WATER SYSTEM PLAN
FOR
CLEARWOOD WATER SYSTEM
WSID #13615U

PROJECT NUMBER

170311

April 14, 2020

Prepared for:

CLEARWOOD WATER SYSTEM
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Water System Plan
Clearwood Water System
WSID: 13615U

EXECUTIVE SUMMARY:

The Clearwood Water System provides a long-term planning strategy for the water system over the 10-year and 20-year planning periods. The plan was prepared to update the previously approved plan in 2011 and to incorporate new sources and system capacity. The objectives of this plan are to evaluate the performance and adequacy of the water system, to determine what will be necessary to meet the infrastructure demands for the next 20 years, and to identify issues that may affect the operation of the water system. The plan was prepared in accordance with the Washington Administrative Code (WAC) 246-290-100.

Table 1 Water System Information

Sources	S01, Well 1, 1965, 8" well, 90 gpm capacity S02, Well 2, 1975, 10" well, 320 gpm capacity S03, Wellfield S01 and S02 S04, Well 3, 1995, no longer in use S05, Well 4, 2001, no longer in use
Treatment	Corrosion control treatment, caustic soda addition for S03
Storage	Reservoir 1, 1975, 182,000 gallons Reservoir 2, 1997, 478,000 gallons
Pressurization	Wells pump to distribution and are controlled by water level in reservoirs
Distribution	3,000' of 10" pipe 23,000' of 8" pipe 16,000' of 6" pipe 19,000' of 2" and 4" pipe Total: 61,000' of distribution pipe
Water Rights	G2-01008, Qi = 100 gpm, Qa = 160 ac-ft/yr, S01 G2-23124, Qi = 425 gpm, Qa = 529.2 ac-ft/yr, S02 and S05 G2-23124@1, change application for withdrawal of Well 5 G2-29197, pending application, Qi = 425 gpm, Qa = 529.2 ac-ft/yr, S06 and S07 pending
ADD	166 gpd/ERU
Current PHD	745 gpm
Management	System Managed by on-staff Certified Operator

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Clearwood Water System

Water System Plan

Acronyms

ADD	Average Daily Demand
C	Coefficient of Friction
CCR	Consumer Confidence Report
DSL	Distribution System Leakage
ERU	Equivalent Residential Unit
GWI	Groundwater Under the Influence of Surface Water
MCL	Maximum Contaminant Level
MDD	Maximum Daily Demand
MPA	Microscopic Particulate Analysis
NTNC	Non-Transient Non-Community
PHD	Peak Hourly Demand
ppb	Parts per Billion
ppm	Parts per Million
RSA	Retail Service Area
SMA	Satellite Management Agency
SWL	Static Water Level
SWSMP	Small Water System Management Program
UTC	Utilities and Transportation Commission
WDM	Water Distribution Manager
WFI	Water Facilities Inventory (form)
WSDOH	Washington State Department of Health
WSP	Water System Plan
WUE	Water Use Efficiency

1 System Description

1.1 Ownership and Management

Clearwood Water System (WSID 13615) is an existing Group A Community water system located SE of Yelm in Thurston County, Washington that serves the community surrounding 75% of Clear Lake. The system is owned and operated by Clearwood Community Association. The current number of approved connections is unspecified. A board of directors oversees the water system and there is an on-site manager who oversees daily operations. Pertinent information about the water system is summarized below:

Water System Name:	Clearwood Water System
System Type:	Group A Community
WSDOH ID Number:	13615
Location:	Thurston County, Washington
Sources:	3 active wells (S01, S02, S06) 2 in-active wells (S04, S05)
Approved Service Connections:	Unspecified
Population Served:	2,750
Type of Ownership:	Private
Name of Owner:	Clearwood Community Association
Owner Address:	21603 N. Clearlake Blvd SE Yelm, WA 98597
Type of Management:	System Employed Certified Operator

1.2 History and Background

The Clearwood Water System was originally developed by Quadrant Construction in 1965 and purchased by the Clearwood Community Association in 1980. Well 1 was completed in 1965 and Well 2 completed in 1975. These wells are located within 60 feet of each other. The 1995 WSP identified a future deficiency, so Well 3 was completed that same year on the east side of Clear Lake. In 2000, this well developed iron metabolizing bacteria and eventually significant amounts of sand. Operation of this well stopped. In 2001, Well 4 was drilled and the capacity decreased overtime, enough that a smaller well pump was installed. Geographically, this well is located in a bowl and has been found to be connected to surface water. Operation of this source has stopped as it is not a reliable source for the community. The community is currently operating off of Wells 1 and 2.

Lead and copper testing completed in 1997 showed 11 out of 20 households exceeded lead and copper limits. Corrosion control treatment, injection of NaOH, was installed in 2001. Re-sampling after the treatment was installed showed the treatment is effective.

The system has two reservoirs located on the south end of Clearwood. Reservoir 1 has a volume of 182,000 gallons and was installed in 1975. Reservoir 2 has a volume of 478,000 gallons and was installed in 1997.

Clearwood drilled three test wells in 2015 in search of a highly productive source to provide redundancy to Well 1 and Well 2. All three wells exceeded the MCL for manganese. One of the test wells was deepened and will be used as a source. This well, Well 5 (S06), exceeded the MCL for iron and manganese. The system decided to drill an additional 8" well adjacent to the deepened 6" test well. This well, Well 6 (S07), was completed in July 2017. This well will be used in conjunction with a 6" test well to provide 525 gpm.

1.3 Related Plans

South Thurston County has a coordinated water system plan, however, Clearwood is not within one of the coordinated water system plan mapped areas. The most relevant plan in effect is the Thurston County Comprehensive plan. A zoning map is included in Chapter 10-4. The area has residential zoning of 2 units per 1 acre. The Clearwood plat was in existence prior to this plan resulting in most of the lots having a density greater than 2 units per acre.

In accordance with Municipal Water Law, Clearwood has obtained a signed a consistency statement from Thurston County to document that this WSP is consistent with local area planning. A copy of the consistency statement is provided in Chapter 10-12 of the WSP.

The plan has also been made available to the adjacent Group A purveyors. Any comments from the neighboring interested parties will be included in Chapter 10-12 of the WSP.

1.4 Existing Service Area Characteristics

The existing service area is shown on Figure 1-1. The service area includes the entirety of the Clearwood plat and one parcel located outside the Clearwood plat. The parcel outside the Clearwood plat is explained further throughout the WSP. Other than the Clearwood wells, there are no other wells within the existing service area.

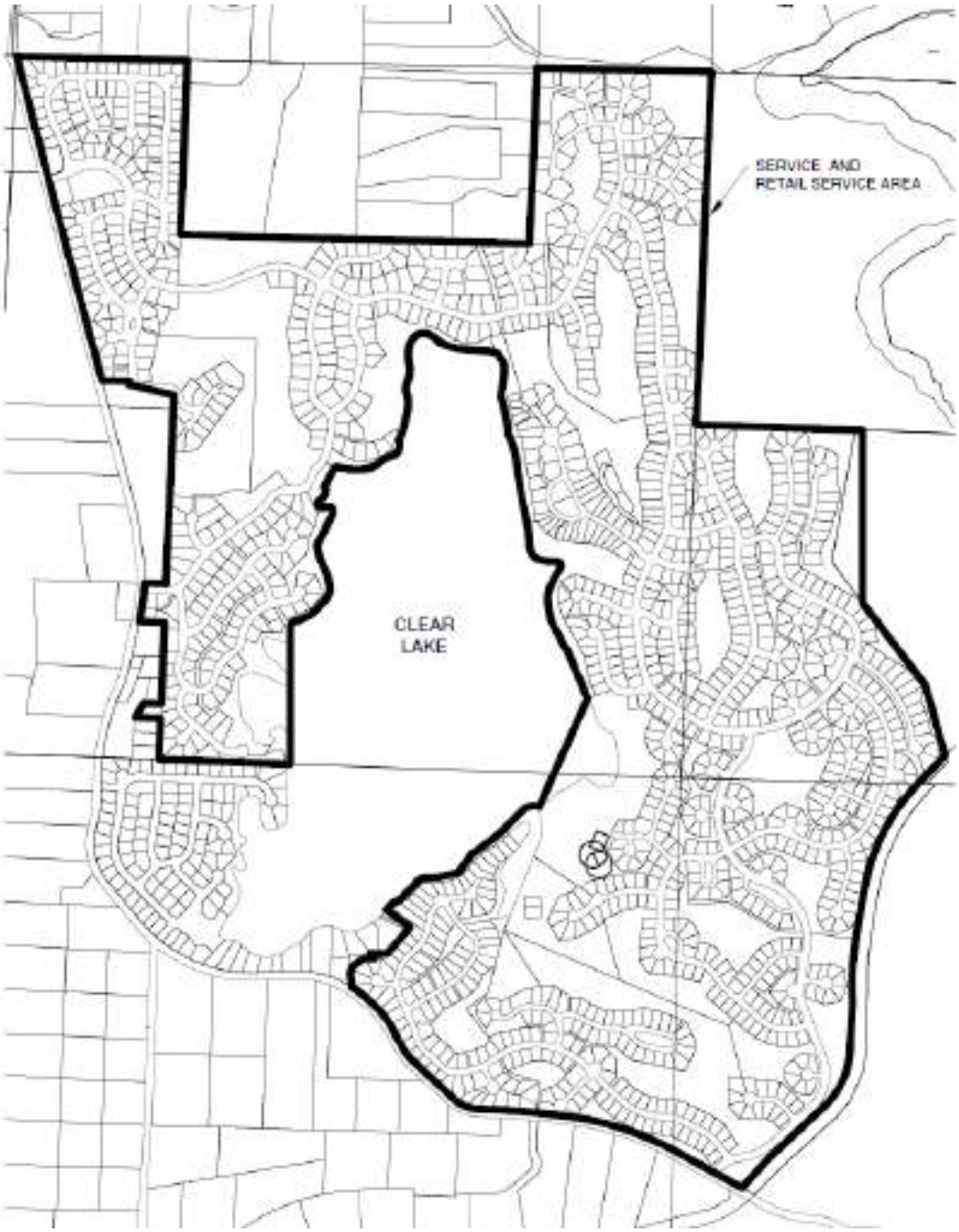


Figure 1-1 Clearwood Service Area

1.5 Retail Service Area

The retail service area includes all of the Clearwood plat and one parcel located outside the Clearwood plat. There is a written agreement between this parcel and Clearwood that was established in 1995. The connection predates this agreement. It is attached in Chapter 10-12.

1.6 Service Area Agreements

There are no completing utilities within the bounds of the existing service area. Single Tree Estates Water System is outside the Clearwood Water System service area.

1.7 Service Area Policies

The Clearwood Community Association Governing Documents detail service requirements for the Clearwood Community Water System. These documents are attached in Chapter 10-12. Clearwood observes the following general policies.

1.7.1 Annexation

There are no plans to annex or be annexed at this time.

1.7.2 Direct Connection and Satellite/Remote Systems

Future direct connections to Clearwood will occur as a result of development within the retail service area. Clearwood does not operate no has responsibilities associated with any satellite water systems.

1.7.3 Design and Performance Standards

All design and performance standards shall be completed under the direction of the Clearwood. Standards and details for future repair, replacement, and new service connection details are included in Chapter 10-15 meet the standards of the WSDOH. The construction standards shall also be in accordance with Section XIII of the Clearwood Community Association Governing Documents.

1.7.4 Outside Customers and Improvement Districts

Clearwood does serve the one parcel that is located outside the Clearwood plat. There is an existing agreement between this customer and Clearwood. The system does not anticipate serving any additional customers outside of the service area.

1.7.5 Urban Growth Area

The system is not located within an urban growth area.

1.7.6 Late-Comer Agreements

All lots with the Clearwood Community plat are provided with water service and are responsible for payment. Late-comer agreements are not necessary.

1.7.7 Cross-Connection Control Program (CCCP)

The system has adopted a CCCP. The cross connection control policy, program, and sample surveys are attached in Chapter 10-11.

1.7.8 Extension

All lots within Clearwood Community have a water service, regardless if the parcel is developed or not. So, no extensions to the service area are anticipated or proposed.

1.7.9 Individual Wells

The Clearwood Community Association Governing Documents do not permit individual water wells within the service area.

1.7.10 Duty to Serve

Clearwood has a duty to serve all new connections located within their service area provided four threshold factors are met (see Section 1.8). In practice, the water system administrators and operators determine whether the system is capable of providing service. If the threshold factors are not evaluated correctly, the system may become over-connected or may turn away legitimate customers. Either of these conditions is likely to result in costly additional engineering or lawsuits that could be avoided by proper planning and understanding of the necessary conditions.

Clearwood will evaluate requests for service to test whether the four conditions are met. The procedure for determining whether a letter of water availability may be issued is as follows:

1. Check the Water Facilities Inventory (WFI) available on the DOH Sentry database to determine the total number of approved service connections. Confirm that the sum of connected services and released water availability letters is less than this total. This approved limit is established by the State Department of Health from an engineering analysis called a "capacity analysis", and is sufficient to establish that conditions 1 and 3 listed in Section 1.8 are met.
2. The owner shall verify the service request is consistent with adopted local plans and development regulations. If the request for service is consistent with the plan, the local government consistency review as part of this plan is met.
3. The owner shall verify that water that the new service requests has been made in a location that may be served from existing water lines. Line extensions require additional engineering and analysis prior to approval, see Section 1.8.

If the request cannot be permitted because these criteria cannot be met, the system shall issue a denial of water service and a brief explanation of the reason that service cannot be provided. The customer and water system may negotiate a future facilities upgrade through a developer extension agreement; however, this may require significant engineering and construction, and would not be done as part of the Duty to Serve. However, each lot within Clearwood has a metered connection even those that are not active. See Section 1.8 for additional details regarding the four threshold factors.

1.8 Conditions of Service

Clearwood has a duty to serve all new connections located within its Retail Service Area, so long as the following four threshold factors are met, as described in Washington Administrative Code (WAC) 246-290-106:

1. *Clearwood has sufficient capacity to provide water in a safe and reliable manner.*
   Clearwood currently has a green operating permit. The number of approved connections in the previous WSP was unspecified. The system has capacity to serve 1,198 ERU. This is less than full-build out of the system. This is limited by the source pumping capacity which will increase once the new sources are approved.

2. *The service request is consistent with state and local regulations.*
   The provision of service within the Retail Service Area is considered to be consistent with Thurston County with completion of the Local Government Consistency Review.

3. *Clearwood has sufficient water rights to provide service.*
   Clearwood currently has two water right certificates and one pending water right application. Additionally, there is a change application for the location of withdrawal for the new sources. This has been submitted to Department of Ecology. Department of Ecology will be asked to review the applicable portions of the WSP as part of plan approval.

4. *Clearwood can provide service in a timely and reasonable manner.*
   Any applicant requesting water service from Clearwood is required to abide by the terms defined in the Clearwood Community Association Governing Documents. This is attached in Chapter 10-12.

   For planning purposes, "timely service" is defined as receiving water service within 120 calendar days plus construction time. If the extent of water service requested requires construction of major facilities such as the replacement or installation of new storage tanks, wells, booster pumps or distribution mains, the time associated with engineering, regulatory review and approval, and construction may be added to the 120 days.

   The provision of new water service is "reasonable" if:

   - The conditions of service are consistent with local land use plans and development regulations.
   - The conditions of service and associated costs are consistent with those documented in the water system plan, and
   - The conditions of service and associated costs are consistent with the water system's standard practice experienced by other applicants requesting similar water service.

1.9 Complaints

All complaints are currently directed to the Clearwood Community office. The complaints are received by the present office manager by phone or in person. The complaints are resolved over the phone or directed to the water manager for further steps. A written record of all complaints is kept.

2 Basic Planning Data

2.1 Demand Analysis

2.1.1 Types of Usage

The Clearwood Water System has both residential and non-residential connections as part of the water system. The non-residential connections are community, store, and recreational connections. Definitions of the non-residential connections are in Table 2-1. The usage types for the system will be defined as residential, recreational, store, community, operational, and distribution system leakage (DSL). Operational usage includes flushing, reservoir cleaning, etc.

Connections were considered full time residential connections only if the service meter usage on an annual average was greater than 75 gpd. If the connection has some usage, but less than 75 gpd on annual average, it was considered a part time connection. If the connection had zero usage, but a building present on the lot, it was considered a vacant residential connection.

Table 2-1 Summary of 2016 Usage Types

Usage Type	**Definition of Usage Type**	**Number of Connections[1]**	**ERU[2]**
Full Time Single Family Residences	Lots with an existing residential home, septic, and an ADD greater than 75 gpd	792	792
Part Time Single Family Residences	Lots with an existing residential home, septic, and an ADD less than 75 gpd	236	118
Vacant Single Family Residences	Lots with an existing residential home, septic, and an ADD of 0 gpd	12	0
Recreational Lots	Vacant lots, no septic, used for camping or providing water to a smaller building	313	83
Community	Community picnic shelters, restrooms, RV dump, pool, offices, and irrigation	28	10
Store	Two commercial store connections at the entrance to the community	2	1
Operational	Operational usage for flushing, reservoir cleaning, etc.	n/a	1
DSL	Distribution system leakage	n/a	40
Total		**1,383**	**1,005**

1. The number of full time, part time, vacant, and recreational connections changes year to year. The community and store connections are anticipated to remain constant.
2. ERU's for each connection type are determined in Section 2.1.5.3

Table 2-2 below shows the yearly totals for residential, recreational, store, community, operational, and DSL. Notes below and within the table describe how the totals were determined. Columns A-D were summed from quarterly service meter readings. Columns E and G totals were provided by the water system. Column E, community usage, is metered by the water system. Column G, operational use, was estimated in 2015 and 2016. The system should meter operational use when possible and record accurate estimates when metering is not possible to determine annual operational use. This has been

added in Sections 6.10 and 8.5 as an improvement. Column I was summed from the monthly source meter readings.

Table 2-2 Total Production and Consumption

	A	B	C	D	E	F
Year	Full Time Residential (gallons)[1]	Part Time Residential (gallons)[1]	Recreational (gallons)[1]	Store (gallons)[1]	Community (gallons)[1]	Total Consumed (gallons, sum of columns A-E)
2012	47,516,132	2,952,087	1,004,048	152,637	3,342,295	54,967,198
2013	38,547,754	4,945,970	7,496,778	60,483	2,851,221	53,902,206
2014	48,661,551	2,863,456	790,666	94,644	3,524,855	55,935,172
2015	48,951,843	3,099,540	999,373	251,994	844,390	54,147,140
2016	46,559,537	3,855,140	2,862,566	70,619	935,330	54,283,191

Table 2-2 continued

G	H	I	J	K
Operational Use (gallons)[2]	Total Water Accounted for (gallons, sum of columns F+G)	Total Production (gallons)[3]	DSL (gallons, difference of columns H and I)	DSL
850,670	55,817,868	72,754,251	17,025,013	23.3%
1,094,670	54,996,876	59,741,919	4,813,140	7.9%
292,500	56,227,672	58,916,640	2,688,968	4.6%
93,750	54,240,890	62,696,240	8,455,350	13.5%
93,750	54,376,941	61,724,770	7,034,888	11.9%

1. Summed from quarterly service meter records
2. Total provided by Clearwood
3. Summed from monthly source meter records

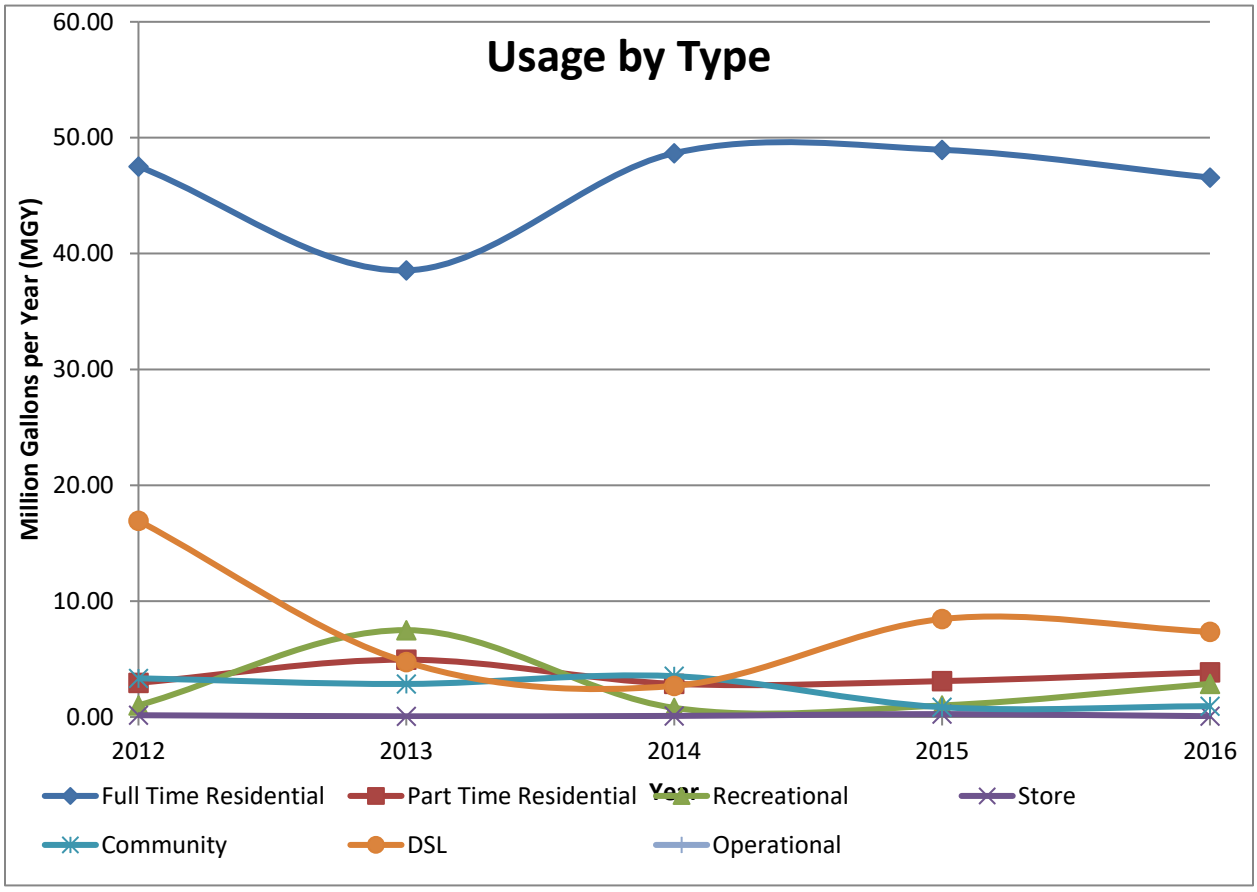


Figure 2-1 Usage by Type

Figure 2-1 above shows usage for each usage type defined in Table 2-1, operational use, and DSL. Community usage in 2015 and 2016 is lower than previous years due to intentional lower sprinkler usage as a result of only having 2 wells operating. Distribution System Leakage (DSL) was significantly lower in 2013-2014 than the previous year; it has since creeped back up. The system needs to address the DSL to reduce leakage below 10%.

2.1.2 Population

The existing system has 1,355 potential residential lots. Not all of these lots are buildable. The following table lists the division and number of lots.

Table 2-3 Clearwood Lots

Division No.	Total Lots
I	69
II	33
III	92
IV	175
V	5
VI	258
VII	133
VIII	150
IX	92
X	30
XI	4
XII	11
XIII	77
XIV	7
XV	23
XVI	94
XVII	65
XVIII	16
XIX	21
Total	**1,355**

2.1.3 Meter Data

Clearwood customer meter data is recorded quarterly and source meter data are recorded by hand daily Monday – Friday by the water system manager. Only monthly source meter records are entered into a digital spreadsheet.

2.1.4 Source Meter Record Analysis

To analyze recent usage, source meter data from 2012-2016 was used for demand analysis. The meter data is included in Chapter 10-3 as well as a summary below.

2.1.5 System Parameters: ADD, MDD, and PHD

Average day demand (ADD) and maximum day demand (MDD) by definition are gallons per day per equivalent residential unit (ERU). ADD is calculated in Section 2.1.5.2 using only full time residential service meter records. MDD is calculated in Section 2.1.5.2 using service meter records which include full time and part time connections. This is explained further in Section 2.1.5.2. MDD for total system wide usage (gpd) will be considered MDD_{system}.

2.1.5.1 Source Meter Readings

From the monthly source meter readings from 2012-2016, maximum month day demand (MMAD) for the system was in July 2013, 269,032 gallons per day. The MDD_{system} is calculated by multiplying the $MMAD_{system}$ by 1.7. MDD_{system} is therefore, 457,354 gpd. Since this is from the source meter readings, it includes usage from all connections and distribution system leakage.

2.1.5.2 Service Meter Readings

Quarterly residential meter readings were used from 2012-2016. Each quarter the full time, part time, recreational, store, and community meters totals are summed. Operational usage is estimated and

measured. The difference between the source meter totals and service meter totals plus operational usage is the DSL.

The metered connections are comprised of residential connections, store, and community usage. ADD was determined by totaling only the full time quarterly residential usage per year, dividing this by 365, and dividing this by the number of residential connections. In this plan, an ADD of 166 gpd/ERU will be used. Connections were considered full time residential connections only if the service meter usage on average was greater than 75 gpd. If the connection has some usage, but less than 75 gpd on average, it was considered a part time connection. If the connection had zero usage, but a building present on the lot, it was considered a vacant residential connection.

Table 2-4 Full Time Residential ADD (gpd/ERU)

	2012	2013	2014	2015	2016	
Sum of full time residential meter readings (gpy)	47,516,132	38,547,754	48,661,551	48,951,843	46,559,537	
ERU	768	699	767	770	792	Average (gpd/ERU)
ADD (gpd/ERU)	170	151	174	174	161	166

From the residential quarterly readings, the MMAD was determined by first dividing the highest quarterly service meter reading by 3 to determine maximum month demand, then dividing this by 30. All residential service meters are included in this as the usage from full time, part time, and recreational connections are representative of a maximum demand day. The MDD is calculated by multiplying the MMAD by 2.0 for a conservative factor. This is used rather than the 1.7 factor due to the quarterly service meter readings rather than monthly source meter readings. In the previous design manual, MDD was estimated as 2x ADD. The maximum quarter was third quarter 2013 where the MDD_{system} was 420,309 gpd. It is assumed all full time connections are present during a maximum day and half of the part time connections are present. This is a total of 855 ERU for 2013. This results in an MDD of 492 gpd/ERU. In this plan, an MDD of 492 gpd/ERU will be used.

In Table 2-5 below, ADD_{system} and MDD_{system} are determined for residential and community connections. ADD_{system} is calculated by summing the quarterly usage and dividing this by 365. MDD_{system} is calculated as described above.

Table 2-5 ADD and MDD Usage

ADD_{system} (gpd)					
Connection	2012	2013	2014	2015	2016
Residential – **Full Time**	130,181	105,610	133,319	134,115	127,560
Community	6,826	4,812	8,856	2,057	2,563
MDD_{system} = (2.0*MMAD) (gpd)					
Connection	2012	2013	2014	2015	2016
Residential - **All**	366,773	420,309	374,598	417,540	347,392
Community	27,193	26,857	27,477	11,667	13,164

As mentioned above, the connections were considered full time residential connections only if the service meter usage on average was greater than 75 gpd. Realistically, if there was one person in a home they would use less water, perhaps 50 gpd and remain a full time residential connection. If the connections were considered full time residential connections only if the service meter usage on average was greater than 50 gpd, the system demand would be the following ADD=154 gpd/ERU and MDD =462 gpd/ERU. However, as a conservative estimate connections will be considered full time if the average usage is greater than 75 gpd.

The annual usage for recreational connections is below in Table 2-6 Recreational Usage. Table 2-7 Number of Recreational Lots has the number of lots which has zero usage and the number of lots which had usage.

Table 2-6 Recreational Usage

	2012	2013	2014	2015	2016
Usage (GPY)	1,004,048	7,496,778	790,666	999,373	716,173

Table 2-7 Number of Recreational Lots

	2012	2013	2014	2015	2016
Vacant (zero usage)	241	52	241	235	64
Lots with usage	72	261	72	78	249
Total	313	313	313	313	313

2.1.5.3 ERU's by Usage Type

ERU's for each usage type are calculated based on an MDD bases, rather than ADD since MDD is the limiting factor. Since only quarterly service meter records available, there are several assumptions made to determine ERU's by usage type. Part time connections are considered to be equivalent to 0.5 ERU in the table below as this is how the residential MDD was determined. MDD for the store connection is assumed to be twice the store ADD as the use should not vary much. Recreational usage likely occurs at the same time part time usage occurs, during peak demand times. Annual recreational usage is approximately 1/3 of the part time annual usage. Therefore, recreational ERU's are equivalent to be 1/3 of the total recreational connections. Operational and community MDD are assumed to also be twice their ADD. Store, operational, community, and DSL ERU's are calculated using the equation below.

$$ERU = \frac{MDD_{connection\ type}}{MDD_{residential}}$$

Table 2-8 ERU's by Usage Type

	2012		2013		2014		2015		2016	
Usage Type	MDD	ERU	MDD	ERU	MDD	ERU	MDD	ERU	MDD	ERU
Full Time		768		699		767		770		792
Part Time		111		157		102		112		118
Recreational		24		87		24		26		25
Store	836	2	331	1	519	1	1,381	3	483	1
Community	18,314	37	15,623	32	19,314	39	4,627	9	5,125	10
Operational	4,661	9	5,998	12	1,603	3	514	1	514	1
DSL	47,062	95	12,044	24	5,376	11	23,893	48	19,515	40
Total ERU w/DSL		**1,047**		**1,012**		**947**		**970**		**1,045**
Total ERU w/o DSL		**951**		**987**		**937**		**921**		**1,005**

The community ERU's dropped in 2015 and 2016 as a reduction of water usage due to conservation efforts. As this may not be sustained when a new source is approved, the water usage and production volume for the predicted usage will include the highest community ERU's, which occurred in 2014, rather than the reduced community ERU total in 2015 and 2016.

The ERU's in Table 2-8 are used to calculate system MDD. Table 2-9 below compares the calculated system MDD to the actual system MDD.

Table 2-9 Calculated and Actual System MDD

	2012	2013	2014	2015	2016
Calculated					
MDD*N	516,053	498,649	467,060	478,058	515,090
Actual					
MDD from monthly source meter readings	None available	457,354	409,667	430,677	450,012
System MDD/MDD = N		930	833	875	915

Comparing the calculated system MDD to the actual system MDD, the calculated system MDD is higher than the actual system MDD. This suggests the assumptions made in calculating the number of ERU's per connection type are conservative.

2.1.5.4 PHD

The consumption data from 2012 – 2016 was used to determine a residential ADD of 166 gpd/ERU and a residential MDD of 492 gpd/ERU. The MDD is used in calculating PHD for the existing connections using Equation 5-1 in the WSDM. Equation 5-1 is below.

$$PH\mathrm{D} = \frac{MDD}{1440}\big((C * N) + F\big) + 18 = \frac{492}{1440}\big((1.6 * \mathrm{N}) + 225\big) + 18 = \mathrm{X}\ gpm$$

DSL was the highest in 2012, at 18,637,723 gallons for the year, or an average of 35 gpm. Community usage (operational) could also not be included in the PHD total because these uses are typically not at a continuous rate. Operational use such as system flushing, typically occur during non-peak time. Table 2-10 lists PHD based on total system ERU's. PHD is calculated excluding DSL, since this is assumed to be a constant rate. PHD is also calculated assuming all part time connections are present and equivalent to 1 ERU. This is realistically what a peak demand scenario would look like. Community and operational usage realistically do not occur during a peak demand scenario.

Table 2-10 PHD by Total System ERU's

	2012	2013	2014	2015	2016
Total ERU's w/o DSL	951	987	937	921	1,005
PHD (gpm) (excluding DSL)	615	635	607	600	644
PHD (gpm) (excluding DSL, assuming all PT connections are present)	676	720	663	660	709

The highest PHD was 720 gpm in 2012. Adding the DSL PHD, this results in a system PHD of 755 gpm. A PHD of 755 gpm will be used throughout the WSP for the existing connections this is the most conservative approach.

10 and 20 year projections for PHD are included in Section 2.2.

2.1.6 Pressure Zones

The system is comprised of one pressure zone. The wells pump directly to the distribution and are controlled by the reservoir levels. A hydraulic analysis for PHD (783 gpm) was completed in the 2011 WSP. The minimum pressure was 55 psi (PHD flow) and the maximum pressure was 91 psi (no flow).

2.1.7 Other Systems

There are currently no interties to nearby systems. The possibility of a future intertie with Single Tree Estates is discussed in Section 2.3.

2.2 10 & 20 year projections

2.2.1 Land Use

The current community is residential, single family homes and undeveloped sites that are used for camping but may be developed in the future. There is a discrepancy between lots that Thurston County considers suitable to develop and Clearwood Community Association's standards because Clearwood was platted and a portion developed prior to the Thurston County Comprehensive Plan. The surrounding area from Clearwood's development is unlikely to be approved for similar developments. The surrounding areas are zoned Long Term Forestry and RRR, Rural Residential Resource, 1 unit per 5 acres. Surrounding Clear Lake, there are significant wetland setbacks. A map is attached in Chapter 10-4 with the wetland areas surrounding Clear Lake.

2.2.2 Zoning

The service area is currently zoned RL 2/1, Residential 2 units per 1 acre. Zoning is not anticipated to change.

2.2.3 Population, Service Connections, and ERU's

Thurston County population projections are not considered to be applicable to Clearwood Water System because the system is outside the Thurston County Urban Growth Area. The community experienced significant growth between 2004 and 2007 (32% increase), which tapered off between 2007 and 2010 (0.98% increase). Between 2010 and 2017 there has been a 0.2% increase. The Thurston Regional Planning Council provides population and housing forecasts through 2040. The Clearwood Water System is located in the Nisqually South Planning Area. The past and projected housing estimates are below in Table 2-11.

Table 2-11 Thurston Regional Planning Council Forecasts

Year	Housing Estimate	% increase per year	Home increase per year	Population Estimate
2010	1560			3570
2011	1580	1.28	20	3600
2012	1590	0.63	10	3630
2013	1600	0.00	0	3650
2014	1620	0.63	10	3670
2015	1630	1.25	20	3720
2016	1630	0.62	10	3790
2017	1640	0.61	10	3870
2018	1660	1.22	20	3910
2020	1930	8.13	135	4430
2025	2070	1.45	28	4740
2030	2200	1.26	26	5050
2035	2230	0.27	6	5130
2040	2270	0.36	8	5220

In the Nisqually South Planning Area, between 2010 and 2017 there was an average increase of 11 homes per year. In Clearwood, there are 1,355 platted lots which are made up of 1,040 houses, 313 recreational sites, and 2 store connections.

Table 2-12 2004-2010 Residential Connections

Year	Number of Residential Connections
2004	773
2005	905
2006	1,020
2007	1,024
2008	1,029
2009	1,033
2010	1,034

Table 2-13 2012-2016 Residential Connections (Part and Full time)

	Number of Residential Connections			
Year	Full Time	Part Time	Vacant – with home on lot	Total
2012	768	222	50	1,040
2013	699	313	28	1,040
2014	767	204	69	1,040
2015	770	224	46	1,040
2016	792	236	12	1,040

The total of 1,040 includes all built upon lots within Clearwood. This will be used as the total number of lots.

In 2013, the number of full time connections decreased significantly (69 full time ERU). However, this returned to expected in 2014. From 2014 to 2015 there was an increase of 3 full time ERU and from 2015 to 2016 there was an increase of 22 full time ERU. As mentioned above, connections were considered full time residential connections only if the service meter usage on average was greater than 75 gpd. Based on this, the number of full time and part time homes can fluctuate slightly if demand for a home changes due to occupancy or ownership.

Clearwood has not tracked part time versus full time connections on a yearly basis, so the actual number of part time and full time usage is determined using usage data as explained above. Comparing Table 2-11 and Table 2-13, the community has not followed actual area trends. Therefore, future growth patterns will also likely not follow area trends. However, the predicted percent increase is applied to Clearwood's connections, the results are in Table 2-14 below. Actual ERU increase per year may differ than the predicted trends.

Table 2-14 2016-2040 Increase

Year	% increase	ERU (Full Time + 0.5*Part Time)	ERU Increase	ERU Increase per year
2016		910		
2017	0.61	916	6	6
2018	1.22	927	11	11
2020	8.13	1003	76	38
2025	1.45	1018	15	3
2030	1.25	1031	13	3
2035	0.27	1034	3	1
2040	0.36	1038	4	1

The average increase per year in the table above is 8.9 ERU/year. As a conservative estimate, an increase of 10 ERU per year over the next 20 years will be evaluated. It is predicted the addition of 10 ERU per year will be full time residential homes from either existing part time connections or new construction on vacant lots. The recreational, community, and DSL connections are predicted to fluctuate but not steadily increase. As discussed in Section 2.1.5.3, the community usage dropped in

2015 and 2016 as a result of conservation from operating on only 2 wells. This usage may return to previous total. The ERU's associated with highest community usage occurred in 2014, this is used rather than the reduced community ERU's in 2015 and 2016.

Table 2-15 Predicted ERU Increase

Year	FT	PT	Recreational	Store	Community	Operational	DSL	Total
2012	768	111	24	2	37	9	95	1,046
2013	699	157	87	1	32	12	24	1,012
2014	767	102	24	2	39	3	11	948
2015	770	112	26	4	9	1	48	970
2016	792	118	25	1	10	1	40	987
2017	802	105	12	2	39	2	40	1,002
2018	812	105	12	2	39	2	40	1,012
2019	822	105	12	2	39	2	40	1,022
2020	832	105	12	2	39	2	40	1,032
2021	842	105	12	2	39	2	40	1,042
2022	852	105	12	2	39	2	40	1,052
2023	862	105	12	2	39	2	40	1,062
2024	872	105	12	2	39	2	40	1,072
2025	882	105	12	2	39	2	40	1,082
2026	892	105	12	2	39	2	40	1,092
2027	902	105	12	2	39	2	40	1,102
2037	1002	105	12	2	39	2	40	1,202

Clearwood's governing documents allow a plumbed accessory utility structure (ex. shed, greenhouse, or hobby den) less than 200 sq-ft, with a sink. This structure is not intended for permanent occupancy. An accessory dwelling unit (ADU) is a small residence or apartment which is intended for occupancy. Therefore, ADU's are not considered at this time.

2.2.4 Water Demand

Predictions for 6-year, 20-year, and build-out demand are determined below. As discussed in Section 2.2.3, the projected growth is 10 ERU's per year over the next 20 years.

Usage from DSL and operational use do not directly contribute to approvable connections. However, the usage from DSL and operational use does contribute to total annual demand. For this reason, it is considered DSL will contribute an average daily amount on an MDD day. However, operational usage does not contribute to MDD_{system} because operational use will not occur on a peak usage day.

2.2.4.1 PHD Demand

Table 2-16 Projected PHD Demand calculated projected PHD demand each year for the next 10 years and for the 20 year projection. To calculate PHD, the ERU's from Table 2-15 and a MDD of 492 gpd/ERU were used.

Table 2-16 Projected PHD Demand

Year	Total ERU's	PHD (gpm)
2017	1,002	643
2018	1,012	648
2019	1,022	654
2020	1,032	659
2021	1,042	665
2022	1,052	670
2023	1,062	675
2024	1,072	681
2025	1,082	686
2026	1,092	692
2027	1,102	697
2037	1,202	752

2.2.4.2 Total Projected System Demand

Actual future build-out will be dependent on the rate of development and housing sales in the area. The following table shows projected system demand.

Table 2-17 Projected Water Demand – system

				Annual Demand	
Year	ERU	ADD (gpd)	MDD (gpd)	GPY	ac-ft/year
2017	1,002	166,262	492,984	60,685,546	186
2027	1,102	182,855	542,184	66,741,987	205
2037	1,202	199,448	591,384	72,798,429	223
B-O	1,438	238,607	707,496	87,091,631	267

Although usage from operational use and DSL do not directly correspond to approvable connections, it is important to include usage as an average daily amount in predicting water demand.

2.3 Interties

The nearest water system is Single Tree Estates (WSID 79423 C), a Group A Community system that is approved for 106 connections and currently has 68 active connections which is a combination of full time, part time, and 1 non-residential connection. The system is sourced by two wells, a permanent well (DOE Well Tag ABR131) with a capacity of 160 gpm and a seasonally used well (DOE Well Tag AAE300) with a capacity of 20 gpm. Single Tree Estates has one water right certificate (G2-20512) for an instantaneous withdrawal of 170 gpm and an annual withdrawal of 58 ac-ft/year. There is no existing intertie between the two systems.

An intertie between Single Tree Estates has been discussed with the board in the past but no actions have been made to create an intertie.

2.4 Distribution System Leakage and Volume

Distribution System Leakage (DSL) is the difference between the total source production and total water consumption. Clearwater has service meters which are read quarterly and source meters which are read 5 days per week. ERU's for DSL was calculated in Section 2.1.5. The system needs to address DSL as it has increased overtime and was greater than 10% in 2015 and 2016.

3 System Analysis

3.1 System Design Standards

All design and future construction shall be completed in accordance with the Washington State Department of Health Water System Design Manual (Design Manual). The following is a brief summary of relevant standards set forth in the Design Manual:

ADD/MDD	Section	5.2
PHD	Equation	5.3
Distribution System	Chapter	8
Hydraulic Analysis	Section	8.2
Storage Requirements	Chapter	9

The distribution and pumping systems provide sufficient capacity to meet existing residential peak demands for the community.

3.2 System Inventory

3.2.1 Overview

Clearwood water system is currently sourced by two wells, although there are 8 wells drilled in the community. Three test wells were drilled to determine the location for a production well. One of the test wells (S06) is proposed to be used as a source; the other two test wells are not, and are not included in the table below. The sources are detailed in Table 3-1 below. The active sources pump directly to the distribution system which is controlled off of levels in an elevated reservoir. There is corrosion control treatment on S01 and S02.

3.2.2 Sources

The system is served by the following sources and their associated water right capacity. Well 3 (S04) and Well 4 (S05) are no longer in use.

Table 3-1 Existing Water Sources

Source	Well Tag ID	Year	Size	Well Depth (ft)	Capacity (gpm)	Water Right Capacity
Well 1 (S01)	AAF169	1965	8”	89	90	100 gpm, 160 ac-ft/yr
Well 2 (S02)	BCK267	1975	10”	87	320	425 gpm, 529.2 ac-ft/yr
WF (Wells 1 &2, SO3)	N/A	N/A	N/A	N/A	See Above	N/A
Well 3	None	1998		70	0	N/A
Well 4 (S05)	AEC890	2001		146	300	See Well 2
				Total	410[1]	525 gpm, 529.2 ac-ft/yr

1. Wells 2 and 4 can’t pump concurrently and Well 4 is no longer in use

3.2.3 Water Rights and Capacity

The water rights are outlined in the table below.

Table 3-2 Water Rights

Water Right	Type	Priority Date	Instantaneous	Annual	Withdrawal
G2-01008	Certificate	10/20/1965	100 gpm	160 ac-ft/yr	Well 1
G2-23124	Superseding Certificate	6/6/1974	425 gpm	529.2 ac-ft/yr	Well 2 & 4
G2-23124@1	Change Application	7/22/2014			Well 5
G2-29197	Application – Pending	3/3/1995	1000	529.2 (Supplemental)	Well 6 and Well 7 - pending
		Total	525 gpm	529.2 ac-ft/yr	

The existing wells have a capacity of 410 gpm. The existing instantaneous water rights allow 525 gpm from Well 1 and Well 2. There has been an overriding water right certificate for G2-23124 to allow Well 3 as an additional point of withdrawal. In 2001, an affidavit of compliance allowed for Well 4 to replace Well 3. Well 4 is now an emergency source. A water right change application was submitted for the withdrawal from a well location SW ¼ NW ¼ of Section 5, Township 15N, Range 3 E W.M. Department of Ecology has been notified the location of the new sources (6"test well and 8" well) are in NE ¼ NE ¼ of Section 6, Township 15N, Range 3 E W.M.

3.2.4 Treatment

Corrosion control treatment is installed to raise the pH to a target of 7.8 to reduce levels of copper in the distribution system. This is accomplished through injection of sodium hydroxide.

3.2.5 Storage

Clearwood has two welded steel reservoirs that are located south of the Clearwood development on a hill. Reservoir 1 was built in 1975 and has a capacity of 182,650 gallons. Reservoir 2 was built in 1997 and has a capacity of 478,800 gallons. The usable capacity of the tanks is 175,000 gallons and 423,500 gallons, respectively. The reservoirs are filled from the system and connected to distribution via a 10" pipe.

In 2011, the tanks were inspected and the interior of Reservoir 1 was re-coated and the exterior of both reservoirs was repainted. In 2015, both tanks were inspected and cleaned. The tank inspection reports are attached in Chapter 10-16.

3.2.6 Distribution System and Pressure Zones

The existing distribution system consists of 10", 8", 6", 4" and 2" AC, DIP, PVC, and HDPE pipe. There are several dead end lines in the system for which the system has a regular flushing program.

The 2011 WSP outlined a hydrant and water main installation and replacement schedule. The system has not started the outlined schedule for replacement. The 2011 schedule is in Section 8.3.

3.3 Limiting Factors

3.3.1 Service Area

A map of Clearwood's service area is included in Section 1.4. The system is limited to the plat of Clearwood Community Association, with the exception of the parcel located within Single Tree Estates. The total number of lots within the service area is 1,355 lots. Many of these lots may not be considered developable based on Thurston County's standards for "buildable homes" due to wetland setbacks. However, all lots will be considered to be developable since they could at some point in the future become buildable. Additionally, there are no ADU's existing in Clearwood, though these could be constructed in the future. Therefore, one lot within the community could have the potential to serve more than 1 connection.

Additionally, there are the following community connections: picnic shelters (9), community irrigation (5), restrooms (11), office (1), RV dump (1), and pool (1). This is a total of 28 community connections.

The number of connections within the service area is limited to the total number of residential lots plus the community and store connections, for a total of 1,385. The number of ERU's at full build out assumes all lots have full time single-family homes present plus 2 store ERU's, 39 community ERU's, 2 operational ERU's, and 40 DSL ERU's. This is a total of 1,438 ERU's. This number should not be used as the number of approvable connections but will be used in the limiting factors analysis.

3.3.2 Water Rights

The ERU from instantaneous and annual withdrawal limit is calculated below.

$$N_{wr,instant} = \frac{525\ gal/min * 1{,}440 min/day}{492\ gpd/ERU} = 1{,}537\ ERU$$

The ADD of 166 gpd/ERU is used to calculate ERU limitations for the annual withdrawal limit.

$$N_{wr,annual} = \frac{529.2\ acft/yr}{\frac{0.189\ acft}{yr}/ERU} = 2{,}795 ERU$$

3.3.3 Source Capacity

The existing, on-line sources, have a capacity of 410 gpm. The sources must still provide sufficient capacity for maximum daily demands. Using the MDD per ERU to calculate the limiting number of ERUs that may be served:

$$N_{source} = \frac{410\ gal/min * 1{,}440 min/day}{492 gpd/ERU} = 1{,}198\ ERU$$

3.3.4 Storage

Reservoir storage increases a systems reliability and capacity by providing equalization water to meet peak demands.

The WSDOH Design Manual (WSDM) lists the storage requirements in Chapter 9. Operational storage (OS) is calculated from the height of the well pump cut-in and cut-out levels in the reservoir. Each tank has 4' of operational storage. The corresponding volume is below.

$$OS_{Tank\ 1} = 30{,}455\ gallons$$

$$OS_{Tank\ 2} = 73{,}698\ gallons$$

$$OS_{Total} = 104{,}153\ gallons$$

Equalization storage (ES) is calculated from the system's build-out PHD and source capacity using the equation below:

$$ES = 150 * (PHD - Q_{pumps})$$

$$ES_{1{,}002\ ERU} = 150 * (643 - 410) = 34{,}895\ gallons$$

$$ES_{1{,}438\ ERU} = 150 * (881 - 410) = 70{,}647\ gallons$$

Standby storage (SS) is used for system reliability and is calculated from the system's ADD with the build-out ERU. Recommended standby storage is no less than 200 gallons for each ERU.

$$SS = 200\ gal * ERU$$

$$SS_{1{,}002\ ERU} = 2 * 200 * 1{,}002 = 332{,}664$$

$$SS_{1{,}438\ ERU} = 2 * 200 * 1{,}438 = 477{,}416$$

Because Clearwood has multiple sources, the system should have SS based on the following equation, where N is the number of ERU's, Qs is the sum of all installed and continuously available source capacities, QL is the largest capacity source available to the system, and tm is the time the remaining sources are pumped on the day when the largest source is not available (1,440 minutes).

$$SS = 2 * \big((ADD)(N) - t_m(Q_S - Q_L)\big)$$

$$SS_{1{,}022\ ERU} = 2 * \big((166)(1{,}002) - 1{,}440(410 - 320)\big) = 73{,}464\ gallons$$

$$SS_{1{,}438\ ERU} = 2 * \big((166)(1{,}438) - 1{,}440(410 - 320)\big) = 218{,}216\ gallons$$

Fire flow storage (FFS) of 500 gpm for 30 minutes, a total of 15,000 gallons, is required. FFS can be nested with standby storage and be excluded as it is the lesser of the two requirements.

The required storage is calculated for the existing system and full build-out of the system. The table below shows the storage available in both tanks.

$$Total\ Required\ Storage = OS + ES + SS + FFS$$

$$Total\ Required\ Storage_{1{,}002} = 104{,}153 + 34{,}895 + 73{,}464 = 212{,}512\ gallons$$

$$Total\ Required\ Storage_{1438} = 104{,}153 + 70{,}647 + 218{,}216 = 393{,}016\ gallons$$

Reservoir 1 is 182,000 and Reservoir 2 is 478,000 for a total of 660,000 gallons. Therefore, the required storage is less than the available storage. The total unallocated storage for 1,002 ERU is 447,488 gallons and for build out is 266,984 gallons.

The following equation determines the number of ERU the system is limited to based on storage, where Qs is the sum of all installed and continuously available source capacities, F is 225, C is 1.6, SBi the standby storage per ERU, and t_d is the number of days the storage is to be used which is 1 day.

$$CRS = ES + SS + unallocated = 70{,}647 + 218{,}216 + 251{,}984 = 555{,}847\ gallons$$

$$N = \frac{(CRS) + 150\left(Q_s - \left(\frac{MDD}{1{,}440}\right)(F)\right) - 2700}{150\left(\frac{MDD}{1{,}440}\right)(C) + (SB_i)(t_d)} = \frac{(555{,}847) + 150\left(410 - \left(\frac{492}{1{,}440}\right)(225)\right) - 2700}{150\left(\frac{492}{1{,}440}\right)(1.6) + (200)(1)}$$
$$= 2{,}138\ ERU$$

3.3.5 Summary

The current system's limits are shown in Table 3-3 .

Table 3-3 System Capacity Summary

Limitation	**ERU's**
Service Area	1,438[1]
Water Rights, Instantaneous withdrawal	1,537
Water Rights, Annual withdrawal	2,795
Total Source Pumping Capacity	1,198
Reservoirs	2,138
Most Limiting Factor – source capacity	**1,198**

1. As noted above the number of ERU should not be limited to the platted lots in the service area

The systems most limiting factor is the total source pumping capacity. The system has two new drilled wells that are not online yet, but will increase the capacity.

If the expected capacity of the new wells is considered, the total source pumping capacity would limit the wells to the following ERU:

$$N_{source} = \frac{(410\ gpm + 525\ gpm) * 1{,}440 min/day}{492\ gpd/ERU} = 2{,}736\ ERU$$

The system has expressed they would like to treat the new wells at the full flow, therefore the treatment capacity would also be for 525 gpm.

The next limiting factor is the service area. This should not be limited to the number of platted lots within the service area since Accessory Dwelling Units (ADU's) could be constructed. However, Clearwood's governing documents allow a plumbed accessory utility structure (ex. shed, greenhouse, or hobby den) less than 200 sq-ft, with a sink. This structure is not intended for permanent occupancy. An accessory dwelling unit (ADU) is a small residence or apartment which is intended for occupancy. Therefore, ADU's are not considered at this time. However, the number of ERU should not be limited to the platted lots in the service area.

The next applicable limiting factor is water rights instantaneous withdrawal. The system is currently in the process of increasing the total Qi within the Clearwood plat to 750 gpm. This would limit the system to 2,195 ERU whereas current instantaneous water rights limit the system to 1,537 ERU.

3.4 Distribution System Analysis

3.4.1 Model Description

The system's hydraulic analysis was completed in the 2011 WSP for full build-out of the system. Three scenarios were analyzed: 1) maximum pressure at zero demand, 2) PHD in 2011 (782.5 gpm), and 3) PHD at build out (916.3 gpm). This model showed that at full build out PHD of 916.3 gpm, 21 hydrants did not meet fire flow requirements. The first scenario returned a maximum pressure in the system of 91 psi. The second scenario showed 2 fire hydrants failed to meet requirements. Hydrant H-2 had 499 gpm of flow available and hydrant H-20 had 495 gpm of flow available.

In the last scenario, 21 fire hydrants failed to meet fire flow requirements because the available flows were less than 500 gpm. The provided flows ranged from 403 gpm to 500 gpm. 18 of the 21 hydrants had flows below 480 gpm.

The 2011 WSP recommended several segments of 6" water main to be replaced with 8" PVC. Replacement of the segments below will allow the system to meet the minimum fire flow requirements while maintaining a minimum system pressure of 20 psi.

1. 6" main along Clearlake Blvd SE from N. Beachside Dr. SE to N. Clearlake Blvd SE.
2. 6" main along N. Clearlake Blvd SE from Clearlake Blvd SE to N. Beachside Dr. SE.
3. 6" main along N. Beachside Dr. SE from Clearlake Blvd SE to N. Clearlake Blvd SE.
4. 6" main from Clear View Court through Overlake Court to Clearlake Blvd.
5. 6" main along Clearland Blvd SE from Upland Dr. SE to Rampart Dr. SE.
6. 6" main along Rampart Dr. SE from Clearland Blvd SE to Ramaprt Ct. SE

4 Resource Analysis & Water Use Efficiency (WUE)

In 2003, the Washington State Legislature passed Engrossed Second Substitute House Bill 1338, known as the Municipal Water Law, to address increasing demand on the state's water resources. The law established that all municipal water suppliers must use water more efficiently in exchange for water right certainty and flexibility to help them meet future demand. The Legislature directed the Department of Health to oversee and enforce a WUE program to help support the collective goal of ensuring a safe and reliable drinking water supply. The WUE program seeks to support this goal in the following ways:

- Contribute to long-term water supply reliability and public health protection,
- Promote good stewardship of the state's water resources, and
- Ensure efficient operation and management of water systems.

This program became effective on January 22, 2007, and established certain responsibilities that water suppliers must fulfill. Fundamental elements include the following:

- Water use efficiency program,
- Distribution leakage standard,
- Goal-setting and performance reporting, and
- Metering requirements

The requirements and deadlines are listed below and in order of due date for Group A municipal water suppliers.

Table 4-1 Summary of WUE Program Requirements

Requirement	**Deadline for MWS with > 1,000 connections**
Include WUE program in planning documents	Current
Submit first annual WUE report	Completed
Submit service meter installation schedule	Completed
Set your own WUE goals	Annually
Meet distribution leakage standard (based on 3-year rolling average)	Ongoing
Complete installation of all service meters	Completed

The applicable WUE program requirements and guidelines are contained in *Water Use Efficiency Guidebook*, Third Edition, January 2017 (DOH 331-375).

4.1 Metering Program

4.1.1 Source Meters

The existing sources are metered. The source meters are read daily Monday – Friday.

4.1.2 Service Meters

Service Meters are installed at every service connection. The service meters are read quarterly.

4.2 Water Use Efficiency Program

4.2.1 Current Program

A public forum was held in September 2016 to adopt a WUE goal and measure. This was included in the 2016 WUE Annual Performance Report and is sufficient for the requirements of this WSP.

The following WUE goals were adopted:

- Reduce 3 year average leakage below 10%
- Maintain ADD below 175 gpd/ERU

4.2.2 Past WUE Goals

The 2011 WSP had the following conservation goals:

- Reduce DSL to within 10% in the next 6 years
- Maintain the current annual and peak day consumption per customer

4.2.3 Water Demand Forecast and Goals

State regulation (WAC 246-290-830) requires the governing body of a municipal water system to develop the WUE goals through a public process. In 2014, a new tier rate structure was implemented. The average consumed gallons per day per full time consumer was 57 gallons per day. The 2016 WUE goal is to "maintain the average usage per day per person. The average usage for 2016 per person was 58 gallons per day. This is an increase of only 1 gallon per person per day. This shows that the rate structure is still effective".

Clearwood also has a goal of reducing distribution system leakage to less than 10%. If the quarterly loss exceeds 10% leakage, the system has a leak detection service survey the system. In 2016, 2 distribution leaks were found and repaired.

4.2.4 Estimated Savings

The predicted number of ERU's from the 2011 WSP and annual consumption from 2011-2016 are compared with the historical demand in the table below.

Table 4-1 Estimated WUE Savings

Year	Projected ERU's	Projected Demand (mgy)	Historical Demand (mgy)	Estimated Savings (mgy)	DSL
2011	1,102	59.93	67.06	-7.13	18
2012	1,112	60.48	72.75	-12.28	23
2013	1,122	61.02	59.30	1.72	5
2014	1,132	61.56	58.19	3.37	6
2015	1,142	62.11	62.96	-0.85	14
2016	1,152	62.65	66.24	-3.59	17

As shown above, there is a correlation between estimated savings and DSL. The system needs to continue to address the DSL.

4.2.5 Measures

As part of a water system plan, DOH regulations also require the implementation of a five number of WUE measures. The measures are discussed in the following sections.

4.2.5.1 Public Education

Clearwood has three member meetings per year. Information for members is available on the website with hard copies available upon request. Clearwood's CCR includes conservation tips.

4.2.5.2 Conservation tips on Website

State and local health departments provide water conservation suggestions and tips. Clearwood has links to information regarding both indoor and outdoor conservation tips.

4.2.5.3 Conservation Rate Structure

Users are billed based on a tiered water usage structure. In 2014, the system implemented a tiered water rate structure. The rates are shown below in Table 4-2. Prior to this the system had a basic rate of 100 cf to 7,000 cf of $1.30/100 cubic-feet and higher rates for additional water use.

4.2.5.4 Meter Calibration

Clearwood has a "Preventative Maintenance Program" which includes meter calibration. In 2011, new impellers were installed in both source meters.

4.2.5.5 Water Loss Action Control Plan

Clearwood has developed a Water Loss Action Control Plan. It is attached in Chapter 10-18.

4.2.6 Consumer Education Program

Clearwood is required to provide general education to its customers on the importance of using water efficiently on an annual basis. Clearwood Community Association sends out a quarterly newsletter to members which includes information regarding the water system. This is also posted on Clearwood's website. Additionally, links to publications from DOH regarding outdoor and indoor water conservation are on the website. Conservation information is included in the annual consumer confidence report provided to all Clearwood customers. This is available online as well. Clearwood has two pre-planned community events per year, in May and August, where discussions of the water system occur. Monthly board meetings also include discussion of the water system.

4.2.7 Annual Reports

Clearwood will collect meter data and report total production, in gallons, from all sources for the year and total operational consumption, in gallons, from all customers for the year to DOH in their annual WUE report.

4.2.8 Water Rates

The water system implemented a tiered water rate structure in 2014. The current water usage rates are below. Meters are read quarterly and customers are invoiced quarterly.

Table 4-2 Water Usage Rates

Tier	Usage (cubic-feet)	Rate/100 cubic-feet
1	0 – 2,500	$2.30
2	2,501 – 3,500	$3.45
3	3,501 +	$4.55

4.2.9 Water Savings

The system's usage has been evaluated to determine effectiveness of the program. The goal of reducing DSL below 10% has not been met as shown in the Table below.

Table 4-3 DSL 2012-2016

	2012	2013	2014	2015	2016
Production	72,754,251	59,741,919	58,916,640	62,696,240	61,724,770
Total Consumption	54,878,568	53,833,839	55,935,172	54,147,140	54,596,132
DSL (gallons)	17,177,650	4,396,113	1,962,189	8,720,886	7,123,092
DSL %	23.6%	8.2%	4.7%	13.9%	11.5%

The system's DSL significantly decreased in 2013; however, it has since crept back up and needs to be addressed. The consumption data has stated relatively the same, which may be a result of the tiered water rate structure. The system should continue to record operational usage. Although the amount of water lost through known and/or repaired leaks cannot be listed as operational usage, the system should still keep a record of known and/or repaired leaks for purposes of having record in their historical usage data.

4.3 Source of Supply Analysis

4.3.1 Conservation

The water system conservation program can be achieved through public education, system measures, and conservation pricing. The water system shall determine the goals, evaluation of measures, and conservation activities according to the water usage.

4.3.1.1 Public Education

Public education is accomplished through links to DOH publications about conservation for both indoor and outdoor usage on the Clearwood website.

4.3.1.2 System Measures

All sources and services are metered and recorded on a regular basis as described above.

4.3.2 Long Term Trends

Long term trends of water usage will be addressed. From the records, the water system can track trends and evaluated long term evidence of the stability of the aquifer. Additionally, the system can track trends if a significant leak is fixed, if this changes the system's leakage rate.

4.3.3 Water Right Changes

Water Right Change Application CG2-23124@1 was submitted in 2014 to add a point of withdrawal to Water Right Certificate G2-23124. DOE issued a preliminary permit for the system to temporary groundwater withdrawal for testing. The Preliminary Permit Report was submitted to DOE in August 2017.

4.3.4 Reclaim/Reuse

The homes connected to the systems are all on individual septic systems, so use of reclaimed water is not available at this time.

4.3.5 Treatment

Treatment for corrosion control is installed on the active wells.

4.4 Water Supply Reliability

4.4.1 Water Shortage Planning

The water shortage planning is described in the emergency response plan attached in Chapter 10-5.

4.4.2 Water Level Monitoring

The static water level in each well is monitored daily.

4.4.3 Interties

The nearest system to Clearwood is Single Tree Estates, it is unlikely that Single Tree Estates could provide the demand that Clearwood needs.

5 Source Water Protection

5.1 Wellhead Protection

The wellhead protection program has been developed in conjunction with the WSP. The following susceptibility assessment, protection area, and contamination source inventory will provide the necessary documentation to make educated management and land use decisions to prevent aquifer contamination.

5.1.1 Susceptibility Assessment

The Ground Water Contamination Susceptibility Assessment form for the new wells will be completed and submitted with the source approval reports. The results of the assessment for the existing wells are summarized in this Chapter 10-8. Susceptibility Assessments for other wells have been completed in the previous WSP.

5.1.2 Wellhead Protection Area

A map showing the 100-foot protected radii and the 6-month, 1-year, 5-year, and 10-year ground water travel radii are given in Chapter 10-8. The well protection radii are calculated using the formula found in the susceptibility assessment as provided by the WSDOH.

5.1.3 Contamination Source Inventory

The following are known contaminants located within the time of travel radii for Wells 1 and 2.

Within the Clearwood Community, there are septic systems located within the 6-month, 1-year, 5-year, and 10-year time of travel radii for Wells 1 and 2. Additionally, portions of Single Tree Estates' septic system are located the 5-year and 10-year radii.

Clear Lake is located within the 5-year and 10-year time of travel radii.

Bald Hills Road is located within the 6-month, 1-year, 5-year, and 10-year time of travel radii.

There is a goat farm located near the main entrance to Clearwood Community. This is within the 5-year time of travel radii.

5.1.4 Notification of Findings

The following agencies will be provided with a letter (see Chapter 10-9 for a copy of the notification letter) requesting information about any potential sources of contamination within the Wellhead Protection Radii:

Property owners of potential contaminant sites (septic systems)

Thurston County Sheriff's Department
2000 Lakeridge Dr. SW
Olympia, WA 98502

Thurston County Fire Marshall
2000 Lakeridge Dr. SW
Olympia, WA 98502

5.1.5 Contingency Planning

The system has a total of 598,500 gallons of storage that is able to supply 3.2 days of water usage (1,345 ERU) based on the ADD. This storage increases the reliability of the system. In the case of increased water demands during the summer months, the system could reduce the demand by restricting outdoor irrigation or limiting community usage, such as the pool.

In the event of contamination, the source of contamination would be located and the source will be taken offline while the source of contamination was identified and corrected. In the event the aquifer is contaminated and groundwater becomes inaccessible to the community, an emergency intertie or trucking in water from Single Tree Estates water system could be implemented and used on a short term interim basis while emergency responders took action. In the event of serious contamination, the Emergency Response Plan in Chapter 6 lists the nearby drinking water provider.

5.2 Water Quality Analysis

5.2.1 Asbestos

The distribution system has some portions of AC pipe. Two asbestos samples have been taken from the distribution system. The first was in 12/6/98 and returned an asbestos result of less than 0.98 MFL. The second was taken on 10/13/10 and returned an asbestos result of less than 0.1280 MFL. The MCL is 7.0 MFL. An asbestos sample is required every 9 years. The next sample is due October 2019.

5.2.2 Bacteriological Testing

The system is required to take 3 bacteria samples each month from representative points in the distribution system. An updated coliform monitoring plan is attached in Chapter 10-10. There have been several coliform failures since 1997. Since the last WSP in 2011, there have been 12 failures, with the most recent in 2013 when there was an E. Coli failure. This was found to be connected to Well 4 which was found to be connected to surface water. Operation of this well has stopped and there have been no bacteria sample failures since 2013.

5.2.3 Inorganic Chemicals (IOC)

The most recent full IOC sample was taken in October 2012. The results from this sample are attached in Chapter 10-8. There were several analytes (sodium, hardness, conductivity, turbidity, nitrate, chloride, sulfate, and total nitrates) that were detected but below maximum contaminant levels (MCL's). The next sample is due in October 2021.

5.2.4 Lead and Copper

The distribution system was sampled for lead and copper first in 1997 and found samples above the action levels. Corrosion control treatment was installed in 2001. Testing occurred again in 2003 and there were no samples above the action levels. The system last sampled for lead and copper in 2016, out of the 10 required samples taken there were no exceedances. The next round of lead and copper sampling is due in September 2019.

5.2.5 Nitrates

One nitrate sample is taken every year. The last sample was taken in September 2016 and the nitrate level was equal to 1.4 mg/L. The next sample is due in September 2017. The most recent sample result is attached in Chapter 10-8.

5.2.6 Volatile Organic Contaminants (VOCs)

One VOC sample is taken every 6 years. The last sample was taken in September 2016 and there were no exceedances. The next sample is due in September 2022.

5.2.7 Synthetic Organic Contaminants (SOCs)

One herbicide sample is required every 9 years. The last sample was taken in 2012 and there were no exceedances. The system is not required to sample for pesticides or soil fumigants. There has never been an exceedance for these test panels.

5.2.8 Gross Alpha and Radium

One Gross Alpha and one Radium sample is required every 6 years. The last samples were taken in 2015 and there were no exceedances. The next sample is due in September 2021.

6 Operations and Maintenance

6.1 Water System Management and Personnel

The water system is owned and managed by Clearwood Community Association. The water system manager oversees day to day operations of the system. A board of directors oversees decisions related to long term solutions, budgeting, and planning for the water system. The water system manager works directly with the board of directors. There are existing governing documents for the Association that include aspects of the water system. Chapter 10 includes the By-laws, Covenants, Declaration of Amended Articles of Incorporation, and a pertinent excerpt of the Rules and Regulations.

6.2 Operator Certification

The water system operator is required to have a WTPO 1 certification and WDM 2 certification per WAC 246-292-050.

6.3 Routine Operations and Maintenance

The regular maintenance program is shown in Table 6-1, showing the task and frequency.

Table 6-1 O&M Schedule

Task	**Scheduled Frequency**
Read Source Meters	Daily
Record Static Water Level	Daily
Check NaOH tanks and check dosage rate	Weekly
Inspect locks and gates	Weekly
Check pH and alkalinity at entry to distribution	Every 2 weeks
Collect routine coliform samples	Monthly
Inspect outside of reservoirs	Monthly
Clean NaOH injection system	Monthly, as needed
Clean / Sweep Pumphouse	Monthly, as needed
Check pH in distribution	Quarterly
Read Service Meters	Quarterly
Billing	Quarterly
Check Backup Generator Function	Quarterly
Water use Calculations	Quarterly, or as-needed
Flushing	Semi-annually
Air Release Valve Inspection	Annually
Exercising Valves	Annually
Budget Evaluation	Annually
Send Consumer Confidence Report	Annually
Prepare WUE report	Annually
Reservoir Cathodic Inspection	Annually
Cross-Connection Control:	Annual assembly testing, surveys performed on 5-year cycle
Clean Reservoirs	Every 5 years
Backup Generator Function	Quarterly

6.4 Water Quality Sampling Procedures & Program

System operator will take system samples. Three coliform samples will be taken every month, except in the event of a failure, when the coliform monitoring plan is used to determine the location and number of repeat samples to be taken. The system is sampled in accordance with its Water Quality Monitoring Schedule (WQMS). Updated WQMS are sent out by DOH annually. The latest WQMS is attached in Chapter 10-8. The WQMS lists the schedule shown in Table 6-2. S03 is a wellfield which comprises of S01 and S02. Sampling procedures for the required samples can be obtained from the WSDOH.

Table 6-2 WQMS Schedule

Monitoring Group	**Test Panel**	**Sample Location**	**Schedule/Status**	**Next Sample Due**
Asbestos	ASB	Distribution	9 year	October 2019
Coliform	Coli	Distribution	Monthly	Monthly
Lead / Copper	LCR	Distribution	3 year	September 2019
pH	pH	Entry to Distribution	Every 2 weeks	Ongoing
Alkalinity	IOC	Entry to Distribution	Every 2 weeks	Ongoing
pH	pH	2 locations within Distribution	Quarterly	Ongoing
Alkalinity	IOC	2 locations within Distribution	Quarterly	Ongoing
Herbicides	Herb	S03	9 year	May 2021
Inorganic Chemicals	IOC	S03	9 year	October 2021
Nitrate	NIT	S03	Annual	September 2018
Gross Alpha	RAD	S03	6 year	September 2021
Radium	RAD 228	S03	6 year	September 2021
Volatile Organic Contaminants	VOC	S03	6 year	September 2022

6.4.1 Lead and Copper Sampling

Lead and Copper sampling procedures are enclosed in Chapter 10-8. Lead and copper sampling sites are selected based on year the homes were built. In addition, if a home is vacant during sampling, an alternative site would be selected. There are three homes which have historically had elevated copper, these are included in the sampling sites below. Current sampling sites for lead and copper testing are listed below in Table 6-3.

Table 6-3 Lead and Copper Sampling Sites

LCR Site	Division	Lot	Address	Tier	Year Built
1	1	20	21807 Beachside Dr SE Yelm, WA 98597	1	1985
2	3	163	17622 Beachside Dr SE Yelm, WA 98597	1	1985
3	6	405	17525 Clear Lake Blvd SE Yelm, WA 98597	1	1985
4	6	588	17936 Upland Dr SE Yelm, WA 98597	1	1986
5	8	149	22635 Brookside Ct SE Yelm, WA 98597	3	1982
6	17	47	22416 SE Vale Ct SE Yelm, WA 98597	3	1982
7 – elevated copper	1	24	21841 Beachside Dr SE Yelm, WA 98597	3	1968
8 – elevated copper	4	229	21748 SE Terra Ln Yelm, WA 98597	1	1994
9 – elevated copper	11	2	17527 Pond View Ct SE Yelm, WA 98597	1	1994

6.5 Coliform Monitoring Plan and Map

The primary sites for coliform monitoring are 9 routine sample stations located throughout the community, with repeat sampling occurring from homes located within 5 services of the point of failure. The coliform monitoring can be found in Chapter 10-10. The system takes three routine sample per month from the distribution. If there are any failures, three repeat distribution samples and a source sample are taken per this plan; see the Coliform Monitoring Plan for details.

6.6 Emergency Response Program

All primary emergency response is handled by the operator. The operator will evaluate any trouble reported and either respond in person, or contact an outside support provider if the scope of work exceeds their capacity. The contact list for the system shown in Table 6-4 provides a quick reference; more complete listings are available in Chapter 10-5.

Table 6-4 Water System Contacts

Emergency contact	Phone number(s)	Emergency contact	Phone number(s)
24 Hour Fire/Police/Medical Emergency Services	911	Fire Department / Ambulance Service	360-894-2517 Day 911 Night
Local Law Enforcement (Thurston County Sheriff)	360-786-5500 Day 911 Night	Water Manager – Clearwood Community Association	360-894-2941
County environmental health (Thurston Office)	360-867-2500	DOH regional engineer	360-236-3030
Department of Ecology Spill Response NW Regional Office	360-407-6300	DOH emergency After hours #	877-481-4901
Engineering consultant Northwest Water Systems	360-876-0958	Pump service: Tacoma Pump	253-847-9352
Electric utility: PSE	888-225-5773 Day/Night	Electrician: STMA Electrical	360-400-8658
Water Testing Laboratory: Water Management Laboratories	253-531-3121	Neighboring Water System: Single Tree Estates	360-878-0214
News Media Contact: Clearwood Office	360-894-2941	DOH Coliform Monitoring and Water Quality:	360-236-3045

6.6.1 Vulnerability Assessment

Earthquake – No practical degree of protection against catastrophic earthquakes can be supplied; therefore, preparation for assessing and reacting to earthquakes is necessary. In the event of an earthquake, the system shall be carefully inspected and an inventory of all damages shall be made. Additional water quality testing will be performed in consultation with the WSDOH. Possible damage from an earthquake could include distribution and transmission line breaks and structural damage to reservoirs and pump houses.

Fire - In the event of a fire in a pumphouse, 911 shall be notified. Once the emergency responders have deemed the area safe to enter, the site is to be disabled during inspection. If it is found to be safe after inspection, the wells and treatment system may be re-enabled. If minor repairs are necessary or portable emergency power is needed, Tacoma Pump will be contacted for a service call.

Flood – It is unlikely flood damage from heavy snow melt or heavy rains would cause flooding. However, if flooding occurred the reservoirs are higher than the flood level and would be safe from flooding.

Power Outages – Power outages will almost certainly be the most common emergency condition facing the system. The system has a generator to serve Wells 1 and 2.

Vandalism/Terrorism - Small water systems are potential targets of vandalism and terrorism. Fortunately, most small water systems also attract little attention. Wellhead and pump controls are secured inside the locked pumphouse. Reservoir hatches will be locked. Any evidence of vandalism shall be investigated and water quality samples shall be taken if there appears to be any evidence of tampering with the reservoir, pumphouse, or other point at which contaminants could enter the system.

Volcanic Activity - Because of the system's location, vulnerability to volcanic activity is low. The most likely impact of volcanic activity would be ash fallout from a regional event. Volcanic ash is therefore unlikely to present any problem for the system.

6.7 Cross Connection Control

Clearwood Water System has an existing Cross Connection Control program. In 2005 and in 2011, a revised CCCP was established and is included in Chapter 10-11.

The system serves residential homes, camping lots, a small grocery store/deli, and swimming pool facilities. The swimming pool has a double check valve assembly at the water inlet. This should be changed to a RPBA when replaced. There is also a RPBA at the RV dump station.

6.8 Consumer Confidence Reports (CCR)

A copy of Clearwood's most recent CCR is included in Chapter 10-12. CCR's are posted on Clearwood Community Association's website. Postcards are distributed to each connection with a link to access the online CCR.

6.9 Record Keeping

The system generates a number of different types of records that must be kept. The water system maintains these records. The records and the periods over which records are maintained are shown in Table 6-5.

Table 6-5 System Records

Type of Record	Time Kept	Reporting
Utility Billing Records	3 years	N/A
Receipts	3 years	N/A
Power Bills	3 years	N/A
Taxes	Indefinitely	N/A
Check Registers	3 years	N/A
Taxes and Financial Reports	7 years	N/A
System Planning Documents	Until Irrelevant	As Requested
Engineering Drawings	Indefinitely	As Requested
WFI	Current	Annually
Contracts	As Necessary	N/A
Work Orders	3 years	N/A
Operating Permit	Current	N/A
Correspondence with Customers	Indefinitely	Upon Request
Correspondence with Government	Indefinitely	N/A
Site Visit Reports	1 year	Upon Request
Bacteriological Tests	Indefinitely	Monthly
Nitrate Tests	Indefinitely	Annually
IOC	Indefinitely	Upon Testing
VOC	Indefinitely	Upon Testing
SOC	Indefinitely	Upon Testing
Radionuclide	Indefinitely	Upon Testing
Lead and Copper	Indefinitely	Upon Testing
Other Water Quality	Indefinitely	Upon Testing
Contracts	Indefinitely	Upon Request
CCC Documents	Indefinitely	Upon Request
Water Well Reports	Indefinitely	Upon Request
Drawdown Tests	Indefinitely	Upon Request
Source Meter Readings	Indefinitely	Upon Request
Consumer Confidence Reports	Indefinitely	Annually

6.10 O&M Deficiencies

Clearwood needs to develop Standard Operating Procedures (SOP's) before the new treatment plant is placed online as well as the corrosion control treatment.

Clearwood needs to meter operational use when possible and record accurate estimates when metering is not possible to determine annual operational usage.

7 Distribution Design and Construction Standards

7.1 Design and Constructions

All construction of new or replacement facilities shall be subject to the following specifications:

- The current Standard Specifications of the Washington State Department of Transportation
- American Water Works Association (AWWA) standards
- Applicable standards adopted under Washington Administrative Code
- Standards and details adopted by Clearwood Community Association.

By submittal of this water system plan, the system may initiate distribution system replacements and upgrades without submission of a design report in accordance with WAC 246-290-125. The projects that request exemption are discussed in Section 8.0.

Under WAC 246-290-125, the system will complete the following.

- Maintain a current department approved WSP that includes standard construcito nspecifications for distribution mains
- Maintain a completion of construction form in accordance with WAC 246-290-120(5) and make this available upon request for review by the department

All distribution replacements, upgrades, and modifications shall comply with the system's construction standards and details in effect at the time of work. The system's engineer and WSP should be consulted prior to any estimate, design, or construction. The system's engineer shall approve all extensions or replacements funded by the system.

The system will require plans and specifications for any new project, except those projects exempted from project submittal under WAC 246-290-120 (1), to be prepared in writing under the supervision of a registered professional engineer and approved by the State Department of Health prior to construction. The typical standards and details for service meter, gate valves, and trench details are attached. Future reports prepared and stamped by a licensed professional engineer may modify these standards. All projects shall be reviewed and certified by the design engineer.

The Water System Service Area Maps are available in Chapter 10-4. All existing waterlines are 2-inch to 10-inch PVC, AC, and HDPE pipe. A map of the distribution pipe sizes and types is attached in Chapter 10-2. The system can replace mains that were previously approved up to one size larger without project approval from DOH.

8 Improvement Program

8.1 Recent Improvements

The system is in process of source approval and treatment for their two new wells which will allow the system to have additional source capacity. The preliminary permit for these wells has been submitted to DOE.

8.2 Sanitary Survey Items

Table 8-1 Sanitary Survey Improvements

Item	Type	Status	Date Completed
1. Well #1 casing vent must be permanently attached to the well.	Deficiency	Completed	3/30/16
2. Physically disconnect Well #4 from the system, remove locked gate valve	Deficiency	Completed	3/30/16
3. Lead and Copper sampling must be collected from Tier 1 sample sites.	Observation	Completed	9/1/16
4. Install a downturned vent on Well #2.	Recommendation	Completed	2017
5. Install a source sample tap prior to the hydropneumatic tap or write up SOP's for collecting a source sample for Well #1 at the tap after the hydropneumatic tanks.	Recommendation	Completed	2017
6. Install a source sample tap in the pipe in the well vault or write up SOP's for collecting a source sample for Well #2 at the blow off adjacent to the well vault.	Recommendation	Completed	2017
7. Install a dedicated post treatment sample tap near the hydrant or write SOP's for proper flushing and sample collection at the hydrant.	Recommendation	Completed	2017
8. Adopt installation standards for backflow assemblies and include them in your adopted Standard Plans and Details.	Recommendation	Completed	2017
9. Install a new or re-orient the reservoir sample tap so an investigative sample can be collected from the reservoirs.	Recommendation	Completed	2017
10. Schedule a pre-plan meeting with our office to begin work on updating your water system plan.	Recommendation	Completed	6/21/17

8.3 Prioritizing Improvements and Schedule

Clearwood needs to continue to address their distribution system improvement plan as laid out in the 2011 WSP. This should help in addressing leakage throughout the distribution system. Table 8-2 from the 2011 WSP is included in Chapter 10-14 for reference. The 2011 WSP recommended several improvements. These items and progress are listed below:

Table 8-2 Distribution Improvement Schedule

Project	Improvement	Previous Anticipated Completion Date	Updated Anticipated Completion Date	Progress
	Source Meter Calibration	2011	2011	Completed
	Tank Inspection	2013	n/a	Completed. The tanks were inspected in 2015. The inspection reports are attached in Chapter 10-16.
D-1	Water Main Replacement – N Clearlake Blvd SE (0.9 miles of 6" and 8" AC with 10" PVC)	2015	2027	None
D-2	Water Main Replacement – Blue Hills Dr. (0.7 miles of 8" and 10" AC with 10" PVC)	2018	2030	None
D-3	Water Main Replacement - Blue Water Dr. (0.9 miles of 4" and 8" AC with 10" PVC)	2021	2033	None
D-4	Water Main Replacement – Rampart Dr. SE (0.9 miles of 6" and 8" AC with 8" PVC)	2024	2036	None
D-5	Water Main Replacement in Divisions 1, 2, and 3 (1.9 miles of 4", 6", and 8" AC with 8" PVC)	2027	2039	None
D-6	Water Main Replacement on Upland Dr., Clearland Dr., and E Clearlake Blvd SE (1.0 miles of 6" and 8" AC with 8" PVC)	2030	2045	None
D-7[1]	Water Main Replacement on Clear View Ct. and Overlake Ct. to N Clearlake Blvd SE (existing 6" AC with 8"PVC)	2031	2048	None
D-8[2]	Service Meter Replacement Phases 1-10	2011 to 2016	2022 to 2029	None
D-9	Leak Detection	2013	2021	The DSL decreased significantly in 2013 and 2014, however, it has since crept back up above 10% and needs to be addressed.
O-1	Updated Water System Plan	2017	2028	In process, this document

1. The 2011 WSP provided a cost estimate for project D-7. The cost per foot was estimated at $35/ft, this is likely closer to $80-$100/ft.
2. The 2011 WSP cost estimate for service meters provided by the system was $18,000 per year. This has been updated to match the reserve study.

Distribution replacement projects are expected to be funded through assessment funds, if approved. The system does have a hydrant replacement fund from impact fees. Other improvement projects will be funded through the water system reserve.

Clearwood also had a goal of replacing at least 125 service meters per year beginning in 2011. Phases 1-5 and 10 have been completed so far. The system is working on the remaining phases.

Table 8-3 Service Meter Replacement Schedule

Phase	Year	Community Division(s)	Status	Replacement Year
1	2011	1, 2, 5, 18	Completed	2022
2	2012	4	Completed	2023
3	2013	3, 11	Completed	2024
4	2014	6, 10, 17, 19	Completed	2025
5	2015	6, 16	Completed	2026
6	2018	7, 16	To do	2029
7	2019	7, 8, 12	To do	TBD
8	2020	8, 9	To do	TBD
9	2021	13, 14, 15	To do	TBD
10	2017	6	Completed	2024

Table 8-4 Service Meter Setter Replacement Schedule

Phase	Community Division(s)	Status	Replacement Year
1	1, 2, 5, 18	To do	2032
2	4	To do	2033
3	3, 11	To do	2034
4	6, 10, 17, 19	To do	2035
5	6, 16	To do	2036
6	7, 16	To do	2039
7	7, 8, 12	To do	2020
8	8, 9	To do	2020
9	13, 14, 15	To do	2020
10	6	To do	2021

Table 8-5 2011 WSP Hydrant and Water Main Installation and Replacement Schedule

Phase	New Water Mains	Replacement Year
1	Yes	2027
2	Yes	2030
3	Yes	2033
4	Yes	2036
5a	Yes	2039
5b	Yes	2042
6	Yes	2045
7	Yes	2048
(2002)	No	2032
(2009)	No	2039
Other	No	2034
Near Maintenance Bldg.	No	2043

8.4 10 and 20 year Improvement Schedule

Table 8-6 lists the system improvements over the next 10 years. The projects correspond with the tables in Section 8.3. The Clearwood Community Association has prioritized approval and construction of the new wells and treatment facility, thus pushing ongoing capital improvement projects to further dates. This will also allow the community to fund the new improvements and future replacement projects. The community has an emergency fund if a planned replacement needs to occur sooner than planned in the reserve study.

Table 8-6 10 Year Improvement Schedule

Year	Improvement
2021	Installation of treatment plant (iron, manganese, and corrosion)
	Source approval for two new sources and connection to system
	Service Meter Setter Replacement, Phase 10
2022	Service Meter Replacement Phase 1
2023	Service Meter Replacement Phase 2
2024	Service Meter Replacement Phase 3
2025	Service Meter Replacement Phase 4
2026	Service Meter Replacement Phase 5
2027	Hydrant Replacement, Phase 1
	Distribution Replacement, D-1
2029	Service Meter Replacement Phase 6
2030	Intertie to Single Tree Estates (WSID 79423C)
	Hydrant Replacement Phase 2
	Distribution Replacement, D-2

Table 8-7 20 Year Improvement Schedule

Year	Improvement
2032	Service Meter Setter Replacement, Phase 1
2033	Hydrant Replacement, Phase 3
	Distribution Replacement, D-3
	Service Meter Setter Replacement, Phase 2
2034	Hydrant Replacement, Phase Other
	Service Meter Setter Replacement, Phase 3
2035	Service Meter Setter Replacement, Phase 4
2036	Hydrant Replacement, Phase 4
	Distribution Replacement, D-4
	Service Meter Setter Replacement, Phase 5
2039	Hydrant Replacement, Phase 5a,
	Hydrant Replacement Phase (2009)
	Distribution Replacement, D-5
	Service Meter Setter Replacement, Phase 6

8.5 Other Improvements

Clearwood has drilled a 6” test well and an 8” well as additional sources. These sources need to be approved for use and treatment designed and approved by WSDOH.

Clearwood needs to meter operational use when possible and record accurate estimates when metering is not possible to determine annual operational usage.

9 Financial Program

The financial analysis in this chapter has been prepared under the assumption of a 3% ongoing annual inflation of expenses. Profit and loss analyses from 2011-2016 are attached in Chapter 10-14. Clearwood currently collects revenue from a tiered rate structure. A 10-year budget has been prepared using Form 3.3 from the WSDOH guidance; it is attached in Chapter 10-14.

9.1 Income

Clearwood collects annual member dues from each household. Annual fees are as follows:

Table 9-1 Annual Member Dues

General Assessments – maintenance/operation budget	$562.00
General Reserves – major maintenance/replacements	$145.00
Future Reserves – new amenities	$15.00
Water Service Charges – base rate	$185.00
Water Meter Fee	$140.00
Total	$1,047.00

Customers are billed quarterly for water usage. The following table lists the water consumption tiered rates:

Figure 9-1 Water Rates

Water Consumption (cubic feet)	Rate per 100 cubic-feet
Up to 2,500	$2.30
2,501 to 3,500	$3.45
3,501 +	$4.55

Clearwood also has a $50.00 disconnect/reconnect fee in place. Clearwood funds water system operations with usage rates and a water meter fee. Additionally, Clearwood has two separate reserve assessments and impact fees for capital improvements. To pass the special assessment fees, it has to be voted on by the membership. However, board could vote in an increase but this would then be ratified by the membership.

9.2 Expenses

Operating expenses anticipated by the water system in the next 6 years are shown in Chapter 10-15. Fees are assumed to increase at 3% per year in accordance with inflation, except sampling and permitting which is increased at 5%. Sampling and engineering expenses tend to be variable. Most of the engineering fees will be incurred during preparation of this WSP and source approval and treatment for the new sources. Sampling fees vary dependent on the sampling required and if for example, repeat coliform samples are required.

9.3 Reserves

Clearwood has three reserves for capital improvement projects: Impact Fees for Hydrant Replacement, Water System Reserves funded by a separate Water Base Assessment and funds remaining at year end in Water System Operations, and General Reserve (emergency reserve) funded by a separate General

Reserve Assessment. These funds will ensure the water system's expenses will not result in cash shortages effecting system operations.

9.4 Affordability

The financial obligation for each connection as listed above is a minimum of $1,032 per year. This does not include water usage charges. However, this includes all member fees to the community, not just the water system. A portion of the maintenance and operation budget is allotted to the community pool, restrooms, roads, and other community areas.

The per-connection financial obligation for just water service charges is $185 year for a base rate plus $140 for a meter fee. The total is $325 with the addition of a usage rate. The average medium household income in Thurston County in 2015 was $61,677. The 1.5% guideline estimated by DOH is equal to $925/year. The annual water system dues for Clearwood members are less than the guideline.

9.5 Current and Projected Rates

In the 2011 WSP, a special assessment request of $180/year per lot for 20 years was requested to fund the Restricted Joint Water/Road Project. Clearwood did not pass this assessment.

All rates are set by resolution; they are first presented to the Board of Directors and then adopted by the Association. The Association has changed the tiered structure amounts and cost per tier since its original adoption. The community should consider adjusted the member and water rates yearly with inflation. The tiered rate structure is expected to remain.

10 Miscellaneous Documents

Supporting Documents Include:

Chapter 10-1	WFI/Operating Permit/Sanitary Survey
Chapter 10-2	Site Plans
Chapter 10-3	Meter Data
Chapter 10-4	Zoning Maps
Chapter 10-5	Emergency Response Plan
Chapter 10-6	Well Log
Chapter 10-7	Water Rights/WUE
Chapter 10-8	Water Quality
Chapter 10-9	Wellhead Notification Letters
Chapter 10-10	Coliform Monitoring Plan
Chapter 10-11	Cross Connection Control Policy
Chapter 10-12	Corporation Documents, Covenants, Rules and Regulations, By-laws, Land Agreements
Chapter 10-13	Local Government Consistency Checklist
Chapter 10-14	Budget and Improvement Schedule
Chapter 10-15	Construction Standards
Chapter 10-16	Tank Inspection Reports
Chapter 10-17	Hydraulic Analysis (from 2011 WSP)
Chapter 10-18	Water Loss Action Control Plan
Chapter 10-19	SEPA Environmental Checklist

Washington State Department of Health

Division of Environmental Health
Office of Drinking Water

Help

Individual System View - CLEARWOOD - Water System Id - 13615U

Compliance Actions	Operating Permits	Operators	Reports	Water Use Efficiency
General Information	Source Information	Samples	Exceedances	Water Quality Monitoring Schedule

Last Permit Color Issued: Green Last Permit Issued Date: 6/1/2017

Last Permit Issued Definition: Green: Systems in this category are considered adequate for existing uses and adding new service connections up to the number of approved service connections.

Current Color: Green Current Color is what the calculated permit color would be based on information as of 11/30/2017

Current Color Definition: Green: Systems in this category are considered adequate for existing uses and adding new service connections up to the number of approved service connections.

Override Comments:

Current Permit Conditions:

Links to external resources are provided as a public service and do not imply endorsement by the Washington State Department of Health

Department of Health, Office of Drinking Water

Street Address:
243 Israel Road S.E. 2nd floor
Tumwater, WA 98501

Mail:
PO BOX 47822
Olympia, WA 98504-7822

Phone: (360) 236-3100

Send inquiries about DOH and its programs to the Health Consumer Assistance Office
Comments or questions regarding this Web site? Send email to Environmental Health Application Testing and Support or call 360-236-4593.

STATE OF WASHINGTON

DEPARTMENT OF HEALTH

SOUTHWEST DRINKING WATER REGIONAL OPERATIONS

P.O. Box 47823 Olympia, Washington 98504-7823

TDD Relay 1-800-833-6388

March 8, 2016

Albert R. Darrow
21603 North Clear Lake Boulevard Southeast
Yelm, Washington 98597

Clearwood ID #13615U	
County:	Thurston
System Type:	Community
Operating Permit Color:	Green
Surveyor:	Kay Rottell
Inspection Date:	March 2, 2016

Thank you and your staff, Matt Whitten, for meeting with me to conduct a survey of this water system. Sanitary surveys are the Office of Drinking Water's (ODW) way to inspect public water systems through a field visit. ODW is also able to offer technical assistance to help utilities improve their system operations and ensure that public health is protected.

This report documents the findings of this survey. Deficiencies that need your attention are summarized below. As you correct the items, send me documentation that demonstrates the items have been completed as directed. Include the system name, ID number, and the date the deficiencies were corrected. You can send them to me by e-mail at kay.rottell@doh.wa.gov or by mail at PO Box 47823, Olympia, Washington 98504-7823.

If you are not able to correct these deficiencies within the timelines below, you must submit an Action Plan by the date assigned describing how and when the work will be completed. We will contact you to discuss your plan to ensure work is completed as agreed.

SIGNIFICANT DEFICIENCIES* - BY APRIL 25, 2016, PLEASE SUBMIT VERIFICATION THAT THE ITEMS BELOW HAVE BEEN CORRECTED OR A CORRECTIVE ACTION PLAN WITH TIMELINES INDICATING WHEN THIS WORK WILL BE COMPLETED.

1. The Well #1 (S01) casing vent must be permanently attached to the well casing by either welding on a coupling or inserting the vent into the non-threaded port and sealing all openings with food grade silicone.
2. The emergency source must be physically disconnected from the water system. Please remove the gate valve that is currently locked and tagged out.

OBSERVATIONS

3. The lead and copper rule (40 CFR 141) requires that community systems collect lead and copper samples from single family homes meeting the Tier 1 sample site requirements. A Tier 1 site is a single family home that contains copper pipes with lead solder installed after 1982 and prior to 1986 or is served by lead service line. If you do not have sufficient sites that meet the Tier 1 requirement Tier 2 and then Tier 3 sites can be used. The association's office and maintenance building do not meet the sample site requirements. You must take all ten samples from regularly used single-family home kitchen or bathroom faucets.

RECOMMENDATIONS

4. Install a downturned casing vent on Well #2 (S02). The current vent is "L" shaped, well vents should be downturned at least 18 inches above the floor or ground.
5. Install a source sample tap prior to the hydropneumatic tanks or write up standard operating procedures for collecting a source sample for Well #1 at the tap after the hydropneumatic tanks.
6. Install a source sample tap in the piping in the well vault or write up standard operating procedures for collecting a source sample for Well #2 at the blow off adjacent to the well vault.
7. Install a dedicated post treatment sample tap near the hydrant or write standard operating procedures for proper flushing and sample collection at the hydrant.
8. Adopt installation standards for backflow assemblies and include them in your adopted Standard Plans and Details.
9. Install a new or re-orient the reservoir sample tap so an investigative sample can be collected from the reservoirs.
10. Schedule a pre-plan meeting with our office to begin work on updating your water system plan. Your current water system plan (WSP) approval expires November 2017. From data in the previous plan, without an increase in source capacity, you may be nearing capacity.

SYSTEM INFORMATION

Clearwood is owned and operated by the Clearwood Community Association. The Clearwood community is approximately 12 miles southeast of Yelm and partially surrounds Clear Lake. The water system is approved to serve an unspecified number of connections. There are 1,034 full time and 20 part time single-family residential connections, 286 recreational connections, and 2 businesses. The limiting factor in the last WSP was the source pumping capacity of 410 gallons per minute (gpm), which represents 1,077 equivalent residential units (ERUs). The source capacity has been increased to 430 gpm, but a new capacity analysis has not been completed.

Water is pumped from the wellfield and injected with caustic soda (sodium hydroxide) to increase the pH of the finished water. The corrosion control treatment was required due to copper exceedances. The target pH in the distribution system is between 7.5 and 7.8 pH standard units.

Well pumps are controlled by telemetry based on reservoir level. Water from the wells is pumped directly into the distribution system and then flows into the two reservoirs at the southeast corner of the system. From the reservoirs, the water flows to the distribution system through gravity.

SECTION 1: SOURCE

The water system currently has a wellfield (S03) with two wells to provide water to the community. Well #1 (S01) is an 8-inch well screened between 60 and 81 feet below the ground surface. The well was drilled in 1996 and has a pumping capacity of 90 gpm. Well #2 (S02) is a 10-inch well screened between 66 and 86 feet below the ground surface. The well was drilled in 1975, the pump was replaced in 2013 and has a pumping capacity of 340 gpm.

Well #2 is located in a vault. The vault has a drain line that discharges behind the well site. There is no evidence of a high water line or other flooding of the vault.

Well #3 (S04) developed an iron bacteria problem, which reduced its capacity and was taken off line in 2001. The well is physically disconnected from the system and the pump has been removed. This well should be decommissioned in accordance with the Department of Ecology's (Ecology) requirements.

Well #4 (S05) was drilled in 2001 to replace Well #3. Due to water right restrictions, it could not be operated at the same time as the wellfield (S03). In 2013, *E. coli* was identified in the well. Well #4 is located in a natural depression with a seasonal high water table; this well is now an emergency source. Clearwater has an emergency response plan that clearly states this well must be chlorinated prior to use.

Three test wells have been drilled to find a new well site to replace Well #4. A well site has been identified and the community is moving forward with hiring an engineer and drilling a new production well. Initial testing identified the water will need to be treated to reduce manganese, but will be able to produce the entire instantaneous water right.

Source ID #	Name:	Description:	Ecology Tag #	Listed on WFI Yes	Listed on WFI No
01	Well #1	8-Inch WW	AAF169	☒	☐
02	Well #2	10-Inch WW	BCK267	☒	☐
03	Wellfield (S01, S02)			☒	☐
04	Well #3	Inactive		☒	☐

WELLHEAD	Source ID #S01 Yes	Source ID #S01 No	Source ID #S02 Yes	Source ID #S02 No
System has well log	☒	☐	☒	☐
*Wellcap sealed	☒	☐	☒	☐
*Openings sealed	☐	☒	☒	☐
*Vent screened	☒	☐	☒	☐
Terminates 6" above grade	☒	☐	☐	☒
*Protected from flooding	☒	☐	☒	☐
Source meter	☒	☐	☒	☐
Pressure gauge	☒	☐	☒	☐
**Raw water sample tap	☒	☐	☒	☐
Check valve	☒	☐	☒	☐
**Protected from unauthorized access	☒	☐	☒	☐
Structure in good condition	☒	☐	☒	☐
*Sanitary control area has no unmitigated contaminants	☒	☐	☒	☐
**Protected from physical damage	☒	☐	☐	☐
Frequency of routine site visit	Daily (M-F)		Daily (M-F)	
Frequency of source meter reading	Daily (M-F)		Daily (M-F)	

WELL PUMP EQUIPMENT	Source ID # Yes	Source ID # No	Source ID # Yes	Source ID # No
*Functional and reliable pump and pump controls	☒	☐	☒	☐
*Pump control valve or vacuum relief valve with a protected air gap at discharge	N/A		N/A	
Generator available	☒	☐	☒	☐

WELL PUMP EQUIPMENT	Source ID #	Source ID #
	Yes No	Yes No
Generator has automatic startup	☐ ☒	☐ ☒
Generator fuel source	Propane	Propane

The Well #1 (S01) casing vent was connected to the well casing with duct tape. Duct tape is not watertight and could allow contaminants to enter the well. The well vent should be permanently attached to the well casing by either welding coupling or inserting the vent into the non-threaded port and sealing all openings with food grade silicone. The vent should be inspected often to ensure this is not a conduit for contamination into the well.

We recommend that the Well #2 (S02) casing vent be downturned. The current vent is "L" shaped, well vents must be screened and should be downturned at least 18 inches above the floor or ground.

The source sample tap for Well #1 (S01) is located after the hydropneumatic tanks. The hydropneumatic tanks can be isolated from the system prior to collecting the source sample but is not an optimal condition. We recommend you install a source sample tap prior to the hydropneumatic tanks or write up standard operating procedures for collecting a source sample for Well #1.

The source sample tap for Well #2 (S02) is the blow off adjacent to the well. The operators have an adapter to connect to the blow off to aid in collecting samples; however, the sample tap should be cleaned and sanitized prior to use. We recommend you install a source sample tap or write up standard operating procedures for collecting a source sample for Well #2.

The generator is not programed for automatic startup. If during a power outage the reservoir gets to the low-level alarm, telemetry will call the operator and other staff to manually start the generator.

EMERGENCY SOURCES

ID #	Name:	Description:	Ecology Tag #	Listed on WFI Yes No*	Disconnected Yes No*	Inspected Yes No*
S05	Well #4	*E. coli* Contaminated Well	AEC890	☒ ☐	☐ ☒	☒ ☐

The emergency well, Well #4 (S05), is not physically disconnected from the water system. The well is valved from the distribution system. Currently the valve is locked-out and tagged-out. The well's pump is not locked-out and tagged-out because the well is currently being used to dewater the natural depression it was drilled in. The water is being pumped by a fire hose in to a drainage system. If the well was not dewatering the field, the area around the well would be flooded. Since the well pump cannot be locked-out and tagged-out the well must be physically disconnected from the system by removing the valve and capping the pipe.

SECTION 2: DISINFECTION

This system is not disinfected. If the emergency source, Well #4 (S05), is necessary all sources will be required to be disinfected in accordance with the 2014 Emergency Response Plan.

SECTION 3: OTHER TREATMENTS

The system has corrosion control treatment due to elevated copper in the homes in 1997. The target pH of the system is between 7.5 and 7.8 in the finished water before the first customer connection. Corrosion control is achieved by 25 percent sodium hydroxide (caustic soda) metered and injected in a bypass loop in parallel with the main supply pipe.

The pH is monitored weekly by the operator to ensure the target pH is met. The conductivity is measured continually after injection and the system will automatically shut off if the conductivity is greater than 25 micro Siemens per centimeter (μS/cm). When pressure in the injection tubing increases, the treatment system's tubing, quill, and piping is cleaned using vinegar.

Well #4 (S05) also has approved corrosion control treatment, but since the well is now an emergency source the treatment system was not inspected.

#	Treatment Process	Chemical Added	Purpose	On WFI Yes	On WFI No*	Location in system
1	Corrosion Control	Sodium Hydroxide	pH Adjustment	☒	☐	S03

TREATMENT	1	
	Yes	No
*Operated & maintained properly	☒	☐
*RPBA or air gap at water fill line to chemical tank	N/A	
**Post treatment sample tap	☒	☐
Redundant equipment available	☒	☐
Schematic of treatment facilities available	☒	☐
Adequate testing equipment available and used	☒	☐
Test kit calibrated and maintained properly	☒	☐
Chemical feed proportional to flow	☒	☐
**Approved chemicals used	☒	☐

The post treatment sample tap is the fire hydrant at the corner across the street from the wellfield. Since the chemical injection is into a bypass loop that then mixes with the rest of the source water underground there is not a post treatment sample tap in the well house. The operators have a hydrant sample tap adapter to collect the sample and other source samples at the hydrant. We would recommend installing a dedicated sample tap to collect post treatment and source samples near the hydrant or write standard operating procedures for proper flushing and sample collection at the hydrant.

SECTION 4: DISTRIBUTION SYSTEM

There is one pressure zone in the system. The distribution system consists of 61,000 linear feet of mains. Distribution mains range from 6 to 10-inch pipes with the majority of the pipe being asbestos cement pipe. Other piping materials include ductile iron, PVC and HDPE pipe. The water system has been working to reduce the distribution systme leakage (DSL). DSL in 2012 was 24.5 percent, but was reduced to 6.9 percent in 2014. The three-year average DSL for the system is 12.8 percent. The 2015 data shows that there is another major leak in the system, so the system is working on leak detection and also believes they may need to recalibrate their source meters.

The distribution system is fully metered.

FEATURES	Yes	No
Service area and facility map	☒	☐
Minimum pressure requirements met	☒	☐
Service meters (reading frequency **Monthly**)	☒	☐

FEATURES	Yes	No
Leak detection program	☒	☐
Water system leakage (%)	12.8%	
Adequate valving for flushing and pipe repair	☒	☐
Blow-offs on dead ends	☒	☐
Routine flushing (frequency **Every 6 Months**)	☒	☐
Routine valve exercise (frequency **Yearly**)	☒	☐

The high hazard sites (swimming pool and RV dump station) are protected with backflow preventers. Each service meter has a single check valve. Every three years a cross connection hazard survey form is sent out to the customers as part of the system's on-going hazard assessments.

CROSS CONNECTION CONTROL (Community Systems)	Yes	No
System has enabling authority	☒	☐
Ongoing hazard inspections	☒	☐
High hazards identified	☒	☐
High hazards protected	☒	☐
Annual testing	☒	☐
System has installation standards	☐	☒
CCS on staff or under contract	☒	☐
Cross connections observed have been eliminated	☒	☐

We recommend that the system adopt installation standards for backflow assemblies and include them in their board adopted Standard Plans and Details.

SECTION 5: FINISHED WATER STORAGE

There are two finished water storage tanks located on the hillside south of the Clearwood community. The tanks are located on forest service land where the community has a perpetual easement as long as the tanks are in use. Two welded steel tanks have a base elevation of 706 feet above sea level and overflow when the water reaches 23 feet in the tanks. Both tanks are connected to the distribution system through one 10-inch line.

In 2011, Tank 1 was seismically retrofitted and the interior was re-coated along with exterior repainting of both tanks. The tanks were inspected again in 2015. The reservoir site was further secured by installation of razor wire on the fencing and the ladders, two infrared cameras, and hatch alarms.

Thank you for having pictures of the tank hatches and vents available during the survey.

RESERVOIR	RESERVOIR NAME	DESCRIPTION	YEAR BUILT	TOTAL VOLUME (GAL)
1	Tank 1	36 Feet Diameter and 24 Feet Tall	1975	182,000
2	Tank 2	56 Feet Diameter and 26 Feet Tall	1997	478,000

TOP OF RESERVOIR	Res #1		Res #2	
	Yes	No	Yes	No
Hatch: Locked	☒	☐	☒	☐
*Hatch: Watertight seal or gasket	☒	☐	☒	☐
Hatch: Over-lapping cover	☒	☐	☒	☐
*Screened air vent	☒	☐	☒	☐
*Openings sealed/protected	☒	☐	☒	☐

FEATURES	Res #1		Res #2	
	Yes	No	Yes	No
Separate inlet/outlet	☐	☒	☐	☒
Protected drain outlet	☒	☐	☒	☐
*Protected overflow outlet	☒	☐	☒	☐
*Overflow line discharges into a sanitary sewer with an air gap	N/A		N/A	
Operational water level gauge	☒	☐	☒	☐
Bypass piping or isolation possibility	☒	☐	☒	☐
**Protected from unauthorized entry	☒	☐	☒	☐
Low level alarms	☒	☐	☒	☐
Sample tap at outlet	☒	☐	☒	☐

MAINTENANCE	Res #1		Res #2	
	Yes	No	Yes	No
Frequency of structural and coating inspection	5 Years		5 Years	
Frequency of cleaning	5 Years		5 Years	
Frequency of appurtenance inspection	Monthly		Monthly	
Frequency of routine site visit	Weekly		Weekly	
**Structure in good condition	☒	☐	☒	☐
Clear of excessive vegetation	☒	☐	☒	☐

The reservoirs share a sample tap and the operator must isolate each tank with ball valves to collect a reservoir sample. The sample tap is in the electrical cabinet at the site and the tap's orientation would make it difficult to collect a sample.

SECTION 6: PRESSURE TANKS

There are three hydropneumatic tanks inside the S03 wellhouse. The tanks were installed prior to Well #1 (S01) being connected to the reservoir controls. The wells are now called based on the reservoir elevations. The tanks were taken out of service, but were put back in service due to water hammer during pump start up.

Site	Location	# and size of Hydropneumatic Tanks	# and size of Bladder Tanks
1	Wellfield S03 Well House	Three at About 150 Gallons	

HYDROPNEUMATIC	Site: 1	
	Yes	No
Pressure relief valve	☒	☐
Pressure gauge	☒	☐
Water level sight glass	☒	☐
Can be isolated	☒	☐
**Oilless Air compressor	☒	☐
**Structurally in good condition	☒	☐

BUILDINGS/ENCLOSURE	Site: 1	
	Yes	No
Facility secure	☒	☐
Structure in good condition	☒	☐

SECTION 7: BOOSTER PUMPS AND FACILITIES

There are no booster pumps associated with this water system.

SECTION 8: WATER QUALITY MONITORING AND REPORTING

The water system meets all water quality standards at this time. *E. coli* has been detected in the emergency source. Prior to use of the emergency source the system must install chlorination meeting 4-log disinfection or issue a boil water advisory to all system users. An emergency response plan is in place to ensure that proper procedures are completed prior to use of the emergency source.

Refer to the Water Quality Monitoring Schedule for your monitoring requirements and status. If you have any questions on source monitoring, please contact Sophia Petro at (360) 236-3046.

CHEMICAL	
Sample Point	**Description**
1	Source Samples – IOCs, VOCs, SOCs – Hydrant on Crest Lane
2	Lead & Copper

CHEMICAL	Sample Point 1		Sample Point 2	
	Yes	No	Yes	No
Monitoring adequate	☒	☐	☒	☐
ODW WQ data reviewed	☒	☐	☒	☐
Sample collection sites correct	☒	☐	☐	☒

System has prior:
- ☐ Nitrate results above 5 mg/L
- ☐ Nitrite results above 0.5 mg/L
- ☐ Primary MCL
- ☐ Secondary MCL exceedance(s)
- ☐ Organic detections

☐ Other _____

COLIFORM	Yes	No
Monitoring adequate	☒	☐
Monitoring plan adequate	☒	☐
Monitoring plan followed	☒	☐
# of violations since last survey	1	

The water system had an Acute Maximum Contaminant Level (MCL) violation in September 2013. At that time, *E. coli* was identified in Well #4 (S05). This source was taken off-line and due to the location of the well within a natural depression with season high ground water, this well was designated as an emergency source. Since the 2013 violation, the system has had no further coliform violations.

LEAD & COPPER	Yes	No
Monitoring adequate	☐	☒
Results below action level	☒	☐

The lead and copper rule (40 CFR 141) requires that community systems collect lead and copper samples from single family homes meeting the Tier 1 sample site requirements. The Tier 1 site is a single family home that contains copper pipes with lead solder installed after 1982 and prior to 1986 or is served by lead service lines. If you do not have sufficient sites that meet the Tier 1 requirement, Tier 2 or Tier 3 sites can be used. The use of the association's office and maintenance building do not meet the sample site requirements. You must take all ten samples from regularly used single-family home kitchen or bathroom faucets.

SECTION 9: SYSTEM MANAGEMENT AND OPERATIONS

The system is managed and operated well. The community has invested in their water system by re-coating their reservoirs as needed and working to find a new well site to replace Well #4 (S05).

PROJECT/PLANNING	Yes	No
System approved	☒	☐
Current WSP/SWSMP	☒	☐
Year WSP/SWSMP approved	2011	
Emergency response plan	☒	☐

REPORTING	Yes	No	N/A
WFI reviewed and updated with purveyor	☐	☒	---
Consumer confidence report (Community only)	☒	☐	☐
Water use efficiency report (Municipal Water Suppliers)	☒	☐	☐
Cross connection control annual report (> 1000 conn)	☒	☐	☐

The WSP's approval expires November 2017. You should consider scheduling a pre-plan meeting about a year prior to the plans expiration to begin working on the plan update.

The Water Facilities Inventory (WFI) form was not reviewed during the inspection, because the operator had submitted an updated WFI to our office the day prior to the survey.

OPERATOR CERTIFICATION

This system is required to have **one** certified operator. The operator conducts all sampling, routine maintenance and inspections, and responds to complaint and emergencies. The system appears to be well operated and maintained.

If you have any questions or this information is inaccurate, please contact Operator Certification at (800) 525-2536.

Name of Operator	Certification Number	Certifications	Mandatory Operator
Albert Darrow	015575	WDM2, CCS	☒

WDS-Water Distribution Specialist; WDM-Water Distribution Manager; WTPO-Water Treatment Plant Operator, BTO-Basic Treatment Operator; CCS-Cross Connection Specialist; BAT-Backflow Assembly Tester

OPERATIONS	Yes	No
Operational records maintained	☒	☐
Complaints followed up	☒	☐
Complaints documented	☒	☐
# of complaints recorded at ODW (since last survey)	0	
Operation and maintenance program	☒	☐
Previous survey deficiencies/findings corrected	☒	☐

CLOSING

Your system has had either a total coliform MCL violation or more than one total coliform monitoring violation since the last survey. Your system does not qualify for the reduced frequency of Sanitary Surveys under WAC 246-290-416 (1).

Your next survey is due in **3 years.**

Regulations establishing a schedule of fees, including fees for sanitary surveys, were adopted April 30, 2012 (WAC 246-290-990). The amount due is $918. An itemized worksheet is enclosed with the invoice.

If you have any questions, please contact me at (360) 236-3037 or by e-mail at kay.rottell@doh.wa.gov.

Sincerely,

Kay Rottell

Kay Rottell, P.E.
Office of Drinking Water, Regional Engineer

Enclosures

cc: Linda Doucette, Clearwater Community Association
Thurston County
Denise Miles, ODW

Well #1 (S01) Structure and Well House

Well #1 (S01) Duct Taped Vent

Well #1 (S01) well enclosure with heat tape around the pipes.

Well #2 (S02)

Well #2 (S02) Well Vent - Recommend Installing Downturned Vent

Well #2 (S02)Vault Drain

Well #2 (S02) Vault Drain Outlet

Blow Off Used for Well #2 (S02) Source Sample Tap

Well #1 (S01) Hydropneumatic Tanks With Source Sample Tap After Tanks

Source Meters (S01 & S02)

Vinegar Used to Clean Caustic Injection Tubing

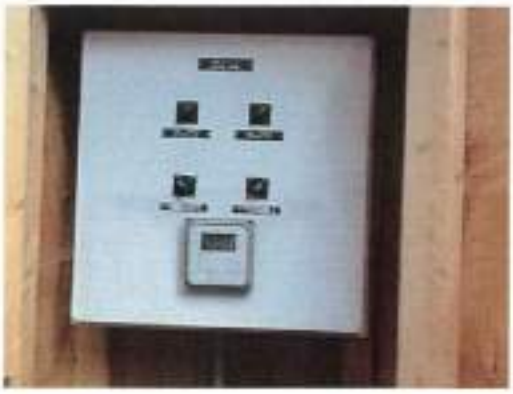
Pressure Relief Valves for Hydropneumatic Tanks

Hydrant Used as Finished Water and Source Sample Tap

Hydrant and Blow Off Adapter for Collecting Samples

Caustic Injection Point

Caustic Injection Pump and Pump for Carrying Water



Caustic Injection Controls and Conductivity Readout

Bulk Caustic Storage

Generator at Wellfield (S03)

Well #3 (S04) Inactive Well

Well #4 (S05) Emergency Source

Valve Locked and Tagged-Out at Emergency Source

Fire Hose to Dewater Field With Well #4 (S05)

Discharge to Drainage System

Tank #1

Tank #2

Reservoirs Combined Drain and Overflow

Reservoir Sample Tap

Reservoir Telemetry Panel

New Well Site With Test Well

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

WATER FACILITIES INVENTORY (WFI) FORM

ONE FORM PER SYSTEM

RETURN TO: Southwest Regional Office POB 87423 Olympia WA 98504-7823

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
13615 U	Clearwood	Thurston	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS	7. OWNER NAME & MAILING ADDRESS	8. Owner Number:
Northwest Water Systems	Clearwood Community Association	
Kevin Odegard TITLE: Manager	~~Albert Darrow~~ TITLE: Operator	
P.O. Box 123	21603 N. Clearlake Blvd SE	
Port Orchard, WA 98366	Yelm, WA 98597	
STREET ADDRESS IF DIFFERENT FROM ABOVE	STREET ADDRESS IF DIFFERENT FROM ABOVE	
ATTN	ATTN	
ADDRESS	ADDRESS	
CITY STATE ZIP	CITY STATE ZIP	

9. 24 HOUR PRIMARY CONTACT INFORMATION	10. OWNER CONTACT INFORMATION
Primary Contact Daytime Phone: 360-876-0958	Owner Daytime Phone: (360) 894-4187
Primary Contact Evening Phone: 360-876-0958	Owner Evening Phone:
Primary Contact Mobile/Cell Phone:	Owner Mobile/Cell Phone:
Fax: E-mail: kevin@nwwatersystems.com	Fax E-Mail: ~~adarrow@clearwood.org~~

WAC 246-290-420(1) requires that water systems provide 24-hour contact information for emergencies.

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

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

SMA NAME: Northwest Water Systems SMA Number: 119

12. WATER SYSTEM CHARACTERISTICS (mark ALL that apply)

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

13. WATER SYSTEM OWNERSHIP (mark only one)

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

14. STORAGE CAPACITY (gallons)

660,000

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	OPEN INT (FEET)	CAPACITY (GALLONS PER MINUTE)	¼, ¼ SECTION	SECTION NUMBER	TOWNSHIP	RANGE
S01	Well #1 AAD169 8"				X								X			Y						X	60	90	SE SW	31	16N	3E
S02	Well #2 BCK267 10"				X								X			Y						X	66	340	SE SW	31	16N	3E
S03	WF (S01, S02)			X									X									X	60	430	SE SW	31	16N	3E
S04	In Act 02/27/1998 Well #3 No tag		X										X									X	40	425	SW SW	32	16N	3E
S05	Well #4 AEC890		X												X	Y						X	45	300	SW SW	32	16N	3E

If this water system serves 100 OR MORE single-family residences, please enter the total number of service connections on line 25, then skip to lines 29, 35 and 36. If this water system serves LESS THAN 100 single-family residences, complete entire form.	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?)			
A. Full Time Single Family Residences (Occupied 180 days or more per year)	1,040		
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 Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	0		
C. Part Time Residential Units in 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 (Campsites, RV Sites, Spigots, etc.)			
B. Institutional, Commercial or Industrial Services	343		
28. TOTAL SERVICE CONNECTIONS	1,383		

29. FULL-TIME RESIDENTIAL POPULATION
A. How many residents are served by this system 180 or more days per year? 2750

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 visitors, attendees, travelers, campers, patients or customers have access to the water system each month?	2000	2000	2000	2000	2500	3000	3000	3000	3000	2500	2000	2000
B. How many days per month are they present?	30	30	30	30	30	30	30	30	30	30	30	30
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?	10	10	10	10	20	20	20	20	10	10	10	10
B. How many days per month are they present?	30	30	30	30	30	30	30	30	30	30	30	30

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
33. ROUTINE COLIFORM SCHEDULE	3	3	3	3	3	3	3	3	3	3	3	3

34. GROUP B NITRATE SCHEDULE *This will be suppressed for all Group A systems*	QUARTERLY	ANNUALLY	ONCE EVERY 3 YEARS

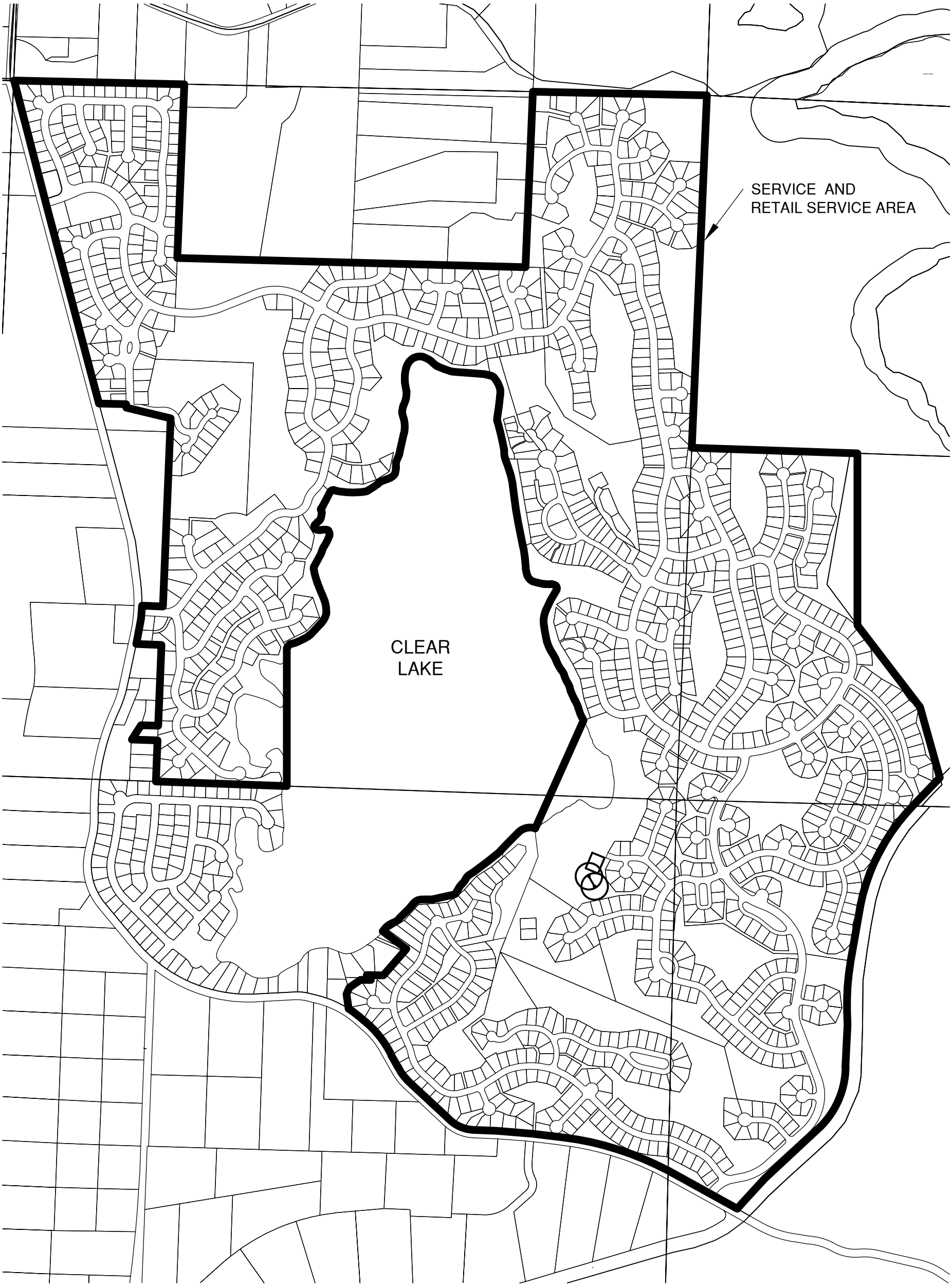
35. Reason for Submitting WFI: *(To be completed by system submitting form – not a Sentry feed)*

X **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:** _____



SITE INFORMATION PROVIDED BY: THE CLIENT, THURSTON COUNTY, AND BY SITE INSPECTION

□— SERVICE CONNECTION

○— BLOW-OFF

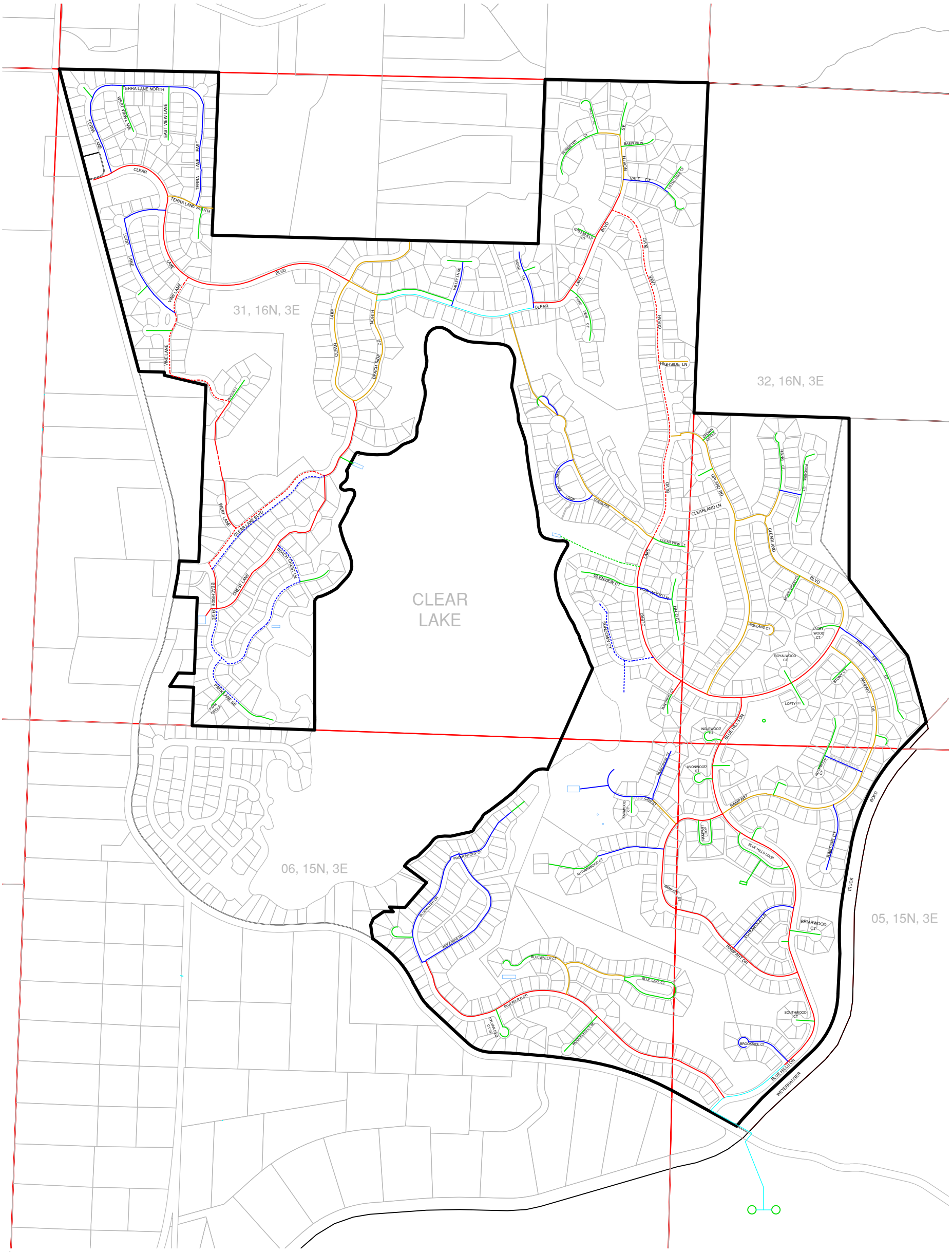
⋈ ISOLATION VALVE

THIS IS NOT A SURVEY. PROPERTY LINES AND ELEVATIONS SHOWN ARE BASED UPON THE AVAILABLE INFORMATION ARE APPROXIMATE ONLY.

DISTURBANCE OF EXISTING MONUMENTS IS A GROSS MISDEMEANOR UNDER RCW 58.04.015

DRAWN BY:		SYSTEM	CLEARWOOD WATER SYSTEM
CHECKED BY:		FILE NO. 170311	FILE NAME SERVICE AREA
REVISION		DATE JANUARY 8, 2019	SCALE 1" = 750'
DESCRIPTION	DATE		

NORTHWEST WATER SYSTEMS, INC.
DESIGN - CONSULTING - MANAGEMENT
P.O. BOX 123
PORT ORCHARD, WA 98366
(360) 876-0958



SITE INFORMATION PROVIDED BY: THE CLIENT, THURSTON COUNTY, AND BY SITE INSPECTION

- SERVICE CONNECTION
- BLOW-OFF
- ISOLATION VALVE

SERVICE AREA	
1.25" PVC	
2" PVC	
4" AC	
4" PVC	
6" AC	
8" AC	
8" PVC	
8" HDPE	
10" AC	

THIS IS NOT A SURVEY. PROPERTY LINES AND ELEVATIONS SHOWN ARE BASED UPON THE AVAILABLE INFORMATION ARE APPROXIMATE ONLY.

DISTURBANCE OF EXISTING MONUMENTS IS A GROSS MISDEMEANOR UNDER RCW 58.04.015

DRAWN BY:

CHECKED BY:

REVISION

DESCRIPTION	DATE

SYSTEM: CLEARWOOD WATER SYSTEM

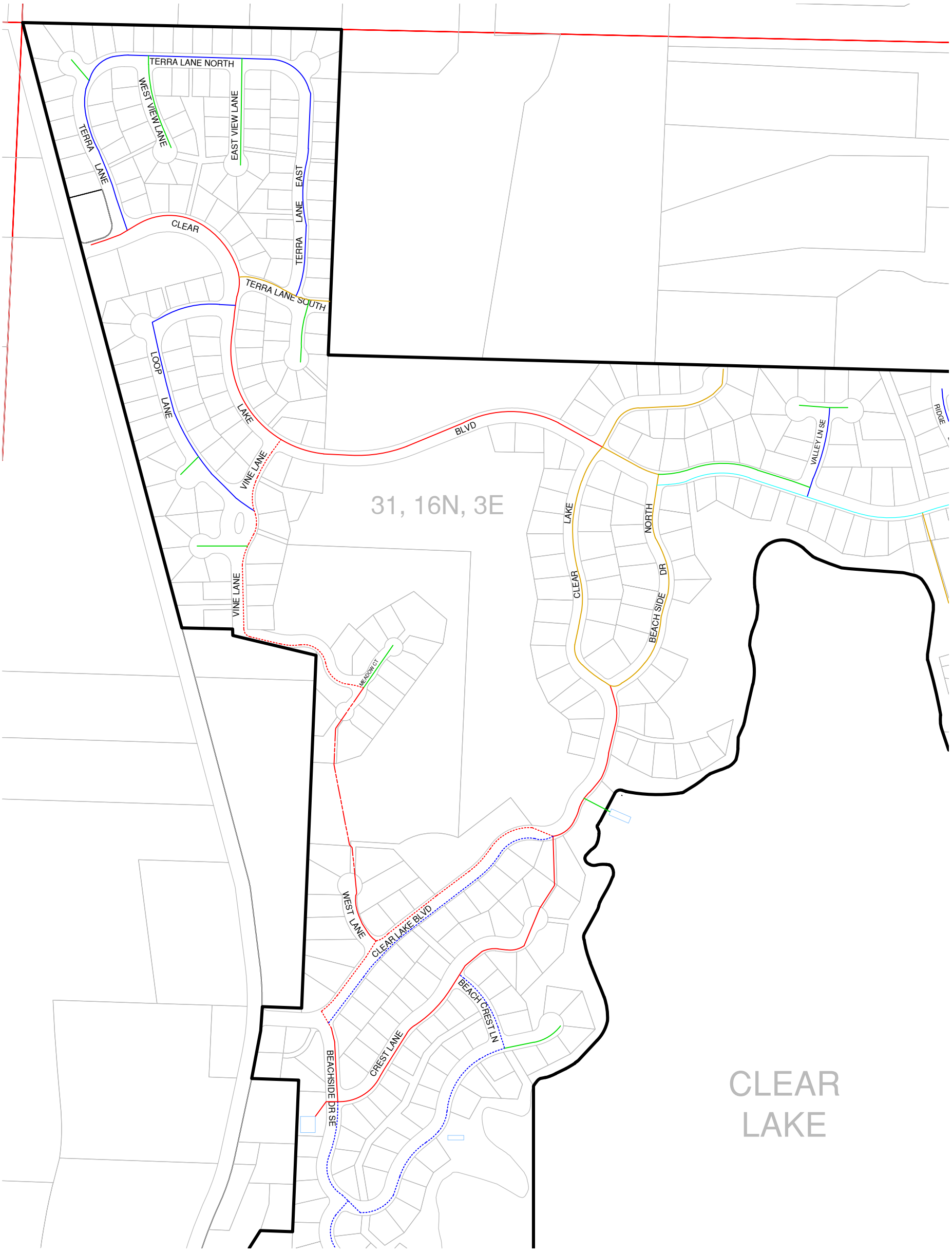
FILE NO.: 170311

FILE NAME: DISTRIBUTION

DATE: NOVEMBER, 30 2017

SCALE: 1" = 800'

NORTHWEST WATER SYSTEMS, INC.
DESIGN - CONSULTING - MANAGEMENT
P.O. BOX 123
PORT ORCHARD, WA 98366
(360) 876-0958



SITE INFORMATION PROVIDED BY: THE CLIENT, THURSTON COUNTY, AND BY SITE INSPECTION

- SERVICE CONNECTION
- BLOW-OFF
- ISOLATION VALVE

- SERVICE AREA
- 1.25" PVC
- 2" PVC
- 4" AC
- 4" PVC
- 6" AC
- 8" AC
- 8" PVC
- 8" HDPE
- 10" AC

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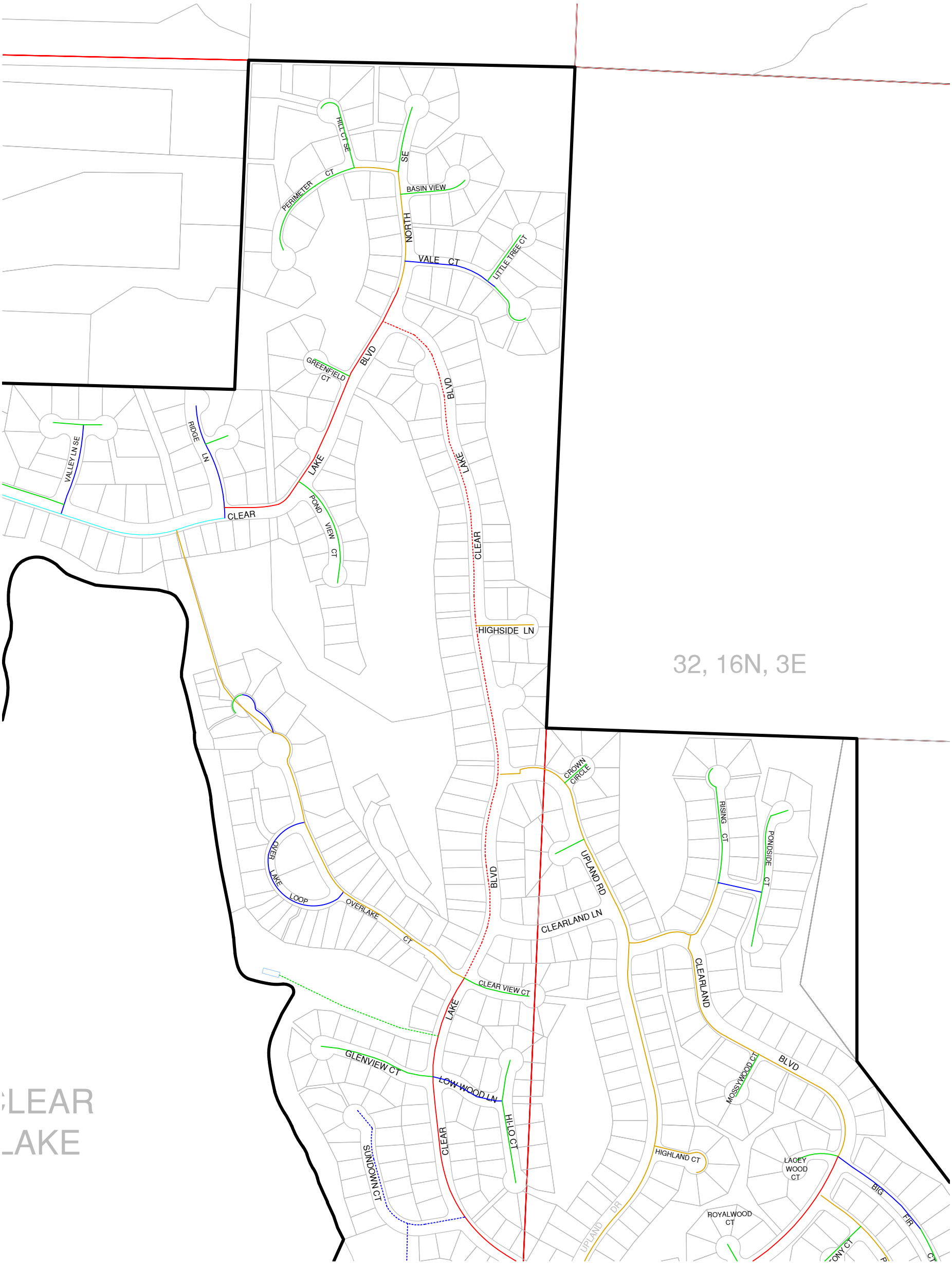
DISTURBANCE OF EXISTING MONUMENTS IS A GROSS MISDEMEANOR UNDER RCW 58.04.015

DRAWN BY:	SYSTEM	CLEARWOOD WATER SYSTEM
CHECKED BY:	FILE NO. 170311	FILE NAME DISTRIBUTION
REVISION	DATE	NOVEMBER 30, 2017
DESCRIPTION	DATE	SCALE 1" = 400'

NORTHWEST WATER SYSTEMS, INC.
DESIGN - CONSULTING - MANAGEMENT
P.O. BOX 123
PORT ORCHARD, WA 98366
(360) 876-0958



SITE INFORMATION PROVIDED BY: THE CLIENT, THURSTON COUNTY, AND BY SITE INSPECTION

- SERVICE CONNECTION
- BLOW-OFF
- ISOLATION VALVE

- SERVICE AREA
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- 2" PVC
- 4" AC
- 4" PVC
- 6" AC
- 8" AC
- 8" PVC
- 8" HDPE
- 10" AC

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DRAWN BY:		SYSTEM	CLEARWOOD WATER SYSTEM
CHECKED BY:		FILE NO. 170311	FILE NAME DISTRIBUTION
REVISION		DATE NOVEMBER 30, 2017	SCALE 1" = 400'
DESCRIPTION	DATE		

NORTHWEST WATER SYSTEMS, INC.
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P.O. BOX 123
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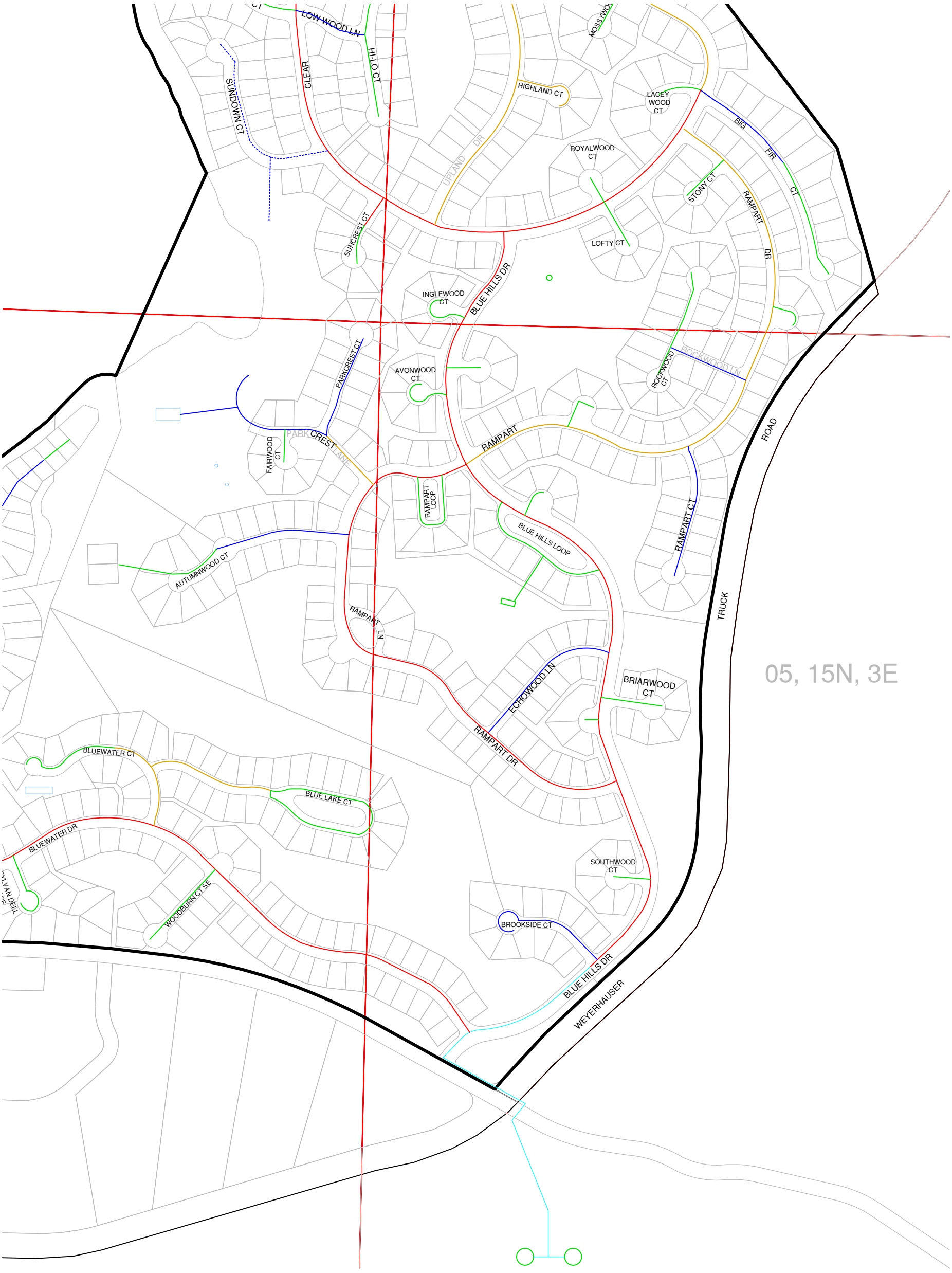

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- BLOW-OFF
- ISOLATION VALVE

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REVISION	DATE NOVEMBER 30, 2017	SCALE 1" = 400'
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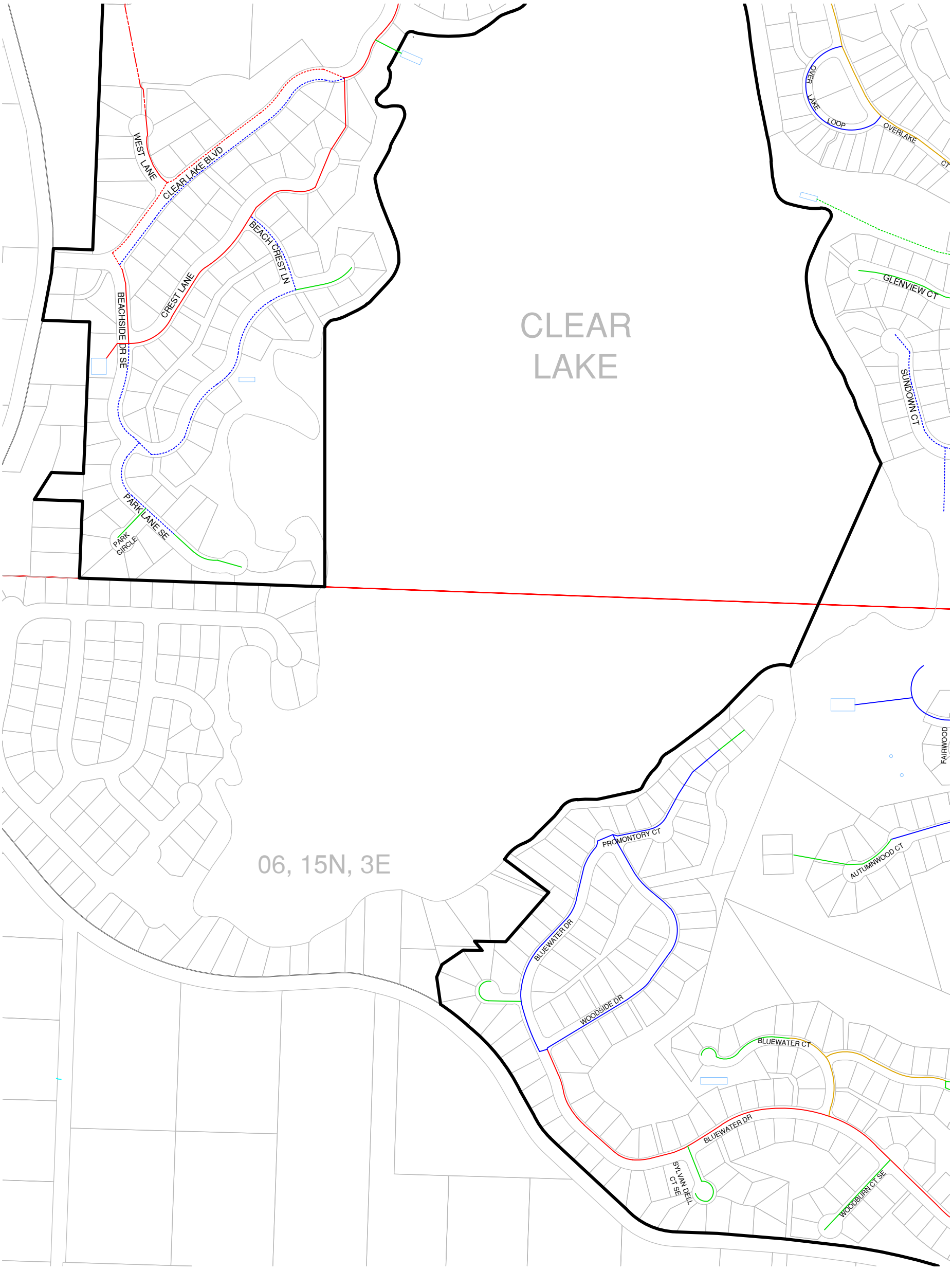

SITE INFORMATION PROVIDED BY: THE CLIENT, THURSTON COUNTY, AND BY SITE INSPECTION

- SERVICE CONNECTION
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DISTURBANCE OF EXISTING MONUMENTS IS A GROSS MISDEMEANOR UNDER RCW 58.04.015

DRAWN BY:		SYSTEM: CLEARWOOD WATER SYSTEM	
CHECKED BY:		FILE NO.: 170311	FILE NAME: DISTRIBUTION
REVISION		DATE: NOVEMBER 30, 2017	SCALE: 1" = 400'
DESCRIPTION	DATE	NORTHWEST WATER SYSTEMS, INC.	

DESIGN - CONSULTING - MANAGEMENT
P.O. BOX 123
PORT ORCHARD, WA 98366
(360) 876-0958

Year	Residential	Community	Total Demand	Unmetered Accounted	Total Production	DIFFERENCE	DSL	Residential ERU
2011	52,226,213	1,790,188	54,016,401	758,815	67,059,489	13,801,903	18%	1034
2012	51,624,903	3,342,295	54,967,198	850,670	72,754,251	18,637,723	23%	1034
2013	52,260,793	2,851,221	55,112,014	1,094,670	59,297,622	5,280,278	5%	1034
2014	50,639,503	3,524,855	54,164,358	292,500	58,189,861	4,318,003	6%	1034
2015	53,302,749	844,390	54,147,140	93,750	62,961,776	8,908,386	14%	1034
2016	53,984,274	935,330	54,919,604	93,750	66,241,945	11,416,091	17%	1034

	Well 1	Well 2	Well 4	Total	ADD
01/31/2013	311,501	1,888,013	1,637,095	3,836,609	123,762
02/28/2013	253,092	1,369,276	2,327,074	3,949,442	141,052
03/31/2013	334,069	1,397,428	1,977,375	3,708,872	119,641
04/30/2013	453,402	1,893,536	2,312,452	4,659,390	155,313
05/31/2013	451,971	1,956,446	2,502,383	4,910,800	158,413
06/30/2013	430,704	1,824,077	2,649,478	4,904,259	163,475
07/31/2013	703,862	3,201,716	4,434,401	8,339,979	**269,032**
08/31/2013	666,615	2,932,965	3,224,236	6,823,816	220,123
09/30/2013	662,728	699	4,588,054	5,251,481	175,049
10/31/2013	569,895	3,086,904	571,026	4,227,825	136,381
11/30/2013	144,565	3,603,542	0	3,748,107	124,937
12/31/2013	704,877	4,676,462	0	5,381,339	173,592
			Total	59,741,919	
01/31/2014	652,353	3,206,584		3,858,937	124,482
02/28/2014	609,986	3,554,129		4,164,115	148,718
03/31/2014	710,533	3,425,598		4,136,131	133,424
04/30/2014	854,566	3,239,262		4,093,828	136,461
05/31/2014	756,773	3,492,825		4,249,598	137,084
06/30/2014	889,612	4,005,710		4,895,322	163,177
07/31/2014	1,329,093	6,141,308		7,470,401	240,981
08/31/2014	1,047,366	4,972,130		6,019,496	194,177
09/30/2014	984,599	4,596,670		5,581,269	186,042
10/31/2014	829,956	3,557,944		4,387,900	141,545
11/30/2014	684,222	3,657,900		4,342,122	144,737
12/31/2014	1,300,537	4,416,984		5,717,521	184,436
			Total	58,916,640	
01/31/2015	907,471	4,403,611		5,311,082	171,325
02/28/2015	910,492	4,130,066		5,040,558	180,020
03/31/2015	717,025	3,277,491		3,994,516	128,855
04/30/2015	965,191	3,361,895		4,327,086	144,236
05/31/2015	629,435	3,624,717		4,254,152	137,231
06/30/2015	771,785	6,828,406		7,600,191	253,340
07/31/2015	1,292,545	5,960,190		7,252,735	233,959
08/31/2015	1,067,333	4,918,224		5,985,557	193,082
09/30/2015	833,752	3,966,868		4,800,620	160,021
10/31/2015	852,483	3,630,800		4,483,283	144,622
11/30/2015	857,732	3,801,300		4,659,032	155,301
12/31/2015	892,772	4,094,656		4,987,428	160,885
			Total	62,696,240	
01/31/2016	715,224.0	3,231,661		3,946,885	127,319
02/29/2016	1,115,328	3,932,709		5,048,037	174,070
03/31/2016	842,629	3,749,425		4,592,054	148,131
04/30/2016	764,751	3,661,670		4,426,421	147,547
05/31/2016	1,052,003	4,848,109		5,900,112	190,326
06/30/2016	1,053,349	4,809,140		5,862,489	195,416
07/31/2016	1,079,428	4,991,030		6,070,458	195,821
08/31/2016	1,409,999	6,796,108		8,206,107	264,713
09/30/2016	1,036,638	4,786,080		5,822,718	194,091
10/31/2016	930,071	4,338,152		5,268,223	169,943
11/30/2016	857,863	3,662,740		4,520,603	150,687
12/31/2016	312,891	1,747,772		2,060,663	66,473
			Total	61,724,770	

*12/31/16 record is unusually low and may not be reflective of total December production

Residential Connections - Count					
	2012	2013	2014	2015	2016
Vacant with home - zero usage	50	28	69	46	12
Part Time	222	313	204	224	236
Full Time	768	699	767	770	792
Total	1040	1040	1040	1040	1040

Residential Connections - Summary of Usage

	2012			2013			2014			2015			2016		
	GPY	GPD	ADD	GPY	GPD	ADD	GPY	GPD	ADD	GPY	GPD	ADD	GPY	GPD	ADD
Vacant with home	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Part Time	2,952,087	8,088	36	4,945,970	13,551	43	2,863,456	7,845	38	3,099,540	8,492	38	3,855,140	10,562	45
Full Time	47,516,132	130,181	170	38,547,754	105,610	151	48,661,551	133,319	174	48,951,843	134,115	174	46,559,537	127,560	161
Total	50,468,218	138,269		43,493,724	119,161		51,525,008	141,164		52,051,383	142,607		50,414,676	138,122	

Recreational Connections - Count					
	2012	2013	2014	2015	2016
Vacant - zero usage	241	52	241	235	64
Usage	72	261	72	78	249
Total	313	313	313	313	313

Recreational Connections - Summary of Usage

	2012		2013		2014		2015		2016	
	GPY	GPD	GPY	GPD	GPY	GPD	GPY	GPD	GPY	GPD
Vacant	0	0	0	0	0	0	0	0	0	0
Usage	1,004,048	2,751	7,496,778	20,539	790,666	2,166	999,373	2,738	2,862,566	7,843

Residential + Recreational GPY	51,472,266	50,990,502	52,315,674	53,050,756	53,277,242

Full Time Residential

ADD **166 gpd/ERU**

MDD **492 gpd/ERU**

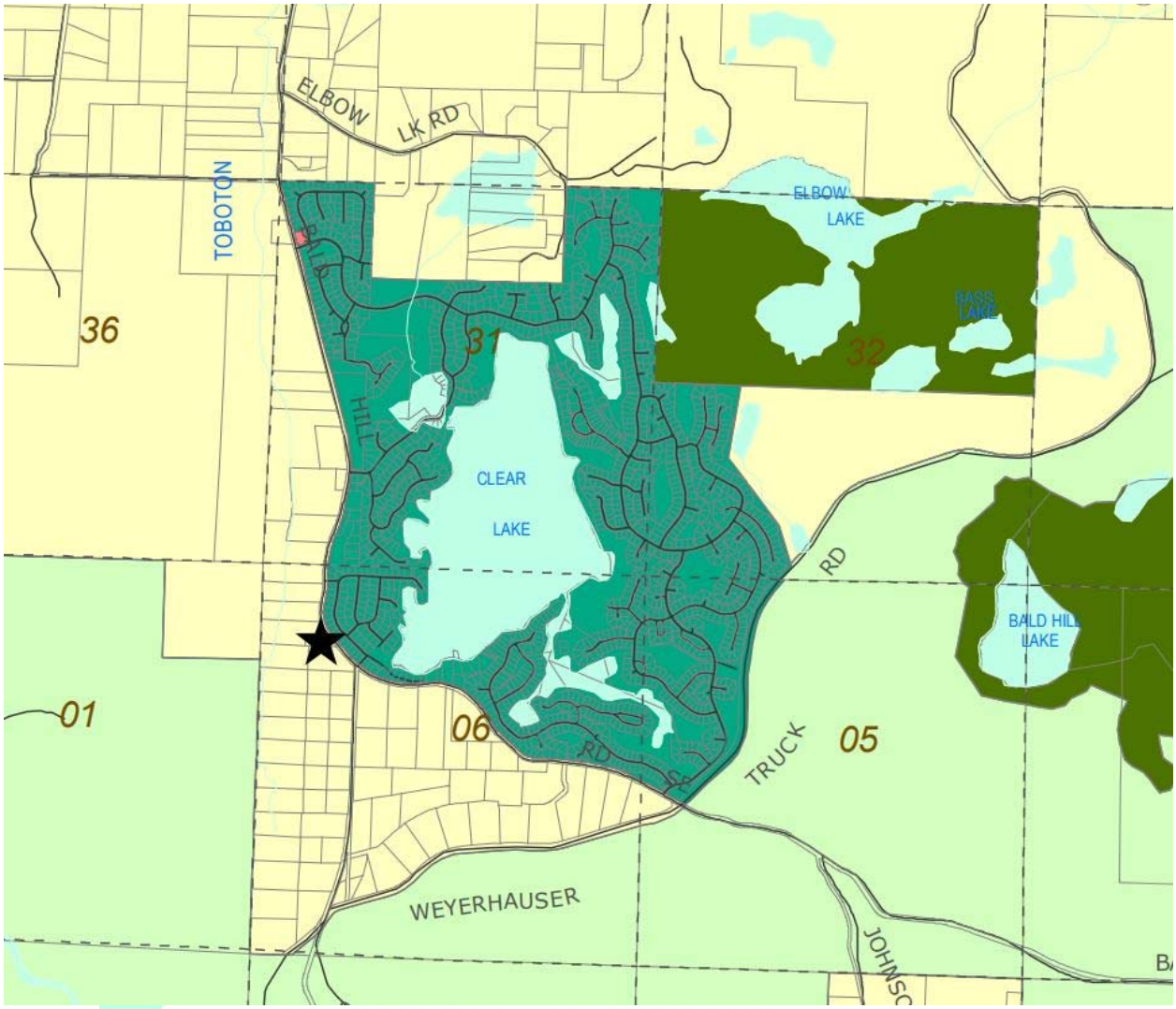
	2012		2013		2014		2015		2016		
	MDD	ERU	MDD	ERU	MDD	ERU	MDD	ERU	MDD	ERU	
Full Time		768		699		767		770		792	Multiplier
Part Time*		111		157		102		112		118	0.5
Recreational **		24		87		24		26		83	0.33333333
Store***	836	2	331	1	519	1	1,381	3	387	1	2
Community***	18,314	37	15,623	32	19,314	39	4,627	9	5,125	10	2
Operational ***	4,661	9	5,998	12	1,603	3	514	1	514	1	2
DSL	47,062	96	12,044	24	5,376	11	23,893	49	19,515	40	
Total ERU w/DSL		1,047		1,012		947		970		1,045	
Total ERU w/o DSL		951		987		937		921		1,005	
PHD (w/o DSL)		615 gpm		635 gpm		607 gpm		598 gpm		644 gpm	
PHD (w/o DSL, assuming all PT are present)		676 gpm		720 gpm		663 gpm		660 gpm		709 gpm	

*assumes part time ERU are equivalent to 0.5 ERU for each part time connection during peak use days

** assumes recreational ERU are equivealanet to 0.3 ERU for each connection based on annual usage as compared to part time connections. Recreational and part time are likely present concurrently

***assumes MDD= 2xADD

	2012		2013		2014		2015		2016
Calculated									
MDD*N	515,150		497,707		466,167		477,150		514,097
MDD w/o DSL	468,088		485,663		460,792		453,257		494,582
Actual									
MDD from monthly source reads	none available		457,354		409,667		430,677		450,012
System MDD/MDD=N			930		833		875		915



OFFICIAL ZONING MAP
THURSTON COUNTY, WASHINGTON

RESIDENTIAL

- R 1/20 — Rural 1 Unit Per 20 Acres
- R 1/10 — Rural 1 Unit Per 10 Acres
- UR 1/5 — Urban Reserve 1 Unit Per 5 Acres
- RL 1/1 — Residential LAMIRD - 1 Unit Per 1 Acre
- RL 1/2 — Residential LAMIRD - 1 Unit Per 2 Acres
- RL 2/1 — Residential LAMIRD - 2 Units Per 1 Acre
- RRR 1/5 — Rural Residential/Resource - 1 Unit Per 5 Acres
- RR 1/5 — Rural Residential - 1 Unit Per 5 Acres
- MGSA — McAllister Geologically Sensitive Area
- R 3-6/1 — Residential - 3-6 Units Per 1 Acre
- R 4-16/1 — Residential - 4-16 Units Per 1 Acre

NATURAL RESOURCES

- NA — Nisqually Agriculture
- LTA — Long-Term Agriculture
- LTF — Long-Term Forestry
- PP — Public Parks, Trails & Preserves
- MR — Military Reservation

COMMERCIAL

- RCC — Rural Commercial Center
- NC — Neighborhood Convenience Commercial
- AC — Arterial Commercial
- HC — Highway Commercial

INDUSTRIAL

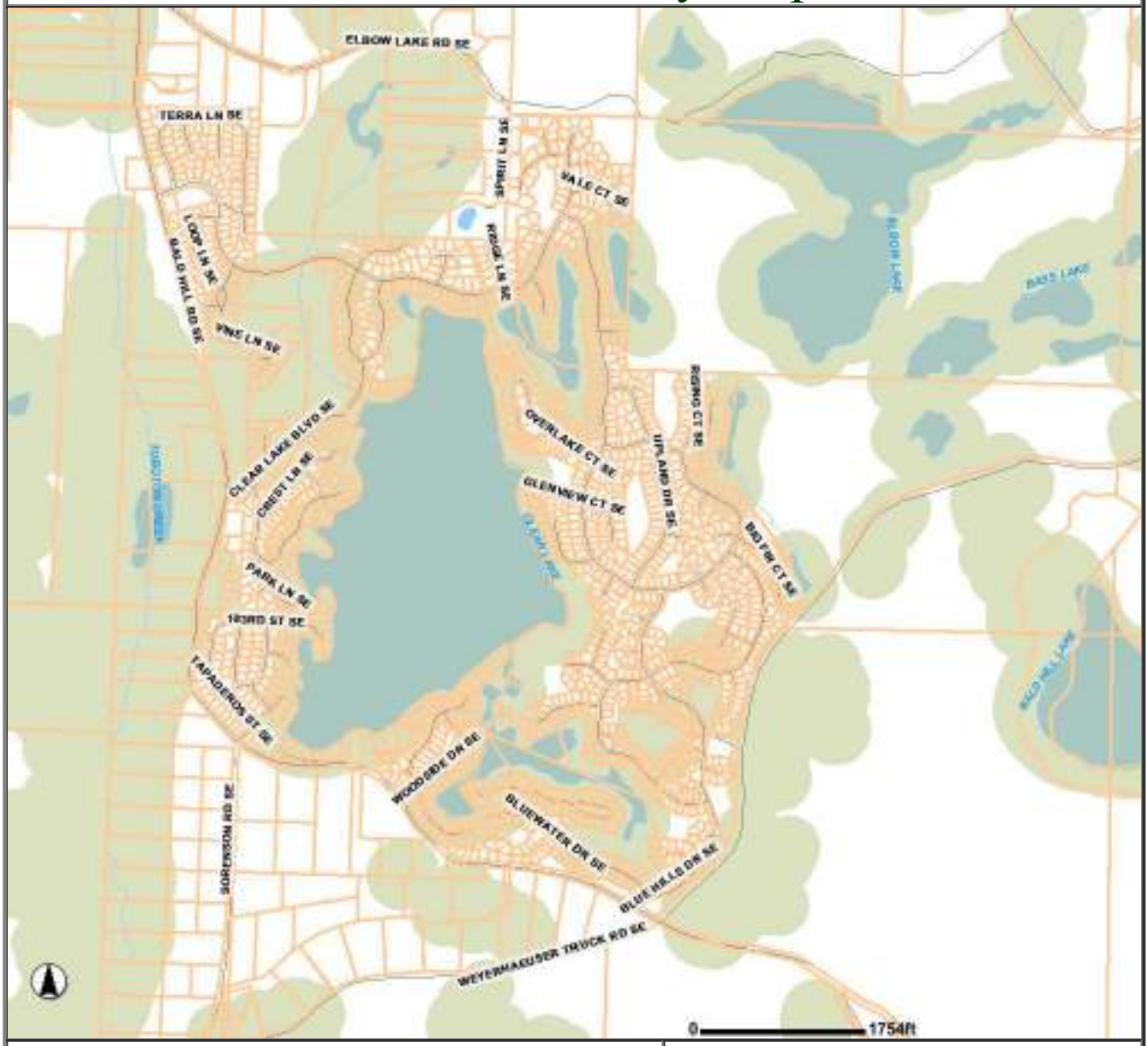
- RRI — Rural Resource Industrial
- PI — Planned Industrial Park
- LI — Light Industrial

OTHER

- * Historic Register Site
- Urban Growth Area Boundaries
- Rochester Subarea Boundary
- City/Town Limits
- Indian Reservation Boundaries
- County Trails
- For these areas, refer to the North County Urban Growth Area Zoning Map

ORDINANCE	DATE
ORDINANCE NO. 6708	SEPTEMBER 1, 1980
ORDINANCE NO. 7096	NOVEMBER 10, 1981
ORDINANCE NO. 9316	NOVEMBER 6, 1989

Thurston County Map



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Thurston GeoData Center
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Olympia, WA 98502-6031

LEGEND

- Major Roads
- Roads
- Streams
- Contours
- Wetlands
- Wetland Buffers
- Flood Zones
- Water Bodies
- Zoning
- Cities
- Parcels

Emergency Response Plan

This response plan will cover the response and handling of a contamination of Clearwood Community's drinking water system. Once a contaminate has been identified or it becomes necessary to use Well 4 (deemed a none potable source of water) disinfection and notification must be performed according to this plan. Well 4 should only be used if there is no other means of supplying the adequate amount of water to support the water demand needed by the community.

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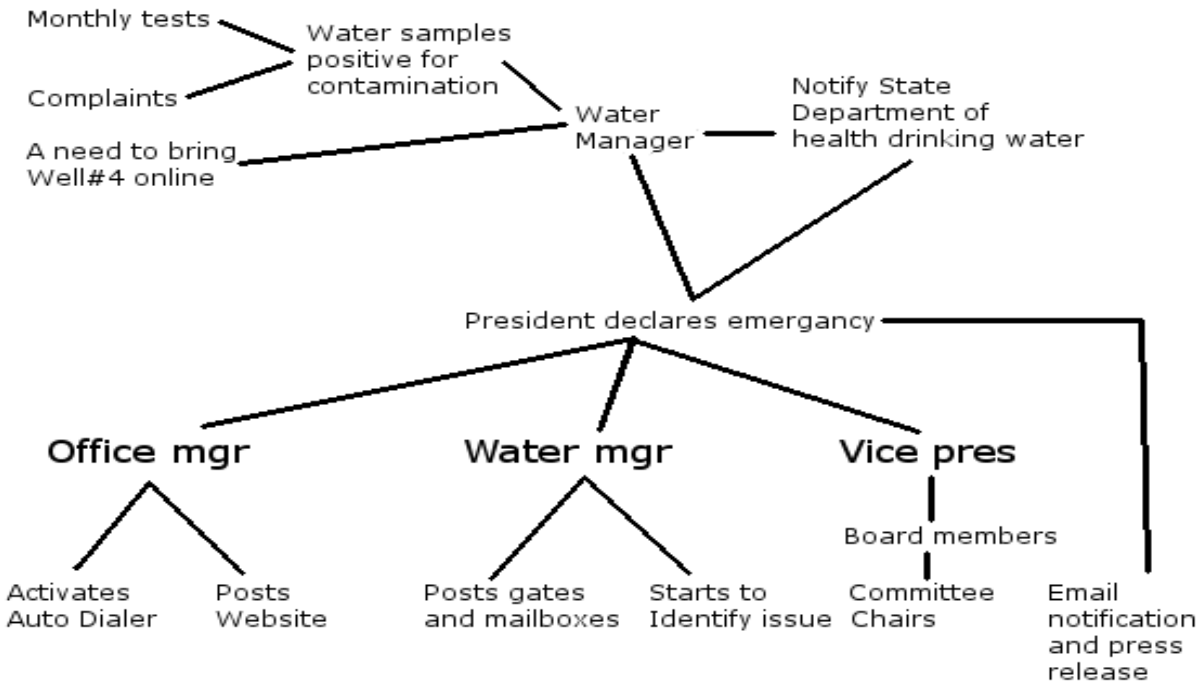
Emergency Response Plan Check List

		Yes	No	Response
Will Well #4 Need to be Run				This Well is contaminated and should be handled as if E-coil is present.
Is There a Contamination				
	Coliform?			Contact the State Department Of Health for the next step.
	E-coli?			Contact the State Department Of Health for the next step. Resource man power to notify all water consumers within 24 hours
What will need to be chlorinated?				
	Well # 1&2			Follow Well 1&2 Emergency Response Plan (chlorination)
	Well #4			Follow Well 4 Emergency Response Plan (chlorination)
	Reservoirs- is shock chlorination needed?			Follow Reservoir Emergency Response Plan (chlorination)
Flushing should be only used to remove a contaminate and not to pull or flush the chlorine though the system.				
	Hydrants			Follow Flushing Procedures-Hydrants
	Blow Off Valve(s)			Follow Flushing Procedures-Blow Off Valves.

Emergency Notification Process

1. **Notification** that there is an emergency this could be from the State DOH, Water management labs, Water manager, ect. Whomever receives the notification should notify the President and Water Manager.
2. **Identify** type of emergency
3. **Immediately notify the State Department Of Health** and determine a plan to contain or correct the emergency. At this time all pertinent staff, board, government officials, and volunteers should be contacted. (see Phone Tree below and Contact List on page 5)
4. **Establish a point person**, this will be the President(or acting president). This can be delegated to another person by the President. The point person will be responsible for coordinating the effort and should be the only person that will issue official statements to the media.



5. **Notify all water consumers** using one or more of the methods listed below. Note-In the case of dangerous drinking water **ALL METHODS MUST BE USED**. All messages that go out must be approved by the President or the person that has been assigned as the point person.
6. **Auto dialer**- This must be updated BEFORE the message is sent out and MUST contain all known renters (see attached for instructions).
7. **Postings at both gates and mailboxes**. These should be laminated for longevity.

8. **Notify the media**. In cases of dangerous drinking water the DOH (State Department Of Health) will help with this.
9. **Website notification**- this can be done by the office staff.
10. **Facebook or other social media**.

Contact List

Water/Maintenance		
Northwest Water Systems	Lydia Bower	(360) 876 - 0958
General Manager	Mitch Waterman	(360) 603 - 8845
Water/Maintenance Manager	Eric Hendrix	(360) 701-7886
Assist Water/Maint. Manager	Matt Whitten	(360) 894 - 0039
Maintenance		
Maintenance	Mike Crump	(360) 894-0282
Maintenance	Marvin Swinford	(360) 292-3077
Maintenance		
Board of Directors		
President	Malinda Poirer	(360) 894 - 0696
Vice President	Brian Gerrish	(360) 894 - 7945
Treasurer	Deborah Baker	(360) 894- 6535
Secretary	Alexa Burns	(360) 894 - 9771
Director	Lonny Bays	(360) 334 - 0319
Director	Tim Shute	(425) 213 - 2656
Director	Emily Martin	(901) 857 - 9975
Office		
Office Administrator	Racheal Page	(360) 349 - 2896
State Department Of Health Contacts		
Chemical Monitoring	Sophia Petro	(360) 236 - 3046
Coliform/Microbial Issues	Charese Gainor	(360) 236 - 3045
DOH Main information Line		(360) 236 - 3030
News Media		
KOMO TV/Radio		(206) 404 - 4000
KING 5 News		(206) 448 - 5555
Nisqually Valley News		(360) 458 - 2681
Emergency After Hours		(360) 894 - 2323
Front Office		(360) 894 - 2941
Office Fax		(360) 894 – 2497
Maintenance Shop		(360) 894 - 4187
Maintenance E-mail		maintenance @clearwood.org

Auto Dialer Procedures

Login Information

- Https://www.callfire.com
- Login is in the top right of the web page
- Clearwoodmaintenance@yahoo.com is the user name
- water13615u is the password.

Usine The Auto Dialer System

- Login to Callfire
- Click on the broadcasts button on the left side of the web page.
- Click on new voice broadcast button on the top left of the screen.
- Make sure the boxes for live answer and answering machine are the only ones checked.
- Under the live answer box click select a message button.
- Either select a premade message or create a new message.
  - If you need to create a new message click the create a new message button.
  - Click the text to speech button
  - Enter your message in the text box twice. This needs to be done twice just in case an answering machine pick up and cut off part of the beginning off.
  - Once you have the message typed hit play to hear how the message will sound like. Make any changes that are needed.
  - Once the message is complete hit the accept button.
- Select the same message for answering machine, or create a new one by following the steps above.
- Once both messages have been selected click next near the bottom left of the screen.
- Click choose lists, check the box(es) of the list(s) you want the calls to be made to, then hit submit. You will have to check the box "I agree to the terms of service" then click continue and complete upload.
- Click the continue button.
- On the caller ID box select a phone number you want to show up on the caller ID. If you need to add a number that is not on the list click new and follow the directions.
- Under Restrictions you can add a time frame on which the dialer will call during. Set this to meet the needs of the emergency.
- Under Automatic retry check the boxes busy and no answer. Set the minutes between retry to 60 and times to 1 unless otherwise directed.
- Under schedule check the start immediately box
- Click finalize, this will start the campaign.
- You can click "Visit campaign dash board" to see the progress.

Auto Dialer Update Procedures

Requirements for keeping the call lists up to date

- The Homeowner and Renter lists should be updated when changes are submitted. To provide the best chance in an emergency to reach as many customers as possible.
- Each billing cycle there should be and insert with the water bill soliciting owners to keep their and their renters contact information up to date with the office. The insert should read "Please Remember to Keep Your (And Your Renters) Phone Numbers Up To Date With The Office. If There Is An Emergency We Will Be Notifying You By Phone."
- Each quarter with the newsletter that goes out to Homeowner and registered renters there must be a section on the front page that will draw attention to it language that reads "Please Remember to Keep Your (And Your Renters) Phone Numbers Up To Date With The Office. If There Is An Emergency We Will Be Notifying You By Phone."

Updating the call list for Home Owners

- Log on Quickbooks on the front office computers. (you must be able to have access to Quick books).
- Click reports.
- Click on customers & receivables.
- On second drop down page click customer phone list.
- On the new window click excel.
- Click create new worksheet
- Click replace an existing worksheet
- Click browse
- Click Desktop and choose the "Callfire list"
- Click open
- Under select a sheet choose "Sheet 1"
- Click export
- On pop up window click yes
- Open up the file on the desktop named "Callfire list". Go through the list and make sure that all of the numbers are in the right format (xxx)-xxx-xxxx, xxx-xxx-xxxx, or xxxxxxxxxx. Remove any other information besides the number, and that these numbers are in column A.
- Save this completed file and make sure it is saved as a CSV-dos file located under save as type drop down menu.

Updating the call list for Renters

- The Rental list can be found on the sever under the start menu, This PC, Documents (//Server) (F:), Renter folder, "Renter phone numbers".
- Open up the rental list and select the column that has the phone numbers in it and copy it.
- Create a new excel spread sheet and paste that into column A.
- Go through the list and make sure that all of the numbers are in the right format (xxx)-xxx-xxxx, xxx-xxx-xxxx, or xxxxxxxxxx. Remove any other information besides the number.

- Save this completed file as Renters.CSV and make sure it is saved as a CSV-dos file located under save as type drop down menu.

Uploading the call lists into Callfire

- Log on to call fire. See Login Information
- Click contacts lists tab on the left side of the screen.
- Click on the list you would like to update
- Click on update
- Click choose a file and choose the file you want to upload. Once you have selected the file click continue.
- There will be a validation the will be done. If there are any errors click on the validation link and it will bring up a screen on how to handle these errors.
- Once this is done and you acknowledge the errors if any this list will be ready to use.

Wells 1&2 Emergency Response Plan (chlorination)

- Condition(s) such as the Distribution system or Well(s) 1 and/or 2 being a source of coli form or fecal contamination. If there is a emergency and Well 4 is put into operation it should be considered to be contaminated and should be handled as if E-coil is present. The Water Manager will instigate the Emergency Notification Process on page 3 of this plan. If either Well 1 and/or 2 is to remain on line, chlorination is required (see procedure on page 5 of this plan).

Start-Up Procedures

- During this procedure record water levels.
- Remove the lock out and tag out if there has been any placed on the Well that you are going to chlorinate
- Start the flushing out of the blow off valves, and watch for discolored water (brown slugs) after the last one has flushed out, continue flushing the Well for a minimum of a half an hour. If at any time more discolored water should be flushed out the half hour time will have to start again. This only needs to be done if the Well has been offline more than a week or the Well had a test sample with unsatisfactory results.
- During this flushing time you should also be setting up the sodium hydroxide system to inject chlorine into system via the caustic pump for the Well you are going to use and mix a batch of chlorine in the waste drum to be injected. The mixture should be 16 oz of sodium hypochlorite per 10 inches of water in the drum. Make sure this drum has been extensively cleaned.
- After the one half hour flush time, and the injector is set up. Go to the hydrant across the street and attach the blow off nozzle.
- Once the hydrant is open go back to Wells 1&2 and set the Well to pump and start the injection system. Start with a base line of 50% stroke and 50% speed on the injection pump.
- After a few minutes of running go across the street and start testing for chlorine. The target concentration should be 1 to 1.5 ppm of free chlorine. Some Adjustment might be needed on the injection pump to achieve these levels.
- While Wells 1 and/or 2 are online, daily test and record chlorine levels throughout the system. If at any time the free chlorine levels drop below .5 ppm or get above 2 ppm the levels must be adjusted.
- Make sure to check the level of the chlorine left in the Reservoir daily and remix if needed.

Shut Down Procedures

- Once the system is capable of supplying adequate safe drinking water to meet the water demand of the community. Two samples must be taken and have satisfactory results on any water source that has been off line for more than a week or that has had work performed on any part of it that comes in contact with drinking water.
- Stop chlorine injection and return the injection system back to normal operation
- Keep testing and recording residual chlorine levels until they are zero
- Collect samples- Must have two sets of five samples taken of different days with satisfactory results or whatever the DOH deems necessary.
- DOH lifts the boil water advisory.
- Notify users that the advisory has been lifted (Auto Dialer, Signs at Gates, Facebook)

Well 4 Emergency Response Plan (chlorination)

- Condition(s) such as Well(s) 1 and/or 2 failure or low aquifer or a natural disaster requiring the use of Well 4 will be identified by the Water Manager. This Well is contaminated and should be handled as if E-coil is present. The Water Manager will instigate the Emergency Notification Process on page 3 of this plan. If either Well 1 and/or 2 is to remain on line, chlorination is required (see procedure on page 5 of this plan).

Start-up procedures

- Remove Well 4 lock out and tag out
- Ensure that the cla-valves are set to flush the water out behind the Well house 4. Note, both of the small valves connected to the cla-valves should be in the closed position.
- Start flushing, watch for discolored water (brown slugs). Once the water has cleared (no more brown slugs) continue flushing for at least one hour. Note, that if at any time more discolored water appears continue flushing for an additional hour.
- Once the water has cleared and while the system is flushing begin the process of setting up the sodium hydroxide system to inject chlorine into the system via the caustic pump as follows;
  - Extensively clean the caustic system waste drum.
  - Mix 16 oz of sodium hypochlorite for every 16 inches of water in the clean caustic waste drum.
- Once the flushing time is complete and the injector is ready, open the hydrant on top of hill and attach the blow off nozzle.
- Set the Well 4 pump to pump up the hill by putting both small valves in the open position.
- Start the injector system with a base line of 50% stroke and 50% speed on the injection pump.
- Allow the system to run for a few minutes then start testing and documenting the chlorine levels. The target concentration should be 1-1.5 ppm of free chlorine. Note, the injector pump may need to be adjusted to achieve these levels.
- Once the target concentration of chlorine has been achieved slowly open the valve at the top of the hill to the system. Once the valve is fully open shut down the hydrant.
- While Well 4 is on line daily test and record the chlorine levels in the system. If the levels drop below .5ppm or go above 2ppm the levels must be adjusted.
- Daily be sure to check that the caustic waste drum has adequate levels of chlorine.
- Note; Boil Water Advisory must be maintained until Well 4 is no longer in use and the shut down procedures have been successfully completed.

Shut Down Procedures

- Any source that has been off for more than a week and/or that has had repairs/maintenance performed on any part that comes in contact with water must have two samples that have satisfactory results prior to supplying water to the system.
- Stop chlorine injection, lock out and tag out Well 4.
- Close the valve on top of the hill at Well 4.
- Test chlorine levels in the system until they are zero.
- Collect samples
- Need 2 sets of five samples taken on different days that with satisfactory results or whatever the DOH deems necessary.
- DOH lifts the boil water advisory.
- Notify users that the advisory has been lifted (Phone messaging system, Signs At Gates, Facebook**)**

Reservoir(s) Emergency Response Plan

Access

- The Weyerhaeuser key and "C" master lock key are located at the Maintenance shop on a hook on the book shelf
- The Weyerhaeuser locks should be should be locked back onto the gate then gate shut. At no point should you be up at the Reservoirs and have the gate locked so they cannot be opened. This way it will keep people from driving in and getting locked in accidentally, but still allow emergency crews to the reservoir in case of emergency.
- Exit the back gate of Clearwood and take a left on Baldhills road.
- 200 feet down the road there will be a dirt road off to your RIGHT and a gate.
- Open this gate proceed through and relock the lock back onto the "T" bar and shut the gate.
- Proceed down the dirt road until the first gate on your left enter this gate the same way as the first.
- Proceed up the hill to the tanks on your left. The locks to access the reservoir and all the locks inside are all the "C" masterlock key.

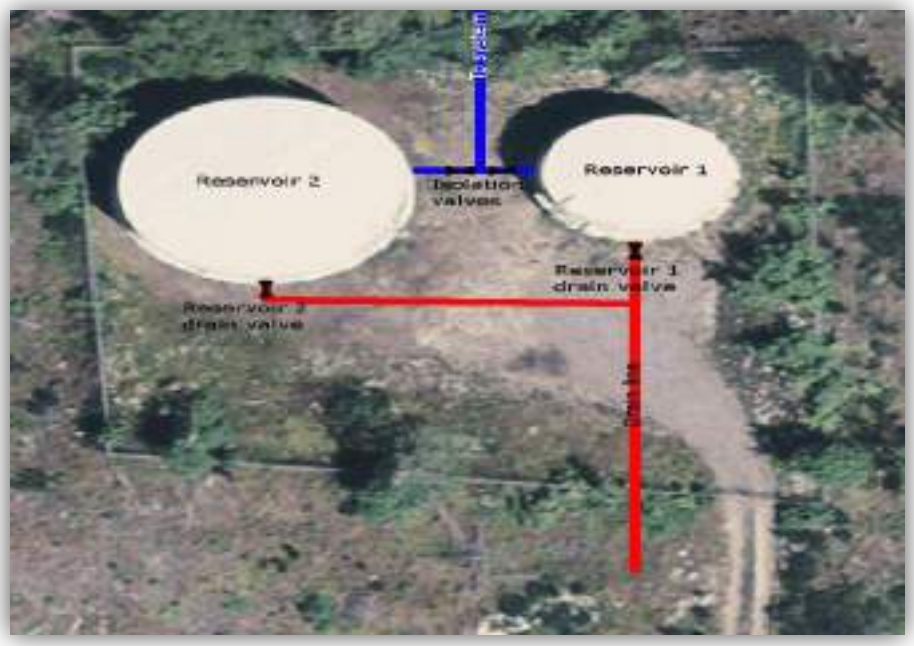
Chlorination

- In the case the Reservoirs need to be chlorinated the Reservoirs should be as low as possible but not go below 10 feet of static height. The lower the Reservoir is the better mixing effect it will have.
- Before going below the 14 foot mark you will have to go to Well 1 & 2 and set the low alarms to the 9.5 foot level so the alarm will not call prematurely. Also set the Wells pumps to start at 10 feet and shut off at 11 feet until you are ready to fill.
- Once the water levels have reached their lower levels set the active Well to start to fill the Reservoirs. Set the pump start levels to 14 feet and the pump shut off levels to Well 1 to 23 feet and Wells 2 & 4 to 23.5 feet. As the Wells are pumping go up to the Reservoirs and access the top hatched to the Reservoirs. You will need the Weyerhaeuser Keys located at the maintenance shop, ladder, rope and the bleach.
- Use only Clorox unscented bleach. The calculations are based on a yield of 5.7% chlorine.
  - For a 1 ppm dose Reservoir 1 needs 3.2 gallons Reservoir 2 needs 8.4 gallons
  - For a 2 ppm dose Reservoir 1 needs 6.4 gallons Reservoir 2 needs 16.8 gallons
  - 2ppm should be a strong enough dose to kill most contaminates. For any higher dose take the 1ppm dose and multiple by desired ppm.
  - If the dose needed exceeds 4 ppm see Shock chlorination (Above 4 ppm)
- Once the Reservoirs are filled let the chlorine be pull though the system under normal use unless the DOH directs otherwise. Flushing should be only used to remove a contaminate and not to pull or flush the chlorine though the system. We have found that trying to pull it though the system caused problems.

Shock chlorination (Above 4 ppm)

- Supplies needed:
- bleach
- Weyerhaeuser gate keys (located at the shop)
- 2" valve key
- 8' ladder
- 40' feet of rope

- Once you have gathered all you supplies head up to the Reservoirs which are located outside the back gate. (See Reservoir Access)
- In the case both Reservoirs need to be chlorinated the Reservoirs should be as low as possible but not go below 10 feet of static height. The lower the Reservoir is the better mixing effect if will have.
- Before going below the 14 foot mark you will have to go to Well 1 & 2 and set the low alarms to the 9.5 foot level so the alarm will not call prematurely. Also set the Wells pumps to start at 10 feet and shut off at 11 feet until you are ready to fill.
- Once the water levels have reached their lower levels set the active Wells to start to fill the Reservoirs. Set the pump to hand to make sure that the reservoir will over flow instead of drain back into the system. As the Wells are pumping go up to the Reservoirs and access the top hatched to the Reservoirs. You will need the Weyerhaeuser Keys located at the maintenance shop, ladder, rope and the bleach.
- Locate the isolation valve for the Reservoir(s) that you will not be chlorinating first. (see attached picture below) remove the lid (painted blue) and turn valve clock wise till fully shut and back off 1/4 turn.



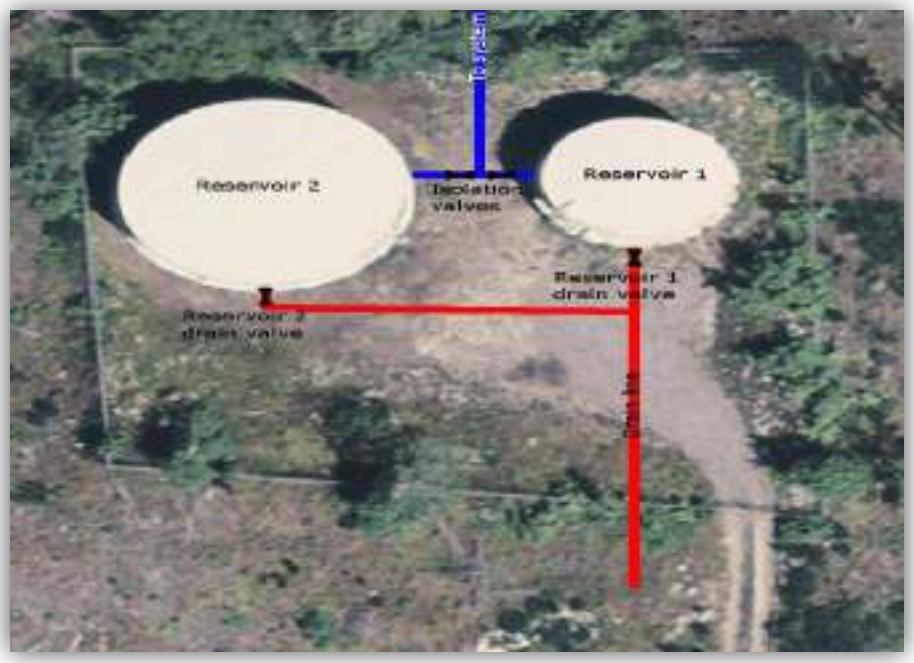
- Once the tank has been isolated from the system you have to turn the valve off that the telemetry uses to monitor the level of water in the tanks. These are located in the cabinet located on the outside of reservoir 1. Turn the valve off for the tank that needs isolation. (see picture below)

- As the reservoir is filling add the chlorine, Use only Clorox unscented bleach. The calculations are based on a yield of 5.7% chlorine. For every 1 ppm dose Reservoir 1 needs 3.2 gallons Reservoir 2 needs 8.4 gallons.
- AT NO TIME CAN THIS WATER BE ALLOWED TO FLOW BACK INTO THE SYSTEM. Once filled isolated the reservoir from the system and allow contact time.
- The cathotic protection systems will have to be turn off by switching off the main breaker.
- Once It has had enough contact time dump the reservoir out of the drain valve.

- Once the reservoir has drained Set Well 1 and 2 to run. You will need to leave one person here to monitor the pressures in the system. During the filling process great care need to be taken in monitoring the water level in the filling reservoir. Until it reaches normal operational range the system will be susceptible to large spikes in water usage, such as fire flow or a spike in normal usage. If at any time there ceases to be a positive flow of water into the reservoir you MUST open the other reservoir. If this does happen the process needs to be repeated.
- During the filling process monitor the chlorine levels. The ending result should be no more than 4ppm or less than 1ppm of free chlorine. If the chlorine level exceeds 4ppm after the tank is filled to capacity let the tank over flow until the level drops below 4 ppm. If the level drop below 1 ppm while filling add more till you reach 1ppm.
- Once the first Reservoir is full repeat with the second reservoir if needed. At no time should a clean reservoir be online with a contaminated one. To avoid this the reservoir changed with the well running and someone monitoring pressures. First isolate the clean tank then open the contaminated one to start the filling/chlorination process.
    - Once both tanks are disinfected and are between 1ppm and 4 ppm follow the neutralizing guide. (see Neutralizing The Chlorine In The System)

Cleaning

- Supplies needed:
  - 2 - 1 1/4 inch box wrenches
  - Pressure washer, hoses and wand
  - Garden hose
  - bleach 3 gallons for reservoir 1 6 gallons for reservoir 2.
  - Safety goggles
  - Respirator with chemical rated filters
  - Rain suit
  - Weyerhaeuser gate keys (located at the shop)
  - 2" valve key
  - A pan big enough to disinfect your shoes
  - 8' ladder
  - 5 gallon gas can
- Only 1 reservoir should be isolated and cleaned at a time. 1 reservoir MUST be left in operation to be able to supply water and fire flow to the community.
- Once you have gathered all your supplies head up to the Reservoirs which are located outside the back gate. (See Reservoir Access)
- Locate the isolation valve for the Reservoir(s) that you will need to clean. (see attached picture below) remove the lid (painted blue) and turn valve clock wise until fully shut and back off 1/4 turn.



- Once the tank has been isolated from the system you have to turn the valve off that the telemetry uses to monitor the level of water in the tanks. These are located in the cabinet located on the outside of reservoir 1. Turn the valve off for the tank that needs isolation. (see picture below)

- The cathotic protection systems will have to be turn off by switching off the main breaker.
- Open up the drain valve and fully drain the reservoir (see above picture for location)
- Once the reservoir is empty open all 3 hatches on the reservoir. The hatch on the tank just needs a key to open. The 2 lower hatches will need to have all the bolts taken off to be opened. Be careful to not damage or allow the gasket to come in contact that can contaminate it.
- **<u>At no time should anything or anyone enter the reservoir without disinfecting any of their surface that will come in contact with surfaces inside the reservoir.</u>**
- Bleach the pressure washer hoses and wand. Set these inside the reservoir
- Connect the hoses to the pressure washer and the end of the garden hose to the spigot located inside the cabinet located on reservoir 1
- Set up the chemical feed system on the pressure washer and make sure the chemical feed knob is set fully open.
- Install the black chemical feed tip into the end of the wand.
- Fill the tray 3/4 of the way up in front of the hatch to be able to disinfect your boot before entering the tank.
- Put on your protection equipment: Goggles, respirator, and rain suit.
- Stand in the tray with the beach and make sure that the bottoms of your boots are disinfected.
- Enter the tank.

- Connect the wand to the pressure washer hose and hold the handle down on the wand
- Have the person outside turn the water on at the spigot and let the air purge from system.
- Once all the air is out while still holding the trigger down start the pressure washer but turning on the kill switch and choke. Pull the start cord until it starts. After a few seconds of warm up slowly turn the choke off.
- Starting at the top of the tank and working down the goal is covering every square inch of the interior. Once you get to the floor you should work from the furthest part of the floor towards the drain trying to get most of the water into the drain as possible.
- Once clean close the drain valve and pour bleach for a 2 ppm dose to the floor of the tank. (see Reservoir(s) Emergency Response Plan Chlorination)
- Close the hatches and install the gasket after disinfecting it.
- install the bolts and tighten them down in a star pattern.
- Set Well 1 and 2 to run. You will need to leave one person here to monitor the pressures in the system. The pressures should stay between 40 and 80 psi. This can be done by cycling well 1 on and off. Well 2 should only be used if well 1 cannot keep the pressure about 40 psi. Caution must be taken to not cause a water hammer effect, if possible the cycling of the well should only be done once the pressure has stabilized.
- If the other reservoir is believed to be contaminated and needs to be shock chlorinated close that reservoir off and open the clean tank and let fill. Once the clean tank is back in normal operational range follow the same steps for the contaminated reservoir. If the other reservoir is not believed to need shock chlorination add chlorine to the this reservoir for a 2ppm does then open the cleaned reservoir. (see Reservoir(s) Emergency Response Plan Chlorination)
- During the filling process great care need to be taken in monitoring the water level in the filling reservoir. Until it reaches normal operational range the system will be susceptible to large spikes in water usage, such as fire flow or a spike in normal usage. If at any time there ceases to be a positive flow of water into the reservoir you MUST open the other reservoir. If this does happen the process needs to be repeated.
- Once the first reservoir is within normal operational range if needed you can start cleaning on the other reservoir.
- During this process the chlorine level should be monitored. The ending result should be no more than 4ppm or less then 1ppm of free chlorine. If the chlorine level exceeds 4ppm after the tank is filled to capacity let the tank over flow until the level drops below 4 ppm. If the level drop below 1 ppm while filling add more bleach till you reach 1ppm.

- Once both tanks are back online go back to normal operation. If needed set chlorine to be injected at the wells. (See Wells 1&2 Emergency Response Plan (chlorination) or Well 4 Emergency Response Plan (chlorination)).
- If additional chlorine is not needed please follow, Neutralizing The Chlorine In The System

Neutralizing The Chlorine In The System

- Normal use of the system will dissipate the chlorine naturally. Once the chlorine has had contact time with the system take the chorine injection system offline and do not add more chlorine to the Reservoirs. Set Well 1, 2 & 4 to start pumping at 14 feet and turn off Well 1 at 23 feet Well 2&4 at 23.5 feet. This will give a good turnover rate and help dissipate the chlorine left in the system
- Once the level of chlorine has gone down below detectable levels set the Wells back to normal operation.
- Do not add a neutralizing agent to the Reservoirs. This will just sit on the bottom of the Reservoirs for weeks and make any further attempt to chlorinate the system almost impossible.

Flushing Procedures

Hydrants

- You will need the flow gauge, hydrant wrench and the laptop to log the flushing. Flow, time and pressure should be logged.
- While flushing the hydrant you MUST try to direct the flow of the water in the direction where it will have the least damage. Always be aware of where the water is flowing and pay attention if the water is going somewhere it could cause damage.
- The hydrant should be flushed for a minimum of 10 minutes after the last discolored water and air has been flushed though. If any discolored water or air is noticed the time must be reset.
- If the flushing is being used to pull Chlorine though the system keep flushing until the desired ppm is obtained.
- After flushing is completed shut off the hydrant and be sure that the hydrant is fully closed and not leaking. Make sure to inspect where the water has discharged and repair any damage.

Blow-Off Valve(s)

- You will need a fire hose, pipe wrench, a nozzle, and an adapter. Time must be logged.
- While flushing the Blow-Off valve(s)you MUST try to adjust the flow of water to where it will cause the least damage. Always be aware of where the water is flowing and pay attention if the water is going somewhere it could cause damage.
- The Blow-Off Valve(s) should be flushed for a minimum of 5 minutes after the last discolored water and air has been flushed through. If any discolored water or air is noticed the time must be reset.
- If the flushing is being used to pull Chlorine though the system, keep flushing until the desired ppm is obtained.
- After flushing is complete, shut-off the Blow-Off Valve(s) and be sure that the hydrant is fully closed and not leaking. Make sure to inspect where the water has discharged and repair any damage.

Emergency Response

This section includes the following information:

Emergency Response Plan **1**
Provides phone lists for emergency contacts and response actions for specific events.

Water Shortage Plan **2**
Provides a framework for establishing voluntary and mandatory water use restrictions if the water system experiences a water shortage due to a natural disaster or other unplanned event.

A quick reference list for emergency contacts is provided below. A longer list with additional contacts is provided in the Emergency Response Plan (Part 2).

Emergency Contacts	Phone
Northwest Water Systems	360-876-0958
Fire/Police/Emergency	911
Thurston County Environmental Health	360-867-2500
Washington DOH SWRO	360-236-3030
Washington DOH Coliform Manager	360-236-3045
Washington DOH Emergency Hotline (24-hour)	877-481-4901
Electrical utility: PSE	888-225-5773
Pump repair: Tacoma Pump and Drilling	253-847-9352
Electrician: STMA Electrical	360-400-8658
Engineer: Northwest Water Systems, Inc. (NWS)	360-876-0958

Describe what you will do if the following emergencies happen to your system:

Power outage	Contact PSE
Well pump failure	Contact Tacoma Pump and Drilling
Water line break	Isolate. Contact Northwest Water Systems
Electrical problem	Contact STMA Electrical
Coliform MCL violations	Post notice, take additional samples

DOH Notification requirements

Many of the actions described in this plan must accompany notification of the Washington State Department of Health (DOH). DOH may provide additional technical assistance beyond the scope of this emergency response plan. See Section 10 for a list of responses which includes DOH notification requirements.

Emergency Response Plan

Section 1: Emergency Response Mission and Goals

Statement: Safe and reliable drinking water is vital to every community. Protecting the water supply is a high priority. Preparing for emergencies is a vital step to maintaining these priorities.

Goal #1: Understand and organize a communication network.
Goal #2: Determine the possible emergencies and likelihood of occurrence.
Goal #3: Establish appropriate levels of security.
Goal #4: Evaluate alternative sources of water and the viability of each.

Section 2: System Information

System ID Number	13615 U
System Name and Address	Clearwood Water System 21603 **N** Clearlake Blvd SE Yelm, WA 98597
Directions to system	From E Yelm Ave and 1st St NE, continue SE on SR 507, turn right on Bald Hill Rd SE. Bald Hill Rd SE will tee with Lawrence Rd SW, turn left to continue on Bald Hill Rd SE. Follow Bald Hill Rd SE for 4.8 miles until a sign for Clearwood Community Association and turn left onto N Clear Lake Blvd SE. The office is on the right-hand side.
Basic description and location of system facilities	The Clearwood water system has 2 active wells. There are two reservoirs located on the very south end of the community near the intersection of Bald Hill Rd and Weyerhaeuser Truck Rd SE.
Location or Town	12 miles SE of Yelm, WA
Population served and number of service connections	2,250 people 11,342 connections
Name of system owner or person with primary responsibility	Clearwood Community Association
Name, title, and contact information of person responsible for implementing the emergency plan	Northwest Water Systems

Section 3: Chain of Command - Lines of Authority

Name	Title	Responsibility	Phone Number
Northwest Water Syst.	System Manager General Manager	- Manages the emergency - Performs inspections, maintenance, and sampling - Relays critical information - Assesses facilities - Delivers door hangers or delegates someone to complete this if needed	360-876-0958
Malinda Poirer	Board President	- Provides information to regulatory agencies, the public, and news media - Approves all communications to external parties -	360-894-0696
Racheal Page	Office Admin	- Receives phone calls and keeps a log of events - Provides a standard, scripted message to those who all with general questions	360-894-2941

Section 4: Events That Cause Emergencies

[1] Type of Event	Probability or risk (High, Medium, Low)	Comments
Earthquake	Medium	System is in an area that is vulnerable to earthquakes.
Flood	Low	Floods are of low concern.
High Winds	High	System is vulnerable to high winds and possible trees falling
Ice Storm	Low	Unlikely
Drought	Medium	Be aware of decreased well yield during dry summers
Terrorism/Vandalism	Low	Check security measures (locks) regularly.

Section 5: Severity of Emergencies

Definitions and Descriptions
Level I: Minor failure, failure which requires mechanical repairs or replacement, will not take more than one day and water quality is not affected
Level II: Major failure, requires costly mechanical repairs or replacement, will not take more than a week and water quality is not affected
Level III: Catastrophic correctible failure, water source cannot be used, but corrections can be made and the water system will be usable in the foreseeable future. Alternative sources may or may not be sought
Level IV: Catastrophic uncorrectable failure, water source will not be able to be used in the foreseeable future if at all. Source is abandoned and alternatives are sought.

Section 6: Emergency Notification

Local Notification List	Day	Evening
Police/Fire/Ambulance/Imminent Risk	911	911
Local Health Jurisdiction: Thurston County	360-867-2673	360-867-2500
Water Testing Laboratory: Water Management Laboratory Inc.	253-531-3121	
Local Emergency	911	911
Water System Operator: Northwest Water	360-876-0958	360-876-0958
Neighboring System: Single Tree Estates	360-878-0214	253-212-5433
System Owner Rep: General Manager	360-603-8845	360-603-8845
News Media Contact: General Manager	360-603-8845	
Engineer: Northwest Water Systems	360-876-0958	360-876-0958

State Notification List	Day	Evening
State Police	360-273-1034	911
Division of Drinking Water Regional Office	360-236-3030	
State Testing Laboratory	206-418-5400	
DOH Regional Engineer	360-236-3030	
DOH Coliform	360-236-3045	
24-hr DOH Emergency Number	877-481-4901	877-481-4901
DOE Spill Response	253-395-6750	
Call Before You Dig	800-424-5555	800-424-5555

Service/Repair Notification List	Day	Evening
Electrician: STMA	360-400-8658	
Electric Utility: PSE	888-225-5773	
Pump Specialist: Tacoma Pump and Drilling	253-847-9352	253-847-9352

Notification Procedures	Who is Responsible	Procedures
Notifying customers	Manager/Board President	Door to door, telephone, or fliers to all
Alerting law enforcement, DOH, and local health authority	Manager/Board President	Telephone communications of the nature of emergency and assistance required.
Contacting service & repair contractors	Manager	Telephone communication of the services required.
Contact neighboring water systems, if necessary	Manager/Board President	Telephone communications of the nature of the emergency.
Procedures for issuing a health advisory	DOH and Manager	Door to door, telephone, or fliers to notify all in the area.
Other procedures, as necessary	Manager/Board President	Decisions based on situation.

Section 7: Water Quality Sampling

Water sampling	Basic steps to conduct sampling
Coliform	See Coliform Monitoring Plan, depending on emergency sample all sources
Nitrate/Nitrite	Flush tap 10 minutes, fill 1 cube container, get to lab within 24 hours
Total organic carbon	See sampling techniques provided by lab or water system manager
Total halogenated organic carbon (TOX)	See sampling techniques provided by lab or water system manager
Cyanide	Flush tap 10 minutes, fill 1 cube container, get to lab within 24 hours

Section 8: Effective Communication

Designated public spokesperson: Manager or current Board President

Develop possible messages in advance and update them as the emergency develops:

> Our water system has experienced a failure. The proper authorities have been notified and professionals are evaluating the situation as I am speaking. As I do not currently have all the necessary information available, I will refrain from comment at this time until a complete evaluation of the situation has been made. Thank you for your time and your concern, and I will inform you of any information I receive.

Section 9: Vulnerability Assessment

	Description	Vulnerability	Mitigating Actions	Security Improvements
Sources	Wellheads located on private property	Low	Fence surrounding wellhead and 24 hour recorded video surveillance	Secure
Storage	Locked reservoir hatch and surrounding fence	Low	Locked and alarmed hatches, locked fence with razor wire, and 24 hour recorded video surveillance	None
Treatment	Sodium hydroxide addition for corrosion control	Low	Fence surrounding building, locked doors, 24 hour recorded video surveillance	None
Pumphouses	Inside Pumphouse	Low	Fence surrounding building, locked doors, 24 hour recorded video surveillance	Alarm

Section 10: Response Actions for Specific Events

In any event, there are a series of general steps to take:

1. Confirm and analyze the type and severity of the emergency.
2. Take immediate action to reduce injuries, save lives, and prevent system damage.
3. Make repairs based on priority demand.
4. Return your system to normal operation

The following table identifies the assessment, set forth immediate response actions, define necessary notifications, and describe important follow-up actions.

Emergency		Action
Short Emergency Power Outage	Assessment:	Short term
	Immediate Actions:	Determine if or when the generator is needed to fill the tanks
	Notifications:	Notify users if issues arise
	Follow-up Actions:	Restore to normal operations
Extended Emergency Power Outage	Assessment:	Long term
	Immediate Actions:	Determine if or when the generator is needed to fill the tanks. Secure a company to fill the propane tank
	Notifications:	Notify users if issues arise
	Follow-up Actions:	Restore to normal operations
Waterline Break	Assessment:	Requires repair
	Immediate Actions:	Call emergency locate. Excavate and repair
	Notifications:	Notify affected residents and inform of progress
	Follow-up Actions:	Flush and sample as needed
Pump Failure	Assessment:	Requires repair
	Immediate Actions:	Try to determine cause of failure. If no cause can be found, call for repair
	Notifications:	If severe, contact board president. If possible water shortage, notify residents and DOH as needed.
	Follow-up Actions:	Flush and sample as needed
Microbial Contamination	Assessment:	Variable
	Immediate Actions:	Contact DOH and follow their plan
	Notifications:	Follow coliform monitoring plan, notify DOH, Board of Directors, and residents
	Follow-up Actions:	Flush and sample as needed, per DOH requirements
Chemical Contamination	Assessment:	Identified surface contamination
	Immediate Actions:	Contact DOH and follow their plan. Possible hazmat may need to be called in. If safe, set up a containment zone
	Notifications:	Notify DOH, Board of Directors, residents, and possibly hazmat
	Follow-up Actions:	Flush and sample as needed, ensure safety
Chemical Contamination	Assessment:	Contaminations due to testing
	Immediate Actions:	Contact DOH and follow their plan. Try to locate the possible sources of contamination
	Notifications:	Notify DOH, Board of Directors, residents, and possibly hazmat
	Follow-up Actions:	Flush and sample as needed, ensure safety
Vandalism/Terrorism	Assessment:	Variable
	Immediate Actions:	Determine the extent of damage and if there is any public health risk
	Notifications:	Notify Board of Directors. If public health risk, notify DOH and affected residents
	Follow-up Actions:	Flush and sample as needed, ensure safety

Reduction or loss of pressure	Assessment:	Variable
	Immediate Actions:	Determine what causes the reduced or loss of pressure. If there is a public health risk, notify DOH, Board of Directors, and affected residents.
	Notifications:	Notify Board of Directors. If public health risk, notify DOH and affected residents
	Follow-up Actions:	Flush and sample as needed, ensure safety
Drought	Assessment:	Normal year rain fall is far less than normal or aquifer levels are dropping below season normal
	Immediate Actions:	Assess if water restriction will need to be instituted
	Notifications:	DOH, Board of Directors, and residents
	Follow-up Actions:	Continue to monitor rainfall and aquifer levels until they have returned to normal seasonal levels
Minor Earthquake	Assessment:	Minor seismic activity
	Immediate Actions:	Assess any damage to the wells or tanks. Repair leaks as they arise, monitor leakage.
	Notifications:	Notify Board of Directors. If public health risk, notify DOH and affected residents
	Follow-up Actions:	Flush and sample as needed. Leak detection may need to assess remaining leaks.
Major Earthquake	Assessment:	Major seismic activity
	Immediate Actions:	Assess any damage to the wells or tanks. Depending on severity of damage, sections may need to be isolated. The mains between the wells and tanks are first priority. Repair leaks as they arise, monitor leakage.
	Notifications:	Notify Board of Directors. If public health risk, notify DOH and affected residents
	Follow-up Actions:	Flush and sample as needed. Leak detection may need to assess remaining leaks.
Hazardous Materials	Assessment:	Identified surface contamination
	Immediate Actions:	Contact DOH and follow their plan. Possible hazmat may need to be called in. If safe, set up a containment zone.
	Notifications:	Notify DOH, Board of Directors, residents, and possibly hazmat
	Follow-up Actions:	Flush and sample as needed
Electronic Equipment	Assessment:	Requires repair
	Immediate Actions:	Try to determine the cause of failure. If no cause can be found, call for repair.
	Notifications:	If severe, contact board president. If possible water shortage, notify residents and DOH as needed.
	Follow-up Actions:	Flush and sample as needed.
Major Forest Fire	Assessment:	Major forest fire may threaten Clearwood
	Immediate Actions:	Set the tank limits to turn off at 23.5’ and start at 22.5’ to maximize the available water in the tanks. If the power is already out or it may go out, set the generator to automatic.
	Notifications:	Board of directors, residents
	Follow-up Actions:	Assess for damage, return to normal operation if possible.

Section 11: Alternative Water Sources

Water systems within one-quarter mile	Feasibility of connecting
Single Tree Estates	Permanent well produces 160 gpm, there is no storage. A transmission line would need to be installed.

Alternative Sources	Name	Well ID	Treatment
Clearwood Well 4	S05	AEC890	Chlorination Required

Section 12: Curtailing Water Usage

Water Curtailment Measure	Actions
Inform residents prior to an emergency situation to voluntarily reduce usage	Pass out pamphlets on how water can be saved with letters of concern
Check water meters and investigate possible system leakage	Call repair facility to fix any problems.
Limit or discontinue community usage.	Discontinue all community property irrigation and filling of swimming pool.
Actively pursue a water curtailment plan, ask residents for ideas, decide on enforcement	Write plan down and distribute to residents. Water Manager will coordinate with Board President to develop plan.
Enforce water curtailment plan, determine usage limitations	Make observations and suggestions, write and collect fines
Examine alternative sources and determine viability	Contact neighboring facilities to determine availability

Section 13: Returning to Normal Operation

Action	Description and actions
Ensure equipment is operational	Physically inspect rotating equipment, water leaks
Check incoming voltage	Use multimeter and check incoming voltage
Check system pressures	Inspect pressure switch and ensure the on and off pressures correlate with the gage
Inspect, flush, and disinfect system	Manager and support staff will flush and disinfect system as necessary.
Perform water samples	Draw water samples and deliver to testing laboratory
Coordinate with WSDOH	Manager coordinates with the WSDOH on system conditions and water quality results.
Restore system to normal	Inform residents of full operational capacity

Section 14: Training

Water system manager	Trained on proper sampling techniques and basic mechanical knowledge to determine extent of problem
Water system manager	Expected to be the immediate responder and make proper decisions on what to do
Field support	Trained on the existing equipment and be available for repair response
Administrative support	Trained on giving information and documentation of incidents and accidents

Section 15: Plan Approval

This plan is officially in effect when reviewed, approved, and signed by the following:

Name and Title	Signature	Date
Northwest Water Systems Water System Manager		
Malinda Poirer Board President		

Water Shortage Plan 2

Section 1: Events that Cause Water Shortages

Event	Probability or Risk (High – Med – Low)	Immediate or Anticipated Event	Comments
Drought	Low	N/A	Drought is not common in this area.
Earthquake	Medium	Immediate	Earthquake is possible.
High Winds	Medium	Anticipate	System is vulnerable to high wind events. Power is disrupted.
Water Contamination	Low	N/A	Sources are regularly monitored for contaminants
Inadequate planning to meet demand	Low	N/A	A practice of conservative planning. The system has drilled a new source to meet build-out system demands.
Shallow Wells	Low	N/A	Well does not have trouble meeting demand.
Inadequate pumping equipment	Low	N/A	Pumps are adequate for demand.
Seawater Intrusion	Low	N/A	Monitor chloride concentrations and practice of conservative planning.
Water waste	Medium	Anticipate	Regular monitoring of DSL.

Section 2: Supply and Demand Evaluation

Source ID	Well Depth	Pump Size	Water Right Info	Notes
S01	89 ft		Qi= 100 gpm Qa=160 afy	
S02	87 ft		Qi= 425 gpm Qa=529.2 afy	
S04	70 ft			No longer in use due to iron metabolizing bacteria
S05	146 ft		See S02	No longer in use, connected to surface water

# Services	Estimated average gallons per day from source	Estimated peak day gallons per day from source	Estimated average gallons per day used per residence	Estimated peak day use per residence
1,342	186,538 gpd	681,736 gpd	139 gpd/ERU	508 gpd/ERU

Section 3: Defining Stages and Criteria of a Water Shortage

Stage I: Minor Shortage Voluntary Measures	Reducing water consumption during a potential or actual water shortage
Stage II: Moderate Shortage- Mandatory Measures	Mandatory demand reduction during an actual water shortage
Stage III: Severe - Rationing Program	Institute rationing program during long periods of drought without causing hardship

Section 4: Alternate Water Sources

Water Systems within ¼-mile	**Feasibility of Connecting**
Single Tree Estates	As there is not existing intertie, water could be transported from Single Tree Estates to Clearwood.

Switching to a Back-up Well	**Well ID**	**Required testing before bringing on-line**	**Special considerations and procedures**
Well #4	AEC890	Satisfactory Coliform sample	A boil water advisory would be issued and DOH notification.

Section 5: Effective Communication

In the event of a water shortage, the following message may be used to communicate a need for reduced water use:

> *The potential exists for a less-than-normal water supply. We have taken the precaution of issuing a mandatory reduction in water use effective immediately. Please use water wisely during this time. Options for alternative water sources will be explored.*

Section 6: Demand Reduction Alternatives

Water Conservation Measures	**Actions necessary for implementation**
Voluntary Program - Limit water use.	• Prepare and post water conservation information at entrances to community

Section 7: Demand Reduction Alternatives

Stage	**Criteria**	**Actions**	**Implementation**
1	Potential water shortage	Reduce water consumption	Implement voluntary water use reductions, initiate a public information program
2	Actual water shortage	Mandatory demand reduction	Reduce water use for main flushing. Irrigation prohibited. Reduce in-house water use.
3	Periods of long drought	Institute rationing program	All public water uses not required for health or safety prohibited.

WATER WELL REPORT
STATE OF WASHINGTON

The Original and First Copy with the Division of Water Resources
Second Copy — Owner's Copy
Third Copy — Driller's Copy

Application No. 7852
Permit No.

(1) OWNER:
Name Weyerhaeuser Properties, Inc.
Address Tacoma, Washington 98401

(2) LOCATION OF WELL: SE¼ SW¼
County Thurston Owner's number, if any: 7852
~~Govt. lot~~ Section 31 T. 16N R. 3E W.M.
Bearing and distance from section or subdivision corner
1500' East and 1000' North of the southwest corner of Section 31

(3) TYPE OF WORK (check):
New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 11.

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

(5) TYPE OF WELL:
Rotary ☐ Driven ☐
Cable ☒ Jetted ☐
Dug ☐ Bored ☐

(6) CASING INSTALLED: Threaded ☐ Welded ☒
8 " Diam. from 0 ft. to 60 ft. Gage
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(7) PERFORATIONS: Perforated? ☐ Yes ☒ No
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(8) SCREENS: Well screen installed ☒ Yes ☐ No
Manufacturer's Name Johnson Well Screen Co.
Type S. Steel Model No.
Diam. 8" Slot size 60 Set from 60 ft. to 81 ft.
Diam. Slot size Set from ft. to ft.

(9) CONSTRUCTION:
Was well gravel packed? ☐ Yes ☒ No Size of gravel:
Gravel placed from ft. to ft.
Was a surface seal provided? ☐ Yes ☐ No To what depth? ft.
Material used in seal—
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? Depth of strata
Method of sealing strata off

(10) WATER LEVELS:
Static level 48.7 ft. below land surface Date 10-21-65
Artesian pressure lbs. per square inch Date
Water is controlled by (Cap, valve, etc.)

(11) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☐ No If yes, by whom?
Yield: 390 gal./min. with 58.7 ft. drawdown after 1 hrs.
" 411 " 51.2 " 4 " 5 "
" " " " "

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

Date of test 10-25-65
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? ☒ Yes ☐ No

(12) WELL LOG: Diameter of well 8 inches.
Depth drilled 89 ft. Depth of completed well 82 ft.

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

MATERIAL	FROM	TO
Clay & boulders	0	3
Hardpan	3	18
Yellow clay, sand & gravel	18	26
Hardpan	26	52
Fine & course sand & gravel	52	54
Hardpan	54	57
Course sand & gravel	57	58
Fine & course sand & gravel	58	64
Fine & course sand & gravel	64	67
Fine & course sand & gravel	67	75
Fine & course sand	75	78
Fine & course sand & gravel	78	83
Hardpan	83	88
Fine & course sand & clay	88	89

Work started 10/14/ 1965 Completed 10/26/ 1965

(13) PUMP:
Manufacturer's Name No pump
Type: H.P.

Well Driller's Statement:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME RICHARDSON WELL DRILLING COMPANY
(Person, firm, or corporation) (Type or print)
Address 219 So. 115th St., Tacoma, Washington
[Signed] Manager
(Well Driller)
License No. Date November 16 1965

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7256—(Rev. 1-62)—8-63—6M. (5162)

CK/ltcl

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

WATER WELL REPORT
STATE OF WASHINGTON

DSHS

Application No. G2-23124
Permit No. R2-00074

(1) **OWNER:** Name The Quadrant Corporation Address P. O. Box 130, Bellevue, Wa. 98009

(2) **LOCATION OF WELL:** County Thurston - 1480' East & 1050' North ¼ Sec. 31 T. 16 N., R. 3W W.M.
Bearing and distance from section or subdivision corner of SW Corner

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

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

(5) **DIMENSIONS:** Diameter of well 10 inches.
Drilled 87 ft. Depth of completed well 86 ft.

(6) **CONSTRUCTION DETAILS:**
Casing installed: 10 " Diam. from 0 ft. to 67 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

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

Screens: Yes ☒ No ☐
Manufacturer's Name UOP Johnson
Type Stainless Model No.
Diam. 10 Slot size 100 from 66 ft. to 86 ft.
Diam. Slot size from ft. to ft.

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

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) **PUMP:** Manufacturer's Name Jacuzzi Bros., Inc.
Type Submersible, 30S8K3-T2 H.P. 30

(8) **WATER LEVELS:** Land-surface elevation above mean sea level ft.
Static level 48 ft. below top of well Date 3/21/75
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Driller
Yield: 748 gal./min. with 1 ft. drawdown after 8 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 3/21/75
Bailer test 40 gal./min. with 0 ft. drawdown after 1 hrs.
Artesian flow g.p.m. Date 3/12/75
Temperature of water Was a chemical analysis made? Yes ☒ No ☐

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

MATERIAL	FROM	TO
Top soil & gravel	0	2
Boulders & gravel	2	18
Gravel & sand	18	20
Hardpan & boulders	20	36
Boulders & gravel	36	76
Sand & gravel, water	76	84
Large rock & sand	84	86
Clay, sand & rock - Cemented	86	87

Work started 2/20/ 19 75 Completed 3/25/ 19 75

WELL DRILLER'S STATEMENT:

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

NAME Richardson Well Drilling Company
(Person, firm, or corporation) (Type or print)
Address P. O. Box 44408, Tacoma, Wa. 98444

[Signed] (Well Driller)

License No. 223-02-6500 Date April 4, 19 75

OKWB

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

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

WATER WELL REPORT

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

CURRENT Notice of Intent No. W157851

Unique Ecology Well ID Tag No. AEC890

Water Right Permit No.

Property Owner Name Clearwood Community Association

Well Street Address Blue Hills Dr/Clear Lk. Blvd.

City Yelm County: Thurston

Location SW 1/4-1/4 SW 1/4 Sec 32 Twn 16N R 2E EWM or WWM (circle one)

Lat/Long: (s,t,r still REQUIRED) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____

Tax Parcel No. 41210012100

Construction/Decommission ("x" in circle)

- (X) Construction — Well #9
- ( ) Decommission *ORIGINAL CONSTRUCTION Notice of Intent Number*

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

TYPE OF WORK: Owner's number of well (if more than one) 3B

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

DIMENSIONS: Diameter of well 12 inches, drilled 146 ft. Depth of completed well 100 ft.

CONSTRUCTION DETAILS

Casing Installed: [X] Welded 12 " Diam. from +3 ft. to 45 ft.
[ ] Liner installed ____ " Diam. from ____ ft. to ____ 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 Johnson
Type slotted Model No.
Diam. 8" Slot Size .020 from 55 ft. to 75 ft.
Diam. 8" Slot Size .025 from 45 ft. to 55 ft.

Gravel/Filter packed: [X] Yes [ ] No [ ] Size of gravel/sand 8x10
Materials placed from 100' ft. to 15 ft.

Surface Seal: [X] Yes [ ] No To what depth? 18 ft
Materials used in seal Bentonite
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 10.3 ft. below top of well Date 10-26-01
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? [ ] Yes [X] No If yes, by whom?
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

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

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 150 gal./min. with 4 ft. drawdown after 2 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

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. Indicate all water encountered. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Brown till w/cobbles	0	9
boulders brown peat	9	
trace of gravel & sand		24
Brown sand, gravel and	24	
some water		28
Gray medium size grave	28	
coarse sand some water		36
Gray fine to coarse	36	
sand sparce gravel		40
Brown coarse sand	40	
gravel, some water, some		
cobbles		54
Brown medium to coarse	54	
sand some water		72
Brown silty sand with	72	
silt lenses-wet		116
Brown fine sand, water	116	135
Brown silty fine sand	135	
with silt lenses, water		146

Start Date 9-17-01 Completed Date 10-26-01

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.

[X] Driller [ ] Engineer [ ] Trainee Name (Print) Dwane Knapp

Driller/Engineer/Trainee Signature Dwane Knapp

Driller or Trainee License No. 1706

If trainee, licensed driller's Signature and License no.

Drilling Company Arcadia Drilling Inc

Address 170 SE Wallace Park Road

City, State, Zip Shelton WA 98584

Contractor's Registration No. ARCADDI098K1 Date 10-29-01

Ecology is an Equal Opportunity Employer. ECY 050-1-20 (Rev 4/01)

Water Right Self-Assessment Form for Water System Plan.

Water Right Permit, Certificate, or Claim # *If water right is interruptible, identify limitation in yellow section below	WFI Source # If a source has multiple water rights, list each water right on separate line	Existing Water Rights Qi= Instantaneous Flow Rate Allowed (GPM or CFS) Qa= Annual Volume Allowed (Acre-Feet/Year) This includes wholesale water sold				Current Source Production – Most Recent Calendar Year Qi = Max Instantaneous Flow Rate Withdrawn (GPM or CFS) Qa = Annual Volume Withdrawn (Acre-Feet/Year) This includes wholesale water sold				10-Year Forecasted Source Production (determined from WSP) This includes wholesale water sold				20-Year Forecasted Source Production (determined from WSP) This includes wholesale water sold			
		Primary Qi Maximum Rate Allowed	Non-Additive Qi Maximum Rate Allowed	Primary Qa Maximum Volume Allowed	Non-Additive Qa Maximum Volume Allowed	Total Qi Maximum Instantaneous Flow Rate Withdrawn	Current Excess or (Deficiency) Qi	Total Qa Maximum Annual Volume Withdrawn	Current Excess or (Deficiency) Qa	Total Qi Maximum Instantaneous Flow Rate in 10 Years	10-Year Forecasted Excess or (Deficiency) Qi	Total Qa Maximum Annual Volume in 10 Years	10-Year Forecasted Excess or (Deficiency) Qa	Total Qi Maximum Instantaneous Flow Rate in 20 Years	20-Year Forecasted Excess or (Deficiency) Qi	Total Qa Maximum Annual Volume in 20 Years	20-Year Forecasted Excess or (Deficiency) Qa
1. G2-01008	S01	100 gpm		160 AFY		90 gpm	10 gpm			90 gpm	10 gpm			90 gpm	10 gpm		
2. G2-23124	S02, S04[1]	425 gpm		529.2 AFY		320 gpm	105 gpm	182 AFY	347.2 AFY	525 gpm[2]	(100 gpm)	205 AFY	324.2 AFY	525 gpm	(100 gpm)	223 AFY	306.2 AFY
3.																	
4.																	
	TOTALS =	525 gpm		529.2 AFY		410 gpm	115 gpm	182 AFY	347.2 AFY	525 gpm	-100 gpm	205 AFY	324.2 AFY	525 gpm	-100 gpm	223 AFY	306.2 AFY
Column Identifiers for Calculations:		A		B		C	=A-C	D	=B-D	E	= A-E	F	=B-F	G	=A-G	H	=B-H

PENDING WATER RIGHT APPLICATIONS: Identify any water right applications that have been submitted to Ecology.

Application Number	New or Change Application?	Date Submitted	Quantities Requested			
			Primary Qi	Non-Additive Qi	Primary Qa	Non-Additive Qa
G2-29197	New Application	3/3/1995	1000 gpm			529.2 AFY
G2-23124@1	Change Application	7/22/2014	525 gpm			529.2 AFY

INTERTIES: Systems receiving wholesale water complete this section. Wholesaling systems must include water sold through intertie in the current and forecasted source production columns above.

Name of Wholesaling System Providing Water	Quantities Allowed In Contract		Expiration Date of Contract	Currently Purchased Current quantity purchased through intertie				10-Year Forecasted Purchase Forecasted quantity purchased through intertie				20-Year Forecasted Purchase Forecasted quantity purchased through intertie			
	Maximum Qi Instantaneous Flow Rate	Maximum Qa Annual Volume		Maximum Qi Instantaneous Flow Rate	Current Excess or (Deficiency) Qi	Maximum Qa Annual Volume	Current Excess or (Deficiency) Qa	Maximum Qi 10-Year Forecast	Future Excess or (Deficiency) Qi	Maximum Qa 10-Year Forecast	Future Excess or (Deficiency) Qa	Maximum Qi 20-Year Forecast	Future Excess or (Deficiency) Qi	Maximum Qa 20-Year Forecast	Future Excess or (Deficiency) Qa
1															
TOTALS =															
Column Identifiers for Calculations:	A	B		C	=A-C	D	=B-D	E	=A-E	F	=B-F	G	=A-G	H	=B-H

INTERRUPTIBLE WATER RIGHTS: Identify limitations on any water rights listed above that are interruptible.

Water Right #	Conditions of Interruption	Time Period of Interruption
1		
2		
3		

ADDITIONAL COMMENTS:

1. There is an overriding water right certificate for G2-23124 to allow Well 4 (S05) to replace Well 3 (S04) as Well 3 is no longer used. Well 4 is now an emergency source.
2. 525 gpm is estimated to be limited to withdrawal from Wells 5 and 6 through the G2-23124@1 change application. This won't allow additional instantaneous withdrawal from S02.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

☐ *Surface Water* (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendatory thereto, and the rules and regulations of the Department of Ecology)

☒ *Ground Water* (Issued in accordance with the provisions of Chapter 263, Laws of Washington, for 1945, and amendatory thereto, and the rules and regulations of the Department of Ecology)

CERTIFICATE NUMBER	PERMIT NUMBER	APPLICATION NUMBER	PRIORITY DATE
G2-01090C	7331	7332	December 20, 1965

NAME
THE QUADRANT CORP.

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
800 156th Ave NE	Bellevue	Washington	98009

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	100	160

QUANTITY, TYPE OF USE, PERIOD OF USE
160 acre-feet per year — community domestic supply — continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL
1500 feet east and 1000 feet north from the southwest corner of Sec. 31

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, E. OR W.M.	W.R.I.A.	COUNTY
Government Lot 5	31	16	3 E	11	Thurston

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

The recorded plats of Clearwood, Divisions 1 through 9 and Division 10; and proposed plats of Clearwood, Division 9 and Divisions 11 through 18; ALL being within Sec. 31 AND SW¼, Sec. 32, T. 16 N., R. 3 E.W.M.; AND NE¼; NE¼SE¼, Sec. 6; AND N½; N½S½, Sec. 5, T. 15 N., R. 3 E.W.M.

PROVISIONS

Issued as a supplemental supply to Ground Water Application No. 7830, the total annual withdrawal under Ground Water Application No. 7832 shall not exceed 470 acre-feet per year, less any amount withdrawn under Ground Water Application No. 7830.

"A suitable measuring device shall be installed and maintained in accordance with WAC 508-64-020 through WAC 508-64-040.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia, Washington, this 19th *day of* December, *19* 75

JOHN A. BIGGS, *Director*
Department of Ecology

ENGINEERING DATA
OK D

by E. W. Asselstine
E. W. Asselstine, Regional Manager

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PROOF OF APPROPRIATION OF WATER

APPLICATION NUMBER		PERMIT NUMBER
7832		7391

NAME OF PERMITTEE
The Quadrant Corporation

POST OFFICE ADDRESS	(CITY)	(STATE)	(ZIP CODE)
Box C	Tacoma	Washington	98401

ACTUAL SOURCE OF APPROPRIATION
Well

PURPOSE OR PURPOSES WATER IS USED FOR
Community domestic supply

DATE WATER WAS COMPLETELY APPLIED TO PERMITTED USE	IF USED FOR IRRIGATION, NUMBER OF ACRES ACTUALLY IRRIGATED
September 1975	----
IF SOURCE IS A WELL, IS AN ACCESS PORT NOW INSTALLED [X] YES [ ] NO	MONTHS DURING WHICH WATER IS USED All year

PUMP SIZE
7 1/2 horse power

ACTUAL AMOUNT WITHDRAWN OR DIVERTED FROM PERMANENT SYSTEM
100 / 160 afy [X] GPM [ ] CFS

HAVE ALL PROVISIONS AS REQUIRED BY PERMIT BEEN ACCOMPLISHED	IF NO, EXPLAIN
[X] YES [ ] NO	

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED (USE ADDITIONAL SHEET IF NECESSARY)

SE¼NW¼; NE¼NE¼; Government Lots 5, 6, 7, 8, 9 and 10, all in Section 31, Township 16 North, Range 3 East of W. M., in Thurston County, Washington.

RECEIVED
OCT 10 1975
DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

STATE OF WASHINGTON,
County of King } ss.

I, Otto H. Bjerke, Land Title Department Manager, Acting, for The Quadrant Corporation, being first duly sworn, depose and say that I have read the above and foregoing proof of appropriation, that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 8th day of October, 19 75.

THE QUADRANT CORPORATION

By: Otto H. Bjerke
Land Title Dept. Manager, Acting
Signature

Subscribed and sworn to before me this 8th day of October, 19 75.

STATE OF WASHINGTON
OFFICE OF THE STATE DIRECTOR OF THE DEPARTMENT OF ECOLOGY
Olympia
APPLICATION TO CHANGE THE PLACE OF USE OF WATER UNDER GROUND WATER
PERMIT NO. 7391

TAKE NOTICE: That The Quadrant Corporation, Tacoma, Washington, has filed an application to change the place of use of 900 gallons per minute, 470 acre-feet per year, of ground waters from a well as authorized under the above-numbered permit.

That the use of such water is for community domestic supply on the following described land:

SE¼SW¼; NE¼NE¼; Government Lots 5,6,7,8,9, and 10, ALL in Section 31, Township 16 North, Range 3 East W.M.

That it wishes to change the place of use of said waters to the following described land:

The recorded plats of Clearwood, Divisions 1 through 8 and Division 10; and proposed plats of Clearwood, Division 9 and Divisions 11 through 18; ALL being within:
Section 31 and SW¼ of Section 32, Township 16 North, Range 3 East W.M.;
and NE¼; NW¼SE¼ of Section 6; and NW¼; W½SW¼ of Section 5, Township 15 North, Range 3 East W.M., Thurston County, Washington.

Protests or objections to approval of this application must include a detailed statement of the basis for objections; protests must be accompanied by a two dollar ($2.00) recording fee and filed with the Department of Ecology within thirty (30) days from (Last date of publication to be entered here by publisher).

Witness my hand and official seal this 27th day of November, 1973.

R. JERRY BOLMEN
Assistant Director
Department of Ecology

APPLICATION FOR CHANGE OF ~~PURPOSE AND/OR~~ PLACE
OF USE OF WATER

TO THE DIRECTOR OF THE DEPARTMENT OF ECOLOGY, STATE OF WASHINGTON:

The undersigned, your applicant, respectfully represents:

First: That he is a user of waters from a well (Well or trench) under Permit No. 7391, Certificate No. _____ decreed right _____ (Title of case) or appropriation made _____ (Give date if prior to June 7, 1945)

Second: That such right consists of 900 (Gallons per minute) 470 acre-feet/year; That he wishes to change the place of use of water to the extent of 900 (Gallons per minute) 470 acre-feet/year

Third: That such water is being used for the purpose of Community domestic supply

on the following described land: SE¼NW¼; NE¼NE¼; Government Lots 5, 6, 7, 8, 9, and 10, all in

Section 31, Township 16 N., Range 3 E., W.M.

Fourth: That he wishes to change the place of use of said waters to _____ (Purpose of use) ~~on~~ the following described land; the recorded plats of Clearwood, Divisions 1 through 8 and Division 10; and proposed plats of Clearwood, Division 9 and Divisions 11 through 18; all being within: Sec. 31 and SW¼ of Sec. 32, T. 16 N., R. 3 E.W.M.; and NE¼; NE¼SE¼ of Sec. 6; and NW¼; N½SW¼ Sec. 5, T. 15 N., R. 3 E.W.M.

~~Section XXXXXXXX, Township XXXXXXXX, Range XXXXXXXX, W.M.~~, Thurston County, Washington, and that such change can be made without detriment or injury to existing rights or the State's interest in water, as provided in RCW 90.44.100.

Dated this 12th day of November, 1973

THE QUADRANT CORPORATION

R. M. Mogensen
(Applicant)
Land Title Department Manager

Box C, Tacoma, Washington 98401
(Postoffice Address)

Accept change
Application —
Please prepare notice
11-21-73
JM

NO EXAM REQ'D.

The Quadrant Corporation
A Weyerhaeuser Company

Weyerhaeuser

Box C

RECEIVED
SEP - 9 1974
DEPT OF ECOLOGY
REGIONAL OFFICE

September 5, 1974

Mr. Theodore J. Mix
State of Washington
Department of Ecology
Regional Office
Olympia, Washington 98504

Dear Mr. Mix:

Attached is an application to drill an additional well in Lot 5 of Section 31, Township 16 North, Range 3 East of W. M., for the water supply for the various plats of Clearwood, together with our Check No. 262 in the amount of $10.00.

The existing well covered by Ground Water Permit No. 7391, is currently supplying 100 g.p.m. of water and this application is to remove 425 g.p.m. from the new well, making a total withdrawal of 525 g.p.m., as opposed to the original application for 900 g.p.m.

In spite of the address on the application, please direct all correspondence to me at The Quadrant Corporation, Box C, Tacoma, Washington 98401.

Thanks for your help.

Very truly yours,

THE QUADRANT CORPORATION

R N Mogensen

Land Title Department Manager

R. N. Mogensen
eb/M4-1105
Attachments

9-13-74
Telecon W. Seehouse
new well sent makes
[illegible]

- Quadrant Building N.E. 9th at 110th N.E. -
- Bellevue, Washington 98009 -
- (206) 455-2960 -

223124

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

THIS PERMIT SUPERSEDES PERMIT NUMBER 7391 ISSUED MARCH 18, 1966

☐ SURFACE WATER ☒ GROUND WATER

PERMIT NUMBER	APPLICATION NUMBER	PRIORITY DATE	
7391	7822	October 20, 1965	

NAME

THE QUADSANT CORP.

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
300 156th Ave NE	Bellevue	Washington	98009

The applicant is, pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following described public waters of the State of Washington, subject to existing rights and to the limitations and provisions set out herein.

PUBLIC WATER TO BE APPROPRIATED

SOURCE

well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	900	470

QUANTITY, TYPE OF USE, PERIOD OF USE

470 acre-feet per year — community domestic supply — continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL

1500 feet east and 1000 feet north from the southwest corner of Sec. 31

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE E. OR W. W.M.	W.R.I.A.	COUNTY
Government Lot 5	31	16	3 E	11	Thurston

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

The recorded plats of Clearwood, Divisions 1 through 8 and Division 10; and proposed plats of Clearwood, Division 9 and Divisions 11 through 18; ALL being within Sec. 31 AND SW¼, Sec. 32, T. 16 N., R. 3 E.W.M.; AND NE¼; NE¼SE¼, Sec. 6; AND NW¼; W½SW¼, Sec. 5, T. 15 N., R. 3 E.W.M.

DESCRIPTION OF PROPOSED WORKS

well - 3" x 39'

DEVELOPMENT SCHEDULE

BEGINNING DATE	COMPLETION DATE	DATE COMPLETE APPLICATION OF WATER TO BE MADE
Started	November 1, 1974	November 1, 1975

PROVISIONS

Nothing in this permit shall be construed as excusing the permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations including those administered by local agencies under the Shoreline Management Act of 1971.

As provided under R.C.W. 43.21.130, 90.03.360 and 90.44.020, a master meter, individual service meters or other suitable measuring devices shall be installed in this system to measure the total amount of the withdrawal. Records of total monthly withdrawal shall be maintained by an official, responsible for the management and operation of this water system, and after certificate of water right issues, this information shall be reported each year to the Supervisor of the Division of Water Resources. A standard form for reporting such information shall be sent annually to the manager of the system.

Issued as a supplemental supply to Ground Water Application No. 7830, the total annual withdrawal under Ground Water Application No. 7832 shall not exceed 470 acre-feet per year, less any amount withdrawn under Ground Water Application No. 7830.

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Olympia, Washington, this 29th *day of* March, *19* 74.

JOHN A. BIGGS, *Director*
Department of Ecology

ENGINEERING DATA
OK

by
R. Jerry Bollen
Assistant Director

The Quadrant Corporation
A Weyerhaeuser Company

Weyerhaeuser

October 16, 1972

State of Washington
Department of Ecology
S. W. Regional Office
Olympia, WA 98504

Gentlemen:

SUBJECT: GROUND WATER PERMIT NO. 7391
ONE YEAR TIME EXTENSION

Please find enclosed a check for $5.00 representing the statutory extension fee for the extension of time in which to file completion of construction under the above-numbered permit.

This extension is necessitated due to unfinished construction.

The Legal Description of the property on which the water is to be used has broadened and should read:

Clearwood Divisions #1 through Division #8 and Division #10 as recorded in records of Thurston County and portions of the following parcels:

NW1/4 Sec. 31, 16N., 3E., W.M.
SW1/4 Sec. 31, 16N., 3E., W.M.
E1/2 of NE1/4 Sec. 31, 16N., 3E., W.M.
NE1/4 Sec. 6, 15N., 3E., W.M.
NE1/4 of SE1/4 Sec. 6, 15N., 3E., W.M.
SW1/4 Sec. 32, 16N., 3E., W.M.
N1/2 of NW1/4 Sec. 5, 15N., 3E., W.M.
SW1/4 of NW1/4 Sec. 5, 15N., 3E., W.M.
NW1/4 of SW1/4 Sec. 5, 15N., 3E., W.M.

which contain proposed Clearwood Divisions #9 and Divisions #11 through #18 which have been approved by the Thurston County Planning Department.

Accept Extension Fee
Extension Agreement 11-6-72
See letter of
FM

800-156th N.E.
Bellevue, Washington 98007
(206) SH 6-3805

I have enclosed a copy of the overall Clearwood development for your information.

Sincerely yours,

THE QUADRANT CORPORATION

Joe Armos

Joe Armos
Regional Operations Coordinator

vw

Enclosures

STATE OF WASHINGTON

ASSIGNMENT OF APPLICATION OR PERMIT TO APPROPRIATE WATER

I, LLOYD C. REED (Sec.) Weyerhaeuser Prop. Inc. of Bellevue, Washington, do hereby assign, transfer and set over unto The Quadrant Corporation of Bellevue, Washington, all of my right, title and interest in and to Water Permit (Application or permit) Number 7391 for the appropriation of waters of The State of Washington in Thurston County, as said permit appears of record in the office of the Department of Ecology, Olympia, Washington.

Witness my hand this ..... day of ....., 19..

Lloyd C Reed Asst. Sec.
(Signature) (Secretary)

(Wife)

State of Washington
County of King } ss.

On this day personally appeared before me Lloyd C Reed to me known to be the individual, or individuals described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as A free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal this 14 day of Oct, 1971

Laraette M Addicott

Notary Public in and for the State of Wash.

residing at Bothell

10-27-71
ok for assign
EF.

The Quadrant Corporation
A Weyerhaeuser Company

Weyerhaeuser

Job No. 30-5309

September 30, 1971

Central Operations Division
State of Washington
Department of Ecology
Post Office Box 829
Olympia, Washington 98501

ATTENTION: Mr. B. A. Cameron

Gentlemen:

SUBJECT: CLEARWOOD WELL APPLICATION

Please find enclosed a check for $5.00 representing the statutory extension fee for the extension of Ground Water Permit No. 7391.

It should also be noted that Weyerhaeuser Properties, Inc. was dissolved August 27, 1971 and the Quadrant Corporation is the successor in interest. This is the reason the check for extension of the permit is in the Quadrant Corporations' name.

If you have further questions, please call.

Sincerely yours,

THE QUADRANT CORPORATION

Kenneth W. Kinared

Kenneth W. Kinared

vw

Enclosure

10-1-71
OK for ext to 11-1-72
Send ext ltr with P.S.
Enclosed is an assignment fee
for new ser assignment subject permit
from Weyerhaeuser Properties, Inc. to
Quadrant, Corp. subject permit with
$5 assignment fee.
[illegible]

RECEIVED
DEPARTMENT OF ECOLOGY
OCT 1 1971
PM
[illegible]

800-156th N.E.
Bellevue, Washington 98007
(206) SH 6-3805

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

Permit to Appropriate Public Ground Waters of the State of Washington

Book No. 15 of Ground Water Permits, on page 7391 under Application No. 7832

MEYERHAEUSER PROPERTIES, INC. Assd. to The Quadrant Corp. 10-27-71

of Tacoma, Washington

is hereby granted a permit to appropriate the following described public ground waters of the State of Washington, subject to existing rights, and to the limitations and provisions set out herein.

Priority date of this permit is October 20, 1965

Source of the proposed ground water appropriation is a well

within ..... area, ... sub-area

..... zone. Name or number of works is .....

Quantity of water appropriated shall be limited to the amount which can be beneficially applied and not to exceed 900 gallons per minute; 470 acre-feet per year, to be used for the following purposes: community domestic supply

as more definitely set out below.

Location of the well, tunnel, or infiltration trench is 1500 feet east and 1000 feet north from the southwest corner of Sec. 31

being within Government Lot 5 of Sec. 31, T. 16 N., R. 3 E.W.M.

county of Thurston

Use, or uses to which water is to be applied:

For municipal supply: ..... gallons per minute; ..... acre-feet per year, to supply .....

For irrigation: ..... gallons per minute; ..... acre-feet per year, for the irrigation of ..... acres.

For miscellaneous uses: 900 gallons per minute; 470 acre-feet per year, for community domestic supply

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

SE¼NW¼; NE¼NE¼; Government Lots 5, 6, 7, 8, 9 and 10, all in Sec. 31, T. 16 N., R. 3 E.W.M.

DESCRIPTION OF WORKS FROM WHICH WATER IS TO BE WITHDRAWN

The well will be drilled (Dug or drilled) and have a diameter of 8 inches, and depth of 89 feet.

Description of tunnel or infiltration trench:

(Please read carefully provisions below)

Particular specifications required by the Supervisor of Water Resources for the purpose of preventing waste of public waters: As provided under R.C.W. 43.21.130, 90.03.360 and 90.44.020, a master meter, individual service meters or other suitable measuring devices shall be installed in this system to measure the total amount of the withdrawal. Records of total monthly withdrawal shall be maintained k by an official, responsible for the management and operation of this water system, and after certificate of water right issues, this information shall be reported each year to the Supervisor of the Division of Water Resources. A standard form for reporting such information shall be sent annually to the manager of the system.

Issued as a supplemental supply to Ground Water Application No. 7830, the total annual withdrawal under Ground Water Application No. 7832 shall not exceed 470 acre-feet per year, less any amount withdrawn under Ground Water Application No. 7830.

Construction work shall begin on or before Started

and shall thereafter be prosecuted with reasonable diligence and completed on or before November 1, ~~1970~~ 11-1-71 11-1-72 11-1-73

and complete application of water to proposed use shall be made on or before November 1, 1971

Given under my hand and the seal of this office at Olympia, Washington, this 18th day of March, 19 66

M G Walker

State Supervisor of Water Resources

Report of Examination on Ground Water

Received date October 20, 1965 Date of exam. November 17, 1965 Appl. No. 7332

Name Weyerhaeuser Properties, Inc. Address Box 1645, Tacoma, Washington 98401

Type of works a well Dimensions 8" x 20'

Progress of works Well drilled and capped (started)

Quantity applied for 900 g.p.m. acre-feet per year

Government Legal sub Lot 5 Sec. 31 Twp. 16 N. Rge. 3 E. County Thurston

Use community domestic supply

Irrigation-acreage: Present Planned Feasible

Municipal: Population as of

Industrial

Time pump will be operated continuously

Other water rights appurtenant to this land Ground Water Certificate No. 3459; concurrent Ground Water Application No. 7330

Proximity to existing works, springs, wells, or streams Robert Thurston west approximately 250 feet

Area Sub-area Zone

RECOMMENDATIONS

Approved for 900 g.p.m. 420 acre-feet per year, subject to existing water rights. (1 acre-foot 325,850 gallons)

Use of the waters to be appropriated under this application will be for a public water supply. State Board of Health rules require every owner of a public water supply to obtain written approval from the State Director of Health prior to any new construction or alterations of a public water supply. The applicant is advised to contact the Washington State Department of Health, Fourth Floor, Public Health Building, Olympia, with regard to the need for compliance.

The installation of an access port to well as described in attached Ground Water Bulletin No. 1 is recommended.

Owing to the proximity of neighboring wells, the applicant is reminded of his responsibility toward same and advised that he may be required to regulate his withdrawal and pumping rate if existing works and rights are injuriously affected.

Although approved for 900 gallons per minute, as requested, applicant is reminded that the final water right certificate, when issued, will be based on the capacity of the completed system.

(Over)

Applicants' property to be served by this application covers 356 total acres, of which 226 acres have been estimated as usable for subdivision. The initial subdivided plat has 82 lots covering 35 acres, or 2.34 lots per acre, which amounts to a maximum of 528 lots for the 226 acres. Assuming an average of 4 persons per lot, the population to be served would be 2112. It is unknown at this time if apartment dwellings will occupy a portion of these lots; therefore, the annual withdrawal of water will be based on a maximum population of 2800 persons. Allowing a maximum of 150 gallons per capita per day, the total annual withdrawal for this project will be limited to 470 acre-feet. Therefore, permit will issue for 900 gallons per minute, 470 acre-feet per year. However, Ground Water Application No. 7830 allows an annual withdrawal of 470 acre-feet. Therefore, permit will issue as a supplemental supply as follows: "Issued as a supplemental supply to Ground Water Application No. 7830, the total annual withdrawal under Ground Water Application No. 7832 shall not exceed 470 acre-feet per year, less any amount withdrawn under Ground Water Application No. 7830".

The well under this application and the well under Ground Water Application No. 7830 are to be integrated.

Applicants enjoy Ground Water Certificate No. 3459-A for 10 gallons per minute, 5.6 acre-feet per year for operation of a public park.

Applicant is advised that notice of proof of appropriation of water under which the final certificate of water right issues, should not be filed until the permanent withdrawal facilities have been installed together with a distribution system of main line piping capable of furnishing water for domestic supply to all lots which are intended to be supplied under this application.

As provided under R.C.W. 43.21.130, 90.03.360 and 90.44.020, a master meter, individual service meters or other suitable measuring devices shall be installed in this system to measure the total amount of the withdrawal. Records of total monthly withdrawal shall be maintained by an official, responsible for the management and operation of this water system, and after certificate of water right issues, this information shall be reported each year to the Supervisor of the Division of Water Resources. A standard form for reporting such information shall be sent annually to the manager of the system.

Signed at Olympia, Washington
this 18 day of February, 1966

Dean Wood

DEAN WOOD, Engineer
Division of Water Resources

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
Division of Water Resources

Priority
Date 10-20-65
Time 9:00 a.m.
Accepted RHR

APPLICATION FOR A PERMIT

To Appropriate Public Ground Waters OF THE STATE OF WASHINGTON

Application No. G. W. 7832

I, Weyerhaeuser Properties, Inc.
(Name of applicant)

of Box 1645, Tacoma, Washington 98401
(Complete post office address)

do hereby make application for a permit to appropriate the following described public ground waters of the State of Washington, subject to existing rights. This application is made under the provisions of Chap. 263 of the Session Laws of 1945, and amendments thereto of the State of Washington and subject to the rules and regulations of the Department of Conservation and Development, Division of Water Resources.

1. *The proposed appropriation will be from* well
(Well, tunnel, infiltration trench)

located twelve miles southeast of Yelm, Washington
(Give approximate distance and direction from nearest city or town)

Area (Leave blank) *Sub-area* (Leave blank)

Zone (Leave blank)

Applicant's name or number of well or other works, if any

2. *The quantity of water which applicant intends to withdraw for beneficial use is* 900 *gallons per minute;* ____ *acre feet per year.*

3. *The use or uses to which water is to be applied* Community domestic supply (for proposed subdivision)
(Domestic supply, irrigation, municipal, manufacturing, industrial use, etc.)

4. *The time during which water will be required each year* All year continuously

5. *Location of well or other works for withdrawal of water: In county of* Thurston

(a) 1500' East and 1000' North from the S.W. corner of Section 31.
(Give distance and bearing from nearest corner of section or legal subdivision)

being within the Gov't Lot 5 *of Sec.* 31, *Twp.* 16 N., *Rge.* 3E (E. or W.)
(Give smallest legal subdivision)

or (b) *If within limits of recorded platted property, town or city: Lot* ____, *Block* ____,

of ____
(Give name of plat or addition) (If within town or city, give name)

(c) *Show this location on accompanying section plat, in duplicate. Other adequate maps or drawings will be acceptable.*

net Thurston well 250' west.

OK RHR

6. DESCRIPTION OF WORKS:

(a) Well will be drilled *(Dug or drilled) and have a diameter of* 8 *inches and an estimated depth of* 90 / 89 *feet.*

(b) Tunnels or trenches to be described: (Attach additional sheets if needed for full description.)

(c) Distribution system to be described:

(d) If pumps are to be used, give size and type:

(e) Give capacity and type of motor or engine to be used:

(f) If the location of the well, tunnel, or other works is less than one-fourth mile from a natural stream or stream channel, give the distance to the nearest point on each of such channels and the difference in elevation between the stream bed and the ground surface at the source of development:

(g) Ownership of each existing well or other works from which ground water is withdrawn within a radius of one-quarter mile and the distance and direction from well or other works being reported herein:

(Name)	(Direction)	(Distance)
Robert Thurston	West	Approx. 250'

SUPPLY THE FOLLOWING INFORMATION ACCORDING TO USE PROPOSED:

7. *For Municipal Supply: To supply the city, town, or community of* None *, in the county of ..... having a present population of ....., and an estimated population of ....., in 19.....*

8. *For Irrigation: Number of acres to be irrigated ..... acres.*

9. *Legal Description of Property on which water is to be used for all purposes other than municipal supply:*

(Copy legal description from deed)
(If more space is required, attach separate sheet)

~~Gov't Lots 5, 6, 7 and SE¼ NW¼~~ SE¼ NW¼; NE¼ NE¼; Gov't Lots 5, 6, 7, 8, 9, & 10, all in of Section 31, Twp. 16N, R3E.

(On accompanying plat show location of the existing wells or works)

10. *What interest do you have in the above described property?* Fee owner

(Owner, lessee, contract buyer, etc.)

11. *Do you have any other water rights appurtenant to the above described property?*.....

If so, from what source?.....

12. *Construction work will begin on or before* Has begun

13. *Construction work will be completed on or before* Nov 1, 1970

14. *Water will be put to complete beneficial use on or before* Nov 1, 1971

WEYERHAEUSER PROPERTIES, INC.

(Signature of applicant)

Vice President and General Manager

15. *Name and address of owner of land on which well or works are located:*

(Name) (Address)

(Signature of legal landowner)

Signed in the presence of us as witnesses:

(Name) (Address of witness)

(Name) (Address of witness)

STATE OF WASHINGTON,
COUNTY OF THURSTON. } ss.

This is to certify that I have examined the foregoing application, together with the accompanying maps and data, and return the same for correction or completion as follows:

In order to retain its priority, this application must be returned to the State Supervisor of Water Resources, with corrections, on or before....., 19....

WITNESS my hand this.....*day of*....., 19....

State Supervisor of Water Resources.

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

P.O. Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

September 13, 2002

Clearwood Community Association
Attn: Daryl Harrington
21603 N. Clear Lake Blvd.
Yelm, WA 98957

Dear Mr. Harrington:

Re: Showing of Compliance-Replacement for Well 3

This is a notification of receipt for a Showing of Compliance with RCW 90.44.100(3). The construction and replacement of Well 3 has been noted under Water Right Certificate G2-23124C and complies with the provisions of Chapter 90.44.100(3) RCW.

If you do not intend to use the original production well it shall be abandoned in accordance with the construction requirements of Chapter 173-160 WAC and Chapter 18-104 RCW.

The notarized statement received will be made part of the permanent record associated with Certificate of Water Right G2-23124C.

Sincerely,

Mike Dexel
Department of Ecology
Water Resources Program-SWRO

MD:th

Cc: Mark Toy, WSDOH Regional Engineer

COPY DAN/JOHN - SEMACON 753-5636
/ BD READ MEFILE
✓ TIM

DH, R-09/18/2002

CLEARWOOD COMMUNITY ASSOCIATION

21603 N. CLEAR LAKE BLVD.
YELM, WA 98597

PHONE (360) 894-2941
FAX (360) 894-2497

December 27, 2001

Department of Ecology
S.W. Regional Office
P. O. Box 47775
Olympia, WA 98504-7775

Subject: Clearwood Water System, ID #13615U, Thurston County, Well 3B Replacement Source, DOH Project # 01-1117.

Dear Sir or Madam,

Enclosed signed affidavit, showing of compliance with RCW 90.44.100(3)

Enclosed copies,

Mark Toy, DOH letter dtd November 28, 2001.
Dan Pingel, Semcon Inc letter dtd November 19, 2001. Explanation of well replacement request.
Well drilling report, Arcadia Drilling construction drawings.
Decommissioned well 3 logs.

Any questions please feel free to contact me.

Sincerely,

Dayrl Harrington
Board President

CC: Mark Toy, D.O.H.
CC: Dan Pingel, Semcon Inc.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DEPARTMENT OF ECOLOGY

Showing of Compliance with RCW 90.44.100(3)

Water Right Certificate or Permit Number: 13615U 01-1117

Parcel tax identification number: 4121 0012100

Landowner(s) name: CLEARWOOD COMMUNITY ASSOCIATION

Part of complying with RCW 90.44.100(3) is for the project proponent to notify the Department of Ecology (Ecology) that the statutory criteria of RCW 90.44.100(3) have been satisfied. Please attach to this document the water well report for the additional or replacement well and any additional information you have to support your affidavit.

Affidavit:

I, DAYRL HARRINGTON, do certify that I caused the well described in the attached water well report to be drilled as an ~~additional or~~ replacement well(~~s~~) for use under Water Right Number 13615U. This notice and attached documents describe and support my assertion that the replacement ~~or additional~~ well(~~s~~) complies with RCW 90.44.100(3) (a-g) and RCW 90.44.100(4):

a. The well is an ~~additional or~~ replacement well(~~s~~) that will tap the same body of public ground water as the original well;

b. If a replacement well is constructed, the use of the original well(~~s~~) shall be discontinued and the original well(~~s~~) shall be properly decommissioned;

c. The combined withdrawal of water from the ~~additional or~~ replacement well(~~s~~) and the original well authorized by the water right certificate does not enlarge the water right conveyed by the original water right certificate to the extent the certificate has been developed (perfected) and maintained by use of water;

d. The construction and use of the ~~additional or~~ replacement well(~~s~~) does not interfere with or impair water rights with an earlier priority date;

e. The ~~additional or~~ replacement well(~~s~~) is located no closer than the original well to a well or surface water body it might interfere with;

f. A specified manner of construction for the ~~additional or~~ replacement well(~~s~~) has been complied with, if required, and the new well was constructed in compliance with chapter 18.104 RCW and chapter 173-160 WAC;

g. The ~~additional or~~ replacement well(~~s~~) is located within the area described as the point of withdrawal in the public notice published for the original application for water right, or the most current legal description published for the right. Both the original well and the ~~additional or~~ replacement well(~~s~~) are located in SW¼-¼ SW¼ 32 16N 3E (legal description). LOT 121 OF DIV VII VOLUME 17 PAGE 60 AUDITOR FILE 852826

Therefore the well is in compliance with the requirements for a statutorily granted amendment to the water right permit or certificate.

I understand the acceptance of this affidavit, and any attachments, by the Department of Ecology shall not be construed as affirming the validity of any water right permit or certificate. The responsibility to comply with RCW 90.44.100(3) is with the water right permit or certificate holder asserting an amendment pursuant to RCW 90.44.100(3).

Name DAYAL G. HARRINGTON

Date December 28, 2001

Acknowledgement:

State of Washington
County of Thurston

I certify that I know or have satisfactory evidence that Dayal Harrington *is the person who appeared before me, and said person acknowledged that (he/she) signed this affidavit and acknowledged it to be (his/her) free and voluntary act for the uses and purposes mentioned in the affidavit.*

Dated: 12/28/01

ROBERT E. PIGG
COMMISSION EXPIRES
NOTARY
PUBLIC
10-19-03
STATE OF WASHINGTON

ROBERT E. PIGG

Robert E. Pigg
(Signature)

Pierce County, Washington
Residing in

Title
My appointment expires: 10-19-03

If you have any questions please contact the Water Resources Section of the closest regional office. Please submit copies of new well logs and decommissioned well logs along with this completed and notarized form to the nearest regional office.

Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, WA 98008-5452
(425) 649-7000; TDD (425) 649-4259

Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775
(360) 407-6300; TDD (360) 407-6306

Eastern Regional Office
N. 4601 Monroe, Suite 202
Spokane, WA 99205-1295
(509) 456-2926; TDD (509) 458-2055

Central Regional Office
15 W. Yakima Ave., Suite 200
Yakima, WA 98902-3452
(509) 575-2597; TDD (509) 454-7673

Vancouver Field Office
2108 Grand Boulevard
Vancouver, WA 98661-4622
(360) 690-7171; TDD (360) 690-7147

Nooksack Field Office
1204 Railroad Ave., Suite 200
Bellingham, WA 98225
(360) 738-6250; TDD (425) 649-4259

Clearwood Community Association
21603 Clear Lake Blvd North
Yelm WA 98597-9030

STATE OF WASHINGTON
CERTIFICATE OF WATER RIGHT

ECOLOGY

Document Title: Certificate of Water Right

Agency: Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

Applicant: Clearwood Community Assc
21603 Clear Lake Blvd North
Yelm WA 98597-9030

Reference Number:

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
September 6, 1974	G2-23124	G2-23124	G2-23124

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as hereinafter defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, as to that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Well 2 & 3	

MAX. CUBIC FEET PER SECOND	MAX. GALLONS PER MINUTE	MAX. ACRE-FEET PER YEAR
	425	529.2

QUANTITY/TYPE OF USE/PERIOD OF USE

529.2 Acre-feet per year/Multiple domestic supply/Year-round, as needed

LEGAL DESCRIPTION OF LOCATION OF DIVERSION/WITHDRAWAL

1/4 1/4	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE1/4 SW1/4 & E1/2 SW1/4	31/32	16	3E	11	Thurston

PARCEL # n/a

ADDITIONAL LEGAL IS ON PAGE 2

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

1/4 1/4	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	W.R.I.A.	COUNTY
n/a	31&32 5&6	15 & 16	3E	11	Thurston

PARCEL # n/a

ADDITIONAL LEGAL IS ON PAGE 2

CONTINUED LEGAL DESCRIPTION FOR LOCATION OF DIVERSION/WITHDRAWAL

Well #2: 1480 feet East and 1050 feet North of the Southwest corner of Section 31.

Well #3: 150 feet East and 1500 feet North of the Southwest corner of Section 31.

CONTINUED LEGAL DESCRIPTION FOR PROPERTY ON WHICH WATER IS TO BE USED

Plat of Clearwood, Divisions 1-19, and all lands served by the Clearwood Water System (ID No. 13615#), as approved by the Washington Department of Health, that are included within Sections 31 and 32, T. 16 N., R. 3 E.W.M. and Sections 5 and 6, T. 15 N., R. 3 E.W.M.

PROVISIONS

All conditions and requirements contained in reports of examination or permits previously issued apply to this certificate unless specifically noted below.

The well access port shall be maintained at all times.

An approved metering device shall be installed and maintained in accordance with RCW 90.03.360, 90.44.450 and WAC 508-64-020 through -040. Meter readings shall be recorded at least monthly.

Issuance of this water right is subject to the implementation of the minimum requirements established in the Conservation Planning Requirements, Guidelines and Requirements for Public Water Systems Reporting Water Use Forms, Data, Demand Forecasting Methodology, and Conservation Programs, July 1994, and as revised.

Under RCW 90.03.005 and 90.54.020(8), conservation and improved water use efficiency must be emphasized in the management of the states water resources, and must be considered as a potential new source of water. Accordingly, as part of the terms of this water right, the applicant shall prepare and implement a water conservation plan approved by Department of Health. The standards for such a plan may be obtained from either the Department of Health or the Department of Ecology.

"The combined withdrawal rate from both wells, under this superseding certificate shall not exceed 425 gpm. The annual withdrawal for the Clearwood system under all currently existing water rights is limited to 529.2 acre-feet per year."

The right to use the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for non-use of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia, Washington, this 22nd *day of* December, 19*94*.

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

Tom Fitzsimmons
Department of Ecology

By Mike Harris, Section Supervisor

ENGINEERING DATA
OK
EGY 040-1-2 (Rev. 8-93)

PROGRESS SHEET - APPLICATION FOR CHANGE

CERTIFICATE NO. G2-23124

NAME: Clearwood Community Association
21603 Clear Lake Blvd W.
Yelm Wa 98597

Appurtenant to Water Right Certificate No. G2-23124

PURPOSE OF APPLICATION ADD POW

Application originally received _____ Fee Paid $10 ✓

Returned for completion or correction _____

Returned _____

PUBLICATION: OK'd by _____ Date _____ Notice sent 5/16/95

Protests _____ by _____

_____ by _____

_____ by _____

Affidavit received and checked JC Time expires 6/25/95

EXAMINATION: Made 5/8/95 by J Van Dulle

CERTIFICATE: OK'd for issue by _____ Date _____

Statement of fee mailed _____ Amount $5 _____

Fee received _____

Certificate of Change Issued 12-22-97 No. _____

WRIA 11

ECY 040-1-99

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

PROOF OF APPROPRIATION OF WATER

APPLICATION NUMBER: G2-23134

PERMIT NUMBER: G2-23134

NAME OF PERMITTEE: CLEARWOOD COMMUNITY ASSOCIATION

DAYS TEL: 360 894 2541

HOME TEL:

OTHER TEL:

POST OFFICE ADDRESS: PO 3-16 (BOX) 21603 CLEAR LAKE BLVD N (STREET) YELM (CITY) WA (STATE) 98597 (ZIP CODE)

ACTUAL SOURCE OF APPROPRIATION: WELL

PURPOSE (OR PURPOSES) WATER IS USED FOR: MULTIPLE DOMESTIC

DATE WATER WAS COMPLETELY APPLIED TO PERMITTED USE: MAY 20 1997

IF USED FOR IRRIGATION, NUMBER OF ACRES ACTUALLY IRRIGATED: N/A

IF SOURCE IS A WELL, IS AN ACCESS PORT NOW INSTALLED: [X] YES [ ] NO

MONTHS DURING WHICH WATER IS USED: YEAR ROUND

HORSEPOWER: 40 HP

ACTUAL AMOUNT WITHDRAWN OR DIVERTED FROM PERMANENT SYSTEM: 425 GPM

[X] GPM [ ] CFS

HAVE ALL PROVISIONS AS REQUIRED BY PERMIT BEEN ACCOMPLISHED: [X] YES [ ] NO

IF NOT, EXPLAIN:

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED (USE ADDITIONAL SHEET IF NECESSARY)

Area served by Clearwood Community Assoc (ID # 136154)
(See RDE)

OK for Supercedes Cert - no fee attached
Receive Date date
6/3/97
SC

STATE OF WASHINGTON)
County of THURSTON) ss.

I, JOHN SEGERSON (Engineer of Record) being first duly sworn, depose and say that I have read the above and foregoing proof of appropriation; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 5 day of JUNE, 1997.

John Segerson PE
Proofer Signature

Subscribed and sworn to before me this 5 day of June, 1997

Notary Public

DE OK Since
"no fee w/ the"
ack time
6/5/97
SC

Dept of Ecology P/A

FCY 040 (28)
REV. 11/85 — OR A-220

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

PO Box 47775 • Olympia, Washington 98504-7775 • (206) 407-6300

July 12, 1995

Clearwood Community Association
21603 Clear Lake Blvd Lake North
Yelm, Washington 98597-9030

Dear Sir or Madame:

Re: Ground Water Superseding Certificate No. G2-23134

Your Application for Change has been approved and a Superseding Certificate will be issued in accordance with the enclosed Report of Examination and submittal of the following enclosed documents:

1) A well drilling log from new Well #3
2) Results of a 4-hour pump test, including a description of pump size, intake level, and proposed pumping schedule.
3) A Completion of Construction form, indicating that construction has been completed and the well is in operation.

You must submit your Completion of Construction Form or contact this office by September 1, 1996, to report the progress of your project.

Issuance of this Report of Examination is an appealable decision under Chapter 43.21B Revised Code of Washington. To submit an appeal, contact the Pollution Control Hearings Board of Washington, within 30 days of receiving this letter. A copy of the appeal should also be sent to the Director of the Department of Ecology. Procedures for requesting a hearing may be obtained from this department.

Sincerely,

Gale Blomstrom

Gale Blomstrom
Water Resources Supervisor
Southwest Regional Office

GB:(exam10)
Enclosure
NOTE: PLEASE ADVISE OF ANY ADDRESS CHANGE

P.O.W.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
APPLICATION FOR CHANGE

REPORT OF EXAMINATION

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
September 6, 1974	G2-23124	G2-23124	G2-23124

NAME
Clearwood Community Association

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
21603 Clear Lake Blvd North	Yelm	Washington	98597-9030

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Well #2 and Well #3

(TRIBUTARY OF (IF SURFACE WATERS))

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	425	529.2

QUANTITY, TYPE OF USE, PERIOD OF USE		
529.2 acre-feet per year	Multiple domestic supply	Year-round, as needed

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL
Well #2: 1480 feet east and 1050 feet north of the southwest corner of Section 31
Well #3: 150 feet east and 1500 feet north of the southwest corner of Section 31

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, E. OR W. W.M.	W.R.I.A.	COUNTY
SE¼SW¼ / E½SW¼	31/32	16	3E	11	Thurston

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Plat of Clearwood, Divisions 1-19, and all lands served by the Clearwood Water System (ID No. 13615U), as approved by the Washington Department of Health, that are included within Sections 31 and 32, T. 16 N., R. 3 E.W.M. and Sections 5 a- 6, T. 15 N., R. 3 E.W.M.

DESCRIPTION OF PROPOSED WORKS

2 wells - Well #2, 10 inches by 90 feet; Well #3, proposed +/- 90 feet

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE	COMPLETE PROJECT BY THIS DATE	WATER PUT TO FULL USE BY THIS DATE
Started	September 1, 1996	N/A

REPORT

BACKGROUND:

On April 25, 1995, the Clearwood Community Association filed an *Application for Change* to add a point of withdrawal to an existing water right certificate. The application was accepted for processing under the original certificate number G2-23124.

A public notice of the proposed change was duly published, and no objections were received.

Based on the provisions of Chapters 90.03 and 90.44, Revised Code of Washington (RCW), and the following information, I recommend issuance of a superseding certificate.

INVESTIGATION:

In consideration of this application, Sheri Fox and I visited the site on May 26, 1995. The Clearwood community is located about 12 miles southeast of the City of Yelm in Thurston County, Washington. The development consists of 1,355 platted lots, arranged around a network of cul-de-sacs that surround Clear Lake on three sides. The development is wooded and attractively maintained.

The water system is currently supplied by two production wells located on the west side of Clear Lake. Combined, withdrawals from the system are limited to 529.2 acre-feet per year.

Ground water certificate G2-23124 has a priority date of Sept. 6, 1974. The certificate authorizes the withdrawal of 425 gallons per minute, 529.2 acre-feet per year for community domestic supply from Well #2. This allocation was intended for the domestic supply of 1,575 services.

Water right certificate G2-01008 has a priority date of October 20, 1965. It authorizes the withdrawal of 100 gpm; 160 acre-ft per year from Well #1. This right was intended to be supplemental to Permit No. 7390, which was issued for a well located on the east side of the lake for 1000 gpm; 470 acre-feet per year. Combined, withdrawals from the two wells were not to exceed 470 ac-ft. Permit 7390 was cancelled, and the well abandoned due to the high mineral content of the water.

Ground water certificate 3459-A is also appurtenant to the Clearwood system. It authorizes the withdrawal of 10 gpm, and 5.6 acre-feet per year for irrigation within the development.

The water distribution system extends around the north end of the lake and along the east side, with a single storage reservoir located southeast of the lake. Because of this transmission distance, the existing wells have been operated continuously during times peak water use, have occasionally experienced failures and are often unable to fill the storage reservoir.

The intent of this *Application for Change* is to add a third well to the system. The placement of an alternate source on the east site of the lake is expected to result in better system reliability, and allow for better management of ground water resources. No increase in gallons per minute, or annual allocation is requested by this Application for Change. The applicant has, however, also filed for an additional annual appropriation under application G2-29197.

Well #2 was constructed with a 10-inch casing, and is completed at a depth of 90 feet. Well #1 is 89 feet deep, and like Well #2, is completed in a layer of sand and gravel that corresponds to an advance outwash aquifer formation.

The applicants intend to construct the new well across the lake near the site of the abandoned well. They are targeting the same aquifer in which the westerly wells are completed.

Report Continued

As this request will not entail the withdrawal of additional water, I do not anticipate adverse impact as a result of adding an additional point of withdrawal to the system. The combined withdrawal rate from Well #2 and proposed Well #3 may at no time exceed 425 gpm.

CONCLUSION:

In accordance with Chapters 90.03 and 90.44 RCW, I find that adding a point of withdrawal to water right certificate G2-23124, as recommended, is not detrimental to public welfare, and does not impair existing rights.

RECOMMENDATIONS:

I recommend the approval of this *Application for Change* and the issuance of a Superseding Certificate to add a point of withdrawal to ground water certificate G2-23124.

Provisions:

This Superseding Certificate is subject to the following provisions:

Issuance of this Report of Examination authorizes the construction and testing of the new point of withdrawal. The final Superseding Certificate will be issued when Ecology receives verification that the new well has been constructed, tested and installed into the system.

"This well shall be constructed in accordance with the *Minimum Standards for Construction and Maintenance of Wells* as provided under RCW 18.104, Washington Water Well Construction Act of 1972, and Chapter 173-160 WAC. This includes a permanent surface seal, as described in Chapter 173-160-224, 255, 265 and 275 WAC."

A completed well report of the well shall be submitted by the driller to the Department of Ecology within 30 days of completing this well. All pump test data for this well shall be submitted to the Department as it is obtained.

"The combined withdrawal rate from both wells, under this superseding certificate shall not exceed 425 gpm. The annual withdrawal for the Clearwood system under all currently existing water rights is limited to 529.2 acre-feet per year."

This permit is subject to the implementation of the minimum requirements established in the Conservation Planning Requirements, Guideline and Requirements for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs, July 1994, and as revised.

Under RCW 90.03.005 and 90.54.020(6), conservation and improved water use efficiency must be emphasized in the management of the states water resources, and must be considered as a potential new source of water. Accordingly, as part of the terms of this permit, the applicant shall prepare and implement a water conservation plan approved by Department of Health. The standards for such a plan may be obtained from either the Department of Health or the Department of Ecology.

The well access port shall be maintained at all times.

The water appropriated under this application will be used for public water supply. The State Board of Health rules require public water supply owners to obtain written approval from the Office of Water Supply, Department of Health, Mail Stop 7822, Building 3, Olympia, Washington 98504-7822 prior to any new construction or alterations of a public water supply system.

An approved metering device shall be installed and maintained in accordance with RCW 90.03.360, WAC 508-64-020 through -040 (installation, operation, and maintenance requirements are attached). Meter readings shall be recorded at least monthly.

REPORTED BY: _____ Date: July 12, 1995

The statutory permit-fee for this application is $20.00.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Olympia

APPLICATION FOR CHANGE TO ADD A POINT OF WITHDRAWAL

TAKE NOTICE: That Clearwood Community Association has filed a change application to add a point of withdrawal to public waters grated under Ground Water Certificate No. G 2-33124C which was issued for 425 gallons per minute (gpm) from a well for multiple domestic supply located within Section 31, T. 16 N., R. 3 E.W.M. Thurston County, Washington.

The Association wishes to add a point of withdraw to increase reliability and efficiency of the water system and to reduce the effects of peak-rate pumping on the aquifer.

The new point of withdrawal will be located approximately 1500 feet North and 150 feet East of the Southwest corner of Section 32, T. 16 N., R. 3 E.W.M.

Protests or objections to approval of the application must include a detailed statement of the basis for objections; protests must be accompanied by a two dollar ($2.00) recording fee and filed with the Department of Ecology, Southwest Regional Office, PO Box 47775 Olympia, Washington 98504-7775 within thirty (30) days from _____. (Last date of publication to be enclosed here by publisher).

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Accepted By: [illegible]
Date: 4/25/95
Is Field Exam Required? ☐ YES ☐ NO
Determined By:

APPLICATION FOR CHANGE OF WATER RIGHT

☐ PURPOSE ☐ DIVERSION OR WITHDRAWAL
☐ PLACE ☒ ADDITIONAL POINT OR POINTS

NAME
Clearwood Community Association (DOH ID# 13615U)

Bus. Tel 360-894-2941
Home Tel
Other Tel FAX 360-894-2497

ADDRESS: 21603 Clear Lake Blvd N | CITY: Yelm | STATE: WA | ZIP CODE: 98597 9030

APPLICATION NUMBER | PERMIT NUMBER | CERTIFICATE NUMBER: G2-23124

RECORDED RIGHT (TITLE OF CASE)

APPROPRIATIONS MADE (GIVE DATE IF PRIOR TO JUNE 7, 1917 IF SURFACE WATER, OR JUNE 7, 1945 IF GROUND WATER)

IS THE WATER RIGHT RECORDED IN YOUR NAME? ☐ YES ☒ NO | IF NO, GIVE NAME RECORDED UNDER: Quadrant Corporation

1. RIGHT CONSISTS OF

WATERS USED FROM (STREAM, LAKE, WELL, OR SPRING, ETC.): WELL | GALLONS PER MINUTE OR CUBIC FEET PER SECOND: 425 GPM

WATER CURRENTLY USED FOR: Domestic Multiple | TIME OF USE: Year round

2. LOCATION OF PRESENT POINT OF DIVERSION OR WITHDRAWAL

ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.
1480' East & 1050' North of the SW Corner of Section 31

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE E. OR W.	COUNTY
	31	16N	03E	Thurston

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

3. LEGAL DESCRIPTION OF LANDS WATER IS USED ON

Plat of Clearwood, Divisions 1-19, and all lands served by the Clearwood Water System (ID No. 13615U), as approved by the Washington Department of Health, that are included within Sections 31 and 32, T16N, R3EWM and Sections 5 and 6, T15N, R3EWM.

SECTION	TOWNSHIP N.	RANGE E. OR W.	COUNTY
	15N and 16N	3E	Thurston

(ATTACH SEPARATE SHEET IF NECESSARY)

ARE YOU THE LEGAL OWNER OF THE ABOVE DESCRIBED LANDS? ☐ YES ☒ NO | IF NO, EXPLAIN YOUR INTEREST

Clearwood Community Association is a non-profit corporation whose members are owners of property in the above-described place of use.

REASONS FOR THE PROPOSED CHANGE

An additional POW is required to increase the reliability and efficiency of the water system, and to reduce the effects of peak-rate pumping on the aquifer.

A MINIMUM FEE OF $10.00 MUST ACCOMPANY THIS APPLICATION

CONTINUE ON REVERSE SIDE

CHANGE

ECY 040-102
Rev. 11/85 OS A-216

4. CHANGE REQUESTED

CHANGE WATER USE TO	TIME OF USE	GALLONS PER MINUTE OR CUBIC FEET PER SECOND
N/A	N/A	N/A

5. LOCATION OF PROPOSED POINT OF DIVERSION OR WITHDRAWAL

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION. SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER.

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

Approximately 1500' North and 150' East of the SW Corner Section 32 T16N R1EWM

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE E. OR W.M. W.M.	COUNTY
	32	16N	1EWM	Thurston

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

ARE YOU THE OWNER OF THE LAND ON WHICH THE PROPOSED POINT OF DIVERSION OR WITHDRAWAL IS TO BE LOCATED

☒ YES ☐ NO

6. LEGAL DESCRIPTION OF LANDS WATER IS TO BE USED ON

Same as above

SECTION	TOWNSHIP N.	RANGE E. OR W.M. W.M.	COUNTY

(ATTACH SEPARATE SHEET IF NECESSARY)

ARE YOU THE LEGAL OWNER OF THE ABOVE DESCRIBED LANDS	IF NO, EXPLAIN YOUR INTEREST
☐ YES ☐ NO	

Same as above

Francis L. deVilla TREASURER

APPLICANT'S SIGNATURE

Corres. to:

The Quadrant Corp.
Box C
Tacoma, Wn. 98401
Attn: R. N. Hogencen

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PROGRESS SHEET

COMPUTER INPUT
- [x] APPLICATION
- [ ] PERMIT
- [ ] CERTIFICATE
- [ ] OTHER

Thurston ☐ SURFACE WATER ☒ GROUND WATER

NAME			TELEPHONE NO.
THE QUADRANT CORPORATION			455-2900
ADDRESS (CITY)		(STATE)	(ZIP CODE)
N.E. 8th & 112th N.E.	Bellevue	Wa.	98009
ASSIGNED TO		TELEPHONE NO.	DATE ASSIGNED
ADDRESS (CITY)		(STATE)	(ZIP CODE)

APPLICATION NO.	PERMIT NO.	CERTIFICATION NO.
G-223121	P	C
DATE AMENDED	DATE CANCELLED	R.E.I.A.

APPLICATION

DATE APPLICATION RECEIVED	INITIAL $10.00 FEE RECEIVED	DATE FEE RECEIVED
9-6-74	[XX] YES ☐ NO	9-16-74
STATEMENT OF ADDITIONAL EXAMINATION FEE	DATE SENT	DATE RECEIVED
DATE RETURNED FOR COMPLETION OR CORRECTION	DATE RECEIVED	

TEMPORARY PERMIT

APPROVED BY	DATE ISSUED

PUBLICATION

APPROVED BY	DATE APPROVED	DATE NOTICE SENT
GBS	11/8/74	12-11-74
PROTESTED BY AND DATE		

DATE AFFIDAVIT RECEIVED	CHECKED BY	TIME EXPIRED	DATE AMENDED NOTICE SENT	DATE AFFIDAVIT RECEIVED	TIME EXPIRED
1-30-75	[illegible]	1-25-75			

DEPARTMENT OF GAME AND FISHERIES REPORT

APPROVED	PROVISO	PROTEST

EXAMINATION

DATE EXAMINATION MADE	MADE BY	DATE REPORT OF EXAM. WRITTEN	WRITTEN BY	CHECKED BY
9/2/75 telem	DM	9/3/75	DM	WB
DATE PERMIT FEE REQUESTED	AMOUNT DUE	DATE RECEIVED		
9-9-75	$20.00	9-16-75 P		

PERMIT

PERMIT APPROVED BY	DATE APPROVED	PERMIT NO.	DATE ISSUED
P	10-3-75	P	10-3-75

BEGINNING OF CONSTRUCTION

DATE NOTICE SENT	DATE FILED	EXTENSION FEE
(Started)		
EXTENDED TO	EXTENDED TO	

WELL DRILLER'S AND/OR CONSTRUCTION REPORT

DATE SENT	DATE FILED
	4/11/75 WB

COMPLETION OF CONSTRUCTION

DATE NOTICE SENT	DATE FILED	EXTENSION FEE
(Completed)		
EXTENDED TO	EXTENDED TO	

PROOF OF APPROPRIATION

DATE SENT	DATE FILED	EXTENSION FEE	EXTENDED TO
10-15-75			
DATE CERTIFICATE FEE REQUESTED	AMOUNT DUE	DATE RECEIVED	DATE APPROVED FOR CERTIFICATE	APPROVED BY
		9-5-76		

CERTIFICATION

PROOF EXAM. REQUIRED	CERTIFICATE NUMBER	DATE ISSUED
☐ YES ☐ NO	C	10-25-76

REMARKS

PROVISIONS

The access port as required on your permit, shall be maintained at all times.

The measuring device as required on your Permit shall be maintained at all times.

In no instance shall the total annual quantity withdrawn under all existing rights exceed 529.2 acre-feet per year for community domestic purposes.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia, Washington, this 25th *day of* October, *19*76.

JOHN A. BIGGS, *Director*
Department of Ecology

by E. W. Asselstine

E. W. Asselstine, Regional Manager

ENGINEERING DATA
ON RLC

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

PROOF OF APPROPRIATION OF WATER

APPLICATION NUMBER		PERMIT NUMBER
G2-23124		G2-23124P

NAME OF PERMITTEE
The Quadrant Corporation

POST OFFICE ADDRESS	(CITY)	(STATE)	(ZIP CODE)
NE 8th @ 112th NE	Bellevue	WA	98004

ACTUAL SOURCE OF APPROPRIATION
Well

PURPOSE OR PURPOSES WATER IS USED FOR
Community Domestic Supply

DATE WATER WAS COMPLETELY APPLIED TO PERMITTED USE	IF USED FOR IRRIGATION: NUMBER OF ACRES ACTUALLY IRRIGATED
December 12, 1975	N/A

IF SOURCE IS A WELL, IS AN ACCESS PORT NOW INSTALLED	MONTHS DURING WHICH WATER IS USED
[XX] YES [ ] NO	All Year

PUMP SIZE
30 HP

ACTUAL AMOUNT WITHDRAWN OR DIVERTED FROM PERMANENT SYSTEM
425 [X] GPM [ ] CFS

HAVE ALL PROVISIONS AS REQUIRED IN PERMIT BEEN ACCOMPLISHED	IF NO, EXPLAIN
[XX] YES [ ] NO	

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED (USE ADDITIONAL SHEET IF NECESSARY)

Plat of Clearwood Divisions No. 1 through No. 19; all within Sections 31 and 32, T.16N., R.3E. W.M., and Sections 5 and 6, T.15N., R.3E. W.M.

same as permit

STATE OF WASHINGTON,
County of ..... } ss.

I, Robert M Hanson, being first duly sworn, depose and say that I have read the above and foregoing proof of appropriation; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 1st day of September 1976

[signature]
Permittee Signature

Subscribed and sworn to before me this 1st day of September 1976.

Virginia Kay Woods
Notary Public

OK to issue cert. as permit
9-8-76 [initials]

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ SURFACE WATER ☒ GROUND WATER

PERMIT NUMBER	APPLICATION NUMBER	PRIORITY DATE	
G2-231242	G2-23124	September 6, 1974	

NAME
THE QUADRANT CORPORATION

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
NE 8th & 112th AE	Bellevue	Washington	98009

The applicant is, pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following described public waters of the State of Washington, subject to existing rights and to the limitations and provisions set out herein.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
well
TRIBUTARY (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	425	529.2

QUANTITY, TYPE OF USE, PERIOD OF USE
529.2 acre-feet per year | community domestic supply | continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL
1500 feet east and 1050 feet north of the southwest corner of Sec. 31

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE E. OR W. W.M.	W.R.I.A.	COUNTY
	31	16	3 E	11	Thurston

RECORDED PLATTED PROPERTY

LOT	BLOCK	BY (GIVE NAME OF PLAT OR ADDITION)
Tract D		Clearwood, Div. No. 1

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Plat of Clearwood, Divisions No. 1 through No. 19; ALL within Secs. 31 and 32, T. 16 N., R. 3 E.W.M., AND Secs. 5 and 6, T. 15 N., R. 3 E.W.M.

DESCRIPTION OF PROPOSED WORKS

well - 10" x 90'±

DEVELOPMENT SCHEDULE

BEGINNING DATE	COMPLETION DATE	DATE COMPLETE APPLICATION OF WATER TO BE MADE
Started	Completed	September 1, 1976

PROVISIONS AND RECOMMENDATIONS

This application is for the purpose of obtaining a water supply for a community domestic water system consisting of 1575 services.

For a development of this magnitude and nature in this locale, 300 gallons per day per service will meet the water demand of each service. For 1575 services, this amounts to 529.2 acre-feet per year.

Ground Water Certificate No. 3459-A and Ground Water Permit No. 7391 are also appurtenant to this property. Any right issued under Application No. G2-23124 will be conditioned as follows: "In no instance shall the total annual quantity withdrawn under all existing rights exceed 529.2 acre-feet per year for community domestic purposes."

Use of the waters to be appropriated under this application will be for a public water supply. State Board of Health rules require every owner of a public water supply to obtain written approval from the Water Supply and Waste Section, Health Services Division, PO Box 1788, Olympia, WA 98504 prior to any new construction or alterations of a public water supply.

The installation of an access port as described in attached Ground Water Bulletin No. 1 shall be required prior to issuance of final certificate of water right. The applicant may, for his own convenience, wish to install an airline and gage in addition to the access port.

Applicant is advised that notice of proof of appropriation of water (under which final certificate of water right issues) should not be filed until the permanent diversion facilities have been installed together with a mainline system capable of delivering the recommended quantity of water to an existing or proposed distribution system within the area to be served.

"A suitable measuring device shall be installed and maintained in accordance with WAC 508-64-020 through WAC 508-64-040." (Installation, operation and maintenance requirements attached hereto.)

Accordingly, this application may be approved for 425 gallons per minute on a continuous basis, not to exceed 529.2 acre-feet annually.

Signed at Olympia, Washington
this 8 day of SEPT, 1975.

THEODORE J. MIX, Resources Management
Department of Ecology

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ SURFACE WATER ☐ GROUND WATER

APPLICATION NO.	PRIORITY DATE OF APPLICATION
~~G1-28124~~	~~September 6, 1974~~

NAME
THE QUADRANT CORPORATION

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
NE 8th & 112th NE	Bellevue	Washington	98009

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	425	529.2

QUANTITY, TYPE OF USE, PERIOD OF USE
529.2 acre-feet per year — community domestic supply — continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL
1500 feet east and 1050 feet north of the southwest corner of Sec. 31

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE E. OR W.	W.M.	W.R.I.A.	COUNTY
	31	16	3 E		11	Thurston

RECORDED PLATTED PROPERTY

LOT	BLOCK	(GIVE NAME OF PLAT OR ADDITION)
Tract A		Clearwood, Div. No. 1

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Plat of Clearwood, Divisions No. 1 through No. 19; ALL within Secs. 31 and 32, T. 16 N., R. 3 E.W.M., AND Secs. 5 and 6, T. 15 N., R. 3 E.W.M.

DESCRIPTION OF PROPOSED WORKS

well - 10" x 90'±

DEVELOPMENT SCHEDULE

BEGINNING DATE	COMPLETION DATE	DATE COMPLETE APPLICATION OF WATER TO BE MADE
Started	Completed	September 1, 1976

PROVISIONS

The installation of an access port as described in Ground Water Bulletin No. 1 shall be required prior to issuance of final certificate of water right.

Permittee is advised that notice of proof of appropriation of water (under which final certificate of water right issues) should not be filed until the permanent diversion facilities have been installed together with a mainline system capable of delivering the recommended quantity of water to an existing or proposed distribution system within the area to be served.

"A suitable measuring device shall be installed and maintained in accordance with WAC 508-64-020 through WAC 508-64-040."

In no instance shall the total annual quantity withdrawn under all existing rights exceed 529.2 acre-feet per year for community domestic purposes.

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Olympia, Washington, this 3rd *day of* October, *19* 75

JOHN A. BIGGS, *Director*
Department of Ecology

by E. W. Asselstine
E. W. Asselstine
Regional Manager

ENGINEERING DATA
OK P

All correspondence to:
The Quadrant Corporation
Box C
Tacoma, Wash 98401
Attn: R.N. Mogensen

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

APPLICATION FOR PERMIT
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ SURFACE WATER ☒ GROUND WATER

$10.00 MINIMUM STATUTORY EXAMINATION FEE REQUIRED WITH APPLICATION
(GRAY BOXES FOR OFFICE USE ONLY)

APPLICATION NO.	W.R.I.A.	COUNTY	PRIORITY DATE	TIME	ACCEPTED
223124	11	THURSTON	9-6-74	2PM	DM

APPLICANT'S NAME: THE QUADRANT CORPORATION
TELEPHONE NUMBER: 455-2900

DATE & PLACE OF INCORPORATION IF APPLICANT IS A CORPORATION: 1-1-69 - Washington

ADDRESS (STREET): N. E. 8th & 112th N. E. (CITY): Bellevue (STATE): Washington (ZIP CODE): 98009

1. SOURCE OF SUPPLY

IF SURFACE WATER	IF GROUND WATER
SOURCE (NAME OF STREAM, LAKE, SPRING, ETC.) (IF UNNAMED, SO STATE)	SOURCE (WELL, TUNNEL, INFILTRATION TRENCH, ETC.) Well
TRIBUTARY OF	SIZE AND DEPTH 10" - 90'+

2. USE

USE TO WHICH WATER IS TO BE APPLIED (DOMESTIC SUPPLY, IRRIGATION, MINING, MANUFACTURING, ETC.)
Domestic Supply

CUBIC FEET PER SECOND OR GALLONS PER MINUTE	ACRE FEET PER YEAR
425 ☐ CFS ☒ GPM	

TIMES DURING YEAR WATER WILL BE REQUIRED
January 1 to December 31
Continuously

IF IRRIGATION, NUMBER OF ACRES	NUMBER OF HOMES OR UNITS, IF DOMESTIC	ESTIMATED POPULATION 20 YEARS FROM THIS DATE IF MUNICIPAL SUPPLY
	~~DHE~~ 1572	
DATE PROJECT WILL BE STARTED: As soon as permit is obtained	DATE PROJECT WILL BE COMPLETED: December, 1975	1976

3. LOCATION OF POINT OF DIVERSION/WITHDRAWAL

ON ACCOMPANYING PLATS OR MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION. GIVE MEASURED DISTANCE AND BEARING, OR NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
~~Government Lot 5~~	31	16	3E	Thurston

Located 50 feet ~~East~~ West of existing well Ground Water Permit No. 7391
1580' east & 1060' north of SW corner of Sec. 31

DO YOU OWN THE LAND ON WHICH THIS SOURCE IS LOCATED. IF NOT, INSERT NAME & ADDRESS OF OWNER
Yes

4. IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
Tract B	--	Clearwood, Division #1 One, ~~recorded in Volume 15, Page 33~~

5. LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

COPY LEGAL DESCRIPTION FROM DEED; OR ATTACH COPY OF DEED. TAX STATEMENT DESCRIPTIONS ARE NOT ACCEPTABLE. ALSO OUTLINE THIS PROPERTY ON THE MAPS OR PLATS SUBMITTED WITH THIS APPLICATION.

~~Note~~
Clearwood, Divisions #1 through #10 ~~as shown on the enclosed map~~
All within Secs. 31 & 32, T. 16N, R. 3E WM and Secs. 5 & 6, T. 15N, R. 3E WM.

WHAT IS YOUR INTEREST IN THE PROPERTY ON WHICH THE WATER IS TO BE USED? (PROPERTY OWNER, LESSEE, CONTRACT PURCHASER, ETC.)

Developer

ARE THERE ANY EXISTING WATER RIGHTS APPURTENANT TO THE LAND ON WHICH THE WATER IS TO BE USED

[X] YES, [ ] NO

IF YES, FROM WHAT SOURCE AND UNDER WHAT AUTHORITY

Well-Book No. 15 of Ground Water Permits, on Page 7391 under Application No. 7832 - 900 Gallons per minute - 470 Ac. Ft. per year

6. SIGNATURES

THE QUADRANT CORPORATION

APPLICANT'S SIGNATURE

Dickie Durand Pres

President LEGAL LANDOWNER'S SIGNATURE

N.E. 8th at 112th N.E.

LEGAL LANDOWNER'S ADDRESS

IF 10 ACRE-FEET OR MORE OF WATER IS TO BE STORED AND/OR IF THE WATER DEPTH WILL BE 10 FEET OR MORE AT THE DEEPEST POINT, A STORAGE PERMIT MUST BE FILED IN ADDITION TO THIS PERMIT. THESE FORMS CAN BE SECURED, TOGETHER WITH INSTRUCTIONS, FROM THE DEPARTMENT OF ECOLOGY.

REMARKS (TYPE OF SYSTEM PROPOSED)

The distribution system (underground pipe-10", 8", 6", 4", 2") is approximately 90% complete and will be completed by December, 1975. This system has been approved by the Department of Social and Health Services. The system includes an existing 182,000 gallon storage tank. The existing well which contains a 7.5 H.P. Submersible Pump that pumps 100 gallons per minute was developed under Application No. 7832. A completion of construction form for Application No. 7832 will be filed soon.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY } ss.

This is to certify that I have examined the foregoing application together with the accompanying maps and data, and return the same for correction or completion as follows: .....

.....

.....

In order to retain its priority, this application must be returned to the Department of Ecology, with corrections, on or before ....., 19.....

Witness my hand this ..... *day of* ....., 19.....

.....

Department of Ecology

Department of Ecology

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ SURFACE WATER ☒ GROUND WATER

$100.00 MINIMUM STATUTORY EXAMINATION FEE REQUIRED WITH APPLICATION

(GRAY BOXES FOR OFFICE USE ONLY)

APPLICATION NO. G2-29197 | WR A 11 | COUNTY Thurston | PRIORITY DATE MAR -3 P | MAP | ACCEPTED

APPLICANT'S NAME — PLEASE PRINT

CLEARWOOD COMMUNITY ASSOCIATION

Area Code Phone No. 360-894-2941

Area Code Other Tel. FAX 360-894-2497

ADDRESS (STREET) 21601 Clear Lake Blvd N. | CITY Yelm | STATE WA | ZIP CODE 98597

DATE & PLACE OF INCORPORATION IF APPLICANT IS A CORPORATION

90830

1. SOURCE OF SUPPLY

IF SURFACE WATER

SOURCE NAME OF STREAM, LAKE, SPRING, ETC. (PURCHASE, POTABLE)

DIVERSION

3/3/95

DATE

SIGNATURE OF APPLICANT

IF GROUND WATER

SOURCE (WELL, TUNNEL, INFILTRATION TRENCH, ETC.)

WELL

SIZE AND DEPTH

Estimated Depth 100 Ft

2. USE

USE TO WHICH WATER IS TO BE APPLIED (DOMESTIC, SUPPLY, IRRIGATION, WATERING, MANUFACTURING, ETC.)

Community Domestic

RATE OF QUANTITY OF WATER REQUESTED USING UNITS OF: CUBIC FEET PER SECOND (CFS) OR GALLONS PER MINUTE (GPM) 1000 | ACRE FEET PER YEAR 329.2 (Suppl)

TIMES DURING YEAR WATER WILL BE REQUIRED Yearround

IF IRRIGATION, NUMBER OF ACRES

IF DOMESTIC USE, NUMBER OF UNITS BY TYPE, E.G. 3 HOME, 1 MOBILE HOME, 2 CAMPSITES, ETC. 1355 Domestic Lots

IF MUNICIPAL USE, ESTIMATED POPULATION 20 YEARS FROM TODAY

DATE PROJECT WAS OR WILL BE STARTED 3/1/96

DATE PROJECT WAS OR WILL BE COMPLETED 6/1/96

3. LOCATION OF POINT OF DIVERSION/WITHDRAWAL

A. IF IN PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)	SECTION	TOWN	RANGE
	DIV VI	CLEARWOOD	32	16N	03EWM

ALSO, PLEASE ENCLOSE A COPY OF THE PLAT AND MARK THE POINT(S) OF WITHDRAWAL OR DIVERSION

B. IF NOT IN PLATTED PROPERTY

ON ACCOMPANYING SECTION MAP, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION, SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL

Approximately 1500'N and 150'E SW Corner Sec 32

LOCATE WITHIN SMALLEST LEGAL SUBDIVISION	SECTION	TOWNSHIP N.	RANGE E. OR W.	COUNTY
DIV VI CLEARWOOD NW¼ SW¼	32	16	3E	Thurston

4. DO YOU OWN THE LAND ON WHICH THE SOURCE IS LOCATED? IF NOT, INSERT NAME & ADDRESS OF OWNER

5. LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

ATTACH A COPY OF THE LEGAL DESCRIPTION OF THE PROPERTY ON WHICH THE WATER WILL BE USED TAKEN FROM A REAL ESTATE CONTRACT, PROPERTY DEED OR TITLE INSURANCE POLICY, OR COPY CAREFULLY IN THE SPACE BELOW

Plat of Clearwood, Divisions 1-19, and all lands served by the Clearwood Water System (ID No. 13615U), as approved by the Washington Department of Health, included within Sections 31 and 32, T.16N R3EWM and Sections 5 and 6, T15N R3EWM.

APPLICATION

ECY 040-1-16
Rev. 6/93

[illegible]

(USE ANY EXISTING WATER RIGHTS RELATED TO THE LAND ON WHICH THE WATER IS TO BE USED (INCLUDING WATER PROVIDED BY NATION DISTRICTS OR DITCH COMPANIES)

☒ YES ☐ NO

IF YES, FROM WHAT SOURCE (I.E. SURFACE OR GROUND WATER) AND UNDER WHAT AUTHORITY

Groundwater, under certificates G2-01008 and G2-23124

6. DESCRIPTION OF SYSTEM PROPOSED OR INSTALLED

(FOR EXAMPLE, SIZE OF PUMP, CAPACITY OF PUMP, PUMP MOTOR HORSE POWER, PIPE OR METER, NUMBER OF SPRINKLERS, ETC.)

A well, with production capacity of 1,000 gpm continuously, connected to an existing distribution system.

REMARKS

7. Annual quantity need only be supplemental to existing rights.

IF 10 ACRE-FEET OR MORE OF WATER IS TO BE STORED AND/OR IF THE WATER DEPTH WILL BE 10 FEET OR MORE AT THE DEEPEST POINT, A STORAGE PERMIT MUST BE FILED IN ADDITION TO THIS PERMIT. THESE FORMS CAN BE SECURED, TOGETHER WITH INSTRUCTIONS, FROM THE DEPARTMENT OF ECOLOGY.

SIGNATURES

CLEARWOOD COMMUNITY ASSOCIATION

LEGAL LANDOWNER'S NAME (PLEASE PRINT)

Donald A. Praast

APPLICANT'S SIGNATURE

(Chairman, Board of Directors)

CLEARWOOD COMMUNITY ASSOCIATION

LEGAL LANDOWNER'S SIGNATURE (OWNER OF PROPERTY) REQUIRED IN PRESENTATION

21603 Clear Lake Blvd. N.

Yelm, WA 98597

LEGAL LANDOWNER'S ADDRESS

FOR OFFICE USE ONLY

STATE OF WASHINGTON }
DEPARTMENT OF ECOLOGY } ss

This is to certify that I have examined this application together with the accompanying maps and data, and am returning it for correction or completion as follows: .....

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Witness my hand this ..... *day of* ..... 19.....

.....

Department of Ecology

ECY 8[illegible]
Rev. [illegible]

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

Date Submitted: 12/10/2009

Water Use Efficiency
Annual Performance Report - 2007

WS Name: CLEARWOOD Water System ID# : 13615 WS County: THURSTON

Report submitted by:

Meter Installation Information:

Is your water system fully metered? *Yes*

If not fully metered - Current status of meter installation:

Fully Metered was set to Yes as default - no data provided

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: _____ To _____

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*68,738,295* gallons
Authorized Consumption (AC) – Annual Volume	*58,323,825* gallons
Distribution System Leakage – Annual Volume TP – AC	*10,414,470* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*15.2 %*
3-year annual average	*%*

Goal-Setting Information:

Date of Most Recent Public Forum: _____ Has goal been changed since last performance report? *No*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

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

Date Submitted: 6/22/2011

Water Use Efficiency
Annual Performance Report - 2010

WS Name: CLEARWOOD Water System ID# : 13615 WS County: THURSTON

Report submitted by: *Julie Rhey-Baumann*

Meter Installation Information:

Is your water system fully metered? *Yes*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *01/01/2010* To *12/31/2010*

Incomplete or missing data for the year? *Yes*

If yes, explain:

Wasn't keeping good enough track of unmetered water for flushing.

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*60,384,572* gallons
Authorized Consumption (AC) – Annual Volume	*54,595,383* gallons
Distribution System Leakage – Annual Volume TP – AC	*5,789,189* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*9.6 %*
3-year annual average	*%*

Goal-Setting Information:

Date of Most Recent Public Forum: *03/19/2011* Has goal been changed since last performance report? *Yes*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

Meters are read every 3 months , there for if a leak or high usage is seen by the reader a courtesy letter is posted to the residents door . Next reading is a follow up.This helps the household to fix there leaks . Have found usage has lowered. They have a web site to find tips on conservation.

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

supply side goals 1. Keep with our 10% or less leakage, 2. keep with our leak detection every 5 years, 3. keep better track of our accounted for water usage on flushing,4. Web site information on water tips, 5. water has a booth at 2 special public meeting per year. 6. Rate increase on tiers for 2011. 7. Residentual meter replacement project to begin 2011, will be continual for ever. 8. flow meters to be replaced for all wells in 2011.
Customer side goals 1. they get courtesy letters on high usage or a spinning meter on there leaks, 2. the new rate increase will have them use water more efficiently, 3. they have the web site to find tips on consevation.

Do not mail, fax, or email this report to DOH

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

Date Submitted: 4/10/2012

Water Use Efficiency
Annual Performance Report - 2011

WS Name: CLEARWOOD Water System ID# : 13615 WS County: THURSTON

Report submitted by: *albert darrow*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *12/01/2010* To *12/01/2011*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*67,059,489* gallons
Authorized Consumption (AC) – Annual Volume	*54,775,216* gallons
Distribution System Leakage – Annual Volume TP – AC	*12,284,273* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*18.3 %*
3-year annual average	*14.4 %*

Goal-Setting Information:

Date of Most Recent Public Forum: *08/20/2011* Has goal been changed since last performance report? *No*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

the goal will be to maintain the current annual and peak day consumption per customer. Customer education plays a large part in assuring that WUE goals are created, adopted and achieved. Customer education will continue to be provided through periodic mailings of water use statistics showing year to date standings.

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

The authorized water use is close to last years totals.

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

supply side goals 1. Keep with our 10% or less leakage, 2. keep with our leak detection when needed, 3. keep better track of our accounted for water usage on flushing,4. Web site information on water tips, 5. water has a booth at 2 special public meeting per year. 6. Rate increase on tiers for 2011. 7. Residentual meter replacement project has begun in 2011, will be on a 10 years cycle continual for ever. 8. flow meters have been replaced for all wells in 2011.

Customer side goals 1. they get courtesy letters on high usage or a spinning meter on there leaks, 2. the new rate increase will have them use water more efficiently, 3. they have the web site to find tips on conservation.

Do not mail, fax, or email this report to DOH

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

Date Submitted: 2/5/2013

Water Use Efficiency
Annual Performance Report - 2012

WS Name: CLEARWOOD Water System ID# : 13615 WS County: THURSTON

Report submitted by: *albert darrow*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *12/01/2011* To *12/01/2012*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*72,754,251* gallons
Authorized Consumption (AC) – Annual Volume	*54,958,080* gallons
Distribution System Leakage – Annual Volume TP – AC	*17,796,171* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*24.5 %*
3-year annual average	*17.5 %*

Goal-Setting Information:

Date of Most Recent Public Forum: *08/18/2012* Has goal been changed since last performance report? *No*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

reduce annual domestic demand per customer by 12%
reduce peak demand per customer by 10%
We are currently using tier rate structure and customer education through pamphlets at our annual meetings.

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

from 2011 to 2012 the average domestic demand has decreased by 3%
from 3rd quarter 2011 to 3rd quarter 2012 the peak gallons consumed decreased by 15%

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

reduce leakage to 10% in 5 years.
have done a distribution side leak detection. We have started to repair main and service line leaks. We are also continuing are meter replacement program. In 2013 a new tier rate will be going to the membership that will help water conservation on the demand side

Do not mail, fax, or email this report to DOH

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

Date Submitted: 3/26/2014

Water Use Efficiency
Annual Performance Report - 2013

WS Name: CLEARWOOD Water System ID# : 13615 WS County: THURSTON

Report submitted by: *albert darrow*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *12/01/2012* To *12/01/2013*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*59,297,622* gallons
Authorized Consumption (AC) – Annual Volume	*55,112,014* gallons
Distribution System Leakage – Annual Volume TP – AC	*4,185,608* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*7.1 %*
3-year annual average	*16.6 %*

Goal-Setting Information:

Date of Most Recent Public Forum: *08/18/2012* Has goal been changed since last performance report? *No*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

reduce annual domestic demand per customer by 12% reduce peak demand per customer by 10% We are currently using tier rate structure and customer education through pamphlets at our annual meetings.

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

In 2013 we have seen a 2% increase in consumption. We feel this in closely in line with out historic averages. We are continuing are education and have implemented a new tier system that has a greater conservation in mind. With this we hope to maintain or lower our average gallons consumed per day in 2014.

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

In 2012 Clearwood had a distribution leakage percent of 24.5%. We hired a leak detection agency to identify leakage in our distribution system. We found a dozen point which were leaking and repaired them. We are currently sitting at 7.1% total leakage. We plan to maintain less than 10%, if the leakage % goes over that Clearwood will hire for leak detection again. We are also in the process of changing out our meters in a 10 year cycle.

Do not mail, fax, or email this report to DOH

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

Date Submitted: 3/19/2015

Water Use Efficiency
Annual Performance Report - 2014

WS Name: CLEARWOOD Water System ID# : 13615 WS County: THURSTON

Report submitted by: *albert darrow*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *12/01/2013* To *12/01/2014*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*58,189,861* gallons
Authorized Consumption (AC) – Annual Volume	*54,164,358* gallons
Distribution System Leakage – Annual Volume TP – AC	*4,025,503* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*6.9 %*
3-year annual average	*12.8 %*

Goal-Setting Information:

Date of Most Recent Public Forum: *08/18/2012* Has goal been changed since last performance report? *Yes*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

In 2014 we implemented a new tier rate structure. The average gallons used per day per full time water consumer was approximately 58 gallons per day. Our goal for 2015 is to maintain the customer side demand for the next year.

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

Clearwood has been working on keeping the leakage percent below 10%. We have accomplished this for 2014. The leakage percentage is higher then it predicted to be due to leaks that happened late 2014 and was fixed in early 2015.

Do not mail, fax, or email this report to DOH

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

Date Submitted: 3/11/2016

Water Use Efficiency
Annual Performance Report - 2015

WS Name: CLEARWOOD Water System ID# : 13615 WS County: THURSTON

Report submitted by: *albert darrow*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: _____ To *12/01/2015*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*62,961,776* gallons
Authorized Consumption (AC) – Annual Volume	*54,147,140* gallons
Distribution System Leakage – Annual Volume TP – AC	*8,814,636* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*14.0 %*
3-year annual average	*9.3 %*

Goal-Setting Information:

Date of Most Recent Public Forum: *08/18/2012* Has goal been changed since last performance report? *Yes*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

In 2014 we implemented a new tier rate structure. The average gallons used per day per full time water consumer was approximately 57 gallons per day. Our goal for 2016 is to maintain the customer side demand for the next year.

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

The average usage for 2015 for each person is 57 gallons per day. This is a reduction on 1 gallon per day. The new tiers that we implemented in 2014 Is Having an effect in lowering the total usage.

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

Clearwoods goal is to keep our loss under 10%. If the quarterly loss goes over 10% we will call in a leak detection company to do a survey of our system, and repair any leaks that are found. In 2015 Clearwood have one main line leak and one service line leaks that had to be repaired.

Do not mail, fax, or email this report to DOH

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

Date Submitted: 4/5/2017

Water Use Efficiency
Annual Performance Report - 2016

WS Name: CLEARWOOD Water System ID# : 13615 WS County: THURSTON

Report submitted by: *a darrow*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *12/01/2015* To *12/01/2016*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*66,241,945* gallons
Authorized Consumption (AC) – Annual Volume	*55,013,354* gallons
Distribution System Leakage – Annual Volume TP – AC	*11,228,591* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*17.0 %*
3-year annual average	*12.6 %*

Goal-Setting Information:

Date of Most Recent Public Forum: *09/24/2016* Has goal been changed since last performance report? *No*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

In 2014 we implemented a new tier rate structure. The average gallons used per day per full time water consumer was approximately 57 gallons per day. Our goal for 2016 is to maintain the customer side demand for the next year.

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

Our goal was to maintain the average usage per day per person. The average usage for 2016 per person was 58 gallons per day This is an increase of only 1 gallon per person per day. This shows that the rate structure is still effective.

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

Clearwood's Goal is to keep our distribution loss to under 10%. If the quarterly loss goes over 10% we will call in a leak detection service to survey our system, and repair any leaks found. In 2016 the were 2 distribution leaks that we found and repaired.

Do not mail, fax, or email this report to DOH

Water Quality Monitoring Schedule

System: CLEARWOOD **PWS ID: 13615 U** **Region: SOUTHWEST**
Contact: Albert R Darrow **Group: A - Comm** **County: THURSTON**

NOTE: To receive credit for compliance samples, you must fill out laboratory and sample paperwork completely, send your samples to a laboratory accredited by Washington State to conduct the analyses, AND ensure the results are submitted to DOH Office of Drinking Water. There is often a lag time between when you collect your sample, when we credit your system with meeting the monitoring requirement, and when we generate the new monitoring requirement.

Coliform Monitoring Requirements

	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018
Coliform Monitoring Population	2847	2847	2847	2848	2847	2847	2847	2847	2847	2847	2847	2847
Number of Routine Samples Required	3	3	3	3	3	3	3	3	3	3	3	3

- Collect samples from representative points throughout the distribution system.
- Collect required repeat samples following an unsatisfactory sample. In addition, collect a sample from each operating groundwater source.
- For systems that chlorinate, record chlorine residual (measured when the coliform sample is collected) on the coliform lab slip.

Chemical Monitoring Requirements

Distribution Monitoring

Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*	
Lead and Copper	10	Jan 2017 - Dec 2019	standard - 3 year	09/27/2016	Sep 2019	
Asbestos	1	Jan 2011 - Dec 2019	standard - 9 year	10/13/2010	Oct 2019	

Notes on Distribution System Chemical Monitoring

For *Lead and Copper*:
- Collect samples from the COLD WATER side of a KITCHEN or BATHROOM faucet that is used daily.
- Before sampling, make sure the water has sat unused in the pipes for at least 6 hours, but no more than 12 hours (e.g. overnight).
- If you are sampling from a faucet that has hot water, make sure cold water is the last water to run through the faucet before it sits overnight.
- If your sampling frequency is annual or every 3 years, collect samples between June 1 and September 30.

For *Asbestos:* Collect the sample from one of your routine coliform sampling sites in an area of your distribution system that has asbestos concrete pipe.

Water Quality Monitoring Schedule

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S03 *WF (S01,S02)* *Well Field* *Use - Permanent* *Susceptility - Moderate*

Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2017 - Dec 2017	standard - 1 year	09/12/2017	
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	10/25/2012	
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	09/23/2016	
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	05/09/2012	May 2021
Pesticides	0	Jan 2017 - Dec 2019	waiver - 3 year	11/08/2004	
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year	01/29/2007	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	09/15/2015	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	09/15/2015	

Water Quality Monitoring Schedule

Other Information

Other Reporting Schedules	*Due Date*
Submit Consumer Confidence Report (CCR) to customers and ODW (Community systems only):	07/01/2017
Submit CCR certification form to ODW (Community systems only):	10/01/2017
Submit Water Use Efficiency report online to ODW and to customers (Community and other municipal water systems only):	07/01/2017
Send notices of lead and copper sample results to the customers sampled:	30 days after you receive the laboratory results
Submit Certification of customer notification of lead and copper results to ODW:	90 days after you notify customers

Special Notes

None

Southwest Regional Water Quality Monitoring Contacts

For questions regarding chemical monitoring:	Sophia Petro: (360) 236-3046 or sophia.petro@doh.wa.gov
For questions regarding DBPs:	Sophia Petro: (360) 236-3046 or sophia.petro@doh.wa.gov
For questions regarding coliform bacteria and microbial issues:	Southwest Office: (360) 236-3030 or SWRO.Coli@doh.wa.gov

Additional Notes

The information on this monitoring schedule is valid as of the date in the upper left corner on the first page. However, the information may change with subsequent updates in our water quality monitoring database as we receive new data or revise monitoring schedules. There is often a lag time between when you collect your sample and when we credit your system with meeting the monitoring requirement.

We have not designed this monitoring schedule to display all compliance requirements. The purpose of this schedule is to assist water systems with planning for most water quality monitoring, and to allow systems to compare their records with DOH ODW records. Please be aware that this monitoring schedule does not include constituents that require a special monitoring frequency, such as monitoring affiliated with treatment.

Any inaccuracies on this schedule will not relieve the water system owner and operator of the requirement to comply with applicable regulations.

If you have any questions about your monitoring requirements, please contact the regional office staff listed above.

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.2

IMPORTANT! Please complete one form for each ground water source, (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART 1: System Information

Well owner/manager : Clearwood Community Association

Water system name : Clearwood Water System

County: Thurston County

Water system number: 13615U Source number: S03

Well depth: 60 (ft.) *(From WFI form)*

Source name: Well 1 & 2 (Well Field)

WA well identification tag number: ___ ___ ___ - ___ ___ ___

☒ well not tagged

Number of connections: 1,250 Population served: 3,125

Township: 16N Range: 3E WM

Section: 31 ¼ ¼ Section: SE ¼ of SW ¼

Latitude/longitude (if available): 46 49' 27" / 122 28' 44"

How was lat./long. Determined?

☐ global positioning device ☐ survey ☒ topographic map
☐ other:

* Please refer to Assistance Packet for details and explanations of all questions in parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 10 / 26 / 65 month/day/year

last reconstruction: 3 / 25 / 75 month/day/year

☐ information unavailable

2) Well driller: Richardson Well Drilling

219 115th St S, Tacoma, WA 98444

☐ well driller unknown

3) Type of well:

☐ **Drilled:** ☒ rotary ☐ bored ☒ cable (percussion) ☐ Dug

☐ **Other:** ☐ spring(s) ☐ lateral collector (Ranney)

☐ driven ☐ jetted ☐ other: _____

Additional comments: Well 1 was drilled by cable in 1965. Well 2 was drilled by cable and rotary in 1975.

4) Well report available? ☒ YES (attach copy to form) ☐ NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: 120 gpm

Source of information: _____

If not documented, how was pumping rate determined? Estimated from pump capacity, hour meter data and operational experience

☐ Pumping rate unknown

6) Is this source treated? ☐ YES ☒ NO

If so, what type of treatment:

☐ disinfection ☐ filtration ☐ carbon filter ☐ air stripper ☐ other

Purpose of treatment (describe materials to be removed or controlled by treatment):

_____

_____

7) If source is chlorinated, is a chlorine residual maintained: ☐ YES ☐ NO

Residual level: _____ mg/l (*At the point closest to the source.*)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

☐ (less than) 20 ft. ☐ 20-50 ft. ☒ 50-100 ft. ☐ 100-200 ft. ☐ (greater than) 200 ft.

☐ information unavailable

2) Depth to ground water (static water level)

☐ (less than) 20 ft. ☒ 20-50 ft. ☐ 50-100 ft. ☐ (greater than) 100 ft.

☐ flowing well/spring (artesian)

How was water level determined?

☒ well log ☐ other: _____

☐ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch)
or
_____ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: ☐ YES ☐ NO

5) Wellhead elevation (height above mean sea level) 560 (ft)

How was elevation determined? ☒ topographic map ☐ drilling/well log ☐ altimeter

☐ other: _____

☐ information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

☒ evidence of a confining layer in well log

☐ no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the **bottom** of the **lowest confining layer**? ☐ YES ☒ NO

☐ information unavailable

7) Sanitary setback:

☐ (less than) 100 ft.* ☐ 100-120 ft. ☐ 120-200 ft. ☒ (greater than) 200 ft.
*if less than 100 ft., describe the site conditions:

8) Wellhead construction:

☒ wellhead enclosed in a wellhouse

☒ controlled access (describe): Wellhead 1 is in a wellhouse. Wellhead 2 is in vault.

☐ other uses for wellhouse (describe):

☐ no wellhead control

9) Surface seal:

☐ 18 ft.

☐ (less than) 18 ft. (no Department of Ecology approval)

☐ (less than) 18 ft. (Approved by Department of Ecology, include documentation)

☒ (greater than) 18 ft. (well 2)

☐ depth of seal unknown

☒ no surface seal (well 1)

10) Annual rainfall (inches per year)

☐ (less than) 10 in./yr. ☐ 10-25 in./yr. ☒ (greater than) 25 in./yr.

Part IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **7,848,335** Cubic Feet

How was this determined?

[X]	meter			
[ ]	estimated:	pumping rate:	**410**	gpm
		pumping capacity:	**410**	gpm
[ ]	other:	aquifer/screen	**20**	ft

2) "Calculated Fixed Radius" estimate of groundwater movement: (see Instruction Packet)

groundwater travel time;	6 mo.	**500** ft	$r = [(Q*t)/(\pi*\eta H)]^{0.5}$
groundwater travel time;	1 yr.	**707** ft	where: r = radius (ft)
groundwater travel time;	5 yr.	**1581** ft	Q = flow (ft^3/yr)
groundwater travel time;	10 yr.	**2235** ft	t = time (yr)
			η = porosity (0.25 assumed)
length of screened/open interval:		**20** ft	H = screen/aquifer height (ft)

3) Is there a river, lake, pond, stream, or other surface water body within the six month travel boundary?

[**yes**] yes/no (if yes, identify on a map and describe below)

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the six month time of travel boundary? (if yes, identify on a map and describe below)

No

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application	☒	☒	☒	☐
stormwater injection wells	☐	☐	☐	☐
other injection wells	☐	☐	☐	☐
abandoned ground water well	☐	☐	☐	☒
landfills, dumps, disposal areas	☐	☐	☐	☐
known hazardous materials clean-up site	☐	☐	☐	☐
water system(s) with known quality problems	☐	☐	☐	☐
population density (greater than) 1 house/acre	☒	☒	☒	☐
residences commonly have septic tanks	☒	☒	☒	☐
wastewater treatment lagoons	☐	☐	☐	☐
sites used for land application of waste	☐	☐	☐	☐

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary. (*Please include a map of the wellhead and time of travel areas with this form. Please locate and mark any or the following.*)

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

Some pesticide application expected along county road.

Population density based on buildout of existing lots

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed in assessment, MCL's are listed in assistance package.)

A. Nitrate: (Nitrate MCL = 10 mg/l)	YES	NO
Results greater than MCL	☐	☒
(less than) 2 mg/liter nitrate	☐	☐
2-5 mg/liter nitrate	☐	☐
(greater than) 5 mg/liter nitrate	☐	☐

☐ Nitrate records unavailable

B. VOCs: (VOC detection level 0.5 µg/l or 0.0005 mg/l)	YES	NO
Results greater than MCL or SAL	☐	☒
VOCs detected at least once	☐	☐
VOC test performed but not detected	☐	☒

☐ VOC sampling records unavailable

C. EDB/DBCP:	YES	NO
(EDB MCL = 0.05 mg/l or 0.00005 mg/l. DBCP MCL = 0.2 mg/l or 0.0002 mg/l.)		
EDB/DBCP detected below MCL at least once	☐	☐
EDB/DBCP detected above MCL at least once	☐	☐
EDB/DBCP never detected	☐	☒

☐ EDB/DBCP tests required but not yet completed

☐ EDB/DBCP tests not required

D. Other SOCs (pesticides and other synthetic organic chemicals):	YES	NO
Other SOCs detected	☐	☐

☐ Other SOC tests performed but none detected *

☒ Other SOC tests not performed

* If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list methods here: _____

_____

_____

E. Bacterial contamination:

	YES	NO
Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records).	☐	☒
Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source.	☐	☒
Source sampling records for bacteria unavailable.	☐	☐

PART VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

☒ YES ☐ NO

Describe with references to map produced in Part IV:

Surface water bodies within 5 year and ten year boundary include Clear Lake and Toboton Creek, both at an approximate elevation of 520'.

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

☐ YES ☒ NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

☐ YES ☒ NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

☐ YES ☒ NO

4) Are there other high capacity wells (agricultural, municipal, and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within..

	YES	NO	unknown
6 month travel time	☐	☒	☐
6 month-1 year travel time	☐	☒	☐
1-5 year travel time	☐	☒	☐
5-10 year travel time	☐	☒	☐

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
1 year travel time	☐	☒	☐
1-5 year travel time	☐	☒	☐
5-10 year travel time	☐	☐	☒

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

Clear Lake and Toboton Creek are at an elevation similar to static level
S03. Because regional hydraulic gradient is east to west, the wells are
most likely influenced by Clear Lake.

Suggestions and Comments

Did you attend one of the susceptibility workshops?	☐ YES	☒ NO
Did you find it useful?	☐ YES	☐ NO
Did you seek outside assistance to complete the assessment?	☒ YES	☐ NO

This form and instruction packet are still in the process of development. Your comments, suggestions, and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic, please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.2

IMPORTANT! Please complete one form for each ground water source, (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART 1: System Information

Well owner/manager : Clearwood Community Association

Water system name : Clearwood Water System

County: Thurston County

Water system number: 13615U Source number: S05

Well depth: 45 (ft.) *(From WFI form)*

Source name: Well 4

WA well identification tag number: A E C - 8 9 0

☐ well not tagged

Number of connections: 1,250 Population served: 3,125

Township: 16N Range: 3E WM

Section: 32 ¼ ¼ Section: SW ¼ of SW ¼

Latitude/longitude (if available): 45 49' 17" / 122 27' 15"

How was lat./long. Determined?

☐ global positioning device ☐ survey ☒ topographic map
☐ other:

* Please refer to Assistance Packet for details and explanations of all questions in parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 9 / 17 / 1 month/day/year

last reconstruction: NA / ___ / ___ month/day/year

☐ information unavailable

2) Well driller: Arcadia Drilling, Inc.

170 SE Walker Park Rd, Shelton, WA 98584

☐ well driller unknown

3) Type of well:

☐ **Drilled:** ☐ rotary ☐ bored ☒ cable (percussion) ☐ Dug

☐ **Other:** ☐ spring(s) ☐ lateral collector (Ranney)

☐ driven ☐ jetted ☐ other: _____

Additional comments: _____

_____

4) Well report available? ☒ YES (attach copy to form) ☐ NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: 425 gpm

Source of information: Pump Test

If not documented, how was pumping rate determined? _____

_____

☐ Pumping rate unknown

6) Is this source treated? ☒ YES ☐ NO

If so, what type of treatment:

☐ disinfection ☐ filtration ☐ carbon filter ☐ air stripper ☒ other

Purpose of treatment (describe materials to be removed or controlled by treatment):

pH adjustment

_____

7) If source is chlorinated, is a chlorine residual maintained: ☐ YES ☐ NO

Residual level: **0.00** mg/l *(At the point closest to the source.)*

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

☐ (less than) 20 ft. ☒ 20-50 ft. ☐ 50-100 ft. ☐ 100-200 ft. ☐ (greater than) 200 ft.

☐ information unavailable

2) Depth to ground water (static water level)

☒ (less than) 20 ft. ☐ 20-50 ft. ☐ 50-100 ft. ☐ (greater than) 100 ft.

☐ flowing well/spring (artesian)

How was water level determined?

☒ well log ☐ other: _____

☐ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch)
or
_____ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: ☐ YES ☐ NO

5) Wellhead elevation (height above mean sea level) 540 (ft)

How was elevation determined? ☒ topographic map ☐ drilling/well log ☐ altimeter

☐ other: _____

☐ information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

☒ evidence of a confining layer in well log

☐ no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the **bottom** of the **lowest confining layer**? ☐ YES ☒ NO

☐ information unavailable

7) Sanitary setback:

☐ (less than) 100 ft.* ☒ 100-120 ft. ☐ 120-200 ft. ☐ (greater than) 200 ft.
*if less than 100 ft., describe the site conditions:

8) Wellhead construction:

☐ wellhead enclosed in a wellhouse

☒ controlled access (describe): Surrounded by 8' chain link fence

☐ other uses for wellhouse (describe): _____

☐ no wellhead control

9) Surface seal:

☒ 18 ft.

☐ (less than) 18 ft. (no Department of Ecology approval)

☐ (less than) 18 ft. (Approved by Department of Ecology, include documentation)

☐ (greater than) 18 ft.

☐ depth of seal unknown

☐ no surface seal

10) Annual rainfall (inches per year)

☐ (less than) 10 in./yr. ☐ 10-25 in./yr. ☒ (greater than) 25 in./yr.

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 40,000,000 (gallons)

How was this determined?

☐ meter

☒ estimated: ☐ pumping rate (_____)

☐ pump capacity (_____ gpm)

☐ other: Estimation based on projected connections

2) "Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

6 month ground water travel time: 359 (ft.)

1 year ground water travel time: 508 (ft.)

5 year ground water travel time: 1,136 (ft.)

10 year ground water travel time: 1,606 (ft.)

Information available on length of screened/open interval?

☒ YES ☐ NO

Length of screened/open interval: 30 (ft.)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? ☐ YES ☒ NO

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? ☐ YES ☒ NO (mark and identify on map)

Comments: The well is located in a low area and sometimes water accumulates after significant precipation. Area around the well is graded away from well. When water does accumulate, it tends to dry up slowly, indicating a low infiltration.

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application	☐	☐	☐	☐
stormwater injection wells	☐	☐	☐	☐
other injection wells	☐	☐	☐	☐
abandoned ground water well	☐	☐	☐	☐
landfills, dumps, disposal areas	☐	☐	☐	☐
known hazardous materials clean-up site	☐	☐	☐	☐
water system(s) with known quality problems	☐	☐	☐	☐
population density (greater than) 1 house/acre	☒	☒	☒	☐
residences commonly have septic tanks	☒	☒	☒	☐
wastewater treatment lagoons	☐	☐	☐	☐
sites used for land application of waste	☐	☐	☐	☐

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary. (*Please include a map of the wellhead and time of travel areas with this form. Please locate and mark any or the following.*)

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed in assessment, MCL's are listed in assistance package.)

A. Nitrate: (Nitrate MCL = 10 mg/l)	YES	NO
Results greater than MCL	☐	☐
(less than) 2 mg/liter nitrate	☒	☐
2-5 mg/liter nitrate	☐	☐
(greater than) 5 mg/liter nitrate	☐	☐
☐ Nitrate records unavailable		

B. VOCs: (VOC detection level 0.5 µg/l or 0.0005 mg/l)	YES	NO
Results greater than MCL or SAL	☐	☐
VOCs detected at least once	☐	☐
VOC test performed but not detected	☒	☐
☐ VOC sampling records unavailable		

C. EDB/DBCP: (EDB MCL = 0.05 mg/l or 0.00005 mg/l. DBCP MCL = 0.2 mg/l or 0.0002 mg/l.)	YES	NO
EDB/DBCP detected below MCL at least once	☐	☐
EDB/DBCP detected above MCL at least once	☐	☐
EDB/DBCP never detected	☒	☐
☐ EDB/DBCP tests required but not yet completed		
☐ EDB/DBCP tests not required		

D. Other SOCs (pesticides and other synthetic organic chemicals):	YES	NO
Other SOCs detected	☐	☐
☐ Other SOC tests performed but none detected *		
☒ Other SOC tests not performed		

* If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list methods here: _____

_____

_____

E. Bacterial contamination:

	YES	NO
Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records).	☐	☒
Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source.	☐	☒

☐ Source sampling records for bacteria unavailable.

PART VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

☒ YES ☐ NO

Describe with references to map produced in Part IV:

Clear Lake is just within the 10 yr radius. Lake drainage is on the opposite side of the lake and the well is upstream of presumed flow.

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

☐ YES ☒ NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

☐ YES ☒ NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

☐ YES ☒ NO

4) Are there other high capacity wells (agricultural, municipal, and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within..

	YES	NO	unknown
6 month travel time	☐	☒	☐
6 month-1 year travel time	☐	☒	☐
1-5 year travel time	☐	☒	☐
5-10 year travel time	☐	☒	☐

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
1 year travel time	☐	☒	☐
1-5 year travel time	☐	☒	☐
5-10 year travel time	☐	☒	☐

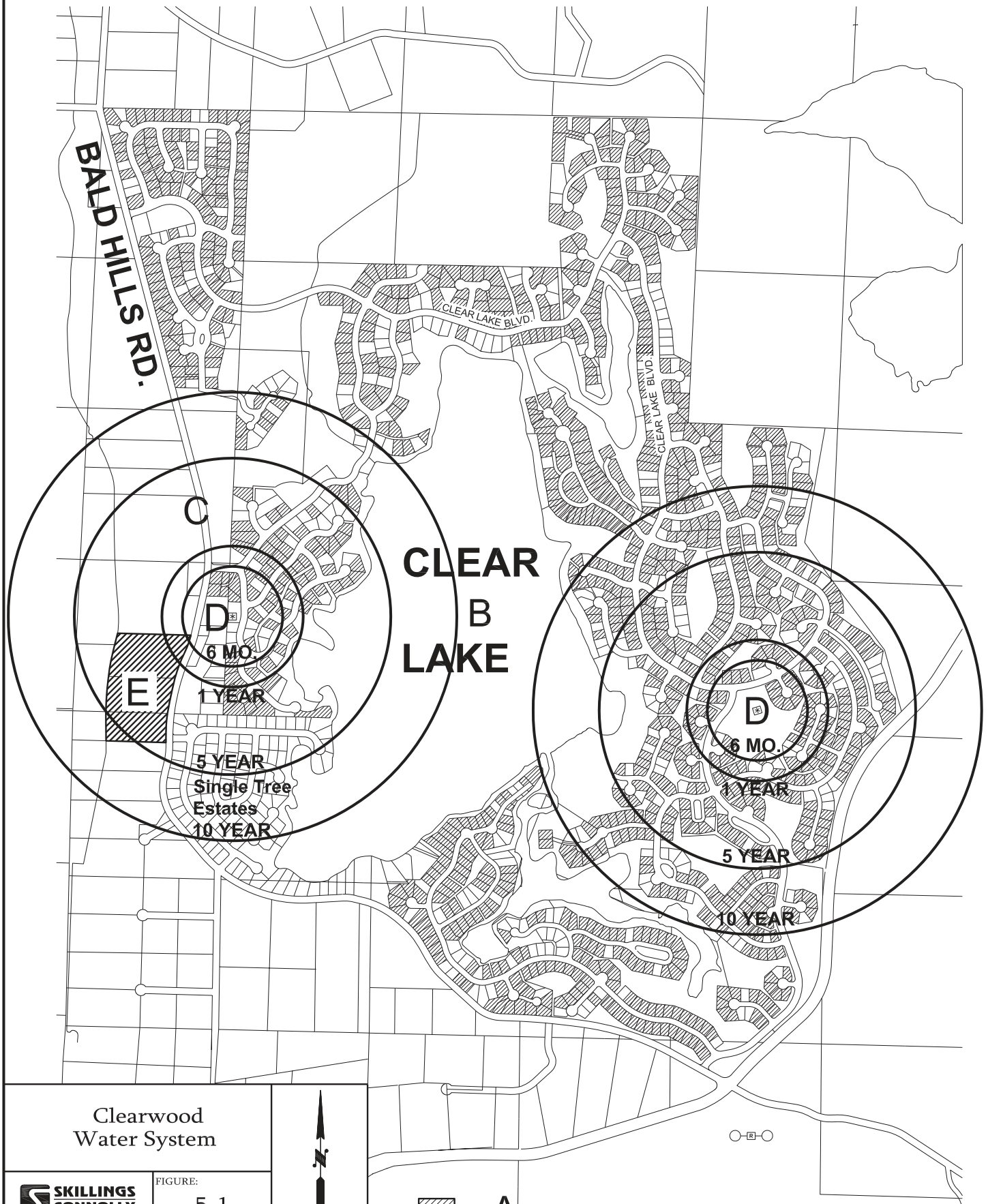
Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

Suggestions and Comments

Did you attend one of the susceptibility workshops?	☐ YES	☒ NO
Did you find it useful?	☐ YES	☐ NO
Did you seek outside assistance to complete the assessment?	☒ YES	☐ NO

This form and instruction packet are still in the process of development. Your comments, suggestions, and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic, please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

Post a fill-in (MS Word, ect.) on your website.



Clearwood
Water System

SKILLINGS CONNOLLY
(360) 491-3399 / Fax (360) 491-3857

FIGURE: 5-1

DWG NAME: TIME OF TRAVEL ZONES & CONTAMINANT INVENTORY

SCALE NTS

PROJECT #: 09009

G:\PROJECT\2009\09009 CLEARWOOD TASK ORDER AGREE\CAD\DRAWINGS\09009 - TASK ORDER 10\09009 FIGURE 5-1 WPA & CONT. INVENTRY.DWG

SITE INFORMATION PROVIDED BY: THE CLIENT, THURSTON COUNTY, AND BY SITE INSPECTION

- SERVICE CONNECTION
- BLOW-OFF
- ISOLATION VALVE

DRAWN BY:		SYSTEM: CLEARWOOD	OWNER: CLEARWOOD COMMUNITY
CHECKED BY:		FILE NO.: 170311	FILE NAME: TIME OF TRAVEL
REVISION		DATE: AUGUST 7, 2018	SCALE: 1" = 800'
DESCRIPTION	DATE		

NORTHWEST WATER SYSTEMS, INC.
DESIGN - CONSULTING - MANAGEMENT
P.O. BOX 123
PORT ORCHARD, WA 98366
(360) 876-0958

Clearwood Water System
13615 U

Parcel ID	Last Name or Business Name	First Name	c/o	Service Address -		Mailing Address	City	ST	Zip
41330001100	Herth	Robert & Yvonne		21818	Meadow Ct SE	21825 Meadow Ct SE	Yelm	WA	98597-9007
41330001600	Stratton	Thomas & Jessica		17746	SE Vine Ln	17746 Vine Ln SE	Yelm	WA	98597
41180027400	Baker	Danny		17714	SE Vine Ln	17714 Vine Ln SE	Yelm	WA	98597
41180027600	Asher	David		17715	SE Vine Ln	404 West Rd SE	Yelm	WA	98597
41180027601	Hilton	Gary & Linda		17713	SE Vine Ln	17713 Vine Ln SE	Yelm	WA	98597
41180027700	Lane	Michael		17711	SE Vine Ln	17711 Vine Ln SE	Yelm	WA	98597
41170010400	Martin	Heather		17805	Clear Lake Blvd SE	17805 Clear Lake Blvd SE	Yelm	WA	98597
41170010600	Stafford	Morris & Mary		17743	Clear Lake Blvd SE	6816 Chambers Creek Rd W	University Place	WA	98467
41170019400	Yano	Molly Ann		17739	Beachside Dr SE	PO Box 1045	Burlingame	CA	94011
41170017100	Gary	Joshua & Darlena		17806	Clear Lake Blvd SE	17806 Clear Lake Blvd SE	Yelm	WA	98597
41170017000	Puckett	James		17810	Clear Lake Blvd SE	17810 Clear Lake Blvd SE	Yelm	WA	98597
41170017400	Stillman Trustee	Floyd Murray & Stillman Trustee		17818	Clear Lake Blvd SE	17818 Clear Lake Blvd SE	Yelm	WA	98597
41170017500	Brille Properties, LLC			17816	Clear Lake Blvd SE	PO Box 8234	Bonney Lake	WA	98390
74560001601	Nyberg	Judith Ann		18523	Tapaderos St SE	18523 Tapaderos St SE	Yelm	WA	98597
74560001501	Welch	Patrick & Ladylyn		18531	Tapaderos St SE	18531 Tapaderos St SE	Yelm	WA	98597
74560001400	Lea	Brian		18539	Tapaderos St SE	7531 Robin Ct SE	Olympia	WA	98513
74560001300	Andrews	Crispin & Eerdenggerile		18605	Tapaderos St SE	HC 61 Box 6067	Ibapah	UT	84034
74560001200	Metcalf Trustees	Lattie & Cheryl & Staples	Ronald & Gwen	18609	Tapaderos St SE	18626 Tapaderos St SE	Yelm	WA	98597

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Help

View Sample Detail - WSID 13615U - CLEARWOOD

Collect Date	10/13/2010
Lab Number	119
Lab Name	Lab/Cor, Inc
Sample Number	97518
Source	Dist
Analyte Group	IOC-INORGANIC CONTAMINANTS
Test Panel	ASB-ASBESTOS
Sample Location	site 6 div 13 lot 66 ss
Sample Type	Unknown

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0115	ASBESTOS	LT	0.1280	7.0000	MFL	0.2000

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View Sample Detail - WSID 13615U - CLEARWOOD

Collect Date	6/19/2017
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	73847
Source	Dist
Analyte Group	MICRO-MICROBIOLOGICAL
Test Panel	COLI_AP-ABSENCE / PRESENCE
Sample Location	site 3
Sample Type	Post-Treatment / Finished

Analyte DOH Num	Analyte Name	Result Range	A/P	Units	Maximum Contaminant Level	State Reporting Limit
0001	TOTAL COLIFORM	EQ	A	/100ml		

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View Sample Detail - WSID 13615U - CLEARWOOD	
Collect Date	9/15/2015
Lab Number	028
Lab Name	TestAmerica - Richland
Sample Number	92081
Source	03
Analyte Group	RAD-RADIONUCLIDES
Test Panel	RAD-RADIONUCLIDES
Sample Location	thurston
Sample Type	Post-Treatment / Finished

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0165	GROSS ALPHA	LT	3.0000		pCi/L	3.0000
0166	RADIUM 228	LT	1.0000	5.0000	pCi/L	1.0000

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View Sample Detail - WSID 13615U - CLEARWOOD

Collect Date	10/25/2012
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	45538
Source	03
Analyte Group	IOC-INORGANIC CONTAMINANTS
Test Panel	IOC-COMPLETE INORGANIC ANALYSIS
Sample Location	hyd near well
Sample Type	Post-Treatment / Finished

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0014	SODIUM	EQ	22.0000		mg/L	5.0000
0015	HARDNESS	EQ	49.0000		mg/L	10.0000
0016	CONDUCTIVITY	EQ	165.0000	700.0000	Umhos/cm	70.0000
0017	TURBIDITY	EQ	0.7000		NTU	0.1000
0020	NITRATE-N	EQ	1.4000	10.0000	mg/L	0.2000
0021	CHLORIDE	EQ	4.0000	250.0000	mg/L	20.0000
0022	SULFATE	EQ	3.0000	250.0000	mg/L	50.0000
0161	TOTAL NITRATE/NITRITE	EQ	1.4000		mg/L	0.5000
0004	ARSENIC	LT	0.0010	0.0104	mg/L	0.0010
0005	BARIUM	LT	0.0100	2.0000	mg/L	0.4000
0006	CADMIUM	LT	0.0001	0.0050	mg/L	0.0020
0007	CHROMIUM	LT	0.0070	0.1000	mg/L	0.0200
0008	IRON	LT	0.1000	0.3000	mg/L	0.1000
0009	LEAD	LT	0.0010		mg/L	0.0010
0010	MANGANESE	LT	0.0100	0.0500	mg/L	0.0100
0011	MERCURY	LT	0.0002	0.0020	mg/L	0.0004
0012	SELENIUM	LT	0.0020	0.0500	mg/L	0.0100
0013	SILVER	LT	0.0100	0.1000	mg/L	0.1000
0018	COLOR	LT	5.0000	15.0000	CU	15.0000
0019	FLUORIDE	LT	0.2000	4.0000	mg/L	0.2000
0023	COPPER	LT	0.0200		mg/L	0.0200
0024	ZINC	LT	0.2000	5.0000	mg/L	0.2000
0110	BERYLLIUM	LT	0.0003	0.0040	mg/L	0.0008
0111	NICKEL	LT	0.0050	0.1000	mg/L	0.1000
0112	ANTIMONY	LT	0.0030	0.0060	mg/L	0.0060

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Help

View Sample Detail - WSID 13615U - CLEARWOOD

Collect Date	10/25/2012
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	45538
Source	03
Analyte Group	IOC-INORGANIC CONTAMINANTS
Test Panel	IOC-COMPLETE INORGANIC ANALYSIS
Sample Location	hyd near well
Sample Type	Post-Treatment / Finished

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0113	THALLIUM	LT	0.0010	0.0020	mg/L	0.0020
0114	NITRITE-N	LT	0.1000	1.0000	mg/L	0.2000
0116	CYANIDE	LT	0.0100	0.2000	mg/L	0.0100

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View Sample Detail - WSID 13615U - CLEARWOOD

Collect Date	9/20/2016
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	61233
Source	Dist
Analyte Group	IOC-INORGANIC CONTAMINANTS
Test Panel	LCR-LEAD COPPER
Sample Location	17xxxxxxxxxse
Sample Type	Post-Treatment / Finished

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0009	LEAD	EQ	0.0010		mg/L	0.0010
0023	COPPER	EQ	0.0600		mg/L	0.0200

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View Sample Detail - WSID 13615U - CLEARWOOD

Collect Date	9/21/2016
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	61236
Source	Dist
Analyte Group	IOC-INORGANIC CONTAMINANTS
Test Panel	LCR-LEAD COPPER
Sample Location	17xxxxxxxxxse
Sample Type	Post-Treatment / Finished

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0009	LEAD	EQ	0.0020		mg/L	0.0010
0023	COPPER	EQ	0.0400		mg/L	0.0200

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View Sample Detail - WSID 13615U - CLEARWOOD

Collect Date	9/22/2016
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	61238
Source	Dist
Analyte Group	IOC-INORGANIC CONTAMINANTS
Test Panel	LCR-LEAD COPPER
Sample Location	21xxxxxxxxxse
Sample Type	Post-Treatment / Finished

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0009	LEAD	EQ	0.0690		mg/L	0.0010
0023	COPPER	EQ	0.1700		mg/L	0.0200

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Collect Date	9/23/2016
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	63083
Source	03
Analyte Group	IOC-INORGANIC CONTAMINANTS
Test Panel	NIT-NITRATE SUITE
Sample Location	fire hyd near wells
Sample Type	Post-Treatment / Finished

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0020	NITRATE-N	EQ	1.4000	10.0000	mg/L	0.2000

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View Sample Detail - WSID 13615U - CLEARWOOD

Collect Date	11/8/2004
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	83450
Source	03
Analyte Group	SOC-SYNTHETIC ORGANIC CONTAMINANTS
Test Panel	PEST1-GENERAL PESTICIDE SUITE
Sample Location	spigot in well house
Sample Type	Pre-Treatment / Raw

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0033	ENDRIN	LT	0.0200	2.0000	ug/L	0.0500
0034	LINDANE (BHC - GAMMA)	LT	0.0400	0.2000	ug/L	0.0400
0035	METHOXYCHLOR	LT	0.2000	40.0000	ug/L	10.0000
0036	TOXAPHENE	LT	2.0000	3.0000	ug/L	2.0000
0117	Alachlor	LT	0.4000	2.0000	ug/L	0.4000
0118	ALDRIN	LT	0.1000		ug/L	0.1000
0119	ATRAZINE	LT	0.2000	3.0000	ug/L	0.5000
0120	BENZO (A) PYRENE	LT	0.0400	0.2000	ug/L	0.0400
0121	BUTACHLOR	LT	0.4000		ug/L	0.4000
0122	CHLORDANE (TOTAL)	LT	0.4000	2.0000	ug/L	0.4000
0123	DIELDRIN	LT	0.1000		ug/L	0.1000
0124	DI (ETHYLHEXYL) ADIPATE	LT	1.3000	400.0000	ug/L	1.3000
0125	DI (ETHYLHEXYL) PHTHALATE	LT	1.3000	6.0000	ug/L	1.3000
0126	HEPTACHLOR	LT	0.0800	0.4000	ug/L	0.0900
0127	HEPTACHLOR EPOXIDE	LT	0.0400	0.2000	ug/L	0.1000
0128	HEXACHLOROBENZENE	LT	0.2000	1.0000	ug/L	0.5000
0129	HEXACHLOROCYCLO PENTADIENE	LT	0.2000	50.0000	ug/L	0.5000
0130	METOLACHLOR	LT	1.0000		ug/L	1.0000
0131	METRIBUZIN	LT	0.2000		ug/L	0.2000
0132	PROPACHLOR	LT	0.1000		ug/L	0.1000
0133	SIMAZINE	LT	0.1500	4.0000	ug/L	0.1500
0134	PENTACHLOROPHENOL	LT	0.0800	1.0000	ug/L	0.2000
0153	PCB (AS TOTAL AROCHLORS)	LT	0.2000	0.5000	ug/L	0.5000
0173	AROCHLOR 1221	LT	0.5000		ug/L	100.0000
0174	AROCHLOR 1232	LT	0.1000		ug/L	2.5000

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Help

View Sample Detail - WSID 13615U - CLEARWOOD

Collect Date	11/8/2004
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	83450
Source	03
Analyte Group	SOC-SYNTHETIC ORGANIC CONTAMINANTS
Test Panel	PEST1-GENERAL PESTICIDE SUITE
Sample Location	spigot in well house
Sample Type	Pre-Treatment / Raw

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0175	AROCHLOR 1242	LT	0.1000		ug/L	1.5000
0176	AROCHLOR 1248	LT	0.1000		ug/L	0.5000
0177	AROCHLOR 1254	LT	0.1000		ug/L	0.5000
0178	AROCHLOR 1260	LT	0.1000		ug/L	1.0000
0179	BROMACIL	LT	0.2000		ug/L	0.2000
0180	AROCHLOR 1016	LT	0.1000		ug/L	0.4000
0183	PROMETON	LT	0.2000		ug/L	0.2000
0190	TERBACIL	LT	0.2000		ug/L	0.2000
0202	DIAZINON	LT	0.2000		ug/L	0.2000
0208	EPTC	LT	0.3000		ug/L	0.3000
0230	HEPTACHLOR EPOXIDE (B)	LT	0.0400		ug/L	0.0400
0232	4,4 DDD	LT	0.1000		ug/L	0.1000
0233	4,4 DDE	LT	0.1000		ug/L	0.1000
0234	4,4 DDT	LT	0.1000		ug/L	0.1000
0236	CYANAZINE	LT	0.2000		ug/L	0.2000
0239	MALATHION	LT	0.2000		ug/L	0.2000
0240	PARATHION	LT	0.2000		ug/L	0.2000
0243	TRIFLURALIN	LT	0.2000		ug/L	0.2000
0244	ACENAPHTHYLENE	LT	0.2000		ug/L	0.2000
0245	ACENAPHTHENE	LT	0.2000		ug/L	0.2000
0246	ANTHRACENE	LT	0.2000		ug/L	0.2000
0247	BENZO (A) ANTHRACENE	LT	0.2000		ug/L	0.2000
0248	BENZO (B) FLUOROANTHENE	LT	0.2000		ug/L	0.2000
0249	BENZO (G,H,I) PERYLENE	LT	0.2000		ug/L	0.2000
0250	BENZO (K) FLUORANTHENE	LT	0.2000		ug/L	0.2000

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View Sample Detail - WSID 13615U - CLEARWOOD

Collect Date	11/8/2004
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	83450
Source	03
Analyte Group	SOC-SYNTHETIC ORGANIC CONTAMINANTS
Test Panel	PEST1-GENERAL PESTICIDE SUITE
Sample Location	spigot in well house
Sample Type	Pre-Treatment / Raw

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0251	CHRYSENE	LT	0.2000		ug/L	0.2000
0252	DIBENZO (A,H) ANTHRACENE	LT	0.2000		ug/L	0.2000
0253	FLUORANTHENE	LT	0.2000		ug/L	0.2000
0254	FLUORENE	LT	0.2000		ug/L	0.2000
0255	INDENO(1,2,3-CD)PYRENE	LT	0.2000		ug/L	0.2000
0256	PHENANTHRENE	LT	0.2000		ug/L	0.2000
0257	PYRENE	LT	0.2000		ug/L	0.2000
0258	BENZYL BUTYL PHTHALATE	LT	0.6000		ug/L	0.6000
0259	DI-N-BUTYL PHTHALATE	LT	0.6000		ug/L	0.6000
0260	DIETHYL PHTHALATE	LT	0.6000		ug/L	0.6000
0261	DIMETHYL PHTHALATE	LT	0.6000		ug/L	0.6000
0319	HEPTACHLOR EPOXIDE (A)	LT	0.0400		ug/L	0.0400

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View Sample Detail - WSID 13615U - CLEARWOOD

Collect Date	9/23/2016
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	76490
Source	03
Analyte Group	VOC-VOLATILE ORGANIC CONTAMINANTS
Test Panel	VOC1-VOLATILE ORGANIC
Sample Location	wf fire hyd near wells
Sample Type	Post-Treatment / Finished

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0027	CHLOROFORM	LT	0.5000		ug/L	0.5000
0028	BROMODICHLOROMETHANE	LT	0.5000		ug/L	0.5000
0029	DIBROMOCHLOROMETHANE	LT	0.5000		ug/L	0.5000
0030	BROMOFORM	LT	0.5000		ug/L	0.5000
0045	VINYL CHLORIDE	LT	0.5000	2.0000	ug/L	0.5000
0046	1,1 DICHLOROETHYLENE	LT	0.5000	7.0000	ug/L	0.5000
0047	1,1,1 TRICHLOROETHANE	LT	0.5000	200.0000	ug/L	0.5000
0048	CARBON TETRACHLORIDE	LT	0.5000	5.0000	ug/L	0.5000
0049	BENZENE	LT	0.5000	5.0000	ug/L	0.5000
0050	1,2 DICHLOROETHANE	LT	0.5000	5.0000	ug/L	0.5000
0051	TRICHLOROETHYLENE	LT	0.5000	5.0000	ug/L	0.5000
0052	1,4 DICHLOROBENZENE	LT	0.5000	75.0000	ug/L	0.5000
0053	CHLOROMETHANE	LT	0.5000		ug/L	0.5000
0054	BROMOMETHANE	LT	0.5000		ug/L	0.5000
0056	METHYLENE CHLORIDE(DICHLOROMETHANE)	LT	0.5000	5.0000	ug/L	0.5000
0057	TRANS- 1,2 DICHLOROETHYLENE	LT	0.5000	100.0000	ug/L	0.5000
0058	1,1 DICHLOROETHANE	LT	0.5000		ug/L	0.5000
0060	CIS- 1,2 DICHLOROETHYLENE	LT	0.5000	70.0000	ug/L	0.5000
0063	1,2 DICHLOROPROPANE	LT	0.5000	5.0000	ug/L	0.5000
0066	TOLUENE	LT	0.5000	1000.0000	ug/L	0.5000
0067	1,1,2 TRICHLOROETHANE	LT	0.5000	5.0000	ug/L	0.5000
0068	TETRACHLOROETHYLENE	LT	0.5000	5.0000	ug/L	0.5000
0071	CHLOROBENZENE	LT	0.5000	100.0000	ug/L	0.5000
0072	1,1,1,2 TETRACHLOROETHANE	LT	0.5000		ug/L	0.5000
0073	ETHYLBENZENE	LT	0.5000	700.0000	ug/L	0.5000

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December 14, 2017

Single Tree Estates
Clearwater Utility Services LLC
219 Little St SW
Tumwater, WA 98512

Re: Neighboring Water System Plan

Dear Single Tree Estates:

Clearwood is currently updating their water system plan (WSP) as part of their 6-year update. One of the requirements of the planning process it to contact neighboring systems and provide an opportunity for you to review the WSP.

Much of the time these plans have little impact on adjacent water systems; however, the WSP addresses the existing and future service area of the proposed water system, as well as their general plans. You may wish to review the WSP if you have plans to expand or provide water to currently unserved lots.

You can request a copy of the plan by contacting Northwest Water Systems.

Please contact Lydia Bower at 360-876-0958 ext.108 if you have any questions or concerns regarding the need or desire to review the neighboring water system plan.

Sincerely,
NORTHWEST WATER SYSTEMS, INC.

Lydia Bower, EIT

SAMPLE LETTER TO LOCAL GOVERNMENT AGENCIES

Date: _____

Subject: Notification of Wellhead Protection Area

Dear _____:

As part of our wellhead protection program and in accordance with state regulations (WAC 246-290-135), the Clearwood Water System hereby informs you of the findings of our wellhead protection area delineation.

The enclosed map shows the 0.5, 1, 5, and 10-year travel boundaries for our wellhead protection areas. Please review the map and correlate it with your land-use planning. Any groundwater contamination that occurs within this wellhead protection area has a high potential to reach our well. It is important to us that all reasonable steps are taken to ensure that land use activities within this area do not contaminate our member's drinking water supply. Please let us know if you are aware of any unidentified potential sources of contamination located within the wellhead protection area.

In addition, please note the location of our wells in the event of an emergency. If you have any questions, comments or concerns, please contact our water system manager, Albert Darrow at 360-894-4187. Thank you for your support in protecting our drinking water.

Sincerely,

_____

Clearwood Water System

Clearwood Water System
13615 U

Parcel ID	Last Name or Business Name	First Name	c/o	Service Address - Yelm, WA 98597		Mailing Address	City	ST	Zip
41330000900	Hodge	Troy & Brunhilde		21809	Meadow Ct SE	21809 Meadow Ct SE	Yelm	WA	98597
41330000700	Settles	Phillip	& Warren Nadja	21803	Meadow Ct SE	21803 Meadow Ct SE	Yelm	WA	98597
41330000600	Gray	Austin		21705	Meadow Ct SE	21705 Meadow Ct SE	Yelm	WA	98597
41330000300	Cook	Barbara Ann		21714	Meadow Ct SE	3033 81st PL SE APT 1	Mercer Island	WA	98040-3043
41330000200	Longnecker	Sheldon Jr.		21710	Meadow Ct SE	PO Box 144	Delta Junction	AK	99737-0144
41330001500	Tobin	Aubrey & Daniel		21802	Meadow Ct SE	21802 Meadow Ct SE	Yelm	WA	98597
41160008700	Koelmel	Martha		17906	Clear Lake Blvd SE	17906 Clear Lake Blvd SE	Yelm	WA	98597
41160008600	Campbell	Douglas		17910	Clear Lake Blvd SE	4714 N Hudson St	Tacoma	WA	98407
41160008500	Hancock	Marianne		17916	Clear Lake Blvd SE	7607 85th St E	Puyallup	WA	98371
41160008200	Kimpel	James & Carol		17932	Clear Lake Blvd SE	16918 89th Ave CT E	Puyallup	WA	98375
41160006900	Katz	Sidney	& Sun Hamilton-Katz	17941	Clear Lake Blvd SE	17941 Clear Lake Blvd SE	Yelm	WA	98597
41160007000	Bies	Thomas & Debora		17943	Clear Lake Blvd SE	17943 Clear Lake Blvd SE	Yelm	WA	98597
41160007800	Dawon	Kimberlyn		17929	West Lane SE	17929 West Lane SE	Yelm	WA	98597
41160007500	Israel	Kimberly		17945	West Lane SE	17945 West Lane SE	Yelm	WA	98597
41160007400	Erickson	Michael		18015	Clear Lake Blvd SE	18015 Clear Lake Blvd SE	Yelm	WA	98597
41160007300	Moon	Gerald	& Aubrey Fischer	18025	Clear Lake Blvd SE	18025 Clear Lake Blvd SE	Yelm	WA	98597
41150006700	Hernandez	Matthew & Marrisa		17944	Clear Lake Blvd SE	17944 Clear Lake Blvd SE	Yelm	WA	98597
41150006600	Lohman	Douglas		18002	Clear Lake Blvd SE	18002 Clear Lake Blvd SE	Yelm	WA	98597
41150006500	Malone	Patrick & Lori		18012	Clear Lake Blvd SE	18012 Clear Lake Blvd SE	Yelm	WA	98597
41150006400	Lempe	Cathy Jeanette		18022	Clear Lake Blvd SE	18022 Clear Lake Blvd SE	Yelm	WA	98597
41150005500	Wasgatt	Cynthia		21842	Crest Lane SE	1704 BZ Glenwood Hwy	Glenwood	WA	98619
41150005300	Levanti	Andrea		21904	Crest Lane SE	18344 149th Lane SE	Yelm	WA	98597-9060
41150005600	Boik	Randy		21836	Crest Lane SE	386 White River Drive	Pacific	WA	98047
41150005600	Boik	Randy		21836	Crest Lane SE	386 White River Drive	Pacific	WA	98047
41150005700	Wilkie	Doug		21828	Crest Lane SE	5002 N Defiance Street	Tacoma	WA	98407
41150005800	Chodowski	Jared		21820	Crest Lane SE	15108 Vantine Road SE	Tenino	WA	98589
41150005900	Baker	Cecilia		21814	Crest Lane SE	PO Box 1751	Yelm	WA	98597
41150006100	Archbold	Paul		21710	Beachside Drive SE	21802 Crest Lane SE	Yelm	WA	98597
41150006200	Diaz	Dennis & Debra		18046	Clear Lake Blvd SE	18046 Clear Lake Blvd SE	Yelm	WA	98597
41160009500	Dj Properties WA LLC			21925	Crest Lane SE	9210 Overton Ct SE	Olympia	WA	98513
41160009400	Salisbury	David & Janis		21915	Crest Lane SE	PO Box 1942	Fairview	OR	97024
41160009300	Dumond	Mark & Laura		21905	Crest Lane SE	21905 Crest Lane SE	Yelm	WA	98597
41150005200	Waren	Mark		21903	Crest Lane SE	21903 Crest Lane SE	Yelm	WA	98597
41150005100	GL Mountain Investments LLC			18028	Beachcrest Lane SE	100 Dawnview Crest	Shelton	WA	98584
41150002900	Nichol	William & Chenoa		21946	Beachside Drive SE	21946 Beachside Drive SE	Yelm	WA	98597
41150005000	Baker	Debra		21847	Crest Lane SE	1805 Bradley Drive	Anacortes	WA	98221
41150004900	Roberge	William & Sara		21843	Crest Lane SE	21843 Crest Lane SE	Yelm	WA	98597
41150004800	Pitkin	David & Georgina		21835	Crest Lane SE	3213 38th Court	Washougal	WA	98671
41150004700	Longfellow	Tara & Bret		21827	Crest Lane SE	21827 Crest Lane SE	Yelm	WA	98597
41150004600	Doxtator	Bruce & Mary		21819	Crest Lane SE	21819 Crest Lane SE	Yelm	WA	98597
41150004500	Lowrie	Dele Shawnon	& Paul Riedel	21811	Crest Lane SE	53105 Avenida Vellejo	La Quinta	CA	92253-3453
41150004400	Perkins	Tobi		21805	Crest Lane SE	21805 Crest Lane SE	Yelm	WA	98597
41150004200	Stringham	Katrina		21801	Crest Lane SE	21801 Crest Lane SE	Yelm	WA	98597
41150003900	Robson	Tim & Ramona		21744	Beachside Drive SE	21744 Beachside Drive SE	Yelm	WA	98597
41150003600	Fulwyler	Tamara		21838	Beachside Drive SE	2207 38th Ave SE	Puyallup	WA	98374-1976
41150003500	Grant	Julie Meyer	& Dwight Ratcliff	21842	Beachside Drive SE	21842 Beachside Drive SE	Yelm	WA	98597
41150003300	Pitkin Investments LLC			21910	Beachside Drive SE	3213 38th Court	Washougal	WA	98671
41150003100	Phithackthep	Steven		21926	Crest Lane SE	CMR 415 Box 4588	APO	AE	09114
41150003000	Percival	Joshua	& Chelsi Braaten	18039	Beachcrest Lane SE	18039 Beachcrest Lane SE	Yelm	WA	98597
41160009800	Coffey	Robert	& Ellen Cavan	21949	Beachside Drive SE	21949 Beachside Drive SE	Yelm	WA	98597
41160009900	Masnov	Jesse & April		21945	Beachside Drive SE	6308 NE 106th Circle	Vancouver	WA	98686
41160010000	Collier	Donald		21941	Beachside Drive SE	2405 Terrace Drive	Puyallup	WA	98372
41160010100	Owen	William		21939	Beachside Drive SE	21939 Beachside Drive SE	Yelm	WA	98597
41150002800	Cox	Darlene		21935	Beachside Drive SE	13514 27th NE	Seattle	WA	98125
41150002600	Rosman	Anna & Adam		21915	Beachside Drive SE	21915 Beachside Drive SE	Yelm	WA	98597
41150002500	Johnson Trustees Walter	& Gloria		21905	Beachside Drive SE	21905 Beachside Drive SE	Yelm	WA	98597

Clearwood Water System
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Parcel ID	Last Name or Business Name	First Name	c/o	Service Address - Yelm, WA 98597		Mailing Address	City	ST	Zip
41150002400	Brian & Valerie Cawley Fam Living Trust			21841	Beachside Drive SE	21841 Beachside Drive SE	Yelm	WA	98597
41150002200	Melia	John & Elizabeth		21825	Beachside Drive SE	21825 Beachside Drive SE	Yelm	WA	98597
41150002000	Williams	Lloyd		21807	Beachside Drive SE	21807 Beachside Drive SE	Yelm	WA	98597
41150001800	Frank	Elmer		18210	Park Lane SE	18210 Park Lane SE	Yelm	WA	98597
41150001600	Skelly	Margaret		18226	Park Lane SE	18226 Park Lane SE	Yelm	WA	98597
41150001401	Zenor	Martha		18239	SE Park Lane	509 Wild Fern Drive	Winchester	OR	97495
41150001300	Theel	Jon Andrew		18229	SE Park Lane	18229 Park Lane SE	Yelm	WA	98597
41150001200	Denoyer	Justin & Wendi		18223	SE Park Vue Circle	18223 SE Park Vue Circle	Yelm	WA	98597
41150001100	Skokan	Betty		18219	SE Park Vue Circle	18219 SE Park Vue Circle	Yelm	WA	98597
41150001000	Cawthon	Gary & Jayne		18217	SE Park Vue Circle	18217 SE Park Vue Circle	Yelm	WA	98597
41150000900	Huston	Paul Alan & Amanda Gem		18215	SE Park Vue Circle	18215 SE Park Vue Circle	Yelm	WA	98597
41150000800	Shaw	Gabriel		18213	SE Park Vue Circle	18213 SE Park Vue Circle	Yelm	WA	98597
41150000700	Ahles	Charles & Kimberly		18211	SE Park Vue Circle	18211 SE Park Vue Circle	Yelm	WA	98597
41150000600	Schmidt	Dillan		18209	SE Park Lane	18209 Park Lane	Yelm	WA	98597
41150000500	Cherry	Darrell		18205	SE Park Lane	18205 Park Lane	Yelm	WA	98597
41150000400	McCarren Trustee Robert Leo			18201	SE Park Lane	6506 Lake Grove Ave SW	Lakewood	WA	98499
41190037500	Deanna Filkins Trust			21709	Beachside Drive SE	1033 Villa Unit A-201	La Belle	FL	33935
41190037400	Lyle	Michael	& Sherry Whitford	21711	Beachside Drive SE	21711 Beachside Drive SE	Yelm	WA	98597
41190037300	Taylor	Kelli		21703	Bechside Drive SE	21703 Beachside Drive SE	Yelm	WA	98597
41190037200	O'Connor	William & Regina		21705	Beachside Drive SE	818 1/2 N 11th Street	Frederick	OK	73542-3417
41190037100	Stephens	Jamie & Jonathan		21707	Beachside Drive SE	21707 Beachside Drive SE	Yelm	WA	98597
2363130500	AQ Development LLC					PO Box 706	East Olympia	WA	98540
23631330600	AQ Development LLC					PO Box 706	East Olympia	WA	98540
23506220100	Schaible	Wayde		18303	Bald Hill Road SE	18307 Bald Hill Road SE	Yelm	WA	98597
74560002900	Dickinson	Casey & Curran		18309	Tapaderos Street SE	PO Box 3052	Yelm	WA	98597
74560003000	Prado	Brooks Celeste & Ignacio		18307	Tapaderos Street SE	18309 Tapaderos Court SE	Yelm	WA	98597
74560003100	Cooney	Patrick & Lillian		18305	Tapaderos Street SE	18305 Tapaderos Court SE	Yelm	WA	98597
74560003200	Beach	Rex & Sally		21728	183rd Ave SE	PO Box 975	Yelm	WA	98597
74560003300	Smith	Jens & Carrie		21736	183rd Ave SE	322 NE 7th Street	Grangeville	ID	86530-1850
74560003400	Harvey	John Michael		21744	183rd Ave SE	10728 47th Street E	Puyallup	WA	98372
74560003500	Oliver	William		21804	183rd Ave SE	21804 183rd Ave SE	Yelm	WA	98597
74560003600	Diverty	Sabrina		21816	183rd Ave SE	15906 69th Ave CT E	Puyallup	WA	98375
74560003700	Murchison	Anthony & Heaher		21824	183rd Ave SE	21824 183rd Ave SE	Yelm	WA	98597
74560003800	Lauer	Jonathan & Kayla		21836	183rd Ave SE	21836 183rd Ave SE	Yelm	WA	98597
74560003900	Estrada	Gregory		21844	183rd Ave SE	PO Box 7246	Olympia	WA	98507
74560004000	Durkin	Annette		21900	183rd Ave SE	40817 96th Ave E	Eatonville	WA	98328
74560004100	Durkin	Ann		21910	183rd Ave SE	40817 96th Ave E	Eatonville	WA	98328
74560004200	Hoard	Gene & Maria		21922	183rd Ave SE	PO Box 9486	Tacoma	WA	98490
74560004300	Towner	Shelley-Ann		21928	183rd Ave SE	18302 Rampart Dr SE	Yelm	WA	98597-8001
74560300000	Single Tree Comm Org					18537 Surcingle Court SE	Yelm	WA	98597
74560004400	Graham Trustee Joseph	& Ozols-Graham Trusee Venita		21934	183rd Ave SE	21934 183rd Ave SE	Yelm	WA	98597
74560004500	Steuby	Terry & Kathelln		21940	183rd Ave SE	34412 Mountain HWY E #E	Eatonville	WA	98328
74560004600	Hollmann	Alfred & Inez		21948	183rd Ave SE	24214 41st Ave E	Spanaway	WA	98387
74560004700	Marmont	Lois		21945	183rd Ave SE	PO box 9572	Aspen	CO	81612-9572
74560400000	Stevens	Curtis & Tonia		21927	183rd Ave SE	21927 183rd Court SE	Yelm	WA	98597
74560200000	Single Tree Comm Org					18537 Surcingle Court SE	Yelm	WA	98597
74560004800	Hoover	Robert		21903	183rd Street SE	21903 183rd Street SE	Yelm	WA	98597
74560004900	Hoover	Robert		21401	183rd Street SE	21903 183rd Street SE	Yelm	WA	98597
74560005000	Comyns	Ronald		18324	Britchin Street SE	42720 Via Del Campo	Temecula	CA	92592
74560005100	Anderson	Christine		18348	Britchin Street SE	1001 Powell Street	Steilacoom	WA	98388
74560005200	Lumsden	Dennis		21906	148th Court SE	12903 74th Ave E	Puyallup	WA	98373
74560005300	Brown	John		21910	184th Court SE	21910 184th Ave SE	Yelm	WA	98597
74560005400	Cornelison Trustees Henry	David & Connee Lynn		21917	184th Court SE	18543 Surcingle Court SE	Yelm	WA	98597
74560005500	Hall	Diana		21911	184th Court SE	PO Box 1240	Yelm	WA	98597
74560005600	Coffee	Wesley Jr.		21905	184th Court SE	21905 184th Court SE	Yelm	WA	98597
74560005700	Anderson	Cynthia		18412	Britchin Street SE	18412 Britchen Street SE	Yelm	WA	98597

Clearwood Water System
13615 U

Parcel ID	Last Name or Business Name	First Name	c/o	Service Address - Yelm, WA 98597		Mailing Address	City	ST	Zip
74560005800	Hickok	Roy	& June Trustees	18420	Britchin Street SE	3113 Pine Street	Antioch	CA	94509
74560005900	Le Moine	Edna		18436	Britchin Street SE	17240 Topaz Loop SE	Yelm	WA	98597-9141
74560006000	PS Stewart LLC			18520	SE Surcingle	18520 SE Surcingle	Yelm	WA	98597
74560006100	Le Moine	Edna		18528	Surcingle Court SE	17240 Topaz Loop SE	Yelm	WA	98597-9141
74560006200	Mooneyham	Jason & Tandy		18538	Surcingle Court SE	18538 Surcingle Court SE	Yelm	WA	98597
74560006300	Dittbenner	Pat		18540	Surcingle Court SE	PO Box 115	McKenna	WA	98558
74560006400	Kelley	Dennis & Susan		18544	Surcingle Court SE	18544 Surcingle Court SE	Yelm	WA	98597
74560009800	Craig	Jolene		18319	Britchin Street SE	18319 Britchin Street SE	Yelm	WA	98597
74560009900	Nielson	Michael		18325	Britchin Street SE	18325 Britchin Street SE	Yelm	WA	98597
74560010000	Leil	Cheri				18318 Parkcrest Court SE	Yelm	WA	98597-9380
74560010100	Hoffman	David Allen		18401	Britchin Street SE	4688 Chester Harris Road	Woodlawn	TN	37191
74560010200	McCandlis	Elaine		18411	Britchin Street SE	2801 1st Ave Apt 204	Seattle	WA	98121
74560010300	Courtwright	Kendal & Kathryn		18417	Britchin Street SE	18417 Britchin Street SE	Yelm	WA	98597
74560010401	Davidson	Michael Sr.		18439	Britchin Street SE	18430 Britchen Street SE	Yelm	WA	98597
74560009700	Abraham Andrew	Andrew		18306	Hammes Street SE	18306 Hammes Street SE	Yelm	WA	98597
74560009600	Marcott	Joshua & Kasidy		18308	Hammes Street SE	18308 Hammes Street SE	Yelm	WA	98597
74560009500	Fahlgren	Cynthia		18316	Hammes Street SE	5645 S Lawrence Street	Tacoma	WA	98409
74560009400	Fahlgren	Cynthia		18330	Hammes Street SE	5645 S Lawrence Street	Tacoma	WA	98409
74560009300	Davis	Arden		18410	Hammes Street SE	7606 Goodman Dr. NW	Gig Harbor	WA	98332
74560009200	Courtwright	Kendal Jr.	Kendal & Kathryn Courtwright	18418	Hammes Street SE	18417 Britchin Street SE	Yelm	WA	98597
74560009100	Davidson	Michael Sr.		18430	Britchin Street SE	18430 Britchen Street SE	Yelm	WA	98597
74560008300	LaGrave	Patricia		21733	183rd Street SE	21733 183rd Ave SE # 1-2	Yelm	WA	98597
74560008200	Porter	Shane & Kimberlee		18312	Tapaderos Street SE	18312 Tapaderos Street SE	Yelm	WA	98597
74560008100	Owen	William		18326	Tapaderos Street SE	21939 Beachside Drive SE	Yelm	WA	98597
74560008000	Yoho	Mark & Karissa		18336	Tapaderos Street SE	18336 Tapaderso Street SE	Yelm	WA	98597-7902
74560007900	Hillgren	Dwight		18406	Tapaderos Street SE	18406 Tapaderos Court SE	Yelm	WA	98597
74560007800	Richardson	William & Sandra		18424	Tapaderos Street SE	3495 HWY 124	Townley	AL	35587
74560007700	D & L Secured Investmer	& Tim Roisum		18438	Tapaderos Street SE	8212 48th Street Court E	University Place	WA	98467
74560007600	Duke Partners II LLC			18445	Britchin Street SE	2019 Manhattan Beach Blvd #100	Redondo Beach	CA	90278
74560009000	Kerr	Melissa		18433	Hammes Street SE	16840 Flume Road SE	Yelm	WA	98597
74560008900	Pueppke	Alice		18429	Hammes Street SE	18429 Hammes Street SE	Yelm	WA	98597
74560008801	Gibson	Calvin				10808 240th Street East	Graham	WA	98338
74560008700	Lewis	Martin		18405	Hammes Street SE	18405 Hammes Street SE	Yelm	WA	98597
74560008500	Bryan	John		18315	Hammes Street SE	18315 Hammes Street SE	Yelm	WA	98597
74560002800	Trottier	Laurie Ann		18311	Tapaderos Street	PO Box 146	McKenna	WA	98558
74560002700	Ayala	Dirk & Puella		18335	Tapaderos Street	2616 25th Court SW	Olympia	WA	98512
74560002600	Goins	James		18331	Tapaderos Street SE	1007 15th Ave SW	Puyallup	WA	98371
74560002500	Bodenbender	Joseph Randall & Mikel Jo		18405	Tapaderos Street SE	238 Canyon Drive	Raeford	NC	28376-6147
74560002400	Riley	William		18417	Tapaderos Street SE	18417 Tapaderos Street SE	Yelm	WA	98597
74560002300	Riley	William		18417	Tapaderos Street SE	18417 Tapaderos Street SE	Yelm	WA	98597
74560002100	Alexander	David & Carleta		18447	Tapaderos Street SE	18447 Tapaderos Street SE	Yelm	WA	98597
74560002000	Alexander	David & Carleta		18447	Tapaderos Street SE	18447 Tapaderos Street SE	Yelm	WA	98597
74560001900	Longmire	Jarrod & Vienn		18501	Tapaderos Street SE	18501 Tapaderos Street SE	Yelm	WA	98597
74560001800	Morgan	William & Angela		18509	Tapaderos Street SE	18509 Tapaderos Street SE	Yelm	WA	98597
74560001700	Franz	Gregory		18515	Tapaderos Street SE	18515 Tapaderos Street SE	Yelm	WA	98597
74560007100	Wisniewski	Michael & Wendy		18510	Tapaderos Street SE	18510 Tapaderos Street SE	Yelm	WA	98597
74560007000	Allen	Ray		18520	Tapaderos Street SE	18520 Tapaderos Street SE	Yelm	WA	98597-9048
74560006900	Watson	Charles & Mary Lou		18528	Tapaderos Street SE	18528 Tapaderos Street SE	Yelm	WA	98597
74560006800	Aulabaugh	Rebecca		18538	Tapaderos Street SE	18538 Tapaderos Street SE	Yelm	WA	98597
74560007200	Trichler	Betty & Charles		18511	Surcingle Court SE	6002 206th Street NE	Arlington	WA	98223
74560007300	McLauchlan	David Jr. & Shara		18519	Surcingle Court SE	18519 Surcingle Court SE	Yelm	WA	98597
74560007400	Wilson	Glen		18527	Surcingle Court SE	18527 Surcingle Court SE	Yelm	WA	98597
74560007500	Hom	Richard		18531	Surcingle Court SE	28704 15th Ave. S	Federal Way	WA	98003
74560006500	Shirreff	David & Stefanie		18547	Surcingle Court SE	12420 109th Court E	Puyallup	WA	98374
74560006600	Cornelison	Connee & Henry David		18543	Surcingle Court SE	18543 Surcingle Court SE	Yelm	WA	98597
74560006700	Davis	Albert		18535	Surcingle Court SE	18535 Surcingle Court SE	Yelm	WA	98597

Sample Letter to Property Owners

DATE

FirstName LastName
123 Somewhere
City, WA XXXXX

Subject: Notification of Wellhead Protection Area

Dear FirstName:

The Clearwood water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number _____**) is within the 10-year groundwater travel radius (1,967 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the enclosed map. This letter is not an agreement but serves as a notification, which is required by the Department of Health. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

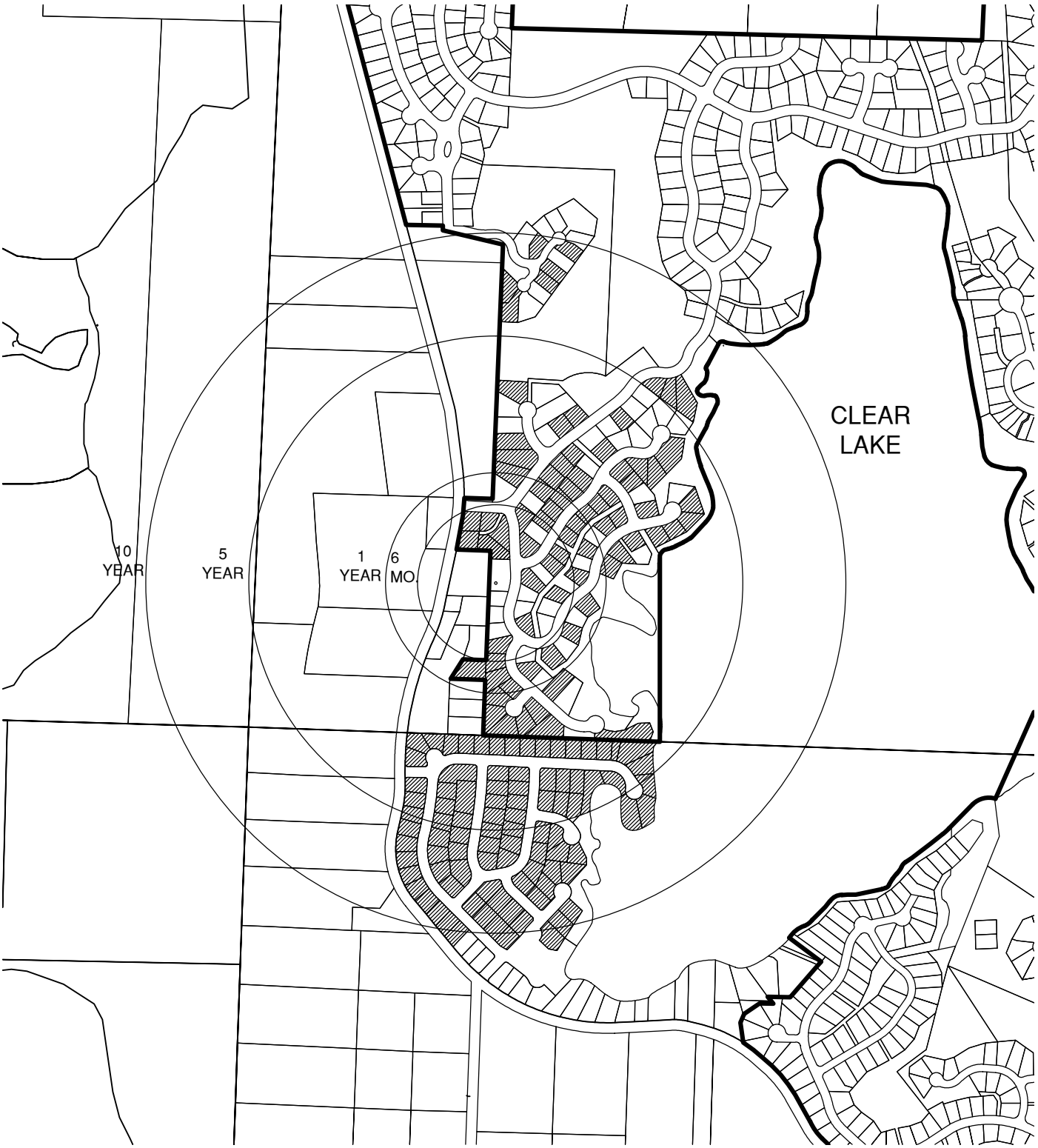
We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in an increase in precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Clearwood Water System



SITE INFORMATION PROVIDED BY: THE CLIENT, THURSTON COUNTY, AND BY SITE INSPECTION

- SERVICE CONNECTION
- BLOW-OFF
- ISOLATION VALVE

DRAWN BY:		SYSTEM: CLEARWOOD	OWNER: CLEARWOOD COMMUNITY
CHECKED BY:		FILE NO.: 170311	FILE NAME: TIME OF TRAVEL
REVISION		DATE: JANUARY 25, 2018	SCALE: 1" = 800'
DESCRIPTION	DATE		

NORTHWEST WATER SYSTEMS, INC.
DESIGN - CONSULTING - MANAGEMENT
P.O. BOX 123
PORT ORCHARD, WA 98366
(360) 876-0958

Washington State Department of Health

Division of Environmental Health
Office of Drinking Water

Help

View Sample Detail - WSID 13615U - CLEARWOOD

Collect Date	9/23/2016
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	76490
Source	03
Analyte Group	VOC-VOLATILE ORGANIC CONTAMINANTS
Test Panel	VOC1-VOLATILE ORGANIC
Sample Location	wf fire hyd near wells
Sample Type	Post-Treatment / Finished

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0074	M/P XYLENES (MCL FOR TOTAL)	LT	0.5000		ug/L	0.5000
0075	O- XYLENE (MCL FOR TOTAL)	LT	0.5000		ug/L	0.5000
0076	STYRENE	LT	0.5000	100.0000	ug/L	0.5000
0078	BROMOBENZENE	LT	0.5000		ug/L	0.5000
0079	1,2,3 TRICHLOROPROPANE	LT	0.5000		ug/L	0.5000
0081	O- CHLOROTOLUENE	LT	0.5000		ug/L	0.5000
0084	1,2 DICHLOROBENZENE	LT	0.5000	600.0000	ug/L	0.5000
0085	TRICHLOROFLUOROMETHANE	LT	0.5000		ug/L	0.5000
0086	BROMOCHLOROMETHANE	LT	0.5000		ug/L	0.5000
0089	1,3,5 TRIMETHYLBENZENE	LT	0.5000		ug/L	0.5000
0091	1,2,4 TRIMETHYLBENZENE	LT	0.5000		ug/L	0.5000
0092	SEC- BUTYLBENZENE	LT	0.5000		ug/L	0.5000
0093	P-ISOPROPYLTOLUENE	LT	0.5000		ug/L	0.5000
0094	N-BUTYLBENZENE	LT	0.5000		ug/L	0.5000
0095	1,2,4 TRICHLOROBENZENE	LT	0.5000	70.0000	ug/L	0.5000
0096	NAPHTHALENE	LT	0.5000		ug/L	0.5000
0104	DICHLORODIFLUOROMETHANE	LT	0.5000		ug/L	0.5000
0160	TOTAL XYLENES	LT	0.5000	10000.0000	ug/L	0.5000
0427	EDB (screening)	LT	0.5000		ug/L	0.5000
0428	DBCP (screening)	LT	0.5000		mg/L	0.5000
0031	TOTAL TRIHALOMETHANE	ND		80.0000	ug/L	

Records 26 - 46 of 46

Links to external resources are provided as a public service and do not imply endorsement by the Washington State Department of Health

Department of Health, Office of Drinking Water

Street Address: **Mail:**

Coliform Monitoring Plan for: Clearwood

A. System Information

Plan Date: December 2017

Water System Name Clearwood	**County** Thurston	**System I.D. Number** 13615U
Name of Plan Preparer Northwest Water Systems	**Position** Engineer	**Daytime Phone** 360-876-0958
Sources: DOH Source Number, Source Name, Well Depth, Pumping Capacity	S01, Well #1, 60', 90 gpm S02, Well #2, 66', 340 gpm S03, Wellfield (S01, S02) S04, Well #3, 40', 425 gpm (inactive) S05, Well #4, 45', 300 gpm (emergency)	
Storage: List and Describe	Reservoir #1, 182,000 gallons Reservoir #2, 478,000 gallons	
Treatment: Source Number & Process	S01, NaOH injection for corrosion control S02, NaOH injection for corrosion control S04, NaOH injection for corrosion control	
Pressure Zones: Number and name	Zone 1	
Population by Pressure Zone	All system	
Number of Routine Samples Required Monthly by Regulation:		3
Number of Sample Sites Needed to Represent the Distribution System:		9
***Request DOH Approval of Triggered Source Monitoring Plan?**		**Yes** ☐ **No** ☒

*If approval is requested a fee will be charged for the review.

B. Laboratory Information

Laboratory Name Water Management Laboratory Inc.	**Office Phone** 253-351-3121 **After Hours Phone - -**
Address 1515 80th St E Tacoma, WA 98404	**Cell Phone - -** **Email** _____
Hours of Operation Monday – Friday 8:00 AM -5:00 PM Saturday 9:00 AM – 12:00 PM	

C. Wholesaling of Groundwater

	Yes	No
We are a consecutive system and purchase groundwater from another water system.	☐	☒
We sell groundwater to other public water systems.	☐	☒

D. Routine, Repeat, and Triggered Source Sample Locations*

Location/Address for **Routine Sample Sites**	Location/Address for **Repeat Sample Sites**	Groundwater Sources for **Triggered Sample Sites****
1. Div. 4, Lot 229	**1-1. Div. 4, Lot 229**	**WF (S01, S02)**
	1-2. Div. 4, Lot 301	
	1-3. Div. 4, Lot 224	
2. Div. 2, Lot 81	**2-1. Div. 1, Lot 64**	**WF (S01, S02)**
	2-2. Div. 2, Lot 85	
	2-3. Div. 2, Lot 81	
3. Div. 17, Lot 9	**3-1. Div. 17, Lot 6**	**WF (S01, S02)**
	3-2. Div. 17, Lot 13	
	3-3. Div. 17, Lot 9	
4. Div. 6, Lot 488	**4-1. Div. 6, Lot 484**	**WF (S01, S02)**
	4-2. Div. 6, Lot 491	
	4-3. Div. 6, Lot 488	
5. Div. 8, Lot 52	**5-1. Div. 8, Lot 67**	**WF (S01, S02)**
	5-2. Div. 7, Lot 8	
	5-3. Div. 8, Lot 52	
6. Div. 13, Lot 66	**6-1. Div. 13, Lot 63**	**WF (S01, S02)**
	6-2. Div. 13, Lot 70	
	6-3. Div. 13, Lot 66	
7. Div. 7, Lot 1	**7-1. Div. 8, Lot 10**	**WF (S01, S02)**
	7-2. Div. 6, Lot 567	
	7-3. Div. 7, Lot 1	
8. Div. 16, Lot 81	**8-1. Div. 16, Lot 58**	**WF (S01, S02)**
	8-2. Div. 16, Lot 91	
	8-3. Div. 16, Lot 81	

9. Div. 7, Lot 70	**9-1. Div. 7, Lot 74**	**WF (S01, S02)**
	9-2. Div. 7, Lot 60	
	9-3. Div. 7, Lot 70	

**** When you collect the repeats, you must sample every groundwater source that was in use when the original routine sample was collected.**

Important Notes for Sample Collector:

_____
_____
_____
_____
_____
_____
_____

E. Reduced Triggered Source Monitoring Justification (add sheets as needed):

None

F. Routine Sample Rotation Schedule

Month	Routine Site(s)	Month	Routine Site(s)
January	1, 4, 7	**July**	1, 4, 7
February	2, 5, 8	**August**	2, 5, 8
March	3, 6, 9	**September**	3, 6, 9
April	1, 4, 7	**October**	1, 4, 7
May	2, 5, 8	**November**	2, 5, 8
June	3, 6, 9	**December**	3, 6, 9

G. Level 1 and Level 2 Assessment Contact Information

Name Kevin Odegard	**Office Phone** 360-876-0958 **After Hours Phone** 360-876-0958
Address P.O. Box 123 Port Orchard, WA 9836	**Email** kevin@nwwatersystems.com

H. *E. coli*-Present Sample Response

Distribution System *E. coli* Response Checklist				
Background Information	**Yes**	**No**	**N/A**	**To Do List**
We inform staff members about activities within the distribution system that could affect water quality.	☒	☐	☐	☐
We document all water main breaks, construction & repair activities, and low pressure and outage incidents.	☒	☐	☐	☐
We can easily access and review documentation on water main breaks, construction & repair activities, and low pressure and outage incidents.	☒	☐	☐	☐
Our Cross-Connection Control Program is up-to-date.	☒	☐	☐	☐
We test all cross-connection control devices annually as required, with easy access to the proper documentation.	☒	☐	☐	☐
We routinely inspect all treatment facilities for proper operation.	☒	☐	☐	☐
We identified one or more qualified individuals who are able to conduct a Level 2 assessment of our water system.	☐	☐	☐	☒
We have procedures in place for disinfecting and flushing the water system if it becomes necessary.	☒	☐	☐	☐
We can activate an emergency intertie with an adjacent water system in an emergency.	☐	☒	☐	☐
We have a map of our service area boundaries.	☒	☐	☐	☐
We have consumers who may not have access to bottled or boiled water.	☒	☐	☐	☐
There is a sufficient supply of bottled water immediately available to our customers who are unable to boil their water.	☐	☐	☐	☒
We have identified the contact person at each day care, school, medical facility, food service, and other customers who may have difficulty responding to a Health Advisory.	☐	☐	☒	☐
We have messages prepared and translated into different languages to ensure our consumers will understand them.	☒	☐	☐	☐
We have the capacity to print and distribute the required number of notices in a short time period.	☒	☐	☐	☐
Policy Direction	**Yes**	**No**	**N/A**	**To Do List**
We have discussed the issue of *E. coli*-present sample results with our policy makers.	☐	☐	☒	☐
If we find *E. coli* in a routine distribution sample, the policy makers want to wait until repeat test results are available before issuing advice to water system customers.	☒	☐	☐	☐

(Cont.)

Distribution System *E. coli* Response Checklist

Potential Public Notice Delivery Methods	Yes	No	N/A	To Do List
It is feasible to deliver a notice going door-to-door.	☒	☐	☐	☐
We have a list of all of our customers' addresses.	☒	☐	☐	☐
We have a list of customer telephone numbers or access to a Reverse 9-1-1 system.	☒	☐	☐	☐
We have a list of customer email addresses. – **partial list**	☒	☐	☐	☐
We encourage our customers to remain in contact with us using social media.	☐	☒	☐	☐
We have an active website we can quickly update to include important messages.	☒	☐	☐	☐
Our customers drive by a single location where we could post an advisory and expect everyone to see it.	☒	☐	☐	☐
We need a news release to supplement our public notification process.	☒	☐	☐	☐

Distribution System *E. coli* Response Plan

If we have *E. coli* in our distribution system we will immediately:

1. Call DOH.
2. Collect repeat and triggered source samples per Part D. Collect additional investigative samples as necessary.
3. _____
4. _____
5. _____
6. _____
7. Discuss with DOH whether to issue a Health Advisory based on the findings of steps 3-6.

***E. coli*-Present Triggered Source Sample Response Checklist – All Sources**				
Background Information	**Yes**	**No**	**N/A**	**To Do List**
We review our sanitary survey results and respond to any recommendations affecting the microbial quality of our water supply.	☒	☐	☐	☐
We address any significant deficiencies identified during a sanitary survey.	☒	☐	☐	☐
There are contaminant sources within our Wellhead Protection Area that could affect the microbial quality of our source water, and If yes, we can eliminate them.	☒ ☐	☐ ☒	☐ ☐	☐ ☐
We routinely inspect our well site(s).	☒	☐	☐	☐
We have a good raw water sample tap installed at each source.	☒	☐	☐	☐
After we complete work on a source, we disinfect the source, flush, and collect an investigative sample.	☒	☐	☐	☐
Public Notice	**Yes**	**No**	**N/A**	**To Do List**
We discussed the requirement for immediate public notice of an *E. coli*-present source sample result with our water system's governing body (board of directors or commissioners) and received direction from them on our response plan.	☒	☐	☐	☐
We discussed the requirement for immediate public notice of an *E. coli*-present source sample result with our wholesale customers and encouraged them to develop a response plan.	☐	☐	☒	☐
We have prepared templates and a communications plan that will help us quickly distribute our messages.	☐	☐	☐	☒

E. coli-Present Triggered Source Sample Response Checklist – Source S03

Alternate Sources	Yes	No	N/A	To Do List
We can stop using this source and still provide reliable water service to our customers.	☒	☐	☐	☐
We have an emergency intertie with a neighboring water system that we can use until corrective action is complete (perhaps for several months).	☐	☒	☐	☐
We can provide bottled water to all or part of the distribution system for an indefinite period.	☐	☒	☐	☐
We can quickly replace our existing source of supply with a more protected new source.	☒	☐	☐	☐
Temporary Treatment	**Yes**	**No**	**N/A**	**To Do List**
This source is continuously chlorinated, and our existing facilities can provide 4-log virus treatment (CT = 6) before the first customer. If yes, at what concentration? _____ mg/L	☐	☒	☐	☐
We can quickly introduce chlorine into the water system and take advantage of the existing contact time to provide 4-log virus treatment to a large portion of the distribution system.	☐	☒	☐	☐
We can reduce the production capacity of our pumps or alter the configuration of our storage quantities (operational storage) to increase the amount of time the water stays in the system before the first customer to achieve CT = 6.	☐	☒	☐	☐
We can alter the demand for drinking water (maximum day or peak hour) through conservation messages to increase the time the water is in the system prior to the first customer in order to achieve 4-log virus treatment with chlorine.	☐	☒	☐	☐

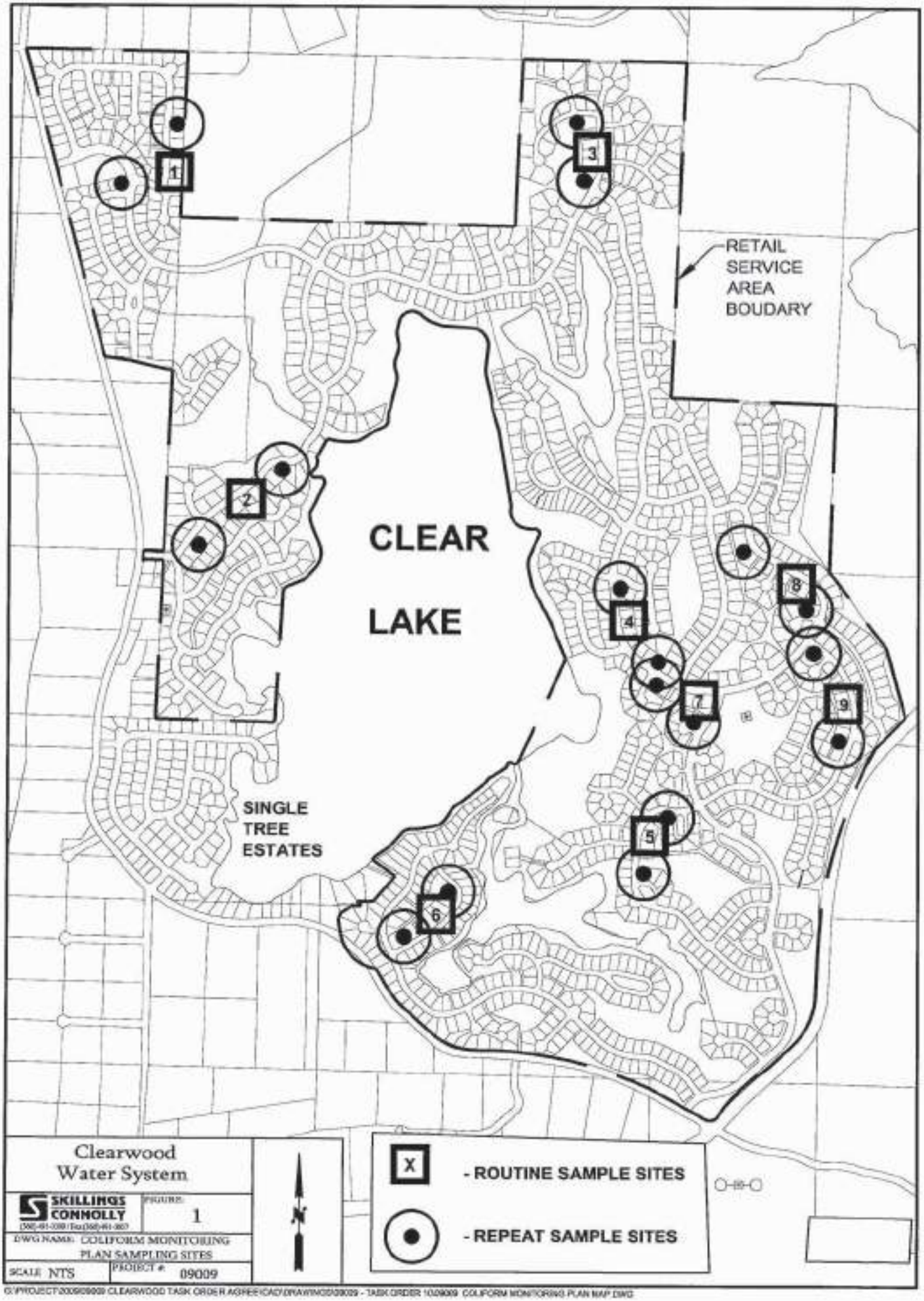
*NOTE: If your system has multiple sources, you may want to complete a separate checklist for each source.

E. coli-Present Triggered Source Sample Response Plan – Source S03

If we have *E. coli* in Source S03 water we will immediately:

1. Call DOH.
2. Collect repeat samples
3. Notify customers if repeats are E. coli positive
4. Determine if one source can be used or how community will provide water to system
5. _____

*NOTE: If your system has multiple sources, you may want to complete a separate checklist for each source.



G:\PROJECT\2009\09009 CLEARWOOD TASK ORDER AGREE\CAD\DRAWINGS\09009 - TASK ORDER 1\09009 COLIFORM MONITORING PLAN MAP.DWG

CLEARWOOD COMMUNITY ASSOCIATION

OPERATING RESOLUTION 2011-09-03

A Resolution Adopting a Revised Cross Connection Control Program

WHEREAS, according to the Amended Protective Covenants of the Clearwood Community Association, the Board of Directors is responsible for the enforcement of the same and,

WHEREAS, before the Washington State Department of Health, Southwest Drinking Water Regional Operations, Office of Drinking Water (ODW) can approve our Water System Plan (WSP), ODW must receive a current Cross Connection Control (CCC) program resolution adopted by the Board of Directors (reference their letter dated August 4, 2011, page 3), and

WHEREAS, a Cross Connection Control (CCC) Program was previously adopted through Operating Resolution 2004-05-3, and

WHEREAS, reducing the possibility of cross connections within the public drinking water supply is imperative to ensure the safety of the population of the Clearwood community, and

WHEREAS, any structure, plumbing system, recreational vehicle, and facility connected to the public water supply system poses a degree of risk of cross connection and possible contamination of the community water supply, and

WHEREAS, every member of the Clearwood Community Association should accept the responsibility to protect the water supply system as a condition of access to the water supply, and

WHEREAS, routine inspection of all residences within Clearwood is a liability and a costly commitment of staff and other resources,

THEREFORE, BE IT RESOLVED that the revised Cross Connection Control Program of 2011, the provisions of which are attached and also included in the 2011 Water System Plan, is hereby adopted and incorporated in the Clearwood Community Association's operating procedures, and

THEREFORE, BE IT FURTHER RESOLVED that Resolution 2004-05-03, A Resolution Adopting a Revised Cross Connection Control Program, is superceded by this resolution and no longer in effect.

Adopted this 17TH day of September, 2011

Clearwood Community Association

ROBERT OWEN, President

ATTEST:

PATRICIA A. KIEHNE, Secretary

APPROVED

CROSS CONNECTION CONTROL PROGRAM OF 2011

Purpose:

The guidelines are to provide for implementation of Section 246-290-490 WAC concerning Cross Connection Control, and to ensure safe drinking water within the community of Clearwood.

Finding of fact:

It is the responsibility of the Clearwood Community Association to provide water to the community that meets state and federal water quality standards.

- It is the responsibility of all members of the Clearwood Community Association to prevent any activity on their premises from contaminating the public water supply system

- Cross connection between the Clearwood water system and any unsanitary source on a member's lot poses a potential danger for the general contamination of the community water system; and

- Access to the public water supply should be provided by the Community only to those members who accept the responsibility to prevent cross connection

NOW BE IT RESOLVED THAT the provisions of the Cross Connection Control Program of **2011**, as set forth below, are adopted and shall be incorporated in the procedures and regulation to be followed by all members of the Clearwood Community.

CROSS CONNECTION CONTROL PROGRAM OF 2011

I. Prevention of Contamination:

A. The on-site water service and plumbing on any lot, starting from the outflow of the water meter box, shall be considered a potential health hazard requiring assessment of the customer's premises to determine the existence and nature of any cross contamination.

B. The Clearwood Community Association shall, as needed, assess the risk of contamination posed by a certain connections to the system which are found to have exceptional risk factors, and shall require that such connections be isolated from the public water system at all times with backflow prevention assembly (BA) of a type that is commensurate with the risk to public health. **Cross connections are eliminated whenever possible.**

C. It shall be the goal of this program that all members shall ultimately provide the appropriate premise isolation. Such premise isolation shall be in accordance with the following:

1. **All BAs shall be installed to insure premise isolation and/or in-premise isolation.**
2. Immediately upon installation, and annually thereafter, Clearwood shall **schedule** for testing of each BA by a backflow assembly tester (BAT) certified by the Washington State Department of Health. The BAT shall provide, as evidence of satisfactory testing, his/her certification number, date and time of testing, test method, and pressure test reading results. **The cost of the BA testing will be at the lot owners expense.**

3. **Only a licensed plumber and certified BAT may install the BA . The lot owner is responsible for all cost of installation and testing. BA must be installed in such a fashion that it is not subject to becoming submerged due to weather related conditions. Clearwood may establish a fee for installation, testing, and terms of payment.**

4. Except as may be considered separately by the Board, any requirements that may later be imposed by Clearwood to implement cross connection control measures, or to remain current with changes to state regulations or Clearwood's risk management policies, shall be incorporated within this Cross Connection Control Program.

5. **All lots are required to complete and submit the Water Use Questionnaire (survey). Failure to submit a completed Water Use Questionnaire as required , can result in a water shut off until the connection has been determined to be no risk to the system.**

6. Clearwood may discontinue water service within 72 hours of giving notice of failure to comply with the Cross Connection Control Program, or less time if the Board declares it necessary to protect public health.

7. All members shall install, operate, and maintain on their premises, a water supply and plumbing system that complies with this program and with the **current** Plumbing Code. It shall be the responsibility of members to ensure that water supply and plumbing system is installed in a manner that prevents failure from thermal expansion due to a closed system, which can occur from backflow prevention.

8. The Board shall establish and maintain such standards and procedures governing the application, installation, approval, and testing of assemblies, and other related tasks as are necessary to maintain compliance with the standards and regulations of the Washington State Department of Health for cross connection control. The Board may also establish more stringent requirements that it may deem necessary to protect and preserve the health and welfare of the members of the Clearwood community.

9. A **triennial** survey of a member's premises in accordance with this program shall be for the sole purpose of establishing the Clearwood's minimum requirements for the protection of the public water supply system. A premise survey, and conditions of construction established thereby for any member, shall not be construed to include a warranty, expressed or implied, against any actual or potential contamination of the community water system.

10. **Clearwood shall immediately notify member of any BA assemblies required.** Upon notification members shall install, operate, and maintain all required BAs, and at all times maintain compliance with this program and with WAC 246-290-490. Testing records and certificate of proper operation shall be submitted to Clearwood's office annually. **Clearwood shall schedule annual testing at the lot owners expense. Any BA or air gap found to fail testing/inspection shall be subject to water shut off until the connection is determined to be no longer a risk to potable water.**

D. The Clearwood Community Association water system personnel shall take the following steps to ensure that the **all** air and vacuum release assemblies currently installed are functioning properly.

1. Assign a unique identifier for each assembly, and create an **annual** testing/repair/replacement record for each assembly.

2. Establish and follow a schedule that testing each assembly **annually.** The test should ensure that the assembly is working properly. Failed assemblies may be repaired or replaced as needed.

3. The records will be reviewed periodically. If an unacceptably high rate of failure has occurred, the testing schedule shall be shortened so that every assembly is tested more frequently.

4. If an assembly has been repaired once, and fails again, it shall be replaced.

II. Type of backflow prevention required:

A. The type of protection required shall be commensurate with the degree of hazard existing on the premises as follows:

1. **When a backflow prevention assembly is installed for premise isolation it shall be installed at the outlet of the service meter. The double check valve assembly is the minimum backflow protection required for premise isolation on the Clearwood water system. Single check valves commonly provided with service meters are not approved backflow prevention assemblies. Provided the appropriate backflow assembly is properly installed for premise isolation, and tested satisfactorily, no further backflow device or isolation is required.**

2. **No work shall be performed or any connection be made inside the meter box without prior approval by the Architectural Control Committee. Clearwood shall perform on site inspection and schedule BAT testing at lot owners expense prior to use and annually. Unacceptable work is subject to water shut off. All unapproved work shall be removed by Clearwood at the member's expense, and additional charges may be assessed.**

B. **A risk assessment survey is required and backflow prevention devices are required as follows;**

1. **Any tank or vessel which is filled or washed with potable water shall be required to have an approved air gap of at least twice the inside diameter of the incoming supply line, but not less than one inch, measured vertically above the top rim of the vessel. Where the substance which could backflow is a "contaminant" or potentially hazardous to health an approved reduced pressure backflow prevention assembly shall be installed.**

2. **An approved reduced pressure backflow prevention assembly shall be installed on any irrigation system that incorporates any type of valve other than electrically operated anti-siphon valves and/or any chemical addition device or system. Permanent underground irrigation systems that incorporates electrically operated anti-siphon valves exclusively, and have no chemical addition devices or systems, may the premise piping and the entrance to the irrigation system as a device.**

3. **All hose bibs are required to have a vacuum breaker attached**

4. **If a hose bib is to be used for a recreational vehicle hook up, or have a downstream valve attached, it shall have an approved pressure vacuum breaker assembly installed.**
5. **Approved air air gaps shall be inspected annually.**

III. Previously installed assemblies:

Backflow prevention assemblies that were approved at the time of installation but are not on the current list of approved assemblies, shall be permitted to remain in service provided that they are properly installed and maintained, are commensurate with the degree of hazard, and are tested annually and perform satisfactorily. When assemblies of this type are moved, or require more than minimum maintenance, they shall be replaced by assemblies that are approved by Clearwood. Single check valves normally installed with service meters cannot be tested and are not approved as backflow prevention assemblies.

IV. Approval of assemblies:

All backflow prevention assemblies required by these guidelines shall be of a type, manufacturer, and model approved by the Washington State Department of Health Office of Drinking Water and Clearwood.

V. Enforcement:

The Clearwood Board of Directors shall identify and designate a cross connection control specialist, who shall have current certification as required by state law. Along with the services of a certified BAT. The certified BA T shall provide results to Clearwood within a two week time frame of testing. Clearwoods Cross Connection Specialist shall enforce the provisions herein by causing the water service to any premise to be discontinued or denied in any of the following situations:

- When it becomes known that a condition such as a cross connection, plumbing, structural, or sanitary hazard, or other violation of these guidelines is present.

- In those cases of extreme emergency, and where an immediate threat to life or public health from contaminant connection to the public water system is found to exist.

- When any required installation, test, repair, replacement, or other backflow prevention requirement has not been provided in accordance with reasonable notice to the customer, and after a reasonable length of time, as determined by the Board in the community's best interest, has been allowed.

VI. Education;

Clearwood will conduct Cross Connection Control public education via periodic bill inserts, consumer confidence reports, web site, newsletter and membership meetings.

VII. Records;

Clearwood shall develop and maintain records including but not limited to;

- **A master list of service connections.**
- **Approved back flow assemblies, exact location and assessed hazard level, installation date**
- **Approved air gaps, exact location and assessed hazard level and installation date.**
- **Approved AVBs for irrigation systems. installion date and history of inspections.**
- **Completed Water Use Surveys**
- **BAT testing results and back flow incidents**

VI. Definitions:

Air Gap:
The vertical separation between the free flowing discharge end of a potable water supply line and the open or atmospheric pressure receiving vessel.

Atmospheric Pressure Vacuum Breaker:
Also known as an anti-siphon valve, consisting of a single check valve in the supply line that opens to the atmosphere when the pressure in the line upstream of the device drops to atmospheric pressure.

Backflow:
The flow of used water or other fluids from the customer's plumbing into the distribution system.

Backflow Prevention Assembly:
An assembly that has been approved by the State of Washington and Clearwood, for preventing backflow from the customer's premise piping.

Backflow Prevention Assembly Tester (BAT):
An individual that is certified by the State of Washington and Clearwood to test backflow prevention assemblies.

Check Valve:
A valve that is designed to permit flow in only one direction.

Contaminant:
Any physical, chemical, biological, or radiological substance or matter that may render the water non-potable according to State regulations.

Cross Connection:
Any link or channel between piping that carries potable water and the piping that carry non-potable water or other substances.

Cross Connection Inspector:
An individual certified by the State of Washington and approved by Clearwood to inspect for cross connections.

Double Check Valve Assembly:
An assembly consisting of two independently acting check valves with a shut off valve on each side of the two check valves. The assembly has test ports for checking water tightness of each check valve. The assembly must be an approved backflow prevention assembly for installation as a backflow prevention device.

Pressure Vacuum Breaker Assembly:
A mechanical assembly consisting of one spring loaded check valve in the supply line and a spring loaded air inlet on the downstream side of the check valve which will open to the atmosphere when the pressure in the assembly drops below one pound per square inch. The complete assembly consists of two shut off valves and two test ports for checking water tightness of the check valves and the operation of the relief valve. The assembly must be an approved backflow prevention assembly for installation as a backflow prevention device.

Reduced Pressure Backflow Assembly:
An assembly for preventing backflow incorporating two check valves, a differential pressure relief valve located between the two check valves, two shut-off valves, on each end of the assembly, test ports for checking water tightness of the check valves and the operation of the relief valve. The assembly must be an approved backflow prevention assembly for installation as a backflow prevention device.

VII. References:

The following references haven been used to formulate these guidelines for Cross Connection Control by the Clearwood Community Association water system:

Washington State Department of Health, Drinking Water Regulations for Cross Connection Control, WAC 246-290-490, WAC 249-290-050

American Water Works Association, Pacific Northwest Section, Cross Connection Control, Accepted Procedures and Practices, December 1995

International Association of Plumbing and Mechanical Officials, Uniform Plumbing Code, Washington State Amendments, Chapter 6

University of Southern California, Foundation for Cross Connection Control and Hydraulic Research, Ninth Edition, December 1993

Cross Connection Control Manual, US Environmental Protection Agency, June 1989

CLEARWOOD WATER SYSTEM

WATER USE QUESTIONNAIRE

ONE QUESTIONAIRE PER LOT

NAME: _____

DIV/LOT# _____

ADDRESS _____

_____

TELEPHONE# _____

MAILING ADDRESS IF NOT SAME

_____

_____

_____

_____

ALL OUT-DOOR HOSE BIBS MUST HAVE VACUMM BREAKERS ON THEM.

VACUUM BREAKERS ARE AVAILBLE AT THE CLEARWOOD OFFICE FOR $5.00 EA

Please indicate whether the special plumbing or activities listed in rows below apply to your premises.

Please return this form to the office A.S.A.P. Thank you.

Special plumbing or activities that are CONNECTED to your water supply that REQUIRE a DCV (double check valve) which must be tested annually		
My house has		
YES	NO	
		Underground sprinkler system (above ground sprinkler require a vacuum breaker)
		Swimming pools and hot tubs (hose filled must have a vacuum breaker)
		Decorative ponds (hose filled must have a vacuum breaker)
		Greenhouse

Special plumbing or activities that are CONNECTED to your water supply that REQUIRE a RPDCV (Reduced pressure double check valve) which must be tested annually		
My house has		
YES	NO	
		Water treatment system (water softener)
		Residential fire sprinkler system
		Solar heating systems
		Carbonated drink dispenser
		Photo lab or dark room
		Home based business, which can affect the water system. If YES, list type/describe (beauty salon, machine shop, ect.)

Both the **RPDCV & DCV** MUST be tested annually by a Certified BAT (Backflow Assembly Tester) with a copy of results sent to the Clearwood Water Department for our records.

This is a necessary componet of our water systems Cross Connection Program.

Contact the water department listed below for a (B.A.T.), thank you for your support.

Any questions or concerns please call 360-894-4187 or email Clearwoodwater@yahoo.com

Completed by (print name): _____ Date: _____

Residents Signature: _____

Preliminary Cross-Connection Control Hazard Assessment Form
Non-Residential Customers

Name of Customer or Business:
Address: _____
Phone Number: _____
Description of Business: _____

Is your business or premises of a type included in the table below (check all that apply)?

Agricultural (farm or dairy)		Metal plating industry	
Beverage bottling plant		Mortuary	
Car wash		Petroleum processing or storage plant	
Chemical plant		Pier or dock	
Commercial laundry or dry-cleaners		Radioactive material processing plant or nuclear reactor	
Having both reclaimed water and potable water provided		Survey access denied- or restricted	
Film processing facility		Wastewater lift station or pumping station	
Food processing plant		Wastewater treatment plant	
Hospital, medical center, nursing home, veterinary, medical, or dental clinic, or blood plasma center		Having an unapproved auxiliary water supply interconnected with the potable water supply	
Having separate irrigation system using purveyor's water and adding chemicals*		Other (describe) *[Purveyor to add other types of premises considered to be high-hazard]*	
Laboratory		Other (describe) *[See above]*	

*e.g., parks, playgrounds, golf courses, cemeteries, estates, etc.

Other potential cross-connection concerns:

☐ Irrigation system

☐ Fire Sprinkler system, using ☐ not using ☐ chemicals or anti-freeze

☐ Swimming pool

☐ Other (describe):_____

Note to Customer: *This form is used for preliminary assessment only. The water purveyor may require a more thorough assessment at a later date.*

This form was completed by (print name): **Date:** **Please return completed form by {insert date) and send to: {insert name/address).**

Cross-Connection Control Hazard Survey Report
Non Residential Customers

Survey date: _____

Customer Information

Premises name: _____ Telephone: _____
Address: _____ ZIP: _____
Contact Person: _____ Title: _____
Description of premises: _____
Description of water use: _____

Water Service and Backflow Prevention Assembly (BPA) Size/Type

Service Type	Service Size	Meter Size	BPA Size	BPA Type
Domestic				
Fire				
Irrigation				
Other				

Cross-Connection Control Specialist (CCS) Information

Name: _____ Telephone: _____
Company name: _____
Address: _____ ZIP: _____

DOH CCS Certification #: _____ Year certified: _____

Survey Results

Note: The CCS's survey shall include an inspection of the premises isolation assembly to verify that it is installed correctly and is a currently listed DOH-approved assembly.

Attach additional sheets if needed.

Surveyor's Comments

Surveyor's Recommendations

I certify that this cross-connection hazard survey accurately reflects the overall risk posed by the customer's plumbing system to the Purveyor's distribution system. Based on the above survey, I certify that:

1. I found the following type(s) of premises isolation backflow preventer(s):
   Air Gap _____ RPBA/RPDA _____ DCVA/DCDA _____ None__
2. The existing backflow preventer(s) is/are properly installed.
   Yes_____ No ___N/A ___
3. The existing backflow preventer(s) is/are commensurate with the degree of hazard:
   Yes_____ No ___N/A ___

1. Since no backflow preventer was installed for premises isolation, the premises owner should install a premises isolation backflow preventer of the following type:
   Air Gap _____ RPBA/RPDA _____ DCVA/DCDA ___ N/A __
2. The premises owner should replace the existing premises isolation backflow preventer(s) with the following:
   Air Gap_____ RPBA/RPDA_____ DCVA/DCDA___ N/A___

The completed survey report shall be first signed by the CCS conducting the survey, and then countersigned by the owner of the premises or the owner's authorized agent.

CCS Signature: _____ Date: _____

As the Owner of the Premises (or Owner's authorized agent), I certify that I have received a copy of this completed Cross-Connection Control Hazard Survey Report.

Signature:_____ Date: _____

Note: Customers and regulatory agencies should be aware that the Purveyor's requirement for this cross-connection hazard survey and/or for the installation of a specific backflow prevention assembly on a service pipe ***do not*** constitute an approval of the customer's plumbing system, compliance of the customer's plumbing system with the Uniform Plumbing Code or an assurance of the absence of cross connections in the customer's plumbing system.

ASR Feedback Report

Report Run Date: 03/15/2018

The ASR Feedback report card has been created to help utilities and Department of Health staff evaluate the effectiveness of Cross-Connection Control program efforts.

PWS ID: 13615U

PWS Name: CLEARWOOD

PWS Manager Name: Albert r. darrow

Email: clearwoodmaintenance@yahoo.com

CCS Manager Name: Albert r. darrow

Certification Number: 01157

Email: clearwoodmaintenance@yahoo.com

Phone: 360-894-4187

Status of Written CCC Program

Reporting Year	Year Last Updated	Percentage of Elements in the Written Program	Percentage of Elements Implemented
2017	11/01/2011	80%	100%
2016	11/01/2011	80%	100%
2015	11/01/2011	80%	100%
2014	NULL	89%	100%
2013	NULL	89%	100%

PWS's are expected to have complete written programs and full implementation (WAC 246-290-490(3)). Written CCC Program must be updated at least every 10 years.

CCC for Severe Health Hazard Facilities

Reporting Year	Number Served	Protected	Unprotected	Percent Protected

PWS's are expected to have 100% protection of Severe Health Hazard Premises (WAC 246-290-490(4)).

CCC for High-Hazard Premises

Reporting Year	Number Served	Protected by AG or RP	Exceptions Granted	Unprotected	Percent Protected
2017	2	2	0	0	100%
2016	2	2	0	0	100%
2015	2	2	0	0	100%
2014	2	2	0	0	100%
2013	2	2	0	0	100%

PWS's are expected to have 100% protection of High Hazard Premises (WAC 246-290-490(4)).

Backflow Preventer Inspection and Testing Data

Reporting Year	Number of Assemblies	Assemblies Tested	Percentage Tested and Inspected
2017	36	34	94%
2016	29	30	103%
2015	33	32	96%
2014	32	32	100%
2013	32	0	0%

Inspection and testing of backflow assemblies, air gaps, and AVB's is vital for proper operation and protection (WAC 246-290-490(7)). Public Health performance goal is 100% testing.

Hazard Surveys

Reporting Year	Number of Connections	On-Site Surveys	Questionnaires	Percentage of Connections Evaluated
2017	1414	0	0	
2016	1414	0	0	
2015	1414	0	0	
2014	1414	0	0	0%
2013	1414	0	0	0%

Periodic hazard evaluations are vital to ensure backflow protection is commensurate to the degree of hazard (WAC 246-290-490(3)(c)). Hazard survey frequency is specified in the CCC Program.

Backflow Incidents, Risk Factors, and Indicators

Reporting Year	Backflow Incidents	Main Breaks / 100 Miles	Low-Pressure Events	Water Outages
2017	0	2.00	0	0
2016	0	2.00	0	0
2015	0	1.00	0	0
2014	0	2.00	0	0
2013	0	2.00	0	0

Increased frequency of backflow incidents, risk factors, and indicators may determine changes in maintenance practices or operational strategies.

DOH Logo linking to Home Page

Cross-Connection Control Activities (Blue)
Annual Summary Report (ASR) for 2017

PWS ID: **13615U** PWS Name: **CLEARWOOD** County: **THURSTON**

Part 1: Designated Cross-Connection Control Specialist (CCS) Information

CCS Name	Albert r. darrow	**CCS Phone**	360-894-4187	**CCS Cert. #**	01157	**BAT Cert. #**	
CCS is: PWS owner or employee							

Part 2: Status of Cross-Connection Control (CCC) Program at End of 2017

Provide information about the status of your CCC Program at the end of the reporting year.

PWS has:	**A written CCC Program Plan**[1] ◉ Yes ○ No **CCC implementation activities**[2] ◉ Yes ○ No	**Program Plan Last Updated**[3] 11/01/2011

[1] Enter "Yes" if PWS has **any** type of written CCC Program Plan, policies, or procedures. Written CCC Program Plan must be part of a Water System Plan (WSP) or Small Water System Management Program (SWSMP).

[2] Enter "Yes" if PWS implemented **any** CCC Program activities during the reporting year, such as establishing legal authority, conducting hazard evaluations, requiring installation of backflow assemblies to protect the PWS, requiring assembly testing, maintaining CCC records, or enforcing the PWS's or CCC Program requirements.

[3] PWS can update the CCC Program Plan at any time (independent of WSP or SWSMP update).

Provide information regarding PWS's specific CCC Program Elements

Program Element Number	Description of Element [See WAC 246-290-490(3)]	This Program Element is:	
		Included in Written Program Plan	Being Implemented or Is Completed
1	**Legal Authority Established**	◉ Yes ○ No	◉ Yes ○ No
2	**Hazard Evaluation Procedures and Schedules**	◉ Yes ○ No	◉ Yes ○ No
3	**Procedures/Schedules for Ensuring Installation of Backflow Preventers**	◉ Yes ○ No	◉ Yes ○ No
4	**Certified CCS Provided**	◉ Yes ○ No	◉ Yes ○ No
5	**Backflow Preventer Inspection and Testing**	◉ Yes ○ No	◉ Yes ○ No
6	**Assembly Testing Quality Assurance/Quality Control (QA/QC) Program**	◉ Yes ○ No	◉ Yes ○ No
7	**Backflow Incident Response Procedures**	○ Yes ◉ No	◉ Yes ○ No
8	**Public Education Program**	◉ Yes ○ No	◉ Yes ○ No
9	**CCC Records**	◉ Yes ○ No	◉ Yes ○ No
10	**Reclaimed Water Permit**	○ Yes ◉ No ○ N/A	○ Yes ○ No ◉ N/A

Part 3A: PWS Characteristics at End of 2017

Enter the number of connections (new and existing) served by the PWS by type.

Type of Service Connection	Number
Residential (As defined by PWS)	1355
All Other (include dedicated fire lines, dedicated irrigation lines, and PWS-owned facilities such as water and wastewater treatment plants and pumping stations, parks, piers, and docks)	59
Total Number of Connections	1414

Part 3B: Cross-Connection Control for Severe and High-Hazard Premises and High-Hazard Dedicated Lines Served by the PWS

Answer the following questions carefully. These answers control your access to pages 2 and 3 for data entry.

1. Does your PWS serve any severe or high-hazard premises or any high-hazard dedicated fire or irrigation lines? (•) Yes ( ) No

2. Does PWS serve any high-hazard medical premises? ( ) Yes (•) No

- If you answer Yes to both questions, you must enter data in at least one row on page 2 and one row on page 3.
- If you answer Yes to Question 1 and No to Question 2, you must enter data on page 2 only.
- If you answer No to both questions, pages 2 and 3 will be grayed out to prevent data entry.

- Count only premises PWS serves water to.
- Report data as accurately as possible. **DOH currently bases CCC compliance actions on this information.**

Type of Severe or High-Hazard Premises or Dedicated Lines [WAC 246-290-490(4)(b)]	Number of Connections at end of 2017			
	A. Being Served Water by PWS[1]	B. With Premises Isolation by AG/RP[2]	C. With Column B AG Inspected or RP Tested[3]	D. Granted Exception from Premises Isolation
Agricultural (farms and dairies)	0	0	0	0
Beverage bottling plants (including breweries)	0	0	0	0
Car washes	0	0	0	0
Chemical plants	0	0	0	0
Commercial laundries and dry cleaners	0	0	0	0
Both reclaimed water and potable water provided	0	0	0	0
Film processing facilities	0	0	0	0
Dedicated fire lines with chemical addition or using unapproved auxiliary supplies	0	0	0	0
Food processing plants (including canneries, slaughter houses, rendering plants)	0	0	0	0
Hospitals, medical centers, medical, dental and veterinary clinics, mortuaries, nursing homes, etc., reported on Part 3C page 3 (totals imported from page 3)	0	0	0	0
Dedicated irrigation systems using purveyor's water supply and chemical addition[4]	0	0	0	0
Laboratories	0	0	0	0
Metal plating industries	0	0	0	0
Petroleum processing or storage plants	0	0	0	0
Piers and docks	0	0	0	0
Radioactive material processing plants or nuclear reactors	0	0	0	
Survey access denied or restricted	0	0	0	0
Wastewater lift/pump stations (non-residential only)	0	0	0	0
Wastewater treatment plants	0	0	0	
Unapproved auxiliary water supply interconnected with potable water supply	0	0	0	0
Other				
R.V. Dump station	1	1	1	0
Swimming pool	1	1	1	0
Totals	2	2	2	0

[1] Count multiple connections or parallel installations to the same premises as **separate** connections.

[2] Count only connections with premises isolation AGs or RPs. Don't include connections with in-premises preventers only or connections with DCVAs or DCDAs installed for premises isolation. The number in Column B can't be larger than the number in Column A in the same row.

[3] Count only connections whose premises isolation preventers were inspected (AGs) or tested (RPs) during the reporting year.

[4] For example, dedicated irrigation lines to parks, playgrounds, golf courses, cemeteries, estates, etc.

[5] Premises with hazardous materials or processes (requiring isolation by AG or RP), such as aircraft and automotive manufacturers, pulp and paper mills, metal manufacturers, military bases, and wholesale customers that pose a high hazard to the PWS. May be grouped together in categories, for example:"Other manufacturing" or "Other commercial".

Part 3C: Cross-Connection Control for High-Hazard Medical Premises Served by the PWS

- Count only medical premises PWS serves water to.
- Don't count the same premises more than once. If you serve different medical category premises through a single connection, count the connection under the medical category you consider to pose the highest hazard to PWS.
- Report data as accurately as possible. **DOH currently bases CCC compliance actions on this information**

Type of High-Hazard Medical Premises [WAC 246-290-490(4)(b)]	Number of Connections at end of 2017			
	A. Being Served Water by PWS[1]	B. With Premises Isolation by AG/RP[2]	C. With Column B AG Inspected or RP Tested[3]	D. Granted Exception from Premises Isolation
Hospitals				
Hospitals (include psychiatric hospitals and alcohol and drug treatment centers)				
Facilities for Treatment and Care of Patients Not Located in Hospitals Counted Above				
Same day surgery centers				
Out-patient clinics and offices				
Alternative health out-patient clinics and offices				
Psychiatric out-patient clinics and offices				
Chiropractors with water-connected X-ray equipment				
Hospice care centers				
Childbirth centers				
Kidney dialysis centers				
Blood centers				
Dental clinics and offices				
Facilities for Housing Patients				
Nursing homes				
Assisted Living Facilities (formerly Boarding Homes)				
Residential treatment centers				
Other Medical-Related Facilities				
Mortuaries with embalming equipment				
Morgues and autopsy facilities (not in hospitals)				
Veterinarian offices, clinics and hospitals				
Totals	0	0	0	0

[1] Count multiple connections or parallel installations to the same premises as **separate** connections.

[2]Count only connections with premises isolation AGs or RPs. Don’t include connections with in-premises preventers only or connections with DCVAs or DCDAs installed for premises isolation. The number in Column B can’t be larger than the number in Column A in the same row.

[3]Count only connections with premises isolation AGs or RPs. Don't include connections with in-premises backflow preventers only or connections with premises isolation DCVAs or DCDAs isolation.

Part 4A: Backflow Preventer Inventory and Testing Information for 2017

- Complete all fields. Enter **zero (0)**, if no backflow preventers in a specific category.
- Count only backflow preventers relied on to protect the PWS.
- Count AVBs on *irrigation systems only*. Select No to AVB question above Table 2 if PWS doesn't track AVBs.
- Count multiple tests (or failures) for the same backflow preventer as one test (or failure) for that backflow preventer.
- For multiple service connections or parallel installations, count each assembly separately.
- Count RPDAs and DCDAs as ***single*** assemblies. Count the tests of the mainline assembly and bypass assembly as ***one test***. Count the failure of either the mainline or bypass assembly (or the failure of both) as ***one failure***. Count an entire detector assembly taken out of service as ***one assembly removed from service***.
- Count assemblies installed on dedicated fire or irrigation lines as **Premises Isolation Assemblies** in Table 1.

	Backflow Preventer Category and Inspection/Testing Information	Air Gap	RPBA	RPDA	DCVA	DCDA	PVBA	SVBA	AVB
Table 1: Premises Isolation Preventers (include preventers isolating PWS-owned facilities)									
Existing Premises Isolation Backflow Preventers									
1	In service at beginning of 2017	0	2	0	21	0			
2	Inspected and/or tested in 2017[1]	0	2	0	21	0			
3	Failed inspection or test in 2017	0	0	0	2	0			
New Premises Isolation Backflow Preventers									
4	Installed in 2017[2]	0	0	0	1	0			
5	Inspected and/or tested in 2017[1]	0	0	0	1	0			
6	Failed inspection or test in 2017	0	0	0	0	0			
Premises Isolation Backflow Preventers (existing or new)									
7	Removed from service in 2017[3]	0	0	0	0	0			
	Total Premises Isolation Preventers at End of 2017	0	2	0	22	0	0	0	0

Does PWS track AVBs on irrigation systems? (•) Yes ( ) No

	Table 2: In-Premises Preventers (include preventers within PWS-owned facilities)								
Existing In-Premises Backflow Preventers									
8	In service at beginning of 2017	1	0	0	0	0	1	0	10
9	Inspected and/or tested in 2017[1]	0	0	0	0	0	0	0	10
10	Failed inspection or test in 2017	0	0	0	0	0	0	0	0
New In-Premises Backflow Preventers									
11	Installed in 2017[2]	0	0	0	0	0	0	0	0
12	Inspected and/or tested in 2017[1]	0	0	0	0	0	0	0	0
13	Failed inspection or test in 2017	0	0	0	0	0	0	0	0
In-Premises Backflow Preventers (existing or new)									
14	Removed from service in 2017[3]	0	0	0	0	0	0	0	0
	Total In-Premises Preventers at End of 2017[4]	1	0	0	0	0	1	0	10
	Grand Totals at End of 2017	1	2	0	22	0	1	0	10

[1] Initial and/or routine annual inspection (for proper installation and approval status) and/or test (for testable assemblies only, using DOH-approved USC field test procedures).

[2] Includes preventers installed on connections where backflow prevention was not previously required and any preventers that replaced those in service at the beginning of the reporting year. Replacement preventers may be of a different type than the originals.

[3] Existing or new preventers taken out of service, whether or not they were replaced by the same or a different type of preventer.

Part 4B: Other Implementation Activities in 2017

Complete all cells. Enter zero if not applicable.

Water Use Questionnaires	
Did your PWS send any water use questionnaires to customers during 2017?	○ Yes ◉ No

On-site Hazard Surveys			
Did your CCS conduct any on-site hazard surveys during 2017?			○ Yes ◉ No
	Service Connection Type		
	New	**Existing**	**Total**
1. Number of connections surveyed for cross-connection hazards to PWS.			0
2. Number of connections requiring backflow prevention to protect PWS.[1,2]			0

New Exceptions to Premises Isolation	
Did your CCS grant any new premises isolation exceptions in 2017 to high-hazard premises?[3]	○ Yes ◉ No

CCC Enforcement Actions	
Did your PWS take any enforcement actions during 2017?[4]	○ Yes ◉ No

[1] Include services where either premises isolation or in-premises preventers were required to protect the PWS.

[2] Include existing services that need new, additional or higher level backflow prevention.

[3] Submit a completed DOH Exception Form (green) for each new exception granted in the reporting year.

[4] "Enforcement actions" means actions taken by the PWS (such as water shut-off, PWS installation or testing of backflow preventer, assessment of fines, etc.) when the customer fails to comply with the PWS's CCC requirements.

Part 5: Backflow Incidents and "Off-Normal" Events in 2017

	Backflow Incidents, Risk Factors, and Indicators during 2017	**Number**
Backflow Incidents during 2017		
1	Backflow incidents that contaminated the PWS[5].	0
2	Backflow incidents that contaminated the customer's drinking water system ***only***[5].	0
Risk Factors for Backflow during 2017		
3	Distribution main breaks per 100 miles of pipe.	2.00
4	Low pressure events (<20 psi in PWS distribution system).	0
5	Water outage events.	0
Indicators of Possible Backflow during 2017		
6	Total health-related complaints received by PWS.[6]	0
7	Received during BWA or PN events.[7]	0
8	Received during low pressure or water outage events.	0
9	Total aesthetic complaints (color, taste, odor, air in lines, etc.).	0
10	Received during BWA or PN events.[7]	0
11	Number of these complaints received during low pressure or water outage events.	0

[5] Purveyors must submit a Backflow Incident Report form for each backflow incident known to have contaminated the public water system. DOH is also interested in receiving incident report forms for backflow incidents that contaminated the customer's drinking water system only.

[6] Such as stomach ache, headache, vomiting, diarrhea, skin rashes, etc.

[7] **"BWA"** means **Boil Water Advisory** and **"PN"** means **Public Notification** for water quality reasons.

Part 6: Comments and Clarifications

- Enter comments to:
  - Explain or clarify information in this report.
  - Describe challenges faced or accomplishments made in this reporting year.
  - Share your goals and objectives for the coming reporting year.
- Delete comments that are no longer valid.

No Comments

Part 7: Report Certification and Contact Information

I, Albert Darrow , certify that the information in this form is true, complete and accurate to the best of my knowledge.

Last Saved	03/15/2018	All ASR Forms Certified/Submitted	03/15/2018

Designated CCS/CCC Program Manager[1]					
Name	Albert r. darrow	Title	Clearwood CCC Manager	CCS Cert #	01157
Email Address	clearwoodmaintenance@yahoo.com	Phone	360-894-4187	Phone Ext	

PWS Manager[2]					
Name	Albert r. darrow	Title	Clearwood Water Distribution Manager	Operator Cert #	01557
Email Address	clearwoodmaintenance@yahoo.com	Phone	360-894-4187	Phone Ext	

[1] The CCS responsible for developing and implementing the PWS's CCC program (CCC Program Manager).

[2] The person the designated CCS/CCC Program Manager reports to or other manager having direct oversight of the CCC Program.

Back flow prevention assemblies and devices CCA owned

address	type of preventer	location	serial #	Maker	Model	notes
Reichel beach	2" double check	Behind the mens restroom	B108210	wilkins	350 xl	Changed 8/2/2017
longmire beach	2" double check	Near the womens restroom	b144538	wilkins	350 Xl	Changed 8/2/2017
	3/4" preasure vaccume breaker	By tennis court	h240287	febco	765 1.000pvb	
	2" atmospheric vaccume breaker	By Baseball field				
windy parking lot	1" double check assemblie	next to meter	1027935	wilkins	950xlt 1.000 xlt	
pool	2" double check mounted verticaly	in box next to mens restroom	h18923	febco	850 2.000 dc	
Rv dump	3/4" rpba	in box next to road	w306641	wilkins	975xlt cu 0.750 rp	
back gate irrigation	2" atmospheric vaccume breaker	in planter inside the ingate side				
madronna	2" double check	in box by cabanna	129934	wilkins	950 xlt 1.000 dc	
office	3/4" atmosphereic vaccume breakers x2	in box behind office				
Hi-low	3/4" atmosphereic vaccume breakers x2	in box behind restroom				
otter	3/4" atmosphereic vaccume breakers x5	in box in front of restroom				

Back flow prevention assemblies and devices resident owned

address	div-lot	type of preventer	location	serial #	Maker	Model	notes
17741 clearlake blvd se	3-107	3/4" dcva	next to meter	a24855	febco	850 0.750 dc	locked 2011
22508 N. clearlake blvd se	17-12	1" dcva	next to meter	2780284	wilkins	350 1.000 dc	passed 2018
22218 Bluewater dr. se	13-41	1" dcva	next to meter	2832327	wilkins	950xlt 1.000 dc	passed 2018
21660 N. clearlake blvd se	store	3/4" dcva	next to meter	ha39324	febco	850 0.750 dc	passed 2018
17321 West view ln se	4-342	3/4" dcva	next to meter	ha90365	febco	850 0.750 dc	passed 2018
21923 N. clearlake blvd se	4-368	1" dcva	next to meter	HB45273	febco	850 1.000 dc	passed 2018
22442 clearview ct se	6-521	3/4" dcva	in yard by house	3285100	wilkins	950xlt 0.750 dc	passed 2018
17525 pondview ct se	11-001	3/4" dcva	next to meter	2781365	wilkins	950xlt 0.750 dc	passed 2018
21945 beachside dr se	02-099	1" dcva	next to meter	2851093	wilkins	950xlt 1.000 dc	passed 2018
17813 E. clearlake blvd se	6-425	1" dcva	next to meter threw gate	2386341	wilkins	950xlt 1.000 dc	passed 2018
18224 Rampart dr se	7-130	1" dcva	next to meter	h55948	febco	850 1.000 dc	passed 2018
21908 promontory ct se	15-005	1" dcva	left side in flower bed	131478	wilkins	950xlt 1.000 dc	passed 2018
17616 N.beachside dr se	3-162	1" dcva	next to meter	2028179	wilkins	950xlt 1.000 dc	passed 2018
21942 bluewater dr se	13-80	3/4" dcva	next to meter	4280176	Wilkins	350	passed 2018
18227 Inglewood CT.SE	08-009	1" dcva	Behind meter box	A 505452	wilkens	850 xlt	passed 2018
22234 bluewater ct	9-43	1" dcva	in box behind garage	2759298	wilkins	950xlt	passed 2018
18222 Bald hills road se	1-004x	3/4" rpba	Behing the meter	319037	watts	009m2ot	passed 2018
22326 Glen view ct se	6-443	1" dcva	Next to the meter	a470963	Wilkins	350	passed 2018

double checks marked in red are shut off due to not being tested

double checks marked in green still need to be tested

double checks marked in purple have been removed

Fw: Clearwood Water System (WSID 13615U) Fire Flow

Lydia Bower

Fri 8/31/2018 10:22 AM

To: Lydia Bower <lydia@nwwatersystems.com>;

From: Bobby May <bobby.may@co.thurston.wa.us>
Sent: Friday, August 31, 2018 6:50 AM
To: Lydia Bower
Subject: RE: Clearwood Water System (WSID 13615U) Fire Flow

Title 14.32.110 Fire protection water supplies. 2. Structures constructed under the International Residential Code that are not served by a municipal water supply. However, if a municipal water system supplies hydrants, the hydrants shall comply with Appendix C as amended by Thurston County. B105.2 Structures constructed under the IRC do not need to comply with this section. Which leaves the amount fire flow up to the municipality providing the water.

Any further information can be found in Title 14.32.110

From: Lydia Bower
Sent: Tuesday, July 10, 2018 4:17:15 PM
To: mayb@co.thurston.wa.us
Cc: Albert Darrow
Subject: Clearwood Water System (WSID 13615U) Fire Flow

Hi Bobby,

Attached is the comment letter we received from the DOH Water System Plan review. Comment 15 states "This section states that the fire flow requirements are 500 gallons per minute (gpm) for 30 minutes. Please provide documentation from the Thurston County Fire Marshal confirming the appropriate fire flow for this water system".

I was unable to find another system in Thurston Co. which DOH has requested this from.

The system is not proposing a change in service area or extension of the distribution system. However, I don't think DOH has any record that this fire flow is sufficient for the system.

I've also cc'd Albert Darrow who is the onsite system manager.

Thanks,

Lydia Bower
Northwest Water Systems, Inc.
www.nwwatersystems.com
(360) 876-0958 ext. 108

Consumer Confidence Report for the reporting period of 2016

Spanish (Espanol)

Este informe contiene informacion muy importante sobre la calidad de su agua beber. Traduscalo o hable con alguien que lo entienda bien.

French (Francais)

Ce rapport contient des informations importantes sur votre eau potable. Traduisez-le ou parlez en avec quequ'un qui le comprend bien.

Is my water safe?

We are pleased to present this year's Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality. We are committed to providing you with information because informed customers are our best allies.

Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791). Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to

lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791).

Where does my water come from?

Clearwood is supplied with ground water from three wells.
Wells 1 & 2 are located on the hill at Beachside Dr in Div #1, with Baldhill Rd behind them. The depth is approx 76ft.
Well #4 is currently in emergency status only. It is located in the hole next to the ballfield on Bluehills Dr. The depth of this well is approx 45 ft. Well #4 at this time has been isolated from the distribution system and has been designated for emergency use only.
There are 2 large storage tanks outside the back gate located on Weyerhauser's property. These tanks provide storage and water pressure for the system.

Source water assessment and its availability

Well #1 and #2 have the capacity to provide enough water to the community. There might situations in the future where if well #2 fails or the aquifers are drawn do to a point where it can not sustain pumping anymore that well #4 will need to be brought back online. If this were to occur Clearwood would have to be under a boil water and the use of chlorine will be needed to be added. Conservation should be exercised to keep any unneeded stress off of the pumps and the aquifer until a new well site has been established.

Why are there contaminants in my drinking water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800-426-4791). Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800-426-4791). The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity:
microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; inorganic contaminants,

such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

With Clearwood's wells being under 100 ft deep and more than 1040 septic systems located in here, it is very important to have them pumped and inspected every 3 years.
Think of it this way, what you and your neighbor put in the ground may contaminate the aquifiers.

How can I get involved?

Clearwood has a water committee is in need of members, please inquire at the Office if you are interested in joining this committee.

Water Conservation Tips

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference - try one today and soon it will become second nature.

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank

and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!
- Visit www.epa.gov/watersense for more information.

Cross Connection Control Survey

The purpose of this survey is to determine whether a cross-connection may exist at your home or business. A cross connection is an unprotected or improper connection to a public water distribution system that may cause contamination or pollution to enter the system. We are responsible for enforcing cross-connection control regulations and insuring that no contaminants can, under any flow conditions, enter the distribution system. If you have any of the devices listed below please contact us so that we can discuss the issue, and if needed, survey your connection and assist you in isolating it if that is necessary.

- Boiler/ Radiant heater (water heaters not included)
- Underground lawn sprinkler system
- Pool or hot tub (whirlpool tubs not included)
- Additional source(s) of water on the property
- Decorative pond
- Watering trough

Source Water Protection Tips

Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways:

- Eliminate excess use of lawn and garden fertilizers and pesticides - they contain hazardous chemicals that can reach your drinking water source.
- Pick up after your pets.
- If you have your own septic system, properly maintain your system to reduce leaching to water sources or consider connecting to a public water system.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help. If there are no active groups, consider starting

one. Use EPA's Adopt Your Watershed to locate groups in your community, or visit the Watershed Information Network's How to Start a Watershed Team.
- Organize a storm drain stenciling project with your local government or water supplier. Stencil a message next to the street drain reminding people "Dump No Waste - Drains to River" or "Protect Your Water." Produce and distribute a flyer for households to remind residents that storm drains dump directly into your local water body.

Well #5 Status

Clearwood is currently in the process of replacing Well #4. A location has been chosen and we are working with an engineering firm. We are hoping to have well #5 online by the end of 2017 or early 2018.

Additional Information for Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Clearwood Water is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

Water Quality Data Table

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the

concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions below the table.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detect In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Inorganic Contaminants								
Nitrate [measured as Nitrogen] (ppm)	10	10	1.4	NA	NA	2016	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Contaminants	MCLG	AL	Your Water	Sample Date	# Samples Exceeding AL	Exceeds AL	Typical Source
Inorganic Contaminants							
Copper - action level at consumer taps (ppm)	1.3	1.3	.12	2016	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Inorganic Contaminants							
Lead - action level at consumer taps (ppb)	0	15	9	2016	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

Unit Descriptions	
Term	**Definition**
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.

Important Drinking Water Definitions	
Term	**Definition**
MCLG	MCLG: Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MCL	MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Important Drinking Water Definitions	
TT	TT: Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variances and Exemptions	Variances and Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
MRDLG	MRDLG: Maximum residual disinfection level goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
MRDL	MRDL: Maximum residual disinfectant level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MNR	MNR: Monitored Not Regulated
MPL	MPL: State Assigned Maximum Permissible Level

For more information please contact:

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BY-LAWS

(YELLOW BOOK)

The By-Laws were Last Rewritten and Approved by Membership January 7, 2007.

The By-Laws were Last Updated with Member Approved Resolutions August 15, 2015, Reviewed by Membership in October, 2015, and Approved by the Clearwood Board of Directors November 7, 2015.

Date Last Modified: November 7, 2015

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I. DEFINITIONS

1. **Clearwood** means, Clearwood Division I through XIX, as identified and described by the plats thereof recorded in the land records of Thurston County, Washington.

2. **Association** means, Clearwood Community Association, a Washington corporation organized under the Washington Nonprofit Corporation Act.

3. **Members Present** means, members of the Association, in good standing attending in person at a meeting.

4. **Residential Lot** means, any lot in Clearwood, whether referred to as "residential" or "recreational".

5. **Members in good standing** means assessments, special assessments and all fines caused by violations are paid in full prior to registration at a meeting or election, and payments are current on a promissory note, submitted at least 30 days prior to a meeting or election, which pays off all assessments by December 1st of the year of the meeting or election.

6. **Authorized agent** means an individual or firm authorized by a member to act in his or her behalf in CCA matters including voting at meetings and elections. Each matter of authority shall be identified specifically in writing, notarized and filed at the CCA office.

II. MEMBERSHIP

1. This corporation shall not have any stock. The members of this corporation shall consist of those persons who now own or who shall hereafter own one or more residential/recreational lots in the Divisions of Clearwood. The owner of each lot, as a member of the corporation, shall have one vote for each lot owned in the conduct of the business of the corporation.

2. No membership shall be voted except by the owner or authorized agent of the specific residential/recreational lot to which it is and shall be inseparably appurtenant.

3. Except as herein otherwise provided, each member of the Association shall, during the period of his membership, have an indefeasible right to the nonexclusive use and enjoyment of all common areas, including but not limited to community parks and recreational facilities, which the Association may own or operate for the common benefit of the owners of

residential lots in Clearwood. A member may share this privilege with the members of his family, his invitees and guests. This Section 3 of Article II of the By-Laws of the Association shall not be repealable or amenable except by the unanimous vote of membership of the Association.

4. The Board of Directors or any officer designated by it may, in accordance with procedures prescribed by the Board, suspend the privileges of or exclude any member from the use and enjoyment of the facilities and benefits of the Association for delinquency in payment of assessments, special assessments and all fines resulting from violations or for failure to comply with the Articles of Incorporation, the By-Laws of the Association or the reasonable rules and regulations established by the Board.

5. No member may withdraw or resign from the Association while he/she owns land or an interest in land, in Clearwood.

6. Policies approved by a vote of the general membership of the Association, which affects all members shall be included as an addendum to the By-Laws.

   a. Policies approved by the Board of Directors having an effect on the members, excluding those policies pertaining to the operational and the financial management of the Association, shall be presented to the members at the Annual Meeting following the Board of Directors adoption. The members at the Annual Meeting shall decide if the policy should be continued and

   b. Policies included in the By-Laws and the By-Laws Addendum (Rules and Regulations) shall be reviewed at least every four (4) years and shall be immediately updated upon the effective date of new amendments approved by the membership.

III. TRANSFER OF MEMBERSHIP

1. In the event a residential/recreational lot in Clearwood is assigned, transferred or sold to a subsequent owner or purchaser of such land, the membership shall be inseparably appurtenant to such land and shall be transferred when satisfactory evidence of purchase is supplied to the Association by mail or in person. Recorded evidence of transfer shall consist of, but not necessarily be limited to, statutory warranty deed, deed of trust, quit claim deed, divorce decree (showing property settlement), last will and testament.

2. The Association shall keep a record of its members showing, inter alia, the name and address of each member, the number and division, or other description, and satisfactory evidence of purchase of the lot to which each such membership is appurtenant.

3. Transferees of such membership shall not be entitled to vote until such membership has been transferred to the transferee upon the books of the Association.

4. The transferee thereof, and the land which said membership is appurtenant, shall be subject to any and all such assessments as this Association may from time to time levy in accordance with the By-Laws for purposes therein.

IV. ASSESSMENTS

1. In order to enable the Association to secure the funds necessary for the accomplishment of its corporate purposes, including but not limited to the construction, maintenance and improvement of community park and recreation facilities and other common areas of whatsoever description, the payment of taxes and assessments (if and when levied by any municipal corporation or assessing district), and interpretation and enforcement of the protective covenants and restrictions governing the use of land in Clearwood each and every residential/ recreational lot in Clearwood and the owner thereof, shall be subject to such assessment or assessments as the Board of Directors may from time to time levy. The amount assessed against each member shall bear the same proportion to the total amount assessed against all members as the number of residential/recreational lots subject to assessments. If any residential lot is owned by several persons holding undivided interests therein, it may be assessed to anyone of them.

2. The Association consists of 1356 lots (including the Association owned lot on which the Windy Beach mailboxes are located).

3. Members, who choose to combine lots for the purpose of tax and building convenience, will be responsible for all assessments and water usage bills for each individual lot as identified in the Association's original governing documents to include plats.

4. Payment shall be due within thirty (30) days after notice of assessment. Thereafter, unpaid assessments shall bear interest at the rate of 12 percent (12%) per annum until paid. Members facing difficulty in making timely payments may sign a promissory note committing to equal monthly payments, the last payment due on December 1st of the year involved.

5. The amount of any assessment and all fines from violations, together with reasonable costs incurred in enforcing or collecting the same, including but not limited to reasonable attorney's fees, shall be a personal obligation of the assessee and shall be enforceable by the Association by court action. Such assessment, attorney's fees and other costs shall also constitute a lien upon the residential/recreational lot with respect to which the assessment was made. Such lien shall be enforceable by foreclosure proceedings in the manner provided by law for foreclosure of mortgages upon land. Such liens shall be superior to any and all other liens except mortgage liens recorded prior to the date of assessment.

6. Within thirty days after adoption by the Board of Directors of any proposed regular or special budget of the Association, the Board shall set a date for a meeting of the owners to consider ratification of the budget not less than fourteen nor more than sixty days after mailing of the summary. Unless at that meeting the owners of a majority of the votes in the Association are allocated or any large percentage specified in the governing documents reject the budget, the budget is ratified, whether or not a quorum is present. In the event the proposed budget is rejected or the required notice is not given, the periodic budget last ratified by the owners shall be continued until such time as the owners ratify a subsequent budget proposed by the Board of Directors.

7. General assessments shall not exceed the last adopted limit without a vote of the lot owners at the annual meeting or any special meeting called for that purpose.

    a) **General Reserve Account** - A reserve account shall be maintained by the Association to be used for the repair and/or replacement of existing roads, structures and operating equipment. An amount of 145.00 from the annual general assessment for each lot shall be set aside in this account. The Board of Directors, with the advice of the Finance Committee, shall determine expenditures from this account

    b) **Futures Reserve Account** - A reserve account shall be maintained by the Association to be used for the construction and/or the acquisition of new equipment, amenities or facilities that will *serve* the needs of the membership. This account shall also be used for the enhancement of amenities, such as the beaches, forests and other common areas, that are not included in the repair/replacement schedule. An amount of $15.00 from the annual general assessment for each lot shall be set aside in this account. The Board of Directors, with the advice of the Finance Committee, shall determine expenditures from this account.

c) **Water Reserve Account –** A reserve account shall be maintained by the Association to be used for repair or replacement of components of our Water Distributions System according to the Water Reserves Study. The full amount of the Water Base Rate Assessment will be applied to this account. The Board of Directors with advice of the Water Committee and Finance Committee shall determine expenditures from this account.

8. **Water Service Charge and Reserve** - shall be based on regular and fixed costs associated with the maintenance and operation of the water system, with consideration given to the costs of meeting all regulations, debt service or any other long term financial viability of the physical plant. These charges shall be set by the Board of Directors of the Association, with the advice of the Finance Committee, with ratification by the members at the annual meeting or any special meeting called for this purpose.

9. **Deposit and Disposition of Funds:**
   a. The Funds of the Association shall be kept in accounts in the name of the Association and shall not be commingled with the funds of any other association or any other person responsible for the custody of such funds, nor with the funds of any manager of the Association or any other person responsible for the custody of such funds. (This paragraph quoted from RCW 64.38.045-(4).
   b. The Treasurer, with the advice of the finance Committee and approval of the Board of Directors, shall deposit all the funds of the Association in a Federally-insured bank or Federally-insured banks (which accounts may exceed the $100,000 FDIC insured limit, but, in which case our funds are backed by U.S. Treasury bills).
   c. Disposition of funds shall be by check, signed by two (2) persons, at least one of whom shall be a Director, except for a small operation petty cash fund and the Clearwood Patrol Reimbursement Account (both of which shall not require a Director's signature).
   d. No funds of the Association may be invested with members, Directors, officers or employees of the Association or any person related to them.

V. BOARD OF DIRECTORS

1. The Board of Directors shall not act on behalf of the Association to amend the Articles of Incorporation, to take any action that requires the vote or approval of the owners, to terminate the Association, to elect members of the Board of Directors, or to determine the qualifications, powers, and duties, or terms of office of members of the Board of Directors, and duties of office of members of the Board of Directors, but the Board of Directors may fill vacancies in its membership of the unexpired portion of any term. (This paragraph is quoted from RCW 64.38.025-(2).

2. The powers of the Association shall be vested in a Board of Directors. It is the responsibility of the Board of Directors to enforce the protective covenants and restrictions of the Association. The Board of Directors are responsible for implementing policies and procedures to ensure the continuing enforcement of the protective covenants and restrictions of the Association.

   To run or serve as a Clearwood Board Director one must be a current Clearwood member in good standing. The number of directors who shall manage the Association shall be seven (7). At any annual meeting or at any special meeting called therefore the members may increase or decrease the number of directors to any number not more than nine nor less than three.

   It is a responsibility of the Board of Directors to ensure that all volunteers must pass a Clearwood Community Association (CCA) criminal background check prior to being seated, elected or otherwise volunteering. And it is a further responsibility of the Board to ensure that those candidates for vacant seats on the Board of Directors must pass a CCA criminal background check prior to their name being presented to the membership for election. This goes into effect immediately upon the affirmative vote of the membership at the 2015 annual membership meeting.

3. Directors shall be elected at the annual meetings of the members by mail and drop-in ballot, or failing that, at any special meeting of the members called for that purpose, to serve three years or until their successors are duly elected.

4. The election of director(s) shall be done in accordance with the following procedure:
   a. Candidates for all vacant director positions will be presented at the Informational Meeting.

   b. Members will select from the list of candidates no more than the number of vacant director positions. Member(s) not on the list of candidates may be written in. Selecting and/or writing in more than the number of vacant director positions invalidates that section of the ballot. A candidate can only be voted once per ballot regardless of the number of vacant director positions.

   c. Candidates elected with the most votes fill vacant director positions.

   d. In case of tie(s), the incumbent (currently seated) Board of Directors, including outgoing directors, will immediately convene and decide for each remaining vacant director position by simple majority vote until all remaining vacant director positions are filled.

5. Any vacancy occurring in the Board of Directors shall be filled by appointment by a majority of the remaining directors. The person so appointed shall hold office until his successor has been duly elected and qualified.

6. At least one, but not more than two members of the Board of Directors not seeking or not re-elected to another term of office be appointed, with their acceptance, by the President of the Board to serve one year as an 'ex-officio member' of the Board. These members may sit with the Board at all meetings, but shall have no vote.

7. The owners by a majority vote of the voting power in the Association present, in person or by his or her authorized agent, and entitled to vote at any meeting of the owners at which a quorum is present, may (as provided for in VI Meetings) remove any member of the Board of Directors with or without cause. A proposal to remove a director shall be brought by a group of members in good standing equaling 10% of the membership present, either in person or by his or her authorized agent, at the previous meeting of the Association at which a quorum was present.

VI. MEETINGS

1. **Annual Meetings.** Annual Meetings of the members shall be held at such place as the directors may designate on the third Saturday of August. Notice thereof, informational material on candidates and issues to be voted upon, and ballots shall be hand delivered or sent prepaid by first class United States mail by the Secretary to each member not less than fourteen (14) days, nor more than sixty (60) days before the meeting.

   An informational Meeting will be held on the Saturday of the week before Memorial Day to introduce candidates for vacant board positions and issues to be voted upon. The meeting is held mainly for informational purposes. A quorum is not required unless new voting issues are to be added to the election at the Annual Meeting.

   Member ballots shall be received at the CCA office or at the Annual Meeting no later than the close of the voting period on the day of the Annual Meeting. Ballots will be registered and counted at the Annual Meeting.

2. **Special Meetings.** Special Meetings of the members may be called at any time by the President, by a majority of the Directors, or by the holders of ten percent (10%) of the Association's membership. Notice of special meetings, stating the object thereof, shall be hand delivered or sent prepaid by first class United States mail by the Secretary, or other Board-designated official, to each member not less than fourteen (14) days before the meeting nor more than sixty (60) days in advance of any meetings.

3. **Notice of Meetings.** The notice of any meeting shall state the time and place of the meeting and the business to be placed on the agenda by the Board of Directors for a vote by the owners including the general nature of any proposed amendment to the Articles of Incorporation, By-Laws, any budget or changes in the previously approved budget that result in a change in assessment obligation and any proposal to remove a director.

4. **At all meetings** members present (in good standing), which total 50% of the number of members present at the last annual meeting at which a quorum was present shall constitute a quorum.

   Once established at the beginning of a meeting a quorum shall be considered present throughout the meeting. However, should a quorum not be present at any meeting, the members attending said meeting shall have power to adjourn it from time to time until a quorum can be secured.

5. **Voting:**
   a. Elections at the Annual Meetings shall solely be by mail or drop-in ballots received no later than the close of the voting period on the day of the Annual Meeting from members of good standing, or their authorized agents.

   b. The ballots received for the elections at the Annual Meeting will determine the outcome regardless of whether a quorum was present at the Informational Meeting.

   c. Voting at meetings, other than Annual Meetings, shall be by members present in good standing, or their authorized agent.

6. **All voting issues,** including candidates for vacant board positions, proposed amendments to the Articles of Incorporation, Bylaws, rules, regulations, and budget or changes in the previously approved budget that result in a change in assessment obligation, and any proposal to remove a director, to be submitted, either by members or by the Board of Directors, for election at the Annual Meeting must be given to the Board of Directors by the March Board Meeting and included in the mailing to the membership with the notice of the Informational Meeting. Only voting issues submitted at the March Board Meeting shall be presented at the Informational Meeting for inclusion in the mailing of the Annual Meeting ballot to the membership.

   A signed petition from members of good standing, who number at least 10% of members present at the last meeting which had a quorum, is required for members to submit a voting issue.

7. **The Board of Directors** shall have a regular annual meeting immediately following the annual meeting of the members and any number of other regular meetings at such place and time as may be fixed by resolution of the Board. Special meetings of the Board may be called at any time by the President or by a majority of the directors. The Secretary shall give notice of all special meetings to each director in person or by telephone at least one (1) day prior or by mail at least two (2) days prior to the meeting. A majority of the directors shall constitute a quorum at all meetings.

8. **Conduct of meetings.** Except as provided in this subsection, all meetings of the Board of Directors shall be open for observation by all owners of

record and their authorized agents. The Board of Directors shall keep minutes of all actions taken by the Board, which shall be available to all owners. Upon the affirmative vote in open meeting to assemble in closed session, the Board of Directors may convene in closed executive session to consider personnel matters, consult with legal counsel or consider communications with legal counsel, and discuss likely or pending litigation, matters involving possible violations of the governing documents of the Association, and matters involving the possible liability of any owner to the Association. The motion shall state specifically the purpose for the closed session. Reference to the motion and the stated purpose for the closed session shall be included in the minutes.

The Board of Directors shall restrict the consideration of matters during the closed portions of meetings only to those purposes specifically exempted and stated in the motion. No motion, or other action adopted, passed, or agreed to in closed session may become effective unless the Board of Directors, following the closed session, reconvenes in open meeting and votes in the open meeting on such motion, or other action which is reasonable identified. The requirements of this subsection shall not require the disclosure of information in violation of law or which is otherwise exempt from disclosure. (This paragraph is quoted from RCW 64.38.035-(2).

The initial draft of the board meeting minutes, as prepared by the Secretary, Executive Secretary, or Assistant Secretary, as the case may be, shall conform to Robert's Rules of Order and shall be published and made available to the membership within seven days after each and all board meetings so as to provide immediate information to the membership.

The final draft of the board meeting minutes shall be approved no later than the next scheduled regular monthly board meeting.

9. Non-Members, Renters or other non-member occupants shall not be on committees unless they are deemed an authorized agent via a notarized letter from the lot owner. Renter or other non-member occupants shall be allowed to help with committee work parties, at the committee chair's discretion.

VII. OFFICERS

1. At the first meeting of the Board of Directors and at the regular annual meeting of the Board that follows each annual meeting of the members, the Board of Directors shall elect a President, Vice President, Secretary and Treasurer. The Board may also at any time appoint an Executive Secretary and/or Assistant Secretary and/or Assistant Treasurer. Officers of the Association so elected shall hold office for the term of one year or until their successors have been elected and qualified. Any Board officer may be suspended or removed from their office by a majority vote of all the directors.

2. No director or officer, except the executive secretary and/or assistant secretary and/or assistant treasurer shall receive any salary or compensation for his/her services from the Association. However, out of pocket expense such as telephone, postage, FAX, copies and mileage for special assignment, as directed by the President, are allowed subject to approval at regular board meetings.

3. **The President** shall preside at all meetings of the directors and members, and shall have and exercise, under the direction and subject to the control of the Board of Directors, the general supervision of the affairs of the Association.

4. **The Vice President** shall preside at meetings in the absence of the President, and in case of the absence or disability of the President, shall perform all other duties of the President.

5. **The Secretary** shall issue notices of meetings and keep the minutes of meetings. He/she shall keep a record of the names and addresses of the members, their memberships and their land holdings in Clearwood and shall have charge of the other necessary records and papers of the Association. He/she shall be custodian of the corporate seal and impress papers with the seal when needed.

6. **The Treasurer** shall keep and maintain or cause to be kept and maintained adequate and correct accounts of the properties and business transactions of the Association. The books of account shall at all times be open to inspection by any member. The Treasurer shall keep safely all monies and securities of the Association and disburse the same under the direction of the Board of Directors. He/she shall cause the funds of the Association to be deposited in a bank or institution selected by the directors.

   At each annual meeting of the members, and at any time directed by the directors, he/she shall issue and present a full statement showing in detail the condition of the affairs of the Association.

7. **Annual Audit.** At least annually, the Association shall prepare or cause to be prepared, a financial statement of the Association. The financial statements of Associations with annual assessments of fifty thousand dollars or more shall be audited at least annually by an independent certified public account, but the audit may be waived if sixty-seven percent of the votes cast by owners, in person or by proxy, at a meeting of the Association at which a quorum is present, vote each year to waive the audit. (This paragraph is quoted from RCW 64.38.045-(3).

8. Should any Executive Secretary and/or Assistant Secretary and/or Assistant Treasurer be appointed by the Board of Directors, he/she shall perform such duties as may be assigned to him/her by the Board.

9. Any person may occupy two offices concurrently if the Board of Directors so directs, except the office of President and Secretary.

VIII. COMMITTEES

Section 1. Special Committees

A. Formation.

1) The formation and subsequent termination of special committees shall reflect the needs of the Association.

B. Appointment.

1) Committees shall be solicited and appointed from the membership of the Association by the President and with the approval of the Board of Directors.

2) Special Committees shall be appointed for a special purpose and shall continue to exist until the duty assigned it is accomplished, unless sooner discharged.

Section 2. Standing Committees

A. The terms of committees shall start with their confirmation by the Board of Directors after each annual meeting, but no later than the October Board meeting, and shall end with the seating of committees following the next annual meeting.

Section 3. Architectural Control Committee

A. The Board of Directors shall appoint an Architectural Control Committee composed of not less than three (3) persons. A majority of the committee may designate a representative to act for it.

B. The committee shall have the power to charge a reasonable fee for the costs incurred in processing and considering plans and specifications submitted for its approval.

C. Approval or disapproval of any matter submitted to the committee shall be made within thirty (30) days of submission to the committee or to its duly appointed representative and shall be in writing.

D. Any owner adversely affected by committee action may appeal to the Board of Directors of the Association. Appeals shall be made in writing within ten (10) days of the committee's action and shall set forth the part of the committee's action deemed objectionable. The appeal shall be considered by the Board at its next scheduled meeting, and a final and conclusive determination shall be made by the Board within fifteen (15) days after such meeting.

E. The Architectural Control Committee (ACC) will not issue any building permits for structures on split or conjoined lots without Board approval.

Section 4. Violation Committee

A. The Board of Directors shall appoint a Violation Committee composed of (3) persons. A majority of the committee may designate one member as a chairperson.

B. The Committee shall have the power to issue citations and assess fines, according to the schedule established by the Board of Directors, to members who have committed a violation or to notify members of an alleged violation.

C. Upon the request of the member, the committee shall have the power to seat a Violations Review Panel of six persons, randomly selected from a group of volunteers who have agreed to serve, who will review the citation and/or alleged violation and determine if the assessed fine should be upheld or what, if any, action should be taken. The determination of the Panel shall be by a two-thirds majority. At least one member of the Violations Committee must be present and act as chairperson to assure that both sides of the situation are properly and fairly represented. The Violations Committee will have no voice or vote in the Panel's decision. Members of the Board of Directors shall not be eligible to serve on the Panel.

D. The determination may result in legal action for civil damages; it may result in abatement expenses; or it may result in the levying of a special assessment against the member in violation. The chairperson shall be responsible to submit the determination of the Panel to the Board of Directors.

E. Any Member adversely affected by the action of the Violations Committee and/or the Violations Review Panel may appeal to the Board of Directors of the Clearwood Community Association.

Section 5. Finance Committee

A. The Board of Directors shall appoint a Finance Committee composed of not less than three (3) nor more than ten (10) persons. Members of the Board of Directors may be members of the committee but in no event shall board members comprise a majority. The Association Treasurer must be a member of this committee. A majority of the committee may designate one member as a chairperson.

B. The committee shall recommend to the Board of Directors the type of annual audit to be made of the association finances.

C. The committee shall be advisory to the Board of Directors, with reviewing and preparing the Annual Association Budget for presentation to the membership at the annual meeting.

D. The committee shall review at least semi-annually the finances of the association and recommend how, what and if any monies should be invested, so as to attain the maximum earnings.

E. The committee shall periodically review the repair/ replacement schedule and recommend modifications to the schedule and/or addition/deletion of items in order to prudently expend funds in the Reserve Account.

F. The committee shall periodically review the long term goals of the association and suggest viable alternatives for the use of funds in the Futures Account.

Section 6. Water Committee

A. The Board of Directors shall appoint a Water Committee. The Water Committee shall advise and assist the Board of Directors on the operation and maintenance of the Water System as well as planning for capital improvements to maintain a safe and adequate water supply system.

Section 7. Roads Committee

A. The Board of Directors shall appoint a Roads Committee. The Road Committee shall advise and assist the Board of Directors on the maintenance and planned improvement of the Road System within Clearwood to maintain a safe network of roads.

Section 8. Volunteers

A. It is a responsibility of the Board of Directors to ensure that all volunteers must pass a Clearwood Community Association (CCA) criminal background check prior to being seated, elected or otherwise volunteering. This goes into effect immediately upon the affirmative vote of the membership at the 2015 annual membership meeting.

IX. CORPORATE SEAL

The seal of the Association shall be circular form and shall contain the words "CLEARWOOD COMMUNITY ASSOCIATION" and the words "CORPORATE SEAL WASHINGTON 1974".

X. AMENDMENT

Except as herein otherwise provided, those By-Laws may be amended by a vote of the holders of a majority of the Association's membership present or represented by proxy at any annual or at any special member's meeting called for that purpose.

XI. INDEMNIFICATION OF DIRECTORS AND OFFICERS

The Association shall indemnify each present and future director and officer of the association against, and each such director and officer shall be entitled without further act on his/her part to indemnity from association for, all expenses, including the amount of judgments and the amount of reasonable settlements made with a view to the curtailment of costs or litigation, other than amounts paid to association itself; reasonably incurred by him/her in connection with or arising out of any action, suit or proceeding in which he/she may be involved by reason of his/ her being or having been a director or officer of the Association, whether or not he/she continues to be such director or officer at the time of incurring such expenses; provided, however, that such indemnity shall not include any expenses incurred by any such director or officer.

a) in respect of matters as to which he/she shall be finally adjudged in any such action, suit or proceeding to have been derelict in the performance of his/her duty as such director or officer, or

b) in respect to any matter in which any settlement if affected, to an amount in excess of the amount of expenses which might reasonably have been incurred by such director or officer in conducting such litigation to a final conclusion; provided, further, that in no event shall anything herein contained be so construed as to protect, or to authorize association to indemnify, such director or officer against any liability to the association to which he/she would otherwise be subject by reason of his/her misfeasance, bad faith, negligence or disregard of the duties involved in the conduct of his/her office as such director or officer.

The foregoing right of indemnification shall insure to the benefit of the heirs, executors or administrators of each director or officer and shall be in addition to all other rights to which such director or officer may be entitled as a matter of law. Insurance to cover must be purchased by the Board of Directors.

XII. PROCESSING VIOLATIONS

1. A form entitled, "Report of Violation", shall be made available to all members of the Association. This form will be available at the Clearwood office, from the Association employees, the Board of Directors and the Clearwood Patrol.

2. Any Clearwood member may complete a "Report of Violation" when they witness what they perceive to be a violation of the Protective Covenants, Bylaws or Rules and Regulations of the Association. The report should include pictures and/or statements from witnesses, if appropriate. The report shall be mailed or delivered to the Clearwood Office or to any member of the Clearwood Board of Directors.

XIII. WATER SYSTEM

1. In accordance with the Articles of Incorporation of Clearwood Community Association, Article 3, Paragraph B, utility systems in or for the benefit of the community shall be acquired, constructed, improved, maintained and operated. The Board of Directors shall have the general control and management of the water system and its related policies, service connections, appurtenances and funding for the purpose of distributing the same at cost and without profit.

2. Standards of construction and design for all new construction within the water system shall be in accordance with the following standards and regulations:
   - Washington State Board of Health Drinking Water Regulations, Chapter 246-290 WAC
   - Washington Department of Transportation/ American Public Works Association Combined Provisions
   - Recommended Standards for Water Works, Great Lakes, Upper Mississippi Board of State Public Health & Environmental Manager ("Ten State Standards")

   The Board of Directors may adopt other standards by resolution and/or the Business/Maintenance Manager may waive the construction requirements in the event of specific circumstances.

3. The cost of operating the water system shall be evaluated from time to time by the Board of Directors to determine funding to meet expected or unexpected requirements of the state and federal regulations, as well as renewal, replacement and development of the water system. The Board shall annually establish and approve a five year forecast of the revenues from all water service charges, special levies and/or assessments or reserve funds, together with the expected application of those funds to capital improvements, operations, maintenance and administration of the water system. Article III of these By-Laws describe in detail said Assessments, Charges and related issues.

4. No member supplied with water by the Association shall be permitted to use it for any purpose or in any way to serve other persons or families except in the case of emergencies. Any violation of this Article shall result in a fine being levied or legal action being taken against the violator.

5. To prevent any potential contamination or possible interaction with any other water source, all users of water connected to the Clearwood water system shall take reasonable and prudent measures to ensure that no cross connection takes place within their premises.

   "Cross connection" *means any physical arrangement where the public water system is connected, either directly or through other lawfully*

connected fixtures, to *any other system, container, or device that contains, or may contain, water, waste products, or other substances of unknown or unsafe quality which may be introduced* to *the potable water system as* a *result* of *backflow.*

"Backflow" *means the reversal* of *flow in any connection to the water system, by whatever cause, such that any material other than the water from approved sources, storage or treatment facilities is or may be made to enter the potable water distribution system.*

All lots and residents must have a current Water Cross-Connection Control Survey on file at the Clearwood office. Failure to complete and submit the annual survey in a timely manner shall be considered to have violated the integrity of the water system and may have their water service discontinued.

A check valve shall be installed by the Association with any service connection.

The water system shall provide Air/Vacuum relief facilities at appropriate points within the water system and shall be maintained at least annually. These facilities will introduce air to the water mains in the event of loss of pressure to minimize the potential of siphoning.

6a. Any water user found to be in violation of the integrity of the water system shall have their water service discontinued immediately. Service will not be restored until all such matters are resolved.

6b. Any water user found to be in arrears in their assessments, levies or fees, per established policies for the collection of same, shall be given notice in writing of potential termination of water service. Such notice shall be given at least thirty days prior to the intended date of service termination. The water user may request a hearing before the Board of Directors at the next regular scheduled meeting, after receipt of the notice, to determine if the Association regulations have been appropriate and/or whether mitigating factors exist. Service shall not be terminated while such a review is pending or continued.

ADDENDA TO BY-LAWS

RULES & REGULATIONS APPLICABLE TO CLEARWOOD COMMUNITY ASSOCIATION, INC. (also referred to as the "RED BOOK").

(Resolution 91-05-20 Member-approved Aug. 17, 1991)

This book contains the Rules and Regulations governing the use of Clearwood and its facilities by property owners and their guests. These regulations were duly considered and officially adopted by the Board of Directors of the Clearwood Community Association (hereinafter called CCA) on May 18th, 1991. All of these Regulations have been formulated with two foremost aims:

(1) to establish orderly and reasonable procedures for governing activities and

(2) for maintaining the integrity of *Clearwood while restricting individual freedom as little as possible.*

It is hoped that the regulations will be accepted in a spirit of cooperation and that the rule of common sense will prevail in those instances where the interpretation of a regulation does not exist to cover a particular situation. In the final analysis, the application of common sense and courtesy, together with respect for one's neighbor and their property, is the primary requisite to insure that Clearwood will be a truly enjoyable place to live and play. Further, it is to be understood that all activities engaged in at Clearwood, at any time of the year, are at the sole risk of the participant.

Other pertinent documents include the Amended Declaration of Covenants, Conditions and Restrictions Applicable to ALL Divisions of Clearwood and the Articles of Incorporation (contained in the Blue Book), and the Clearwood Community Association By-Laws. Copies are available at the Association Office.

In the event of conflict between the Covenants, Articles of Incorporation, By-Laws and this book, be it hereby understood that the Covenants, Articles of Incorporation and By-Laws (excluding this addenda) shall take precedent and control.

To further note, the Covenants and Restrictions run with the land and when there is any change of ownership, the new owner(s) is deemed to have accepted such Covenants and Restrictions and is bound by them to the same extent as the original owners.

These policies (The RED BOOK) must be reviewed by the Membership on or before the year 2005 Annual Meeting.

End

Clearwood Community Association By-Laws

DECLARATION OF AMENDED ARTICLES OF INCORPORATION AND PROTECTIVE COVENANTS APPLICABLE TO CLEARWOOD COMMUNITY ASSOCIATION, INC.

COVENANTS

(BLUE BOOK)

This book contains the Amended Articles of Incorporation and Amended Protective Covenants as recorded in Thurston county, Washington on April 11, 1974 and June 1, 1990, respectively as:

(1) Auditor's File No. D2237278, Page 445, and (2) Auditor's File No. 9006010001, volume 1735, Pages 364 thru 378.

CLEARWOOD COMMUNITY ASSOCIATION INC. 21603 N CLEAR LAKE BLVD SE YELM, WA 98597

(360) 894-2941

Date Last Modified: September 20, 2015

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AMENDED ARTICLES OF INCORPORATION OF CLEARWOOD COMMUNITY ASSOCIATION PURSUANT TO ELECTION TO BE GOVERNED BY THE PROVISIONS OF CHAPTER 24.03 RCW

ARTICLE 1

The name of the corporation shall be "Clearwood Community Association," herein called "Association."

ARTICLE 2

The duration of the Association shall be perpetual.

ARTICLE 3

The purposes for which the Association is formed are:

A. To acquire, construct, improve, maintain and operate community recreational facilities, including but not limited to parks, shelters, beaches, docks, bath houses, fishing facilities, boat launching and mooring facilities, parking areas, access streets and road, bridle trails, stocked fishing areas and other common facilities and areas of every description in or for the common use of the resident of a residential community to be known as CLEARWOOD and located in Thurston County, Washington.

B. To acquire, construct, improve, maintain and operate, and to grant franchises and easements for, utility systems in or for the benefit of such community.

C. To exercise, through an architectural control committee or by other means, powers of supervision and control over the improvements, maintenance and use of land in such community by interpreting and enforcing the protective covenants and restrictions, including building restrictions, to which the land in Clearwood may now or hereafter be subjected.

D. To do all things necessary and proper to carry out the purpose of the Association.

ARTICLE 4

The address of the registered office of the Association shall be 800 - 156th N. E. Bellevue, Washington, and the name of the registered agent at such address is Steve Willard.

ARTICLE 5

The management of the Association shall be vested in a Board of Directors which shall consist of not less than (3) persons, and the number,

qualifications. terms of office, manner of elections, time and of meeting, and powers and duties of the directors shall be such as are prescribed by the By-Laws of the Association.

ARTICLE 6

The names and addresses of the directors in office at the time of the adoption of these Amended Articles of Incorporation are:

Name & Address

Johnny W. Walker
133 Golden Gate
Tacoma, WA 98466

Everett Cox
1425 N Bennett
Tacoma, WA 98406

Ronald Murphy
1063 S Snoqualmie St.
Seattle, WA 89108

Kenneth E. Jones
111 S 62nd St
Tacoma, WA 98408

Jerry Miller
903 7th St SE
Auburn, WA 98002

John Gurnee
Rt 1 Box 1656
Yelm, WA 98597

Lawrence Skinner, M.D.
4411 26th Loop
Lacey, WA 98502

ARTICLE 7

The name and address of the Incorporator is:

Johnny W. Walker
133 Golden Gate
Tacoma, Washington 98466

ARTICLE 8

If the Association is dissolved, all of its real property, including but not limited to facilities described in Article 3 shall be dedicated to such competent governmental bodies as are willing to accept them and to operate and maintain them in a manner appropriate to and consistent with the character and environment of Clearwood. The balance of the Association's property, including all real property not accepted by competent governmental· bodies, shall be distributed in accordance with the Washington Nonprofit Corporation Act to those persons who at that time are members of the Association. Nothing in these Amended Articles of Incorporation shall preclude the formation of a successor to the Association or the conveyance of its assets to such successor in such event of dissolution.

ARTICLE 9

Any director may at any regular or special meeting of the Association's members and with or without cause be removed by a majority of the votes which members present at such meeting or represented by proxy are entitled to cast.

IN WITNESS WHEREOF, I have hereunto set my hand this 3rd day of April, 1974.

Johnny W. Walker

AMENDED DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS APPLICABLE TO ALL DIVISIONS OF CLEARWOOD

WITNESSETH:

WHEREAS, a majority of the owners of Lots and Tracts lying within all Divisions of Clearwood, in Thurston County, Washington, have voted in writing to amend and combine the Covenants, Conditions and Restrictions now applicable to Division I, recorded under Auditor's File No. 743396; Division II, recorded under Auditor's File No. 760888; Division III, recorded under Auditor's File No. 761044; Division IV, recorded under Auditors File No. 787200; Division V, recorded under Auditor's File No. 808775; Division VI, recorded under Auditor's File No. 815734; Division VII, recorded under Auditor's File No. 852827; Division VIII, recorded under Auditor's File No. 870539; Division IX, recorded under Auditor's File No. 892542; Division X, recorded under Auditor's File No. 907909; Division XI, recorded under Auditor's File No. 911148; Division XII, recorded under Auditor's File No. 911150; Division XIII, recorded under Auditor's File No. 953354; Division XIV, recorded under Auditor's File No. 892544; Division XV, recorded under Auditor's File No. 953356; Division XVI, recorded under Auditor's File No. 911152; Division XVII, recorded under Auditor's File No. 911154; Division XVIII, recorded under Auditor's File No. 911156; Division XIX, recorded under Auditor's File No. 917913, into these Amended Covenants, Conditions and Restrictions, which shall hereafter apply to all of Clearwood.

NOW THEREFORE, the owners of a majority of the Lots and Tracts In Clearwood hereby promulgate and file the following Amended Protective Covenants, Conditions and Restrictions applicable to all Divisions in Clearwood, Thurston County, Washington, effective September 1, 1990.

I. DEFINITIONS

1. "Clearwood', as defined in this Amended Declaration of Covenants, Conditions and Restrictions, means Clearwood Divisions I thru XIX.

2. "Community Park and Recreational Facilities" means Tracts in Clearwood in those Divisions covered by this Amended Declaration and which are designated thereon and set aside as Community Park and Recreational Facilities.

3. "Common Area" means, collectively, Community Park and Recreational Facilities; drainage and utility facilities, including the water system; walkway easements; the private roads identified and described on the

recorded plats of all Divisions covered hereunder, and the drainage and utility easements hereinafter described, all of which are hereby designated and set aside for the common use, enjoyment or benefit of the residents of Clearwood.

4. *"Residential/Recreational Lots"* means lots in Clearwood Divisions I thru XIX now or hereafter designated for residential/recreational use, including such as result from the subdivision of existing platted Residential/Recreational Lots, including platted Residential/Recreational Lots.

5. *"Association"* means Clearwood Community Association, Inc., a Washington corporation, organized under the Washington Nonprofit Corporation Act.

II. RECITALS

1. *"Weyerhaeuser Properties"* means Weyerhaeuser Properties, Inc., a Washington corporation, who, through its subsidiary, the Quadrant Corporation, was the developer of Clearwood and has sold the platted Residential/Recreational Lots in said district and made each of them subject to certain uniform covenants and restrictions for the benefit of all other Residential/Recreational lots in Clearwood and their owners, purchasers and lawful occupants. The control of Clearwood is now the responsibility of the property owners acting through Clearwood Community Association and its Board of Directors.

2 Clearwood is designed to be a community with permanent parks, open spaces, recreational assets and other common facilities designed to augment its natural scenic and recreational assets. The uniform protective restrictions and covenants, as heretofore established and now reestablished in an amended form, are intended to preserve and enhance the values and amenities of the community.

3. The Association has been organized under the Washington Nonprofit Corporation Act to acquire, hold and maintain in accordance with its Bylaws, as from time to time amended, the Common Areas in the community and, through its Architectural Control Committee and other proper officers, to interpret and enforce the protective covenants and restrictions set forth herein.

III. GENERAL PROVISIONS

1. All land in Clearwood Divisions I thru XIX shall be acquired, held and transferred subject to these protective covenants and restrictions, which are intended to benefit all Residential/Recreational Lots and their respective owners, purchasers and other lawful occupants. Accordingly, these protective covenants and restrictions shall run with the land, and

every person who by deed, contract or lease acquires any interest in any said Lots or portions thereof shall be deemed to have made and accepted such deed, contract or lease subject to all of the restrictions, conditions and covenants herein stated, and his or her respective heirs, executors, assigns or other successors in interest shall be bound by them to the same extent as the original purchaser or grantee.

2. These protective covenants and restrictions shall be enforceable at law or in equity by any owner, purchaser or other lawful occupant of land in Clearwood Divisions I thru XIX, including the Association, against any person who shall violate or attempt or threaten to violate them.

3. These protective covenants and restrictions shall be deemed fully and sufficiently described and incorporated in any instrument of conveyance by reference to the same as "Amended Declaration of Covenants, Conditions and Restrictions Applicable to All Divisions of Clearwood," and the file number of the Auditor of Thurston County under which they are recorded.

IV. WATER WELL

No individual water well shall be permitted in Clearwood and each water user must be connected to the central water system under the ownership and control of Clearwood Community Association as Common Area. The water system shall be managed according to the laws of the State of Washington relating to water systems and regulations of the Thurston-Mason County Health District.

V. ENTRY GATES

"Entry Gates" means front and back gates by which to enter Clearwood with a key card by Clearwood Association members in good standing. There is also a service gate in Division I. Each property owner is responsible for the entrance of guests or service people through the gates. Vehicles over five tons gross weight shall be prohibited on Clear Lake Boulevard North between Vine Lane on the west and Clear Lake Boulevard on the east. In no event shall any member be deemed to be in good standing and thus entitled to a key card unless the assessments on his or her Lot have been paid.

VI. SIGNS

I. No sign of any kind shall be displayed to the public view in Clearwood except the Following:

a. One sign for each Residential/Recreational Lot of not more than two square feet, identifying the occupants thereof.

b. One sign of not more than five square feet, advertising a Residential/Recreational Lot for sale or rent; and

c. Commercial signs in areas designated for community use.

2. Signs of information of directives by the Association.

a. All posted signs by the Clearwood Community Association shall be observed by Lot owners and any renter/resident and guest on any Lot;

b. "Foot Traffic Only" signs means no wheels except wheelchairs; and

c. Posted speed limit signs must be observed.

VII. ANIMALS

No domestic animal or fowl of any kind shall be kept, quartered or maintained in Clearwood at any time except:

a. Dogs, cats or other household pets may be kept on a non-commercial scale by owners or occupants of Residential/Recreational Lots. No animal of any kind may be kept, quartered or maintained in Clearwood if its presence produces a common law nuisance.

VIII. REFUSE, SEWAGE, RUINS & REMAINS

1. No trash, garbage, ashes, refuse, ruins or other remains of any kind (including disabled vehicles) shall be thrown, dumped, placed, disposed of or permitted to remain on land in Clearwood, vacant or otherwise. All trash, garbage, ashes and other refuse shall be kept in containers which shall be maintained in a clean and sanitary condition and shall be kept hidden from street view. The person or persons in control or possession of any Residential/Recreational Lot shall, irrespective of fault, be responsible for the prompt removal therefrom of all trash, garbage, ashes, refuse ruins and vehicles unable to run on their own power and other remains. No vehicle shall be abandoned or dismantled and no major vehicle work shall be performed on any part of a Residential/Recreational Lot. No vehicle in an extreme state of disrepair shall ever be parked or permitted to remain on any Residential/Recreational Lot or Common Area for more than 48 hours. Permanent residents and renters of each Lot shall obtain garbage pickup on the designated day by the refuse company servicing Clearwood. The dumpsters in the Common Areas are for the convenience of campers and the maintenance crew in order to keep the restrooms, beaches and cabanas clean.

2. No sewage disposal system of any kind shall be permitted in Clearwood unless it is designed, located constructed and maintained in accordance with the requirements and standards of proper governmental authorities. The use of privies or other pit toilets is prohibited. Sewage draining from RVs, trailers and other vehicles onto the ground is prohibited and in violation of Thurston County Health Department regulations, and any such dumping shall be done only at the RV dump station located near the back gate. Septic tanks are the responsibility of the lot owner.

IX. CLEARWOOD COMMUNITY ASSN, INC.

1. Every conveyance or other transfer of land in Clearwood, or interest therein, shall be subject to the Articles of Incorporation and Bylaws of the Association as from time to time amended. Every grantee or purchaser of an interest in land in Clearwood, by the act of purchasing or accepting the same for himself, his heirs, assigns and other successors, shall be bound by said Articles and Bylaws to faithfully perform all obligations thereby imposed upon him and in particular to pay such assessments as may be established by a vote of the Lot owners at the annual meeting or any special meeting called for such purposes. The amount assessed against each Lot shall bear the same proportion to the total amount assessed against all Lots as the number of Residential/Recreational Lots subject to assessments. Payment of such assessments shall be due within thirty (30) days after notice of assessment. The water service charge shall be included in the assessment billing, as well as any special levies which might be voted in by the Lot owners at an annual meeting. Assessments shall bear interest at a rate to be established by the Board of Directors of the Association not in excess of the rate set by statute.

2. If any person in control or possession of any Residential/Recreational Lot breaches or fails to perform any of these covenants, conditions or restrictions, the Association may cause such breach to be cured or obligation to be performed on his behalf and recover the reasonable-cost thereof from the owner or other person in control or possession by means of a special assessment, without the necessity of a vote of the owners.

3. Such general and special assessments, together with reasonable costs of collecting them, including reasonable attorney fees, shall be a personal obligation against the owner of the Lot, which the Association may enforce by court action. Such general and special assessments also constitute a lien upon the owner or purchaser's interest in the land in Clearwood, which shall be enforceable by foreclosure proceedings in the same manner as provided by law for foreclosure of real property mortgages. Such liens shall be superior to any and all other liens except mortgage liens recorded prior to the date of assessment. In addition to all other remedies, the Association shall have the right to withhold the current gate card to any Lot owner, purchaser or occupant until assessments have been paid.

X. BUILDING AND LANDSCAPING RESTRICTIONS

1. Only single-family residences and outbuilding auxiliary thereto (such as garages, storage sheds, wood sheds and the like) may be constructed or permitted to remain on the Residential/Recreational Lots in Clearwood Divisions I thru XIX. Storage sheds shall not be plumbed and shall be limited to one story and placed in an inconspicuous spot on the Lot, but only with the approval of the Architectural Control Committee, sometimes referred to herein as the Committee.

2. No construction shall be commenced without first obtaining approval by the Architectural Control Committee as to plans and a building permit from the proper governmental authority. All buildings shall conform to the specifications of the most recently adopted State of Washington Electrical Code and the Uniform Building Code and in accordance with fireplace requirements and plumbing code and all waste requirements in force at the time of commencement of onsite construction.

3. Each single-family residence shall contain a minimum of 600 square feet, exclusive of second floors, open decks, garages, covered carports, sheds or other appurtenances or outbuildings. Mobile homes, as defined by the statutes of the State of Washington, are hereby prohibited as permanent residences.

4. All residential structures shall be erected on a concrete foundation, built according to specifications of the Thurston County Building Department, with the exception that as to structures over steeply pitched ground, a combination of concrete blocks on a concrete foundation poured on site may be used.

5. Buildings on residential Lots shall be simple, well-proportioned structures. Exterior finishes shall have a flat, non-gloss appearance, and colors shall tend to dark grays, gray-greens, browns and earth tones. Exterior trim shall be stained or painted to compliment the finishes they adjoin.

6. The Architectural Control Committee may, upon application by the owner and upon studying the house plans and the site, determine whether the building should or should not have an overhang of the roof, and if so, how much, so long as the building designs are aesthetic, appealing and compatible with the overall character of Clearwood.

7. No building shall be located, erected or altered until a plan showing the location of the structures and construction plans and specifications shall have been submitted to and approved by the Architectural Control Committee of the Association. In considering the location, plans and specifications for any structure, the Committee shall take into account the following factors:

a. Quality of workmanship and materials

b. Harmony of external design and finish with the topography and with existing structures;

c. The effect which the proposed structures or alterations will have on other building sites and views therefrom, it being the Committee's responsibility to give the maximum protection to such views as may be reasonable under the circumstances; and

d. All other factors which the Committee may, in its sole discretion, deem to affect the desirability or suitability of the proposed structure or alteration.

Subject to the prior approval of the Committee, outbuildings may be constructed prior to the construction of permanent residences if such outbuildings are permissible under Section I of this Article X and if they are complimentary to and compatible with the design and location of the proposed permanent residence. The corners of proposed structures shall be staked on the ground at the time of the Committee's consideration of location, plans and specifications.

Minimum side yards and setback distances are to be those specified by the proper governmental authorities and as shown on the plats.

The exterior of any building shall be completed within one (1) year of the beginning of construction so as to present a finished appearance when viewed from any angle.

8. Maintenance and any alterations of Common Areas shall be the responsibility of the Board of Directors and the Committee. No trails, steps or other appurtenances shall be allowed from private lots to cross Common Areas. No removal of natural trees, shrubs, brush or other ground cover shall be undertaken on any Residential/Recreational Lot unless and until the plans for and/or specifications of such work shall have been submitted to and approved by the Architectural Control Committee.

9. The Committee shall have the power to charge a reasonable fee for costs incurred in processing and considering plans and specifications submitted to the Committee for its approval. Approval or disapproval of any matter submitted to the Committee shall be made within thirty (30) days of submission to the Committee or its duly appointed representative and shall be in writing. Any owner or purchaser aggrieved by the Committee's action may appeal to the Board of Directors of the Association. Appeals shall be made in writing within ten (10) days of the committee's mailing of its decision and shall set forth the part of the Committee's action deemed objectionable. The appeal shall be considered by the Board at its next scheduled meeting, and a final and conclusive determination shall be made by the Board within fifteen (15) days after such meeting.

10. No Fence, hedge or boundary wall shall be located closer to the street than the minimum building setback line. No chain-link fence shall be permitted on any private Lot in Clearwood. No fence, hedge or boundary wall situated anywhere on a Residential/Recreational Lot shall have a height greater than six feet above the finished grade surface of the ground, and in no event shall any fence, hedge or boundary wall be maintained or permitted to remain at a height that unreasonably impairs the view from any other lot. No trees or bushes, other than those presently existing, shall

be permitted to attain a height that would unduly impair the view from any other Lot. By permission from the Architectural Control Committee view Lot owners may be permitted to remove some lower branches from trees or brush obstructing their view. Prior permission from the Architectural Control Committee is mandatory.

11. Adequate off-street parking for at least two cars shall be provided on each Lot.

12. The use of tents, RVs, campers, travel trailers or motor homes shall be permitted on Residential/Recreational Lots during the one (1) year construction period. The use of RVs, travel trailers, campers, tents and motor homes is prohibited as permanent residences; however, they may reside on Residential/Recreational Lots from one weekend before the opening of fishing season through October 31, at which time all RVs, travel trailers, campers, tents and motor homes shall be removed from the individual Lots. Any owner, purchaser or occupier who does not remove such vehicles so designated will receive a fine to be determined by the Board of Directors, based upon the cost of such removal. Boats shall be permitted at the designated boat tie-ups from one weekend before the fishing season through October 31, at which time they shall be removed, and in the event the owner thereof does not remove the boat, the Association may levy a fine. RV's, trailers and campers may be stored at residences only if screening from the road is agreed upon by the Architectural Control Committee and the Lot owner. In the event an agreement cannot be reached, the issue shall be determined by the Board of Directors of the Association.

13. Easements for drainage, utilities, walkways, driveways and access roads are shown on the face of the respective plats. In addition, five-foot-wide drainage and utility easements are reserved within and along the front and back property lines of all Lots, and two-and-one-half-foot-wide drainage and utility easements are reserved within and along the side lines of all Lots.

14. All driveways shall be constructed to prevent the flow of surface water onto the street. All driveway crossings over drainage ditches must be equipped with adequate culverts capable of assuring the free and unobstructed passage of the waters therein, unless the Architectural Control Committee determines that such culverts are not necessary. Culverts shall be concrete pipe, eight inches in diameter, and shall be installed at a depth sufficient to permit an unobstructed water flow in the ditch. The owner or occupant of the Lot shall keep the culvert under it unobstructed and in good operating condition.

15. Outdoor fireplaces and fire pits must be placed in an open area safe from trees, brush, underground peat and other flammables and should be

lined with rock or concrete. Owners, visitors, renters/residents are responsible for putting fires out completely before leaving their Lot.

XI. REPAIRS, MAINTENANCE & CLEANLINESS

The buildings and grounds of each developed Residential/Recreational Lot shall be kept in a safe and reasonable state of repair, cleanliness and neatness. Lawns shall be mowed at reasonable intervals. Undesirable weeds having a tendency to spread across property lines shall be kept under control. No objects foreign to the Clearwood environment (including particularly disabled vehicles), furniture or appliances shall be permitted to remain out of doors on any Residential/Recreational Lot.

XII. ENFORCEMENT OF COVENANTS

The Association shall have the right through the Bylaws to levy fines for any violations in Articles IV through XI. Any violation of covenants appearing in Articles IV, V, VI, VII, VIII, IX, X and XI shall be considered to be a nuisance and the Association or its duly appointed representative shall have the right upon written notice to enter upon the Lot where the violation occurs or appears and abate the nuisance at the expense of the owner or other person in control or possession. The Association, its duly appointed representative or any person owning land in Clearwood may prosecute a civil action against any person or persons violating or attempting to violate any of these protective covenants, to either enjoin or otherwise prevent the violation or attempted violation or recover damages therefor. "The Association or any person bringing such action shall be entitled to recover from the violator reasonable attorney fees, court costs and other costs reasonably incurred, which costs shall constitute a lien upon the violator's land in accordance with the laws of the State of Washington.

XIII. DURATION OF THESE COVENANTS, CONDITIONS AND RESTRICTIONS

These amended covenants, conditions and restrictions shall be binding upon all persons owning or purchasing land in Clearwood Divisions I thru XIX until September 1**,** 2010, at which time these covenants, conditions and restrictions shall be automatically extended for successive periods of twenty (20) years, unless by vote of persons owning or purchasing a majority of the Lots in Clearwood Divisions I thru XIX agree to change the covenants in whole or in part. For the covenants to be changed in whole or in part fifteen (15) years after this date, a vote of sixty-five percent (65%) of the Lot owners shall be required, and for the covenants, conditions and restrictions to be changed in whole or in part in ten (10) years, a vote of seventy-five percent (75%) of the owners shal1 be required.

XIV. SEVERABILITY

Invalidation by judgment or other court order of any provision, sentence or paragraph contained in these protective covenants, conditions and restrictions shall in no way affect or invalidate any of the other provisions, sentences or paragraphs of these covenants, and the remaining portion shal1 remain in full force and effect.

Dated this 30th day of May, 1990
CLEARWOOD COMMUNITY ASSOCIATION,INC.
Gordon Hoffard, President
Attest: Darlene Johnson, Secretary

CERTIFICATE

THIS IS TO CERTIFY that the foregoing Amended Declaration of Covenants, Conditions and Restrictions Applicable to Al1 Divisions of Clearwood has been approved by the written vote of the persons owning a majority of the Residential/Recreational Lots in Clearwood Divisions I thru XIX, and that the signatures are on file, attached to the duplicate original of this instrument on file in the office of the corporation.

DATED this _____ day of _____, 1990.

Darlene Johnson, Secretary

CLEARWOOD COMMUNITY ASSOCIATION INC.
21603 N CLEAR LAKE BLVD SE
YELM, WA 98597

(360) 894-2941

Rules and Regulations

(RED BOOK)

The Rules and Regulations were Last Rewritten and Approved by Membership January 7, 2007.

The Rules and Regulations were Last Updated with Member Approved Resolutions August 15, 2015 and Reviewed by Membership in October, 2015.

The Rules and Regulations were Last Updated with Member Approved Resolutions August 15, 2015 and Approved by the Clearwood Board of Directors November 7, 2015.

Date Last Modified: November 7, 2015

RED BOOK

RULES & REGULATIONS
CLEARWOOD COMMMUNITY ASSOCIATION, INC.

RESOLUTION NO. 91-05-20:

A RESOLUTION presenting codified Rules and Regulations governing the use of Clearwood and its facilities by property owners and their guests.

WHEREAS, according to the Articles of Incorporation, the Bylaws and Amended Protective Covenants of the Clearwood Community Association, Inc., the Board of Directors has the authority to develop operational policies and procedures, and,

WHEREAS, there is a need to establish orderly and reasonable procedures for governing activities and for maintaining the integrity of Clearwood while restricting individual freedom as little as possible,

THEREFORE, BE IT RESOLVED: that, the Board of Directors adopt the Book of Rules and Regulations governing the use of Clearwood (hereinafter known as the RED BOOK).

Adopted 18th day of May, 1991

CLEARWOOD COMMUNITY ASSOCIATION, INC.

Darlene Johnson, President

Attest: Everett (Bob) Cox, Secretary

RED BOOK INTRODUCTION

This Red Book contains the Rules and Regulations governing the use of Clearwood and its facilities by property owners and their guests. These Rules and Regulations were duly considered and officially adopted by the Board of Directors of the Clearwood Community Association on May 18, 1991.

These Rules and Regulations were adopted with the following intents:

1. To establish orderly and reasonable procedures for the governing activities and
2. To maintain the integrity of Clearwood while restricting individual freedom as little as possible.

It is also intended that these regulations will be followed by members and their guests in a spirit of cooperation and that common sense will prevail in those instances where the interpretation of a rule or regulation does not sufficiently apply to a particular situation. In the final analysis, the application of common sense and courtesy, together with respect for one's neighbor and property, are the primary requisites to insure that Clearwood will be a truly enjoyable place to live and visit.

Other pertinent documents include the **Declaration of Amended Articles of Incorporation and Protective Covenants Applicable to Clearwood Community Association, Inc. (Blue Book), and the Clearwood Community Association Bylaws (Yellow Book)**. In the event of conflict between the Articles of Incorporation, Covenants, Bylaws and the Rules and Regulations as stated in this Red Book, the actual Articles of Incorporation, Covenants, and Bylaws shall take precedent and prevail. Copies of all books are available at the CCA office.

The Rules and Regulations in this Red Book must be reviewed by members every four (4) years and shall be immediately updated upon the effective date of new amendments approved by the membership.

The Covenants & Restrictions run with the land. When there is a change of ownership, the new owner(s) is deemed to have accepted such Covenants & Restrictions and is bound by them to the same extent as the original owner.

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(a) Low, dense trees.

(b) Fast-growing, dense shrubbery.

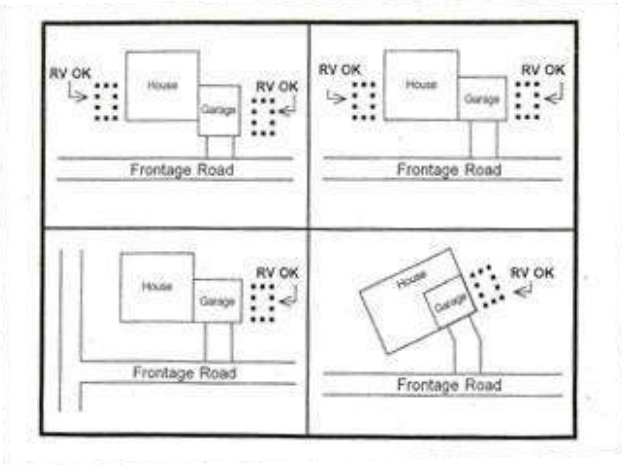
(c) Use of movable planters.

(d) Natural-appearing fencing in accordance with policy regarding fences.

(e) Natural-appearing latticework and/or vines.

(f) Such other screening as shall be approved from time to time by the ACC and/or the Board of Directors of CCA.

- The Board of Directors defines "such other screening" to include, at this time, that the minimal RV/Trailer/Camping screening shall consist of storage at the side of the dwelling with no protrusion beyond the front of the building



4. Permits shall be issued on a case-by-case basis and shall be conditional to the owner maintaining screening in a manner consistent with the permit.

5. Permits shall expire with the sale or disposal of the real property.

E. ASSESSMENTS

1. **Basic Assessments & Water Service Rates** – Basic Assessments and Water Service Rates are levied for the continued management and maintenance of the CCA. They are due 30 days after billing and interest will be charged on past due accounts, until paid. Payment of Basic Assessments and Water Service Rates are the sole responsibility of the CCA member and are collectible by court action. The CCA shall have the right to withhold the current gate card and water service to any lot owner, purchaser or occupant until assessments have been paid.

2. **Special Assessments** - Special Assessments are generally one time

assessments which may be levied for a specific purpose and duration, by the vote of the membership at an annual meeting or special meeting called for that purpose. Unless otherwise specifically stated at the time of acceptance, collection shall be as specified for Assessments and Water Service Rates in paragraph E.l above.

3. **Fines** - Fines levied for a violation of Protective Covenants, Bylaws, Policies and/or Rules and Regulations, will become a personal obligation of the lot owner and will include interest (as applicable) if not paid within thirty (30) days.

4. **Water Service Cutoff** - The Board of Directors of CCA has the option to disconnect water service of members who are delinquent in their assessments. (See paragraph 1 for refinement of disconnect policy approved August 2000.)

   The responsibility for the maintenance and protection of the water system extends from the initial water source through each meter to the connection for each member's water supply.

   Individual members may only connect their water supply to the 'lot side' of the meter box, and that any tampering with the meter or any part of the community system will subject the member to a fine of $500 for each reported (and verified) incident.

5. **Impact Fees** - Effective August 16, 2003 impact fees are established to help defray the cost of additional fire protection, and maintenance, replacement and upgrading of the roads and amenities because of the impact of accelerated development.

   a. The amount of the construction impact fee for a house and septic system is a set fee voted by the membership. Of this total 69% shall be assigned to roads, 27% is to fire protection (installation of hydrants) and 4% shall be assigned to parks and playgrounds. These funds, and the interest on them, shall be expended within six years of collection, and only for the purposes to which assigned, along with general reserve funds maintained in the CCA 5 year plan and Long Range plan.

   b. The amount of the construction impact fee for installation of a septic system only is a set fee voted by the membership (10% of full fee), allocated proportionately among the three usage areas.

   c. The amount of the construction fee for a dwelling on a lot on which a currently approved septic system for a new home already exists is a set fee (90% of full fee), allocated proportionately among the three usage areas.

6. **Step Rates for Water Usage** - Effective with billing for mid year 2014 usage.

   The community must establish a firm basis to encourage conservation

starting with the implementation of "steps" in usage rates:

TIER	FROM	PER # CUBIC FEET (CF)	PROPOSED COST
1	0-2500 CF	100	$2.30
2	2501-3500 CF	100	$3.45
3	3501 and up	100	$4.55

Calculated quarterly, but billed semi-annually.

F. SECURITY AND SAFETY

1. **Statement of Policy** - The purpose for which the CCA is formed is to acquire, construct, improve, maintain and operate community recreational and common facilities, and areas of every description in or for the common use of the members of Clearwood. The Covenants are intended to preserve and enhance the values and amenities of the Community.

   The portion of the directive *"for the common use of the members of Clearwood"* is interpreted to mean that the facilities and services provided in Clearwood are reserved to Clearwood members, guests and invitees.

   Further, this language may be interpreted to mean that *"**preserve**"* implies *"To reserve something for certain persons, to guard, to keep safe from destruction.* " and that *"**enhance**"* denotes *"To make greater in value, desirability or attractiveness."*

   In accordance with this interpretation of the Covenants, the members of the CCA and the Board of Directors hereby establish a Security Policy to be in force within Clearwood, with the express purpose of:

   a. **Guarding the entry gates**,
   b. **Patrolling the community** and
   c. **Monitoring the common facilities** in an effort to preserve and enhance the amenities.

   The various security measures provided by the CCA may include, but are not limited to the following:

   a. **Guarding the Entry Gates** - Provide guards at gates as deemed necessary.
   b. **Patrolling the Community** - Facilitate patrol service within Clearwood relative to:

LETTER OF UNDERSTANDING

This Letter of Understanding is entered into between Clearwood Community Association (Clearwood) and Donna Allison.

WHEREAS, Clearwood and Stanley Allison entered into a Letter of Understanding (LOU) dated May 20, 1996 (copy attached as Exhibit 1) to allow Stanley Allison to receive water from Clearwood in order to supply 18222 Bald Hill Rd SE (the "Property"); and

WHEREAS, Stanley Allison is now deceased, and Donna Allison is the sole owner of the Property; and

WHEREAS, Donna Allison wishes to continue receiving water from Clearwood to serve the Property under the terms and conditions of the LOU.

NOW, THEREFORE, the parties agree as follows:

1. Except as provided herein, the terms and conditions of the LOU shall apply to Donna Allison.

2. The LOU is personal to Donna Allison and may not be transferred or assigned to any third party, including the heirs, beneficiaries or assigns of Donna Allison, without the prior written consent of Clearwood. No easement rights have been conveyed by Clearwood in connection with the LOU, and none shall be conveyed.

3. In addition to the disconnection rights set forth in the LOU, Clearwood further reserves the right to disconnect service to the Property in the event that Donna Allison is in breach of the LOU.

4. Commencing January 1, 2016, Donna Allison shall pay the Annual Base Rate and water usage rates charged to Clearwood members. Currently, the Annual Base Rate and tiered water charges is set forth on Exhibit 2.

5. All charges for water shall be considered delinquent if not paid within thirty (30) days of issuance of an invoice to Donna Allison. All invoices and other notices shall be deemed appropriately delivered if mailed by U.S. mail to Donna Allison at the address of the Property.

6. Donna Allison shall at all times comply with all Clearwood cross connection provisions contained on Exhibit 3 hereto. Failure to comply with such cross connection provisions shall constitute a breach of this LOU.

DATE: May 17, 2016

CLEARWOOD COMMUNITY ASSOCIATION

Marvin L Moe

President – Vice

DATE: May 17, 2016

OWNER

Donna Allison

Donna Allison

EXHIBIT 1

(MAY 20, 1995 LETTER OF UNDERSTANDING)

CLEARWOOD COMMUNITY ASSOCIATION INC

LETTER OF UNDERSTANDING

Regarding water service to
19222 Bald Hill Rd SE
Stanley Allison, owner

May 20, 1995

In May of 1995 the current Board of Directors of Clearwood Community Association Inc became aware of the fact that water is being served from the Clearwood water system tap at Division I Lot 4 to private property outside of Clearwood.

Since there was no record regarding such activity in the water files of Clearwood, the following facts are hereby noted:

1. During the development of Clearwood, prior to 1969, the private 40' well serving the property just west of Division I Lot 4, known as 19222 Bald Hill Rd SE, owned by Stanley Allison, was producing enough water to supply domestic needs.

2. When the well in Division I was drilled and put into operation by the Clearwood developer, the private well belonging to Stanley Allison failed.

3. At that time, a verbal agreement between the developer and Stanley Allison gave permission for the interconnection to the water service at Division I Lot 4 in order to provide water to said private property.

4. An inspection of the private property has confirmed that the Stanley Allison private property is currently receiving water through a service line from Division I Lot 4, which is now on a water meter. High consumption prompted the investigation.

5. The inspection of the private property has also disclosed that three separate dwelling units are currently connected to the service line on Stanley Allison's property.

6. There is a private well being developed by Allison's daughter to serve a proposed parcel nearby.

7. It is unclear whether Stanley Allison has shared in the cost of receiving water from the Clearwood source.

THE SIGNATORS HEREBY AGREE AND CONFIRM THESE FACTS

Darlene Johnson, President

Stanley E. Allison, Owner

CONDITIONS OF AGREEMENT

1. Clearwood Community Association Inc shall continue to serve 16222 Bald Hill Rd SE as requested by Stanley Allison to assure continuity of service.

2. Stanley Allison shall pay all costs of installing a separate water meter inside Clearwood, near Division I Lot 4, and a new service line from said meter to his property, along the Clearwood lot utility easement area. It is required that a shut-off valve be installed on the Allison side of the boundary line for use in case of emergency repairs, etc.

A separate easement shall be provided to Stanley Allison for use of neighboring property for delivery of service.

3. Clearwood Community Association Inc shall develop a water service charge appropriate for supplying water to Stanley Allison outside of the Clearwood Community.

4. Stanley Allison shall guarantee to the Clearwood Community Association Inc that no further dwellings will be connected to the service line without the express written approval of the Association.

5. Clearwood Community Association Inc reserves the right to disconnect service in the case of delinquent payment of charges, in the case of infraction of policies or in the case of unlawful or questionable use of the water.

6. Stanley Allison shall permit Clearwood Community Association or it's representative to inspect the private well, service lines or points of entry on his property and conduct monitoring tests or related inspections, with prior notification.

7. Clearwood Community Association Inc shall honor the arrangement of serving domestic water to Stanley Allison property at 16222 Bald Hill Rd SE for such time as he is the property owner of record. It is not transferable for heirs or assigns of said property, without express written approval of the Association.

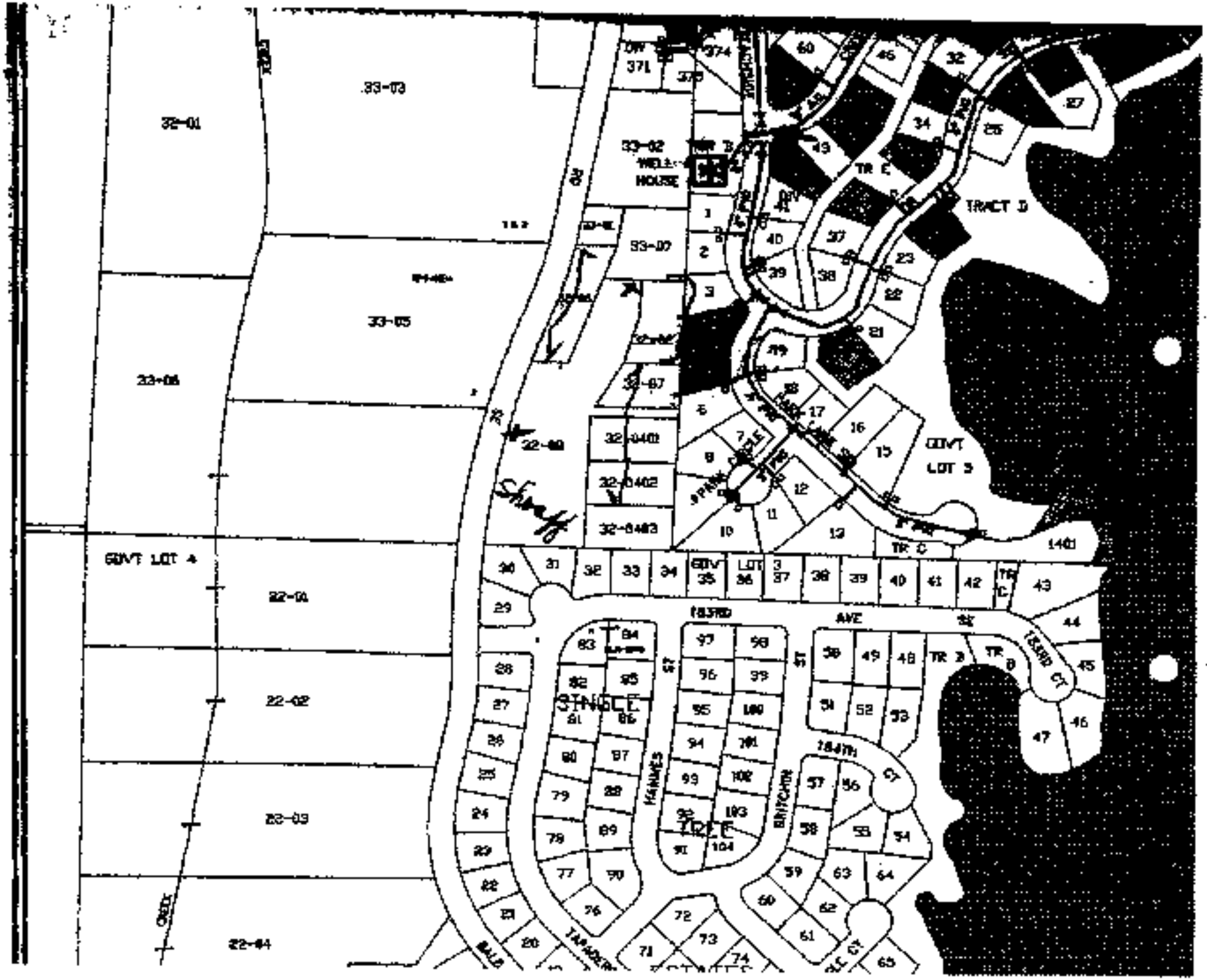
8. Stanley Allison shall be required to abide by all service policies relative to the Clearwood water system.

THE SIGNATORS HEREBY AGREE AND CONFIRM THESE CONDITIONS

Darlene Johnson
Darlene Johnson, President

Stanley E. Allison
Stanley Allison, Owner

052095 DJ



32-01
33-03
33-02
WELL HOUSE
33-07
33-05
33-06
32-07
32-08
32-0401
32-0402
32-0403
GOVT LOT 4
22-01
22-02
22-03
22-04
Sheaff
TRACT D
GOVT LOT 3
TR C
TR E
TR B
TR D
1401
GOVT LOT 3
153RD AVE SE
153RD CT
154TH CT
SINGLE
TREE
HAMMES ST
BRITCHIN ST
TARADERO
BALD
CREEK

EXHIBIT 2

(CLEARWOOD WATER CHARGES)

Clearwood Water Rates

Water Base Rate - $185 per Year per lot

Water Usage Calculated Quarterly but billed semi-annually

TIER	FROM	PER # CUBIC FEET (CF)	COST
1	0-2500	100	$2.30
2	2501-3500	100	$3.45
3	3501 and up	100	$4.55

EXHIBIT 3

[CLEARWOOD CROSS CONNECTION PROVISIONS]

From by-laws(yellow book) Section XIII Water System

4. No member supplied with water by the Association shall be permitted to use it for any purpose or in any way to serve other persons or families except in the case of emergencies. Any violation of this Article shall result in a fine being levied or legal action being taken against the violator.

5. To prevent any potential contamination or possible interaction with any other water source, all users of water connected to the Clearwood water system shall take reasonable and prudent measures to ensure that no cross connection takes place within their premises. "Cross connection" means any physical arrangement where the public water system is connected, either directly or through other lawfully 17 connected fixtures, to any other system, container, or device that contains, or may contain, water, waste products, or other substances of unknown or unsafe quality which may be introduced to the potable water system as a result of backflow. "Backflow" means the reversal of flow in any connection to the water system, by whatever cause, such that any material other than the water from approved sources, storage or treatment facilities is or may be made to enter the potable water distribution system. All lots and residents must have a current Water Cross-Connection Control Survey on file at the Clearwood office. Failure to complete and submit the annual survey in a timely manner shall be considered to have violated the integrity of the water system and may have their water service discontinued. A check valve shall be installed by the Association with any service connection. The water system shall provide Air/Vacuum relief facilities at appropriate points within the water system and shall be maintained at least annually. These facilities will introduce air to the water mains in the event of loss of pressure to minimize the potential of siphoning.

6a. Any water user found to be in violation of the integrity of the water system shall have their water service discontinued immediately. Service will not be restored until all such matters are resolved.

6b. Any water user found to be in arrears in their assessments, levies or fees, per established policies for the collection of same, shall be given notice in writing of potential termination of water service. Such notice shall be given at least thirty days prior to the intended date of service termination. The water user may request a hearing before the Board of Directors at the next regular scheduled meeting, after receipt of the notice, to determine if the Association regulations have been appropriate and/or whether mitigating factors exist. Service shall not be terminated while such a review is pending or continued.

CROSS CONNECTION CONTROL PROGRAM OF 2011

Purpose:

The guidelines are to provide for implementation of Section 246-290-490 WAC concerning Cross Connection Control, and to ensure safe drinking water within the community of Clearwood.

Finding of fact:

It is the responsibility of the Clearwood Community Association to provide water to the community that meets state and federal water quality standards.

- It is the responsibility of all members of the Clearwood Community Association to prevent any activity on their premises from contaminating the public water supply system
- Cross connection between the Clearwood water system and any unsanitary source on a member's lot poses a potential danger for the general contamination of the community water system; and
- Access to the public water supply should be provided by the Community only to those members who accept the responsibility to prevent cross connection

NOW BE IT RESOLVED THAT the provisions of the Cross Connection Control Program of 2011, as set forth below, are adopted and shall be incorporated in the procedures and regulation to be followed by all members of the Clearwood Community.

CROSS CONNECTION CONTROL PROGRAM OF 2011

I. Prevention of Contamination:

A. The on-site water service and plumbing on any lot, starting from the outflow of the water meter box, shall be considered a potential health hazard requiring assessment of the customer's premises to determine the existence and nature of any cross contamination.

B. The Clearwood Community Association shall, as needed, assess the risk of contamination posed by a certain connections to the system which are found to have exceptional risk factors, and shall require that such connections be isolated from the public water system at all times with backflow prevention assembly (BA) of a type that is commensurate with the risk to public health. Cross connections are eliminated whenever possible.

C. It shall be the goal of this program that all members shall ultimately provide the appropriate premise isolation. Such premise isolation shall be in accordance with the following:

1. All BAs shall be installed to insure premise isolation and/or in-premise isolation.
2. Immediately upon installation, and annually thereafter, Clearwood shall schedule for testing of each BA by a backflow assembly tester (BAT) certified by the Washington State Department of Health. The BAT shall provide, as evidence of satisfactory testing, his/her certification number, date and time of testing, test method, and pressure test reading results. The cost of the BA testing will be at the lot owners expense.

3. Only a licensed plumber and certified BAT may install the BA. The lot owner is responsible for all cost of installation and testing. BA must be installed in such a fashion that it is not subject to becoming submerged due to weather related conditions. Clearwood may establish a fee for installation, testing, and format of payment.

4. Except as may be considered separately by the Board, any requirements that may later be imposed by Clearwood to implement cross connection control measures, or to remain current with changes to state regulations or Clearwood's risk management policies, shall be incorporated within this Cross Connection Control Program.

5. All lots are required to complete and submit the Water Use Questionnaire (survey). Failure to submit a completed Water Use Questionnaire as required , can result in a water shut off until the connection has been determined to be no risk to the system.

6. Clearwood may discontinue water service within 72 hours of giving notice of failure to comply with the Cross Connection Control Program, or less time if the Board declares it necessary to protect public health.

7. All members shall install, operate, and maintain on their premises, a water supply and plumbing system that complies with this program and with the current Plumbing Code. It shall be the responsibility of members to ensure that water supply and plumbing system is installed in a manner that prevents failure from thermal expansion due to a closed system, which can occur from backflow prevention.

8. The Board shall establish and maintain such standards and procedures governing the application, installation, approval, and testing of assemblies, and other related tasks as are necessary to maintain compliance with the standards and regulations of the Washington State Department of Health for cross connection control. The Board may also establish more stringent requirements that it may deem necessary to protect and preserve the health and welfare of the members of the Clearwood community.

9. A triennial survey of a member's premises in accordance with this program shall be for the sole purpose of establishing the Clearwood's minimum requirements for the protection of the public water supply system. A premise survey, and conditions of construction established thereby for any member, shall not be construed to include a warranty, expressed or implied, against any actual or potential contamination of the community water system.

10. Clearwood shall immediately notify member of any BA assemblies required. Upon notification members shall install, operate, and maintain all required BAs, and at all times maintain compliance with this program and with WAC 246-290-490. Testing records and certificate of proper operation shall be submitted to Clearwood's office annually. Clearwood shall schedule annual testing at the lot owners expense. Any BA or air gap found to fail testing/inspection shall be subject to water shut off until the connection is determined to be no longer a risk to potable water.

D. The Clearwood Community Association water system personnel shall take the following steps to assure that the alt air and vacuum release assemblies currently installed are functioning properly.

1. Assign a unique identifier for each assembly, and create an annual testing/repair/replacement record for each assembly.

2. Establish and follow a schedule that testing each assembly annually. The test should ensure that the assembly is working properly. Failed assemblies may be repaired or replaced as needed.

3. The records will be reviewed periodically. If an unacceptably high rate of failure has occurred, the testing schedule shall be shortened so that every assembly is tested more frequently.

4. If an assembly has been repaired once, and fails again, it shall be replaced.

II. Type of backflow prevention required:

A. The type of protection required shall be commensurate with the degree of hazard existing on the premises as follows:

1. When a backflow prevention assembly is installed for premise isolation it shall be installed at the outlet of the service meter. The double check valve assembly is the minimum backflow protection required for premise isolation on the Clearwood water system. Single check valves commonly provided with service meters are not approved backflow prevention assemblies. Provided the appropriate backflow assembly is properly installed for premise isolation, and tested satisfactorily, no further backflow device or isolation is required.

2. No work shall be performed or any connection be made inside the meter box without prior approval by the Architectural Control Committee. Clearwood shall perform on site inspection and schedule BAT testing at lot owners expense prior to use and annually. Unacceptable work is subject to water shut off. All unapproved work shall be removed by Clearwood at the member's expense, and additional charges may be assessed.

B. A risk assessment survey is required and backflow prevention devices are required as follows:

1. Any tank or vessel which is filled or washed with potable water shall be required to have an approved air gap of at least twice the inside diameter of the incoming supply line, but not less than one inch, measured vertically above the top rim of the vessel. Where the substance which could backflow is a "contaminant" or potentially hazardous to health an approved reduced pressure backflow prevention assembly shall be installed.

2. An approved reduced pressure backflow prevention assembly shall be installed on any irrigation system that incorporates any type of valve other than electrically operated anti-siphon valves and/or any chemical addition device or system. Permanent underground irrigation systems that incorporates electrically operated anti-siphon valves exclusively, and have no chemical addition devices or systems, may the premise piping and the entrance to the irrigation system as a device.

3. All hose bibs are required to have a vacuum breaker attached

4. If a hose bib is to be used for a recreational vehicle hook up, or have a downstream valve attached, it shall have an approved pressure vacuum breaker assembly installed.
5. Approved air air gaps shall be inspected annually.

III. Previously installed assemblies:

Backflow prevention assemblies that were approved at the time of installation but are not on the current list of approved assemblies, shall be permitted to remain in service provided that they are properly installed and maintained, are commensurate with the degree of hazard, and are tested annually and perform satisfactorily. When assemblies of this type are moved, or require more than minimum maintenance, they shall be replaced by assemblies that are approved by Clearwood. Single check valves normally installed with service meters cannot be tested and are not approved as backflow prevention assemblies.

IV. Approval of assemblies:

All backflow prevention assemblies required by these guidelines shall be of a type, manufacturer, and model approved by the Washington State Department of Health Office of Drinking Water and Clearwood.

V. Enforcement:

The Clearwood Board of Directors shall identify and designate a cross connection control specialist, who shall have current certification as required by state law. Along with the services of a certified BAT. The certified BA T shall provide results to Clearwood within a two week time frame of testing. Clearwoods Cross Connection Specialist shall enforce the provisions herein by causing the water service to any premise to be discontinued or denied in any of the following situations:

- When it becomes known that a condition such as a cross connection, plumbing, structural, or sanitary hazard, or other violation of these guidelines is present.

- In those cases of extreme emergency, and where an immediate threat to life or public health from contaminant connection to the public water system is found to exist.

- When any required installation, test, repair, replacement, or other backflow prevention requirement has not been provided in accordance with reasonable notice to the customer, and after a reasonable length of time, as determined by the Board in the community's best interest, has been allowed.

VI. Education:

Clearwood will conduct Cross Connection Control public education via periodic bill inserts, consumer confidence reports, web site, newsletter and membership meetings.

VII. Records:

Clearwood shall develop and maintain records including but not limited to:

- A master list of service connections.
- Approved back flow assemblies, exact location and assessed hazard level, installation date
- Approved air gaps, exact location and assessed hazard level and installation date.
- Approved AVBs for irrigation systems. Installion date and history of inspections.
- Completed Water Use Surveys
- BAT testing results and back flow incidents

VI. Definitions:

Air Gap:
The vertical separation between the free flowing discharge end of a potable water supply line and the open or atmospheric pressure receiving vessel.

Atmospheric Pressure Vacuum Breaker:
Also known as an anti-siphon valve, consisting of a single check valve in the supply line that opens to the atmosphere when the pressure in the line upstream of the device drops to atmospheric pressure.

Backflow:
The flow of used water or other fluids from the customer's plumbing into the distribution system.

Backflow Prevention Assembly:
An assembly that has been approved by the State of Washington and Clearwood, for preventing backflow from the customer's premise piping.

Backflow Prevention Assembly Tester (BAT):
An individual that is certified by the State of Washington and Clearwood to test backflow prevention assemblies.

Check Valve:
A valve that is designed to permit flow in only one direction.

Contaminant:
Any physical, chemical, biological, or radiological substance or matter that may render the water non-potable according to State regulations.

Cross Connection:
Any link or channel between piping that carries potable water and the piping that carry non-potable water or other substances.

Cross Connection Inspector:
An individual certified by the State of Washington and approved by Clearwood to inspect for cross connections.

Double Check Valve Assembly:
An assembly consisting of two independently acting check valves with a shut off valve on each side of the two check valves. The assembly has test ports for checking water tightness of each check valve. The assembly must be an approved backflow prevention assembly for installation as a backflow prevention device.

Pressure Vacuum Breaker Assembly:
A mechanical assembly consisting of one spring loaded check valve in the supply line and a spring loaded air inlet on the downstream side of the check valve which will open to the atmosphere when the pressure in the assembly drops below one pound per square inch. The complete assembly consists of two shut off valves and two test ports for checking water tightness of the check valves and the operation of the relief valve. The assembly must be an approved backflow prevention assembly for installation as a backflow prevention device.

Reduced Pressure Backflow Assembly:
An assembly for preventing backflow incorporating two check valves, a differential pressure relief valve located between the two check valves, two shut-off valves, on each end of the assembly, test ports for checking water tightness of the check valves and the operation of the relief valve. The assembly must be an approved backflow prevention assembly for installation as a backflow prevention device.

VII. References:
The following references haven been used to formulate these guidelines for Cross Connection Control by the Clearwood Community Association water system:

Washington State Department of Health, Drinking Water Regulations for Cross Connection Control, WAC 246-290-490, WAC 249-290-050

American Water Works Association, Pacific Northwest Section, Cross Connection Control, Accepted Procedures and Practices, December 1995

International Association of Plumbing and Mechanical Officials, Uniform Plumbing Code, Washington State Amendments, Chapter 6

University of Southern California, Foundation for Cross Connection Control and Hydraulic Research, Ninth Edition, December 1993

Cross Connection Control Manual, US Environmental Protection Agency, June 1989

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THURSTON COUNTY
OLYMPIA, WASH.

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Jan 18 2 44 PM '73

REQUEST OF Grantor Corp
C. WESLEY LEACH, AUDITOR
DEPUTY

EASEMENT FOR WATER PIPELINE AND RESERVOIR SITE

WEYERHAEUSER COMPANY, a Washington corporation, hereinafter called "Weyerhaeuser," in consideration of the faithful performance of the terms and conditions hereinafter set forth, does hereby donate and grant unto THE QUADRANT CORPORATION, a Washington corporation, hereinafter called "Quadrant":

681889

(A) An easement for a reservoir site on that part of the Southwest quarter of Section 5, Township 15 North, Range 3 East, W.M. described as beginning at a point 642.77 feet East of a point on the West line of said Section 5, a distance of 831.04 feet S 0° 43' 02" W of the West one quarter corner thereof; thence East 147.58 feet; South 147.58 feet; West 147.58 feet and North 147.58 feet to the point of beginning.

Containing 0.50 acres in Thurston County, Washington.

(B) Together with a road easement for access to the reservoir site for maintenance and construction purposes over a tract of land 40.00 feet in width lying within the South halfs of Sections 5 and 6, Township 15 North, Range 3 East, W.M., the centerline of which is described as beginning at a point on the center line of the Weyerhaeuser Company Truck Road N89° 16' 58" W 921.40 feet distant of a point on the West line of said Section 5 S 0° 43' 02" W 960.24 feet distant of the West one quarter corner thereof; thence S 40° 14' 00" E 263.29 feet; thence along a curve to the left having a radius of 309.71 feet, a distance of 170.54 feet; thence along a curve to the right having a radius of 699.81 feet a distance of 181.99 feet; thence along a curve to the left having a radius of 190.90 feet a distance of 143.51 feet; thence S 85° 09' E 190.04 feet; thence along a curve to the left having a radius of 327.40 feet a distance of 133.90 feet; thence N 71° 25' E 107.70 feet; thence along a curve to the right having a radius of 636.62 feet a distance of 137.78 feet; thence N 83° 49' E 56.15 feet; thence along a curve to the left having a radius of 81.85 feet a distance of 125.55 feet; thence N 4° 04' W 84.14 feet; thence along a curve to the right having a radius of 63.66 feet a distance of 111.70 feet; thence S 83° 32' E 236.49 feet; thence along a curve to the left having a radius of 89.52 feet a distance of 150.72 feet; thence North 19.17 feet to a point 20.00 feet West of the Southeast corner of the first above described half acre tract.

(C) Also together with an easement, limited to access rights to the reservoir site, over Weyerhaeuser's Branch 7 Mainline Road from Bald Hill County Road to its intersection with the access road described in (B) above.

Request No. Klarke Date 1-18-73
Requested by George M. Haslett, Thurston County Title Co.
By Edith Robertson Deputy

Mr. Quadrant Corp
2600-182nd Ave NE
Bellevue, Wash 98007

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(D) Also together with an easement for utility purposes over a tract of land 50.00 feet in width, over a portion of said Section 5, the centerline of which is described as beginning on the Northerly boundary of the herein described half acre tract at a point bearing East 725.24 feet distant of the West line of said Section 5, at a point S 0° 45' 02" W 831.04 feet distant of the West one quarter corner thereof; thence running N 18° 09' 08" W 353.13 feet; N 20° 50' 27" E 93.57 feet and N 62° 21' 55" W 120 feet more or less to the Northwesterly margin of said Weyerhaeuser Company Truck Road, together with the right to obtain access to said utility easement for the purpose of constructing the utilities therein and the maintenance thereof over such a portion of said Southwest quarter of Section 5 as will present reasonable access and shall be agreeable to the grantor herein.

SUBJECT TO the rights of others under existing permits from Weyerhaeuser and to the following terms and conditions:

1. Weyerhaeuser, for itself, its successors, assigns and permittees, reserves the right at all times and for any purpose to go upon, cross and recross and use said right of way thereof, and to enter into necessary permits and other agreements with others covering said lands or portions thereof for any purpose whatsoever not inconsistent with the rights of Quadrant.

2. Weyerhaeuser has made no representation as to the present or future conditions of its property or the character of the traffic on any of its roads, and Quadrant assumes all risks of damage to property of or injury to persons, in connection with the exercise of its rights hereunder.

3. Weyerhaeuser shall not be liable for any damage to said water supply system arising out of the exercise of its reserved rights to use said above described land for its corporate purposes.

4. Quadrant shall pay all taxes and assessments of every kind which shall hereafter be levied or become a lien against the lands upon which reservoir and pipeline are located, based upon any valuation of the line and use thereof.

5. Any independent contractor or sub-contractor engaged by Quadrant to perform services relating to the rights held by Quadrant shall, as between the parties hereto, be deemed to be the agent of Quadrant.

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6. The rights hereby granted shall continue until such time as Quadrant shall have ceased to use the reservoir and pipeline for a period of two (2) years, at which time all rights hereunder shall cease and terminate.

7. If Quadrant shall default in, or shall fail, neglect or refuse to carry out any of the conditionr or agreements herein set forth, to be by it kept and performed, then Weyerhaeuser may cancel this agreement upon six (6) months' notice in writing addressed to Quadrant.

8. This easement shall be binding upon and inure to the benefit of the respective successors and assigns of the parties hereto; providing nevertheless, that any assignment by Quadrant shall be subject to Weyerhaeuser's approval, which approval shall not unreasonably be withheld.

Dated this 30th day of November, 19 72.

WEYERHAEUSER COMPANY

By _____
Manager, Land Resources

Attest _____
Secretary

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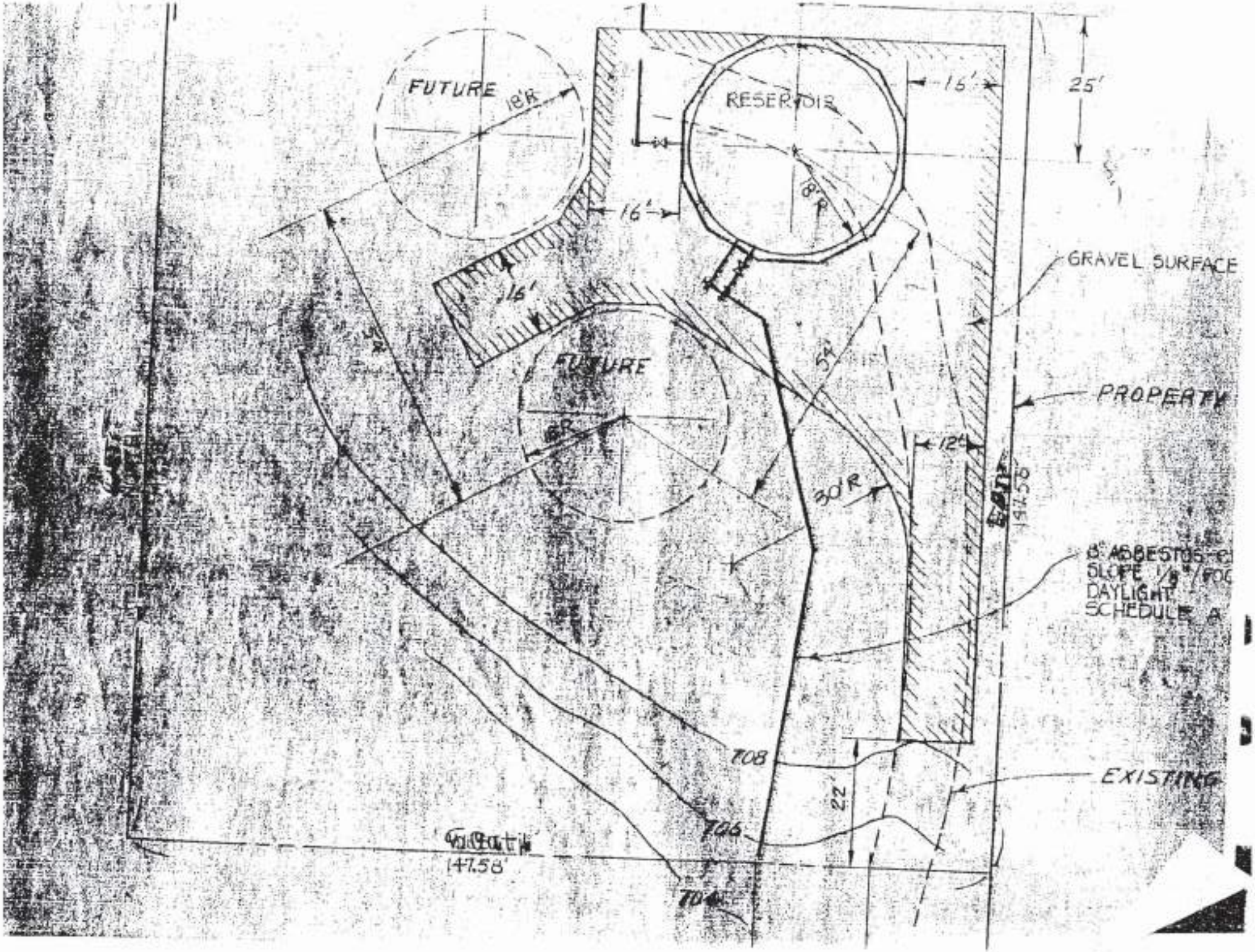
STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

On this 4th day of December, 1972, before me personally appeared R. H. Witter, Jr. and Rowland C. Vincent, to me known to be the Manager, Land Resources and Secretary, respectively, of Weyerhaeuser company, the corporation that executed the within and foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that they were authorized to execute said instrument and that the seal affixed is the corporate seal of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public in and for the State of Washington, residing at Puyallup.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Planning • Management • Engineering
P.O. Box 123 • Port Orchard, WA 98366 • 888-881-0958 • 360-876-0958

December 14, 2017

Thurston County Planning Department
c/o Brent Butler-Director
2000 Lakeridge DR SW
Olympia, WA 98502

Re: Clearwood – Water System Plan
Local Government Consistency Review Checklist

Dear Mr. Butler:

Clearwood Water System (DOH System ID 13615 U) has completed an updated Water System Plan. Northwest Water Systems prepared the planning document on behalf of Clearwood and seeks your review and concurrence in regard to the required Local Government Consistency Review Checklist.

Please find enclosed relevant portions of the Water System Plan for your review. A copy of the DOH's Local Government Consistency Review Checklist is also enclosed. If you have any questions or need any other information, please call me at 360-876-0958, extension 108, or email lydia@nwwatersystems.com.

Sincerely,

Lydia Bower
NORTHWEST WATER SYSTEMS, INC.

Local Government Consistency Determination Form

Water System Name: _____ PWS ID: _____

Planning/Engineering Document Title: _____ Plan Date: _____

Local Government with Jurisdiction Conducting Review: _____

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

	For use by water system	For use by local government
Local Government Consistency Statement	**Identify the page(s) in submittal**	**Yes or Not Applicable**
a) The water system service area is consistent with the adopted land use and zoning within the service area.		
b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology.		
c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances.		
d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area.		
e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans.		

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

_____ _____

Signature Date

_____

Printed Name, Title, & Jurisdiction

Consistency Review Guidance

For Use by Local Governments and Municipal Water Suppliers

This checklist may be used to meet the requirements of WAC 246-290-108. When using an alternative format, it must describe all of the elements; 1a), b), c), d), and e), when they apply.

For **water system plans (WSP)**, a consistency review is required for the service area and any additional areas where a municipal water supplier wants to expand its water right's place of use.

For **small water system management programs**, a consistency review is only required for areas where a municipal water supplier wants to expand its water right's place-of-use. If no water right place-of-use expansion is requested, a consistency review is not required.

For **engineering documents,** a consistency review is required for areas where a municipal water supplier wants to expand its water right's place-of-use (water system plan amendment is required). For noncommunity water systems, a consistency review is required when requesting a place-of-use expansion. All engineering documents must be submitted with a service area map (WAC 246-290-110(4)(b)(ii)).

A) Documenting Consistency: The planning or engineering document must include the following when applicable.

a) A copy of the adopted **land use/zoning** map corresponding to the service area. The uses provided in the WSP should be consistent with the adopted land use/zoning map. Include any other portions of comprehensive plans or development regulations that relate to water supply planning.

b) A copy of the **growth projections** that correspond to the service area. If the local population growth projections are not used, explain in detail why the chosen projections more accurately describe the expected growth rate. Explain how it is consistent with the adopted land use.

c) Include water service area policies and show that they are consistent with the **utility service extension ordinances** within the city or town boundaries. *This applies to cities and towns only.*

d) All **service area policies** for how new water service will be provided to new customers.

e) **Other relevant elements** the Department of Health determines are related to water supply planning. See Local Government Consistency – Other Relevant Elements, Policy B.07, September 2009.

B) Documenting an Inconsistency: Please document the inconsistency, include the citation from the comprehensive plan or development regulation, and explain how to resolve the inconsistency.

C) Documenting a Lack of Local Review for Consistency: Where the local government with jurisdiction did not provide a consistency review, document efforts made and the amount of time provided to the local government for review. Please include: name of contact, date, and efforts made (letters, phone calls, and emails). To self-certify, please contact the DOH Planner.

The Department of Health is an equal opportunity agency. For persons with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TTY 1-800-833-6388).

Table 9-1 Revenues & Expenditures (2011 to 2016)

	2011	2012	2013	2014	2015	2016
REVENUES						
WATER SERVICE BASE RATE EXPECTED (BILLED)	$ 250,675	$ 250,675	$ 250,675	$ 250,675	$ 250,675	$ 251,206
WATER CONSUMPTION RATE EXPECTED (BILLED)	$ 83,916	$ 95,511	$ 97,491	$ 134,880	$ 173,278	$ 192,483
INTEREST WATER SYSTEM	$ 198	$ 131	$ 106	$ 133	$ 119	$ 313
DIRECT REVENUE	$ 334,789	$ 346,317	$ 348,272	$ 385,688	$ 424,072	$ 444,002
LOAN FROM GENERAL RESERVE	$ -	$ -	$ -	$ -	$ -	$ -
MONEY IN CD MONEY MARKET ACCOUNT	$ -	$ -	$ -	$ -	$ -	$ -
PRIOR ACCOUNTS RECIEVABLES/OVERAGE	$ 61,141	$ 76,651	$ 72,851	$ 47,189	$ 28,498	$ 17,634
TOTAL REVENUES	**$ 395,930**	**$ 422,968**	**$ 421,123**	**$ 432,877**	**$ 452,570**	**$ 461,636**
EXPENSES						
ADMIN WATER SYSTEM	$ 15,982	$ 13,842	$ 16,170	$ -	$ -	$ -
BAD DEBT	$ -	$ -	$ -	$ -	$ 45	$ 1,542
CAMERAS	$ 1,628	$ 1,517	$ 1,394	$ 1,705	$ -	$ 1,068
CATHODIC PROTECTION	$ -	$ -	$ 1,340	$ -	$ -	$ -
CONTINGENCY WATER SYSTEM	$ 719	$ 912	$ 2,756	$ 260	$ 2,449	$ 1,082
DATA/COMPUTER	$ -	$ -	$ -	$ -	$ -	$ -
ELECTRIC WATER SYSTEM	$ 10,914	$ 10,469	$ 8,369	$ 7,510	$ 8,528	$ 8,818
EQUIPMENT RENTAL	$ -	$ -	$ -	$ -	$ 504	$ -
EQUIPMENT REPAIRS	$ 204	$ 697	$ 5,078	$ 205	$ 2,458	$ 3,061
HEALTH INSURANCE	$ 6,218	$ 6,116	$ 6,047	$ 5,027	$ 4,029	$ 3,505
INSURANCE WATER SYSTEM	$ 11,145	$ 18,655	$ 16,461	$ 14,174	$ 15,976	$ 16,330
INTEREST ON LOAN TO GEN RES	$ 5,956	$ 968	$ -		$ -	$ -
MAINTENANCE OVERHEAD	$ 6,000	$ 6,000	$ 6,000	$ 6,952	$ 6,000	$ -
PAYROLL WAGES	$ 33,195	$ 41,585	$ 44,896	$ 45,278	$ 32,084	$ 31,568
PAYROLL TAXES	$ 6,479	$ 6,232	$ 8,430	$ 7,371	$ 5,030	$ 5,062
PROFESSIONAL ENGINEER WATER SYSTEM	$ -	$ 670	$ -	$ -	$ -	$ 1,494
PROFESSIONAL LEGAL FEES	$ -	$ -	$ 731	$ -	$ 15,413	$ -
SAFETY GEAR/SUPPLIES	$ -	$ -	$ -	$ -	$ -	$ -
SMALL TOOLS WATER SYSTEM	$ -	$ -	$ 228	$ -	$ 1,029	$ -
SODIUM HYDROXIDE WATER SYST	$ 24,725	$ 18,508	$ 16,129	$ -	$ -	$ -
STRUCTURE WATER SYSTEM	$ -	$ -	$ 1,125	$ -	$ -	$ -
SUPPLIES WATER SYSTEM	$ 6,135	$ 5,161	$ 5,028	$ 7,232	$ 20,669	$ 23,775
TAXES & LICENSES	$ 2,065	$ 1,456	$ 1,379	$ 6,788	$ 14,497	$ 12,814
TELEPHONE DRY PAIRS	$ 300	$ 300	$ 300	$ -	$ 350	$ 300
TRAINING WATER SYSTEM	$ 758	$ -	$ 1,183	$ 530	$ 275	$ -
WATER TESTING EXPENSE	$ 4,244	$ 4,858	$ 5,277	$ 16,014	$ 6,466	$ 7,915
WATER METERS	$ 4,343	$ -	$ -	$ -	$ -	$ -
WELL REPAIR	$ 90	$ 75	$ 3,530	$ -	$ 12,143	$ -
ALLOCATION WATER SYSTEM WAGES	$ 32,363	$ 15,150	$ 26,040	$ 23,789	$ 8,660	$ -
WATER RESERVE EXPENSES	$ 311,383	$ 30,639	$ 58,711	$ 199,509	$ 291,671	$ 81,548
TOTAL EXPENSES	**$ 484,846**	**$ 183,810**	**$ 214,942**	**$ 342,344**	**$ 448,276**	**$ 198,388**
TOTAL YEAR END BALANCE (IN WATER RESERVE ACCOUNT)			**$ 206,181**	**$ 90,533**	**$ 4,294**	**$ 263,248**

SYSTEM RESERVES						
IMPACT FEES FOR HYDRANT REPLACEMENT						
BEGINNING BALANCE	$ 56,763	$ 60,030	$ 61,474	$ 30,750	$ 30,758	$ 32,391
ANNUAL INSTALLMENT	$ 3,267	$ 1,444	$ 3,227	$ 8	$ 1,633	$ 3,260
WITHDRAWALS	$ -	$ -	$ 33,951	$ -	$ -	$ -
ENDING BALANCE	*$ 60,030*	*$ 61,474*	*$ 30,750*	*$ 30,758*	*$ 32,391*	*$ 35,651*
MONEY IN CD (PURCHASED WITH IMPACT FEE FUNDS)	$ 59,494	$ 59,494	$ 59,494	$ 59,494	$ 58,985	$ 58,985
TOTAL RESERVE BALANCE	$ 119,524	$ 120,968	$ 90,244	$ 90,252	$ 91,376	$ 94,636
CAPITAL IMPROVEMENT CAPITAL SOURCES						
LOANS (FROM GERERAL RESERVE)	$ -	$ 100,000	$ -	$ -	$ -	$ -
GRANTS	$ -	$ -	$ -	$ -	$ -	$ -
SPECIAL CHARGES	$ -	$ -	$ -	$ -	$ -	$ -
WITHDRAWAL FROM EXISTING RESERVES	$ 311,383	$ 30,639	$ 58,711	$ 199,509	$ 291,671	$ 81,548
NET CIP	*$ 311,383*	*$ 130,639*	*$ 58,711*	*$ 199,509*	*$ 291,671*	*$ 81,548*
WATER SYSTEM RESERVE (OPERATIONS AND REPLACEMENT)						
BEGINNING BALANCE	$ 214,458	$ 48,361	$ 44,244	$ 158,575	$ 128,442	$ 166,449
ANNUAL INSTALLMENT	$ 145,286	$ 126,522	$ 173,042	$ 169,376	$ 329,678	$ 282,511
SYSTEM IMPROVEMENT WITHDRAWAL	$ 311,383	$ 130,639	$ 58,711	$ 199,509	$ 291,671	$ 81,548
RUNNING BALANCE	$ 48,361	$ 44,244	$ 158,575	$ 128,442	$ 166,449	$ 367,412
EMERGENCY RESERVE (GENERAL RESERVE)[1]						
BEGINNING BALANCE	$ 1,022,004	$ 1,137,626	$ 1,407,520	$ 1,531,489	$ 1,531,269	$ 1,318,160
ANNUAL INSTALLMENT	$ 115,622	$ 269,894	$ 123,969	$ (220)	$ (213,109)	$ 324,941
WATER RESERVE WITHDRAWAL (LOAN)	$ -	$ -	$ -	$ -	$ -	$ -
ENDING BALANCE	$ 1,137,626	$ 1,407,520	$ 1,531,489	$ 1,531,269	$ 1,318,160	$ 1,643,101
TOTAL ASSETS (WATER SYSTEM AND GENERAL RESERVES)	**$ 1,305,511**	**$ 1,572,732**	**$ 1,780,308**	**$ 1,749,963**	**$ 1,575,985**	**$ 2,105,149**

1. Information for the general reserve only consists of the transactions for water related projects. This reserve is used if water system reserve funds are not sufficient.

Table 9-1 Revenues & Expenditures (2017-2026) Expected										
	2017	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
REVENUES										
WATER SERVICE BASE RATE EXPECTED (BILLED)	$ 250,675	$ 250,675	$ 250,675	$ 440,375	$ 440,375	$ 440,375	$ 440,375	$ 440,375	$ 440,375	$ 440,375
WATER CONSUMPTION RATE EXPECTED (BILLED)	$ 198,257	$ 198,257	$ 198,257	$ 198,257	$ 198,257	$ 198,257	$ 198,257	$ 198,257	$ 198,257	$ 198,257
INTEREST WATER SYSTEM	$ 322	$ 332	$ 342	$ 352	$ 363	$ 374	$ 385	$ 396	$ 408	$ 421
DIRECT REVENUE	$ 449,255	$ 449,265	$ 449,275	$ 638,985	$ 638,995	$ 639,006	$ 639,017	$ 639,029	$ 639,041	$ 639,053
LOAN FROM GENERAL RESERVE	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MONEY IN CD MONEY MARKET ACCOUNT	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
PRIOR ACCOUNTS RECIEVABLES/OVERAGE	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
TOTAL REVENUES	**$ 449,255**	**$ 449,265**	**$ 449,275**	**$ 638,985**	**$ 638,995**	**$ 639,006**	**$ 639,017**	**$ 639,029**	**$ 639,041**	**$ 639,053**
Meter fee, $140/yr/connection added in 2020										

EXPENSES													
ADMIN WATER SYSTEM	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
BAD DEBT	$ 1,557	$ 1,557	$ 1,557	$ 1,557	$ 1,557	$ 1,557	$ 1,557	$ 1,557	$ 1,557	$ 1,557	$ 1,557	$ 1,557	$ 1,557
CAMERAS	$ 1,100	$ 1,133	$ 1,167	$ 1,202	$ 1,238	$ 1,275	$ 1,314	$ 1,353	$ 1,393	$ 1,435			
CATHODIC PROTECTION	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CHLORINE		$ 16,000	$ 16,480	$ 16,974	$ 17,484	$ 18,008	$ 18,548	$ 19,105	$ 19,678	$ 20,268			
CONTINGENCY WATER SYSTEM	$ 5,000	$ 5,150	$ 5,305	$ 5,464	$ 5,628	$ 5,796	$ 5,970	$ 6,149	$ 6,334	$ 6,524			
DATA/COMPUTER	$ -	$ -	$ -	$ 800	$ -	$ -	$ -	$ -	$ -	$ -			
ELECTRIC WATER SYSTEM	$ 9,083	$ 11,330	$ 11,670	$ 12,020	$ 12,381	$ 12,752	$ 13,135	$ 13,529	$ 13,934	$ 14,353			
EQUIPMENT RENTAL	$ 500	$ 515	$ 530	$ 546	$ 563	$ 580	$ 597	$ 615	$ 633	$ 652			
EQUIPMENT REPAIRS	$ 2,000	$ 2,060	$ 2,122	$ 2,185	$ 2,251	$ 2,319	$ 2,388	$ 2,460	$ 2,534	$ 2,610			
HEALTH INSURANCE	$ 4,120	$ 4,244	$ 4,371	$ 4,502	$ 4,637	$ 4,776	$ 4,919	$ 5,067	$ 5,219	$ 5,376			
INSURANCE WATER SYSTEM	$ 16,820	$ 17,324	$ 17,844	$ 18,380	$ 18,931	$ 19,499	$ 20,084	$ 20,686	$ 21,307	$ 21,946			
INTEREST ON LOAN TO GEN RES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -			
MAINTENANCE OVERHEAD	$ 6,000	$ 6,180	$ 6,365	$ 6,556	$ 6,753	$ 6,956	$ 7,164	$ 7,379	$ 7,601	$ 7,829			
PAYROLL WAGES	$ 32,515	$ 33,490	$ 34,495	$ 35,530	$ 36,596	$ 37,694	$ 38,825	$ 39,989	$ 41,189	$ 42,425			
PAYROLL TAXES	$ 5,214	$ 5,370	$ 5,531	$ 5,697	$ 5,868	$ 6,044	$ 6,226	$ 6,412	$ 6,605	$ 6,803			
PROFESSIONAL ENGINEER WATER SYSTEM	$ 25,000	$ 25,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -			
PROFESSIONAL LEGAL FEES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -			
SAFETY GEAR/SUPPLIES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -			
SMALL TOOLS WATER SYSTEM	$ 500	$ 515	$ 530	$ 546	$ 563	$ 580	$ 597	$ 615	$ 633	$ 652			
SODIUM HYDROXIDE WATER SYST	$ 18,153	$ 18,698	$ 19,259	$ 19,836	$ 20,431	$ 21,044	$ 21,676	$ 22,326	$ 22,996	$ 23,686			
STRUCTURE WATER SYSTEM	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -			
SUPPLIES WATER SYSTEM	$ 8,000	$ 8,240	$ 8,487	$ 8,742	$ 9,004	$ 9,274	$ 9,552	$ 9,839	$ 10,134	$ 10,438			
TAXES & LICENSES	$ 13,455	$ 14,127	$ 14,834	$ 15,575	$ 16,354	$ 17,172	$ 18,031	$ 18,932	$ 19,879	$ 20,873			
TELEPHONE DRY PAIRS	$ 309	$ 318	$ 328	$ 338	$ 348	$ 358	$ 369	$ 380	$ 391	$ 403			
TRAINING WATER SYSTEM	$ 500	$ 515	$ 530	$ 546	$ 563	$ 580	$ 597	$ 615	$ 633	$ 652			
WATER TESTING EXPENSE	$ 7,500	$ 7,875	$ 8,269	$ 8,682	$ 9,116	$ 9,572	$ 10,051	$ 10,553	$ 11,081	$ 11,635			
WATER METER INSTALLATION	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -			
ALLOCATION WATER SYSTEM WAGES	$ 40,000	$ 41,200	$ 42,436	$ 43,709	$ 45,020	$ 46,371	$ 47,762	$ 49,195	$ 50,671	$ 52,191			
WATER RESERVE EXPENSES													
WSP	$ 30,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -			
LOAN PAYMENTS (TO GENERAL RESERVE)	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000			
LEAK DETECTION	$ 6,000	$ -	$ -	$ 6,000	$ -	$ -	$ 6,000	$ -	$ -	$ 6,000			
WLAC - PUBLIC EDUCATION		$ 1,000	$ 1,030	$ 1,061	$ 1,093	$ 1,126	$ 1,159	$ 1,194	$ 1,230	$ 1,267			
MISC.	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000			
RESERVOIR MAINTENANCE	$ -	$ 6,000	$ -	$ -	$ 6,000	$ -	$ -	$ 6,000	$ -	$ -			
SANITARY SURVEYS	$ -	$ -	$ 1,500	$ -	$ -	$ 1,500	$ -	$ -	$ 1,500	$ -			
WATER METER REPLACEMENT						$ 7,600	$ 7,600	$ 7,600	$ 7,600	$ 7,600			
WATER SETTER REPLACEMENT				$ 75,600	$ 25,200								
WELL 5/6 CONSTRUCTION	$ 45,275	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -				
TREATMENT PLANT			$ -	$ -	$ 338,775	$ -	$ -	$ -	$ -	$ -			
GENERATOR	$ -	$ 55,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -			
DECOMMISSION	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -			
TOTAL EXPENSES	**$ 280,601**	**$ 309,843**	**$ 261,641**	**$ 319,051**	**$ 613,354**	**$ 259,433**	**$ 271,121**	**$ 278,551**	**$ 281,733**	**$ 294,174**			
TOTAL YEAR END BALANCE (IN WATER RESERVE ACCOUNT) (TOTAL REVENUES - TOTAL EXPENSES)	**$ 168,654**	**$ 139,422**	**$ 187,633**	**$ 319,934**	**$ 25,642**	**$ 379,573**	**$ 367,897**	**$ 360,478**	**$ 357,308**	**$ 344,879**			

	SYSTEM RESERVES											
	CAPTIAL IMPROVEMENT (HYDRANT AND DISTRIBUTION REPLACEMENT)											
	BEGINNING BALANCE	$ 81,548	$ 36,721	$ 36,721	$ 36,721	$ 36,721	$ (613,279)	$ (613,279)	$ (613,279)	$ (613,279)	$ (613,279)	
	ANNUAL INSTALLMENT	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	WITHDRAWALS	$ -		$ -	$ -	$ 650,000	$ -	$ -		$ -	$ -	
	ENDING BALANCE	*$ 36,721*	*$ 36,721*	*$ 36,721*	*$ 36,721*	*$ (613,279)*	*$ (613,279)*	*$ (613,279)*	*$ (613,279)*	*$ (613,279)*	*$ (613,279)*	
	WATER SYSTEM RESERVE (OPERATIONS AND REPLACEMENT)											
	BEGINNING BALANCE	$ 367,412	$ 452,791	$ 503,213	$ 631,317	$ 841,590	$ 469,164	$ 811,511	$ 1,137,649	$ 1,456,332	$ 1,776,310	
	ANNUAL INSTALLMENT	$ 168,654	$ 139,422	$ 187,633	$ 319,934	$ 25,642	$ 379,573	$ 367,897	$ 360,478	$ 357,308	$ 344,879	
	SYSTEM IMPROVEMENT WITHDRAWAL	$ 83,275	$ 89,000	$ 59,530	$ 109,661	$ 398,068	$ 37,226	$ 41,759	$ 41,794	$ 37,330	$ 41,867	
	RUNNING BALANCE	$ 452,791	$ 503,213	$ 631,317	$ 841,590	$ 469,164	$ 811,511	$ 1,137,649	$ 1,456,332	$ 1,776,310	$ 2,079,322	
	EMERGENCY RESERVE (GENERAL RESERVE)[1]											
	BEGINNING BALANCE	$ 1,643,101	$ 1,839,576	$ 2,041,945	$ 2,250,386	$ 2,465,079	$ 2,686,213	$ 2,913,982	$ 3,148,583	$ 3,390,223	$ 3,639,111	
	ANNUAL INSTALLMENT	$ 196,475	$ 202,369	$ 208,440	$ 214,694	$ 221,134	$ 227,768	$ 234,601	$ 241,639	$ 248,889	$ 256,355	
	WATER RESERVE WITHDRAWAL (LOAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	ENDING BALANCE	$ 1,839,576	$ 2,041,945	$ 2,250,386	$ 2,465,079	$ 2,686,213	$ 2,913,982	$ 3,148,583	$ 3,390,223	$ 3,639,111	$ 3,895,467	
	TOTAL ASSETS (WATER SYSTEM AND GENERAL RESERVES)	**$ 2,329,088**	**$ 2,581,879**	**$ 2,918,423**	**$ 3,343,389**	**$ 2,542,098**	**$ 3,112,214**	**$ 3,672,952**	**$ 4,233,275**	**$ 4,802,142**	**$ 5,361,509**	
	1. Information for the general reserve only consists of the transactions for water related projects. This reserve is used if water system reserve funds are not											
	sufficient.											
	This table assumes 3% annual inflation on operating expenses and 5% on sampling and permits											

#	Component	Useful Life (yrs)	Rem. Useful Life (yrs)	Current Average Cost
	Inventory Appendix			
100	Sanitary Survey	3	2	$6,250
101	Water System Plan - Update	6	3	$33,950
102	Well #5 - Install Final Cost		0	$300,000
102	Well #5 - Replace Casing	80	80	$152,000
102	Well Pump / Motor #5 - Replace	10	10	$23,200
103	Well Pump / Motor #1 - Replace	10	8	$12,350
104	Well #1 - Replace Casing	80	33	$152,000
105	Well Pump / Motor #2 - Replace	10	3	$18,600
106	Well #2 - Replace Casing	80	43	$152,000
107	Well Pump / Motor #4 - Replace	10	7	$23,100
108	Well #4 - Replace Casing	80	53	$152,000
109	Source Flow Meters - Replace	5	4	$7,850
110	Storage Tank #1 - Replace	80	31	$697,500
111	Storage Tank #1 - Coat Exterior	20	11	$30,400
112	Storage Tank #1 - Coat Interior	20	14	$119,000
114	Storage Tank #2 - Replace	80	51	$949,500
115	Storage Tank #2 - Coat Exterior	20	11	$73,200
116	Storage Tank #2 - Coat Interior	20	11	$282,000
118	Storage Reservoirs - Dive Inspect	5	0	$7,600
119	Reservoir 2 Ladder - Repaint	10	7	$12,250
120	Reservoir Cathodic Protection 1	20	13	$15,750
121	Reservoir Cathodic Protection 2	20	3	$22,500
122	Water Hammer Surge Tanks	50	0	$14,600
300	Water Main Project D-1: Replace	60	7	$527,000
301	Water Main Project D-2: Replace	60	10	$385,500
302	Water Main Project D-3: Replace	60	13	$407,500
303	Water Main Project D-4: Replace	60	16	$542,500
304	Water Main Project D-5a: Replace	60	19	$539,000
305	Water Main Project D-5b: Replace	60	22	$540,000
306	Water Main Project D-6: Replace	60	25	$602,000
307	Water Main Project D-7: Replace	60	28	$308,500
308	Remaining Water Main Lines -Replace	60	31	$821,500
309	Remaining Water Main Lines -Replace	60	34	$821,500
310	Main Lines Replaced 2002, Cycle	60	42	$1,006,500
310	Main Lines Replaced 2009, Cycle	60	49	$590,500
311	Main Valves- Rplc (2002)	30	12	$107,050
311	Main Valves- Rplc (2009)	30	19	$74,650
311	Main Valves- Rplc (other)	30	21	$65,900
311	Main Valves- Rplc (Phase 1)	30	7	$57,400
311	Main Valves- Rplc (Phase 2)	30	10	$56,800
311	Main Valves- Rplc (Phase 3)	30	13	$24,400
311	Main Valves- Rplc (Phase 4)	30	16	$32,500
311	Main Valves- Rplc (Phase 5a)	30	19	$12,350
311	Main Valves- Rplc (Phase 5b)	30	22	$11,250
311	Main Valves- Rplc (Phase 6)	30	25	$29,750

#	Component	Useful Life (yrs)	Rem. Useful Life (yrs)	Current Average Cost
311	Main Valves- Rplc (Phase 7)	30	28	$14,100
312	Hydrant near Maint. Bldg.	30	23	$5,650
312	Hydrants - Rplc (2002)	30	12	$51,750
312	Hydrants - Rplc (2009)	30	19	$33,700
312	Hydrants - Rplc (other)	30	14	$40,500
312	Hydrants - Rplc (Phase 1)	30	7	$13,500
312	Hydrants - Rplc (Phase 2)	30	10	$24,800
312	Hydrants - Rplc (Phase 3)	30	13	$29,250
312	Hydrants - Rplc (Phase 4)	30	16	$28,200
312	Hydrants - Rplc (Phase 5a)	30	19	$9,850
312	Hydrants - Rplc (Phase 5b)	30	22	$16,900
312	Hydrants - Rplc (Phase 6)	30	25	$30,400
312	Hydrants - Rplc (Phase 7)	30	28	$5,615
316	Water Service Meters -Rplc(Phase1)	10	2	$7,600
316	Water Service Meters -Rplc(Phase10)	10	1	$7,600
316	Water Service Meters -Rplc(Phase2)	10	3	$7,600
316	Water Service Meters -Rplc(Phase3)	10	4	$7,600
316	Water Service Meters -Rplc(Phase4)	10	5	$7,600
316	Water Service Meters -Rplc(Phase5)	10	6	$7,600
316	Water Service Meters -Rplc(Phase6)	10	9	$7,600
316	Water Service Meters -Rplc(Phase7)	10	0	$7,600
316	Water Service Meters -Rplc(Phase8)	10	0	$7,600
316	Water Service Meters -Rplc(Phase9)	10	0	$7,600
317	Water Meter Setters -Rplc(Phase1)	20	12	$25,200
317	Water Meter Setters -Rplc(Phase2)	20	13	$25,200
317	Water Meter Setters -Rplc(Phase3)	20	14	$25,200
317	Water Meter Setters -Rplc(Phase4)	20	15	$25,200
317	Water Meter Setters -Rplc(Phase5)	20	16	$25,200
317	Water Meter Setters -Rplc(Phase6)	20	19	$25,200
317	Water Meter Setters -Rplc(Phase7)	20	0	$25,200
317	Water Meter Setters -Rplc(Phase8)	20	0	$25,200
317	Water Meter Setters -Rplc(Phase9)	20	0	$25,200
317	Water Meter Setters-Rplc (Phase10)	20	1	$25,200
323	Cla-Val Valves - Repair/Replace	7	7	$5,100
324	Leak Detection	4	0	$7,600
400	Well 4 Control Systems - Replace	25	5	$22,550
400	Well 5 Cntrl Systems - Replace	25	25	$22,550
400	Wells 1 & 2 Cntrl Systems - Replace	25	5	$37,700
401	Caustic Systems - Repair/Replace	30	10	$25,350
402	Well #1 & #2 Generator & Controls	50	44	$45,000
402	Well #4 Generator - Replace	50	26	$49,250
403	Telemetry System - Replace	20	4	$21,450
410	Well House 1, 2 - Replace	40	2	$25,300
410	Well House 4 - Replace	40	7	$12,350
410	Well House 5 - Replace	40	40	$12,350
411	Well Sites Fence - Replace	30	8	$16,350
412	Reservoir Fences - Replace	30	8	$11,600
450	Water Trailer - Purchase	10	9	$6,250
450	Water Truck - Replace	10	9	$10,300
460	Public Utility Water - Pay Tax	1	0	$12,350

#	Component	Useful Life (yrs)	Rem. Useful Life (yrs)	Current Average Cost
95	**Total Funded Components**			

Note 1: Yellow highlighted line items are expected to require attention in this initial year, green highlighted items are expected to occur within the first-five years.

#	Component	Quantity	Useful Life	Rem. Useful Life	Current Cost Estimate Best Case	Current Cost Estimate Worst Case
	Inventory Appendix					
100	Sanitary Survey	State required survey	3	2	$5,700	$6,800
101	Water System Plan - Update	Every 6 years	6	3	$28,800	$39,100
102	Well #5 - Install Final Cost	(1) water well		0	$250,000	$350,000
102	Well #5 - Replace Casing	8" steel, Unk depth	80	80	$130,000	$174,000
102	Well Pump / Motor #5 - Replace	(1) 7.5 hp submersible 4"	10	10	$20,600	$25,800
103	Well Pump / Motor #1 - Replace	(1) 7.5 hp submersible 4"	10	8	$11,200	$13,500
104	Well #1 - Replace Casing	8" steel, 60'	80	33	$130,000	$174,000
105	Well Pump / Motor #2 - Replace	(1) 30 hp submersible 6"	10	3	$18,000	$19,200
106	Well #2 - Replace Casing	10" steel, 67'	80	43	$130,000	$174,000
107	Well Pump / Motor #4 - Replace	(1) 25 hp submersible 6"	10	7	$20,300	$25,900
108	Well #4 - Replace Casing	12" steel, 45'	80	53	$130,000	$174,000
109	Source Flow Meters - Replace	(4*) source meters	5	4	$7,600	$8,100
110	Storage Tank #1 - Replace	182,000 gallon steel	80	31	$630,000	$765,000
111	Storage Tank #1 - Coat Exterior	182,000 gallon	20	11	$28,100	$32,700
112	Storage Tank #1 - Coat Interior	182,000 gallon	20	14	$112,000	$126,000
114	Storage Tank #2 - Replace	423,000 gallon steel	80	51	$889,000	$1,010,000
115	Storage Tank #2 - Coat Exterior	423,000 gallon	20	11	$67,600	$78,800
116	Storage Tank #2 - Coat Interior	423,000 gallon	20	11	$226,000	$338,000
118	Storage Reservoirs - Dive Inspect	(2) dive inspections	5	0	$7,000	$8,200
119	Reservoir 2 Ladder - Repaint	Ladder assembly	10	7	$11,100	$13,400
120	Reservoir Cathodic Protection 1	(1) cathodic system	20	13	$14,600	$16,900
121	Reservoir Cathodic Protection 2	(1) cathodic system	20	3	$20,300	$24,700
122	Water Hammer Surge Tanks	Surge tanks	50	0	$11,200	$18,000
300	Water Main Project D-1: Replace	~ 0.9 miles	60	7	$505,000	$549,000
301	Water Main Project D-2: Replace	~ 0.7 miles	60	10	$363,000	$408,000
302	Water Main Project D-3: Replace	~ 0.7 miles	60	13	$385,000	$430,000
303	Water Main Project D-4: Replace	~ 0.9 miles	60	16	$520,000	$565,000
304	Water Main Project D-5a: Replace	~ .85 miles	60	19	$517,000	$561,000
305	Water Main Project D-5b: Replace	~ .85 miles	60	22	$518,000	$562,000
306	Water Main Project D-6: Replace	~ 1.0 miles	60	25	$580,000	$624,000
307	Water Main Project D-7: Replace	~ .5 miles	60	28	$286,000	$331,000
308	Remaining Water Main Lines -Replace	~ 1.25 miles	60	31	$788,000	$855,000
309	Remaining Water Main Lines -Replace	~ 1.25 miles	60	34	$788,000	$855,000
310	Main Lines Replaced 2002, Cycle	~ 1.53 miles	60	42	$973,000	$1,040,000
310	Main Lines Replaced 2009, Cycle	~ .9 miles	60	49	$562,000	$619,000
311	Main Valves- Rplc (2002)	40 valves	30	12	$96,100	$118,000
311	Main Valves- Rplc (2009)	31 valves	30	19	$69,000	$80,300
311	Main Valves- Rplc (other)	36 valves	30	21	$60,300	$71,500
311	Main Valves- Rplc (Phase 1)	25 valves	30	7	$51,800	$63,000
311	Main Valves- Rplc (Phase 2)	24 valves	30	10	$51,200	$62,400
311	Main Valves- Rplc (Phase 3)	12 valves	30	13	$18,700	$30,100
311	Main Valves- Rplc (Phase 4)	15 valves	30	16	$26,900	$38,100
311	Main Valves- Rplc (Phase 5a)	6 valves	30	19	$11,200	$13,500
311	Main Valves- Rplc (Phase 5b)	5 valves	30	22	$10,100	$12,400

#	Component	Quantity	Useful Life	Rem. Useful Life	Current Cost Estimate	
					Best Case	Worst Case
311	Main Valves- Rplc (Phase 6)	14 valves	30	25	$24,100	$35,400
311	Main Valves- Rplc (Phase 7)	7 valves	30	28	$11,800	$16,400
312	Hydrant near Maint. Bldg.	1 new hydrant	30	23	$5,100	$6,200
312	Hydrants - Rplc (2002)	9 hydrants, 1 air vac	30	12	$46,100	$57,400
312	Hydrants - Rplc (2009)	5 hydrants, 5 air vac	30	19	$28,100	$39,300
312	Hydrants - Rplc (other)	4 hydrts,2 needed,6 air v	30	14	$34,900	$46,100
312	Hydrants - Rplc (Phase 1)	1 hydrt,1 needed,2 air v	30	7	$11,200	$15,800
312	Hydrants - Rplc (Phase 2)	3 hydrts,need 1, 2 air v	30	10	$19,200	$30,400
312	Hydrants - Rplc (Phase 3)	5 hydrants, 1 needed	30	13	$23,600	$34,900
312	Hydrants - Rplc (Phase 4)	3 hydrants, 2 needed	30	16	$22,600	$33,800
312	Hydrants - Rplc (Phase 5a)	1 hyrdnt,need 1, 1 air v	30	19	$5,100	$14,600
312	Hydrants - Rplc (Phase 5b)	1 hydrnt,2 needed	30	22	$13,500	$20,300
312	Hydrants - Rplc (Phase 6)	4 hydrnts,need 1, 2 air v	30	25	$24,700	$36,100
312	Hydrants - Rplc (Phase 7)	1 hydrant	30	28	$5,050	$6,180
316	Water Service Meters -Rplc(Phase1)	~103.5 of 1,034 connectns	10	2	$7,000	$8,200
316	Water Service Meters -Rplc(Phase10)	~103.5 of 1,034 connectns	10	1	$7,000	$8,200
316	Water Service Meters -Rplc(Phase2)	~103.5 of 1,034 connectns	10	3	$7,000	$8,200
316	Water Service Meters -Rplc(Phase3)	~103.5 of 1,034 connectns	10	4	$7,000	$8,200
316	Water Service Meters -Rplc(Phase4)	~103.5 of 1,034 connectns	10	5	$7,000	$8,200
316	Water Service Meters -Rplc(Phase5)	~103.5 of 1,034 connectns	10	6	$7,000	$8,200
316	Water Service Meters -Rplc(Phase6)	~103.5 of 1,034 connectns	10	9	$7,000	$8,200
316	Water Service Meters -Rplc(Phase7)	~103.5 of 1,034 connectns	10	0	$7,000	$8,200
316	Water Service Meters -Rplc(Phase8)	~103.5 of 1,034 connectns	10	0	$7,000	$8,200
316	Water Service Meters -Rplc(Phase9)	~103.5 of 1,034 connectns	10	0	$7,000	$8,200
317	Water Meter Setters -Rplc(Phase1)	~103.5 of 1,034 connectns	20	12	$23,000	$27,400
317	Water Meter Setters -Rplc(Phase2)	~103.5 of 1,034 connectns	20	13	$23,000	$27,400
317	Water Meter Setters -Rplc(Phase3)	~103.5 of 1,034 connectns	20	14	$23,000	$27,400
317	Water Meter Setters -Rplc(Phase4)	~103.5 of 1,034 connectns	20	15	$23,000	$27,400
317	Water Meter Setters -Rplc(Phase5)	~103.5 of 1,034 connectns	20	16	$23,000	$27,400
317	Water Meter Setters -Rplc(Phase6)	~103.5 of 1,034 connectns	20	19	$23,000	$27,400
317	Water Meter Setters -Rplc(Phase7)	~103.5 of 1,034 connectns	20	0	$23,000	$27,400
317	Water Meter Setters -Rplc(Phase8)	~103.5 of 1,034 connectns	20	0	$23,000	$27,400
317	Water Meter Setters -Rplc(Phase9)	~103.5 of 1,034 connectns	20	0	$23,000	$27,400
317	Water Meter Setters-Rplc (Phase10)	~103.5 of 1,034 connectns	20	1	$23,000	$27,400
323	Cla-Val Valves - Repair/Replace	(2) Cla-Val flow control	7	7	$4,400	$5,800
324	Leak Detection	Every other year	4	0	$7,000	$8,200
400	Well 4 Control Systems - Replace	Motor controls, related	25	5	$19,200	$25,900
400	Well 5 Cntrl Systems - Replace	Motor controls, related	25	25	$19,200	$25,900
400	Wells 1 & 2 Cntrl Systems - Replace	Motor controls, related	25	5	$31,500	$43,900
401	Caustic Systems - Repair/Replace	(2) Sodium Hydroxide syst	30	10	$22,600	$28,100
402	Well #1 & #2 Generator & Controls	Generator controls / Elec	50	44	$39,300	$50,700
402	Well #4 Generator - Replace	100 kw Detroit Diesel	50	26	$45,000	$53,500
403	Telemetry System - Replace	(1) Telemetry system	20	4	$20,300	$22,600
410	Well House 1, 2 - Replace	(3) Structures	40	2	$23,600	$27,000
410	Well House 4 - Replace	(2) Structures	40	7	$11,200	$13,500
410	Well House 5 - Replace	~(2) Structures	40	40	$11,200	$13,500
411	Well Sites Fence - Replace	~ 720LF, chain link	30	8	$15,800	$16,900
412	Reservoir Fences - Replace	~ 500 LF, chain link	30	8	$10,800	$12,400

#	Component	Quantity	Useful Life	Rem. Useful Life	Current Cost Estimate	
					Best Case	Worst Case
450	Water Trailer - Purchase	New purchase	10	9	$5,700	$6,800
450	Water Truck - Replace	Ford Ranger, 1993	10	9	$8,200	$12,400
460	Public Utility Water - Pay Tax	Water Reserve/Consumption	1	0	$10,300	$14,400
95	Total Funded Components					

See Section 8.3 in WSP for discussion on updated costs

ESTIMATE of PROBABLE PROJECT COSTS

for

Clearwood Community Association Improvement Project D-7

Friday, March 18, 2011

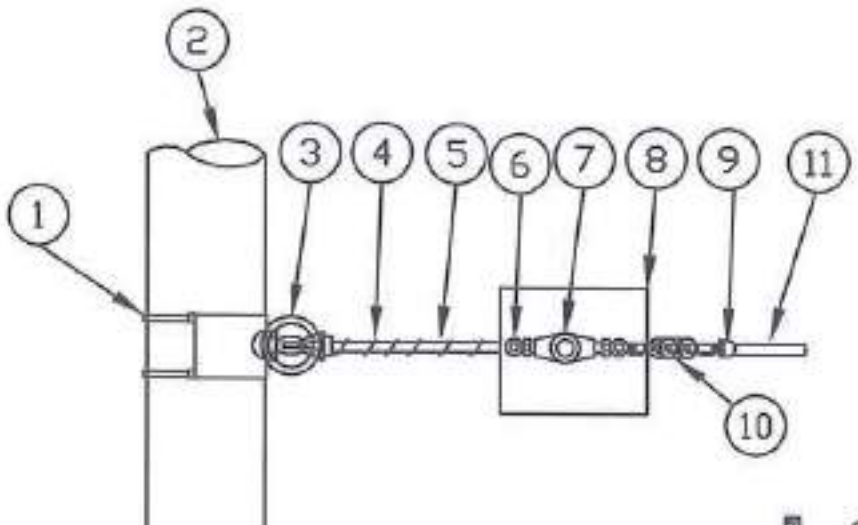
Item No.	Description	No. Units	Unit	Unit Price	Total
1	Mobilization	1	LS	10%	$11,800.00
2	8-inch PVC Water Pipe, Including Fittings	2,575	LF	$35.00	$90,125.00
3	Pavement Restoration	1,850	LF	$15.00	$27,750.00
	Subtotal				$129,675.00
				Sales Tax (7.6%)	$9,855.30
	Subtotal				**$139,530.30**
				Contingency (10%)	$13,953.03
				Total Construction Cost	$153,000.00
				Legal, Engineering, Administration (25%)	$38,250.00
	Grand Total				**$191,250.00**

Table 8-2 Clearwood Improvement Schedule[1]

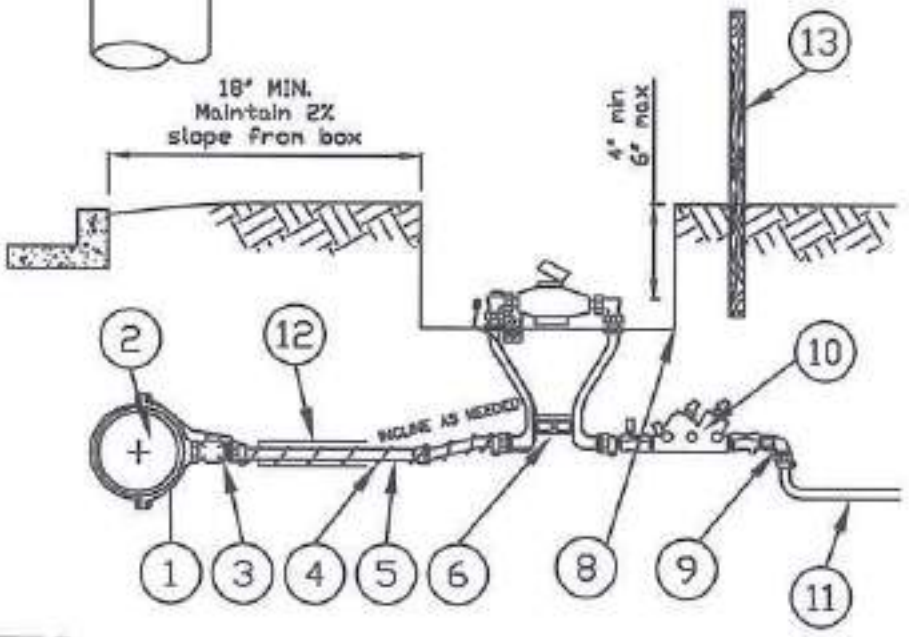
Project ID	Project Title	Improvement Type	Description	Ref. Page	Cost Estimate	Financing Source	Year
S-1	Source Meter Calibration	Source	Calibration of the system's source meters	3-26	$12,000[3]	Clearwood	2011
U-1	Tank Inspection	Storage	Inspection of system's storage reservoirs	6-3	$6,000[2]	Clearwood	2013
D-1	Water Main Replacement on N Clearlake Blvd SE	Distribution	Replace approximately 0.9 miles of the existing 6 and 8" AC main running along N Clearlake Blvd SE from the front gate to the intersection of E. Clearlake Blvd SE with 10" PVC.	3-26	$650,000[2]	Clearwood	2015
D-2	Water Main Replacement on Blue Hills Dr.	Distribution	Replace approximately 0.7 miles of the existing 8 and 10" AC main running along Blue Hills Dr. from Clearlake Blvd East to Bald Hill Rd with 10" PVC.	3-26	$650,000[2]	Clearwood	2018
D-3	Water Main Replacement on Blue Water Dr.	Distribution	Replace approximately 0.9 miles of the existing 4 and 8" AC main running along Blue Water Dr. from Blue Hills Dr. to Promontory Ct. with 10" PVC.	3-26	$650,000[2]	Clearwood	2021
D-4	Water Main Replacement on Rampart Dr. SE	Distribution	Replace approximately 0.9 miles of the existing 6 and 8" AC main running the entire length of Rampart Dr. with 8" PVC.	3-26	$650,000[2]	Clearwood	2024
D-5	Water Main Replacement in divisions 1, 2 & 3.	Distribution	Replace approximately 1.9 miles of the existing 4, 6 and 8" AC main in Divisions 1, 2 and 3with 8" PVC.	3-26	$650,000[2]	Clearwood	2027
D-6	Water Main Replacement on Upland Dr., Clearland Dr., and E Clearlake Blvd SE	Distribution	Replace approximately 1.0 mile of the existing 6 and 8" AC main running along Upland Dr. SE, Clearland Blvd SE and Clearlake Blvd SE from Blue Hill Dr. to Rampart Dr. with 8" PVC.	3-26	$650,000[2]	Clearwood	2030
D-7	Water Main Replacement on Clear View Ct. and Overlake Ct. to N Clearlake Blvd SE	Distribution	Replace the existing 6" AC main running from Clear View Court through Overlake Court to N Clear Lake Blvd SE with an 8" main.	3-26	$191,300[1]	Clearwood	2031
D-8	Service Meter Replacement, Phases1 through 6	Distribution	Replace service meters in Divisions according to service meter replacement schedule.	8-4	$18,000[2] per year	Clearwood	2011 to 2016
D-9	Leak Detection	Distribution	Perform leak detection efforts throughout the distribution system	3-21	$6,000[2]	Clearwood	2013
O-1	Updated Water System Plan	Regulation	Obtain an updated and approved Water System Plan	8-4	$45,000	Clearwood	2017

1. Cost Estimate Worksheets are included in Appendix O.
2. The cost for this item was provided by the client.
3. Cost Estimate was provided by Flow Dynamics, Inc.

Top View



Side View



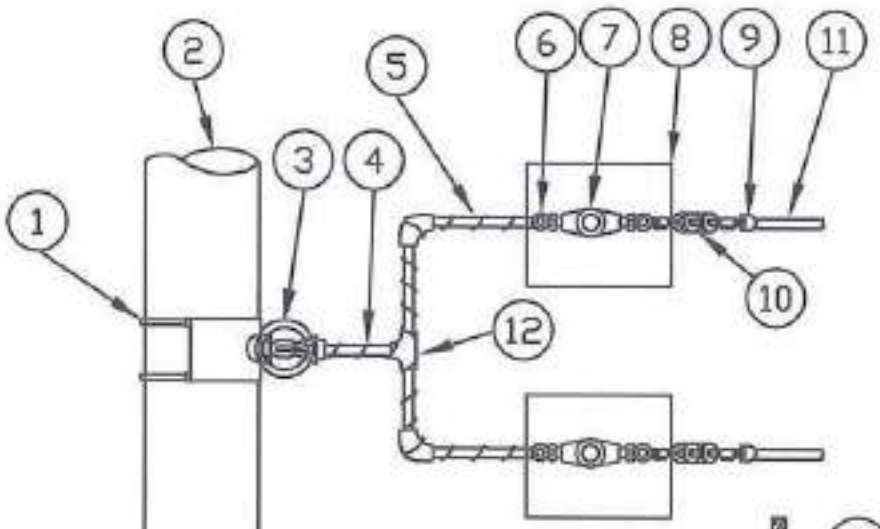
NOTES

1. Double stainless steel strap service saddle. Connect toning wires to saddle.
2. Existing water main
3. Brass corp stop, Ford F1100–4 or approved equal. Use tubing stiffeners in all pack joints.
4. 12 ga solid copper toning wire. Wrap wire around service pipe, leave 2' minimum length in each meter box.
5. 1" CTS HDPE class 200 service pipe.
6. Ford 90 series VH72–12W–44–44 meter setter or approved equal.
7. Water meter, ⅝x¾" hermetically sealed, Contact owner for meter and installation.
8. Meter box, HDPE Mid–States BCF1324–12 and CBC–1324R DI cover, or approved equal.
9. 90° brass 1" MIP x 1" CTS pack joint adapter (Ford L84–44 or equiv). Use stiffeners in all pack joints.
10. Ford double spring check backflow preventer, or approved equal.
11. Connect service line to Backflow preventer outlet or plumb as necessary to maintain minimum cover.
12. All service street crossings shall be encased in 2" SCH 40 PVC pipe with toning wire wrapped around service pipe for entire length.
13. Mark meter box location with blue stake.

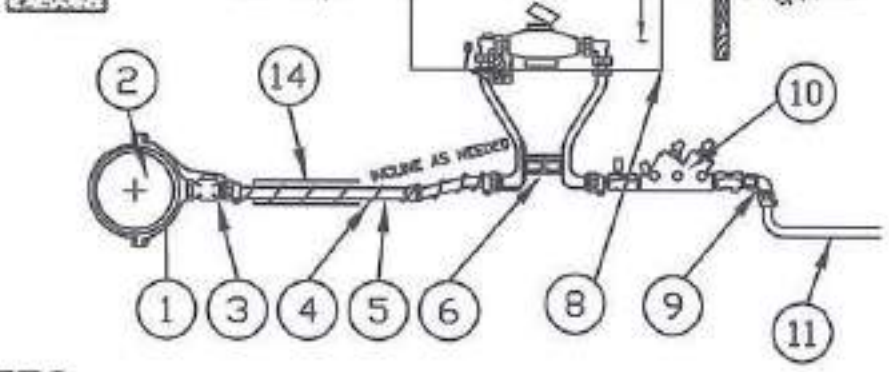
Note: See Exhibit A for Meter, setter and backflow preventer configuration.

SD–1 – 1 INCH SINGLE SERVICE CONNECTION
CLEARWOOD COMMUNITY WATER SYSTEM

Top View



Side View



NOTES

1. Double stainless steel strap service saddle. Connect toning wires to saddle.
2. Existing water main
3. Brass corp stop, Ford F1100–4 or approved equal. Use tubing stiffeners in all pack joints.
4. 12 ga solid copper toning wire. Wrap wire around service pipe, leave 2' minimum length in each meter box.
5. 1" CTS HDPE class 200 service pipe.
6. Ford 90 series VH72–12W–44–44 meter setter or approved equal.
7. Water meter, ⅝x¾" hermetically sealed, Contact owner for meter and installation.
8. Meter box, HDPE Mid–States BCF1324–12 and CBC–1324R DI cover, or approved equal.
9. 90° brass 1" MIP x 1" CTS pack joint adapter (Ford L84–44 or equiv). Use stiffeners in all pack joints.
10. Ford double spring check backflow preventer, or approved equal.
11. Connect service line to Backflow preventer outlet or plumb as necessary to maintain minimum cover.
12. Brass tee and elbows, brass 1" MIP x 1" CTS pack joint adapters (3 req). Wrap galv. steel pipe with 2 layers of 10–mil PVC tape.
    NOTE: One Ford T444–444 fitting may be substituted if space allows.
13. Mark meter box location with blue 2x2 stake, 3' min length.
14. All service street crossings shall be encased in 2" SCH 40 PVC pipe with toning wire wrapped around service pipe for entire length.

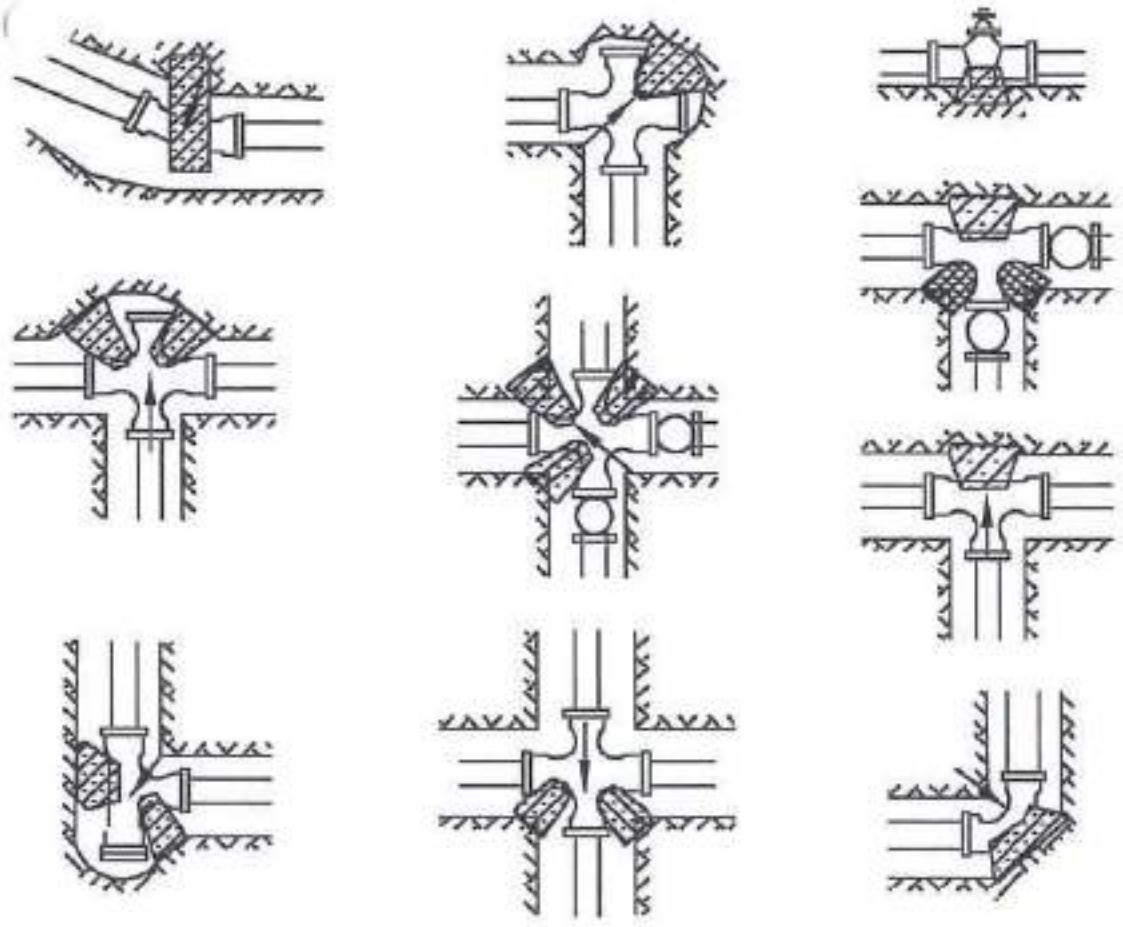
NOTE: See Exhibit A for meter, setter and backflow preventer configuration.

SD–2 – 1 INCH DOUBLE SERVICE CONNECTION

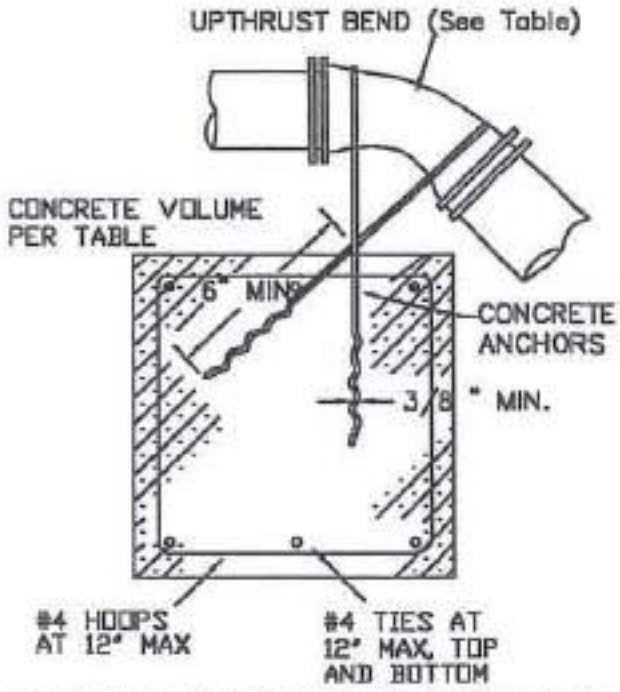
CLEARWOOD WATER SYSTEM

EXHIBIT A

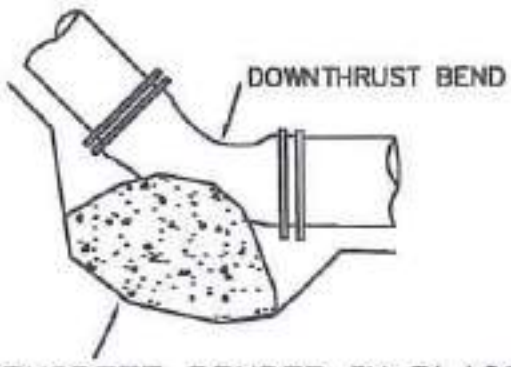
HORIZONTAL BENDS



VERTICAL BENDS



CONCRETE ANCHORS TO BE 3/8" MIN STEEL GALVANIZED. WRAP EXPOSED PARTS WITH POLYETHYLENE TAPE, HALF LAPPED



CONCRETE POURED IN PLACE SIZE TO SAFE BEARING LOAD PER HORIZONTAL BLOCK TABLE.

THRUST AT FITTINGS DUE TO WATER PRESSURE
IN POUNDS

100 PSI	TEES DEAD ENDS	90° BEND	45° BEND
4"	1940	2750	1490
6"	3830	5420	2930
8"	6580	9310	5040
10"	9820	13900	7510

SAFE BEARING LOADS

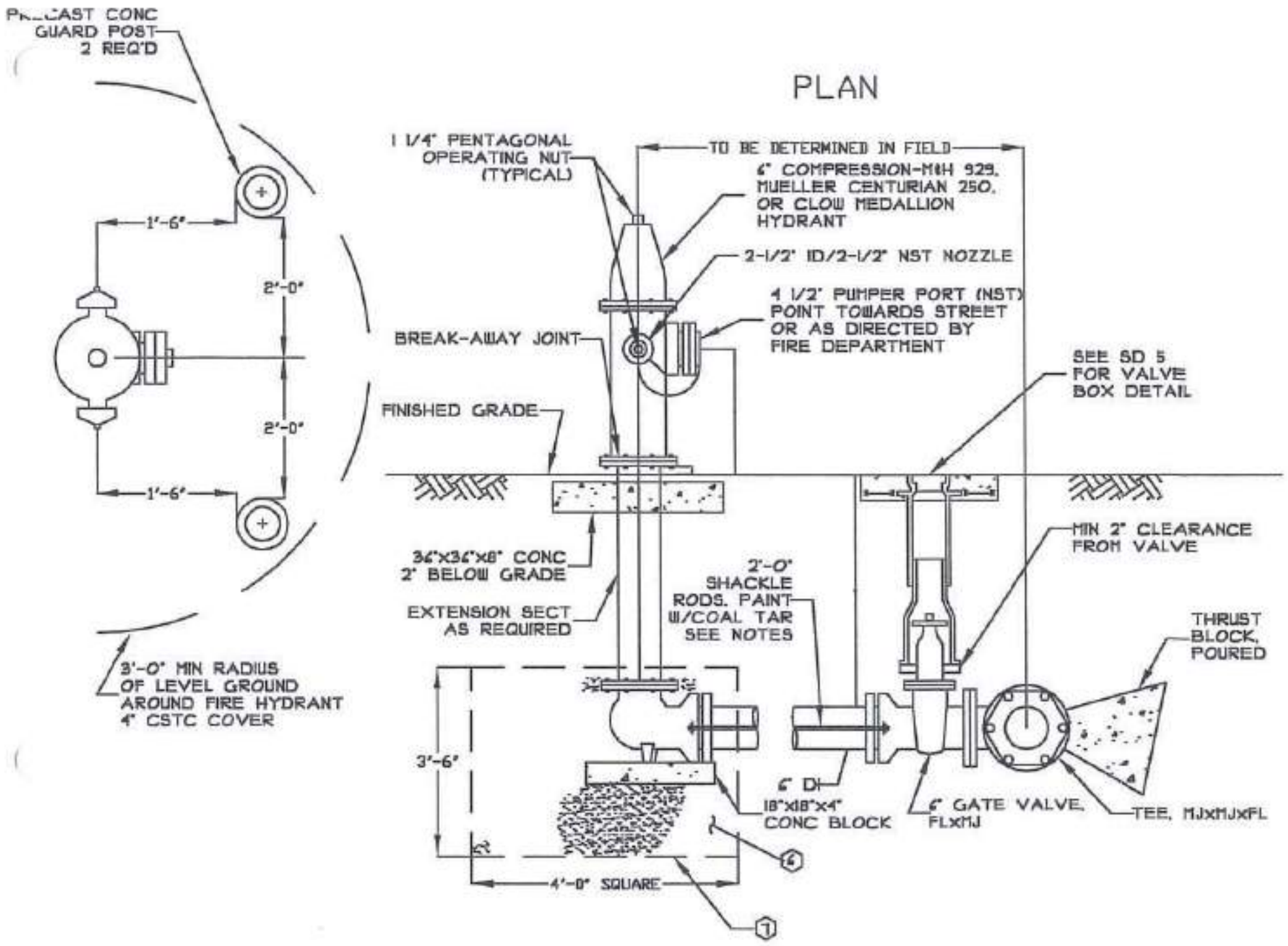
SOIL	SAFE BEARING LOAD PSF
MUCK, PEAT, ETC.*	0
SOFT CLAY	1,000
SAND	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL, CEM W/ CLAY	4,000
HARD SHALE	10,000

* IN MUCK OR PEAT, ALL THRUSTS ARE TO BE RESISTED BY PILES OR TIE RODS TO SOLID FOUNDATIONS OR BY BALLAST PLACED, AFTER REMOVAL OF MUCK OR PEAT, TO PROVIDE SUFFICIENT STABILITY TO RESIST THRUST.

BLOCKING FOR VERTICAL BENDS
150 PSI WORKING PRESSURE

PIPE DIA IN.	REQUIRED CONCRETE VOLUME, CU FT		
	11 1/4°	22 1/2°	45°
6	10	18	36
8	15	30	59
10	23	46	90

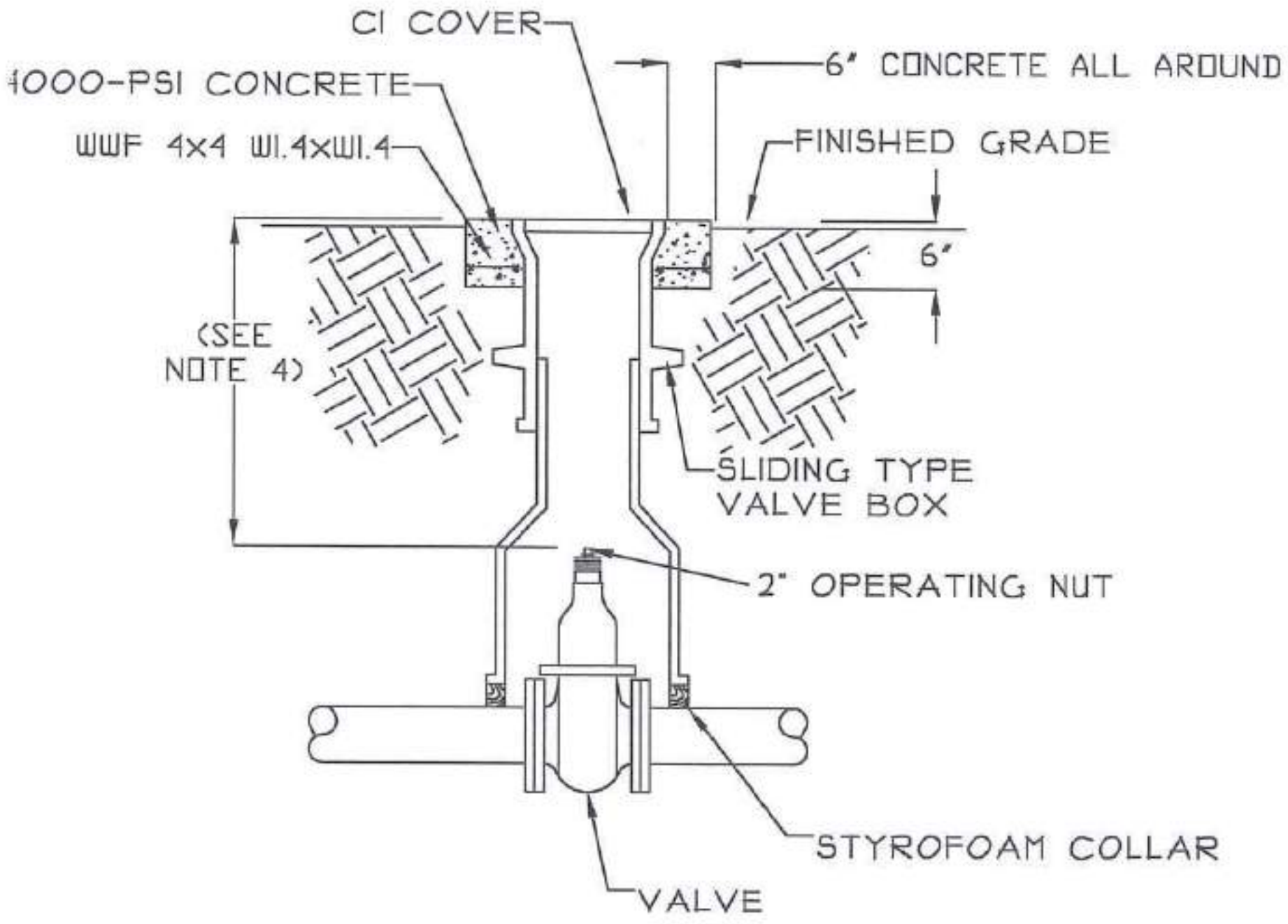
SD-3 — THRUST BLOCKING OF FITTINGS
CLEARWOOD COMMUNITY WATER SYSTEM



NOTES

1. DEAD END MAIN EXTENSIONS OVER 50' SHALL BE 8" MINIMUM.
2. SHACKLE RODS SHALL BE CONNECTED TO MECHANICAL JOINTS WITH STAR BOLTS.
3. AN UNOBSTRUCTED THREE FOOT MINIMUM WORKING AREA RADIUS SHALL BE PROVIDED AROUND ALL HYDRANTS.
4. SHACKLE RODS SHALL BE CONSTRAINED AT ALL INTERMEDIATE JOINTS WITH PIPE CLAMPS. MEGALUG FITTINGS MAY BE SUBSTITUTED FOR SHACKLE RODS PROVIDED ALL JOINTS ARE RESTRAINED.
5. FIELD PAINT HYDRANTS WITH ONE COAT SHERWIN WILLIAMS ALKYD GLOSS INDUSTRIAL ENAMEL SAFETY YELLOW NO.554Y37.
6. EXCAVATE TO INDICATED DIMENSIONS & FILL WITH 2.0 CU YDS OF WASHED GRAVEL GRADING NO.4 PER WSDOT SPECIFICATION 9-03.12(4). PLACE FILTER FABRIC BLANKET OVER DRAIN GRAVEL.
7. PLACE FILTER FABRIC BLANKET ALL AROUND GRAVEL (MIRAFI 500X OR APPROVED EQUAL)

SD-4 - FIRE HYDRANT INSTALLATION DETAIL
CLEARWOOD COMMUNITY WATER SYSTEM

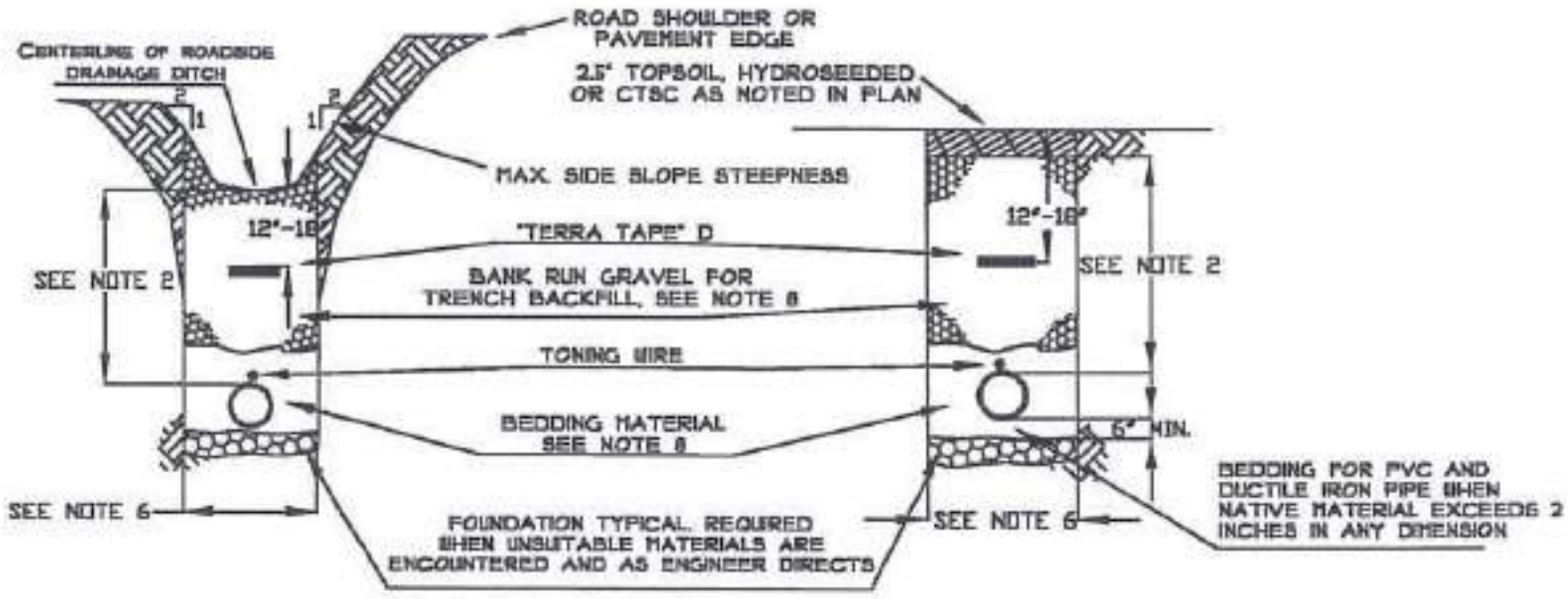


NOTES

1. 2 PIECE TELESCOPING VALVE BOX SHALL CONFORM TO 9-30.3(4) OF STD. SPECS. OLYMPIC FOUNDRY 940 OR APPROVED EQUAL. ADD ADDITIONAL SECTIONS FOR BURY DEPTHS GREATER THAN 3'.
2. CAST IRON COVER SHALL BE MARKED "WATER" AND HAVE EARS THAT INDICATE THE PIPELINE RUN DIRECTION.
3. FOR VALVES 10" AND LARGER USE OVAL BASE VALVE BOX
4. FOR DEPTHS EXCEEDING 3'-0", INSTALL VALVE NUT EXTENSION TO WITHIN 1'-6" OF SURFACE
5. ALL VALVES SHALL BE RESILIENT WEDGE GATE VALVES, NON RISING STEM, WITH 2" OPERATING NUT.
6. SEAL OUTSIDE PERIMETER OF CONCRETE PAD WITH AR4000W WHEN PLACED IN PAVED AREAS.

SD-5 - VALVE BOX INSTALLATION DETAIL

CLEARWOOD COMMUNITY WATER SYSTEM



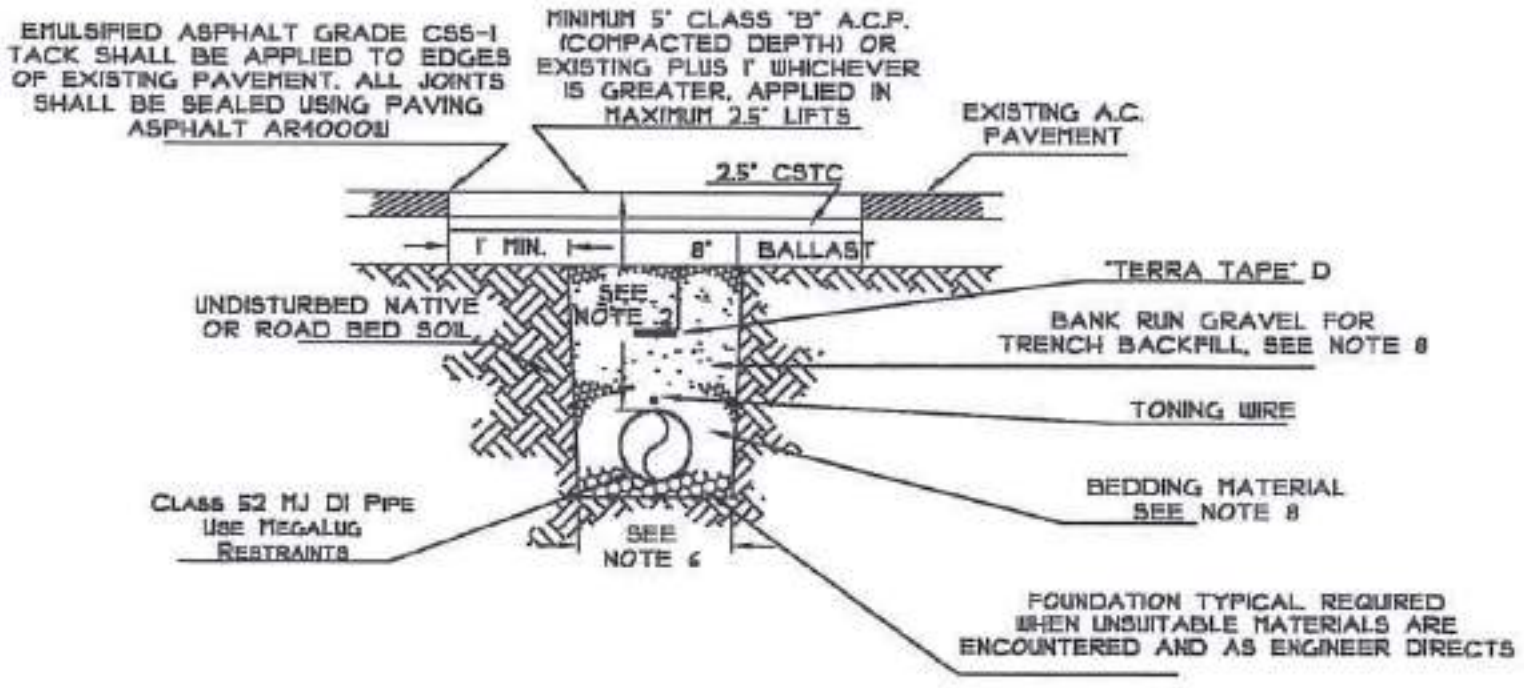
ROADSIDE PIPING TRENCH
CROSS SECTION DETAIL

PIPING TRENCH CROSS
SECTION DETAIL, TYPICAL

NOTES:

1. THE FOLLOWING NOTES REFER TO PIPING TRENCH CROSS SECTION DETAILS ABOVE.
2. 36" MINIMUM COVER IN ALL LOCATIONS.
3. ALL MATERIAL EXCEPT A.C.P., C.D.F. AND BEDDING MATERIAL SHALL BE COMPACTED IN 12-INCH MAXIMUM LIFTS TO 85% DENSITY.
4. BEDDING MATERIAL SHALL CONFORM TO SECTION 9-03.16 OR 9-03.21 OF THE STANDARD SPECIFICATIONS. FOUNDATION MATERIAL, IF REQUIRED, SHALL CONFORM TO SECTION 9-03.17 OF THE STANDARD SPECIFICATIONS. NATIVE MATERIALS MAY BE USED FOR TRENCH BACKFILL, PROVIDED MATERIAL CONFORMS TO SECTION 9-03.19 OF THE STANDARD SPECIFICATIONS.
5. BEDDING SHALL BE COMPACTED TO 95% MAX. AS DETERMINED BY ASTM D1557. BACKFILL SHALL BE COMPACTED TO 85% IN UNPAVED AREA, AND 95% IN PAVED OR SHOULDER AREAS AS DETERMINED BY ASTM D1557. CONTRACTOR SHALL PROVIDE WRITTEN PROOF OF COMPACTION TO OWNER PRIOR TO PROJECT ACCEPTANCE.
6. MAXIMUM TRENCH WIDTH SHALL BE THE LESSER OF 1.5 TIMES PIPE OUTSIDE DIAMETER PLUS 18", OR 2.5'.
7. TRENCH BOTTOM SHALL BE COMPACTED WITH UNIFORM GRADE PRIOR TO PIPE INSTALLATION. NO TEMPORARY SUPPORTS, I.E. BLOCKS, WILL BE ALLOWED TO SUPPORT PIPE. 36" MIN COVER, ALL LOCATIONS.
8. BEDDING MATERIAL SHALL COMFORM TO SECTION 9-03.16 OR 9-03.21 OF THE STANDARD SPECIFICATIONS. FOUNDATION MATERIAL, IF REQUIRED SHALL CONFORM TO SECTION 9-03.17 OF THE STANDARD SPECIFICATIONS. NATIVE MATERIALS MAY BE USED FOR TRENCH BACKFILL, PROVIDED MATERIAL CONFORMS TO SECTION 9-03.19 OF THE STANDARD SPECIFICATIONS.

SD-6 – PIPELINE CONSTRUCTION DETAIL
CLEARWOOD COMMUNITY WATER SYSTEM

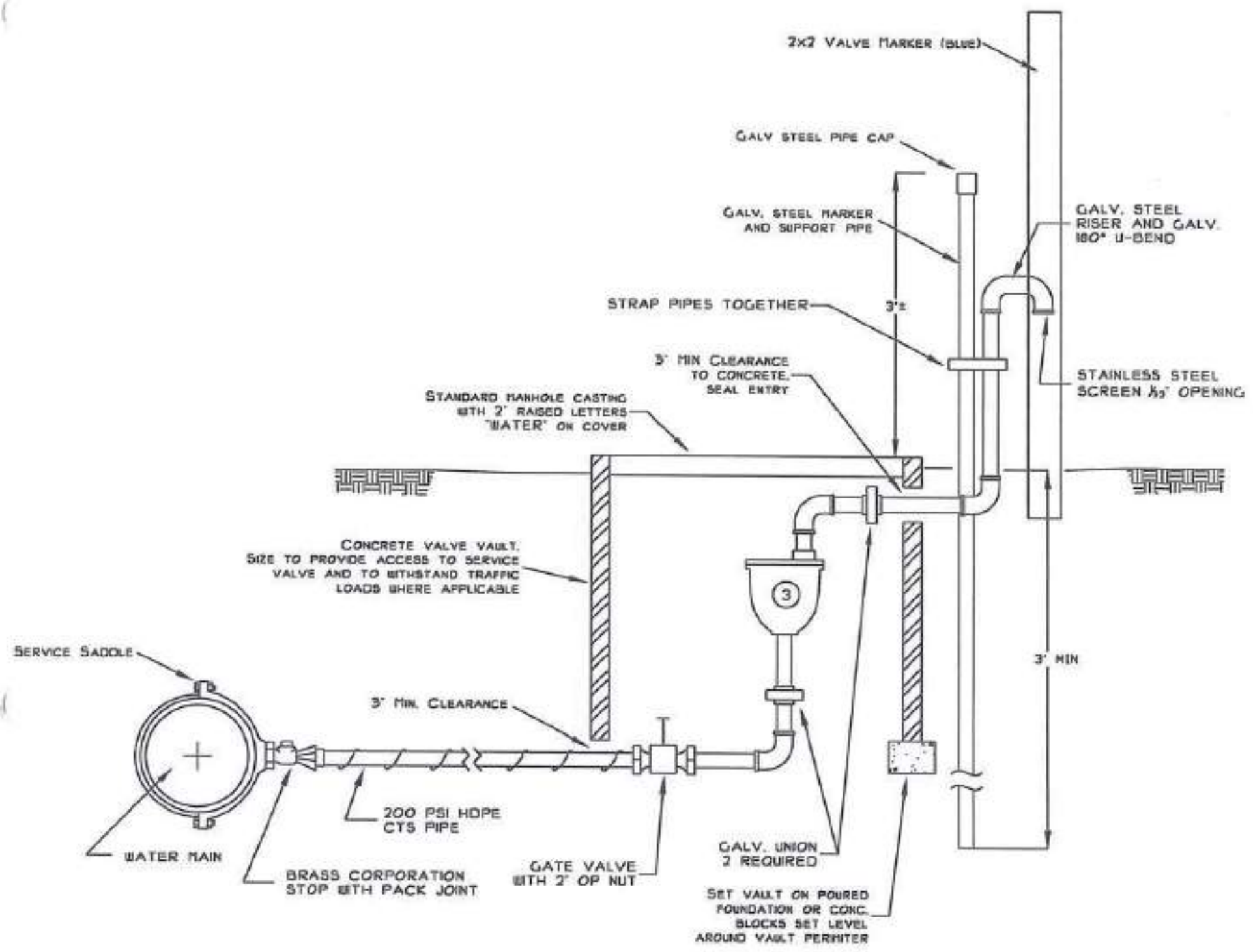


STREET CROSSING TRENCH
CROSS SECTION DETAIL

NOTES:

1. THE FOLLOWING NOTES REFER TO PIPING TRENCH CROSS SECTION DETAIL ABOVE.
2. 36" MINIMUM COVER IN ALL LOCATIONS.
3. ALL MATERIAL EXCEPT A.C.P., C.D.F. AND BEDDING MATERIAL SHALL BE COMPACTED IN 12-INCH MAXIMUM LIFTS TO 85% DENSITY.
4. BEDDING MATERIAL SHALL CONFORM TO SECTION 9-03.16 OR 9-03.21 OF THE STANDARD SPECIFICATIONS. FOUNDATION MATERIAL, IF REQUIRED, SHALL CONFORM TO SECTION 9-03.17 OF THE STANDARD SPECIFICATIONS. NATIVE MATERIALS MAY BE USED FOR TRENCH BACKFILL, PROVIDED MATERIAL CONFORMS TO SECTION 9-03.19 OF THE STANDARD SPECIFICATIONS.
5. BEDDING SHALL BE COMPACTED TO 95% MAX. AS DETERMINED BY ASTM D1557. BACKFILL SHALL BE COMPACTED TO 85% IN UNPAVED AREA, AND 95% IN PAVED OR SHOULDER AREAS AS DETERMINED BY ASTM D1557. CONTRACTOR SHALL PROVIDE WRITTEN PROOF OF COMPACTION TO OWNER PRIOR TO PROJECT ACCEPTANCE.
6. MAXIMUM TRENCH WIDTH SHALL BE THE LESSER OF 1.5 TIMES PIPE OUTSIDE DIAMETER PLUS 18", OR 2.5'.
7. TRENCH BOTTOM SHALL BE COMPACTED WITH UNIFORM GRADE PRIOR TO PIPE INSTALLATION. NO TEMPORARY SUPPORTS, I.E. BLOCKS, WILL BE ALLOWED TO SUPPORT PIPE. 36" MIN COVER, ALL LOCATIONS.
8. BEDDING MATERIAL SHALL COMFORM TO SECTION 9-03.16 OR 9-03.21 OF THE STANDARD SPECIFICATIONS. FOUNDATION MATERIAL, IF REQUIRED SHALL CONFORM TO SECTION 9-03.17 OF THE STANDARD SPECIFICATIONS. CDF SHALL BE USED FOR TRENCH BACKFILL.

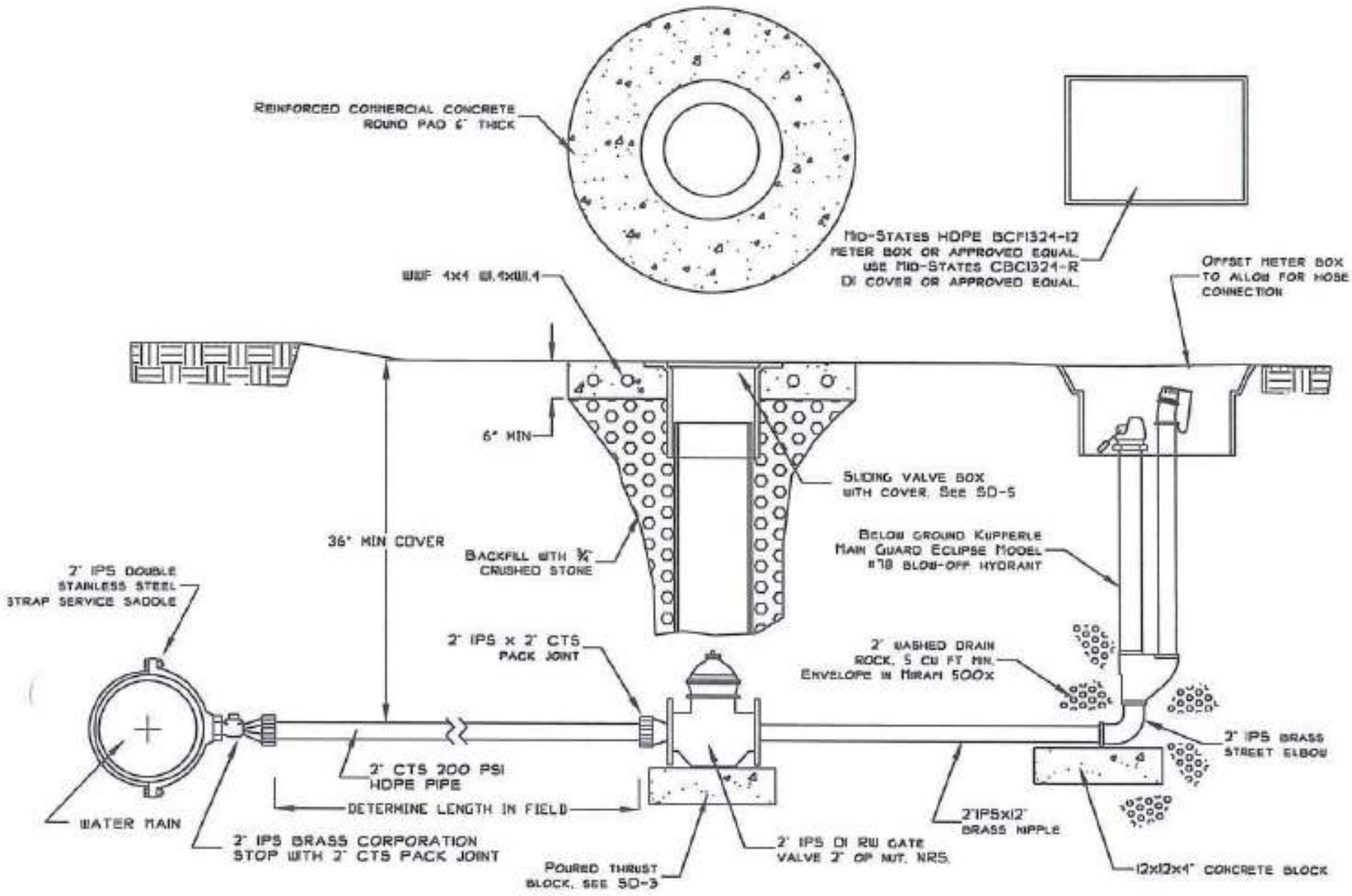
SD-7 – PIPELINE STREET CROSSING DETAIL
CLEARWOOD COMMUNITY WATER SYSTEM



NOTES

1. SIZE SERVICE SADDLE, CORP STOP, ALL PIPE AND FITTINGS, AND GATE VALVE TO AIR/VACUUM RELEASE VALVE INLET.
2. SERVICE SADDLE SHALL HAVE DOUBLE STAINLESS STEEL STRAPS, FIP THREADS SIZED FOR AIR/VAC RELEASE VALVE.
3. AIR/VACUUM RELEASE VALVE SHALL BE THAT SPECIFIED BY OWNER'S ENGINEER FOR EACH INSTALLATION.

SD-8- AIR/VAC RELEASE VALVE INSTALLATION DETAIL
CLEARWOOD COMMUNITY WATER SYSTEM

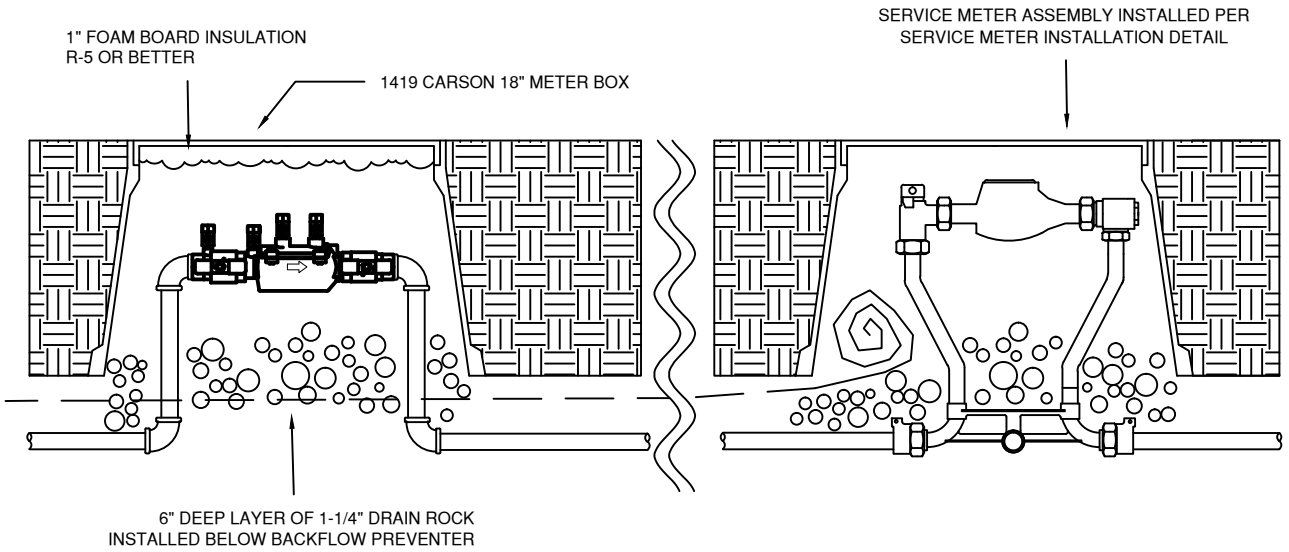


NOTES

1. VALVE BOX AND COVER SHALL BE PER SD-5.
2. LOCATE BLOW-OFF HYDRANT OUTSIDE OF ROADWAY.
3. VALVE MAY BE WITHIN ROADWAY IF NECESSARY.

SD-9- 2" BLOW OFF ASSEMBLY
CLEARWOOD COMMUNITY WATER SYSTEM

BACKFLOW PREVENTION ASSEMBLY INSTALLATION DETAIL



STANDARDS

BACKFLOW PREVENTER SHALL BE INSTALLED BY QUALIFIED, LICENSED PERSONNEL. INSTALLER SHALL CONFIRM THAT THE CORRECT DEVICE HAS BEEN SELECTED.

DOUBLE CHECK VALVE ASSEMBLY (DCVA) FROM 3/4" TO 2" SHALL BE WILKINS MODEL 350 XL OR EQUAL, CONSULT ENGINEER FOR OTHER SIZES.

A REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) SHALL NOT BE INSTALLED IN THIS MANNER, CONSULT APPROVED CROSS CONNECTION CONTROL SPECIALIST FOR INSTALLATION STANDARDS AND DETAILS.

INSTALL VALVE AT LEAST 12 INCHES ABOVE SURROUNDING FLOOD LEVEL

NO STANDING WATER IS PERMITTED WITHIN THE VALVE BOX. DRAINAGE SHALL BE PROVIDED IF NECESSARY.

POSITION VALVE WITHIN BOX TO PROVIDE ADEQUATE SPACE AROUND THE INSTALLED UNIT SO THAT TEST COCKS WILL BE ACCESSIBLE FOR TESTING AND SERVICES.

INSTALLER SHALL CONFIRM ACCESSIBILITY OF IDENTIFICATION TAGS AND SERIAL NUMBERS.

INSTALLATION INSTRUCTIONS

BEFORE INSTALLATION, FLUSH THE LINE THOROUGHLY TO REMOVE ALL DEBRIS, CHIPS AND OTHER FOREIGN MATTER.

CONNECT DCVA WITH BOTH VALVES CLOSED.

SLOWLY OPEN THE INLET SHUT-OFF VALVE UNTIL THE BACKFLOW PREVENTER IS COMPLETELY PRESSURIZED

WHEN THE UNIT HAS BEEN PRESSURIZED, VENT ANY TRAPPED AIR BY SLIGHTLY OPENING EACH FO THE OUR TEST COCKS.

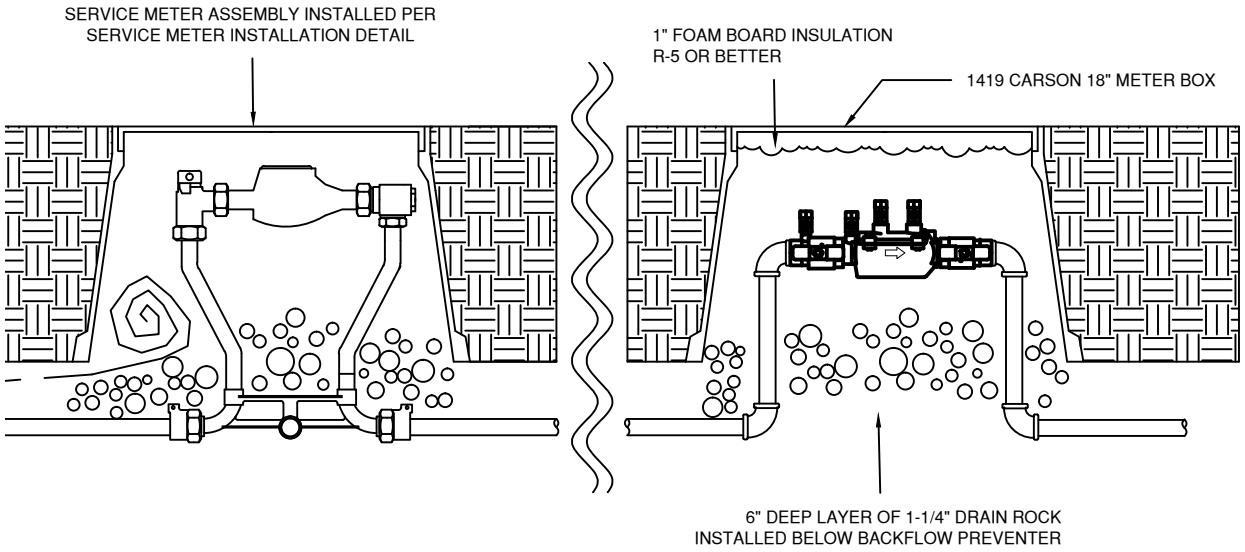
SLOWLY OPEN THE DOWNSTREAM SHUT-OFF VALVE. THE DCVA IS NOW IN SERVICE.

AFTER THE DCVA HAS BEEN PROPERLY INSTALLED, TEST THE DEVICE. IF THE DEVICE FAILS THE TEST, REMOVE THE FIRST AND SECOND CHECK VALVES AND THOROUGHLY FLUSH THE DEVICE. CLEAN RUBBER SEATS OF ALL DEBRIS AND PLACE THE UNIT BACK IN SERVICE.

DETAIL: BACKFLOW PREVENTER INSTALLATION		
FILE NO.: DETAILS	FILE NAME: BACKFLOW	SHEET NO.:
DATE: DECEMBER 12, 2013	SCALE: NTS	

NORTHWEST WATER SYSTEMS, INC.
DESIGN - CONSULTING - MANAGEMENT
P.O. BOX 123
PORT ORCHARD, WA 98366
(360) 876-0958

BACKFLOW PREVENTION ASSEMBLY INSTALLATION DETAIL



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DETAIL: BACKFLOW PREVENTER INSTALLATION		
FILE NO.: DETAILS	FILE NAME: BACKFLOW	SHEET NO.:
DATE: DECEMBER 12, 2013	SCALE: NTS	

NORTHWEST WATER SYSTEMS, INC.
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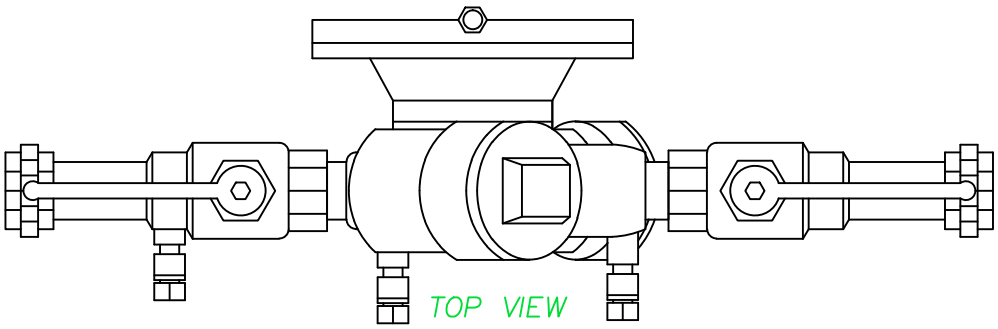
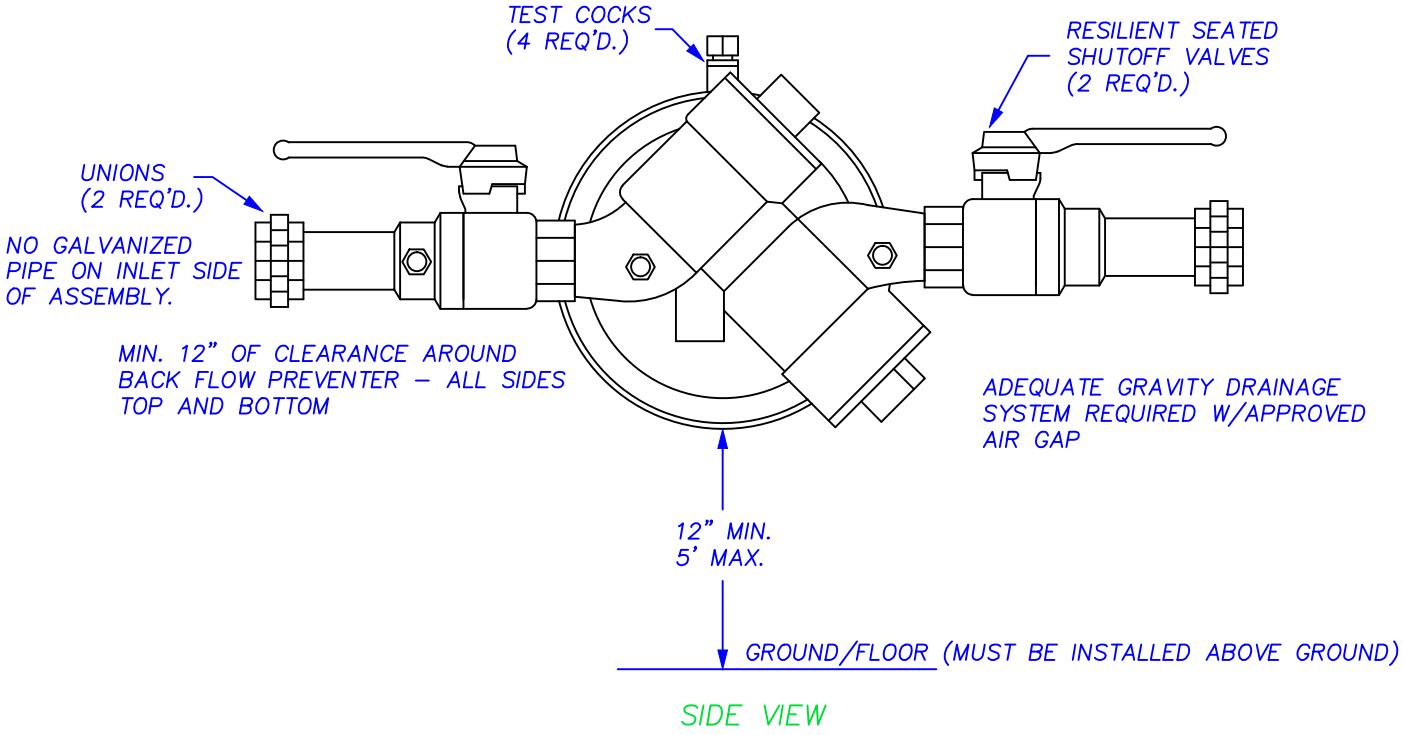


TOP VIEW



SIDE VIEW

NOTE: ALL ITEMS SHALL COMPLY WITH THE FOLLOWING.

- APPROVED REDUCED PRESSURE BACK FLOW ASSEMBLY SHALL LAY HORIZONTAL ONLY.
- DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.
- THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACK FLOW PREVENTER.
- DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
- NO GALVANIZED PIPE BEFORE ASSEMBLY
- VALVE SHALL BE PROTECTED FROM FREEZING CONDITIONS.
- THE BACK FLOW ASSEMBLY SHALL BE A CURRENT WASHINGTON STATE DEPARTMENT OF HEALTH APPROVED MODEL.
- A PLUMBING PERMIT IS REQUIRED.

(ABOVE GROUND INSTALLATION)

REVISED DATE	NORTHWEST WATER SYSTEMS	JOB NUMBER
1/15/18	REDUCED PRESSURE BACK FLOW ASSEMBLY– 2" & SMALLER	DETAIL

Tank #1

Clearwood Comm. WS

Report of Findings
From the
Diving Operations
Conducted on

April 29, 2015

By

LIQUIVISION TECHNOLOGY
DIVING SERVICES

711 Market Street, Klamath Falls, OR 97601, (800) 229-6959 www.divingservices.com

LiquiVision Technology
DIVING SERVICES
Office/Mailing Address
711 Market Street
Klamath Falls, OR 97601
Western Operations
835 Market Street
Klamath Falls, OR 97601
Toll Free: (800) 229-6959
Phone: (541) 883-6473
Fax: (541) 883-1361
www.divingservices.com
liquivision@divingservices.com

Underwater Inspection of Tank #1

April 29, 2015

Matt Whitten
Clearwood Comm. WS
21603 N Clearlake Blvd
Yelm, WA 98597

Following is the report of findings during the underwater work conducted on your storage tank.

It will focus on issues of concern or areas that need attention. In order to see a complete and detailed inspection, please view each video.

Color images of all plumbing fixtures, components and areas of concern were taken via underwater digital camera. The images should give you a clear view of the conditions described. The video may give you another view and a clearer understanding of any area that you may wish to look at more closely.

METHODOLOGY:

Disinfection of All Equipment With 200ppm+ Chlorine Solution Immediately Prior to Entering System: This process prevents contamination of the water supply. All LVT equipment was properly disinfected prior to entering the potable water system.

Full-Time Voice Communication between surface and Diver: The system allowed for constant communication between the diver, and all surface personnel. In addition, customers were able to communicate with the diver at any time. For purposes of a more efficient inspection, cleaning, and repair program, that enabled the diver to immediately discuss any observations he made inside the storage tank.

Full-Time Live High Resolution Color Video: Allowed for constant viewing of the diver's work and observations. This also enabled the district personnel to view what the diver in the storage tank was witnessing.

Tank #1

TERMINOLOGY:

When describing the features or areas of interest inside the storage tank, an image number is placed next to the description that corresponds with the inspection findings. The diagram is shown in a view looking from the top down. The entry hatch is referred to as the 12:00 o'clock position.

Following the diagram are pictures of the pertinent areas of the storage tank and the locations where the pictures were taken. Each picture is descript and numbered.

The standards used to evaluate the condition of the storage tank include: Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces – SSPC-Vis 2-82 & ASTM D 610-85 NACE Standard RP0196-96 & RP0388-2001 or Condition of Concrete In-service – ACI 201.1R-92.

Tank #1

OVERVIEW OF STORAGE TANK INSPECTED:

Customer Name:	Clearwood Comm.WS	**Tank Name:**	Tank #1
Manager:	Matt Whitten	Construction:	OG Welded
Job Number:	WA2004515R2T3	Capacity (gal.):	184,000
Date of Inspection:	April 29, 2015	Diameter or L x W:	24'
Report Writer:	Dave Scott	Height:	36'
Diver:	Cameron Hagerman	Floor Square FT:	452.4
Tender:	Bobby Barnicoat	Date Built:	1973

N/A –not applicable **Excellent** (Ex.) –like new condition, no repairs needed. **Good** – Cosmetic only problems, repairs if wanted. **Fair**-Minor problems, repairs needed, not immediate. **Poor** –Major problems, structural or like, immediate repairs needed.

1. Rust Grades

Grades	% of Surface Rusted	Description
10	0% - 0.01%	No rusting or less than 0.01% of surface rusted
9	0.01% - 0.03%	Minute rusting, less than 0.03% of surface rusted
8	0.03% - 0.1%	Few isolated rust spots, less than 0.1% of surface rusted
7	0.1%- 0.3%	Less than 0.3% of surface rusted
6	0.3% - 1%	Extensive rust spots, but less than 1% of surface rusted
5	1% - 3%	Rusting to the extent of 3% of surface rusted
4	3% - 10%	Rusting to the extent of 10% of surface rusted
3	10% - 16%	Approximately one sixth of the surface rusted (16%)
2	16% - 33%	Approximately one third of the surface rusted (33%)
1	33% - 50%	Approximately one half of the surface rusted (50%)
0	50% - 100%	Approximately 100% of the surface rusted

2. Concrete Deformities

Unable to Evaluate	Good Condition	Cracks	Blistering	Chalking	De-Lamination	Pitting	Popouts	Scaling	Spalling	Warping
UE	GC	CK	BL	CH	DL	PT	PO	SC	SP	WA

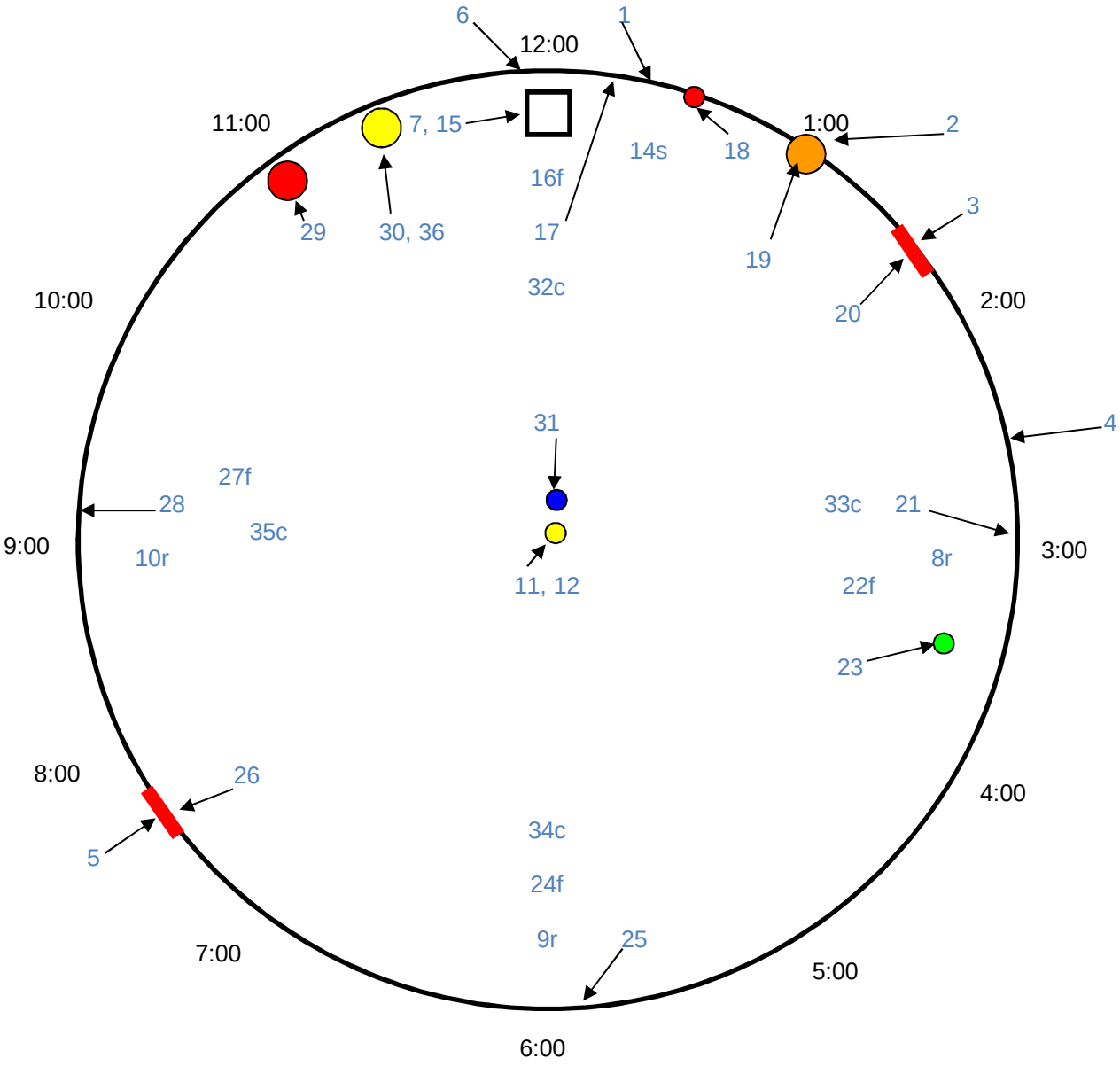
Tank #1

RECOMMENDATIONS:

Recommendation	Estimated Time - Hrs.
Repair Entry Hatch by installing new support brackets.	Please contact our sales office for an estimate.
Perform a regular cleaning, inspection and repair cycle every 2-3 years in order to ensure superior water quality and proper maintenance of coating condition and appurtenances is performed.	Please contact our sales office for an estimate.
Total Estimated Hours	

Tank #1

Tank Diagram



Drawing Not To Scale

	Entry Hatch		Overflow		Support Column
	Drain/Scour		Man Entry		Water Tap
	Common Inlet/Outlet		Cathodic Protection		Air Vent

Tank #1

Image #**1** *Exterior Base 12:15* **Condition:** Concrete Deform[3] **GC**. **Description:** Exterior Base appeared to be in good condition with no concrete problems.	
Image #**2** *Inlet/Outlet 1:00* **Condition:** Rust Grade[1] **10**. **Description:** 10” Inlet/outlet appeared to be in good condition with no signs of corrosion.	

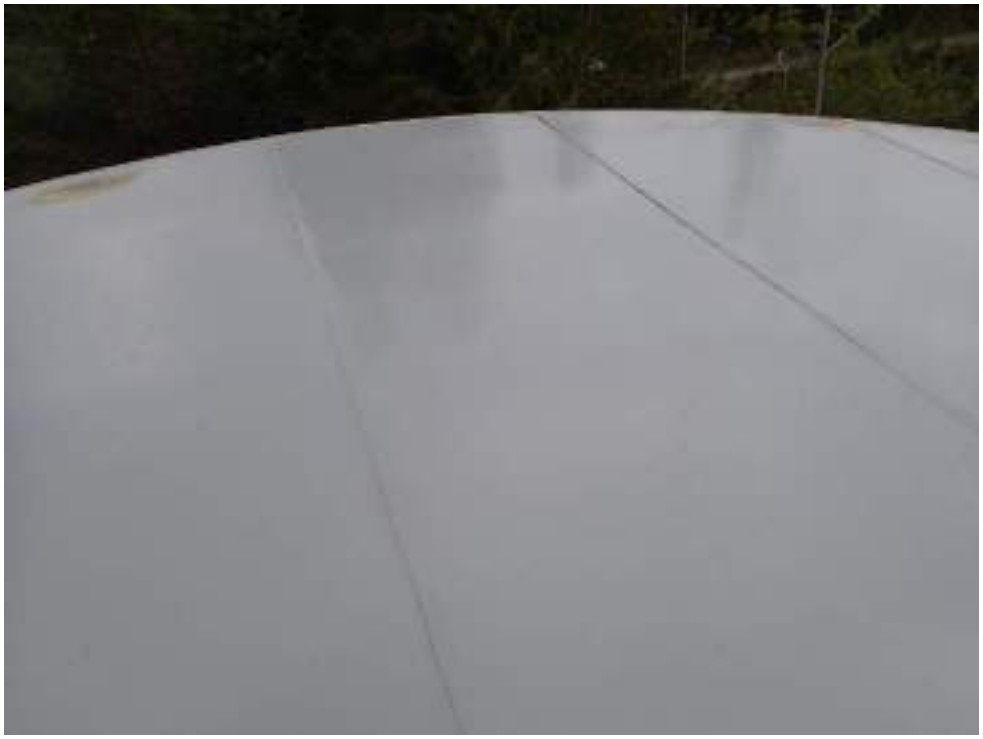
Tank #1

Image #**3** *Man Way 1:30* **Condition:** Rust Grade[1] **10**. **Description:** Man Way appeared to be in good condition with no signs of corrosion.	
Image #**4** *Wall 2:30* **Condition:** Rust Grade[1] **10**. **Description:** Wall appeared to be in good condition with no signs of corrosion.	

Tank #1

Image #**5** *Man Way 7:30* **Condition:** Rust Grade[1] **10**. **Description:** Man Way appeared to be in good condition with no signs of corrosion.	
Image #**6** *Exterior Ladder 12:00* **Condition:** Rust Grade[1] **10**. **Description:** Exterior Ladder appeared to be in good condition with no signs of corrosion.	

Tank #1

Image #**7** *Entry Hatch 12:00* **Condition:** Rust Grade[1] **9.** **Description:** 30''x36'' Entry Hatch appeared to be in fair condition with minor signs of corrosion. Some support brackets/springs are missing.	
Image #**8** *Roof 3:00* **Condition:** Rust Grade[1] **10.** **Description:** Roof appeared to be in good condition with no signs of corrosion.	

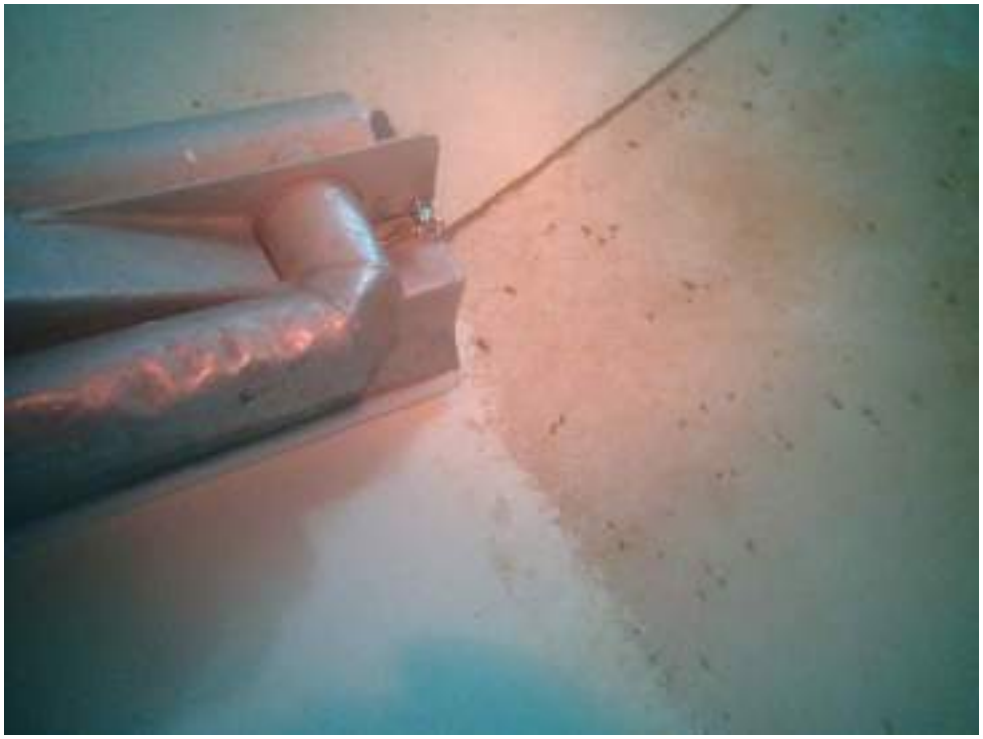
Tank #1

Image #**9** *Roof 6:00* **Condition:** Rust Grade[1] **10**. **Description:** Roof appeared to be in good condition with no signs of corrosion.	
Image #**10** *Roof 9:00* **Condition:** Rust Grade[1] **10**. **Description:** Roof appeared to be in good condition with no signs of corrosion.	

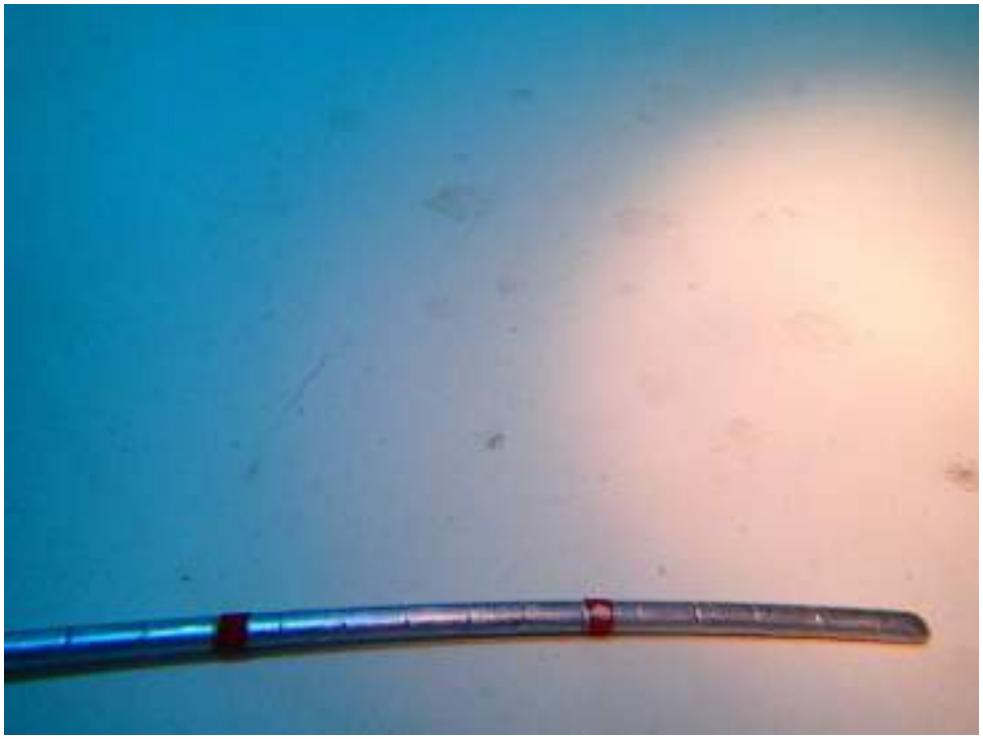
Tank #1

Image #**11** *Vent Center* **Condition:** Rust Grade[1] **10.** **Description:** 8" Vent appeared to be in good condition with no signs of corrosion.	
Image #**12** *Vent Screen Center* **Condition:** Rust Grade[1] **9.** **Description:** Vent Screen appeared to be in good condition with a minor amount of corrosion.	

Tank #1

Image #**13** *Diver*	
Image #**14** *Sediment* **Description:** 1/16” of sediment was removed from reservoir floor.	

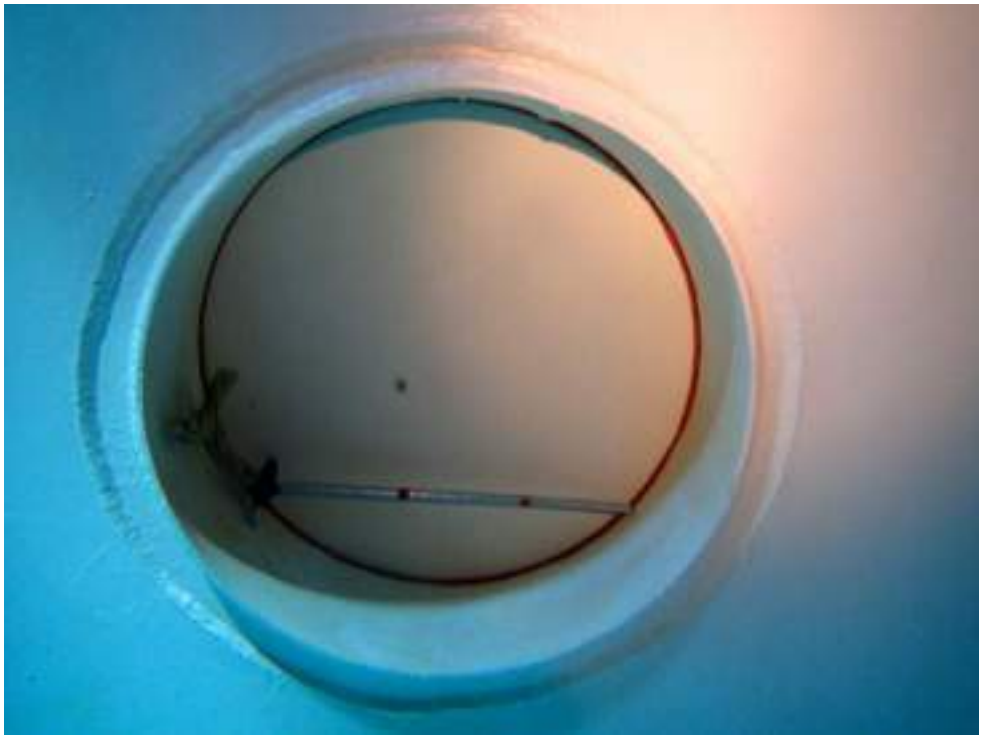
Tank #1

Image #**15** *Interior Ladder 12:00* **Condition:** Rust Grade[1] **9**. **Description:** Interior Ladder appeared to be in good condition with a minor amount of corrosion. Corrosion was observed on Safety Climb.	
Image #**16** *Floor 12:00* **Condition:** Rust Grade[1] **10**. **Description:** Floor appeared to be in good condition with no signs of corrosion.	

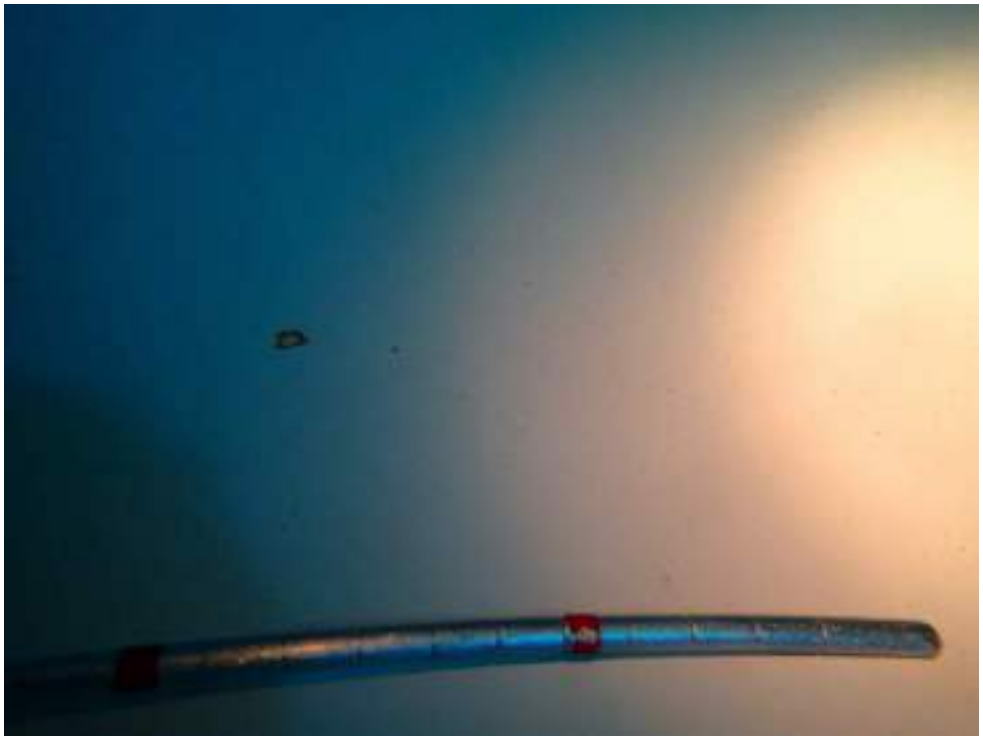
Tank #1

Image #**17** *Wall 12:00* **Condition:** Rust Grade[1] **10**. **Description:** Wall appeared to be in good condition with no signs of corrosion.	
Image #**18** *Water Tap 12:30* **Condition:** Rust Grade[1] **9**. **Description:** 1" Water Tap appeared to be in good condition with a minor amount of corrosion.	

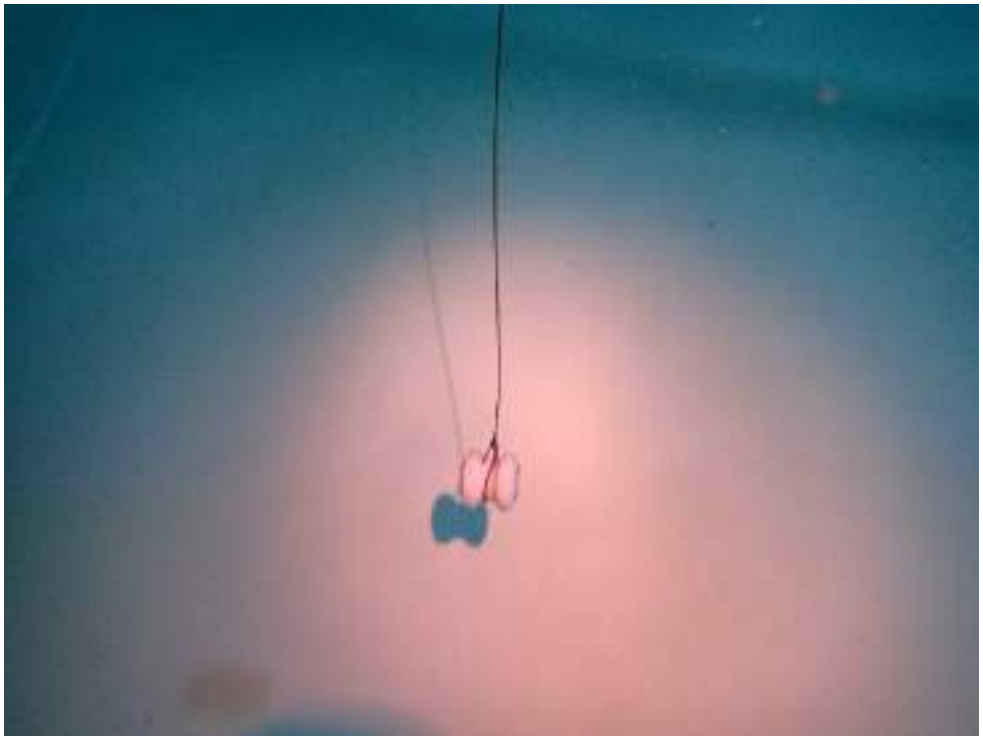
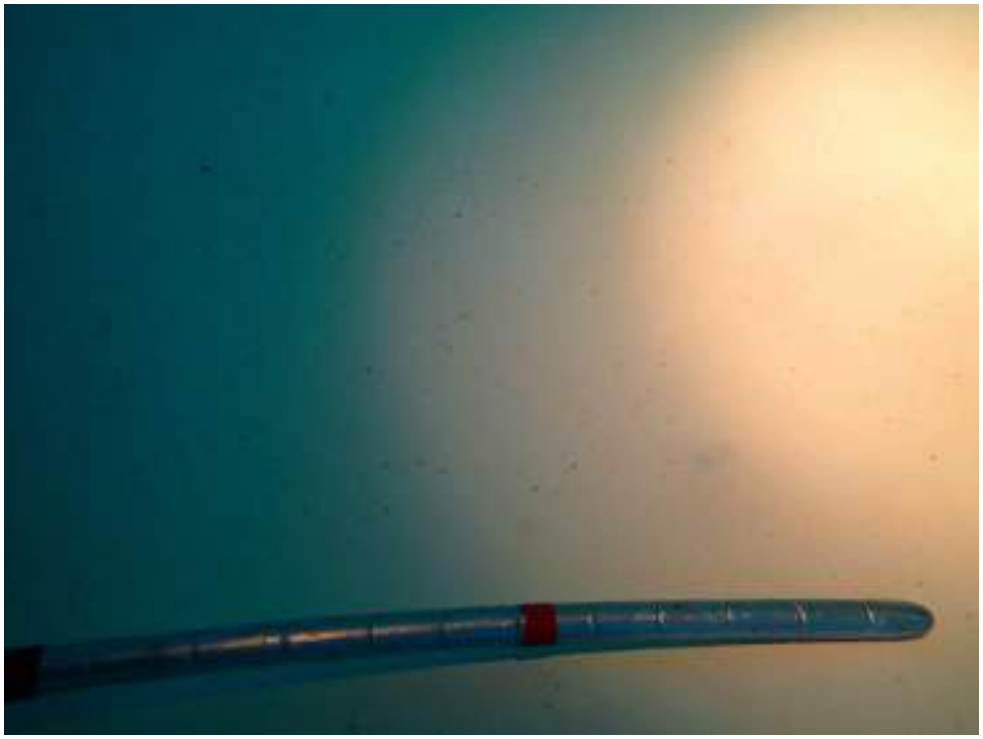
Tank #1

Image #**19** *Inlet / Outlet 1:00* **Condition:** Rust Grade[1] **10**. **Description:** 10" Inlet / Outlet appeared to be in good condition with no signs of corrosion.	
Image #**20** *Man Way 1:30* **Condition:** Rust Grade[1] **10**. **Description:** Man Way appeared to be in good condition with no signs of corrosion.	

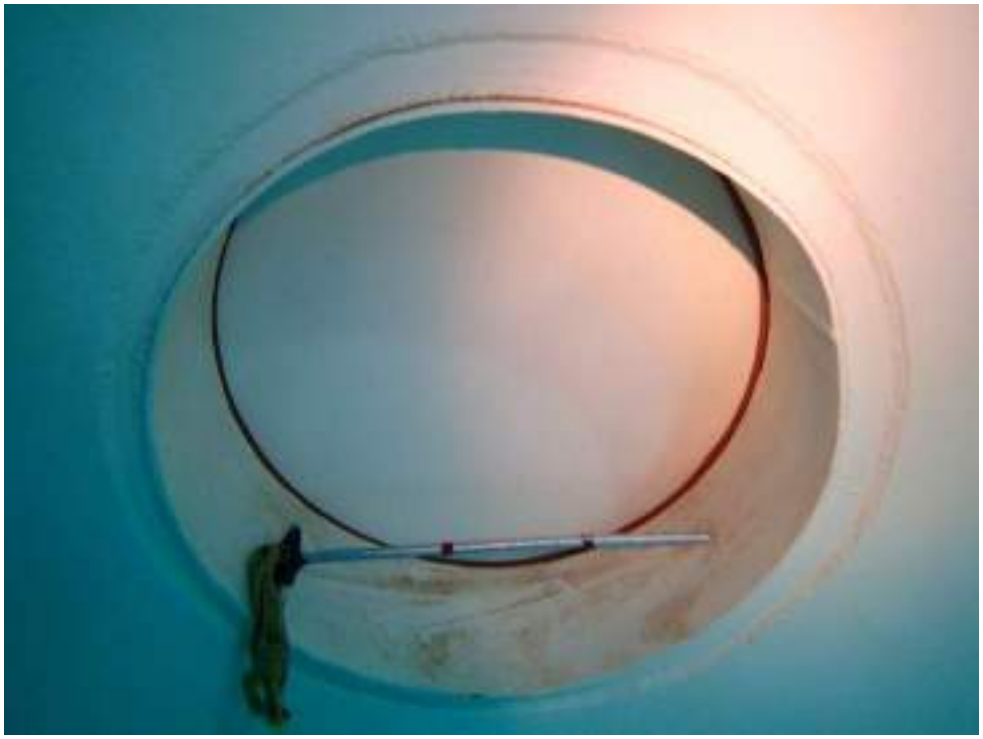
Tank #1

Image #**21** *Floor 3:00* **Condition:** Rust Grade[1] **10**. **Description:** Floor appeared to be in good condition with no signs of corrosion.	
Image #**22** *Wall 3:00* **Condition:** Rust Grade[1] **10**. **Description:** Wall appeared to be in good condition with no signs of corrosion.	

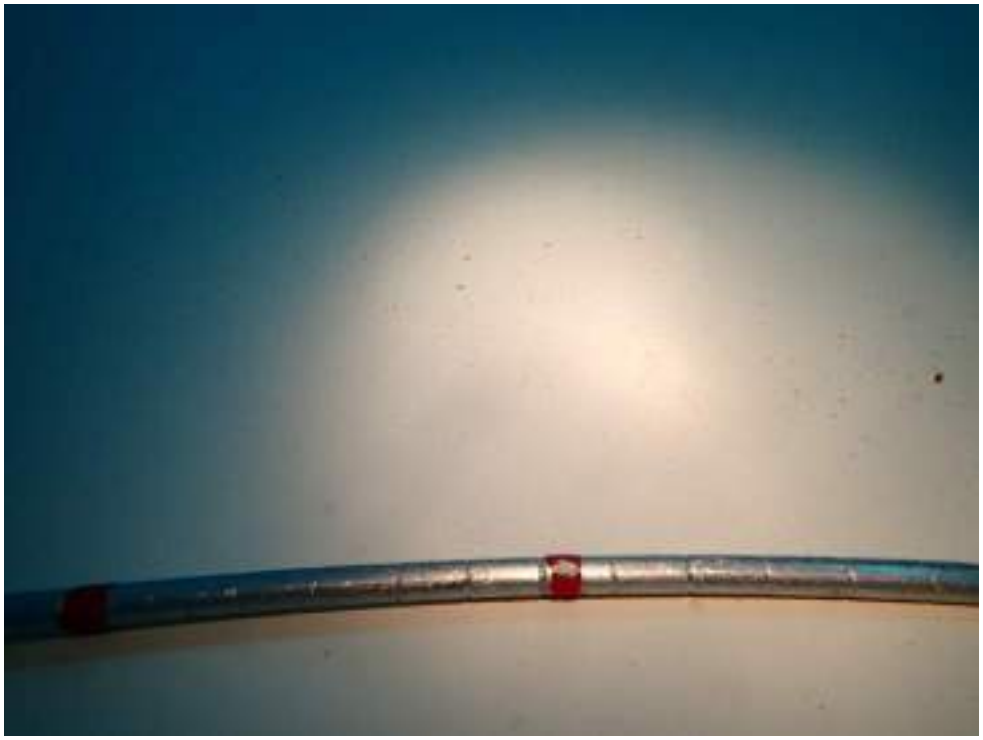
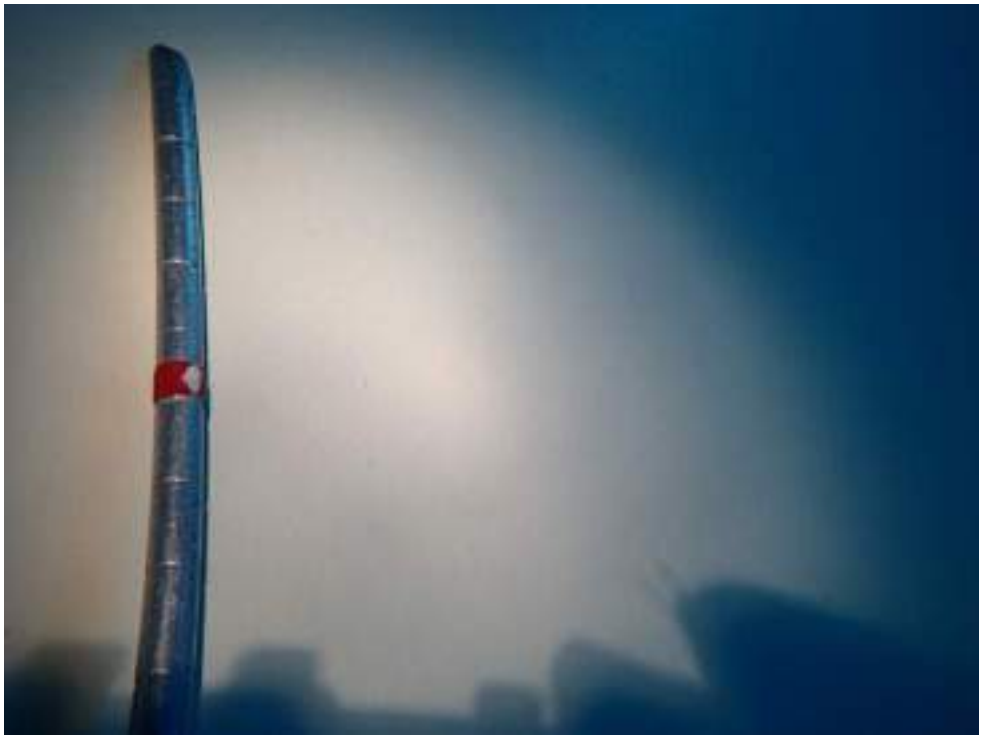
Tank #1

Image #**23** *Cathodic Protection 3:30* **Description:** Cathodic Resistor appeared to be in good working condition and properly suspended.	
Image #**24** *Floor 6:00* **Condition:** Rust Grade[1] **10**. **Description:** Floor appeared to be in good condition with no signs of corrosion.	

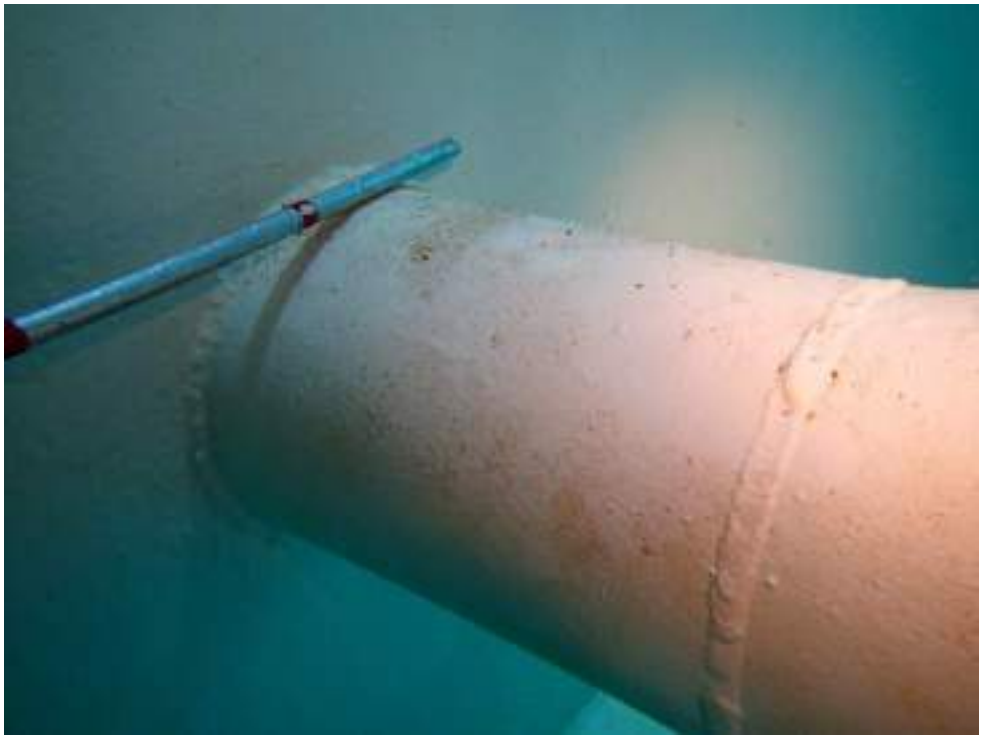
Tank #1

Image #**25** *Wall 6:00* **Condition:** Rust Grade[1] **10**. **Description:** Wall appeared to be in good condition with no signs of corrosion.	
Image #**26** *Man Way 7:30* **Condition:** Rust Grade[1] **10**. **Description:** Man Way appeared to be in good condition with no signs of corrosion.	

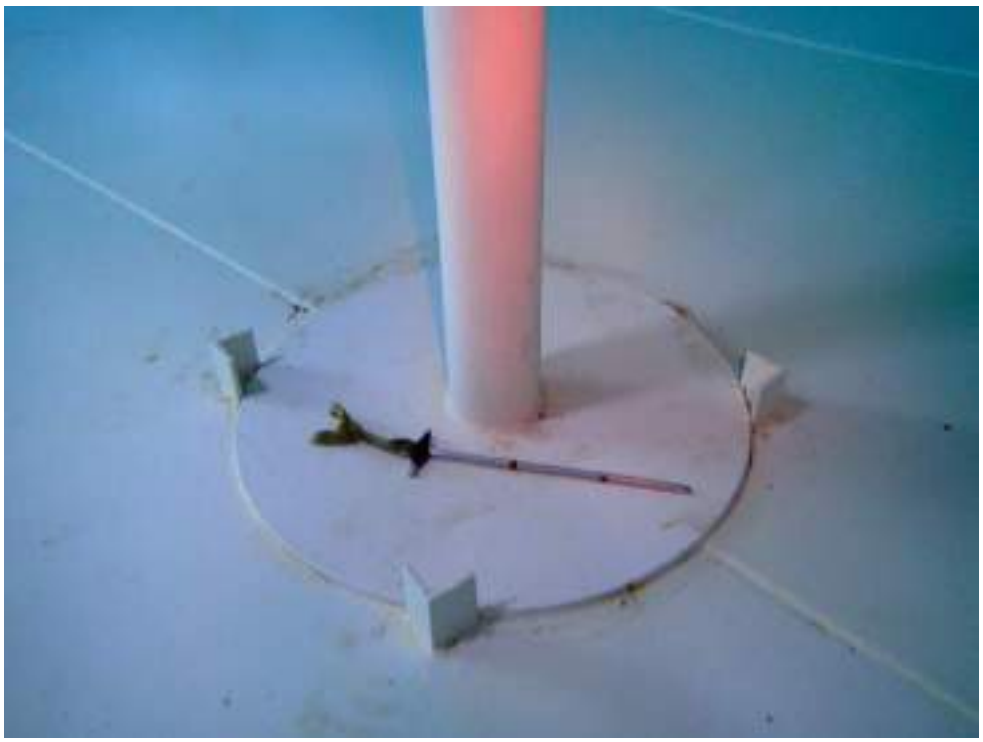
Tank #1

Image #**27** *Floor 9:00* **Condition:** Rust Grade[1] **10**. **Description:** Floor appeared to be in good condition with no signs of corrosion.	
Image #**28** *Wall 9:00* **Condition:** Rust Grade[1] **10**. **Description:** Wall appeared to be in good condition with no signs of corrosion.	

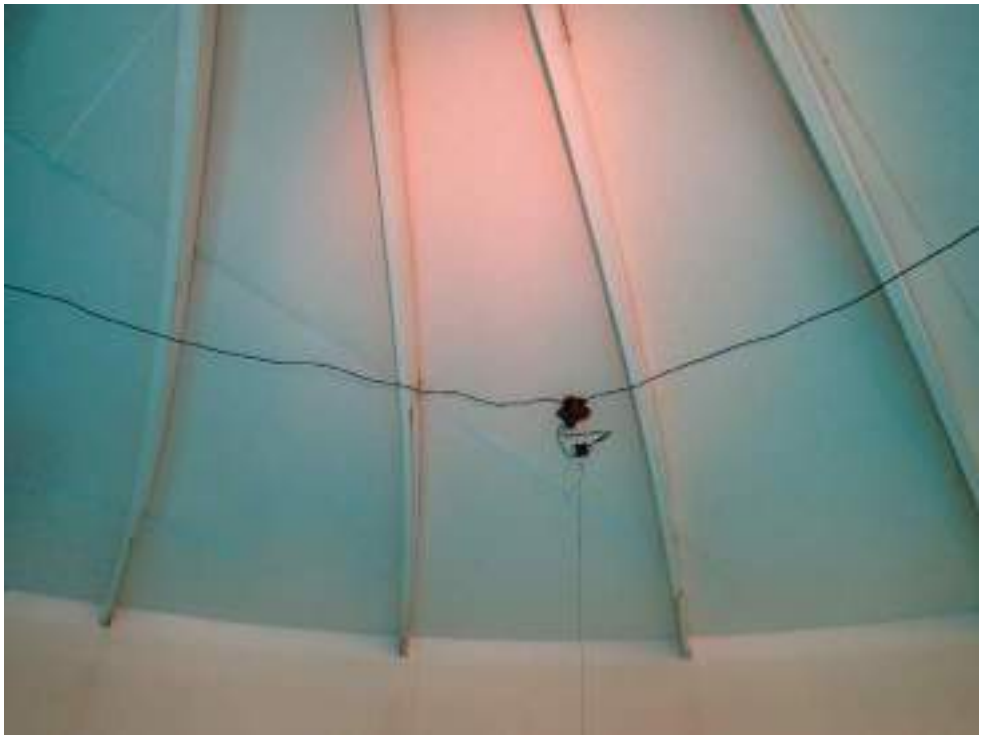
Tank #1

Image #**29** *Drain 11:00* **Condition:** Rust Grade[1] **9.** **Description:** 4'' Drain appeared to be in good condition with a minor amount of corrosion observed.	
Image #**30** *Overflow 11:30* **Condition:** Rust Grade[1] **10.** **Description:** 8'' Overflow appeared to be in good condition with no signs of corrosion.	

Tank #1

Image #**31** *Column Center* **Condition:** Rust Grade[1] **10**. **Description:** 6" Column appeared to be in good condition with no signs of corrosion.	
Image #**32** *Roof 12:00* **Condition:** Rust Grade[1] **10**. **Description:** Roof appeared to be in good condition with no signs of corrosion.	

Tank #1

Image #**33** *Roof 3:00* **Condition:** Rust Grade[1] **10**. **Description:** Roof appeared to be in good condition with no signs of corrosion.	
Image #**34** *Roof 6:00* **Condition:** Rust Grade[1] **10**. **Description:** Roof appeared to be in good condition with no signs of corrosion.	

Tank #1

Image #**35** *Roof 9:00* **Condition:** Rust Grade[1] **9**. **Description:** Roof appeared to be in good condition with minor signs of corrosion.	
Image #**36** *Overflow 11:30* **Condition:** Rust Grade[1] **10**. **Description:** 24" Overflow Bell appeared to be in good condition with no signs of corrosion.	

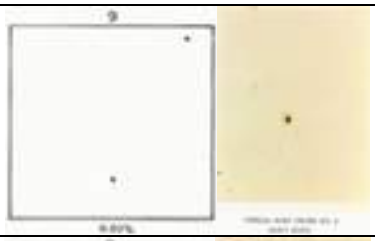
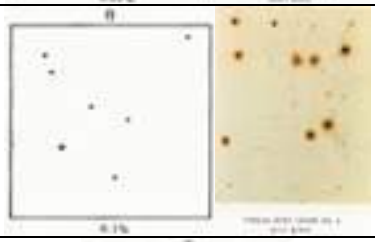
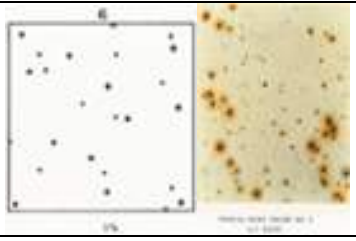
Tank #1

REFERENCES:

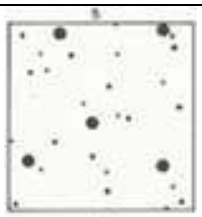
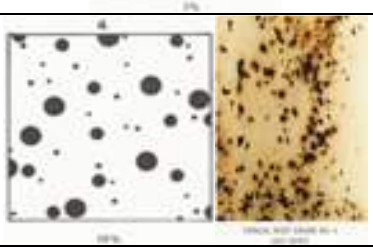
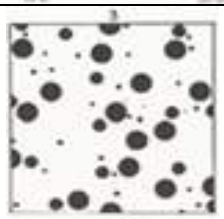
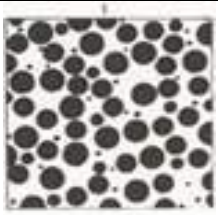
Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces – SSPC-Vis 2-82 & ASTM D 610-85 (1989)

The graphical representations show examples of area percentages, which may be helpful in rust grading. The use of photographical reference standards requires the following precautions:

1. Some finishes are stained by rust. This staining must not be confused with the actual rusting involved.
2. Accumulated dirt or other material may make accurate determination of the degree of rusting difficult.
3. Certain types of deposited dirt that contain iron or iron compounds may cause surface discoloration that should not be mistaken for corrosion.
4. It must be realized that failure may vary over a given area and discretion must therefore be used in applying these reference standards.
5. In evaluating surfaces, consideration shall be given to the color of the finish coating, since failures will be more apparent on a finish that shows color contrast with rust, such as white, than on a similar color, such as iron oxide finish.
6. The photographic reference standards are not required for use of the rust-grade scale since the scale is based upon the percent of the area rusted and any method of assessing area rusted may be used to determine the rust grade.

Rust Grades	Description	Graphical Representation
10	No rusting or less than 0.01% of surface rusted	Unnecessary
9	Minute rusting, less than 0.03% of surface rusted	
8	Few isolated rust spots, less than 0.1% of surface rusted	
7	Less than 0.3% of surface rusted	
6	Extensive rust spots, but less than 1% of surface rusted	

Tank #1

5	Rusting to the extent of 3% of surface rusted	
4	Rusting to the extent of 10% of surface rusted	
3	Approximately one sixth of the surface rusted (16%)	
2	Approximately one third of the surface rusted (33%)	
1	Approximately one half of the surface rusted (50%)	
0	Approximately 100% of the surface rusted	Unnecessary

Tank #2

Clearwood Comm. WS

Report of Findings
From the
Diving Operations
Conducted on

April 29, 2015

By

LIQUIVISION TECHNOLOGY

DIVING SERVICES

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Underwater Inspection of Tank #2

April 29, 2015

Matt Whitten
Clearwood Comm. WS
21603 N Clearlake Blvd.
Yelm, WA 98597

Following is the report of findings during the underwater work conducted on your storage tank.

It will focus on issues of concern or areas that need attention. In order to see a complete and detailed inspection, please view each video.

Color images of all plumbing fixtures, components and areas of concern were taken via underwater digital camera. The images should give you a clear view of the conditions described. The video may give you another view and a clearer understanding of any area that you may wish to look at more closely.

METHODOLOGY:

Disinfection of All Equipment With 200ppm+ Chlorine Solution Immediately Prior to Entering System: This process prevents contamination of the water supply. All LVT equipment was properly disinfected prior to entering the potable water system.

Full-Time Voice Communication between surface and Diver: The system allowed for constant communication between the diver, and all surface personnel. In addition, customers were able to communicate with the diver at any time. For purposes of a more efficient inspection, cleaning, and repair program, that enabled the diver to immediately discuss any observations he made inside the storage tank.

Full-Time Live High Resolution Color Video: Allowed for constant viewing of the diver's work and observations. This also enabled the district personnel to view what the diver in the storage tank was witnessing.

Tank #2

TERMINOLOGY:

When describing the features or areas of interest inside the storage tank, an image number is placed next to the description that corresponds with the inspection findings. The diagram is shown in a view looking from the top down. The entry hatch is referred to as the 12:00 o'clock position.

Following the diagram are pictures of the pertinent areas of the storage tank and the locations where the pictures were taken. Each picture is descript and numbered.

The standards used to evaluate the condition of the storage tank include: Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces – SSPC-Vis 2-82 & ASTM D 610-85 NACE Standard RP0196-96 & RP0388-2001 or Condition of Concrete In-service – ACI 201.1R-92.

Tank #2

OVERVIEW OF STORAGE TANK INSPECTED:

Customer Name:	Clearwood Comm. WS	**Tank Name:**	Tank #2
Manager:	Matt Whitten	Construction:	OG Welded
Job Number:	WA2004515R2T3	Capacity (gal.):	400,000
Date of Inspection:	April 29, 2015	Diameter or L x W:	56'
Report Writer:	Dave Scott	Height:	26'
Diver:	Cameron Hagerman	Floor Square FT:	2,462.9
Tender:	Bobby Barnicoat	Date Built:	1997

N/A –not applicable **Excellent** (Ex.) –like new condition, no repairs needed. **Good** – Cosmetic only problems, repairs if wanted. **Fair**-Minor problems, repairs needed, not immediate. **Poor** –Major problems, structural or like, immediate repairs needed.

1. Rust Grades

Grades	% of Surface Rusted	Description
10	0% - 0.01%	No rusting or less than 0.01% of surface rusted
9	0.01% - 0.03%	Minute rusting, less than 0.03% of surface rusted
8	0.03% - 0.1%	Few isolated rust spots, less than 0.1% of surface rusted
7	0.1%- 0.3%	Less than 0.3% of surface rusted
6	0.3% - 1%	Extensive rust spots, but less than 1% of surface rusted
5	1% - 3%	Rusting to the extent of 3% of surface rusted
4	3% - 10%	Rusting to the extent of 10% of surface rusted
3	10% - 16%	Approximately one sixth of the surface rusted (16%)
2	16% - 33%	Approximately one third of the surface rusted (33%)
1	33% - 50%	Approximately one half of the surface rusted (50%)
0	50% - 100%	Approximately 100% of the surface rusted

2. Concrete Deformities

Unable to Evaluate	Good Condition	Cracks	Blistering	Chalking	De-Lamination	Pitting	Popouts	Scaling	Spalling	Warping
UE	GC	CK	BL	CH	DL	PT	PO	SC	SP	WA

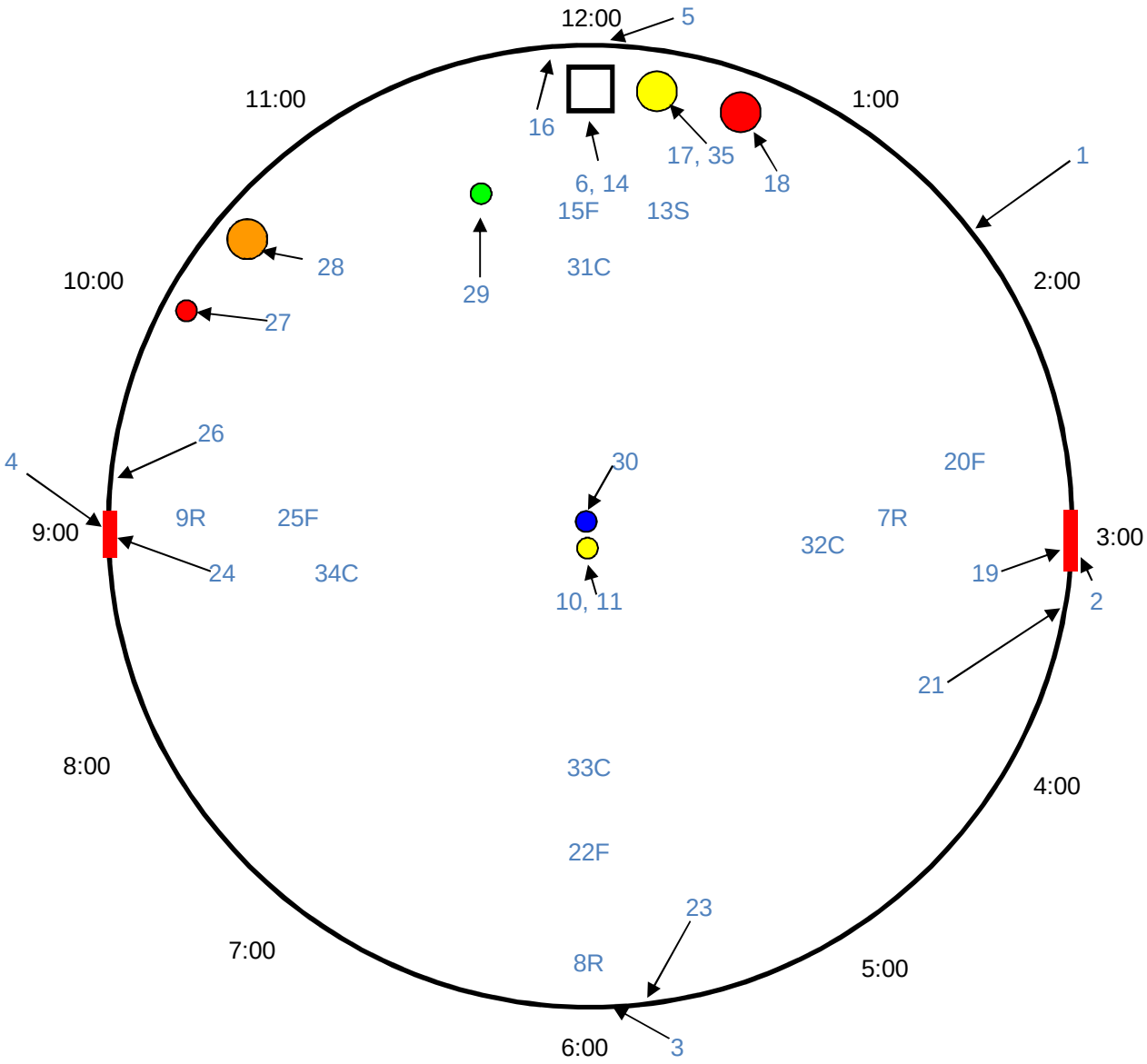
Tank #2

RECOMMENDATIONS:

Recommendation	Estimated Time - Hrs.
Perform a regular cleaning, inspection and repair cycle every 2-3 years in order to ensure superior water quality and proper maintenance of coating condition and appurtenances is performed.	Please contact our sales office for an estimate.
Total Estimated Hours	

Tank #2

Tank Diagram



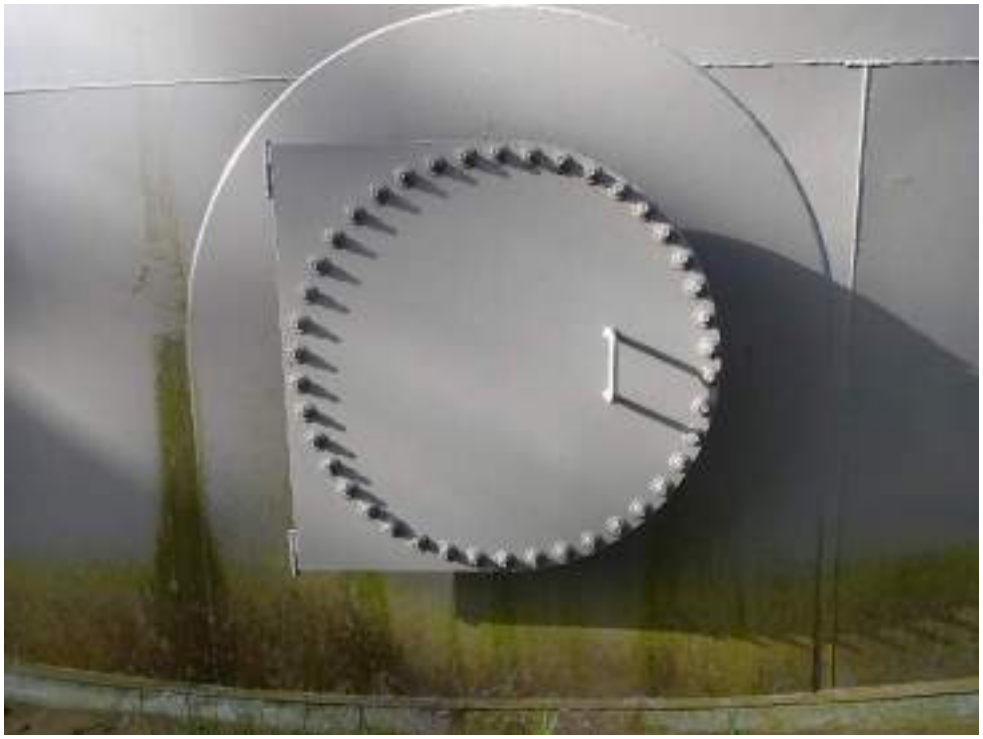
Drawing Not To Scale

	Entry Hatch		Overflow		Support Column
	Inlet/ outlet		Man Entry		Capped Off Penetration
	Air Vent		Cathodic Protection		

Tank #2

Image #**1** *Exterior Base 1:30* **Condition:** Concrete Deform[3] **GC**. **Description:** Exterior Base appeared to be in good condition with no concrete problems.	
Image #**2** *Man Way 3:00* **Condition:** Rust Grade[1] **10**. **Description:** Man Way appeared to be in good condition with no signs of corrosion.	

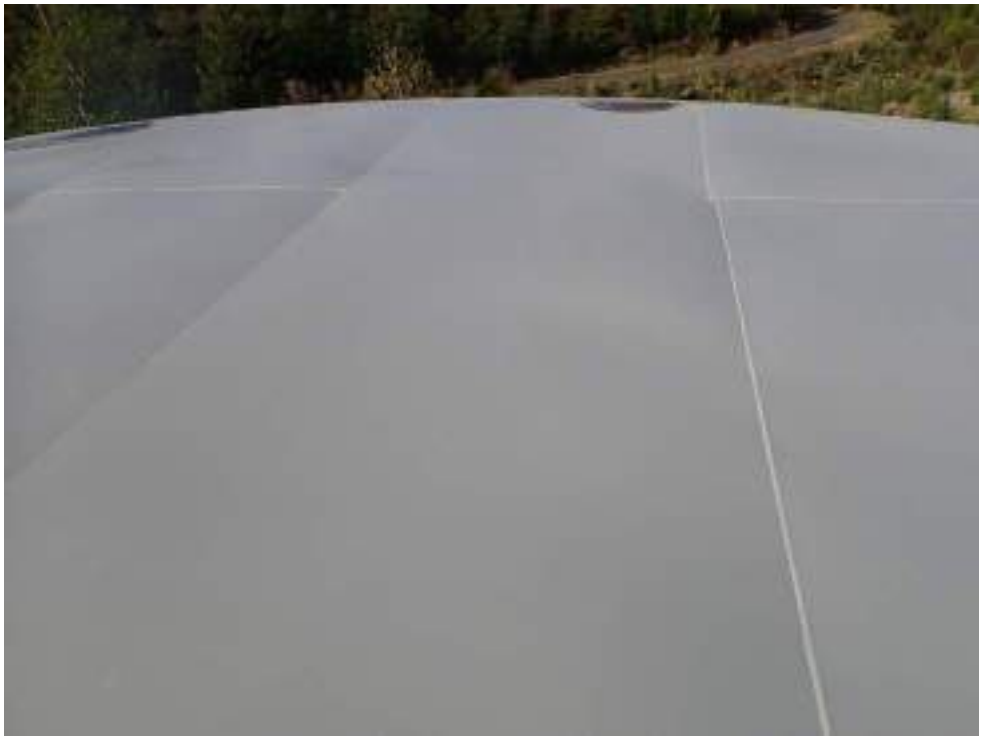
Tank #2

Image #**3** *Exterior Wall 6:00* **Condition:** Rust Grade[1] **10**. **Description:** Exterior Wall appeared to be in good condition with no signs of corrosion.	
Image #**4** *Man Way 9:00* **Condition:** Rust Grade **10.** **Description:** Man Way appeared to be in good condition with no signs of corrosion. A minor amount of organic growth was observed.	

Tank #2

Image #**5** *Exterior Ladder 12:00* **Condition:** Rust Grade[1] **10.** **Description:** Exterior Ladder appeared to be in good condition with no signs of corrosion.	
Image #**6** *Entry Hatch 12:00* **Condition:** Rust Grade[1] **9.** **Description:** 30”x36” Entry Hatch appeared to be in good condition with a minor amount of corrosion.	

Tank #2

Image #**7** *Roof 3:00* **Condition:** Rust Grade[1] **9.** **Description:** Roof appeared to be in good condition with a minor amount of corrosion.	
Image #**8** *Roof 6:00* **Condition:** Rust Grade[1] **9.** **Description:** Roof appeared to be in good condition with a minor amount of corrosion.	

Tank #2

Image #**9** *Roof 9:00* **Condition:** Rust Grade[1] **9.** **Description:** Roof appeared to be in good condition with a minor amount of corrosion.	
Image #**10** *Vent Center* **Condition:** Rust Grade[1] **9.** **Description:** 12” Vent appeared to be in good condition with a minor amount of corrosion.	

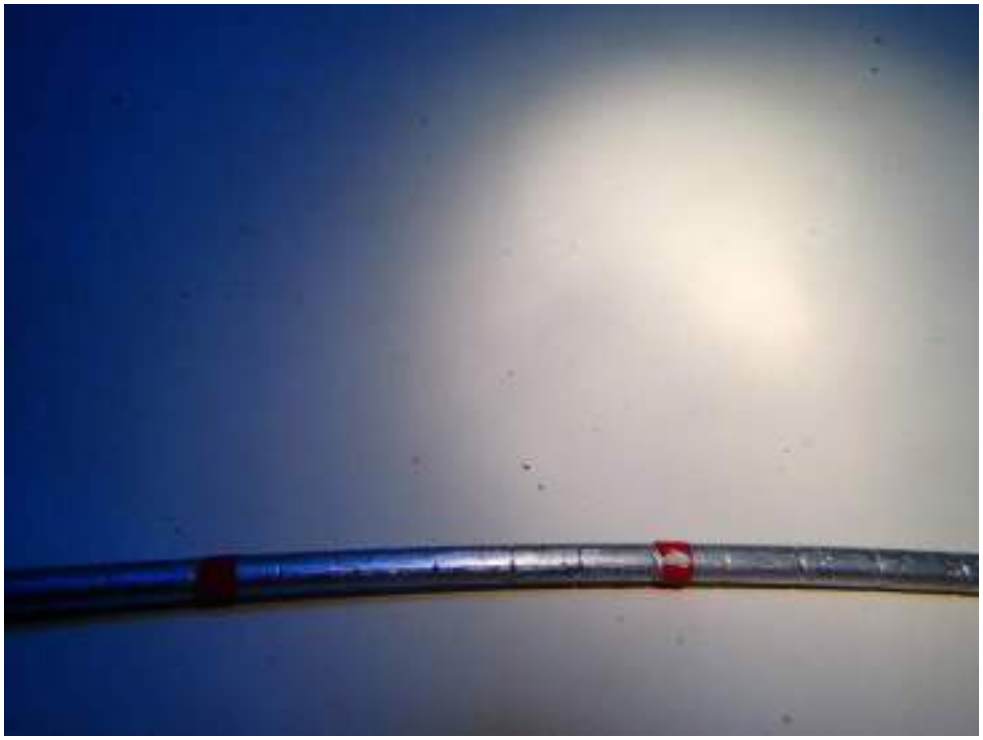
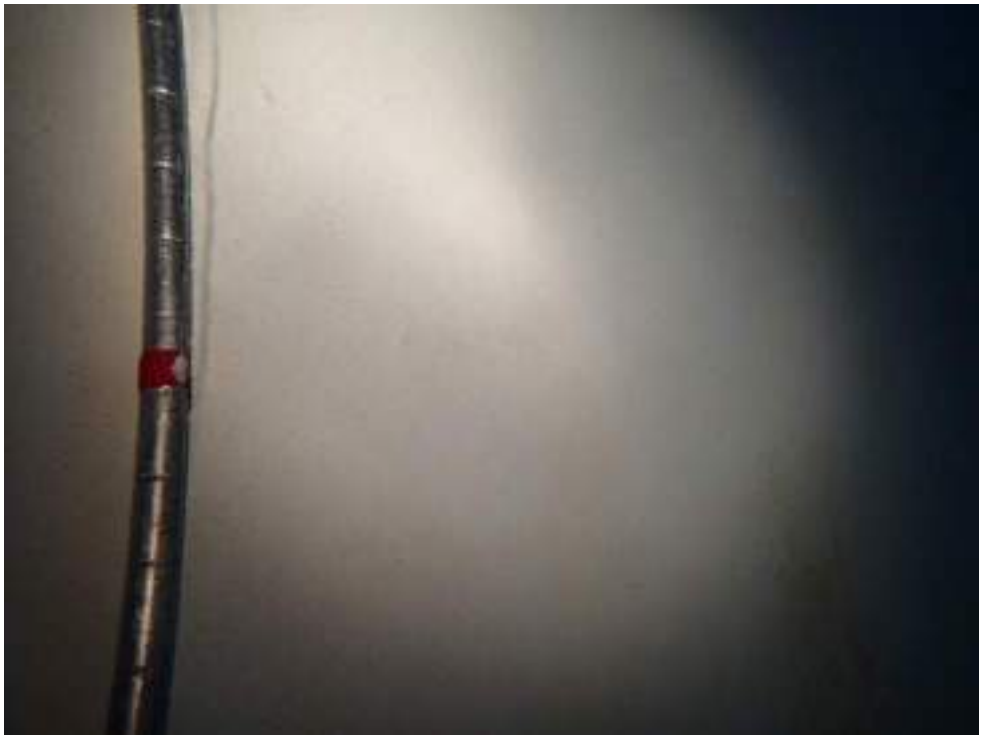
Tank #2

Image #**11** *Vent Screen Center* **Condition:** Rust Grade[1] **7.** **Description:** Fine Mesh Vent Screen appeared to be in good condition with a minor amount of corrosion.	
Image #**12** *Diver*	

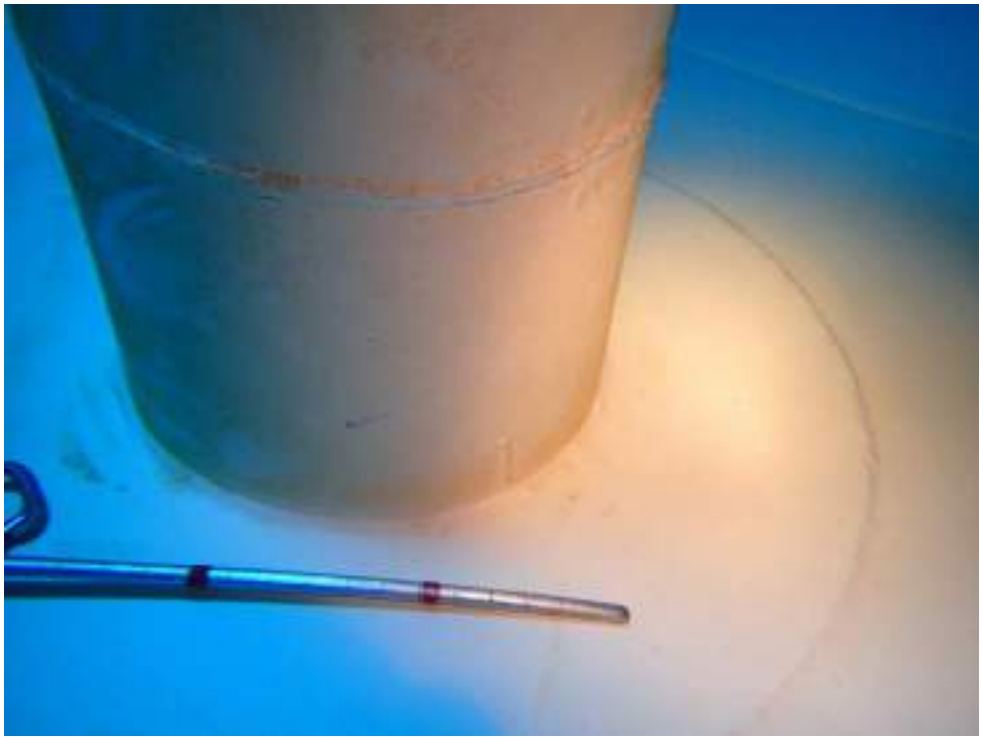
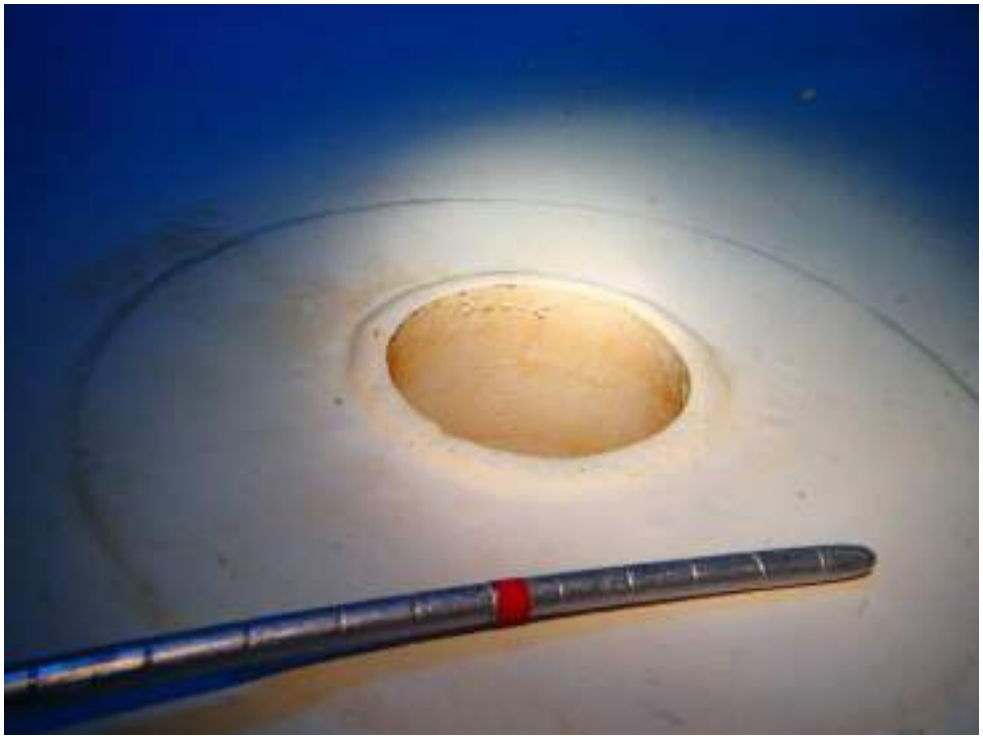
Tank #2

Image #**13** *Sediment* **Description:** 1/8” of sediment was removed from reservoir floor.	
Image #**14** *Interior Ladder 12:00* **Condition:** Rust Grade[1] **10**. **Description:** Interior Ladder appeared to be in good condition with no signs of corrosion.	

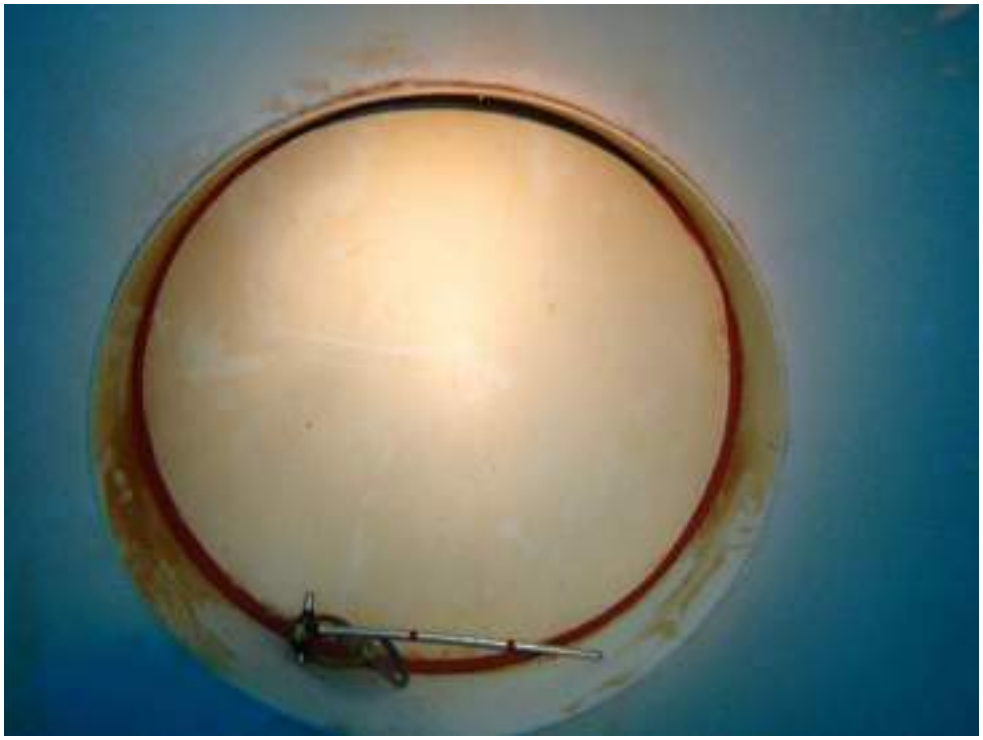
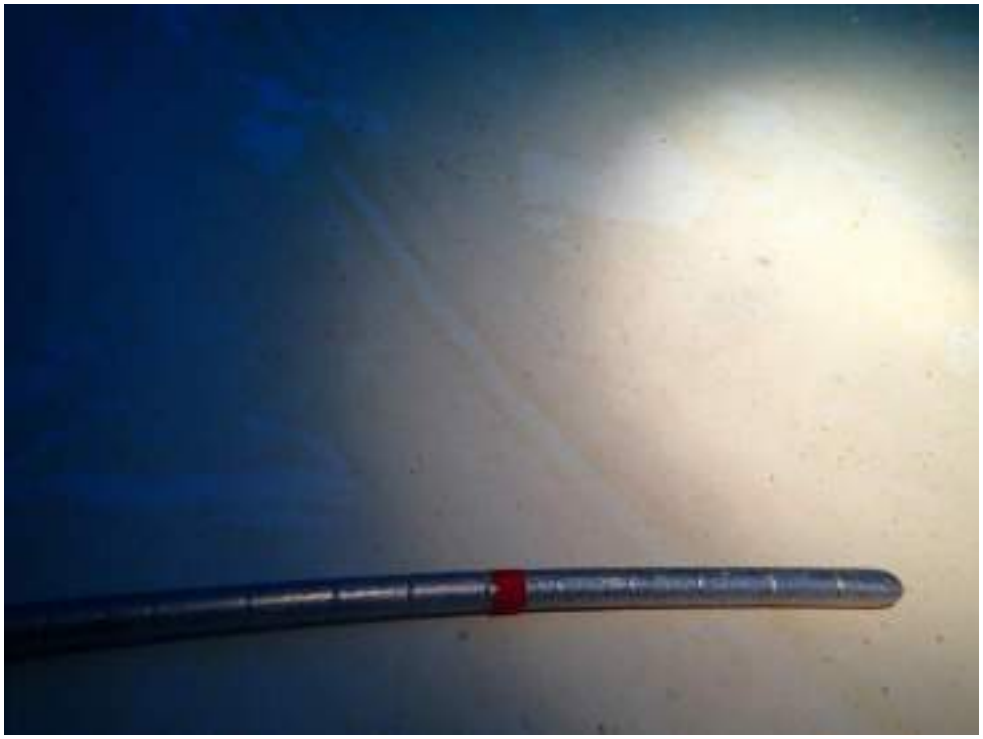
Tank #2

Image #**15** *Floor 12:00* **Condition:** Rust Grade[1] **10**. **Description:** Floor appeared to be in good condition with no signs of corrosion.	
Image #**16** *Wall 12:00* **Condition:** Rust Grade[1] **10**. **Description:** Wall appeared to be in good condition with no signs of corrosion.	

Tank #2

Image #**17** *Overflow 12:15* **Condition:** Rust Grade[1] **10**. **Description:** 16" Overflow appeared to be in good condition with no signs of corrosion.	
Image #**18** *Drain 12:30* **Condition:** Rust Grade[1] **10**. **Description:** 6" Drain appeared to be in good condition with no signs of corrosion.	

Tank #2

Image #**19** *Man Way 3:00* **Condition:** Rust Grade[1] **10**. **Description:** Man Way appeared to be in good condition with no signs of corrosion.	
Image #**20** *Floor 3:00* **Condition:** Rust Grade[1] **10**. **Description:** Floor appeared to be in good condition with no signs of corrosion.	

Tank #2

Image #**21** *Wall 3:00* **Condition:** Rust Grade[1] **10**. **Description:** Wall appeared to be in good condition with no signs of corrosion.	
Image #**22** *Floor 6:00* **Condition:** Rust Grade[1] **10**. **Description:** Floor appeared to be in good condition with no signs of corrosion.	

Tank #2

Image #**23** *Wall 6:00* **Condition:** Rust Grade[1] **10**. **Description:** Wall appeared to be in good condition with no signs of corrosion.	
Image #**24** *Man Way 9:00* **Condition:** Rust Grade[1] **10**. **Description:** Man Way appeared to be in good condition with no signs of corrosion.	

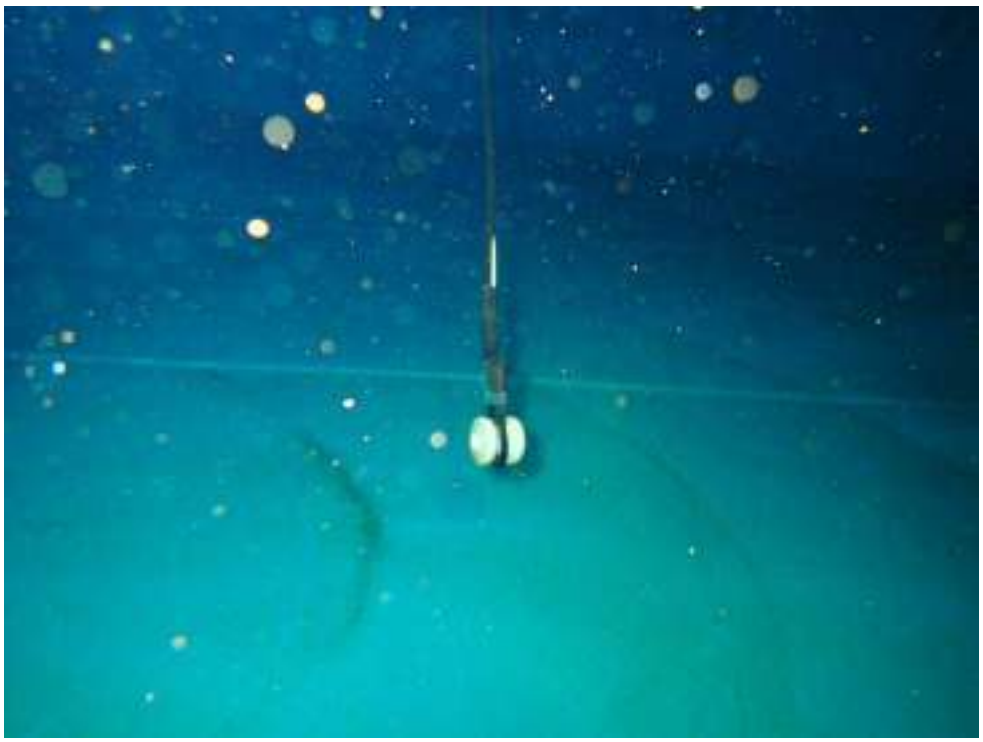
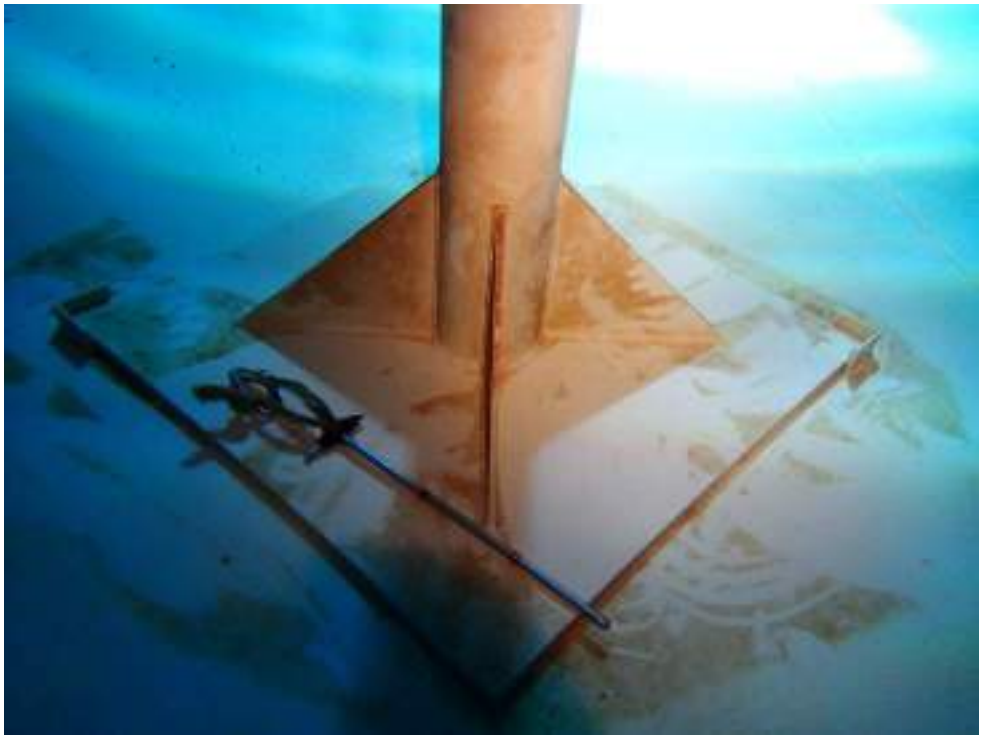
Tank #2

Image #**25** *Floor 9:00* **Condition:** Rust Grade[1] **10**. **Description:** Floor appeared to be in good condition with no signs of corrosion.	
Image #**26** *Wall 9:00* **Condition:** Rust Grade[1] **10**. **Description:** Wall appeared to be in good condition with no signs of corrosion.	

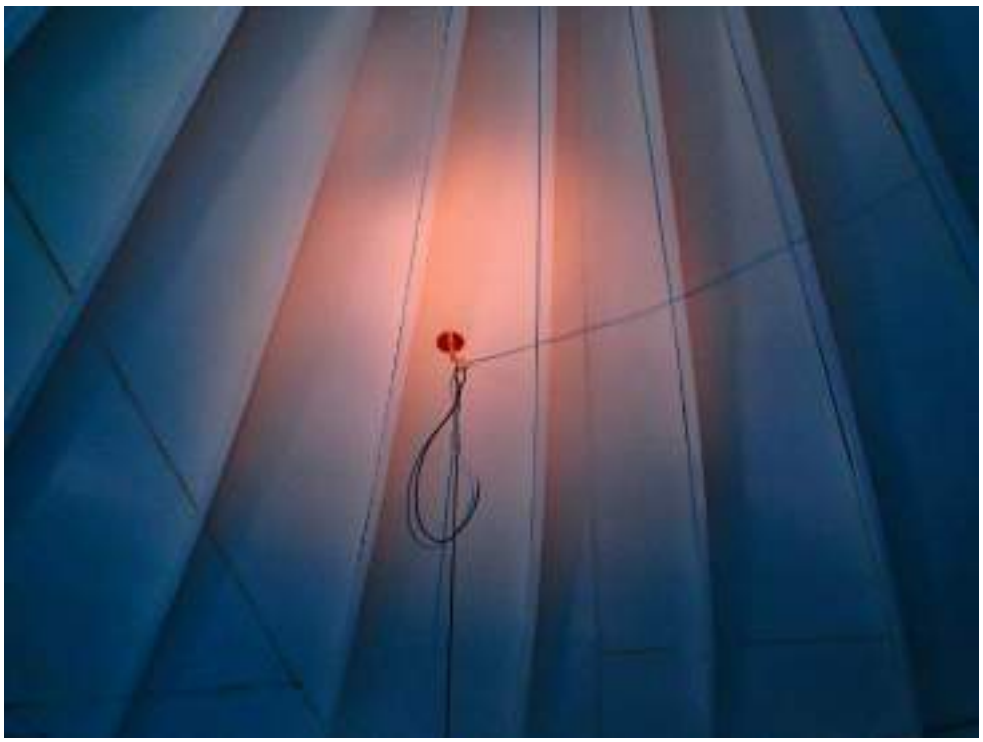
Tank #2

Image #**27** *Capped Off Penetration 10:00* **Condition:** Rust Grade[1] **10**. **Description:** 12" Capped Off Penetration appeared to be in good condition with no signs of corrosion.	
Image #**28** *Inlet / Outlet 10:30* **Condition:** Rust Grade[1] **10**. **Description:** 10" Inlet / Outlet appeared to be in good condition with no signs of corrosion.	

Tank #2

Image #**29** *Cathodic Protection Resistor 11:30* **Description:** Cathodic Protection Resistor appeared to be suspended properly and in good working condition.	
Image #**30** *Column Center* **Condition:** Rust Grade[1] **10**. **Description:** 6" Column appeared to be in good condition with no signs of corrosion.	

Tank #2

Image #**31** *Roof 12:00* **Condition:** Rust Grade[1] **10**. **Description:** Roof appeared to be in good condition with no signs of corrosion.	
Image #**32** *Roof 3:00* **Condition:** Rust Grade[1] **10**. **Description:** Roof appeared to be in good condition with no signs of corrosion.	

Tank #2

Image #**33** *Roof 6:00* **Condition:** Rust Grade[1] **10**. **Description:** Roof appeared to be in good condition with no signs of corrosion.	
Image #**34** *Roof 9:00* **Condition:** Rust Grade[1] **10**. **Description:** Roof appeared to be in good condition with no signs of corrosion.	

Tank #2

Image #**35** *Overflow 12:15* **Condition:** Rust Grade[1] **10**. **Description:** 24" Overflow Bell appeared to be in good condition with no signs of corrosion.	

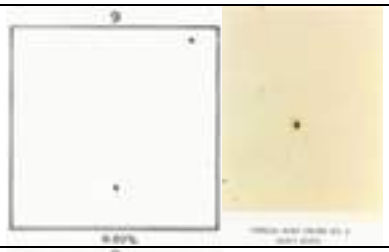
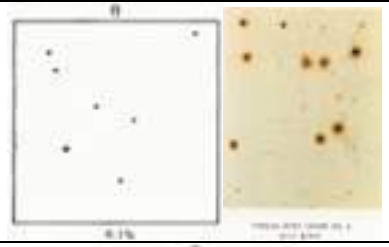
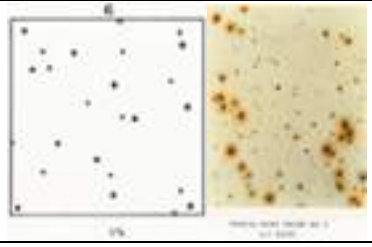
Tank #2

REFERENCES:

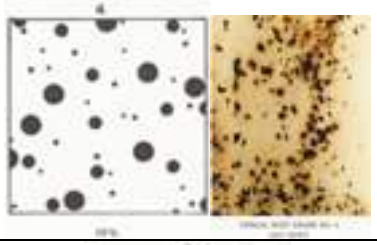
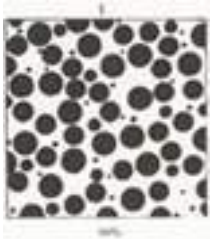
Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces – SSPC-Vis 2-82 & ASTM D 610-85 (1989)

The graphical representations show examples of area percentages, which may be helpful in rust grading. The use of photographical reference standards requires the following precautions:

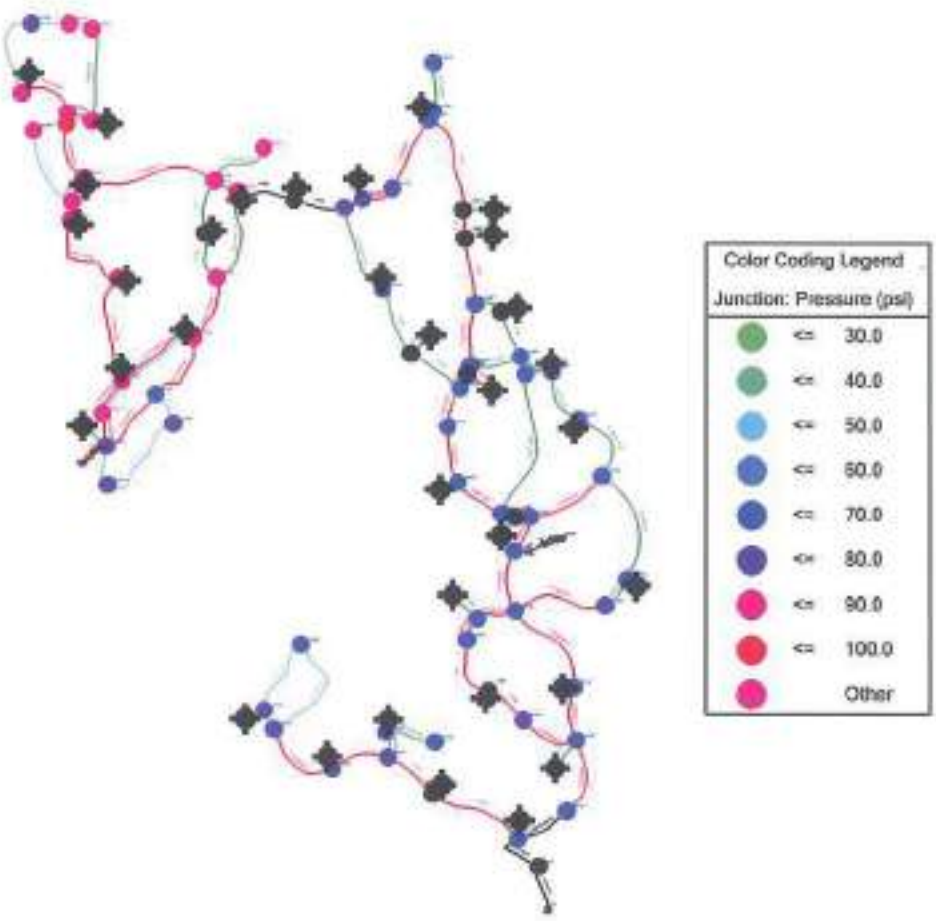
1. Some finishes are stained by rust. This staining must not be confused with the actual rusting involved.
2. Accumulated dirt or other material may make accurate determination of the degree of rusting difficult.
3. Certain types of deposited dirt that contain iron or iron compounds may cause surface discoloration that should not be mistaken for corrosion.
4. It must be realized that failure may vary over a given area and discretion must therefore be used in applying these reference standards.
5. In evaluating surfaces, consideration shall be given to the color of the finish coating, since failures will be more apparent on a finish that shows color contrast with rust, such as white, than on a similar color, such as iron oxide finish.
6. The photographic reference standards are not required for use of the rust-grade scale since the scale is based upon the percent of the area rusted and any method of assessing area rusted may be used to determine the rust grade.

Rust Grades	Description	Graphical Representation
10	No rusting or less than 0.01% of surface rusted	Unnecessary
9	Minute rusting, less than 0.03% of surface rusted	
8	Few isolated rust spots, less than 0.1% of surface rusted	
7	Less than 0.3% of surface rusted	
6	Extensive rust spots, but less than 1% of surface rusted	

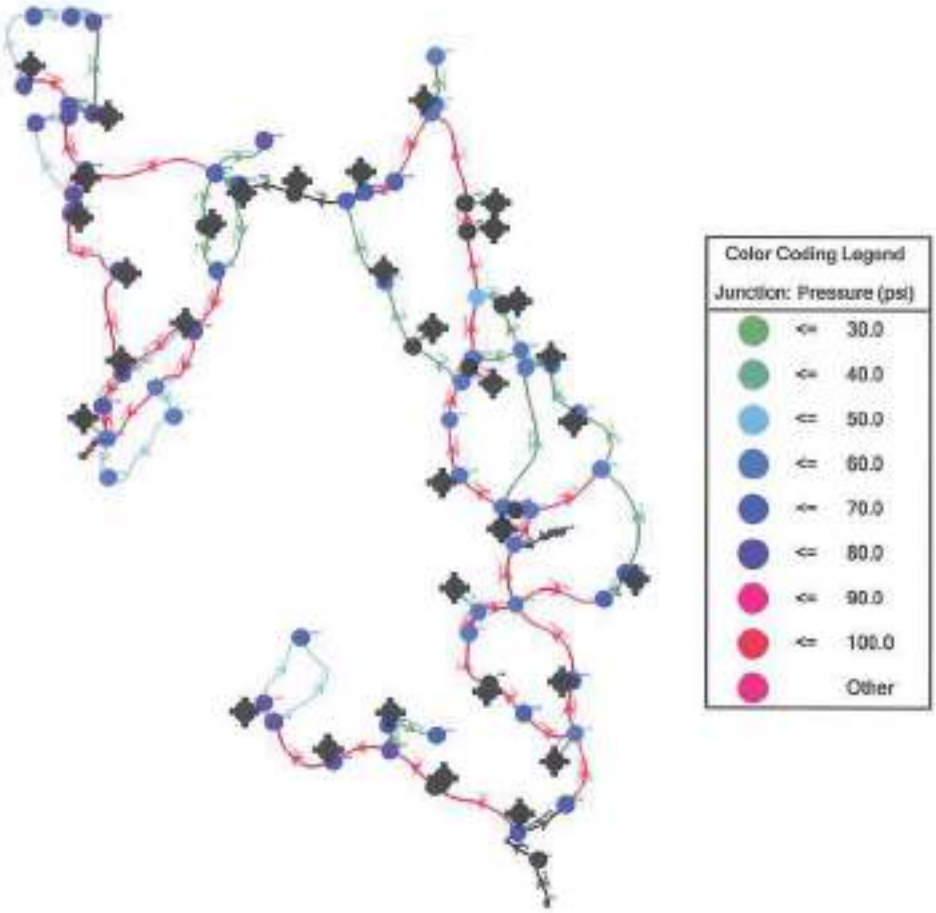
Tank #2

5	Rusting to the extent of 3% of surface rusted	
4	Rusting to the extent of 10% of surface rusted	
3	Approximately one sixth of the surface rusted (16%)	
2	Approximately one third of the surface rusted (33%)	
1	Approximately one half of the surface rusted (50%)	
0	Approximately 100% of the surface rusted	Unnecessary

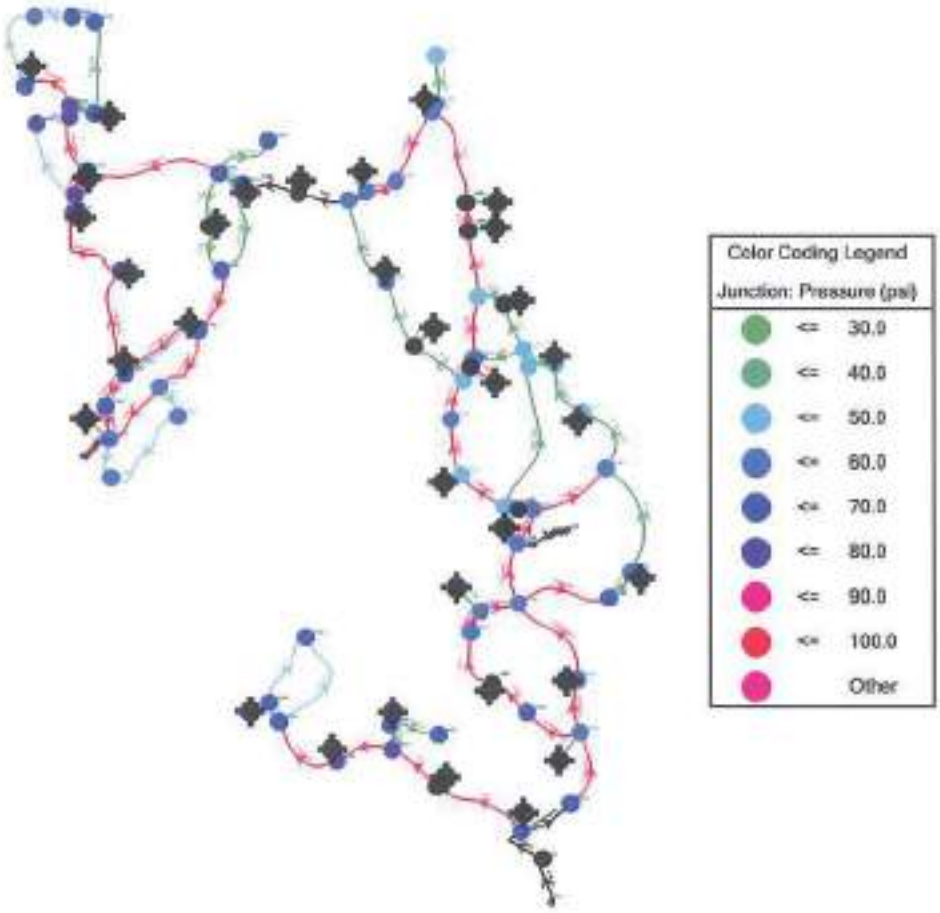
Scenario: No Demand



Scenario: PHD 2011 Fire Flow



Scenario: PHD Full Build Out Fire Flow



Fire Flow Peak Hourly Demand 2011

Hydrant	Flow Required gpm	Flow Available gpm	Fire Flow Met? Y/N	Required Residual Pressure psi	Calculated Residual Pressure psi	Required System Residual Pressure psi	Calculated System Residual Pressure psi	Node of System Residual Pressure psi
H-1	500	510.98	YES	20	31.1	20	20	J-01052
H-2	500	499.01	NO	20	20.5	20	20	J-01052
H-3	500	608.1	YES	20	23.4	20	20	H-17
H-4	500	559.03	YES	20	28.5	20	20	H-17
H-5	500	1,500.00	YES	20	48.2	20	34.6	H-17
H-6	500	510.81	YES	20	29.2	20	20.1	J-01052
H-7	500	510.72	YES	20	33.7	20	20.1	J-01052
H-8	500	509.43	YES	20	38.1	20	20.1	J-01052
H-9	500	506.17	YES	20	36.6	20	20	J-01052
H-10	500	538.5	YES	20	32.3	20	20	H-20
H-11	500	516.86	YES	20	29.8	20	20	J-01052
H-12	500	538.36	YES	20	22.9	20	20	H-20
H-13	500	538.34	YES	20	29	20	20	H-20
H-14	500	521.19	YES	20	21.5	20	20	H-20
H-15	500	547.99	YES	20	21.1	20	20	H-20
H-16	500	558.28	YES	20	25.9	20	20	H-17
H-17	500	536.2	YES	20	20	20	22.5	H-20
H-18	500	502	YES	20	34.5	20	20	J-01052
H-19	500	502.12	YES	20	34.7	20	20	J-01052
H-20	500	495.91	NO	20	20	20	22.7	J-83
H-21	500	615	YES	20	23.5	20	20	J-82
H-22	500	808.22	YES	20	20.6	20	20	H-17
H-23	500	586.9	YES	20	22.1	20	20	H-17
H-24	500	585.32	YES	20	20	20	21.1	H-17
H-25	500	709.19	YES	20	28.1	20	20	H-17
H-26	500	747.19	YES	20	20	20	22.8	J-13006
H-27	500	1,212.49	YES	20	20	20	20.5	J-09050
H-28	500	1,319.90	YES	20	23.9	20	20	J-13080
H-29	500	1,500.00	YES	20	24.9	20	28.2	J-85
H-30	500	1,006.69	YES	20	29.7	20	20	H-17
H-31	500	900.01	YES	20	31.5	20	20	H-17
H-32	500	862.37	YES	20	31.2	20	20	H-17
H-33	500	640.28	YES	20	25.4	20	20	H-17

Fire Flow Peak Hourly Demand Full Build Out

Hydrant	Flow Required gpm	Flow Available gpm	Fire Flow Met? Y/N	Required Residual Pressure psi	Calculated Residual Pressure psi	Required System Residual Pressure psi	Calculated System Residual Pressure psi	Node of System Residual Pressure psi
H-1	500	429.1	NO	20	32.2	20	20	J-01052
H-2	500	420.19	NO	20	20.6	20	20	J-01052
H-3	500	499.25	NO	20	23.6	20	20	H-17
H-4	500	456.59	NO	20	29	20	20	H-17
H-5	500	1,500.00	YES	20	46.7	20	30.1	H-17
H-6	500	428.88	NO	20	30.5	20	20.1	J-01052
H-7	500	428.97	NO	20	34	20	20.1	J-01052
H-8	500	428.04	NO	20	38.3	20	20	J-01052
H-9	500	425.59	NO	20	36.7	20	20	J-01052
H-10	500	439.65	NO	20	33.3	20	20	H-20
H-11	500	433.69	NO	20	30.3	20	20.1	J-01052
H-12	500	439.33	NO	20	23.8	20	20	H-20
H-13	500	439.55	NO	20	29.7	20	20	H-20
H-14	500	426.49	NO	20	22.1	20	20	H-20
H-15	500	447.76	NO	20	21.8	20	20	H-20
H-16	500	455.67	NO	20	26.4	20	20	H-17
H-17	500	440.74	NO	20	20	20	21.9	H-20
H-18	500	422.1	NO	20	34.6	20	20.1	J-01052
H-19	500	422.27	NO	20	34.7	20	20.1	J-01052
H-20	500	403.4	NO	20	20	20	22.7	J-83
H-21	500	512	YES	20	23.6	20	20	J-82
H-22	500	669.27	YES	20	23.9	20	20	H-17
H-23	500	479.72	NO	20	22.8	20	20	H-17
H-24	500	492.13	NO	20	20	20	20.1	H-17
H-25	500	582.04	YES	20	29.9	20	20	H-17
H-26	500	730.55	YES	20	20	20	22.8	J-13006
H-27	500	1,182.40	YES	20	20	20	20.4	J-09050
H-28	500	1,284.01	YES	20	23.9	20	20	J-13080
H-29	500	1,500.00	YES	20	23	20	26.3	J-85
H-30	500	841.4	YES	20	31.5	20	20	H-17
H-31	500	751.99	YES	20	32.9	20	20	H-17
H-32	500	721.43	YES	20	32.4	20	20	H-17
H-33	500	525.32	YES	20	25.8	20	20	H-17

Water Loss Control Action Plan

Clearwood Water System has an average DSL of 12.3% for the last three years (2014-2016). The goal is to reduce average DSL by less than 10%. This action plan identifies methods to implement to reach the average DSL goal.

Control Methods

Clearwood will use the following methods to reduce DSL:

1. If the quarterly DSL is greater than 10%, a leak detection service will be hired. Leak detection will continue until the quarterly DSL is less than 10%.

2. Source and service meters will continue to be read. Source meters are read daily and service meters are read quarterly. The system will monitor for significant discrepancies between consumed and produced water quarterly when the service meters are read. Service meters are installed on all system connections. Any new connections will be required to install service meters per the water system policies.

   Any authorized use should be recorded so the system has record of this usage.

3. Source meters will be checked for accuracy and if needed, replaced.

Schedule and Budget

The water system should plan on saving to fund both the leak detection service and if needed, repairs or replacement to their distribution system. These projects depending on the size will be funded through water system revenue or reserve accounts. Continual monitoring of source and service meters will be completed by the water system manager.

Water system users are billed on usage. If users have a significantly high billing that is unexpected (such as during winter) they should check for leaks on their property after their service meter.

Projects

Leak Detection
Target Date: 2020
Estimated Cost: $6,000
The system shall hire a service for leak detection throughout the distribution system. A target date of 2019 is estimated. For budgeting purposes, the detection service is estimated to be $6,000 every three years. However, as mentioned above the system should evaluate and address DSL leakage as needed quarterly. Leak detection should continue until the quarterly DSL is less than 10%.

Distribution Replacement
Target Date: 2033
Estimated Cost: 7 projects, system estimates $650,000 for each project, actual cost will vary
The distribution replacement schedule is in Table 8-2 in the 2016 WSP. If the community is replacing a road prior to the anticipated distribution replacement date, the system should replace the water main at that time to save costs.

Service Meter Replacement
Target Date: 2021
Estimated Cost: $800/meter
The system has completed Phases 1-5 of the service meter replacement and is in process of Phases 6-10.Table 8-3 in the WSP lists which community divisions are a part of which phase.

Concerns
There are no technical or economic concerns affecting the system's ability to implement the methods listed above. If it is found the entire distribution system needs replacement, this will be an economic concern. The water system should begin saving a reserve fund to replace their aging infrastructure as needed. The system may consider water conservation tips in customer wide mailings.

WAC 197-11-960 Environmental checklist.

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable: **Water System Plan (WSP) – 2017 Update**

2. Name of applicant: **Clearwood Water System**

3. Address and phone number of applicant and contact person:
Clearwood Water System
Attn: Albert Darrow
21603 N. Clearlake Blvd SE
Yelm, WA 98597
360-894-4187

4. Date checklist prepared: **1/25/2018**

5. Agency requesting checklist: **Washington State Department of Health**

6. Proposed timing or schedule (including phasing, if applicable):

Specific timing of various improvement projects is outlined in the Water System Plan. Funding or other factors may impact schedule.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.
Planned improvements over the next 20 years are included in the WSP. The WSP will be updated every 10 years and approved by DOH.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.
Clearwood Water System Plan, Skillings Connolly, Inc., 2011

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

There are no other known pending approvals affecting the water system.

10. List any government approvals or permits that will be needed for your proposal, if known.

Washington State Department of Health will review and approved the WSP. Washington State Department of Ecology and Pierce County will review relevant portions of the WSP.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The Clearwood WSP defines the service area, describes the water system facilities, and addresses future needs. The WSP also provides recommendations and a schedule of improvements to the system. Individual projects may require SEPA determination at that time.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The Clearwood Water System serves the entirety of the Clearwood plat and one additional parcel outside the Clearwood plat. Clearwood is located SE of Yelm in Thurston County, WA and serves the community surrounding 75% of Clear Lake. The system is located in Sections 31 and 32 of Township 16N Range 3E and Sections 5 and 6 of Township 15N Range 03E. The service area map is attached.

B. ENVIRONMENTAL ELEMENTS

1. **Earth**

a. General description of the site (circle one): Flat, **rolling**, **hilly**, steep slopes, mountainous,

b. What is the steepest slope on the site (approximate percent slope)?

This will be determined on a project specific basis.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.
According to the National Resources Conservation Service (NRCS) Soil Reports, the area is comprised of very stony sandy loam, Everett very gravelly sandy loam, and some Indianola loamy sand and Mukilteo muck.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.
This will be determined on a project specific basis.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.
This will be determined on a project specific basis.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.
This will be determined on a project specific basis.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?
This will be determined on a project specific basis.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:
This will be determined on a project specific basis.

2. **Air**

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.
This will be determined on a project specific basis.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.
This will be determined on a project specific basis.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:
This will be determined on a project specific basis.

3. **Water**

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.
Clearlake exists in the service area where the WSP update applies.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.
This will be determined on a project specific basis.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

This will be determined on a project specific basis.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

This will be determined on a project specific basis.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

This will be determined on a project specific basis.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

Yes, further discussion will occur on a project specific basis. The system currently uses ground water withdrawal to source the water system.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

This will be determined on a project specific basis. Onsite septic tanks are allowed and approved by Thurston County.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

This will be determined on a project specific basis.

2) Could waste materials enter ground or surface waters? If so, generally describe.

Existing facilities do not discharge waste materials to the ground or surface water. Future discharge will be determined on a project specific basis.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Notification of wellhead protection area letters have been sent to home owner's within the 10-year groundwater radii. Public Education is provided to the community for proper disposal of potential groundwater contaminants.

4. **Plants**

a. Check or circle types of vegetation found on the site:

———— deciduous tree: **alder, maple**, aspen, other

———— evergreen tree: **fir, cedar, pine**, other

———— **shrubs**

———— **grass**

———— pasture

———— crop or grain

———— wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

———— water plants: water lily, eelgrass, milfoil, other

———— other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

This will be determined on a project specific basis.

c. List threatened or endangered species known to be on or near the site.

None known

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

This will be determined on a project specific basis.

5. **Animals**

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: **hawk**, heron, **eagle**, songbirds, other:
mammals: **deer**, bear, elk, beaver, other:
fish: **bass, salmon, trout**, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

None known.

c. Is the site part of a migration route? If so, explain.

None known

d. Proposed measures to preserve or enhance wildlife, if any:

This will be determined on a project specific basis.

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

This will be determined on a project specific basis.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

This will be determined on a project specific basis.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

This will be determined on a project specific basis.

7. **Environmental health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and wxplosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

None known.

1) Describe special emergency services that might be required.

This will be determined on a project specific basis.

2) Proposed measures to reduce or control environmental health hazards, if any:

This will be determined on a project specific basis. A safety plan will likely be in place prior to any construction.

b. **Noise**

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

This will be determined on a project specific basis.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

This will be determined on a project specific basis. Construction activities may produce temporary noise.

3) Proposed measures to reduce or control noise impacts, if any:

This will be determined on a project specific basis.

8. **Land and shoreline use**

a. What is the current use of the site and adjacent properties?

This will be determined on a project specific basis.

b. Has the site been used for agriculture? If so, describe.

This will be determined on a project specific basis.

c. Describe any structures on the site.

This will be determined on a project specific basis.

d. Will any structures be demolished? If so, what?

This will be determined on a project specific basis.

e. What is the current zoning classification of the site?

Residential, 2 units per 1 acre

f. What is the current comprehensive plan designation of the site?

This will be determined on a project specific basis.

g. If applicable, what is the current shoreline master program designation of the site?

This will be determined on a project specific basis.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

None known.

i. Approximately how many people would reside or work in the completed project?

This will be determined on a project specific basis.

j. Approximately how many people would the completed project displace?

None anticipated. This will be determined on a project specific basis.

k. Proposed measures to avoid or reduce displacement impacts, if any:

This will be determined on a project specific basis.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

This will be determined on a project specific basis.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

This will be determined on a project specific basis.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

This will be determined on a project specific basis.

c. Proposed measures to reduce or control housing impacts, if any:

This will be determined on a project specific basis.

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

This will be determined on a project specific basis.

b. What views in the immediate vicinity would be altered or obstructed?

This will be determined on a project specific basis.

c. Proposed measures to reduce or control aesthetic impacts, if any:

This will be determined on a project specific basis.

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

This will be determined on a project specific basis.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

This will be determined on a project specific basis.

c. What existing off-site sources of light or glare may affect your proposal?

This will be determined on a project specific basis.

d. Proposed measures to reduce or control light and glare impacts, if any:

This will be determined on a project specific basis.

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?

Hiking, fishing, and boating.

b. Would the proposed project displace any existing recreational uses? If so, describe.

This will be determined on a project specific basis.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

This will be determined on a project specific basis.

13. **Historic and cultural preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

None known.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

None known.

c. Proposed measures to reduce or control impacts, if any:

None required.

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Existing streets are privately owned. Access will be coordinated with Clearwood Community Association.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

No. Approximately 10 miles.

c. How many parking spaces would the completed project have? How many would the project eliminate?

This will be determined on a project specific basis.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

This will be determined on a project specific basis.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

This will be determined on a project specific basis.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

This will be determined on a project specific basis.

g. Proposed measures to reduce or control transportation impacts, if any:

This will be determined on a project specific basis.

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

No.

b. Proposed measures to reduce or control direct impacts on public services, if any.

None required.

16. **Utilities**

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

This will be determined on a project specific basis.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

This will be determined on a project specific basis.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: .....

Date Submitted: .....

Figure **Error! No text of specified style in document.**-1 Clearwood Service Area

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment. When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?
   The proposal is not likely to cause an increase in any of these.

Proposed measures to avoid or reduce such increases are:
Does not apply.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?
   The proposal is not likely to affect plants, animals, fish, or marine life.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:
Does not apply.

3. How would the proposal be likely to deplete energy or natural resources?
   The proposal would not deplete energy or natural resources.

Proposed measures to protect or conserve energy and natural resources are:
The WSP update contains conservation measures related to water use.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, flood plains, or prime farmlands?
   The proposal is not likely to affect any of these.

Proposed measures to protect such resources or to avoid or reduce impacts are:
Does not apply.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?
   The proposal is not likely to affect land and shoreline use.

Proposed measures to avoid or reduce shoreline and land use impacts are:
Does not apply.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?
   The proposal will not increase demands on transportation or public services. Total water system demand may increase as a result of additional active connections. As this time, the system does not have the capacity to add connections until their new water sources are approved.

Proposed measures to reduce or respond to such demand(s) are:
Water conservation measures are provided to customers.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.
   The WSP is consistent with WAC 246-290-100