GARRISON ENGINEERING

Randy Barry 4/12/23
Driftwood Heights Association
PMB 219
Camano Island, WA 98282

Re: Water System Improvements

Randy:

Garrison Engineering understands that you would like to consider upgrades to the Driftwood Shores Group A public water system. We are grateful for another chance to serve your organization and offer the following.

System Overview:

The existing Driftwood Heights Water System (DHWS) serves 114 lots and is permitted to serve a total of 116. The system is located along the following streets: Margie Ann Drive, Patricia Ann Drive, Hawthorne Lane, Terry Ann Drive, Vesper Way, East Camano Drive, and Lehman Drive, all near the east shore of Camano Island. The source of water for the system is a drilled well located along Hawthorne Lane approximately 1,000' from the shore of the Island. The current maximum pumping rate of the existing well is limited to 200 gpm by an existing water right. There is no current threat of seawater intrusion for the source well at this time.

Water is pumped from the well into two 40,000-gallon concrete storage tanks. One is a cast in place concrete tank with flat sides and the other is a cast in place round tank.

The distribution system is divided up into two pressure zones. The upper pressure zone is currently served by two booster pumps and a 1,050-gallon hydro-pneumatic pressure tank. The two booster pumps in use are:

- Goulds G&L Series SSV, Model 3SVC1J2D4, 5-hp
- Berkeley Model B1-1-1/2 ZPLS, 10-hp booster pump with a 7.875" impeller diameter

The lower pressure zone is served by the same booster pumps and hydro-pneumatic pressure tank, plus two pressure reducing valves to regulate the downstream pressure. It is understood that occasionally during periods of high use, the upper zone loses some of its pressure. This would indicate that even though the pumps are sized to adequately provide the State Health mandated amount of flow, your use profile exceeds this amount at times. The solution for this issue is to reduce irrigation flow or by adding one more booster pump. It is likely that if you alternate days when you allow irrigation based on even or odd addresses for the upper zone, you can effectively manage the pressure issue without upgrading the pumps.

The original distribution system was built in the early 1970's and it is believed to be a combination of 2, 3, and 4" PVC and asbestos cement pipe. Over the years, some leaks have occurred in the distribution system piping. Most recently, three leaks in Vesper

Drive. A 2" section of pipe was added at a later date to loop the pipes in Margie Ann Drive with Patricia Ann Drive to improve the pressure and flow for the homes at the highest elevations of the lower pressure zone.

The booster pumps and the relatively small diameter of the distribution piping does not allow for fire hydrants to be installed for fire protection. The minimum size pipe for connection to a fire hydrant is 6".

It is understood that the existing system has experienced unsatisfactory bacteriological samples intermittently in the past, and a previous project to change the flow through the two storage tanks in series vs. parallel arrangement helped alleviate that issue.

Recommendation to Consider:

Our recommendation is to plan to update/replace all of the pipelines in the system, provide fire flow, hydrants, fittings, blow offs, and valves to bring the system up to a municipal standard of operation. We believe your storage tanks are adequate in size for the foreseeable future.

Pipe Replacements:

It is understood that the pipes in the system are now approximately 60+ years old. It is possible/likely that over the next several years you will begin to have an increase in pipe breaks causing an increase in ongoing repair requirements. Furthermore, Lehman Drive and Vesper Way are the highest risk pipelines as the pressure is the greatest in these two parts of the system.

Thus, replacing these two pipelines is your highest priority. It is understood that Vesper Way has asbestos cement pipe, and if you have to choose between the two, the pipe in Vesper Way should come first.

If you replace the pipes in the distribution system, we recommend increasing the diameter to support fire protection. The minimum fire flow for Camano Island is 500 gallons per minute for 30 minutes. However, for homes over 4,000 sf, the fire flow rating is 750 gpm for 60 minutes. Fortunately, you appear to have the existing stored volume to meet either fire flow demand. To accommodate 750 gpm, an 8" dia. HDPE pipe is recommended. Where we are able to loop the pipes for Margie Ann Drive and Patricia Ann Drive, the diameter can be reduced to 6" dia., as water can travel from two directions to a single hydrant and meet the 750 gpm requirement.

Fire Flow:

To provide fire flow we recommend a 750 gpm diesel driven fire pump to operate in tandem with your domestic electric pumps.

Budget:

We have prepared two proposed budgets for your project (attached). They are for the same basic scope of work but projected with two different low interest loan programs. The budget is our best available cost projection based on recommended upgrades and current prices for these types of tasks. We have added approximately 15% for future

inflation and have a 20% contingency built into the budget. We like to aim high when budgeting as it is much easier to not borrow the full budget compared to asking for assessments to cover an over-budget project. There are two budget sheets for your review and comparison.

Financing:

We have assumed that you will be borrowing money from one of two available low interest loan programs. The first and lowest cost program is the Drinking Water State Revolving Fund (DWSRF) loan program. This is a State-run program, and it has a 20 year term and the lowest interest rates available. We don't know what the interest rates will be next year, but we have assumed a 1-point loan fee and 2.75% interest rate. To apply for this program, you should be "shovel ready". The application process is once per year in October. Thus, the earliest you can be prepared for this loan cycle is October of 2024. Additionally, there is no guarantee that you will get full funding. It is possible to get full, partial, or no funding depending on the availability of dollars in the program for the year that you apply. We typically suggest that you should be prepared to apply for at least two consecutive years when applying for this loan option. If unsuccessful, you can switch to the second loan option.

The second loan program is federal and is known as the USDA Rural Development (USDA) program. It has a 40-year term and slightly higher interest rates. The USDA loan program also requires interim bank financing during construction (approximately 1 year) which would be at market lending rates for this brief time period. This program also has additional approvals that add value of approximately 1% of construction costs to the engineering costs. The projected interest rates are calculated as follows:

Interim financing is projected to be a 2-point loan fee and 7% interest for one year. After the system has been constructed and accepted, the USDA will refinance at approximately 4% interest for a 40-year term. The actual interest percentages will vary.

The projected cost per connection for the different loan options are presented in the attached summary sheet.

Recommended Funding Hierarchy:

In general, we suggest this hierarchy when considering these two loan programs.

1. If you can use the DWSRF program for everything in one phase, that is the least expensive option overall. However, it is the highest monthly payment option for each homeowner.
2. If you can't afford to do the DWSRF program in one phase, but you can afford the USDA program in one phase due to its 40-year term, that is the next best option.
3. If you must break the project into two phases, then use the DWSRF program if you feel you can afford to do at least ½ of the project in each phase. The more you can do in the first phase the easier it will be to get the second phase done in 20 years.
4. If you must use the USDA program in two phases, this stretches the project to 80 years and is the most expensive option accounting for interest payments and inflation for the second phase. Additionally, you will undoubtably have pipe

repairs over the next 40 years to the pipes that don't get replaced in the first phase.

Conclusion:

It is Garrison Engineering's opinion that as your system ages, your repair costs will continue to rise. The cost to repair your system may become more than the loan fees associated with system replacement. The sooner you can begin replacing the system, the more you will save in lost monies for repairs, inflation, and interest.

If you feel that the proposed budget is just too high, we can re-work the numbers without the larger pipe sizes and without the fire protection. Please understand that if you take this approach, you won't be able to add fire flow in the future without replacing the pipes again. For this reason, we think it prudent to work toward a system that can provide 750 gpm fire flow regardless of whether you have to phase the construction due to limited financial resources.

It is recommended to check with your insurance providers to see if you can get a lower homeowner policy rate if fire protection is in place. This may help you justify your loan fees.

If you have any questions or would like additional information, please contact me anytime. I look forward to discussing the options with you.

Best regards,

Carl Garrison, PE
President

Date Signed: 04/12/2023

Driftwood Heights Water System
DWSRF Loan Cost Projection
4/12/2023
By: Carl Garrison, PE - Garrison Engineering

Cost projection for Pipe Replacement				
		Quantity	Rate	Cost
Planning and Consulting				
SWSMP		1	$ 30,000.00	$ 30,000.00
Consulting, coordination with agencies, meetings, etc		1	$ 25,000.00	$ 25,000.00
Design of pipe replacement with project report		1	$ 40,000.00	$ 40,000.00
Surveying using LIDAR Topo		1	$ 35,000.00	$ 35,000.00
DWSRF Loan and Grant Assistance		1	$ 15,000.00	$ 15,000.00
Inspection and Project Closeout		1	$ 15,000.00	$ 15,000.00
DOH Review Fees		1	$ 2,500.00	$ 2,500.00
Electrical Engineering		1	$ 50,000.00	$ 50,000.00
Contingency		1	$ 25,000.00	$ 25,000.00
Legal and audit		1	$ 10,000.00	$ 10,000.00
Planning and Consulting Subtotal				**$ 247,500.00**
Construction				
Mobilization			8% of Const	$ 136,000.00
8" Pipeline from Tanks to Highway along E. Terry Ann	1275	115	$/lf	$ 146,625.00
8" Pipeline - Lehman	1530	115	$/lf	$ 175,950.00
8" Bore under E. Camano Dr	100	350	$/lf	$ 35,000.00
8" Pipeline - S. Vesper	1640	115	$/lf	$ 188,600.00
6" Pipeline - S. Patricia Ann	1230	95	$/lf	$ 116,850.00
6" S. Margie Ann	1375	95	$/lf	$ 130,625.00
6" Loop to connect SMA to SPA	300	95	$/lf	$ 28,500.00
8" Hawthorne Ln	2055	115	$/lf	$ 236,325.00
6" Valves	3	2000	$/each	$ 6,000.00
8" Valve	3	3000	$/each	$ 9,000.00
Fire Hydrants (Every 600') - Lehman	3	11000	$/each	$ 33,000.00
Fire Hydrants S. Vesper	3	11000	$/each	$ 33,000.00
Fire Hydrants S. Patricia Ann	4	11000	$/each	$ 44,000.00
Fire Hydrants E Terry Ann	0	11000	$/each	$ -
Fire Hydrants S. Margie Ann	3	11000	$/each	$ 33,000.00
Fire Hydrants Hawthorne Ln	3	11000	$/each	$ 33,000.00
Extra for 6" Road Bores	2	15000	$/each	$ 30,000.00
Extra for 8" Road Bores	2	20000	$/each	$ 40,000.00
Building modifications to remove pressure tank, add cooling ventilation, and make space for generator	119	200	$/SF	$ 23,800.00
Electrical equipment and install	1	Lump sum	$ 125,000.00	$ 125,000.00
2 New 5 Hp pumps VFD's	2	Each	$ 15,000.00	$ 30,000.00
VFD for existing 5 hp vertical pump	1	Each	$ 4,000.00	$ 4,000.00
New piping header, pressure tanks, and fittings inside buildings	1	Lump sum	$ 10,000.00	$ 10,000.00
Diesel Fire Pump		1	$ 125,000.00	$ 125,000.00
Misc.		1	$ 30,000.00	$ 30,000.00
Construction Subtotal				**$ 1,803,275.00**
Subtotal of Planning, Consulting and Construction				**$ 2,050,775.00**
Loan fee at 1% for DWSRF				$ 20,507.75
Tax on construction		0.079		$ 156,884.93
Contingency		0.2		$ 410,155.00
Total ROM Costs				**$ 2,638,322.68**

Planning and Consulting fee check as a % of construction **12%**

Driftwood Heights Water System
USDA Loan Cost Projection
4/12/23
By: Carl Garrison, PE - Garrison Engineering

Cost projection for Pipe Replacement				
		Quantity	Rate	Cost
Planning and Consulting				
SWSMP		1	$ 30,000.00	$ 30,000.00
Consulting, coordination with agencies, meetings, etc		1	$ 25,000.00	$ 25,000.00
Design of pipe replacement with project report for WSDOH		1	$ 40,000.00	$ 40,000.00
Surveying using LIDAR Topo		1	$ 35,000.00	$ 35,000.00
Project report for USDA		1	$ 20,000.00	$ 20,000.00
USDA and Interim financing Loan Assistance		1	$ 15,000.00	$ 15,000.00
Inspection and Project Closeout		1	$ 20,000.00	$ 20,000.00
DOH Review Fees		1	$ 2,500.00	$ 2,500.00
Electrical Engineering		1	$ 50,000.00	$ 50,000.00
Contingency		1	$ 25,000.00	$ 25,000.00
Legal and audit		1	$ 10,000.00	$ 10,000.00
Planning and Consulting Subtotal				$ 272,500.00
Construction				
Mobilization			8% of Const	$ 136,000.00
8" Pipeline from Tanks to Highway along E. Terry Ann	1275	115	$/lf	$ 146,625.00
6" Pipeline - Lehman	1530	115	$/lf	$ 175,950.00
8" Bore under E. Camano Dr	100	350	$/lf	$ 35,000.00
6" Pipeline - S. Vesper	1640	115	$/lf	$ 188,600.00
6" Pipeline - S. Patricia Ann	1230	95	$/lf	$ 116,850.00
6" S. Margie Ann	1375	95	$/lf	$ 130,625.00
6" Hawthorne Ln	2055	95	$/lf	$ 195,225.00
2" Patricia Ann Spur	400	40	$/lf	$ 16,000.00
6" Valves	3	2000	$/each	$ 6,000.00
8" Valve	3	3000	$/each	$ 9,000.00
Hot tap, new meter, and service line from main to meter	65	1500	$/Each	$ 97,500.00
Fire Hydrants (Every 600') - Lehman	3	11000	$/each	$ 33,000.00
Fire Hydrants S. Vesper	3	11000	$/each	$ 33,000.00
Fire Hydrants S. Patricia Ann	4	11000	$/each	$ 44,000.00
Fire Hydrants E Terry Ann	0	11000	$/each	$ -
Fire Hydrants S. Margie Ann	3	11000	$/each	$ 33,000.00
Fire Hydrants Hawthorne Ln	3	11000	$/each	$ 33,000.00
Extra for 6" Road Bores	2	15000	$/each	$ 30,000.00
Extra for 8" Road Bores	2	20000	$/each	$ 40,000.00
Building modifications to remove pressure tank, add cooling ventilation, and make space for generator	119	200	$/SF	$ 23,800.00
Electrical equipment and install	1	Lump sum	$ 125,000.00	$ 125,000.00
2 New 5 Hp pumps VFD's	2	Each	$ 15,000.00	$ 30,000.00
VFD for existing 5 hp vertical pump	1	Each	$ 4,000.00	$ 4,000.00
New piping header, pressure tanks, and fittings inside buildings	1	Lump sum	$ 10,000.00	$ 10,000.00
Diesel Fire Pump		1	$ 125,000.00	$ 125,000.00
Misc.		1	$ 30,000.00	$ 30,000.00
Construction Subtotal				**$ 1,847,175.00**
Subtotal of Planning, Consulting and Construction				**$ 2,119,675.00**
Loan fee at 2% for USDA Interim Finanicing				$ 42,393.50
Interim Financing for 1 year at 7%				$ 148,377.25
Tax on construction		0.079		$ 160,704.23
Contingency		0.2		$ 423,935.00
Total ROM Costs				**$ 2,895,084.98**

Planning and Consulting fee check as a % of construction **13%**

Driftwood Heights
Loan Costs Per Residence Per Month
4/12/23
By: Carl Garrison, PE of Garrison Engineering
Cost per connection for 114 connections

SRF	Term	20	240	Months
	Interest	2.75%		
USDA	Term	40	480	Months
	Interest	4.00%		

	Cost	Lots	Cost per lot in total	Cost per lot per month
SRF	$ 2,638,322.68	114	$ 23,143.18	$125.47
USDA	$ 2,895,084.98	114	$ 25,395.48	$106.14