PRELIMINARY

MERRY MOUNTIAN HOME OWNERS ASSOCIATION

ENGINEERS RECOMMENDATIONS

For

SYSTEM EXPANSION & UPGRADES

BUTTE COUNTY
CALIFORNIA

PREPARED BY OR UNDER THE SUPERVISION OF

NORTHSTAR ENGINEERING
Ross Simmons, P.E.
November, 2007

ENGINEERS RECCOMMENDATIONS
MERRY MOUNTAIN HOME OWNERS ASSOCIATION

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I. BACKGROUND:

The Merry Mountain Home Owners Association supplies domestic and fire protection water for the Merry Mountain Village Subdivision Units No. 1, 2, 3, & 4 as recorded in Book 34 pages 17-19, Book 35 pages 32-34 & 76-77, and Book 38 pages 95-96 of the Butte County Maps of Record. The service area is comprised of a total of 159 lots on approximately 80 acres not including roads or nature areas. To date 90 of the lots have been developed into a mix of full time residents and vacation homes. The service area is located in Clipper Mills just north of La Porte road in Butte County. Neighboring parcels include a very limited number of private homes on large lots on individual wells, these are unlikely to request service from the system due to main extension costs versus new single family well construction costs. The nearest public system is at Woodleaf approximately 3 miles to the southeast, a cross connection to this system is infeasible given elevation changes and cost.

The original water system was installed between 1965 & 1971 for the Merry Mountain Subdivision and included both wells #1 (1965) and #2a (1971) as well as their associated storage tanks, pump houses and pressure system. It is not known when pump house equipment upgrades occurred but it is likely the booster pumps were replaced at least once during this time. Sometime after 1986 an attempt was made to deepen well #2a, this failed and a new deeper well #2 was drilled a short distance from the original one. In 2000 well #3 was drilled in the vicinity of well #1. Well #3 tested positive for both fecal coliform multiple times and has been disconnected from the system. Another well (#4) was completed in 2007 also near well #1; this well was put into service in May.

Maintenance and operation of the system has been provided by employee/residents of the homeowners association. Craig Poundstone is the current certified Distribution Operator on record at the county for the system and has been handling basic repairs and water sampling.

This report has been required by the County Environmental Health Department and is intended to describe the water systems components, source capacity, storage capabilities, maximum delivery, managerial needs, and provide upgrade recommendations. System information is a compilation of records at the county, records from the water provider, and a site visit preformed on 10/10/07.

II. EXISTING SYSTEM DESCRIPTION:

A. EXISTING SOURCE CAPACITY

The California Waterworks Standards (Chapter 16 of Title 22 California Code of Regulations) (updated Feb 6, 2007) defines the requirements of a public water system. All analysis and design of the system upgrades are to be completed to these standards. Actual project construction is to conform to The American Water Works Association (AWWA) standards for construction of water systems.

Currently revisions to the California Waterworks Standards are working their way through legislation as R-14-03. The October, 2007 revision text has been reviewed and all proposed system upgrades recommended are in compliance with these proposed changes. There is no guarantee that the recommended system will meet the revised standards upon legislative approval or that the revisions will not significantly change prior to passing.

The design data for this system are shown below.

Residential Connections (single family homes 1/3 Acre lots)
Existing Res. Connections ---------- 95
Future Res. Connections ---------- 64
Total services at buildout ---------- 159

Required Source Capacity

Maximum Day Demand (MDD) is determined based on existing water system records from flow meters installed on wells #1, #2, & #4 in May 2007. The average use per day during the period from 10/10/07 to 11/17/07 was recorded at 286 gallons per service and using a peaking factor of 3.00 the **MDD = 81,640 gallons/day or 57 GPM**. Using the existing use data and projecting it to buildout obtains a **Future MDD of 136,640 gallons/day or 95 GPM**. Peak Hour Demand (PHD) uses a 1.5 factor above the average MDD = (81,640 / 24) * 1.5 = 5,100 gallons/hour, equaling **85 GPM or 142 GPM (future)**. Per the proposed California Waterworks Standards systems using only ground water shall have a minimum of two sources and shall be able to meet the MDD with the highest capacity source off-line.

Existing Source Capacity

-Existing well #1 Production ---------- 45 GPM
-Existing well #2 Production ---------- 45 GPM
-Existing well #4 Production ---------- 20 GPM

-Total Existing Well Production ---------- 110 GPM
Total production in one day = 158,400 gallons

The system source capacity currently meets the proposed state code by supplying the MDD with its highest capacity well off-line. **No additional source capacity is needed at this time.**

B. EXISTING STORAGE VOLUME

Required Storage Volume

From Title 22 Chart 3 Flat Rate system storage requirements for 159 services is approximately 200,000 gallons. Per the proposed California Waterworks Standards, systems with less than 1,000 connections should have storage at least equal to their MDD, meaning the system should have a total minimum storage volume of 82,000 gallons now and s projected 140,000 gallons future. Additional storage would be required to meet minimum fire flow requirements of 1000 gpm for 2 hours, totaling 120,000 gallons.

Current well production exceeds max day demand but in the future if well production is not increased there could be deficit that will need to be made up in storage. It is recommended that even though currently only 120,000 gallons (minimum for fire flow) of storage is required that the owners look at installing between **140,000 & 160,000 gallons of storage** to provide a current level of safety and for the future buildout.

Existing Storage Volume

-Existing Bolted Steel Tank at Well #1 ---------- 65,000 g
-Existing Redwood Tank at Well #2 ---------- 10,000 g
-Total Existing Storage Volume ---------- 75,000 g

C. EXISTING WELLS

Well #1 was constructed in 1965 by Jack Dunn, Inc, to a total depth of 108' (see map in appendix for location). A well data sheet is included in the appendix. According to the data sheet well #1 has a 6" casing with perforations from 46' to 86', is gravel packed, has an annular seal to 37', and has a well drillers yield of 50 GPM. The current static water level is approximately XX' and no historical levels have been found. Residents can recall times when this well temporarily broke suction due to over pumping. Currently a 3 HP (or 5 HP) submersible pump is installed in the well capable of approximately 45 GPM, the age of the pump is unknown as well as its depth in the well. According to operator records this well has tested positive for total coliform twice and fecal coliform once from May 2003 to February 2005, no additional positive tests are known of. The County scores wells Physical Barrier Effectiveness (PBE) based on type of aquifer and aquifer material, an assessment for this well was done in 2002 with the well rating at 0 out of a possible 100. This indicates that because of its construction in fractured rock the well is likely or prone to contamination if contaminants are present in the soil nearby. This well is currently connected to the system.

Well #2a was constructed in 1971 by Beymen Well Service, to a total depth of 136' (see map in appendix for location). A drillers log & data sheet are included in the appendix., this log states that the well has 68' of 6" casing in 52' of 10" steel casing with perforations from 52' to 60'. The report indicates the construction of an annular seal of pumped concrete from 7' to 26' with additional sanitary seal to 52'. The drillers report states a well yield of 70 GPM with a 96' draw down and static water level of 46'. This well was in use until an unknown date somewhere between 1986 & 2000 when an attempt was made to deepen it and site conditions caused the drilling rig to begin to tip over. No records of a county scored PBE for the well were found. This well is now capped and the pump removed.

There is no drillers log from well #2 available, it is believed to be constructed between 1986 and 2000 and would likely be to a depth greater than 108'. According to operator records this well has never tested positive for total coliform or fecal coliform. This well is currently connected to the system. The owner can request the drillers log from the Department of Water Resources for all wells owned by them. This should be done and a copy should be forwarded to the county for their records.

Well #3 was constructed to replace well #2a in 2000 by Beymen Well Service, to a total depth of 180' (see map in appendix for location). A drillers report is included in the appendix., this report states that the well has a 6" solid casing to 75', a 6" PVC casing with perforations from 75' to 180', has a pumped concrete annular seal to 53', and has a well drillers yield of 100 GPM. The current static water level is approximately XX' and the static water level at time of drilling was 10'. Currently a 3 HP (or 5 HP) submersible pump is installed in the well capable of approximately 40 GPM, the age of the pump is unknown as well as its depth in the well. Well #3 tested positive for both fecal coliform multiple times and has been disconnected from the system. It is still active but only as a source for fire department tanker trucks.

Well #4 was constructed in 2007 by Peters Drilling & Pump Service, to a total depth of 800' (see map in appendix for location). A drillers report is included in the appendix., this report states that the well has a 6" solid steel casing to 105', a 6" steel casing with perforations from 105' to 125', has a pumped concrete annular seal to 100', and has a well drillers yield of 20 GPM. The current static water level is approximately XX' and the static water level at time of drilling was 5'. Currently a 3 HP (or 7.5 HP) submersible pump is installed in the well capable of approximately 20 GPM, the pump was installed in 2007 but its depth in the well is unknown (715' per pump test?). According to operator records this well has never tested positive for total coliform or fecal coliform.

D. EXISTING STORAGE

Currently there are two storage tanks present on site, a 10,000 gallon redwood tank at well site #2, and a 65,000 gallon bolted steel tank at well site #1 & #4. Both tanks the welded steel tank was installed in 1965 reportedly used at that time and the redwood tank was installed during an expansion in 1971. Both tanks are at the end of their usable life and will need to be replaced.

Both well #1 & #4 pump directly into the steel tank and are controlled as one (neither is the lead pump both cycle on and off at the same time) by the water tank elevation. Chlorine is injected between the well and the tank allowing it contact time in the tank before outflow to the distribution system. Outflow is achieved by two booster pumps which act to pressurize the pressure tank.

Well #2 pumps directly into the redwood tank. Chlorine is injected between the well and the tank allowing it contact time in the tank before outflow to the distribution system. Outflow is achieved by a booster pump which acts to pressurize the pressure tank.

E. EXISTING WATER TREATMENT

Chlorine injectors as noted above are installed at both pump houses and all water is actively treated. Currently the water company is taking steps to remove the requirement for full time treatment. Treatment was initiated in 2003 with the discovery of contaminants in well #3. Well #3 has since been taken offline, and pending the required number of clear raw water tests the water treatment will cease. However it is a good idea to keep the existing chlorination equipment avaliable and functioning in case emergency chlorination becomes necessary.

F. EXISTING DISTRIBUTION SYSTEM

The entire system is pressurized by booster pumps from both well site #1 and well site #2. A switch is installed to allow either pump station to act as lead with the other in an automatic backup position dependant upon system pressure. The current on-site manager stated that she generally uses well site #2 as the led site, well meter data supports this and shows that 2/3 of the system water has been drawn from well #2.

The pressure distribution system is made up primarily of 6" asbestos cement main lines which follow the interconnected road network. Additionally there are to locations with 2" PVC dead end mains on short cul-de-sac locations. The installation dates to the original system (1965) but was likely achieved over a 6 year period and phased with the units of the subdivision. See the original attached pressure zone map for the water pressures in the system. A recent

pressure test of 48 psi was taken by the county at "the highest point in the distribution system". In all there is over a 150' elevation difference in the sudivison.

According to the original system map there are at least 3 air release valves located in the distribution system. The system also has existing water meters for all of the connections though no readings are taken. Billing is included in with the flat rate homeowner's association dues and adjusted as part of the overall homeowner's association fees. During summer of 2007 a total of three leaks were reported, two due to root invasions, and one regarding a valve box all were repaired according to AWWA standards.

G. EXISTING POWER BACKUP SYSTEM

Well site #1 has a 35 KW self starting Kohler propane powered generator located adjacent to its pump house under its own enclosure. This generator is capable of powering well #1 & #4 as well as the 7.5 hp and 15 hp booster pumps at that pump house. This means the system would be able to meet the MDD even in the event of a power outage. It is unknown how long the on-site fuel would last but it is supplied by a 500 gallon propane tank. Well site #2 does not have any power backup.

H. SYSTEM MONITORING

The systems registered water distribution operator is Craig Poundstone. Day to day system monitoring and minor maintenance are been preformed by the home owners association staff on a regular basis. In the 2007 county inspection report daily chlorine residual monitoring logs were requested. Staff makes daily visits to both well sites to verify operational status, and perform basic maintenance.

III. UPGRADE RECOMMENDATIONS:

A. SHORT TERM (within 1 Year)

1. Well Areas

   a. Construct a new 60,000 to 80,000 gallon tank and remove existing 10,000 gallon redwood tank at well site #2, complete new plumbing as needed per AWWA standards.

   b. Grade existing dirt away from both pump houses better to limit deterioration of pump house siding. The standing water next to the pump houses needs to be eliminated.

   c. Request well drillers report from Department of Water Resources for well #2 and provide a copy to the county for attachment to this report.

2. Entire System:

   a. Begin a monthly monitoring record by reading the well meters and checking the static water levels in all wells. Compile a running list of all data. This will become essential to verifying your source capacity and help confirm shifting water use patterns in your development.

   b. During the peak use / vacation week of July 4th conduct continuous 1 day flow meter readings for all well sites (total of 8 readings at the same time everyday during the week). This will provide critical Max Day Demand (MDD) for the sizing of the water tank at well site #1.

B. MID TERM (1 Year to 5 years)

3. Well Areas

   a. Construct a new 80,000 to 100,000 gallon tank and remove existing 65,000 gallon bolted steel tank at well site #1. Actual size will be based on the meter reading for the previous years. (Construct this tank before other recommended items in the mid term)

   b. Hire a qualified professional to conduct well drawdown tests on well #1 and #2 to better assess their supply performance.

   c. Upgrade booster system controls to automatically communicate between well site #1 & #2 and more efficiently share well pumping and booster

system load. This may not be possible without upgrading additional equipment at both sites as noted in text below.

d. *(As funding allows, this item can be delayed depending on flow monitoring numbers being recorded in recommendation 2 above.) Replace existing pressure tanks and booster pumps at both pump stations with variable frequency drive booster pumps and new pressure tanks capable of meeting an estimated PHD of 300 GPM plus minimum fire flows of 1000 gpm. Automate booster pumps to alternate run times to obtain even wear. Obtain new pressure sensing equipment (at well #1 only) and configure to control both pump site #1 & #2 booster pumps.

4. Distribution System:

   a. Investigate gate valves in system, verify operation and replace if necessary.

   b. Inspect vacuum and air release valves and replace if necessary.

5. Entire System:

   a. Setup up a long term maintenance and inspections schedule for all system components. Regular inspections and minor maintenance on components such as water tanks can drastically extend their useful life and save money. (keep records of component replacement & repair).

C. LONG TERM (5 years +)

6. Well Areas

   a. Consider replacement of pump house structures with permanent concrete or block structures

   b. Consider replacement of well #1 as it is now over 40 years old and past the EPA recommended life span of 35 years. Depending on well #2's date of construction consider its replacement as well.

7. Distribution System:

   a. Consider and budget for replacing existing distribution mains as their usual useful life will be ending shortly. Have existing hydrant flows tested and if they are below the minimums (1000 gpm) upsize the distribution lines from 6" to 8" upon replacement. Coordinate replacement to occur before any major road re-surfacing to limit trench sawcut damage to roads.

IV. SYSTEM ECONOMICS:

A. CAPITAL / REPLACEMENT COSTS

The total initial system start up costs and life expectancy of each item is detailed below. Annual replacement costs are calculated using an inflation rate of 4% and an estimated 8% return on investments. Investments of this type include a mixture of mutual funds and bond type investments and have a certain degree of risk associated with them. If funds are invested in safer securities, the fee schedule below will need to be modified to reflect that and the annual cost amount will increase. The inflation rate is purposely set high to give a factor of safety to the equation.

This model is based on several assumptions including investment returns, inflation, unanticipated labor costs, modified life expectancies, changing legislation, and inflating replacement costs out of line with the rate of inflation shown above. This does however reflect the best estimate and judgment at this time.

Capital Improvement Replacement Program

	System Components	Replacement Cost 2007	Estimated Life Exp. (Years)	EPA Life Exp. (Years)	Estimated Date Installed	Remaining Life Expect. (Years)	Annual Costs
	Existing System Components to be Kept						
1	Well #1	$80,000	60	25-35	1965	18	$4,327
2	Well #2	$80,000	60	25-35	1990	43	$1,311
3	Well #4	$80,000	60	25-35	2007	60	$672
4	6" Water Main - 10,000'	$550,000	55	35-40	1968	16	$33,971
5	2" Water Main - 600'	$18,000	55	35-40	1968	16	$1,112
6	Water Meters (no replacement plann	$80,000	-	10-15	1968	-	$0
7	Booster pumps (3)	$35,000	20	10-15	1990	3	$12,127
8	Pump House #1 (Structure)	$20,000	50	30-60	1968	11	$1,850
9	Pump House #2 (Structure)	$20,000	50	30-60	1971	14	$1,430
10	Pressure Tank #1	$10,000	50	25-35	1965	8	$1,287
11	Pressure Tank #2	$10,000	50	25-35	1971	14	$715
12	Well Pump #4	$15,000	20	10-15	2007	20	$718
13	Well Pump #2	$15,000	20	10-15	1990	3	$5,197
14	Well Pump #1	$15,000	20	10-15	1990	3	$5,197
15	Backup Generator & Miscellaneous.	$45,000	30	10-15	2003	26	$1,560
	Proposed System Components (insert actual prices & dates upon upgrade completion)						
16	60,000 to 80,000 gallon storage tank	$80,000	50	30-60	2008	51	$953
17	80,000 to 100,000 gallon storage tan	$100,000	50	30-60	2009	52	$1,145
18	Demo Existing System (one-time)	$15,000			2008	-	
19	Replace system gate & air valves	$25,000	40	25-35	2010	43	$410
20	Upgrade System Control Equipment	$50,000	20	10-15	2011	24	$1,920
	Proposed Upgrade Subtotals	$270,000					
	Total System Replacement Cost	$1,343,000					$75,902

The life expectancies shown are derived from the 2003 EPA guidelines, but have generally been lengthened to account for local conditions and on-going maintenance checks on system components.

The main contributors to the yearly cost are the oldest system components as they will require replacement first and their replacement cost has not been amortized over their life span but instead just their remaining useful life. Once the oldest items have been replaced the total yearly replacement fund contribution will go down substantially.

B. OPERATION AND MAINTENACE

Routine Maintenance / Water Sampling:

The existing system requires on-going maintenance and monitoring. It is suggested that an aggressive maintenance and operation should be undertaken by the board. This approach will likely catch small problems before they become large problems. By keeping up the maintenance of the system components their useful life will likely be extended and disruptions in service will be avoided.

A Certified Water Distribution Operator will be required by law to oversee the system operations, manage all test results, and deliver the required reports. Butte County has recently issued a memo to all small water systems in the County defining the roles and responsibilities of the Distribution Operator. The responsibilities outlined in the memo generally exceed the current scopes of most small system operators. In most systems this will require increased costs and services for on-going operation; your system may already meet these updated responsibilities because of your active on-site involvement in the system operation. See a copy of the memo in the appendix.

Yearly O&M Costs (Compiled form historical budgets may differ with upgrades)

	O&MExpense Item	Annual Estimated Cost
1	Electric Energy (Wells + Booster Pumps)	$5,000
2	Water Testing & Treatment	$1,500
3	Employee Time	$12,000
4	Office Miscellaeous + Postage	$300
5	Operating Fees	$600
6	Minor Repairs (not replacement)	$3,000
7	Distribution Operator Costs (estimated)	$1,000
	Annual Operation & Maintenance Cost	**$23,400**

C. PROPOSED BUDGET

The total system use for 2007 is projected to be approximately 10 million gallons for the 95 connected services.

Emergency Reserves:

The water company has an established emergency reserve fund in which they could draw monies for major emergency repairs. The reserve amount that the state recommends for small water systems is equal to 2% the total system capital costs. Based on a project total system cost after the upgrade of about 1.3 million the reserve fund should be around $26,000. It is important to note that this should be in addition to the capital replacement fund.

Capital Replacement Costs:

Capital Replacement Cost Flat Rate	
Annual Replacement Costs	$75,902
Monthly Fee Paid Per Parcel	$39.78
Yearly Fee Paid Per Parcel	$477.37
Calculation is for all 159 lots.	

Replacement and emergency reserves should be met in accordance with this report to ensure the longevity of the system. Alternately some systems do not collect for capital replacements but wait until the capital improvements fail or reach the end of their useful lives before enforcing a special assessment on the rate payers to replace the failed component. This method has been proven to be a band-aid and is not advised as it forces the water company into an emergency reactionary state which in turn increases costs for the replacement, results in down time for the system, and provides poor service for the users. This approach is particularly difficult for residents on fixed incomes who need to be able to budget a smaller monthly amount. Planning and saving for future major expenditures is the best way to maintain the systems functionality and level of service. Note that once the oldest system components are replaced this monthly fee should be reduced by as much as 50% to match the new replacement costs.

Water Use Costs:

Operations and Maintenance Metered Rate	
Annual O&M Cost	$23,400
Annual Water Usage in 1000 Gallons	10,000
Cost per 1000 gallons	$2.34
Annual Average Lot Water Use 1000 Gallons	105
Annual Average Bill	$246.32
Average Monthly Bill	$20.53

Calculation is for connected 95 services.

Operations and Maintenance rates are likely to be adjusted by the HOA depending upon actual use and expenses. This rate can also be assessed as a flat rate fee but this is discouraged as it promotes water waste by the users. Meter reading and charging is the recommended way of assessing fees however based on the staff time necessary to complete this reading is not recommended at this time. Should the system come under stress and face source supply problems this is one way water use could be reduced..

Connection Fees:

Unconnected lots in the subdivision are currently required to pay full dues to the HOA (true?) and are thus already paying into the capital replacement fund. This is needed to assure that when they are ready to connect to the system it is still in good repair and capable of serving them. At the time of connection it is typical to require a meter to be installed per the water companies sizing. Some water companies install the meter themselves to ensure the safety of the system as well as the accuracy of the meter and then back charge the customer. Typically a connection fee is required ranging from $1,500 to over $10,000 depending on the individual system, meter size, and governing body. Often times the higher connection fees are associated with "capacity buy in" and are for lots that have paid nothing into the replacement fund. A reasonable fee for connection to the Merry Mountain Water System is in the range of $2,000 to $5,000 (do you have an existing fee?).

V. OPINION ON WATER SYSTEM UPGRADE:

It is in my professional opinion that the proposed upgrades to the Merry Mountain Home Owners Association supply, distribution, and fire protection system will adequately, dependably, and safely meet the total requirements for all water consumers under maximum consumption and will meet the requirements of Section 14314 of the California Code.

This opinion is based on the information contained in the appendix and a review of the existing and proposed upgrades to the water system.

PRELIMINARY

Ross Simmons
RCE 68511

Date:
EXP 9-30-09

Merry Mountain Water System
Job # 9643
Date: 10/19/2007
By: RMS

NorthStar ENGINEERING
Civil Engineers • Planners • Surveyors

Existing System Use Data

	Meter Reading 5/16/2007	Meter Reading 10/10/2007	Meter Reading 11/17/2007	Gallons Used 10/10/2007 11/17/2007	Gallons per day Average Use
Well #1	158,900 gal	1,575,300 gal	1,720,300 gal	145,000 gal	3,816 gal
Well #2	568,700 gal	2,821,500 gal	3,124,200 gal	302,700 gal	7,966 gal
Well #4	307,450 gal	310,710 gal	385,500 gal	74,790 gal	1,968 gal
Well #3	Pumped Un-metered water until Sept then disconnected				
Total	1,035,050 gal	4,707,510 gal	5,230,000 gal	522,490 gal	13,750 gal

Other System Info.	
Length of metering period =	38 days
Number of active services =	95 lots
Full time Services =	48 lots
Vacation Services =	47 lots
Unbuilt Lot Services =	64 lots
Total Potential service =	159 lots * some lots may not be buildable

48 lots only --> Full Time Res.	Use / Service 10,885 gal	Use / Service / day 286 gal

All Services	Curent Avg Day	Future Avg Day
	27,213 gal	45,546 gal

Max Day Demand (MDD) calc (avg day * 3.0 factor) ; All Services =	81,639 gal 57 gpm	136,638 gal 95 gpm

Peak Hour Demand (PHD) calc = MDD * 1.5 =	5,102 gph 85 gpm	8,540 gph 142 gpm

Existing System Supply Data

Well #	Well Driller Est. Yeild	Current Well Yields	Date installed	Well Depth	One Day Well Production
Well #1	50 gpm	45 gpm	1965	108 ft	64,800 gal
Well #2a	70 gpm	disconnected	1971	136 ft	
Well #2	unknown gpm	45 gpm	after 1986	>136? ft	64,800 gal
Well #3	100 gpm	disconnected	2000	180 ft	
Well #4	20 gpm	20 gpm	2007	800 ft	28,800 gal
totals	240 gpm	110 gpm			158,400 gal

Existing System Storage Data

Required Storage MDD = 81,639 gal
Future Rqd. Storage MDD = 136,638 gal

Fire Flow @ 1000gpm for 2 hrs = 120,000 gal

Tank #	Storage Capacity	Tank Type	Date Installed
Tank #1	65,000 gal	Used Bolted Steel	1965
Tank #2	10,000 gal	Redwood	1971
totals	75,000 gal		

Note: All future use projections are extremely approximate and should be re-visited after 1 year of continuous flow meter data is collected.