DEER CREEK – KELLY ROAD WATER SYSTEM CONSOLIDATION STUDY

Prepared for

Deer Creek Water Association

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Acronyms and Abbreviations

CAO	Critical Areas Ordinance
CFR	Code of Federal Regulations
CIP	capital improvement project
DOH	Washington State Department of Health
Ecology	Washington State Department of Ecology
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ERU	equivalent residential unit
ESA	Endangered Species Act
ft^2	square feet
G.O.	general obligation
GIS	geographic information system
GPS	Global Positioning System
HPA	Hydraulic Project Approval
LID	low-impact development
LIDs	local improvement districts
NOI	notice of intent
NPDES	National Pollutant Discharge Elimination System
PWTF	Public Works Trust Fund
RCW	Revised Code of Washington
ROW	right of way
SEPA	State Environmental Policy Act
SMP	Shoreline Management Program
UGA	urban growth area
ULID	utility local improvement district
WAC	Washington Administrative Code
WCC	Whatcom County Code
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WRIA	Water Resource Inventory Area

1 Introduction and Purpose

This study will identify the infrastructure required to consolidate the Kelly Road Water Association water system (KRWA) into Deer Creek Water Association water system (DCWA). The Study will also identify the associated costs for the consolidation project (including membership fees), how those costs would be distributed between the two water systems, how the project could be financed, and payment options for the KRWA customers.

The Study will include an assessment of the existing KRWA assets and infrastructure in order to determine the capital and operational costs associated with KRWA remaining an independent water system. As part of the Study, we will assess interest in connecting to public water from nearby property owners, which may offset some project costs. When a draft of the Study is complete, there will be an informational presentation of the Study results at a public meeting for both water systems. Comments will be documented and included in the final report.

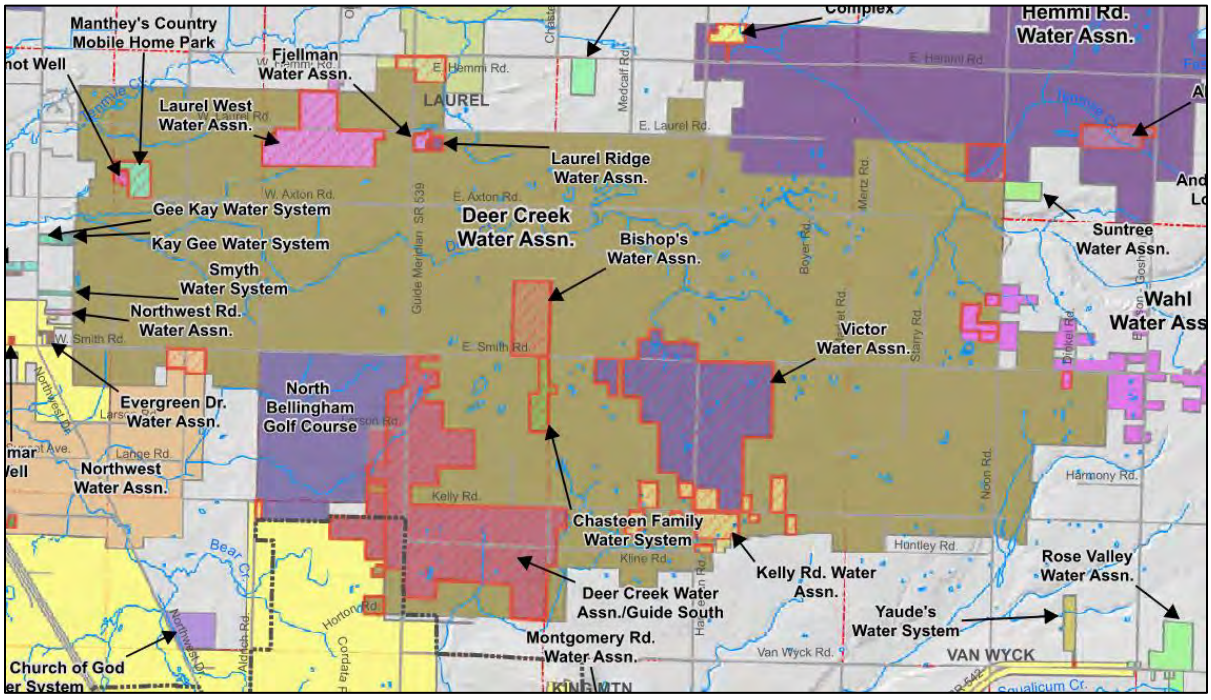


Figure 1: Deer Creek Water Assn. and Kelly Rd. Water Assn. designated water service areas.

(from the 2016 Whatcom County coordinated water system plan)

2 Deer Creek (DCWA) Water Association - Existing Conditions

Deer Creek Water Association is centered around Guide Meridian and Hannegan Rd., just north of The City of Bellingham. The area is primarily zoned rural (R5A – 1 Unit/5 Acres) with some agricultural and rural community zoned areas. The Association serves 419 single family residences (full time only), and 65 nonresidential connections through its main water system. A subsection of the area, Deer Creek Water Association/Guide South (DCWA-GS) is ignored for the purposes of this consolidation study but is included in certain discussions due to its inclusion in the Deer Creek 2023 water system plan.

2.1 Source of Supply (DCWA)

Deer Creek owns two 130 ft deep wells listed in their WFI as SO1 and SO2 and when combined as a well field listed as SO3. The wells are located in Whatcom County Parcel 105069 just east of the intersection of Guide Meridian and E Smith Rd.

The association has two water rights and an application under review with the Department of Ecology. The water rights and new application are summarized in the table below. In addition to the water rights section 3.3.1 in the water system plan states the wells had a combined flow of 480 gpm in September of 2022. This discharge to could be increased to the full water right of 500 gpm if the frequency of the pumps were increased from 60 Hz to 69 Hz.

Table 1: DCWA Water Rights

Water Right Record/Doc No.	Date	Phase	Instantaneous Water Right, gpm (Qi)	Annual Water Right, Acre-ft (Qa)
G1-*00266C	10/23/1946	Superseding Certificate	200	4
G1-21084C	11/30/1973	Certificate	300	336
G1-26144	04/15/1991	New Application	500	560

Combined, Deer Creek has a total water right of 500 gpm available for instantaneous withdrawal and 340 acre-ft available for yearly use. If the new application were to be approved, their annual water right would increase to 560 acre-ft.

The source water is chlorinated and treated for manganese removal at the wellfield production site.

2.2 Treatment (DCWA)

Both of the wells meet the primary maximum contaminant levels (MCLs), but not secondary MCLs. The combined well field (SO3) is high in manganese. Current treatment to remove the manganese is provided by an ATEC filtration system that uses AS 741 M filter media. Chlorination is not required for groundwater but the filtration system requires a residual of 0.4 mg/L. A sodium hypochlorite solution provides the chlorine source. The chlorinate water enters a 340 ft long 24" pipe which provides CT6 disinfection at the maximum flow of 500 gpm.

2.3 Storage (DCWA)

Deer Creek has two 30 ft diameter concrete water storage tanks located on Whatcom County Parcel 104714 and 104715. This is about one mile to the northeast of the wells. The tanks have a combined storage capacity of 270,000 gallons. There is no dedicated fill line for the tanks, instead the tanks are filled as the system is pressurized by the well pumps.

2.4 Distribution System (DCWA)

According to the draft 2023 water system plant the distribution system is around 20 miles of 2" through 12" diameter pipe. Pipe materials vary as replacement and expansion have since initial construction and include AC, PVC, DI, and HDPE. The system consists of five different pressure zones with their approximate hydraulic heads listed in the table below.

Table 2: DCWA Pressure Zones

Pressure Zone	Approx. Hydraulic Head (ft)	Description
Guide Meridian	282	Northwest portion fed from main zone through pressure reducing valve
Bellingham[1]	375	Southern portion disconnected from and fed from City of Bellingham
Main	389	Central area fed by wells and tanks
E. Smith	478	Eastern portion fed from the main zone via the booster pump station
Axton	389	Northeaster portion fed from E. Smith through two pressure reducing valves

The Bellingham pressure zone is served by the City of Bellingham and is partially owned and operated by the city. There is an emergency interconnect with Deer Creek along Guide Meridian

[1] The Bellingham pressure zone has its own water system facility inventory form and is separate from the DCWA in terms of any system analysis calculations.

south of the intersection with E. Smith Rd. A map of the water system pressure zones can be found in Exhibit 2.

2.5 Booster Pumps (DCWA)

The booster pump station built in 2003 houses three pumps. Two smaller pumps on variable frequency drives handle normal flows, each with a capacity of 250 gpm. A third larger pump with a capacity of 650 gpm at 60 ft of head and 500 gpm at 75 ft of head handles larger flows, including fire flow. The booster pump station was not found to have any deficiencies in the draft water system plan.

2.6 System Demands (DCWA)

The 2023 water system plan analyzed water consumption and production data from 2016 to 2020. For projection purposes the WSP uses 223 gpd/ERU for average day demand (ADD) with conservation and 248 gpd/ERU for ADD without conservation. These two values include 5% and 10% distribution system leakage (DSL) respectively. For maximum day demand (MDD) the WSP uses 431 gpd/ERU and 473 gpd/ERU for projection purposes. This is with conservation and 5% DSL and without conservation and 10% DSL respectively. These values are tabulated below.

Table 3: Deer Creek Water Assoc. projected demands

Demand	Water Quantity (gpd/ERU)
ADD w/conservation + 5% DSL	223
ADD w/o conservation +10% DSL	248
MDD w/conservation +5% DSL	431
MDD w/o conservation +10% DSL	473

The above projected ADD and MDD values are similar to other water systems in the area. Projections in the draft water system plan can be found in Table 2-7 and Table 2-8 of said document. According to the WSP the maximum number of ERUs the system could serve is 1,000 ERUs with the existing system and storage.

3 Kelly Rd. (KRWA) Water Assoc. Existing Conditions

Kelly Road Water Association is a collection of parcels all located near the intersection of Kelly Road and Hannegan Road, northeast of The City of Bellingham. The area is zoned rural (R5A – 1 Unit/5 Acres). The water system serves 17 single family residences and one commercial connection (horse farm), although it was only approved for 12 connections by the DOH. Due to the limited water availability, the commercial connection has restricted its water use to be comparable to a single-family residence.

3.1 Source of Supply (KRWA)

Kelly Rd. Water Assoc. has a single well (Well #1 AFM053) located just north of the intersection of Kelly Rd and Hannegan Rd on Whatcom County parcel 105335. The well is drilled 255 ft into fractured bedrock and has a 6" casing pipe. It is reported to entrap air in the water line during periods of high use. The check valve is not able to hold a seal which may be contributing to the air entrapment. The well pump is controlled by a float switch located in the adjacent storage tank, and the water is metered with a totalizer as it enters the tank. The exterior and interior of the building can be seen in Figure 2 and Figure 3.

The table below summarizes the water rights. The original water right from 1954 allowed for the instantaneous and yearly use of 8 gpm and 12.8 acre-ft respectively. In 1974 this was modified to 3 gpm and 4.8 acre-ft.

Table 4: Kelly Rd. Water Association Water Rights

Water Right Record/Doc No.	Date	Phase	Instantaneous Water Right, gpm (Qi)	Annual Water Right, Acre-ft (Qa)
G1-*03802CWRIS (original)	11/10/1954	Certificate	8	12.8
G1-CV1-1P15 (revised)	05/23/1974	Certificate of Change	3	4.8

Based on the instantaneous water right of 3 gpm, Kelly Rd. Water Assoc. can provide a maximum of 4320 gallons per day if the well pump operated 24/7. When dividing this among the 18 users this allows for a maximum daily use of 240 gallons/day. From a yearly perspective, the 4.8 acre-ft allow a yearly use of 1,564,000 gallons. This equates to 238 gallons/day per user for average use when dividing by the 18 users and 365 days per year.

Figure 2: Kelly Rd. Water Assoc. well pump house and adjacent concrete storage tank

Figure 3: Well pump house interior

3.2 Treatment (KRWA)

Kelly Road Water Associate does not provide any treatment other than chlorination.

3.3 Storage (KRWA)

Adjacent to the well is a small square concrete storage tank. The tank measures approximately 8' by 8' by 8' with a storage capacity around 3500 gallons. The outlet of the tank is connected to two manually controlled centrifugal booster pumps. The tank has experience high amounts of biological growth in the past and regular summer cleanings are required.

3.4 Booster Pumps (KRWA)

Two 2 hp booster pumps operating on pressure switches provide flow at the required distribution pressure. Immediately downstream of the booster pumps' discharge manifold is a chlorine injection point. The system uses two 81-gallon pressure tanks with a third pressure tank valved off, but available as a backup.

3.5 Distribution System (KRWA)

The distribution system is mostly small diameter, 4", 3", and 2" PVC. The exact sizes and layout of the water distribution piping is unknown since no as-builts are currently available. The pipes are assumed to be installed in the Kelly Rd right of way (ROW).

3.6 System Demands (KRWA)

Data collection for Kelly Rd. Water Assoc. consists of a handwritten log on a legal pad stored in the well pump house. The totalizer production data from the discharge of well pump was analyzed to determine the volume of water between readings. This value was then divided by the number of days between readings and by the 18 users listed on the WFI.

This yields an average per user use of 211 gpd/connection. This is not atypical for the area. The calculated values ranged from a minimum of 135 gpd/connection to a maximum of 360 gpd/connection. A rolling 4-week average was used to determine max month average day demand (MMADD). The highest value this ever reached was 249 gpd/connection. For systems less than 1,000 people the Design Manual recommends multiplying the MMADD by 1.65 to determine max day demand (MDD). Therefore, the MDD estimate is 411 gpd/connection. This is only an estimate since there was only one summer's worth of data available, and for the sake of simplicity each connection is treated as one equivalent residential unit (ERU).

All of the available data is illustrated in the graph below. Due to the inconsistent collection of data, there are outliers. No individual usage data is available at this time.

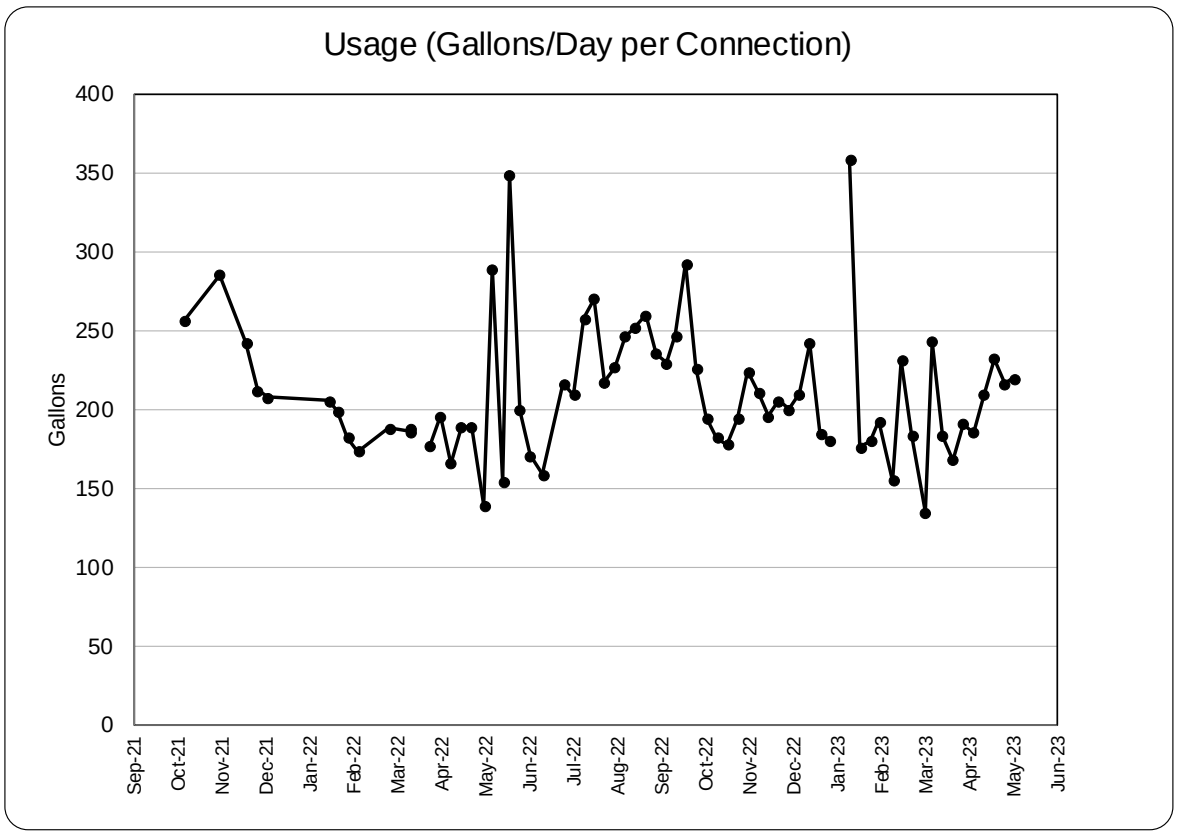


Figure 4: Kelly Rd Water Assoc. usage data

The current operator commented that use during the summer is conservative out of fear of running out of water. The current water source has not been the most reliable for Kelly Road Water Association. Most of the users are single family homes zoned R5A, Rural Res. 1 Unit/5 acres. One user is a horse farm, Kelly Park Stables. Data on water use by the horse farm is not available, but anecdotal reports are that it is similar to the residential water use.

When comparing water use to the water right, it is evident that the water right is not sufficient. The MDD for the water system is estimated to be 411 gpd/ERU while the water right can only provide 240 gpd/ERU. Even with conservation during summer months and high use periods the water right is inadequate to cover the amount of water used.

4 Consolidated Water System

4.1 Source of Supply

For the consolidated water system, Deer Creek plans to use its existing wells as the source of supply. As stated above the two wells in the well field have combined capacity of 500 gpm, the same as the full instantaneous water right. The water system plan calculates the maximum ERUs allowed by the source capacity and water rights is 1,224 ERUs.

4.2 Treatment

The existing ATEC treatment system will continue to be used for the consolidated water system. The water system plan does not explicitly state the capacity of the treatment system just that it will treat the maximum well field production of 500 gpm. Therefore, the treatment capacity matches that of the source of supply.

4.3 Storage

Storage for the consolidated system would be handled by the existing concrete tanks in the Deer Creek Water System. The water system plan states the capacity of the Deer Creek existing storage facility is 1,000 ERUs (even though the source of supply can support 1,224 ERUs).

4.4 Booster Pumps

The Kelly Road customers would be served by the boosted East Smith Pressure Zone. According to the water system plan, the booster pump station serves 288 ERUs with a peak hour demand of 229 gpm. When KRWA is consolidated with DCWA, an additional 18 ERUs would be served. With 306 ERUs served, the peak hour demand will be 240 gpm, calculated using equation 3-1 in the DOH Design Manual and values for the Deer Creek Water System.

Equation 3-1: Determine PHD

$$PHD = (ERU_{MDD} / 1440)\,[(C)(N) + F] + 18$$

Where

PHD	=	Peak Hourly Demand, total system (gallons per minute)
C	=	Coefficient Associated with Ranges of ERUs
N	=	Number of ERUs based on MDD
F	=	Factor Associated with Ranges of ERUs
ERU_{MDD}	=	Maximum Day Demand per ERU (gallons per day)

Since the value for ERU_{MDD} from the draft WSP includes DSL, N is equal to the number of ERUs.

$$Peak\ Hour\ Demand\ (PHD) = \left(\frac{473}{1440}\right)[(1.8)(306) + 125] + 18$$

$$Peak\ Hour\ Demand\ (PHD) = 240\ gpm$$

The two small booster pumps have a listed capacity of 250 gpm each and can handle the additional demand of the consolidating the Kelly Road Water System.

Given the opportunity for additional connections from vacant properties, or properties with failing wells, along the alignment of the new main, it would be prudent to review the sizing of the booster pumps prior to their scheduled replacement.

4.5 Distribution System Connection Alternatives and Modeling

In the water system plan, the distribution system was not found to have any deficiencies. The water model was provided to Wilson Engineering in the form of a WaterGEMs model, a type of hydraulic modeling software. The model was converted to InfoWater, the standard modeling software for Wilson Engineering.

4.5.1 Demand Allocation

The demand allocation in the model, i.e., the fraction of water each junction called for during a scenario, was not changed, only scaled to match the values in Table 6 below. An additional 18 ERUs worth of demand was added to the junctions on each end of the Kelly Road Water System.

The tables below show the system-wide demands that the model was scaled to meet.

Table 5: Total model demand values

Year	DCWA ERUs	KRWA ERUs	Combined ERUs	ERU_{MDD} (gpd/ERU)	MDD (gpd)	MDD (gpm)	PHD[2] (gpm)
2030	693	18	711	473	336,303	233.5	486

[2] The PHD varies from table 2-7 in the water system plan due to a difference in calculating the "N" value for the PHD equation and the addition of 18 ERUs. The PHD was calculated using the method shown in section 4.4 of this report.

Table 6: Consolidated area demand allocation

Year	DCWA ERUs Fraction	DCWA MDD (gpm)	DCWA PHD (gpm)	KRWA ERUs Fraction	KRWA Junctions MDD (gpm)	KRWA Junctions PHD (gpm)
2030	693/711 = 0.9747	227.6	473.7	18/711 = 0.0253	5.9	12.3

The MDD and PHD were found for the consolidated system by multiplying the ERU_{MDD} by the total number of ERUs, including the consolidated ERUs. The PHD was then found by using the formulas in Section 4.4 of this report. Next, since the model didn't have demands for the two new junctions in the consolidated area, the 18 ERUs' demand was calculated as a fraction of total demand. The existing model demands were multiplied so that their sum equaled that of the Table 6 DCWA MDD and PHD demand columns. Then the KRWA demand was evenly applied over the two new junctions for MDD and PHD to get the total system wide demands shown in Table 5.

4.5.2 Extension Loop Alternatives

There are three alternatives for looping the Kelly Road Water System to the Deer Creek Water System. The primary consolidation extension includes installing new piping along Kelly Rd from the eastern most KRWA-served parcel to the western most KRWA-served parcel. It would run from the southern end of the 6-inch DCWA water main on Yellow Brick Road (replacing about 1,400 feet of two-inch pipe), then east along Kelly Rd to the eastern edge of 1163 Kelly Road (parcel 54763), which is the eastern most parcel served by KRWA. This primary extension also extends north on Patton Road about 1,300 feet to the north side of 4974 Patton Road (parcel 105281), a KRWA-served parcel. This main section of pipe is modeled as about 8,900 feet of 8-inch pipe. The construction of this portion of the consolidation would be in the County right-of-way. To provide fire flow, however, the Kelly Road main will need to connect into the Deer Creek distribution system at a second location. Alternative A would connect Kelly Rd on the west end to E Smith Rd by installing a pipe along Patton Rd and connecting it to a dead-end running south about 1000 ft east of the booster pump station. Alternative B would connect Kelly Rd on the east end by connecting to a newly installed developer extension at about 1410 Kelly Road (parcel 105483). Alternative C would connect the Kelly Road water main to the western end of the Zander Road water main. Each alternative is discussed in more detail below, along with modeling results for Alternatives A and B. The modeling results for Alternative C are assumed to be similar to Alternative B. Maps of these alternatives can be found in Exhibit 2. Alternative C would require new easements to install pipes in private land. Easements have been obtained for Alternative A, and Alternative B is all in public right-of-way, but relies on completion of a pending developer extension.

4.5.2.1 Modeling

The demand scenarios that were modeled were the 2030 maximum day demand plus fire flow (MDD+FF) and peak hour demand (PHD). The MDD+FF applies a fire demand to each node that is the maximum flow rate available before dropping the minimum system wide pressure to below 20 psi. Although there is no fire flow requirement for rural-zoned areas of Whatcom County we used 500 gpm as a minimum criterion for design. The PHD measures the system-wide pressures for the entire system during peak hour demands. According to the DOH design manual, the distribution

system pressures should be between 30 and 100 psi. Any pressures outside of this range are not recommended.

4.5.2.1.1 Alternative A & Modeling Results

Alternative A starts at the end of the existing 10-inch PVC pipe along Gracewood Lane that terminates at the southwestern corner of Whatcom County Parcel 105246. The new 10-inch pipe would run east approximately 650 feet. At the eastern side of parcel 105268 the pipe would turn south and run approximately 1986 feet until connecting with main section of pipe installed along Patton Rd. The modeled pipe is ~2,636 ft of 8-inch pipe with a friction factor for both PVC or cement-lined ductile iron pipe.

Modeling results indicate that Alternative A can provide both sufficient pressure and fire flow for the connections along Kelly Rd (see Exhibit 3 for results). The two new junctions for the Kelly Rd consolidated connections would be provided with 70+ psi pressure and 600+ gpm fire flow. Any of the junctions with less than 500 gpm fire flow or pressures outside of the recommended range are not a part of this consolidation study project area.

4.5.2.1.2 Alternative B & Modeling Results

Alternative B would start at the eastern property line of 1163 Kelly Rd (Parcel 54763), where the primary water main extension ends. The pipe would run east along Kelly Rd about 3,058 feet and connect with the southern end of the developer extension main, (eastern edge of parcel 193341). The modeled pipe is 3,058 ft of 8-inch pipe with a friction factor for both PVC or cement-lined ductile iron pipe.

Modeling results indicate that Alternative B can provide both sufficient pressure and fire flow for the connections along Kelly Rd (see Exhibit 3 for results). The two new junctions for the Kelly Rd consolidated connections would be provided with 70+ psi pressure and 800+ gpm fire flow. Any of the junctions with less than 500 gpm fire flow or pressures outside of the recommended range are not a part of this consolidation study project area. Alternative B does provide DCWA a slight advantage over Alternative A by creating a much larger looped section in the East Smith pressure zone, and a greater opportunity for additional new connections.

4.5.2.1.3 Alternative C

Alternative C would start at the west end of the Zander Drive water main, and would run west for about 900 feet along the property lines. It would then run south for about 2,180 feet and connect to the primary extension in Kelly Road. The length of pipe is 3,080 ft of 8-inch pipe.

Since the total length of additional pipe in Alternative C is essentially the same as Alternative B, the impacts on system hydraulics were assumed to be similar, and Alternative C was not modeled. While Alternative C does also create a much larger loop than Alternative A, it does not provide the same opportunity for additional new connections that Alternative B does. Alternative C was therefore eliminated from further consideration.

4.6 Demand Comparison

The water use of the 18 Kelly Rd customers needs to be benchmarked against the use of the DCWA customers to determine how much of an effect the additional connections will have on the DCWA system. The table below compares the two water systems and their usage.

Table 7: DCWA and KRWA Demand Comparison

Demand	DCWA Usage (gpd/ERU)	KRWA Usage (gpd/ERU)
ERU_{ADD}	248	211
ERU_{MDD}	473	411

Based on the comparative usage, a Kelly Rd ERU uses 85% of a Deer Creek ERU on an annual basis and 87% of a Deer Creek ERU on a maximum day basis. This indicates that treating the 18 Kelly Rd connections equivalent to 18 Deer Creek ERUs is a conservative and fair estimate.

4.7 Summary

According to the numbers provided by the water system plan the Deer Creek Water System has the capacity to serve the 18 connections currently served by Kelly Road Water Association. The table below summarizes the capacities of the Deer Creek Water System.

Table 8: Consolidated Water System Capacity Analysis Summary

Water System Component	ERUs Served (ERUs)[3]	Capacity (ERUs)	Excess Capacity (ERUs)
Source	653	1,224	571
Treatment[4]	653	1,224	571
Storage	653	1,000	347
Booster Pump	288	>600	>312
Distribution	653	>711[5]	>58

DCWA has been found to have more than sufficient capacity for consolidating with KRWA and providing service to the surrounding area. The additional 18 KRWA connections will not have a significant impact on the capacity of Deer Creek Water System to serve its customers.

[3] ERUs served is taken from Table 2-7 in the draft water system plan for the year 2023, and section 3.3.4.1 for the Booster Pump row.
[4] The treatment system capacity is based on the ability for it to effectively treat the full water right of 500 gpm.
[5] The distribution capacity is based on the 2030 model conditions and the number of projected ERUs in Table 5.

5 Project Cost Estimate and Funding Options

5.1 Project Cost Estimate: Kelly Road Water Assoc. to Remain Independent

Without the option of consolidation, Kelly Road Water System will require significant investment of funds to stay independent and provide reliable service to its customers. Several issues plague the water system that need to be resolved before the department of health would agree to increase its number of approved connections. To start, a system analysis would need to be conducted to determine the capacity of each component in the water system. Along with the system analysis, a capital improvement plan would also need to be conducted to plan for the future upgrades. The well and water right are insufficient for current use, therefore a new well, pump, and hydrogeological study would be needed. However, there is no guarantee that a new well would yield enough water for the water system to meet system demands. The water system would also need new booster pumps since the current ones are aging and are due to be replaced. A backup generator is also recommended to provide resiliency in the case of the any power outages. Lastly, a new, larger concrete reservoir is necessary since the existing reservoir is undersized. The sizing of the reservoir would be provided in the system analysis.

It would also be recommended to plan for replacing the water main along Kelly Rd and all service lines from the main to the meter because of the age of the existing infrastructure. This will make the cost comparisons to that of consolidating with the DCWA comparable since the consolidation includes installing new water mains and service connections.

Below is a rough order of magnitude cost estimate that would allow KRWA to remain an independent water system. The estimate shows that the costs associated with KRWA remaining an independent water system are significant and would require a substantial increase in rates and charges to cover future improvements to maintain the functionality of the system. The cost estimate does not capture the “costs” associated with maintaining a volunteer Board, applying for additional water rights to cover the peak water use by existing customers, or any debt servicing costs.

Table 9: Rough order of magnitude (ROM) cost estimate for KRWA to remain independent

Item No.	Description	Unit	Est. Qty.	Unit Price	Total Price
1	System Analysis	LS	1	$20,000	$20,000
2	Capital Improvement Plan	LS	1	$20,000	$20,000
3	New Source Approval	LS	1	$50,000	$50,000
4	Hydrogeo Testing of New Well	LS	1	$25,000	$25,000
				Total	$115,000
5	30-Year Operating Cost (Present Value)	LS	1	$116,000	$116,000
6	Mobilization	LS	1	$134,173.2	$134,173
7	Trench Safety Systems	LS	1	$5,000	$5,000
8	Locate, Pain, and Pot Hole Existing Utilities	LS	1	$10,000	$10,000
9	Erosion Control / Water Pollution Control	LS	1	$20,000	$20,000
10	Seeding	AC	2.05	$15,000	$30,750
11	Project Temporary Traffic Control	LS	1	$75,000	$75,000
12	8" PVC Water Main Along Kelly Rd	LF	5950	$140	$833,000
13	50 ft HDD Transmountain Crossing, 8" HDPE and Casing	LS	1	$25,000	$25,000
14	8" Gate Valve	EA	12	$2,500	$30,000
15	Reverse Thrustblock	EA	2	$2,000	$4,000
16	Crossing Existing Utility (power, telephone, fiber optic, gas water)	EA	10	$300	$3,000
17	Trans Mountain Pipeline Crossing	LS	1	$10,000	$10,000
18	Fire Hydrant Assembly, including Bollards & Isolation Valve	EA	4	$8,000	$32,000
19	1" Water Service Connection	EA	18	1800	$32,400
20	1" Service Line	LF	360	35	$12,600
21	Combination Air/Vac Valve Assembly	EA	3	5500	$16,500
22	Water Sample Station Assembly	EA	1	5000	$5,000
23	HMA Restoration, Class 1/2" PG 58H-22	TON	17.4	350	$6,090
24	CSTC	TON	17.4	80	$1,392
25	20,000 gal Tank	LS	1	120000	$120,000
26	Well and Pump	LS	1	$35,000	$35,000
27	Booster Pumps	EA	2	$5,000	$10,000
28	Emergency Standby Generator	LS	1	$25,000	$25,000
				Sub-total	$1,475,905
				Contingency, 30%	$442,772
				Sales Tax, 8.6%	$165,006
				Construction Subtotal	$2,083,683
				Electrical Engineering Design, 5%	$104,184
				Survey, Design, Permitting, 15%	$312,552
				Construction Administration, 6%	$125,021
				Total (Items 6-27)	$2,625,441
Grand Total (Items 1-27)					$2,856,441

There are too many unknowns, many stemming from the lack of available groundwater in the KRWA area, for this cost estimate to be a true side-by-side comparison to the costs associated with consolidation. There is not guarantee that if KRWA brought their water system up the same standards of DCWA that they could find a new water source and provide adequate supply. During the summer months the KRWA well runs dry and a future well could also run dry. Therefore, the water storage requirement would be unrealistic for KRWA to consider.

It is not realistic for a water system of 18 connections to be expected to come up with the capital to provide the same level of service and infrastructure as a system with almost five hundred connections. The cost estimate is just an exercise to illustrate how futile it is for KRWA to try to maintain and improve their system the standards of DCWA.

Additionally, KRWA does not have the records to provide an adequate estimate for a 30-year operating costs.

5.2 Project Cost Estimate: Consolidation of KRWA with DCWA

In order for DCWA to consolidate KRWA into their system, a new water main will need to be installed along a portion of Kelly Rd, and an additional segment of pipe – either Alternative A or B – to meet the minimum design criteria-. Below is a rough order of magnitude estimate for the complete construction project. Since there is not a clear advantage for any alternative from an engineering standpoint, and Alternative B relies on the completion of a developer extension, Alternative A was used for the cost estimate.

Table 10: DCWA consolidation ROM cost estimate

Item No.	Bid Item Description	Unit	Est. Qty.	Unit Price	Total Price
1	Mobilization	LS	1	$275,169	$275,169
2	Trench Safety Systems	LS	1	$5,000	$5,000
3	Locate, Paint, and Pot Hole Existing Utilities	LS	1	$10,000	$10,000
4	Erosion Control / Water Pollution Control	LS	1	$30,000	$30,000
5	Seeding	AC	2.59	$15,000	$38,850
6	Project Temporary Traffic Control	LS	1	$141,000	$141,000
7	10" PVC Water Main	LF	3,974	$180	$715,320
8	8" PVC Water Main	LF	7,511	$140	$1,051,540
9	50 ft HDD Transmountain Crossing, 8" HDPE and Casing	LS	1	$25,000	$25,000
10	10" Gate Valve	EA	4	$3,000	$12,000
11	8" Gate Valve	EA	20	$2,500	$50,000
12	Reverse Thrust Block	EA	2	$2,000	$4,000
13	Crossing Existing Utility (power, telephone, fiber optic, gas, water)	EA	10	$300	$3,000
14	Trans Mountain Pipline Crossing	LS	1	$10,000	$10,000
15	Fire Hydrant Assembly, Including Bollards and Isolation Valve	EA	5	$8,000	$40,000
16	1" Water Service Connection	EA	18	$1,800	$32,400
17	1" Water Service Line	LF	360	$35	$12,600
18	Combination Air/Vac Valve Assembly	EA	5	$5,500	$27,500
19	Water Sample Station Assembly	EA	1	$5,000	$5,000
20	HMA Restoration, Class 1/2" PG 58H-22	TON	17.4	$350	$6,090
21	CSTC	TON	17.4	$80	$1,392
22	Expansion Corridor Connection Fee*	EA	18.0	$29,500	$531,000
				Subtotal	$3,026,861
				Contingency, 20%	$605,372
				Sales Tax, 8.6%	$312,372
				Construction Total	$3,944,606
				Survey, Design & Permitting, 15%	$454,029
				Construction Administration, 6%	$236,676
				Grand Total	$4,635,311

*****The connection fee cost was added to the cost estimate in response to DOH comments. However, the connection fee shall be administered to the consolidated customers however the DCWA Board wishes. The ROM estimate for the project without considering the connection fee is $3,740,825.

This construction cost estimate is in 2024 dollars and will need to be escalated to the year of construction when determining the amount needed for a loan request.

The cost estimate for DCWA to consolidate KRWA does ensure that all water demands of KRWA consolidated customers will be met and the additional operational costs for the 18 new connections would be insignificant. Since DCWA is already operating a water system with a capacity for 1000 ERUs and has 484 connections according to the WFI, these 18 new connections will not provide any

significant additional operational complexity or costs. Additionally, the water provided by DCWA is minimally treated and chlorinated and will therefore be of higher quality than the KRWA water.

5.3 Invaluable Benefits

There are additional invaluable benefits to consolidating for KRWA that are not considered as part of the cost estimate. Below is a list of benefits that KRWA would receive if they were consolidated by DCWA.

- No longer required to find one of the 18 customers to sit on a volunteer board, collect fees, and provide administrative support to run a water system.
- Usable water during all times of the year and even during peak hour times.
- No longer required to monitor careless water usage by customers to prevent the water tanks from running empty.
- No longer required to facilitate maintenance activities.
- Spreading out the costs of operation and maintenance over a much larger customer base.
- Increased property value from securing a more stable water source.
- Lower anxiety around water scarcity or the need to conserve every last drop of water.

5.4 Funding / Financing Options

Typically, when water system A is consolidated with water system B, water system A would be responsible for the costs associated with the consolidation. With a project cost of approximately $3.5 million and a KRWA customer base of 18, each customer's share would be about $195,000. Even dividing the share over 20 years would result in a monthly payment of over $800 – on top of the regular water rates and connection fees.

Using the 2020 median household income of $70,011 for Whatcom County and an affordability index value of 2%, an "affordable" water rate is $117 per month. Requiring KRWA to cover the full costs of the consolidation is unaffordable.

Given that the cost estimate for consolidating the water systems is on the order of $3.5M, DCWA will need to pursue financing for the design and construction of the new water mains. Below is a summary of the options available to DCWA.

DWSRF – Planning and Engineering Loan: Terms are 0% interest for 10 years, with a 1% loan fee. This program will fund engineering design, permitting, topographic and boundary survey, and easement acquisition. The application cycle is open all year, and is available on a first-come, first-served basis until the funding for the year runs out. It takes approximately 3-4 months to process the loan request and receive a contract. Work performed up to 12 months prior to contract execution may be eligible for reimbursement. If a DWSRF Construction Loan is obtained, the principal of the Planning and Engineering loan can be rolled into the Construction loan.

DWSRF – Construction Loan: Terms are 2.25% interest for 20 years. This program funds construction costs for Consolidation Projects and principal forgiveness may be available for small or disadvantaged communities. Disadvantaged systems projects qualify for 1.75 percent interest rate, up to 100 percent principal forgiveness (subsidy), and up to thirty-year loan term for those deemed "severely disadvantaged" and the economic life of the completed project must be at least as long as the loan term.

There are several criteria the DWSRF underwriters use to verify that a community is disadvantaged. The first is if the Affordability Index (Average Annual Water Rates ÷ Median Household Income) is greater than 2%. Two others are based on Environmental Health Disparity (EHD) and Social Vulnerability Index (SVI) rankings. A score over 7 indicates a disadvantaged community. These scores are available at the Washington Tracking Network interactive map (https://fortress.wa.gov/doh/wtnibl/WTNIBL/).

The area around Kelly Road scores an 8 in the Social Vulnerability Index, but only a 6 in the Environmental Health Disparities Average Rank. Note that qualifying as disadvantaged does not guarantee subsidy or principal forgiveness. The basic DCWA water rates for Tier 1 and Tier 2 usage are well below 2% at 0.6% and 0.9%, respectively.

An additional criterion is the percent of population living below 185% of the federal poverty level (FPL). The census tract for KRWA has 26.8% below 185% of the FPL.

USDA Rural Development: Terms are 3.875% interest (as of October 2024) for 40 years, with a 0% loan fee. The USDA Rural Development 40-year loan for utilities provides funding and financial assistance to rural communities for the development, improvement, and expansion of essential utilities, such as water and wastewater systems, through low-interest, long-term loans to support infrastructure projects. The program does require interim bank financing for loans larger than $500,000, and functions on a reimbursement basis once the construction is complete.

DCWA plans to apply for a DWSRF construction loan with the understanding that their Social Vulnerability Index score of 8 will qualify them for receiving loan principal forgiveness. As noted above, qualifying for principal forgiveness does not guarantee that it will be granted. Receiving a significant amount of loan forgiveness would make this project much more feasible.

5.5 Example Rates and Charges

DCWA's membership Fee for 2025 is $12,000 and $29,500 in the expansion corridor. The lower fee is for potential customers who already have a DCWA water main adjacent to their property. KRWA is in an expansion corridor and therefore would have to pay the connection fee of $29,500. Deer Creek water bills will be $44 every two months for the Base Fee starting in 2025 and usage is billed on top of that. The average usage is between $20 and $30 every two months for a total charge of approximately $64.00 to $74.00 every two months. Deer Creek usage charges are tiered to encourage water conservation and are shown in Table 11 below.

Table 11: DCWA Water Rate Tiers

Tier	Cost (per 1000 cubic feet)	Usage Range	Equivalent Average Daily Use
Tier 1	$10.00	0-3,000 cubic feet	Up to 375 gpd
Tier 2	$20.00	3,001-5,000 cubic feet	Up to 625 gpd
Tier 3	$40.00	5,001-7,000 cubic feet	Up to 875 gpd
Tier 4	$80.00	7,001 and above cubic feet	Over 875 gpd

Examples:

a. If average use is 375 gpd, the bill will be $74.00 per two-month bill ($37.00 / month)
b. If average use is 625 gpd, the bill will be $114.00 per two-month bill ($57.00 / month)
c. If average use is 875 gpd the bill will be $194.00 per two-month bill ($97.00 / month)
d. If average use is 1,250 gpd the bill will be $434.00 per two-month bill ($217.00 / month)

6 Public Meeting and Outreach Feedback

On October 11, 2023 a survey was sent out through the mail to the Kelly Road Water Association customers to gauge the interest in consolidating their water system with the Deer Creek Water Association. In addition, approximately 60 other property owners in the area were also sent a different survey to gauge the interest of connecting to public water. A copy of the surveys distributed can be found in Exhibit 4 of this report. The completed surveys received are available upon request. In addition to the survey, a public meeting was held in Ferndale, WA at the Public Library on January 29, 2024.

6.1 Summary of Questionnaire Responses

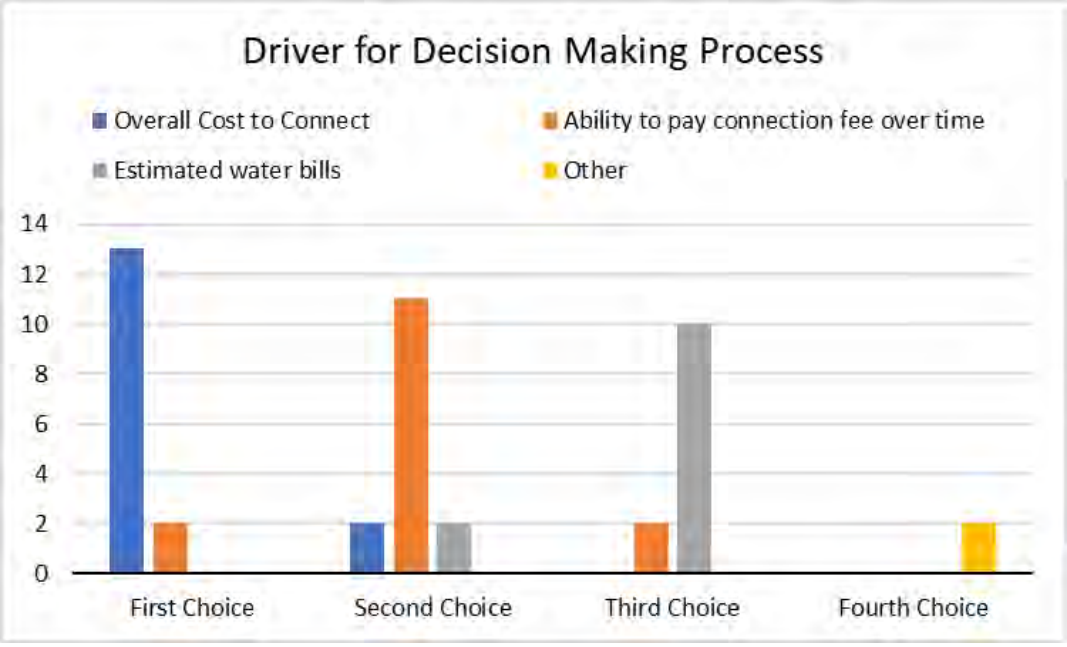
Of the 18 surveys sent to the Kelly Road Water Association customers, 15 responses were received. In the received surveys, there was a unanimous interest in connecting to the Deer Creek water system, with only three expressing concerns about being able to pay the $11,000 (2024) connection fee. All respondents also understood that the Kelly Road Water Association would cease to exist and accepted that fact.

> *Note: After the surveys were sent out and returned that DCWA realized there is a separate connection fee for customers in their expansion corridors. This fee is $29,500 and was conveyed during the public meeting.*

The primary motivations for KRWA customers wanting to connect to public water (Deer Creek) were reliability, water quality and water quantity. These factors were listed by 11-13 respondents. Fire protection was listed by five respondents and water pressure was mentioned by two respondents.

The drivers for the decision to connect to the Deer Creek water system were consistent amongst the KRWA customers, as shown in the chart below. Overall cost to connect was the primary driver for 13 respondents. The secondary consideration would be the ability to pay any lump sum connection fee over time (11 respondents). Estimated water bills ranked third as a driver for decision-making (10 respondents).

Figure 5: Survey Results



Several KRWA customers provided comments and asked questions in their survey responses. The table below includes the comments/questions and responses.

Table 12: KRWA Customer Comments / Questions

Comment / Question:	Response:
Hoping for no more than $10,000	DCWA's current connection fee is $11,000. We will investigate options for allowing this fee to be paid over time, or potential fee reductions if DCWA receives loan principal forgiveness.
Would need to be reduced, $11,000 is quite expensive.	See above response.
What would happen to our existing well? What is in it for DCWA for adding us? The membership fee?	Since the existing well does not reliably produce enough water, it would be decommissioned. DCWA will enlarge its customer base with the KRWA members and potentially other new customers along Kelly Road. It is the obligation of DCWA to help their neighbors and offer service to unserved properties within its service area.
Kelly Road Water is frequently out or we have to conserve so we don't run out and the quality is bad so we would really appreciate this change.	The water main extension will alleviate the current issues with water quantity and water quality.
When would this project begin and how long would it take? How often are monthly rates raised?	Currently, we anticipate engineering and permitting to occur in 2025, with a

	construction loan application submitted at the end of 2025. The construction loan funds would be available about mid-2026. Historically rates were raised in 2018 and 2025.

Of the over sixty surveys sent to nearby properties, only 19 responses were received. The properties responding "yes" are shown in Exhibit 2 – Water System Map. Two of the five are vacant and do not have a well. The rest of the respondents are on private wells. The survey results for interest in connecting are summarized below:

Level of interest in connecting to public water	Number of respondents
Yes	5
Maybe / Depends	2
No	12

Similarly to the KRWA respondents, the neighboring respondents are also motivated by reliability, water quality and water quantity. Five indicated an interest in fire protection – including two who are not interested in connecting. These respondents also had the same concerns about the overall cost to connect, the ability to pay over time, and the estimated water bills.

6.2 Other Concerns/Comments

The main concern of all who responded is how to pay for the infrastructure needed to consolidate the Kelly Road Water Association into the Deer Creek water system. At over $3,500,000, the projected costs are out of reach for the 18 Kelly Road Association members alone. Amortizing over 20 years at 2.25% would leave each member responsible for over $10,000 per year for 20 years, above and beyond the normal water fees and charges. This would far exceed the 2% Affordability Index.

7 Summary Conclusions

7.1 Public Health & Recommendations

Consolidating the Kelly Road Water Association with the Deer Creek water system will improve the water quality and water quantity available to the KRWA customers. According to the survey results, nearly all the respondents were motivated to connect to the DCWA water system to improve the reliability of water service and improve the quality of water they receive.

It is recommended that Kelly Road Water System be consolidated by Deer Creek Water Association. At the public meeting, Kelly Road customers were able to voice their willingness to consolidate. It is now up to the Deer Creek board to make a decision based on the best interest of their system and their customers. The final decision for proceeding with consolidation and proceeding with any engineering and design will be made by the Deer Creek Board of Directors.

7.2 Fire Protection

The existing KRWA water system does not have the capacity to provide fire protection. While not required in rural zones, we have included fire protection capability in the planned water main extension for the KRWA consolidation as a minimum design standard. This is a benefit that several of the KRWA customers cited as a reason for wanting consolidation.

7.3 Next Steps

The information DCWA has gathered under this study has been informative and DCWA will continue to process and discuss the results.

Given that there was unanimous support from the Kelly Road Water Association customers for the consolidation of the two water systems, the logical next step would be to proceed with the design of the water main extension needed to accomplish the consolidation. DCWA plans to apply for a DWSRF Planning and Engineering loan for the topographic survey, engineering design and permitting for this project.

Following completion of the engineering design, the next logical step would be to apply for a DWSRF Construction Loan. This could be completed during the fall 2025 loan application cycle. If the project is funded, the earliest construction could begin would be summer 2026.

8 References

Deer Creek Water Association. (2023). Deer Creek Water Association Water System Plan.

Whatcom County. (2019). Whatcom County Coordinated Water System Plan (CWSP). Whatcom County. Retrieved from **https://www.whatcomcounty.us/DocumentCenter/View/24740/2019---Whatcom-County-Coordinated-Water-System-Plan-CWSP?bidId=**

Washington State Department of Health. (2020). Water System Design Manual (Publication No. 331-123). Retrieved from **https://doh.wa.gov/sites/default/files/2022-02/331-123.pdf?ver=2019-10-03-153237-220**

9 Exhibits

1. Water Facilities Inventories

2. Water System Map

3. Modeling Results

4. Questionnaire and Responses

Exhibit 1: Water Facilities Inventories (WFI)

WATER FACILITIES INVENTORY (WFI) FORM

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

ONE FORM PER SYSTEM

Quarter: 2
Updated: 02/06/2024
Printed: 10/9/2024
WFI Printed For: On-Demand
Submission Reason: No Change

RETURN TO: Central Services - WFI, PO Box 47822, Olympia, WA, 98504-7822 or email wfi@doh.wa.gov

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
37950 0	KELLY ROAD WATER ASSOCIATION	WHATCOM	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS	7. OWNER NAME & MAILING ADDRESS
DAVE A. OLSON [OPERATOR] WATER SYSTEM SERVICES INC 6912 HANNEGAN RD, SUITE 105 LYNDEN, WA 98264	KELLY ROAD WATER ASSOC. INC. ED MACK 1114 KELLY RD BELLINGHAM, WA 98226
STREET ADDRESS IF DIFFERENT FROM ABOVE	**STREET ADDRESS IF DIFFERENT FROM ABOVE**
ATTN ADDRESS CITY STATE ZIP	ATTN ADDRESS CITY STATE ZIP

9. 24 HOUR PRIMARY CONTACT INFORMATION		10. OWNER CONTACT INFORMATION	
Primary Contact Daytime Phone: (360) 354-7909		Owner Daytime Phone: (360) 961-9242	
Primary Contact Mobile/Cell Phone: (360) 739-4416		Owner Mobile/Cell Phone: (360) 961-9242	
Primary Contact Evening Phone:		Owner Evening Phone: (xxx)-xxx-xxxx	
Fax: (360) 354-8935	E-mail: dxxe@watersystemservices	Fax: (360) 734-9258	E-mail: exxxxxx0@comcast.net

11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)

- ☐ Not applicable (Skip to #12)
- ☐ Owned and Managed
- ☒ Managed Only
- ☐ Owned Only

SMA NAME: Water System Services Inc SMA Number: 163

12. WATER SYSTEM CHARACTERISTICS (mark all that apply)

- ☐ Agricultural
- ☐ Commercial / Business
- ☐ Day Care
- ☐ Food Service/Food Permit
- ☐ 1,000 or more person event for 2 or more days per year
- ☐ Hospital/Clinic
- ☐ Industrial
- ☐ Licensed Residential Facility
- ☐ Lodging
- ☐ Recreational / RV Park
- ☒ Residential
- ☐ School
- ☐ Temporary Farm Worker
- ☐ Other (church, fire station, etc.):

13. WATER SYSTEM OWNERSHIP (mark only one)

- ☐ Association
- ☐ City / Town
- ☐ County
- ☐ Federal
- ☐ Investor
- ☒ Private
- ☐ Special District
- ☐ State

14. STORAGE CAPACITY (gallons)

3,250

15	16	17	18									19			20	21						22	23	24			
	SOURCE NAME	INTERTIE	SOURCE CATEGORY									USE				TREATMENT						DEPTH		SOURCE LOCATION			
Source Number	LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	INTERTIE SYSTEM ID NUMBER	WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN TERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE
S01	Well # 1 AFM053		X									X			Y		X				X	200	10	NE SE	32	39N	03E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
37950 0	KELLY ROAD WATER ASSOCIATION	WHATCOM	A	Comm

	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)		18	12
A. Full Time Single Family Residences (Occupied 180 days or more per year)	18		
B. Part Time Single Family Residences (Occupied less than 180 days per year)	0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)			
A. Apartment Buildings, condos, duplexes, barracks, dorms	0		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	0		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)			
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)	0	0	0
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	0	0	0
28. TOTAL SERVICE CONNECTIONS		18	12

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? 45

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												

31. TEMPORARY & TRANSIENT USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?												
B. How many days per month is water accessible to the public?												

32. REGULAR NON-RESIDENTIAL USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students, daycare children and/or employees are present each month that are NOT already included in the residential population?												
B. How many days per month are they present?												

33. ROUTINE COLIFORM SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	1	1	1	1	1	1	1	1	1	1	1	1

34. NITRATE SCHEDULE	QUARTERLY	ANNUALLY	ONCE EVERY 3 YEARS
(One Sample per source by time period)			

35. Reason for Submitting WFI:

☐ Update - Change ☐ Update - No Change ☐ Inactivate ☐ Re-Activate ☐ Name Change ☐ New System ☐ Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: _____ **DATE:** _____

PRINT NAME: _____ **TITLE:** _____

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

WATER FACILITIES INVENTORY (WFI) FORM

ONE FORM PER SYSTEM

Quarter: 1
Updated: 01/09/2024
Printed: 10/9/2024
WFI Printed For: On-Demand
Submission Reason: Pop/Connect Update

RETURN TO: Central Services - WFI, PO Box 47822, Olympia, WA, 98504-7822 or email wfi@doh.wa.gov

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
18418 E	DEER CREEK WATER ASSOC.	WHATCOM	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS

DOUGLAS A. WITTINGER [BUSINESS MANAGER]
PO BOX 30230
BELLINGHAM, WA 98228

7. OWNER NAME & MAILING ADDRESS

DEER CREEK WATER ASSOCIATION BUSINESS MANAGER
DOUGLAS A. WITTINGER
PO BOX 30230
BELLINGHAM, WA 98228

STREET ADDRESS IF DIFFERENT FROM ABOVE

ATTN DEER CREEK WATER ASSOCIATION
ADDRESS 8715 BOWDOIN WAY
CITY EDMONDS STATE WA ZIP 98026

STREET ADDRESS IF DIFFERENT FROM ABOVE

ATTN DEER CREEK WATER ASSOCIATION
ADDRESS 8715 BOWDOIN WAY
CITY EDMONDS STATE WA ZIP 98026

9. 24 HOUR PRIMARY CONTACT INFORMATION		10. OWNER CONTACT INFORMATION	
Primary Contact Daytime Phone: (360) 820-4314		Owner Daytime Phone: (360) 820-4314	
Primary Contact Mobile/Cell Phone: (360) 820-4314		Owner Mobile/Cell Phone: (360) 820-4314	
Primary Contact Evening Phone: (xxx)-xxx-xxxx		Owner Evening Phone: (xxx)-xxx-xxxx	
Fax:	E-mail: dxxa@deercreekwater.org	Fax:	E-mail: dxxa@deercreekwater.org

11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)

- [x] Not applicable (Skip to #12)
- [ ] Owned and Managed
- [ ] Managed Only
- [ ] Owned Only

SMA NAME: _____ SMA Number:

12. WATER SYSTEM CHARACTERISTICS (mark all that apply)

- [x] Agricultural
- [x] Commercial / Business
- [x] Day Care
- [x] Food Service/Food Permit
- [ ] 1,000 or more person event for 2 or more days per year
- [ ] Hospital/Clinic
- [x] Industrial
- [x] Licensed Residential Facility
- [ ] Lodging
- [x] Recreational / RV Park
- [x] Residential
- [x] School
- [ ] Temporary Farm Worker
- [x] Other (church, fire station, etc.): _____

13. WATER SYSTEM OWNERSHIP (mark only one)

- [x] Association
- [ ] City / Town
- [ ] County
- [ ] Federal
- [ ] Investor
- [ ] Private
- [ ] Special District
- [ ] State

14. STORAGE CAPACITY (gallons)

270,000

15	16	17	18 SOURCE CATEGORY									19 USE			20	21 TREATMENT					22	23	24 SOURCE LOCATION			
Source Number	LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	INTERTIE SYSTEM ID NUMBER	WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN TERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE
S01	WELL #1				X								X			Y		X	X				129	285	NE NW	31	39N	03E
S02	WELL #2				X								X			Y		X	X				136	277	NE NW	31	39N	03E
S03	WELLS #1&2 WF			X									X			Y		X	X				129	500	NE NW	31	39N	03E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
18418 E	DEER CREEK WATER ASSOC.	WHATCOM	A	Comm

	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)		419	981
A. Full Time Single Family Residences (Occupied 180 days or more per year)	419		
B. Part Time Single Family Residences (Occupied less than 180 days per year)	0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)			
A. Apartment Buildings, condos, duplexes, barracks, dorms	0		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	0		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)			
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)	0	0	0
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	65	65	19
28. TOTAL SERVICE CONNECTIONS		484	1000

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? 1048

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												

31. TEMPORARY & TRANSIENT USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?												
B. How many days per month is water accessible to the public?												

32. REGULAR NON-RESIDENTIAL USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students, daycare children and/or employees are present each month that are NOT already included in the residential population?	700	700	700	700	700	700	200	200	700	700	700	700
B. How many days per month are they present?	26	25	27	26	27	26	27	27	26	27	26	25

33. ROUTINE COLIFORM SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	2	2	2	2	2	2	2	2	2	2	2	2

34. NITRATE SCHEDULE	QUARTERLY	ANNUALLY	ONCE EVERY 3 YEARS
(One Sample per source by time period)			

35. Reason for Submitting WFI:

☐ Update - Change ☐ Update - No Change ☐ Inactivate ☐ Re-Activate ☐ Name Change ☐ New System ☐ Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: _____ **DATE:** _____

PRINT NAME: _____ **TITLE:** _____

WATER FACILITIES INVENTORY (WFI) FORM

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

ONE FORM PER SYSTEM

Quarter: 2
Updated: 03/19/2024
Printed: 10/9/2024
WFI Printed For: On-Demand
Submission Reason: Contact Update

RETURN TO: Central Services - WFI, PO Box 47822, Olympia, WA, 98504-7822 or email wfi@doh.wa.gov

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
AB912 G	DEER CREEK WATER ASSN/GUIDE SOUTH	WHATCOM	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS

DOUGLAS A. WITTINGER [BUSINESS MANAGER]
PO BOX 30230
BELLINGHAM, WA 98228

STREET ADDRESS IF DIFFERENT FROM ABOVE

ATTN DEER CREEK WATER ASSOCIATION
ADDRESS 8715 BOWDOIN WAY
CITY EDMONDS STATE WA ZIP 98026

7. OWNER NAME & MAILING ADDRESS

DEER CREEK WATER ASSOCIATION BUSINESS MANAGER
DOUGLAS A. WITTINGER
PO BOX 30230
BELLINGHAM, WA 98228

STREET ADDRESS IF DIFFERENT FROM ABOVE

ATTN DEER CREEK WATER ASSOCIATION
ADDRESS 8715 BOWDOIN WAY
CITY EDMONDS STATE WA ZIP 98026

9. 24 HOUR PRIMARY CONTACT INFORMATION		10. OWNER CONTACT INFORMATION	
Primary Contact Daytime Phone: (360) 820-4314		Owner Daytime Phone: (360) 820-4314	
Primary Contact Mobile/Cell Phone: (360) 820-4314		Owner Mobile/Cell Phone: (360) 820-4314	
Primary Contact Evening Phone: (xxx)-xxx-xxxx		Owner Evening Phone: (xxx)-xxx-xxxx	
Fax:	E-mail: dxxa@deercreekwater.org	Fax:	E-mail: dxxa@deercreekwater.org

11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)

- [x] Not applicable (Skip to #12)
- [ ] Owned and Managed
- [ ] Managed Only
- [ ] Owned Only

SMA NAME: _____ SMA Number:

12. WATER SYSTEM CHARACTERISTICS (mark all that apply)

- [ ] Agricultural
- [x] Commercial / Business
- [ ] Day Care
- [ ] Food Service/Food Permit
- [ ] 1,000 or more person event for 2 or more days per year
- [ ] Hospital/Clinic
- [x] Industrial
- [ ] Licensed Residential Facility
- [ ] Lodging
- [ ] Recreational / RV Park
- [x] Residential
- [ ] School
- [ ] Temporary Farm Worker
- [x] Other (church, fire station, etc.): _____

13. WATER SYSTEM OWNERSHIP (mark only one)

- [x] Association
- [ ] City / Town
- [ ] County
- [ ] Federal
- [ ] Investor
- [ ] Private
- [ ] Special District
- [ ] State

14. STORAGE CAPACITY (gallons)

15	16	17	18										19			20	21						22	23	24			
	SOURCE NAME	INTERTIE	SOURCE CATEGORY										USE				TREATMENT								SOURCE LOCATION			
Source Number	LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	INTERTIE SYSTEM ID NUMBER	WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN TERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE
S01	Bellingham	05600 3											X			Y	X							25000	SW SW	26	38N	03E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
AB912 G	DEER CREEK WATER ASSN/GUIDE SOUTH	WHATCOM	A	Comm

	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)		65	Unspecified
A. Full Time Single Family Residences (Occupied 180 days or more per year)	65		
B. Part Time Single Family Residences (Occupied less than 180 days per year)	0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)			
A. Apartment Buildings, condos, duplexes, barracks, dorms	0		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	0		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)			
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)	0	0	
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	22	22	
28. TOTAL SERVICE CONNECTIONS		87	

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? 162

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												

31. TEMPORARY & TRANSIENT USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?												
B. How many days per month is water accessible to the public?												

32. REGULAR NON-RESIDENTIAL USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students, daycare children and/or employees are present each month that are NOT already included in the residential population?	76	76	76	76	76	76	76	76	76	76	76	76
B. How many days per month are they present?	31	28	31	30	31	30	31	31	30	31	30	31

33. ROUTINE COLIFORM SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	1	1	1	1	1	1	1	1	1	1	1	1

34. NITRATE SCHEDULE	QUARTERLY	ANNUALLY	ONCE EVERY 3 YEARS
(One Sample per source by time period)			

35. Reason for Submitting WFI:

☐ Update - Change ☐ Update - No Change ☐ Inactivate ☐ Re-Activate ☐ Name Change ☐ New System ☐ Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: _____ **DATE:** _____

PRINT NAME: _____ **TITLE:** _____

Exhibit 2: Water System Map

W:\2023\2023-018 Deer Creek Consolidation Study\GIS\InfoWater Model\Deer Creek Model 5.12.23.mxd

SERVICE AREA OUTLINE

Guide Meridian

Axton

Main

E. Smith

Bellingham

ALTERNATIVE C

ALTERNATIVE A

ALTERNATIVE B

PRIMARY EXTENSION

DEVELOPER EXTENSION

KELLY ROAD WATER ASSOCIATION PARCELS

RESPONDED "YES" TO CONSOLIDATION

LEGEND

WATER INFRASTRUCTURE

- JUNCTIONS
- WATER STORAGE TANK
- WELL
- WELL PUMP / BOOSTER PUMP
- PRESSURE REDUCING VALVE
- EXISTING MODEL PIPES
- PRESSURE ZONES

0 0.25 0.5 1 1.5 2 Miles

WILSON ENGINEERING

DESIGNED BY -
DRAWN BY EJH
CHECKED BY MMM

DEER CREEK WATER ASSOCIATION

COUNTY WHATCOM

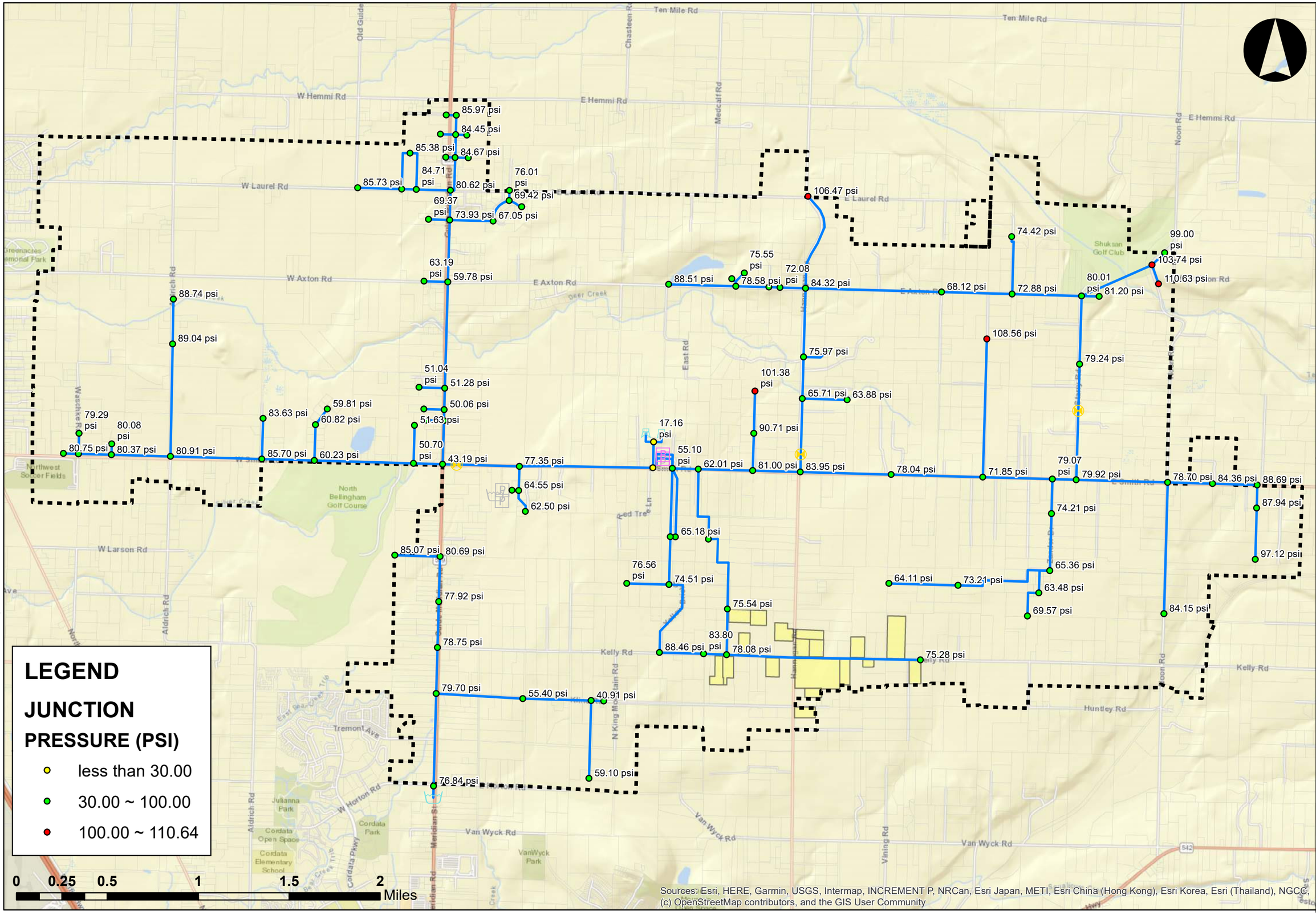
DEER CREEK CONSOLIDATION
AREA AND ALTERNATIVES MAP

DATE OCT 2024
SCALE AS SHOWN
PROJECT 2023-018

SHEET 1 OF 1

Exhibit 3: Water Modeling Results

W:\2023\2023-018 Deer Creek Consolidation Study\GIS\InfoWater Model\Deer Creek Model 5.12.23.mxd



CIVIL STRUCTURAL SURVEY

WILSON ENGINEERING

WILSONENGINEERING.COM

DESIGNED BY	DRAWN BY	CHECKED BY
-	EJH	-

DEER CREEK WATER ASSOCIATION

COUNTY: WHATCOM

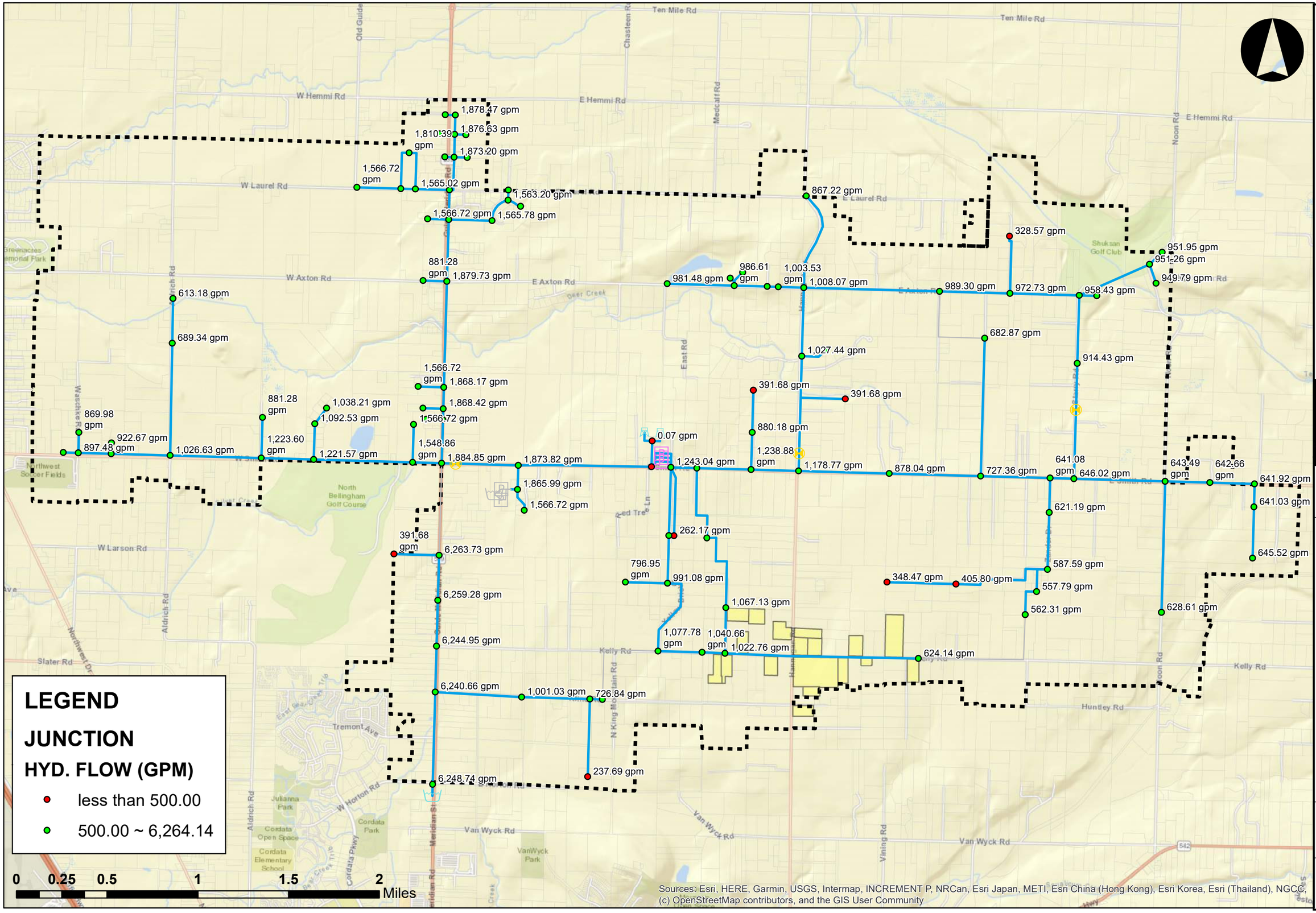
DEER CREEK CONSOLIDATION

PHD: ALTERNATIVE A

DATE	SCALE	PROJECT
JULY 2023	AS SHOWN	2023-018

SHEET 1 OF 1

W:\2023\2023-018 Deer Creek Consolidation Study\GIS\InfoWater Model\Deer Creek Model 5.12.23.mxd



CIVIL STRUCTURAL SURVEY

WILSON ENGINEERING

WILSONENGINEERING.COM

DESIGNED BY -	DRAWN BY EJH	CHECKED BY -

DEER CREEK WATER ASSOCIATION

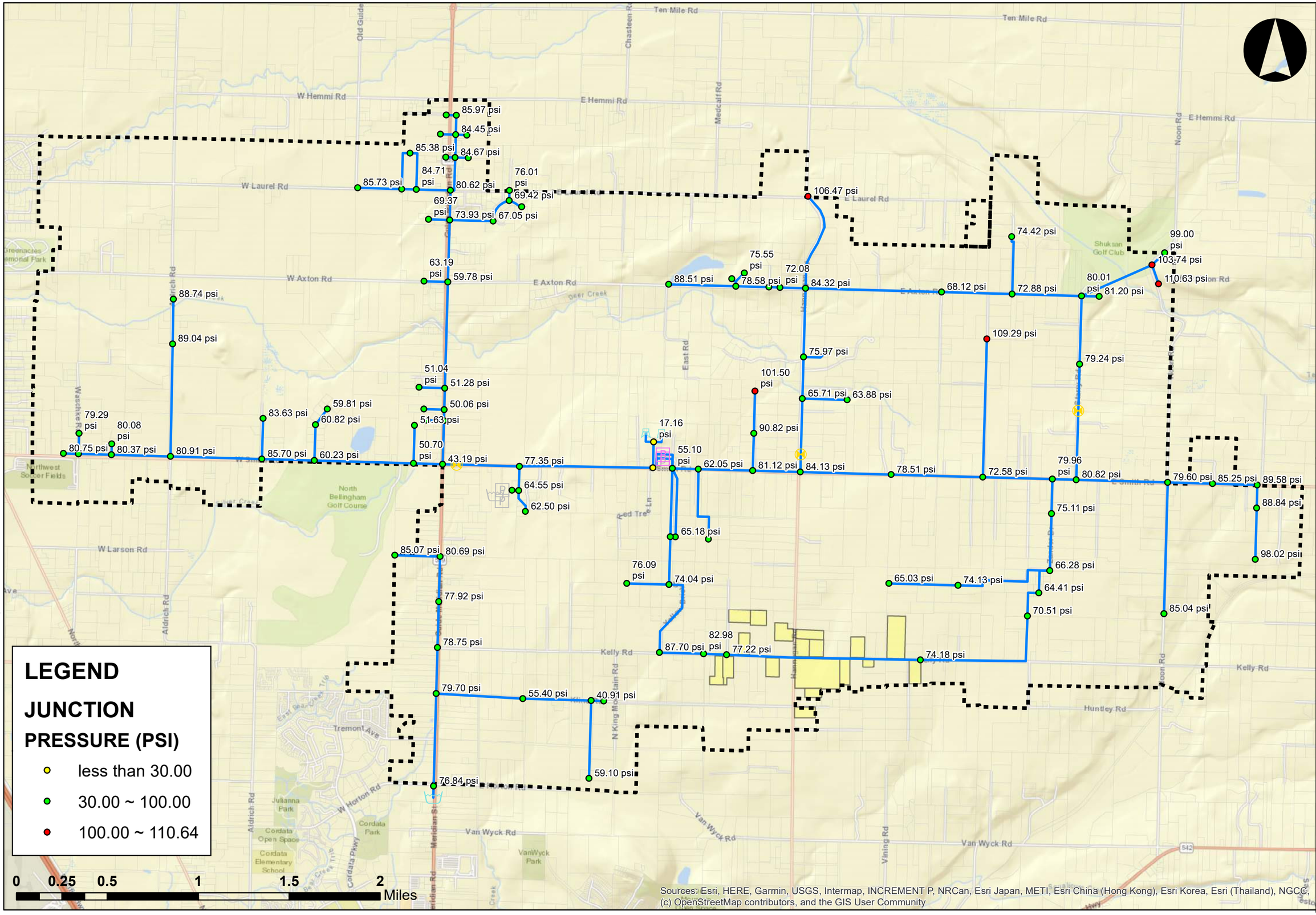
COUNTY WHATCOM

DEER CREEK CONSOLIDATION

MDD+FF: ALTERNATIVE A

DATE JULY 2023	SCALE AS SHOWN	PROJECT 2023-018
SHEET 1	OF 1	

W:\2023\2023-018 Deer Creek Consolidation Study\GIS\InfoWater Model\Deer Creek Model 5.12.23.mxd



LEGEND

JUNCTION

PRESSURE (PSI)

- less than 30.00
- 30.00 ~ 100.00
- 100.00 ~ 110.64

CIVIL STRUCTURAL SURVEY

WILSON ENGINEERING

WILSONENGINEERING.COM

DESIGNED BY	DRAWN BY	CHECKED BY
-	EJH	-

DEER CREEK WATER ASSOCIATION

COUNTY: WHATCOM

DEER CREEK CONSOLIDATION

PHD: ALTERNATIVE B

DATE	SCALE	PROJECT
JULY 2023	AS SHOWN	2023-018

SHEET	OF
1	1

W:\2023\2023-018 Deer Creek Consolidation Study\GIS\InfoWater Model\Deer Creek Model 5.12.23.mxd

1,878.47 gpm
1,876.63 gpm
1,810.39 gpm
1,873.20 gpm
1,566.72 gpm
1,565.02 gpm
1,563.20 gpm
1,566.72 gpm
1,565.78 gpm
881.28 gpm
1,879.73 gpm
613.18 gpm
689.34 gpm
869.98 gpm
922.67 gpm
897.48 gpm
1,026.63 gpm
881.28 gpm
1,223.60 gpm
1,038.21 gpm
1,092.53 gpm
1,221.57 gpm
1,566.72 gpm
1,868.17 gpm
1,868.42 gpm
1,566.72 gpm
1,548.86 gpm
1,884.85 gpm
1,873.82 gpm
1,865.99 gpm
1,566.72 gpm
391.68 gpm
6,263.73 gpm
6,259.28 gpm
6,244.95 gpm
6,240.66 gpm
1,001.03 gpm
726.84 gpm
6,248.74 gpm
237.69 gpm
744.86 gpm
901.56 gpm
262.17 gpm
0.07 gpm
1,243.04 gpm
869.39 gpm
836.81 gpm
823.79 gpm
804.08 gpm
392.97 gpm
476.06 gpm
803.56 gpm
786.29 gpm
797.89 gpm
731.37 gpm
881.28 gpm
1,005.99 gpm
1,015.48 gpm
1,036.46 gpm
1,071.53 gpm
328.57 gpm
1,051.36 gpm
1,061.46 gpm
1,080.24 gpm
1,058.46 gpm
1,079.59 gpm
1,077.14 gpm
738.66 gpm
1,135.78 gpm
1,073.92 gpm
391.68 gpm
391.68 gpm
880.19 gpm
1,238.22 gpm
1,246.77 gpm
1,030.19 gpm
917.07 gpm
852.17 gpm
851.85 gpm
830.06 gpm
803.67 gpm
795.13 gpm
771.29 gpm
753.08 gpm
754.58 gpm

LEGEND

JUNCTION

HYD. FLOW (GPM)

- less than 500.00
- 500.00 ~ 6,264.14

0 0.25 0.5 1 1.5 2 Miles

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

CIVIL STRUCTURAL SURVEY

WILSON ENGINEERING

WILSONENGINEERING.COM

DESIGNED BY	DRAWN BY	CHECKED BY
-	EJH	-

DEER CREEK WATER ASSOCIATION

WHATCOM COUNTY

DEER CREEK CONSOLIDATION

MDD+FF: ALTERNATIVE B

DATE	SCALE	PROJECT
JULY 2023	AS SHOWN	2023-018

SHEET 1 OF 1

Exhibit 4: Questionnaire and Responses

Deer Creek Water Association

P.O. Box 30230
Bellingham, WA 98228

email: dcwa@deercreekwater.org

October 11, 2023

Kelly Road Water Association Member
[redacted]
Parcel Geocode: [redacted]
Parcel ID: [redacted]

RE: **Feasibility Study of Consolidation Between Deer Creek & Kelly Water Systems**

Dear Sir or Madam,

The Deer Creek Water Association (DCWA) obtained a State Grant to evaluate the feasibility and costs to consolidate with the Kelly Road Water Association (KRWA) and extend a water main along Kelly Road. The grant is funded by the State Department of Health and the grant's purpose is to encourage the consolidation of water systems that are experiencing supply reliability or water-quality issues, financial difficulties, or management and operational issues.

Presently, DCWA's closest water mains are north of Patton Road, and along Kelly Road at Yellow Brick Road (see enclosed map). The extension of about two miles of water mains are necessary to serve the KRWA membership.

It is important to DCWA that we acquire input from our potential partner in this project. We have included a questionnaire (see enclosure) and would be grateful for your participation in its completion. Completing the questionnaire *does not* commit you or KRWA to anything. This is simply one-step in a process that DCWA is using to determine the feasibility of this project.

Equally important is for KRWA members to know that a new water main will only be extended if our systems agree to merge, KRWA members, at some point, will need to vote and decide if they wish to dissolve their Association. DCWA will not extend a water main for some KRWA members – it needs to be all or none.

This is a big decision for both of our systems and we want that decision with a willing partner. Please complete the questionnaire and return it to Wilson Engineering as soon as possible. If you have any questions, please feel free to call Melanie Mankamyer at 360-733-6100 x1227.

Sincerely,

Douglas Wittinger

Douglas Wittinger
Business Manager

Encls. Map, questionnaire, envelope

Kelly Road Water Association &
Deer Creek Water Association
System Consolidation Informational Survey

Deer Creek Water Association (DCWA) has been approached several times within the past 10 years about providing water service to the Kelly Association (KRWA). Deer Creek has obtained a State grant to explore the feasibility in more detail and are including this questionnaire as part of the feasibility.

Approximately 2 miles of 10" water mains would be constructed to reach the Kelly system. Fire Hydrants would be installed along with new water services and meters. Deer Creek members are allotted 650 gallons-per-day of water for their usage. Our water bills are $40 every two months for the Base Fee and usage is added to that. The average usage is between $20 and $30 every two months for a Total bill of approximately $70.00.

1. If DCWA consolidates with KRWA, KRWA will no longer exist. Is this outcome okay with you?
   - ☐ Yes
   - ☐ No
   - ☐ Other _____

2. State grants <u>may</u> pay for DCWA's membership Fee of $11,000.00. Are you interested in connecting to the DCWA system if State grants pay the Membership Fee?
   - ☐ Yes
   - ☐ No
   - ☐ Other _____

3. Are you interested in connecting to the DCWA system if the Membership Fee is paid by you?
   - ☐ Yes
   - ☐ No
   - ☐ Other _____

4. If you are interested, what is your motivation to connect to a public water system?
   - ☐ Reliability
   - ☐ Water Quality
   - ☐ Fire protection
   - ☐ Water Quantity
   - Other _____

If you are interested, what will drive your decision-making process?

<u>Rank 1-4</u>, with 1 being most important

- ____ Overall cost to connect
- ____ Ability to pay connection fee over time
- ____ Estimated water bills
- ____ Other _____

Comments:

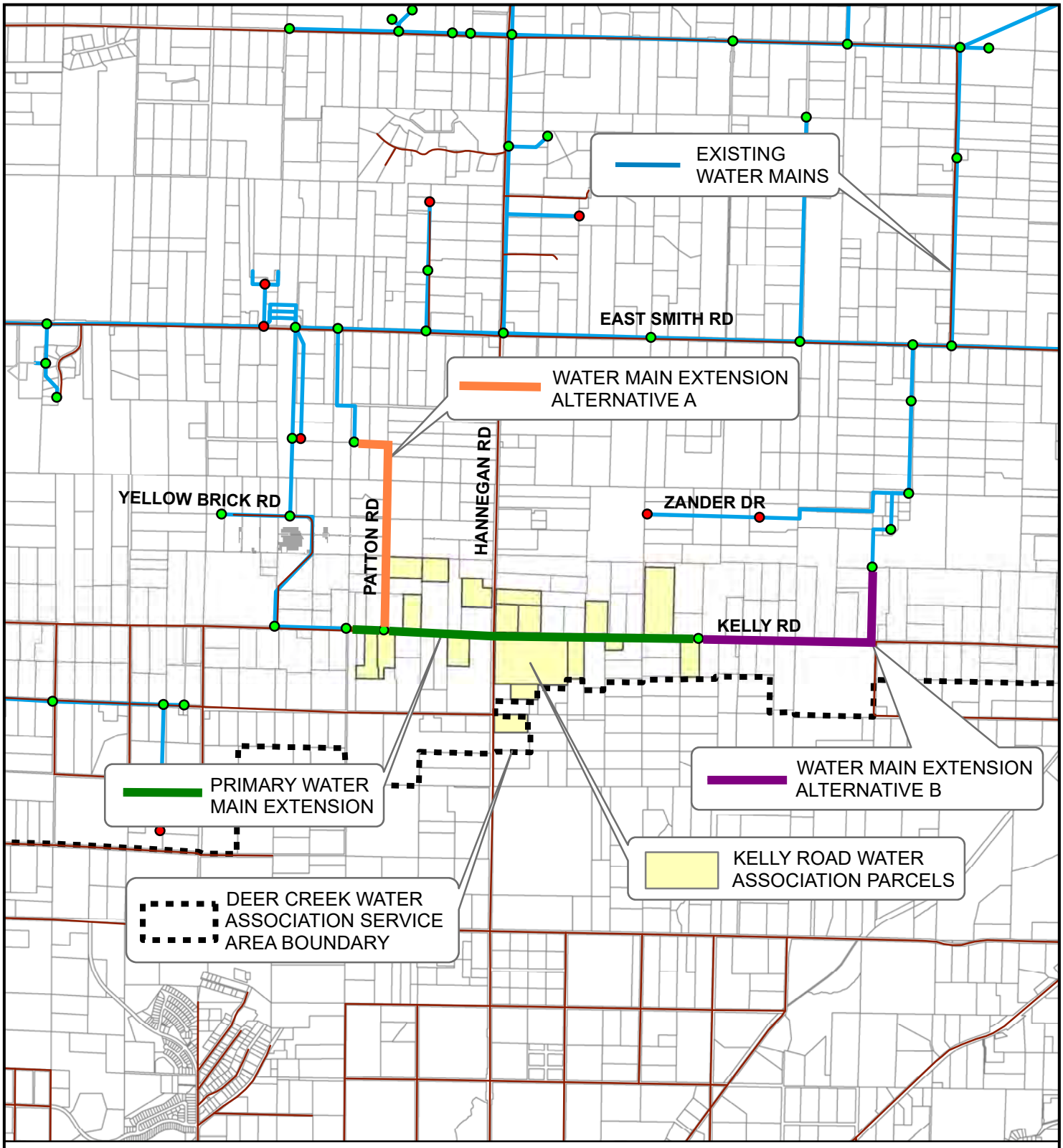
_____

_____

Name: _____

Address: _____

Email: _____



0 0.3 0.6 1.2 1.8 2.4 Miles

SHEET 1	DATE JULY 2023	DEER CREEK WATER ASSOCIATION	DESIGNED BY -	WILSON ENGINEERING CIVIL STRUCTURAL SURVEY
OF 1	SCALE AS SHOWN	WHATCOM COUNTY DEER CREEK CONSOLIDATION MDD+FF: ALTERNATIVE B	DRAWN BY EJH	
	PROJECT 2023-018		CHECKED BY -	WILSONENGINEERING.COM

WILSON ENGINEERING

October 17, 2023

[redacted]

Regarding Property at:
Address: [redacted] BELLINGHAM, WA
Geocode: [redacted]
Parcel ID: [redacted]

Dear Property Owner:

The Deer Creek Water Association is evaluating the feasibility and costs to consolidate with the Kelly Road Water Association and extend potable water service along Kelly Road. The study is funded by a grant the Association received from the State of Washington. The purpose behind the State's support is to encourage the consolidation of water systems in order to better provide a reliable, safe, and efficient source of high-quality potable water.

Presently, DCWA's closest water mains are north of Patton Road, and along Kelly Road at Yellow Brick Road (see enclosed map). The extension of about two miles of water mains is necessary to serve the KRWA membership.

As part of this study, we are soliciting input from the property owners who could potentially connect to the Deer Creek water system with these proposed water system changes. We have attached a questionnaire and self-addressed stamped envelope to provide you with the opportunity to comment on the proposed system consolidation, and gage your interest in connecting to the Deer Creek water system. We have also included a QR code if you would prefer to complete the survey online.

It should be noted that, in general, the Association is not proposing to force or mandate connection to its water system. Again, we welcome your feedback.

We would appreciate receiving your input by **November 10, 2023**. Please feel free to contact me by phone (360-733-6100 x1227) or email (mmankamyer@wilsonengineering.com) with any questions.

Regards,
WILSON ENGINEERING LLC

Melanie Mankamyer, PE
Senior Project Engineer / Principal

Encls. Questionnaire, Map, envelope

Deer Creek Water System Consolidation
Public Input Survey

Deer Creek Water Association (DCWA) has been approached several times within the past 10 years about providing water service to the Kelly Association (KRWA). Deer Creek has obtained a State grant to explore the feasibility in more detail and is including this questionnaire to *non-Kelly Road Water Association property owners* as part of the feasibility.

Approximately 2 miles of 10" water mains would be constructed to reach the Kelly system (see attached map). Fire Hydrants would be installed along with new water services and meters. Deer Creek members are allotted 650 gallons-per-day of water for their usage. Our water bills are $40 every two months for the Base Fee and usage is added to that. The average usage is between $20 and $30 every two months for a Total bill of approximately $70.00.

***To fill out online please use the QR-Code above.**

1. What is the current use of your property?
   - ☐ Vacant
   - ☐ Single Family
   - ☐ Other _____
2. What is the water source for your property?
   - ☐ Individual Well / Shared Well
   - ☐ Water system (name) _____
   - ☐ None
   - ☐ Other _____
3. Deer Creek has a Membership Fee of $11,000.00. Are you still interested in connecting if you have to pay this fee?
   - ☐ Yes
   - ☐ No
   - ☐ Maybe / Depends _____
4. If you are interested, what is your motivation to connect to a public water system?
   - ☐ Reliability
   - ☐ Water Quality
   - ☐ Water Quantity
   - ☐ Fire protection
   - ☐ Other _____
5. If you are interested, what will drive your decision-making process?
   Rank 1-4, with 1 being most important
   - ____ Overall cost to connect
   - ____ Ability to pay connection fee over time
   - ____ Estimated water bills
   - ____ Other _____

Comments:

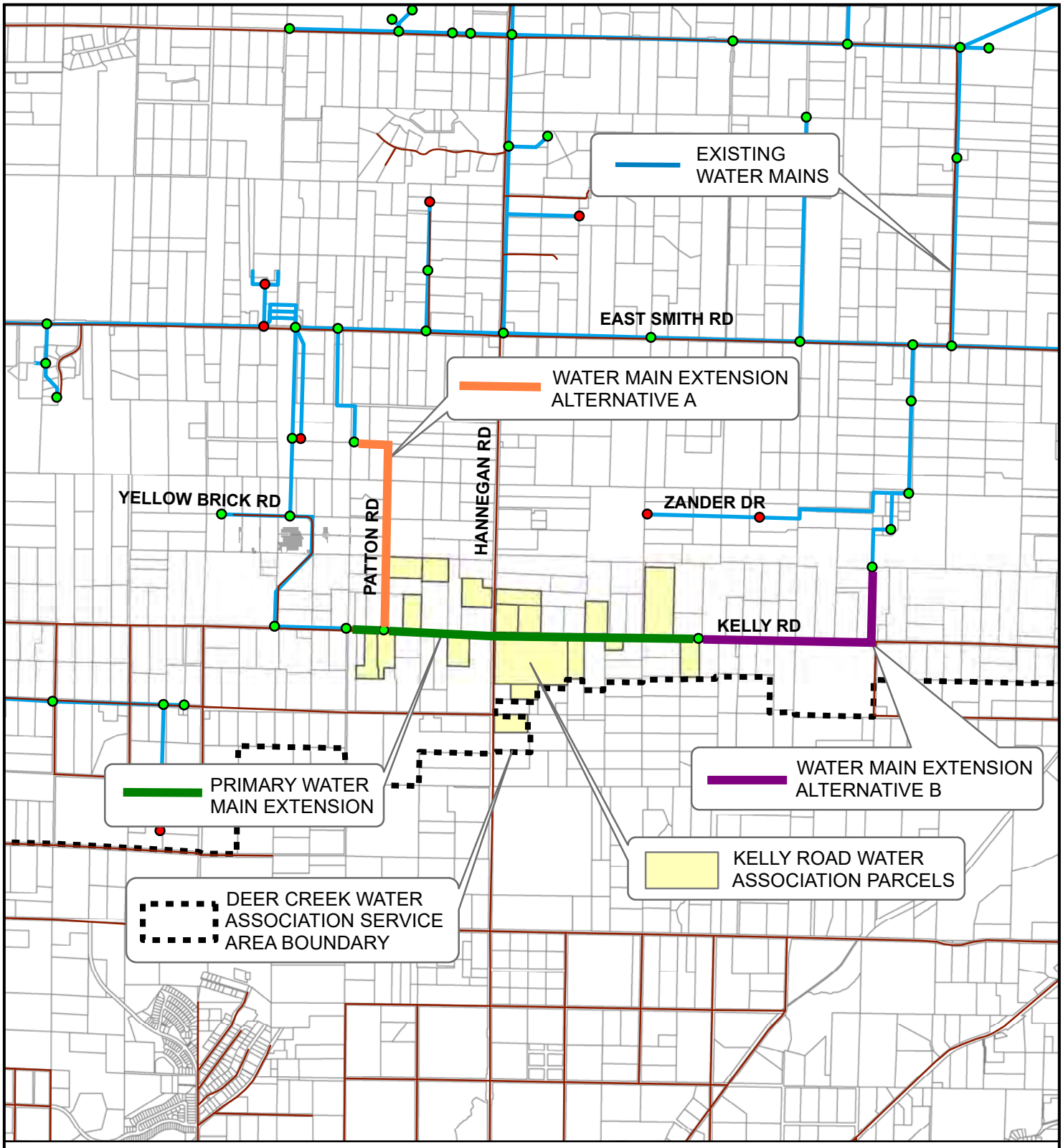
_____

_____

Please provide your contact information if you would like to be kept informed about this project and be notified of future public meetings.

Name: _____ Address: _____

Phone: _____ Email: _____



0 0.3 0.6 1.2 1.8 2.4 Miles

SHEET 1	DATE JULY 2023	DEER CREEK WATER ASSOCIATION	DESIGNED BY -	WILSON ENGINEERING CIVIL STRUCTURAL SURVEY
OF 1	SCALE AS SHOWN	WHATCOM COUNTY DEER CREEK CONSOLIDATION MDD+FF: ALTERNATIVE B	DRAWN BY EJH	
	PROJECT 2023-018		CHECKED BY -	WILSONENGINEERING.COM