands and accepts these limiting conditions as a necessary outcome of the need to strike a balance between reasonable inquiry and exhaustive analysis.





Washington Prof. Reg. Geologist/Hydrogeologist No. 2081

# **APPENDIX A**

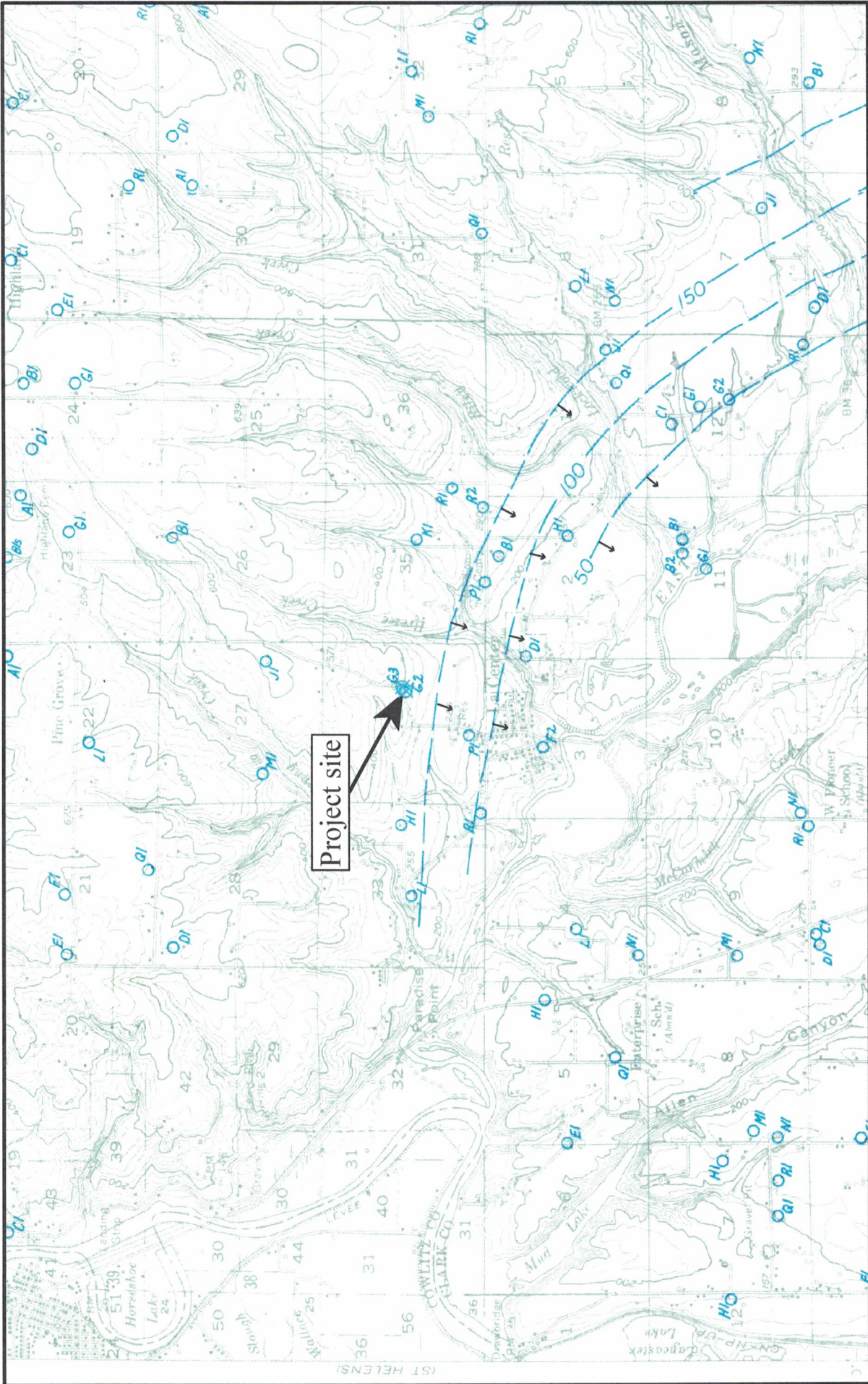
## **Figures**



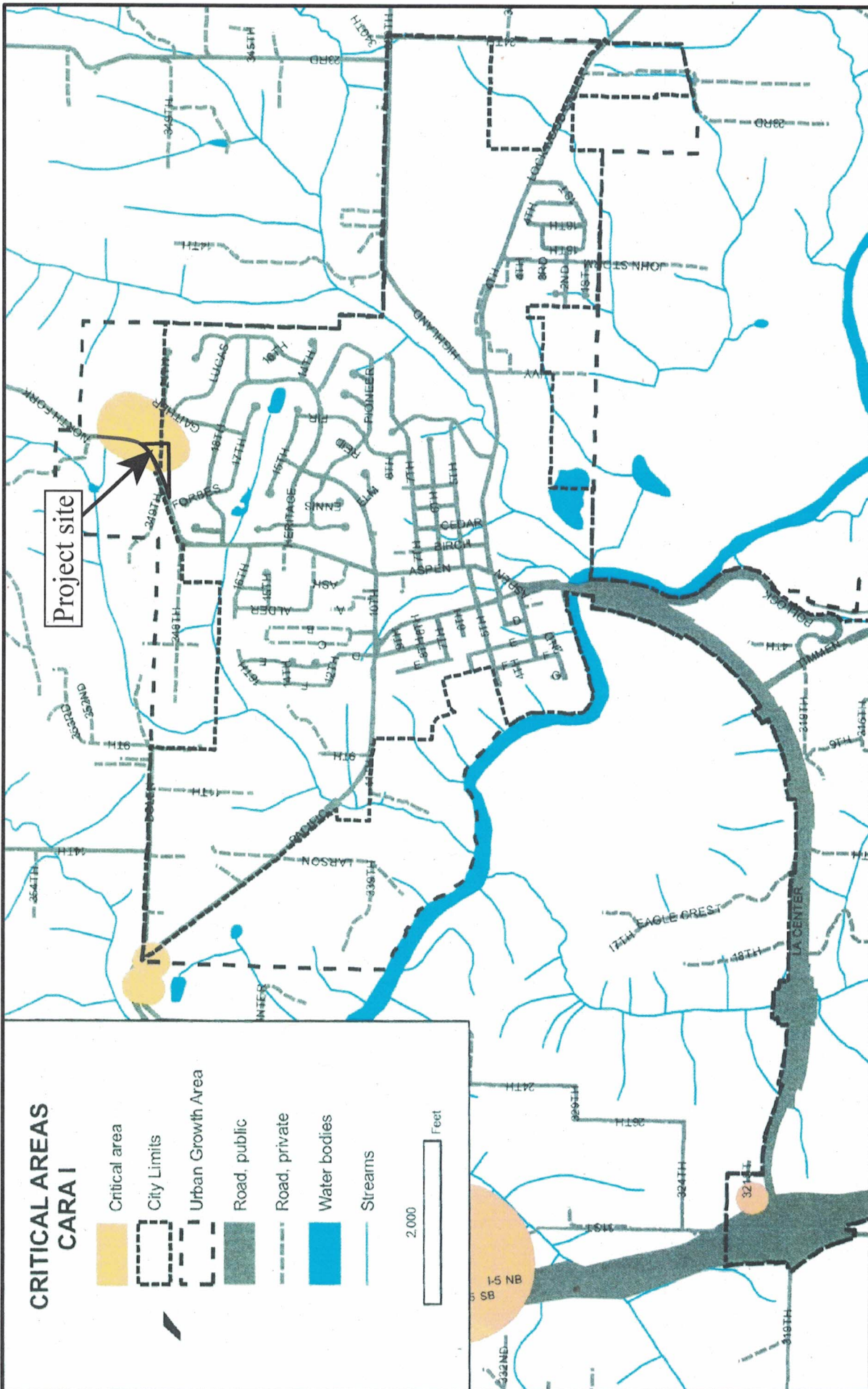
 <p>RNSA, INC. Groundwater and Environmental Consultants</p>	<p>Project Manager: R. Smith, RHG</p>		 <p>NORTH</p>
	<p>Adapted From: USGS Topographic Map Image</p>		
<p>Project Number: 21-1194</p>		<p>Clark County Tax Parcels 258910000, 258913000, &amp; 258968000</p>	
<p>Date Last Modified: 2/16/2022</p>		<p>Scale Approximately 1 mile</p>	
<p>Project Site Location In Clark County</p>			
<p>Figure # 1</p>			



RNSA, INC. Groundwater and Environmental Consultants	Project Manager: R. Smith, RHG	<b>Legend</b> ● Well Location ○ Well Location with Hydrograph ● Multiple wells with the same accuracy of location	(H) Hydrograph (A) Abandonment (AL) Alteration (D) Deepening	<b>1/4-Mile Study Area with Tax Parcels and Wells</b> Clark County Tax Parcels 258910000, 258913000, & 258968000	
	Adapted From: Wash. Dept. Ecology Well Location Tool Inpage Project Number: 21-1194 Date Last Modified: 2/16/2022				
		Scale Approximately 660 feet		Figure 2	



<p>RNSA, INC. Groundwater and Environmental Consultants</p>	<p>Project Manager: R. Smith, RHG</p>	<p>Clark County Tax Parcels 258910000, 258913000, &amp; 258968000</p>	<p>Scale Approximately 1 mile</p>	<p>Figure #3</p>
	<p>Adapted From: USGS Water Supply Paper 1600</p>			
<p>Legend</p> <ul style="list-style-type: none"> <li> Public Supply Well</li> <li> Decommissioned Public Supply Well</li> <li> Groundwater Contour from MSL</li> <li> Groundwater Flow Direction</li> </ul>		<p><b>Project Site Location Showing Topography And Groundwater Contours</b></p>		
<p>Project Number: 21-1194</p> <p>Date Last Modified: 2/14/2022</p>				



**CRITICAL AREAS  
CARAI**

- Critical area
- City Limits
- Urban Growth Area
- Road, public
- Road, private
- Water bodies
- Streams

2,000 Feet

RNSA, INC.  
Groundwater and Environmental Consultants

Project Manager: R. Smith, RHG  
Adapted From: Clark County, WA GISMap Image  
Project Number: 21-1194  
Date Last Modified: 2/16/2022

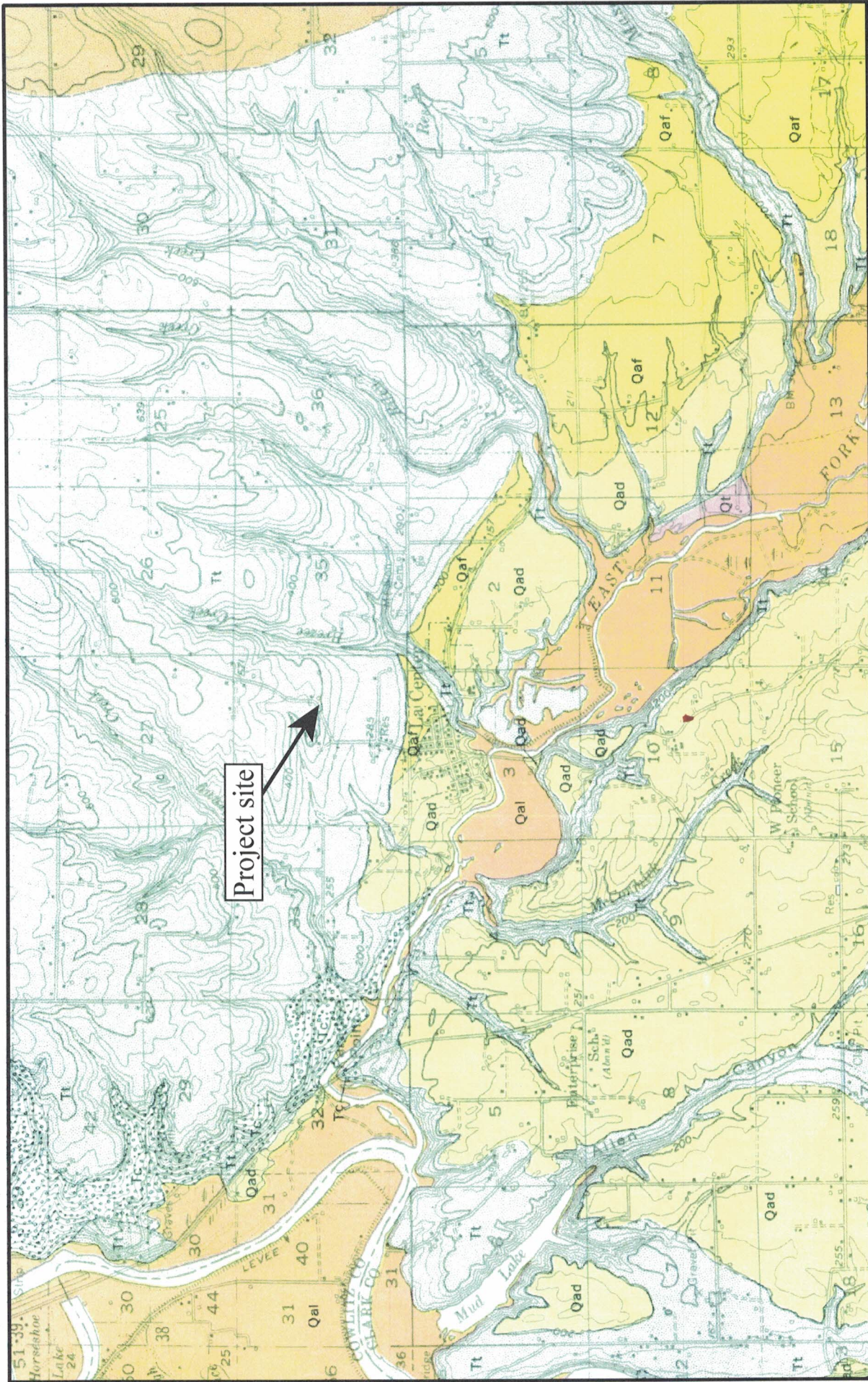
**Project Site Location  
Relative To Critical Groundwater Recharge Area**

Clark County Tax Parcels 258910000, 258913000, & 258968000

Scale  
Approximately 2,000 feet



Figure #4



**Project Site Location Showing Configuration And Type Of Surrounding Geologic Units (Legend Attached)**

Clark County Tax Parcels 258910000, 258913000, & 258968000

Scale  
Approximately 1 mile

Figure #5

Project Manager: R. Smith, RHG

Adapted From: USGS Water Supply Paper 1600, Plate 2, 1964

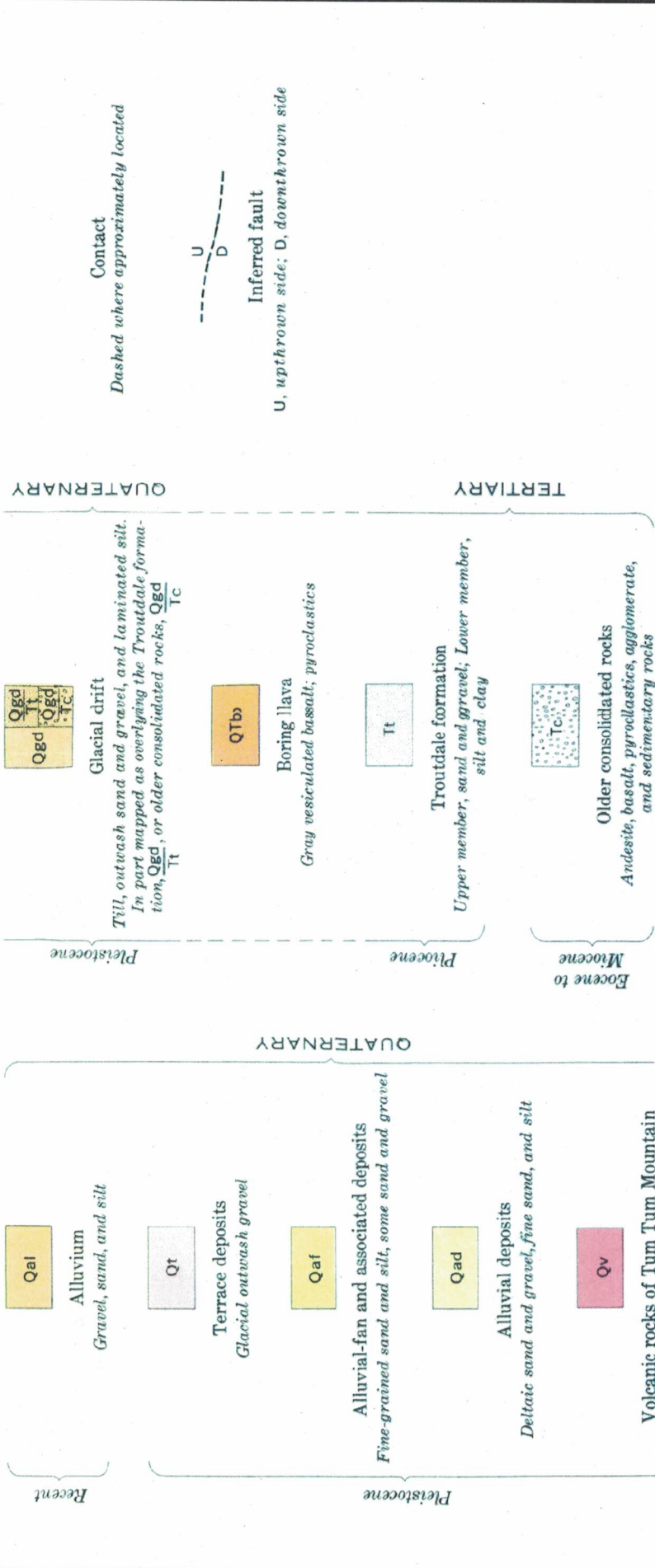
Project Number: 21-1194

Date Last Modified: 2/14/2022

RNSA, INC.  
Groundwater and Environmental Consultants







	<b>Project Manager:</b> R. Smith, RHG	
	<b>Adapted From:</b> USGS Water Supply Paper 1600, Plate 2, 1964	
	<b>Project Number:</b> 21-1194	
<b>Date Last Modified:</b> 2/14/2022		<b>Clark County Tax Parcels 258910000, 258913000, &amp; 258968000</b>
<b>Legend To Geologic Map</b>		
<b>Figure #5a</b>		

## **APPENDIX B**

### **Tables of Corresponding Well IDs and Well Characteristics**

**Table 1: Three Former City of La Center Municipal Wells (decommissioned)**

Well Logs Available	Well Screens	Total Well Depth (As Listed By USGS)	Total Well Depth (As Listed By Abandoning Driller)	Washington State Well Report Id # (Abandonment)	Notice of Intent to Abandon	USGS Well Id #	Well Location Tax Parcel #	Tax Parcel Position On Project Site
Y	Y	N/A	255	1313139	AE34869 <sup>a</sup>	N/A	258910000*	West
Y	N	252	252	1313208	AE34870 <sup>a</sup>	34G3	258913000*	Middle
Y	Y	231	281	1313048	AE34871 <sup>a</sup>	34G2	258968000*	East

<sup>a</sup>Source: WDOE Water Well Report

\*Source: Clark County GIS

**Table 2: City of La Center Former Municipal Well Correlations**

Well #	Drill Date	Well Report Id #	Abandonment Date	Abandonment Well Report Id #	USGS Well #	Well Location Tax Parcel #	Tax Parcel Position On Project Site
1(a)	12/1/1951	2780760	12/2/2015	1313139	N/A	258910000	West
1(a) (perforated)	7/24/1980	8101	12/2/2015	1313139	N/A	258910000	West
1(b)	10/1953	8100	1953	N/A	N/A	258910000	West
2	8/1954	270759	11/30/2015	1313208	34G <sub>2</sub>	258913000	Middle
3	11/5/1984	8103	12/2/2015	1313048	34G <sub>3</sub>	258968000	East

**APPENDIX C1**

**Well Reports**

**for**

**City of La Center**

**Former Municipal Wells**

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

Well # 1a

Well Report I.D.#270760

STATE OF WASHINGTON  
DEPARTMENT OF CONSERVATION  
AND DEVELOPMENT

WELL LOG  
Date December 1, 1951  
Record by H. J. Ferron  
Source Driller record  
No. Appl. # 2062  
Cert. # 1307A

Location: State of WASHINGTON  
County Clark  
Area \_\_\_\_\_  
Map \_\_\_\_\_  
SW 1/4 NE 1/4 sec 34 T. 5 N. R. 1 E.  
DIAGRAM OF SECTION

Drilling Co. H. J. Ferron  
Address Route 4, Box 2495, Vancouver, Wn.  
Method of Drilling \_\_\_\_\_ Date \_\_\_\_\_  
Owner Town of LaCenter, Washington  
Address \_\_\_\_\_

Land surface, datum \_\_\_\_\_ ft. above  
below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	Clay	68	68
	Clay and sand	29	97
	Quicksand & little water	11	108
	Quicksand	89	197
	Quicksand & some gravel	7	204
	Quicksand	8	212
	Heavy sand	8	220
	Sand & some gravel and water	7	227
	Coarse sand and water	4	231
	Pump test:		
	Dim: 231' x 8"		
	SWL: not known		
	D.D. 85'		
	(over)		

Turn up \_\_\_\_\_ Sheet \_\_\_\_\_ of \_\_\_\_\_ sheets



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

Well # 16

Well Report I.D. # 8100

STATE OF WASHINGTON  
DEPARTMENT OF CONSERVATION  
AND DEVELOPMENT

WELL LOG #1

No. Appl. #3372

Date October 19 1953

Permit # 3552

Record by H. I. Price

Source Well driller's record

Location: State of WASHINGTON

County Clark

Area

Map

SW 1/4 NE 1/4 Sec 34 T. 5 N. R. 1 E

Drilling Co. H. I. Price

Address

Method of Drilling Drilled Date 1953

Owner Town of LaCenter

Address La Center, Washington

Land surface, datum ft above below

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, etc.)

	Clay <sup>ABANDONED</sup>	25	25
	Silty clay	33	58
	Gravel	1	59
	Yellow clay	41	100
	Hard rock	18	118
	Soft blue rock	372	490

Pump Tests

Dim: 490' x 8"

SWL: not given

DL: not given

~~Static: 500 gpm (P. 11)~~

Casing: 8" dia. steel from 0' to 100'

Note: Well produced about 12 gpm, bailer tested at 250'

Note: Was abandoned because it did not produce enough water

Turn up

Sheet of sheets



Well #1/a

# WATER WELL REPORT

STATE OF WASHINGTON

Well Report I.D.# 8101

Application No. \_\_\_\_\_

Permit No. \_\_\_\_\_

(1) OWNER: Name Town of La Center Address La Center, Washington 98629  
 (2) LOCATION OF WELL: County Clark NW 1/4 SE 1/4 Sec 24 T. 5 N. R. 1 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 8 inches.  
 Drilled 0 ft. Depth of completed well 255 ft.

(6) CONSTRUCTION DETAILS:  
 Casing installed: 5 ID diam. from 225 ft. to 239 ft.  
 Threaded  8"-6" K-telepacker 223 ft. to 225 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 UPO Johnson  
 Type S/S Telescoping Model No. \_\_\_\_\_  
 Diam. 6 Slot size 20 from 239 ft. to 255 ft.  
 Diam. \_\_\_\_\_ Slot size \_\_\_\_\_ from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Gravel packed: Yes  No  Size of gravel: #12 Monterey sand  
 Gravel placed from 225 ft. to 255 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 \_\_\_\_\_  
 Type \_\_\_\_\_ HP \_\_\_\_\_

(8) WATER LEVELS: Land-surface elevation above mean sea level \_\_\_\_\_ ft.  
 Static level 167'9" ft. below top of well Date 7-24-80  
 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  Yes, by whom? Hansen  
 Yield: 72 gal./min. with 37 1/2 ft. drawdown after 5 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
0 min	203'6"	15 min	167'10"		
5 min	170	30 mins.	167'9"		
10 min	167'4"				

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
Original well was not producing to full capacity and pumping sand.		
8" casing originally was installed to 255 ft.		
7-21-80 to 7-24-80		
Used Star Perforator for 112 part. 235 - 242		
Original 40 Perf. 242 - 252		
8" to 6" Telescoping K Packer 223 - 225		

RECEIVED

AUG 15 1980

DEPARTMENT OF ECOLOGY  
 SOUTHWEST REGIONAL OFFICE

Work started July 21, 19 80 Completed July 24, 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 Hansen Drilling Co. Inc.  
 (Person, firm, or corporation) (Type or print)

Address 6711 NE, 58th Ave, Vancouver, Washington 98365 Gary Nustad

[Signed] Gary Nustad  
 (Well Driller) Hansen

License No. C-51 Date July 31, 19 80

223-02HA-NS-ED-\*377NT

(USE ADDITIONAL SHEETS IF NECESSARY)

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

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

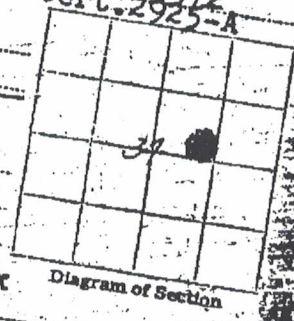
well #2

Well # 2

Well Report I.D. #270759

STATE OF WASHINGTON  
DEPARTMENT OF CONSERVATION  
AND DEVELOPMENT

WELL LOG  
Date August 19 54 No. Appl. 3372  
Record by Water Supt. Cert. 2925-A  
Source driller's record



Location: State of WASHINGTON  
County Clark  
Area  
Map  
SW 1/4 NE 1/4 sec. 34T5 N, R. 1 E  
Drilling Co. B. L. Price  
Address Othello, Wash.  
Method of Drilling  
Owner Town of La Center, Wash.  
Address  
Land surface, datum ft above below

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.)

	Clay		
	Clay & sand	68	68
	Quick sand & a little water	29	97
	Quick sand	11	108
	Quick sand & some gravel	89	197
	Quick sand	7	204
	Heavy sand	8	212
	Sand & some gravel & water	8	220
	Coarse sand & water	7	227
	Coarse sand & water	4	231
	Coarse gravel & water	11	242
	Blue lava ash, casing is set 2 ft. into this blue lava ash. Log is same as #1 well except for last 21 ft. Wells are 100' apart. #2 being slightly northeast of #1 on same property description.	8	250
		2	252

Turn up

(over)

Sheet of sheets

Well #2

WELL LOG—Continued

No. .... / .....

CORRE- LATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	Depth forward	—	
	PUMP TEST:		
	Dim. 252'x8"		
	SWL: 115 ft.		
	BB: 65 ft.		
	Yield: 200 g.p.m.		
	Type & size of pump: Peerless pump		
	8 DA 200 g.p.m.		
	Type & size of motor: Westinghouse		
	Type CS 15 h.p. 3 phase		
	CASING: 8" diam. steel from 0 to		
	252 ft.		
	Casing was perforated from 242 to 250		
	ft. in the coarse gravel layer.		
	No screen on bottom.		

Well #3

Well Report I.D.# 8103

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. 62-2685  
Permit No. \_\_\_\_\_

(1) OWNER: Name Town of LaCenter Address LaCenter City Hall  
(2) LOCATION OF WELL: County Clark - NW 1/4 SE 1/4 Sec. 34 T. 5 N. R. 1E 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) 3  
New well  Method: Dug  Bored   
Deepened  Cable  Driven   
Reconditioned  Rotary  Jetted

(5) DIMENSIONS: Diameter of well 8 inches.  
Drilled 281 ft. Depth of completed well 257 ft.

(6) CONSTRUCTION DETAILS:  
Casing installed: 8" Diam. from +2' ft. to 223 ft.  
Threaded  8" Diam. from 257 ft. to 274 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   
Figure K-Packer from 219'9" to 220'3"  
Manufacturer's Name Johnson  
Type Telescoping Model No Stainless  
Diam. \_\_\_\_\_ Slot size \_\_\_\_\_ from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
Diam. \_\_\_\_\_ Slot size \_\_\_\_\_ from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

\* Sizes listed at end of well log  
Gravel packed: Yes  No  Size of gravel: 1/8  
Gravel placed from 33'6" ft. to 90 ft.

Surface seal: Yes  No  To what depth? 33'6" ft.  
Material used in seal Cement grout  
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: \_\_\_\_\_ HP \_\_\_\_\_

(8) WATER LEVELS: Land-surface elevation above mean sea level \_\_\_\_\_ ft.  
Static level 171 ft. below top of well Date 11-5-84  
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: 75 gal./min. with 85 ft. drawdown after 1 hrs.

Tested with air-rotary at 256'

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 \_\_\_\_\_ m. Date \_\_\_\_\_  
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
Road Bed	0	1
Clay brown w/gravel	1	9
Clay gray w/gravel	9	18
Clay yellow-brown	18	21
Clay yellow	21	29
Sandy-clay yellow w/some gravel	29	37
Sandy-clay gray blue	37	42
Sandy-clay yellow-blue	42	93
Sandy yellow dirty	93	113
Sand Yellow brown	113	120
Sandy-clay tan	120	141
Sandy-clay sparse gravel	141	147
Sand slight clay binder	147	185
Sand yellow-gray fine med	185	205
Sandy-clay yellow-brown w/streaks of sand	205	220
Sand yellow streaks w/clay binder	220	242
Sand & gravel	242	243
Sand yellow	243	249
Sand gravel, boulders	249	251
Rock, broken w/round rock	251	256
Clay blue-gray	256	268
Shale rock med	268	279
Rock blue med	279	281

Screens:  
Dia. 8 Slot size 10 from 220'3" to 225'6"  
Dia. 8 Slot size 12 from 225'6" to 246'6"  
Dia. 8 Slot size 14 from 246'6" to 257'

Pea-gravel placed from 257' to 281'

Casing was cut & separated at 257'

Work started 10-24 19 84 Completed 11-5 19 84

## 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 Dale McGhee & Sons Well Drilling, Inc.  
(Person, firm, or corporation) (Type or print)

Address 3032 Allen St., Kelso, WA 98626

[Signed] J. Steve McGhee  
(Well Driller)

License No. 0298 Date 11-13- 19 84

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

RECEIVED  
NOV 21 11:31 AM '84  
DEPARTMENT OF ECOLOGY  
PERMITS DIVISION  
OFFICE







**APPENDIX C2**

**Well Reports  
of  
Wells Within ¼ Mile  
of the  
Project Site**



Well Report I.D.#332

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

# WATER WELL REPORT

Application No. ....

STATE OF WASHINGTON

Permit No. ....

(1) OWNER: Name Barthold Sarge Address Rt. 2, Box 11, La Center, WA

(2) LOCATION OF WELL: County Clark SW 1/4 NE 1/4 Sec. 34 T. 5 N. R. 1E 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 503 ft. Depth of completed well 500 ft.

### (6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from 0 ft. to 172 ft.  
Threaded  4 1/2 PVC " Diam. from 168 ft. to 500 ft.  
Welded  " Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Perforations: Yes  No   
Type of perforator used SAW & drill  
SIZE of perforations 1" holes every 1/8" x 4 in.  
20 1/2" holes perforations every 20 ft. to 20 ft.  
and 3 rows perforations every 20 ft. to 20 ft.  
perforations from 192 ft. to 500 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? 32 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: \_\_\_\_\_ HP

(8) WATER LEVELS: Land-surface elevation above mean sea level \_\_\_\_\_ ft.  
Static level 120 ft. below top of well Date 8/29/81  
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 \_\_\_\_\_  
Bailer test 20 gal./min. with 245 ft. drawdown after 1 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 & clay, red	0	2'
Clay, red-brown	2'	19'
Conglomerate	19'	43'
Clay, white	43'	46'
Clay, brown & gravel	46'	59'
Rock, black; hard	59'	65'
Gravel, cemented	65'	90'
Clay, gray	90'	110'
Clay, gray; sandy	110'	120'
Gravel, sand, gray; cemented	120'	142'
Gravel, cemented	142'	151'
Gravel, sand, gray; loose	151'	171'
water-bearing 2 gpm		
Rock, gray; medium-hard, water-bearing 265'-285' 9 gpm	171'	285'
Rock, gray; medium-hard	285'	360'
Rock, gray; seams of schale	360'	390'
Rock, gray; medium-hard, water-bearing 460'-495' 9 gpm	390'	503'

RECEIVED

OCT 30 1981

DEPARTMENT OF ECOLOGY  
SOUTHWEST REGIONAL OFFICE

Work started 7/8 1981 Completed 8/29 1981

### 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 Norris Drilling & Pump Co., Inc.  
11026 NE St. Johns Rd. (Type or print)  
Address Vancouver, WA 98665

[Signed] Gordon H. Johnson  
(Well Driller)

License No. 0167 Date 9/18 1981

(USE ADDITIONAL SHEETS IF NECESSARY)

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

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

Well Report I.D.# 1864

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 Dee Hammond Address Rt 2 Box 457 A. S. La Center, WA 9862  
(2) LOCATION OF WELL: County Clark lot 2 of sublot 839 1/4 Sec 34 T. 5 N., R. 1E 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 120 ft. Depth of completed well 120 ft.

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

Perforations: Yes  No  Drill  
Type of perforator used .....  
Size of perforations 24 in. to 12 in.  
perforations from 75 ft. to 120 ft.  
perforations from ..... ft. to ..... ft.  
perforations from ..... ft. to ..... ft.

Screens: Yes  No   
Manufacturer's Name ..... Model No .....  
Type .....  
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 Bentrite  
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 (approx) 450  
above mean sea level .....  
Static level 80 ft. below top of wall Date June 1982  
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 .....  
Water test 3 gal./min. with 20 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
<u>topsoil</u>	<u>0</u>	<u>2</u>
<u>yellow clay</u>	<u>2</u>	<u>60</u>
<u>sandy brown clay</u>	<u>60</u>	<u>75</u>
<u>streak of sand contain</u>	<u>75</u>	<u>80</u>
<u>ing water, 3 gal min</u>	<u>80</u>	<u>80</u>
<u>hard rock</u>	<u>100 ft</u>	

Work started June, 1982 Completed June, 1982

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 Schuttawell Drilling (Type or print)  
(Person, firm, or corporation)  
Address Rt 2 Box 374-B La Center, WA 986  
[Signed] Jake Schutt (Well Driller)  
License No. 0862 Date June, 1982

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

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

# WATER WELL REPORT

STATE OF WASHINGTON

Well Report I.D.# 4538

Application No. \_\_\_\_\_  
Permit No. \_\_\_\_\_

(1) OWNER: Name Ken Cardon Address Rt. 1 Box 496 Woodland WA  
(2) LOCATION OF WELL: County CLARK - 1/4 Sec. 34 T. 5 N., R. 1 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 360 ft. Depth of completed well 360 ft.

(6) CONSTRUCTION DETAILS:  
Casing installed: 6" Diam. from 17" ft. to 91 ft.  
Threaded  5" Diam. from 84 ft. to 360 ft.  
Welded  " Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
Perforations: Yes  No   
Type of perforator used Arch-cut  
SIZE of perforations 3/8 in. by 6 in.  
60 perforations from 100 ft. to 360 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? 40 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 130 ft. below top of well Date 7-29-74  
Artesian pressure 0 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: 8.3 gal./min. with 240 ft. drawdown after 2 hrs.  
Air rotary tested at 359 Feet  
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
top soil	0	2
cement gravel	2	23
boulders w/ clay brown	23	66
gravel	66	79
siltstone soft yellow	79	90
shale medium	90	114
sand stone	114	143
rock blue soft	143	168
rock black hard	168	183
rock blue medium	183	305
rock blue & grey medium	305	360

RECEIVED  
AUG 13 1974

DEPARTMENT OF ECOLOGY  
SOUTHWEST REGIONAL OFFICE

Work started 7-26, 1974 Completed July 29, 1974

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 Dale McGhee Well Drilling  
(Person, firm, or corporation) (Type or print)  
Address 3032 Allen St. Kelso, Wash  
[Signed] Dale McGhee  
(Well Driller)  
License No. 0296 Date 8-5, 1974

(USE ADDITIONAL SHEETS IF NECESSARY)





Well Report I.D.# 9061

Start Card No. 55390

# WATER WELL REPORT

UNIQUE WELL I.D.# AAI 759

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

STATE OF WASHINGTON

Water Right Permit No.

(1) OWNER: Name Dan Beck Address P.O. Box 629, LaCenter Wa., 98629  
(2) LOCATION OF WELL: County Clark SW <sup>1/4</sup> NE <sup>1/4</sup> Sec 34 T. 5 N. R. 1 W.M.  
(2a) STREET ADDRESS OF WELL (or nearest address) North Fork Rd., LaCenter, WA 98629

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

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

(5) DIMENSIONS: Diameter of well 6 inches.  
Drilled 343 feet. Depth of completed well 343 ft.

(6) CONSTRUCTION DETAILS:  
Casing installed: 6 ft. Diam. from +3' ft. to 137'8" ft.  
Welded  4" PVC Diam. from 23 ft. to 343 ft.  
Liner installed  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 \_\_\_\_\_  
Type Slotted Model No. \_\_\_\_\_  
Diam. 4" Slot size .035 from 323 ft. to 343 ft.  
Diam. \_\_\_\_\_ Slot size \_\_\_\_\_ from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Gravel packed: Yes  No  Size of gravel Colorado 6x9  
Gravel placed from 310 ft. to 343 ft.

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

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

(8) WATER LEVELS: Land-surface elevation above mean sea level \_\_\_\_\_  
Static level 120 ft. below top of well Date 9-19-94  
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 60 ft. drawdown after 1 hrs.  
Airtest 10 gal./min. with stem set at 343 ft. for 1/4 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
Top soil & cobbles	0	2
Clay cobbles gravel & sand	2	17
Cobbles loose gravel & sand	17	33
Brown clay	33	47
Brown sand w/clay	47	75
Brown clay	75	97
Gritty clay	97	105
Multi colored shale with some rock	105	115
Blue shale with rock pieces	115	180
Soft shale with clay	180	195
Grey & blue shale	195	235
Brown shale	235	270
Blue brown & grey shale	270	320
Soft shale some clay	320	330
Hard grey shale XXXX	330	340
Grey rock	340	343

Hardness 1  
Iron .3  
PH 8.5

RECEIVED  
SEP 29 10:34  
SW REGIONAL OFFICE

Work Started 9-16-94 19. Completed 9-19-94 19

### 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 Hansen Drilling Co., Inc. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)  
Address 6711 NE 58 Ave., Vancouver, WA 98661  
(Signed) Juris Jurdale License No. 1921 (WELL DRILLER)

Contractor's Registration No. HANSED\*377NT Date 9-21-94 19

(USE ADDITIONAL SHEETS IF NECESSARY)



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