I. Introduction & Description of Water System

A. Introduction

This Water System Plan is for the proposed Keeneland Water System. The proposed system will be located in Sections 7 & 18 of Township 17N, Range 1W, in Thurston County. See Figure I-1 for a vicinity map showing the location of the proposed system. It is or will eventually be under the following jurisdictions:

- The Southwest Region of the Department of Health (DOH). The proposed system will be a Group A, Community Water System. It will be a Municipal Water System as defined by the Water Use Efficiency (WUE) law. The DOH system ID number is AD179G.
- The Southwest Region of the Department of Ecology (Ecology). It is in the Deschutes Water Resource Inventory Area, which is also known as WRIA 13.
- The Washington Utility and Transportation Commission (UTC).
- Thurston County. The County's relevant project numbers are: 2004102027, Keeneland Park PRRD; 2005103778, Elwanger PRRD; 2006100785, Keeneland Park Water System.
- The Thurston County Fire Marshall. The System will be in the Thurston County's Fire Response District #6, also known as East Olympia Fire District.

This Water System Plan has been prepared in accordance with WAC 246-290-100, and with the guidelines of the Department of Health, Office of Drinking Water and the Department of Ecology. The proposed system is requesting approval for 109 approved connections. The number of approved connections requested is based on the number of lots in the proposed PRRDs, as well as other factors. By submittal of this Water System Plan, the Keeneland Water System is requests project approval exceptions in accordance with WAC 246-290-125.

B. Ownership and Management

There will be a home-owners' association but the Association will not own the System. Keeneland Park Water System will be an investor-owned system, owned by the Violet Prairie Water, Inc., 17438 Marsh Road SW, Tenino, WA 98590.

This system will be managed by a DOH approved Satellite Management Agency (SMA). The proposed SMA is Northwest Water Systems, SMA #119. The SMA will perform all daily, monthly and annual operations and management of the facilities. A copy of the contract is included in Appendix 1.

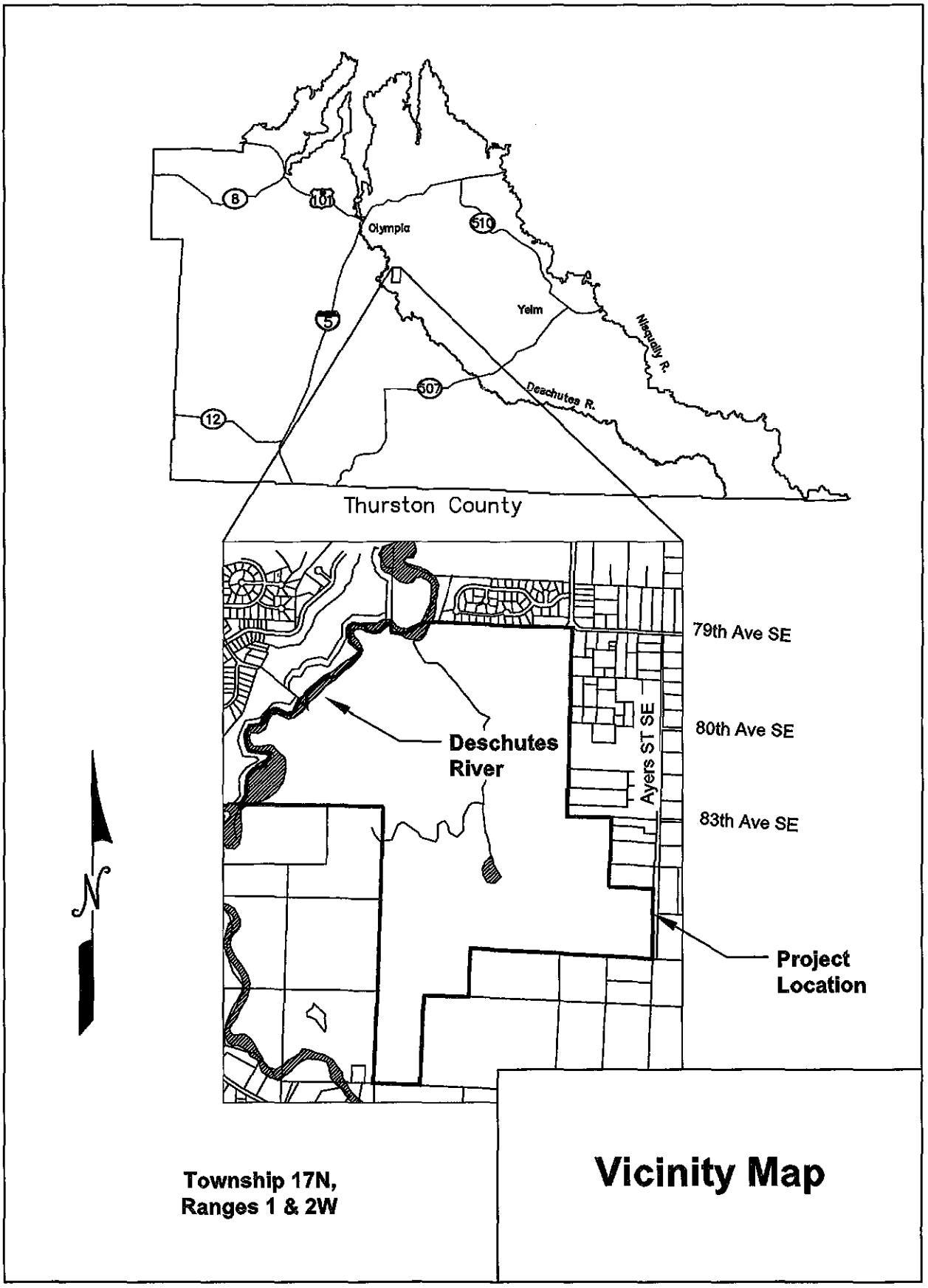


Figure I-1: Vicinity Map

C. System History and Background

The Keeneland Park Water System is a new (proposed) water system. It will serve the Keeneland Park PRRD Development, which is divided into the North Development and the South Development. The Water System will also serve the El Wanger PRRD Development, which will be built at a later date. (See Figure I-2.) The tax parcels on which these Developments will be built are 11707310000, 11707310100, 11718200000, 11718120200, 11718120102, 11718130000, 11718320000, 12712440100 & 12712440200. These parcels will be subdivided into new parcels once the Developments are completed. The Developer for these projects is Hansen Construction, Inc.

The North Development of the Keeneland Park PRRD is platted for 31 single-family residences (SFRs). The South Development of the Keeneland Park PRRD is platted for 60 SFRs. All other lots within the Keeneland Park PRRD are reserved for other uses. Upon completion the Keeneland Park PRRD, the proposed water system will serve 91 houses. When the El Wanger PRRD is completed, 18 more SFRs will be added to the system, bringing the number of single-family homes served by the proposed water system to a total of 109 SFRs. The average lot size is 0.39 acres. All of the residential lots will utilize individual on-site wastewater drainfields.

D. Nearby Water Systems

The City of Tumwater Water System (DOH ID No. 89700) is located across the Deschutes River. The Riverlea Water System (DOH ID No. 72817) is located to the North. The East Olympia Mobile Home Park Water System (DOH ID No. 04624) and the Rixie Road - 232 Water System (DOH ID No. 73075) are located to the northeast.

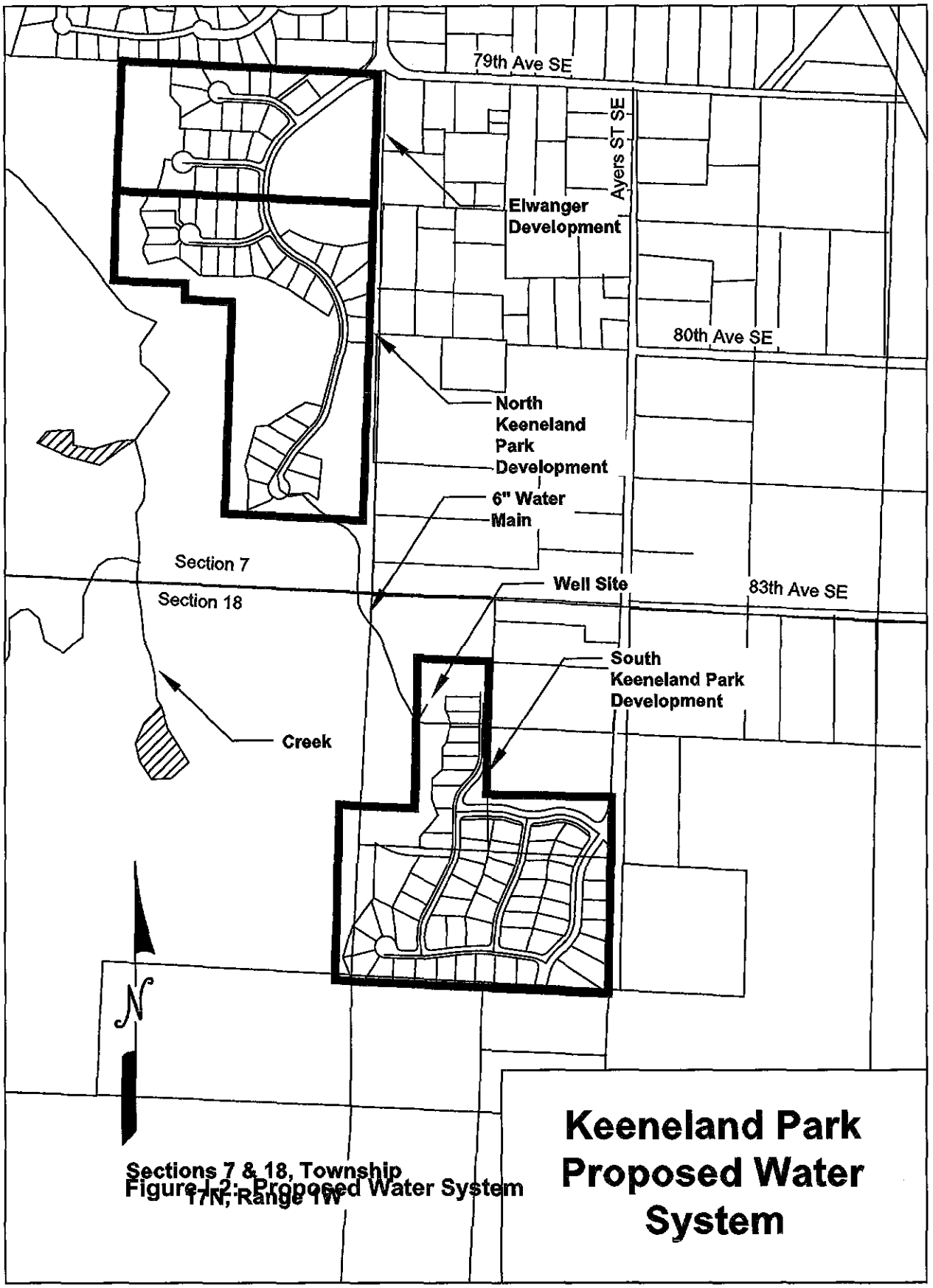
E. Inventory of Existing Facilities

The well for the system has been completed. The other facilities have been or are being built. When completed, the System will have the following facilities:

- Well
- Tank
- Pumphouse
- Booster Station
- Distribution System

The Tank and the Booster Station will be at the wellsite. The Booster Station will be inside the Pumphouse and will include booster pumps and controls.

The water facility inventory (WFI) form, well log and cutsheets for the well pumps are included in Appendix 3.



Sections 7 & 18, Township 17N, Range 1W

Figure I-2: Proposed Water System

F. Related Plans

1. Thurston County Comprehensive Plan

Thurston County Comprehensive Plan was first adopted in 1995 and last updated in 2004. The Comprehensive Plan deals with growth management, land use, and management of natural resources, among other things. To ensure that the system is consistent with the Thurston County Comprehensive Plan, the PRRDs have received preliminary plat approval from the County. The System has coordinated with the Fire Marshall, and this Water System Plan will be submitted to the County for the Local Government Consistency review.

2. Northern Thurston County Groundwater Management Plan

Thurston County Department of Health prepared the Northern Thurston County Groundwater Management Plan in 1992 to facilitate the protection of the County's groundwater resources. Coordinating with County as described in Section I.F.1, this Water System Plan should be consistent with the Groundwater Management Plan

3. County Land Use and Zoning

County land use and zoning policies are detailed in the Thurston County Comprehensive Plan. By complying with the Thurston County Comprehensive Plan, the System should be consistent with County zoning and land use policies.

4. Watershed Management Act (RCW 90.82) of 1998

The proposed water system is in the Deschutes Basin, which has been designated as WRIA-13, and as such is subject to Deschutes Watershed Management Plan. The Deschutes Watershed Planning Unit completed a final draft watershed plan in October 2004, but was unable to reach consensus on the plan as the Squaxin Island Tribe voted against approval of the plan.[1] The System has not coordinated with the local planning unit.

5. The Department of Health

The Water System is required to comply with Chapter 246-290 WAC[2], which regulates Group A Public Water Systems.

The Water Use Efficiency (WUE) Law is part of this Chapter of the Washington Administrative Code (WAC). Among other things, the WUE required that certain attachments be submitted with this Plan. The required attachments are provided in Appendix 2.

Per the requirements of the WUE, this Plan has been submitted to Thurston County for review.

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[1] http://www.ecy.wa.gov/programs/eap/wrias/Planning/13.html

[2] Group A Public Water Systems, Chapter 246-290, Washington State Department of Health, publication #331-010, March 2012

6. UTC

The Utility and Transportation Commission (UTC) regulates the rates and services of private and investor-owned water companies that serve 100 or more connection or charge more than $557 a year per customer. Currently, Keeneland Park Water System does not meet either of these criteria, and therefore is not yet under the jurisdiction of the UTC.

Initially, the System will only be connected to 91 SFRs in the Keeneland Park PRRD, and will not meet the criteria of serving 100 or more connections. Upon completion of the El Wanger PRRD, the System will have 109 connections, at which time it will be under the UTC's jurisdiction. It will likely be several years before the Developer begins construction on the El Wanger PRRD.

Although the System will not have 100 or more connections for many years, if the System charges more than $557 a year per customer, it may come under the UTC's jurisdiction before then. The UTC regulates:

- Rates – How much customers pay.
- Terms and conditions of tariffs – company service contracts
- Business practices and customer service requirements[1]

A copy of the Water System Plan has been provided for DOH to submit to the UTC for review.

7. Conservation Planning Requirements

The Conservation Planning Requirements are enforced under several authorities, primarily RCW 90.03.005, RCW 90.44.110, and RCW 90.54.180. Approval of a Conservation Plan is required for approval of any water system plan. A copy of the Water System Plan has been provided for DOH to submit to Ecology for review.

8. SEPA

Because the System has less than 1,000 connections, SEPA review is not required for this Water System Plan. The Developer of the proposed Water System has or will be obtaining SEPA approval for its projects.

[1] http://www.utc.wa.gov/regulatedIndustries/utilities/water/Pages/waterRegulation.aspx

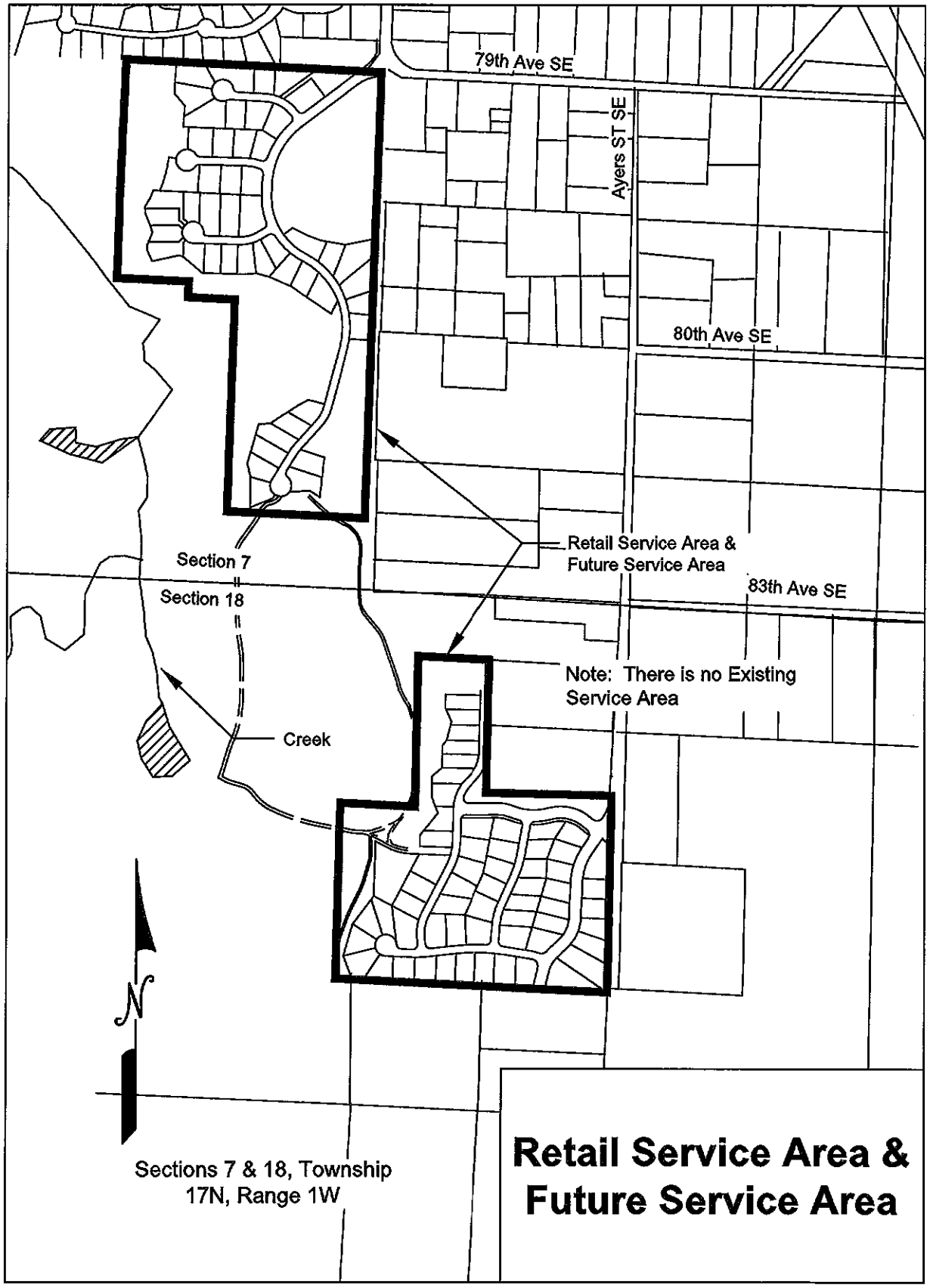

Figure I-3: Retail Service Area & Future Service Area

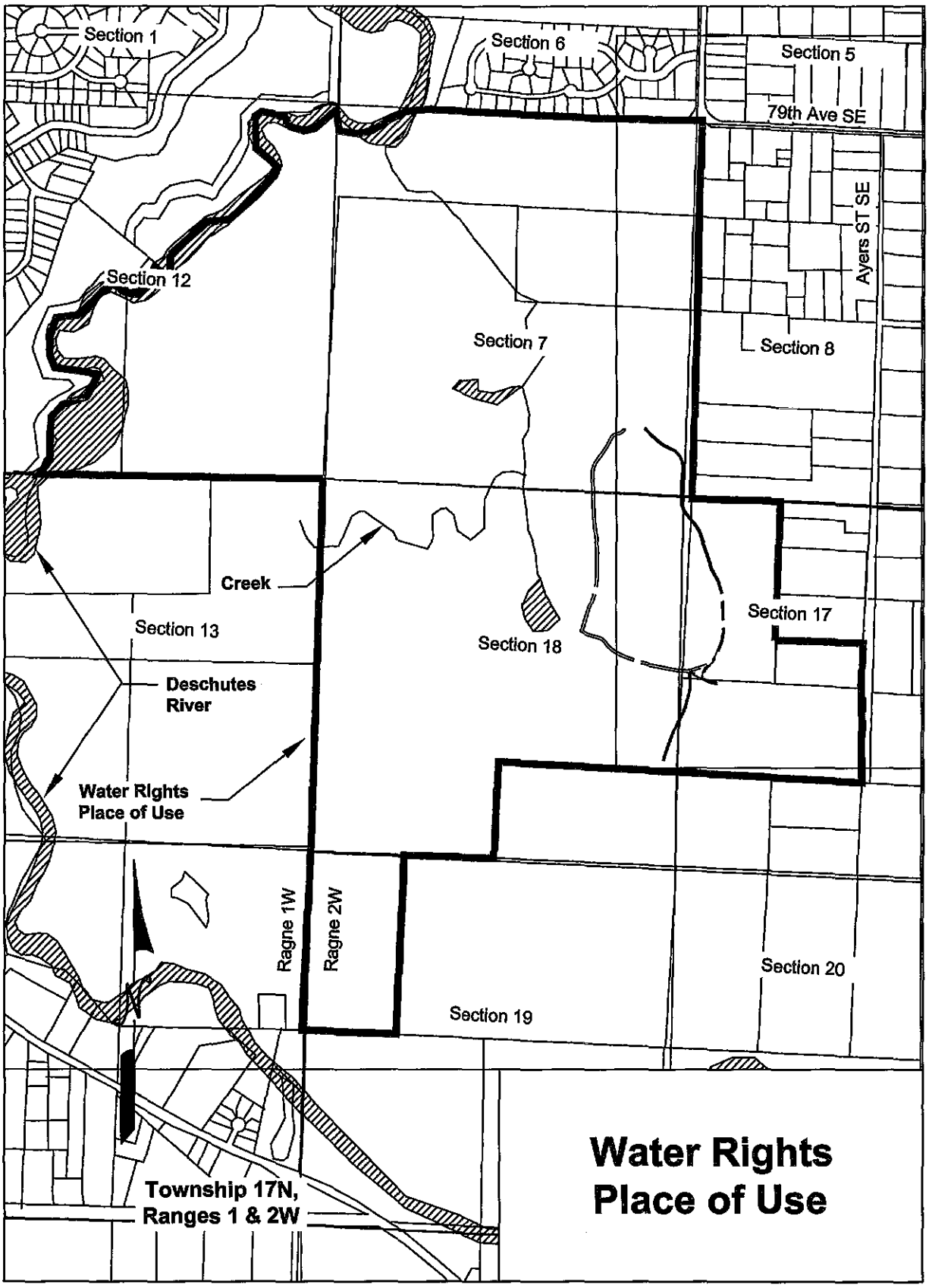

Figure I-4: Water Rights Place of Use

G. Service Area and Service Policies

There is no Existing Service Area.

Figure I-3 shows the Retail Service Area and the Future Service Area.

All the lots within the Proposed Service Area that are not owned by the Water System or the home-owners' association will have single-family homes on them built by the Developer. They will all be connected to the Water System prior to being sold. Upon completion of the proposed Water System, the System will have sufficient water to serve 100% of the lots within its Retail Service Area and its Future Service Area. All other requests for connection to the System will be denied.

No other requests for connections will be approved. The System will not permit expansion or annexation without a revision of this Water System Plan.

II. Basic Planning Data

A. Current Population, Number of Service Connection, and ERU's

This is a proposed system, therefore the current population, number of service connections and number of equivalent residential units (ERUs) is zero.

B. Current Water Use Data Reporting

As mentioned above, this is a proposed system. Therefore, there is no water usage data.

To estimate the Average Daily Demand (ADD) per ERU for the system, similar water systems were surveyed. Similar systems were defined as active, investor-owned, Group A, community water systems in Thurston County whose number of connections varied from 100 to 120 and whose average residential lot size is equal to, or larger than, the Keeneland Park's average residential lot size, which is 0.39 acres.

There are five such systems. The relevant data for each of these systems for 2013 is presented in Table II-1.

Table II-1: ADD of Similar Systems (2013)

Name	DOH ID No.	Annual Production, Q_{ann} (gpy)	No. ERUs, N[1]	Average Residential Lot Size[2] (acres)	ADD[3] (gpd/ERU)
Country Club	15503	8,350,640	109	0.47	210
Andrews First	17241	7,387,663	113	0.40	179
Black Lake Estates	26071	10,698,000	119	1.36	246
River Park	72776	10,753,800	107	1.28	275
Seashore Villa	76998	802,900	116	N/A	19

[1] Assuming one ERU per connection.

[2] See Appendix 6 for source data used to determine the average residential lot size.

[3] $ADD = \frac{(Q_{ann}/N)}{365 \text{ days/year}}$

The ADD for 2013 for each of these systems was calculated as 275 gpd/ERU or less. (Note that the ADD for Seashore Villa is extremely low, which likely means Seashore Villa is not a "similar system." It is included in the data above for the sake of completeness.) For planning purposes, this Water System Plan assumes an ADD of 275 gpd/ERU. A Maximum Daily Demand (MDD) of 2 x ADD will be used per the page 226 of the Water System Design Manual.[1] This gives an MDD of 550 gpd/ERU.

The data showing that the average residential lot sizes for the relevant systems are, in deed, larger then the average residential lot size for the Keeneland Park Water System is provided in Appendix 6.

The peak hourly demand (PHD) is calculated to be 130 gpm. See Equation III-1 in Section III.D.3 for the calculation.

There is only one pressure zone in the system. Under the current water rights, the system cannot provide water outside the defined Retail Service Area.

C. Current and Future Land Use

The nine parcels which are being subdivided are all zoned RRR1/5. The County lists their current land use as Designated Forest and Agricultural. See Figure II-1 for a map of the current land use. The Developer received preliminary plat approval for the Elwanger Planned Rural Residential Development (PRRD) and the Keeneland Park PRRD under County project numbers 2004102027 & 2005103778, respectively. Upon final plat approval, all the new lots within the Proposed Service Area will be re-zoned. Some lots will not be buildable lots based on the restrictions of the preliminary plat. These lots will be owned either by the Water System or a home-owners' association. A single-family home will be built by the Developer on the remaining buildable lots, with the intent to sell the homes on the open market. With a house built on every buildable lot, there is no foreseeable growth for the system. See Figure II-2 for a map of the 6- & 20-year projected zoning & land use.

D. Future Population and Number of Service Connections and ERU's

Upon project completion by the Developer, there will be 109 single-family homes within the Proposed Service Area with no foreseeable potential or growth. It is not possible to predict how quickly these homes will become occupied. Therefore, for resource planning purposes, it will be assumed that the System reaches 100% occupancy almost immediately.

Since each house will equate to one ERU, the system will have 109 ERUs. Assuming that there is an average of 2.5 people per household, this would mean that the projected population of the System is 273 people.

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[1] "Water System Design Manual" (DOH # 331-123), published by the Washington State Department of Health, December 2009.

E. Future Water Use

The projected water usage is provided in Table II-2 for the current year, 6 years, 10 years and 20 years in the future. It is based on an ADD of 275 gpd/ERU and an MDD of 550 gpd/ERU. Table II-3 shows the projected average monthly consumption for the System.

Table II-2: Projected Water Usage

Number of Years from Present	Year	Number of ERUs	ADD	MDD	Peak Day Demand (Kgpd)	Annual System Demand	
						Mgal	ac-ft
-	Current (2014)	0	275	550	0.0	0.0	0.0
6	2020	109	275	550	78.0	11.0	34.0
10	2024	109	275	550	78.0	11.0	34.0
20	2034	109	275	550	78.0	11.0	34.0
Maximum Build-Out	Maximum Build-Out	109	275	550	78.0	11.0	34.0

Table II-3: Projected Average Monthly Production

Month	Production (gallons)	Month	Production (gallons)
Jan	800,000	Jul	1,058,000
Feb	822,000	Aug	1,000,000
Mar	870,000	Sep	920,000
Apr	920,000	Oct	870,000
May	1,000,000	Nov	822,000
Jun	1,058,000	Dec	800,000

III. System Analysis

A. System Design Standards

See Section VII.

B. System Design

This is a brand new system. The construction drawings for the Keeneland Park PRRD, which includes the distribution system for Keeneland Park PRRD, have already been approved by the County. The construction drawings for the Tank and Pumphouse are being submitted simultaneously with this Water System Plan to both DOH and the County. Those portions of the construction drawings for Keeneland Park PRRD that include the distribution system are being submitted to DOH in junction with the construction drawings for Tank and Pumphouse. Key elements of the water systems design are discussed below. For a schematic representation of the proposed system, please refer to the hydraulic analysis in Appendix 7.

C. Water Rights Assessment

The system is authorized and approved by Ecology to withdrawal 125 gpm, and 73 acre-feet per year from its well for community domestic and irrigation uses for the Keeneland Park Developments and the Elwanger Developments under Surface Water Right No. 3750, which has a priority date of October 14, 1949.

1. History of the System's Water Rights

   On August 30, 1950, Surface Water Right No. 3750 was issued to the Ayer Brothers with a priority date of October 14, 1949. It was later acquired by Todd Hansen/LUFCO, LLC in conjunction with a land purchase.

   On June 21, 2004, Todd Hansen/LUFCO, LLC submitted an Application For Change/Transfer to the Department of Ecology.

   On May 9, 2008, the Thurston County Water Conservancy Board granted conditional approval for the change and transfer. This included a change of the point of withdrawal from the Creek to a well.

   On July 21, 2008, Ecology reversed the Board's decision.

   On November 14, 2008, Ecology affirmed in part, and modified in part, the Board's decision. The modification set the instantaneous withdrawal to 125 gpm, the annual withdrawal to 73 acre-feet per year, changed the purpose, and the changed the place of use to the tax parcels included in the Keeneland Park and Elwanger Developments.

The documents referenced above are provided in Appendix 4. These documents should be referenced for a complete understanding of the usage restrictions on the water. Current and future water right self-assessment tables are also provided in Appendix 4.

D. System Inventory, Description and Analysis

1. Source

The System has one well. It's pumping capacity is 60 gpm. See Appendix 3 for the WFI and the well log.

2. Treatment

The proposed System will not treat its water. An area in the Pumphouse has been set aside for treatment should the System need to treat its water in the future. See Section V.B for an analysis of the water quality.

3. Storage

As discussed in Section II.B, the ADD = 275 gpd/ERU and MDD = 550 gpd/ERU. Based on these numbers, 109 ERUs and Water System Design Manual,[1] the peak hourly demand (PHD), recommended operating storage (OS_{rec}) required equalizing storage (ES_{req}), and recommended standby storage (SB_{rec}) are calculated below.

Equation III-1: Peak Hourly Demand

$$PHD = \left(\frac{MDD}{1{,}440}\right)(C \times N + F) + 18$$

Where PHD = Peak hourly demand in gpm / system
MDD = Maximum daily demand in gpd / ERU
C = Coefficient from Table 5 – 1 of the Water System Design Manual
N = Number of ERUs
F = Factor from Table 5 – 1 of the Water System Design Manual

$$PHD = \left(\frac{550}{1{,}440}\right)(2.0 \times 109 + 75) + 18$$

$$= 130 \text{ gpm / system}$$

[1] "Water System Design Manual" (DOH # 331-123), published by the Washington State Department of Health, August 2001.

Equation III-2: Recommended Operational Storage

$OS_{rec} = 5 \text{ minutes} \times Qs$

Where OS_{rec} = Recommended Operational Storage

Qs = Pumping capacity of source(s) in gpm

$OS_{rec} = 5 \text{ minutes} \times 60 \text{ gpm}$

$= 300 \text{ gallons}$

Equation III-3: Required Equalizing Storage

$ES_{req} = 150(PHD - Qs)$

Where ES_{req} = required equalizing storage in gallons

Qs = Pumping capacity of source(s) in gpm

$ES_{req} = 150(130 - 60)$

$= 10{,}500 \text{ gallons}$

Equation III-4: Required Standby Storage

$SB_{rec} = 200 \text{ gallons} \times N$

Where SB_{req} = Required standby storage in gallons

$SB_{rec} = 200 \text{ gallons} \times 109$

$= 21{,}800 \text{ gallons}$

Equation III-5: Recommended Standby Storage

$SB_{rec} = 2 \times ADD \times N$

Where SB_{rec} = Recommended standby storage in gallons

ADD = Average daily demand in gpd / ERU

$SB_{rec} = 2 \times 275 \times 109$

$= 59{,}950 \text{ gallons}$

The System proposes to install a concrete tank at the wellsite. The height of the proposed dead storage (DS_{prop}) is the height of the booster pump off sensor. The height of the proposed standby storage (SB_{prop}) is the difference in height between the low level alarm and the top of the proposed dead storage. The height of the proposed equalizing storage (ES_{prop}) is the difference in height between the well pump on sensor and the top of the proposed standby storage. The height of the proposed operational storage (OS_{prop}) is the difference in height between the well pump off and the top of the proposed equalizing storage.

The tank will have a 30' diameter. Therefore every foot of water within the tank equates to 5,287 gallons of storage. Figure III-1 gives a schematic representation of the proposed tank.

Table III-1 shows the recommended or required storage and the proposed storage for each type. As can be see by examining the data in Table III-1, the proposed tank meets or exceeds the required volume of storage for each type.

The system does not provide fire flow storage. This is consistent with the applicable Thurston County regulations. A letter from the Fire Marshal stating this is provided in Appendix 6.

Figure III-1: Schematic of Proposed Tank

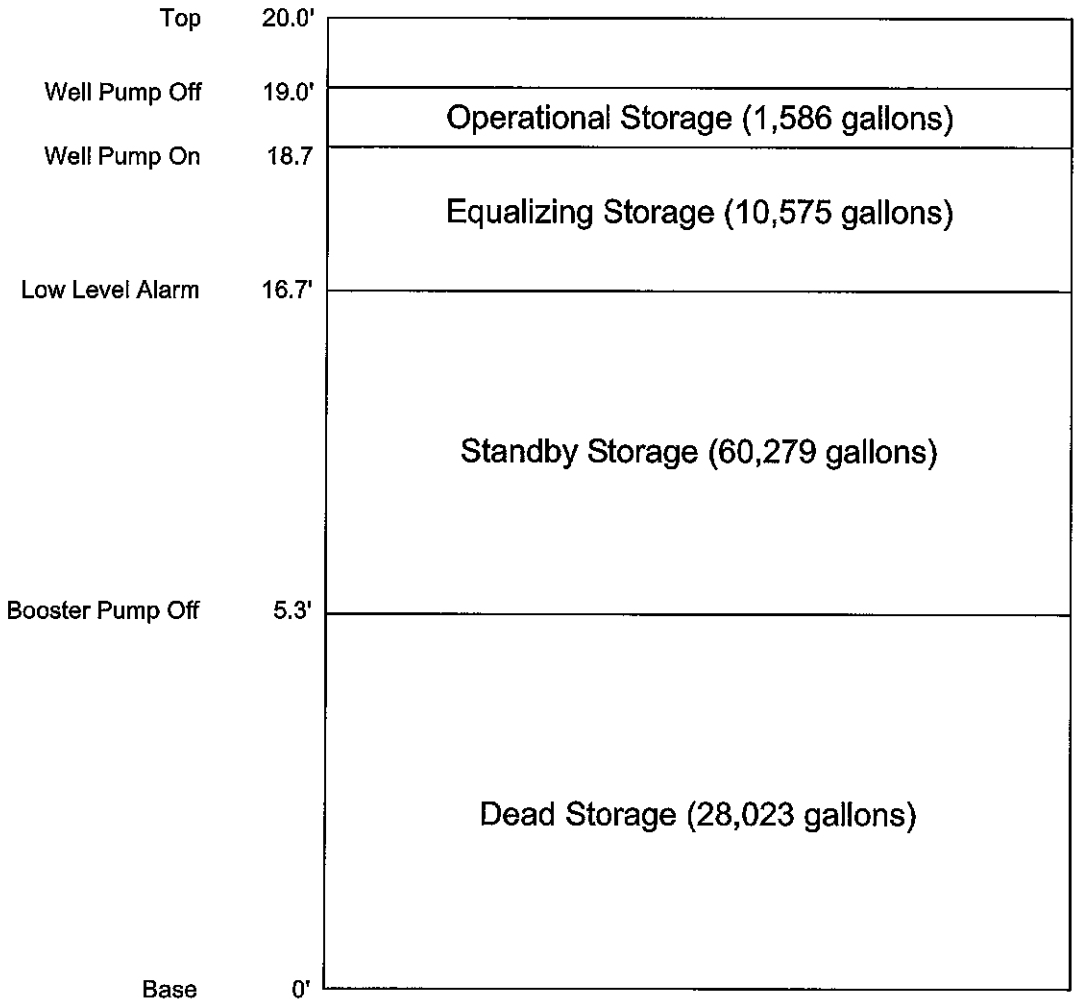

Table III-1: Recommend or Required Vs. Proposed Storage

Storage Type	Recommended (gallons)	Required (gallons)	Proposed (gallons)
Operational Storage	N/A	300	1,586
Equalizing Storage	NA	10,500	10,575
Standby Storage	59,950	21,800	60,279
Fireflow Storage	0	0	0

A more detailed analysis of the system's capacity based on the system's pumping capacity, water rights, and proposed storage capacity is provided in Appendix 6 as well. Table III-2 provides the number of possible ERUs by limiting factor.

Table III-2: Number of Possible ERUs by Limiting Factor

Limiting Factor	N
Number of Lots	109
Water Right Restriction	119
Annual Source Capacity	237
Daily Source Capacity	157
Equalizing Storage	110
Standby Storage	110
Capacity Related Storage[1]	110
Distribution System	>109

[1] For this system, the Capacity Related Storage = Equalizing Storage + Standby Storage.

4. Distribution System/Hydraulics

The distribution system will consist mostly of 4 and 6 inch pipes. The system will be pressurized by booster pumps. A hydraulic analysis of the system, including cutsheets for the booster pumps are provided Appendix 7. The booster pumps will be controlled by variable frequency drives so the pressure at the boosters will be very consistent, regardless of the demand. The system is designed such that the hydraulic grade level (HGL) at the output of the boosters will be 225 ft, which equates to a pressure of 84.3 psi that elevation. The lowest pressure the system is anticipated to experience is 33.5 psi at junction J13 during PHD. (See Figure 1 of Appendix 7 for a schematic showing where the various junctions are.) This is above the required 30 psi under these conditions. The highest pressure anticipated within the water mains is 147.8 psi at junction J1. The water mains are rated for 200 psi and no service connection will at this point in the system. The highest pressure that a service connection is anticipated to experience is 94.7 psi at J21. The highest velocity anticipated is 1.9 ft/s through pipe P16 during PHD.

The system will not have any hydrants and has not been analyzed for fireflow.

5. Source

Detailed information regarding the source is provided in the "Todd Hansen, Keeneland Park Production Well Construction and Testing Report" by Robinson Noble Saltbush, Inc. A copy of this report is included in Appendix 3. The total dynamic head required by the source is 50'. This was calculated as follows:

Height of storage tank (20') + Difference in elevation between the well and the base of the tank (0') - Static level in well (-10') - Drawn down (-20')

Two Grundfos 60S50-7 submersible pumps have been chosen for this System's well pumps. At an operating set point of 60 gpm, this pump will deliver more than adequate head to fill the tank. The pump's cutsheet is provided in Appendix 3.

E. Summary of System Deficiencies

As a new system, the Keeneland Park Water System should be adequate to meet the needs of its customers. Lack of source and storage redundancy will be one of the few deficiencies of the proposed System. Redundancies provide more flexibility and better continuation of service should a problem arise.

F. Analysis of Possible Improvements

As mentioned above, lack of source and storage redundancy is one of the few deficiencies of the System. Secondary sources and storage were considered as part of the design. However, these are extremely expensive. Any additional expense would have to be born by the future customers of the water system, making these solutions cost-prohibitive for the end user. In an effort to provide water at an affordable rate, the system elected to have only one source and one tank.

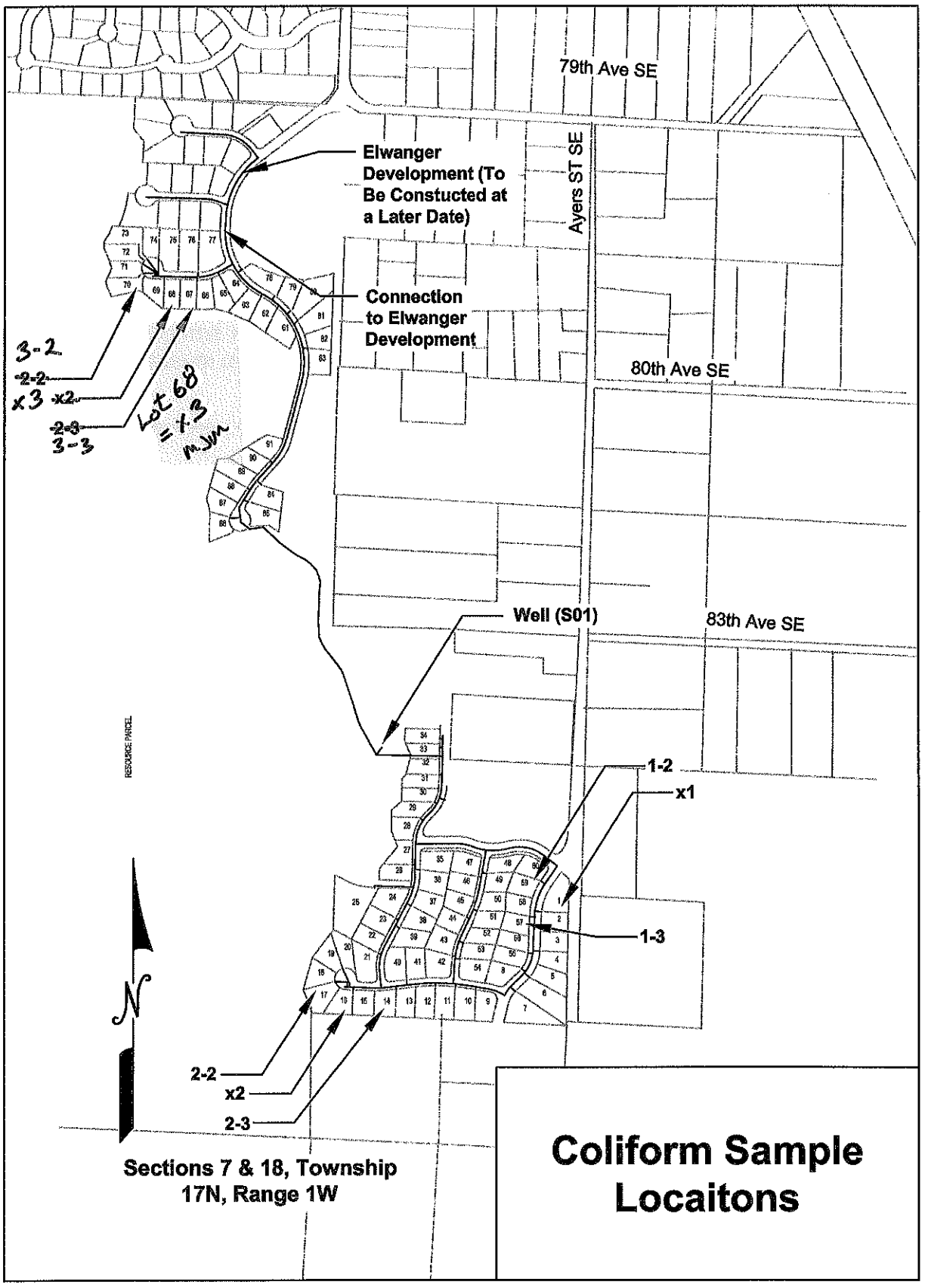

Figure VI-1: Coliform Monitoring Sites

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

Construction/Decommission *("x" in circle)*

(•) Construction

( ) Decommission *ORIGINAL INSTALLATION Notice of Intent Number* 253114

PROPOSED USE: [ ] Domestic [ ] Industrial [ ] Municipal [ ] DeWater [ ] Irrigation [x] Test Well [ ] Other

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

[x] New well [ ] Reconditioned [ ] Deepened — *Method:* [ ] Dug [ ] Bored [ ] Driven [x] Cable [ ] Rotary [ ] Jetted

DIMENSIONS: Diameter of well 12 inches, drilled 97 ft.

Depth of completed well 97 ft.

CONSTRUCTION DETAILS

Casing Installed: [x] Welded 12" Diam. from +1.5 ft. to 54 ft.

[x] Liner installed 8" Diam. from +1.5 ft. to 53 ft.

[ ] Threaded " Diam. from ft. to ft.

Perforations: [ ] Yes [x] No

Type of perforator used

SIZE of perfs in. by in. and no. of perfs from ft. to ft

Screens: [x] Yes [ ] No [ ] K-Pac Location

Manufacturer's Name ALLOY MACHINE WORKS

Type SLOTTED Model No.

Diam. 8 Slot size .030 from 53 ft. to 78 ft.

Diam. Slot size from ft. to ft

Gravel/Filter packed: [x] Yes [ ] No [ ] Size of gravel/sand 8 X 12

Materials placed from 12 ft. to 97 ft.

Surface Seal: [x] Yes [ ] No To what depth? 21 ft.

Material used in seal BENTONITE CHIPS

Did any strata contain unusable water? [ ] Yes [x] No

Type of water? Depth of strata

Method of sealing strata off

PUMP: Manufacturer's Name

Type: H.P.

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

Static level 10' 6" ft. below top of well Date 1/16/07

Artesian pressure lbs per square inch Date

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

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? [x] Yes [ ] No If yes, by whom? ADI

Yield: 75 gal./min. with 20 ft. drawdown after 1 hrs.

Yield: 150 gal./min. with 32 ft drawdown after 1 hrs.

Yield: 250 gal./min. with 46 ft. drawdown after 1 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 60 gal./min. with 8 ft. drawdown after 6 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 [x] No

CURRENT

Notice of Intent No. WE05989

Unique Ecology Well ID Tag No. ALH951

Water Right Permit No. EXEMPT WELL

Property Owner Name TODD A. HANSEN / LUFCO LLC

Well Street Address 8525 SE AYER STREET

City OLYMPIA County THURSTON

Location NW 1/4-1/4 NE 1/4 Sec 18 Twn 17N R 1W BWM or WWM [x] check one

(Lat/Long (s, t, r Still **REQUIRED**) Lat Deg Lat Min/Sec

Long Deg Long Min/Sec

Tax Parcel No. 11718120200

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
SILT BOUND SAND, LARGE GRAVEL	0	16
GRAY SAND	16	29
BROWN SILTY SAND, SOME GRAVEL	29	46
BROWN SILT BOUND FINE SAND	46	49
BROWN SILTY MEDIUM SAND (HEAVING)	49	
WATER		80
GRAY SILTY FINE SAND	80	97

RECEIVED
FEB 20 2007
Washington State Department of Ecology

Start Date 12/19/06 Completed Date 1/16/07

WELL CONSTRUCTION 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.

[ ] Driller [ ] Engineer [ ] Trainee Name (Print) MARK H. NELSON

Driller/Engineer/Trainee Signature Mark H. Nelson

Driller or trainee License No 1992

Drilling Company ARCADIA DRILLING INC.

Address PO BOX 1790

City, State, Zip SHELTON WA 98584

If TRAINEE,
Driller's Licensed No.
Driller's Signature

Contractor's Registration No. ARCADDI098K1 Date 1/30/07

ECY 050-1-20 (Rev 3/05)

Ecology is an Equal Opportunity Employer