

Preliminary Engineering Report & Facility Plan

Morning View Water Company

Jefferson County, Idaho



PREPARED BY:
ASPEN ENGINEERING, INC.
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CHAPTER 1 Summary

Introduction

The Morning View Water Company (MVWC), a subsidiary of Falls Water Co. Inc., has contracted with Aspen Engineering to complete a Preliminary Engineering Report and a Facility Plan for the Morning View water system. This document serves as both reports. This report serves as the basis of design for modifications.

The findings of this study are summarized below:

Water Requirements

The population serviced by MVWC is approximately 400 people via approximately 138 active individual connections. Morning View Water Company's historical average daily demand (ADD) for the years 2021 through 2023 was 125,948 gallons. This water system's main well is located at 3990 E 178 N, Rigby, ID.

Supply

MVWC currently utilizes groundwater as its sole source of water. The groundwater is mainly supplied by one well. There are two other older wells that produce a very limited amount of water. Both old wells are located on a single lot and are separated by 100 feet. Aspen Engineering is proposing that both older wells, known as Wells 1 & 2 within the report, be replaced. All the wells lie within the Company's platted service area. Total pumping capacity of the active production well is estimated at 940 gpm or 1,353,600 gallons per day, which is about 11 times the system ADD.

The current firm capacity (largest well out of service) of the Company's production wells is 200 gpm or 288,000 gallons per day. Current firm capacity does not meet PHD or MDD (Peak Hourly Demand or Maximum Daily Demand) flow requirements, and a backup well is needed immediately, in the event of a well failure.

Storage

There is no current storage at the Morning View Water system.

Distribution

The distribution system is composed of both 4 inch and 6-inch main lines. These mains are exclusively class 200 PVC. Any future expansions should continue to incorporate similar materials throughout the distribution system. The water system does not have fire hydrants, and the distribution mains are adequate to supply domestic flows.

Water Quality and Regulations

All of Morning View's water is supplied by groundwater wells. The water quality is good, and compliance with both State and Federal regulations for contaminants is currently being maintained. Currently, there is no water treatment provided at the MVWC facilities.

Capital Improvement Program

A new backup well with adequate capacity to meet the firm ADD demand must be planned and completed as soon as possible. The estimated cost to complete the new well and pump is \$235,000. Additionally, it is recommended that backup power generation be provided for the new well to prevent depressurization events during power outages. We recommend using a VFD pump controller on the new well. Leaks in the mainline contribute to significant pumping losses and should be found and repaired.

Recommendations/Conclusions

Providing and maintaining adequate water supply in the event of a failure in well #3 and minimizing leaks are the main concern for the MVWC water system. System operating pressures are currently maintained at about 58 psi. Immediate construction of a backup well is recommended to ensure adequate water production for the current and future demands.

CHAPTER 2 Introduction

The Morning View Water Company (MVWC), a subsidiary of Falls Water Company, is a privately held public drinking water system that is currently regulated by the Idaho Public Utilities Commission. The system services approximately 138 single family residences in an unincorporated area of Jefferson County Idaho, near the city of Rigby. The intended purpose of this report is to provide an assessment of the existing water system and provide recommendations to maintain and improve the facilities.

The following topics are contained in the report:

- Existing System (Chapter 3)
- Water Requirements (Chapter 4)
- Water Supply and Storage (Chapter 5)
- Distribution (Chapter 6)
- Water Quality and Regulations (Chapter 7)
- Capital Improvement Plan (Chapter 8)

The following acronyms are contained in the report:

- MVWC – Mountain View Water Company
- VFD – Variable Frequency Drives
- ADD – Average Daily Demand
- MDD – Maximum Daily Demand
- MMD – Maximum Month Demand
- PHD – Peak Hour Demand
- EPA – Environmental Protection Agency
- SDWA – Safe Drinking Water Act
- DEQ - Department of Environmental Quality
- IPUC – Idaho Public Utilities Commission
- gpm – Gallons per minute
- gpd – Gallons per day
- mgd – million gallons per day
- cfs – cubic feet per second
- gph – gallons per hour
- cf – cubic foot
- PF MDD – Peaking factor of Maximum Daily Demand
- PF PHD – Peaking factor of Peak Hour Demand
- gpdpc – gallons per day per connection
- USGS – United States Geological Survey
- IDWR – Idaho Department of Water Resources
- psi – Pounds per square inch

- fps – feet per second
- AACE – American Association of Cost Engineers
- KW - kilowatt

The report covers the current configuration of the water system as well as a projection of three years from now when the system will likely be finished - i.e. all lots sold and occupied. As a reference for development time frame, in 2002 the system serviced approximately 65 connections. As of 2023 there are about 138 connections and only 3 more connections are expected to be added in the coming years.

History

Since Falls Water acquired MVWC’s water system in 2021, water quality has exceeded all applicable state and federal requirements. MVWC’s water system registered number with Idaho DEQ is: ID7260063.

Current Assets

Current assets of MVWC include three deep wells, a 30' x 32' wood frame pump house, a second 13’x20’ wellhouse, and 2.5 miles of distribution lines. Pump house #1 encloses a 40-gallon air compressor, meters, valves, and piping. The following table presents the various components and their anticipated useful life and replacement data.

Morning View Water Company - Capital Replacement				
Item	Date Installed	Anticipated Life Cycle	Replacement Date	Replacement Cost
30 well pump	February 2021	15 years	2036	\$6,000
10 well pump	July 2007	15 years	2022	\$4,000
60 well pump	August 2014	15 years	2029	\$15,000
Motor Controllers	2002	10 years	2012	\$5,000 Ea
Well House #1	1998	40 years	2038	\$50,000
Flushing Hydrants	2007	20 years	2027	\$500 Ea
Well House #2	2014	40 years	2054	\$40,000

VFD-ABB Brand AC 550	2014	20 years	2030	\$12,000
VFD-ABB Brand AC 6500	2014	20 years	2030	\$12,000

DEQ Loan

Before it was acquired by Falls Water, MVWC applied for a state-revolving fund loan through the Idaho DEQ to construct a new well. This well is labeled as well #3 in this report. It was drilled in August 2014. When MVWC was acquired by Falls Water in 2021, they continued the loan payment to Idaho DEQ. The original loan started on February 7, 2017, and was \$462,969.38. It is to be paid back at an interest rate of 1.25% semiannually with payments of \$9,277.77. Falls Water has taken responsibility for the loan.

Operations/Administration

Falls Water maintains an office located at 2180 N Deborah Dr, Idaho Falls, ID 83401. The office handles billings, customer service, complaints, notifications to its customers and correspondence with DEQ and the Idaho Public Utilities Commission (IPUC).

Operations plans include a daily check of the well house with written record keeping of water pressure, pressure tank air levels, flow rate and flow totalization.

Rates

As shown in the table below, customers pay a flat rate according to the size of the lot being serviced. One acre lots are charged \$65.50/month, one-half acre lot fees are \$60.00/month and quarter acre lots fees are \$50.00/month. The first 11,000 gallons used in the first-tier block are included in the monthly minimum charge. The second-tier usage charge is \$0.64 per 1,000 gallons for the next 22,000 gallons used. For usage above 33,000 gallons, the third-tier rate is \$1.439 per 1,000 gallons.

Meter Size	New Approved Monthly Minimum Charge	First Tier Block Rate	Gallons in First Tier Block	Second Tier Block Rate	Gallons in Second Tier Block (Next)	Third Tier Block Rate	Gallons in Third Tier Block (Over)
MV .25 Acre – ¾” & 1”	\$50.00	\$0.00	11,000	\$0.640	22,000	\$1.439	33,000
MV .50 Acre – ¾” & 1”	\$60.00	\$0.00	11,000	\$0.640	22,000	\$1.439	33,000
MV 1.0 Acre – ¾” & 1”	\$65.50	\$0.00	11,000	\$0.640	22,000	\$1.439	33,000

CHAPTER 3 Existing System

The existing MVWC water system includes three wells and approximately 11,000 feet of six-inch diameter class 200 PVC water main. 2,300 feet of four-inch diameter, class 200 PVC is also included on the system. A map of the system and its features is shown in Appendix A: Maps.

The current service area for the MVWC includes 109 acres located in the Morning View Acres Divisions 1, 2, 3, and 4. Division No. 1 of Country Grove Estates Mobile Home Subdivision is also included in the system. There are currently 138 connections to single family residences. Residences include site constructed homes (stick built), mobile trailer homes, and manufactured homes on permanent foundations.

Lot sizes range from one quarter of an acre to just over one acre in area. The smaller lots are typically occupied by either mobile trailer houses or manufactured homes. Stick built single family residences generally occupy the larger lots.

Future growth within the existing service area boundary will include water service connections to 3 lots in the stick-built divisions. This will make a total of 141 individual connections to the system. It is estimated that the system will be fully developed within the next three years.

Supply

Well 1 – Prior to drilling Well #3, this well was the main production well for the MVWC water system. Well #1 is a 12-inch diameter well and is approximately 120' deep. The well is located on “well lot #1” at the northwest corner of Division No. 3. The well lot comprises 1.64 acres. The well log shows it was completed in July 1996 and is cased to a depth of 118 feet. This well has not been pump tested and the actual well capacity is unknown. Currently a 30-horsepower submersible pump is installed in the well. This well is currently used only as a backup well as it discharges too much sand and is not deep enough into the earth to be a functioning production well. Aspen Engineering recommends that this well be abandoned, after construction of the replacement well.

Well 2 - The old backup well is a six-inch diameter well that is 120 feet deep. According to the well log, this well has a surface seal 18 feet deep and was constructed in June 1986. No pump test data is available and a 10 horsepower submersible pump services the well. This well does not produce enough water to be a significant resource and is only used as an emergency source.

Well 3 - The main well for the MVWC water system is a 12-inch diameter well approximately 176' deep. The well is located on “well lot” at the southwest corner of Block No. 3. The second well lot comprises 0.354 acres. The well log for this well shows it was completed in August 2014 and is cased to a depth of 154 feet. This well has been pump tested and the actual well capacity is

940 gpm. Currently a 60-horsepower submersible pump is installed in the well.

Wells 1 and 2 feed into a single pump house via separate pitless adapters and buried six-inch diameter pipes. Wells 1 and 2 are both equipped with ABB VFD pump controllers.

Well 3 and well house 2 are located on the south-west well lot of morning view acres #4. Well 3 is equipped with an ABB brand VFD pump controller. The well house is 13'x20', has a 6" pipe system, and contains a backup generator.

Water quantities are monitored using a totalizer/flow meter located in each pump house. The meters read the instantaneous flow through the meter as well as providing the total quantity passing the meter (totalizer). Wells 1 and 2 were run through a single meter, Well 3 has its own meter, and after abandoning Wells 1 and 2, Well 4 will use that meter. After this upgrade each operating well will have its own meter. The water quality of well #3 currently meets drinking water regulations. Chapter 7 includes dialog of compliance with drinking water regulations.

Treatment

Well 3 doesn't require any treatment. For wells 1 and 2 the only treatment currently in operation is to separate sand from the well production water. The sand separator consists of a centrifugal type separator with raw water being fed into the unit, centrifugal action then separates the heavier sand particles which fall to the bottom of the unit and treated water is returned to the top of the unit and put into the distribution system. The unit operates manually, and the only maintenance required is to purge the solids from the bottom chamber of the unit on a periodic basis. A determination of how often this is required can be made by flushing the solids into a bucket and then measuring the amount of sand produced per unit of water. It is likely the unit will operate at peak efficiency with only weekly or bi-weekly purging. No other treatment or treatment equipment is provided or necessary.

For emergency circumstances manual dosing of the individual wells would be required to treat a bacteriological outbreak, should one occur. The water company may want to purchase an emergency chlorination system to provide emergency disinfection capabilities.

Pressure Zone

The entire system is served by a single pressure zone. System pressures throughout the development are established by the VFD setting at each of the pump house buildings. The pressure settings have been adjusted to operate near 58 psi. This pressure is measured at the pump building and customer pressures at the point of use will vary due to friction losses and the variation in demand especially during peak demand hours. The pressure settings at the pump building can be adjusted to provide a two-pound differential.

Based on the information obtained from pressure monitoring, the system consistently operates above the minimum pressure of 40 psi.

The current system includes variable frequency drives (VFD) that are installed in the pump house for each of the submersible well pumps. Each VFD can be set to maintain 60 psi and so long as the pumps can keep up with demand, operating pressures currently remain constant within plus or minus 3-4 psi.

Standby Power

Currently there is standby power or emergency power generation equipment at the MVWC system for the main well #3 in use. The proposed backup well should also have standby power in the event of an area wide power failure.

It was estimated by MVWC personnel that power outages account for system shutdown 3-4 times per year. Typically, outages occur during strong weather events such as high winds or heavy thunder showers.

Storage

There are currently two Xtrol 350 bladder tanks in well house #1. However, these two tanks are required for proper operation of the VFDs, do not provide a significant amount of storage, and are not available as storage for customer needs. There are no plans for water storage at MVWC.

Security

Both existing well houses have fences with barbwire, lighting, and water system alarms. They are maintained and no issues have been reported. As there have been no issues, there are no improvements suggested for the security of this system.

Telemetry System

Telemetry at the MVWC water system is a Missions Communications 123 system. The three wells are operated by electronic pressure transducers located in the pump houses. There are no required or recommended system controls improvements at the time of this report.

Distribution System

Water distribution for the Morning View system includes approximately 11,000 feet of six-inch pipe and 2,300 feet of 4" pipe. All the pipe consists of class 200 polyvinyl chloride (PVC). A map of the existing water distribution system, including pipe sizes, is presented in Appendix A: Maps. Flushing hydrants at the three dead end locations have been installed. There are no fire hydrants on the system.

Service connections are exclusively one inch and are typically polyethylene. There are seventeen control valves within the distribution system, four of which are four-inch valves controlling flow to the two four-inch diameter loops - one at the east end of the system and the other from the two cul-de-sacs on 3950 East. The maximum number of residents on one continuous, isolatable loop is at 178 North where there are 32 trailers on one loop. Generally, there are adequate valves to isolate ten to twelve homes without interrupting the water service to others. Each home is metered, and the water usage is recorded for each home, clients are then billed accordingly.

Periodic flushing of the dead-ends should be completed. A written plan identifying when each location is/was flushed and the results of the flushing (i.e. water conditions, turbidity, etc.) should be included in the operations. Dead end mains should be flushed at least twice per year.

Cross-connection contamination of the distribution system is controlled using backflow prevention devices, generally consisting of a Pressure Vacuum Breaker (PVB) assembly or other approved back-flow prevention device. Check devices are required to be inspected and tested after the initial installation with written verification given to either the owner/operator or the office manager. Periodic testing of the valves is not currently part of the operation plan and should be implemented. The cost of testing each device should be charged to the homeowner. Records showing the location of the device, along with the test date and results should be kept on a master plan at the office. The proposed cross connection control plan has been submitted to DEQ.

Sewage System

Regarding the sewer system, all homes within MVWC are on private septic systems with individual drain fields located on each lot. Interference with the water system has not been experienced and no contamination issues have been reported. Connection to the City of Rigby sewer collection system could be explored if water quality problems are encountered.

Water Losses

Recently there has been a leak that is being investigated by Falls Water, the parent company of MVWC, as the water losses have been about 60% during non-irrigation season and about 20% losses during irrigation season. Due to these significant losses, we recommend using and/or

obtaining sonar tracking equipment to help with leak detection and repair. The equipment is portable and could be used at each of the company's water systems.

CHAPTER 4 Water Requirements

This chapter summarizes the current water system demands and projects future water use for 3 and 20-year planning horizons. This includes a description of historical water use and forecasting estimates developed to project future water use.

Definition of Terms

Demand

Demand refers to the total system demand, which is that quantity of water obtained from the water supply source during a given time period required to meet the needs of domestic use, lawn irrigation, system losses, and miscellaneous applications. Demands are normally discussed and quantified in terms of flow rates, such as gallons per minute (gpm) or gallons per day (gpd). Flow rates can be described in any terms involving a given volume of water delivered during a specific time. Flow rates pertinent for the analysis and design of water systems are as follows:

Average Day Demand (ADD): the total volume of water delivered to the system in a year, divided by 365 days.

Maximum Month Demand (MMD): the average rate of water delivered to the system during the month of greatest demand during the year.

Maximum Day Demand (MDD): the rate of water delivered to the system during the day of highest demand during the year.

Peak Hour Demand (PHD): the rate of water delivered to the system during the hour of highest demand during the year.

These demands are typically presented in units of mgd. The following conversion factors may be used to express rate of demand in other terms:

1 mgd = 694 gpm = 1.55 cubic feet per second (cfs)

1 gpm = 60 gallons per hour (gph) = 1,440 gpd

1 cfs = 450 gpm = 0.648 mgd

Volumetric conversions are:

1 cubic foot (cf) = 7.481 gallons (gal)

1 gallon = 0.134 cubic feet (cf)

The concept of per capita demand provides a convenient method of comparing water use by different water systems or areas served by the system. The per capita demand is obtained by dividing the total system demand by the total population served. Differences in climate, type of development, and water use trends influence the per capita demand for different water systems.

Consumption

Consumption refers to the actual volume of water used by customers measured at their connections to the water distribution system. Consumption is typically measured in gallons.

Peaking Factors

The relationships between the ADD and other demand parameters, such as the MDD, MMD, and PHD, are expressed as peaking factors. Typical peaking factors include the ratios of MDD to ADD, MMD to ADD, and PHD to ADD.

Water Production

Available historical water production data is presented in Appendix D: Water Production Data. The available historical data includes limited readings for both Well 1, 2, and 3 during the period.

TABLE 4-1 Average Day Demand - ADD for Morning View Water Company	
Year	ADD (gallons)
2021	129,926
2022	130,462
2023 (year to date)	117,458

Based on historical averages from Table 4-1, a MDD (PF MDD) peaking factor of 3.0 will be used in this study. A value of 5.0 will be used as the PHD peaking factor (PF PHD).

Per Connection Demand

The population serviced by MVWC is approximately 400 people via approximately 138 active individual connections. Morning View Water Company's historical average daily demand (ADD) for the years 2022 through 2023 was 124,000 gallons.

Morning View's customer base is exclusively residential. Given the rather insignificant demand currently exerted by other uses, future water demand is estimated in this report solely on the residential growth projected for the area.

"Unaccounted-For" Water

“Unaccounted-for” water is the difference between the volume of water produced and the volume of water sold to customers. Unaccounted-for-water in a metered community is typically the result of system leakage or unmetered customers.

Demand Projections

Population Projections

Land uses surrounding the MVWC system are generally residential, single-family homes. The area immediately south of the platted subdivision has been platted and developed as single-family homes with individual wells. Immediately north is developed land and a public elementary school that has been connected to city water lines. To the east, the ground has been subdivided into residential lots, but infrastructure and homes have not been constructed. MVWC is focused on servicing current customers and the 3 potential connections located within the current service area. To the west of the trailer home area is some undeveloped land. If it is developed, MVWC would be interested in supplying their services to the new homes. The possible expansion of the service area to the east or west would require drilling of a new well. Under the current system layout, it has been estimated that a maximum additional three stick-built homes may be added to the system as the remainder of the lots are sold and built on in Divisions one through three of Morning View Acres. This will increase the total number of connections to 141 for the entire system. No other growth has been estimated.

Future Water Demands

Currently, the MVWC system accommodates about 400 people via 138 connections. Ultimately it is conceived that the state average of 2.9 people per connection will be served via the same 138 connections plus 3 more lots in the stick-built homes making a total of 141 connections and 409 people. It is anticipated that the 3 additional lots will be built out by the end of the year in 2026 - three years from now. Producing the following results which are expected to stay the same over the coming years:

Current Estimated

ADD = 124,000 gpd

MDD = 399,200 gpd

PHD = 496,000 gpd

While these projected water demands provide a basis for planning purposes and are used in other portions of this report, they must be considered estimates. If growth from outside development is allowed, then significant increases from the predicted annual rates will occur and demands will be much higher than predicted. Unit demand patterns may also change, and these patterns would influence water needs for the community. Therefore, the projected demands should be compared each year to actual demands. The timing for recommended improvements can then be adjusted as needed.

CHAPTER 5 Water Supply and Storage

Topics covered in this chapter include water rights, and anticipated water supply and storage needs.

Water Rights

Table 5-1 contains water rights information for the MVWC. Refer to Appendix B: Water Right for a copy of the current water rights information. A water right permit is the authorization necessary from the Idaho Department of Water Resources (IDWR) to begin construction of withdrawal facilities and begin using water. A license is only issued once water has been used and documentation of use is submitted and approved by IDWR. A water rights permit does not guarantee water for the appropriator. A decreed right is a water right that has been adjudicated by the court. Under the prior-appropriation doctrine, the water right authorizes diversions of water only to the extent that water is available.

TABLE 5-1					
Morning View Water Company - Water Rights					
Source	Pumping Rate (gpm)	Priority Date	Right No.	Stage	Water Right cfs (gpm)
Groundwater	600	10/10/1995	25-7593	License	0.79 (355)
Groundwater	250	09/04/2007	25-14199	License	0.83 (373)
Groundwater	150	07/06/2009	25-14236	License	0.25 (112)

Water Supply and Storage Requirements

Currently there is no storage provided in the MVWC system. Wells #1 and #2 are no longer functioning, and well #3 is providing flow to the community. A new backup well is needed.

Water Supply Criteria

The following is a list of key criteria outlined in the Idaho Rules for Public Drinking Water Systems used to determine the timing and development of new water supply wells, storage, and emergency power generation capability for the MVWC water system.

- The water system must have a sufficient number of water supply wells with backup power to satisfy ADD or emergency storage equal to one days ADD.
- The water system must have enough firm pumping capacity to satisfy MDD.
- Firm pumping capacity combined with additional storage must be sufficient to supply Peak

Hour Demand.

- Total system capacity including supply and storage must be sufficient to meet MDD while maintaining a 40-psi residual throughout the system.

In this report, **firm pumping capacity** is defined as the production capacity of the water supply wells in the system with the largest well out of service.

This chapter explores these criteria using the water demand projections listed above, to determine the capital improvements needed for the water system during the 3-year and 20-year plan horizons.

Criterion 1: Firm Well Production Capacity Required to Satisfy MDD

The first criterion involving MDD during the 20-year planning period is used to determine well supply requirements for the Morning View water system.

The current well pumping capacity totals approximately 940 gpm or 1,353,600 gpd. However, if a malfunction of well #3 occurs which solely produces this water occurs, no water will be produced. So, a backup well needs to be implemented.

Criterion 1 Summary: Anticipated Firm Capacity Requirements to Satisfy MDD

The Company will need to construct a new backup well immediately with a capacity of nearly 600 gpm like Well #3.

Criterion 2: Emergency Power Required to Satisfy ADD

The second criterion involving ADD is used as a means of determining the emergency power requirements for the MVWC water system.

A comparison of the available supply capacity of Well 3 (720,000 gpd), which is equipped with backup power, shows that the MVWC water system currently does not have backup power to supply ADD requirements now or for the projected 20-year horizon. An option to include backup power for the new well #4 could be beneficial.

Criterion 2 Summary: Anticipated Emergency Power Requirements

Emergency backup power is necessary to maintain the required minimum 20 psi. Idaho DEQ requires substantial sampling if a loss of pressure event occurs. Loss of pressure is defined by DEQ as any pressure less than 20 psi under emergency operations and less than 40 psi under normal operating conditions.

Criterion 3 Well Capacity and Storage Must Satisfy PHD

The following is a list of assumptions that are used to calculate required well capacity and storage

volume required under these criteria:

- The PHD must be supplied for up to 8 hours.
- Firm well capacity is not less than MDD.

Well 3 has adequate capacity to meet current demand, but a backup well is needed immediately.

CHAPTER 6 Distribution

This chapter describes the capacity of MVWC's water distribution system. The distribution system was evaluated under existing and future conditions.

Regulations

The Idaho DEQ has regulatory authority over public water systems in Idaho. In general, DEQ's rules govern the quality of water distributed, but not the manner in which it is distributed. However, the rules do contain basic construction standards and some of these apply to distribution systems.

Significant rules for the distribution system analysis are summarized as follows:

- Distribution piping and the supply system shall be designed and installed so that the pressure measured shall not be reduced below 40 pounds per square inch (psi) during maximum hourly demand conditions.
- Distribution piping and the supply system shall be designed and installed so that the pressure measured shall not be reduced below 20 pounds per square inch (psi) during maximum hourly demand conditions (including fire flow).
- Wherever possible, dead ends shall be minimized by looping. Where dead ends are installed, blow-offs of adequate size shall be provided for flushing.
- Wherever possible, booster pumps shall take suction from reservoirs to avoid the potential for negative pressures on the suction line, which could result when the pump suction is directly connected to a distribution main. Pumps that take suction from distribution mains shall be provided with a low-pressure cutoff switch on the suction side set at no less than 5 psi.

Peak Hour Demand Under Normal Operating Conditions

The PHD condition represents the average demand rate during the highest hour of water use for the entire year. This is an extreme condition, but one that the system must be able to supply. Since PHD has been estimated according to projected growth, the actual occurrence in the system may be higher. It is also true that demands greater than MDD and approaching the peak hour value will occur several times during a year.

The estimated 2023 PHD for the system is 496,000 gpd. PHD can be provided in the system with adequate pressures (Adequate means that pressures are maintained above 40 psi). Pressures under the current PHD can be maintained above 40 psi. As water demand increases under peak

conditions, pipeline velocity can begin to be a problem; however, no pipes in the system exhibited velocities significantly greater than 4 fps. In summary, no deficiencies were identified under the current PHD.

Maximum Day Demand Under Normal Operating Conditions

The MDD condition represents the average demand rate over the highest day of water use during the entire year. The water system must be designed to equal or exceed the MDD on a firm capacity basis. When MDD is modeled under normal operating conditions, the distribution system can provide water at adequate pressures.

The estimated MDD for 2023 is 399,200 gpd. No pipeline velocities greater than 4 fps were identified and system pressures should remain above 40 psi.

Current System Evaluation

Based on the information given by the operator and observation at the pump building the system appears to be capable of producing the required flow at adequate pressures. It is recommended to monitor pressures for any location experiencing low pressure again during the 2023 irrigation season.

Well Design

Information about well #4 and its design will be included in a future document about the design of well #4.

CHAPTER 7 Water Quality and Regulations

This chapter includes relevant water quality regulation information for MVWC's reference, with an accompanying description of how pertinent regulations affect the administration and operation of the system. Surface water regulations are not discussed, as it is not anticipated that Morning View will be utilizing surface water to meet current or future demands. The nearest surface water body is an irrigation canal located south of Morning View about 1,170 ft. In addition, there is no expectation that this improvement will affect the watershed or other water cycle operations.

As discussed in previous chapters, the water system relies solely on groundwater as its source of water. Generally, the quality of the groundwater is good, meeting current Federal- and State-established regulatory limits for inorganic chemicals (IOCs), synthetic organic compounds (SOCs), volatile organic chemical (VOCs), lead and copper, coliform, arsenic, and fluoride.

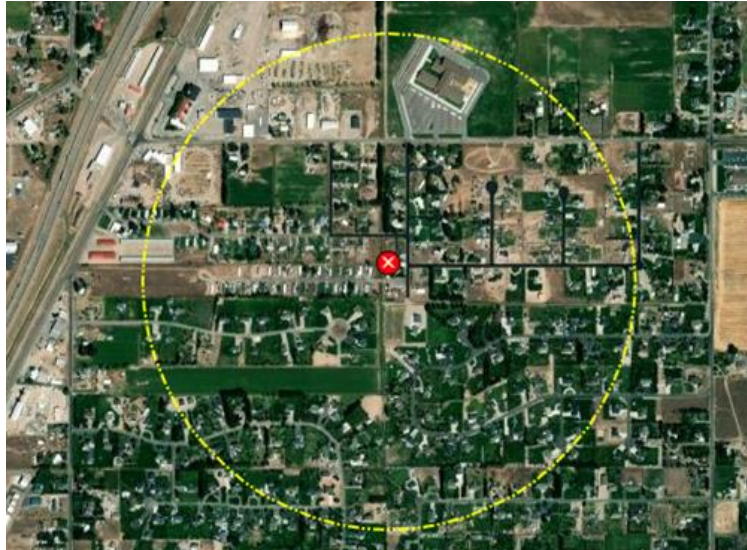
We will screen the new well, so the use of a sand separator is not anticipated.

Potential Contamination

As seen in Figure 1 Nitrate Area's and in Figure 2 Nitrate Impacted Wells there are no causes of concern for contamination currently. Historically there are no causes for concern either. The area around all wells is fenced in and exceeds requirements by code.



Figure 1 Nitrate Area's



Locate nitrate impacted wells (>9.95 mg/L) within 2000 ft of a place or address.

3990 E 178 N, Rigby, ID X Q

Features within 2000 ft:

Nitrate Impacted Wells: 0

Your Location is not within 2000 ft of a Nitrate Priority Area

[More Information](#)

Figure 2 Nitrate Impacted Wells

It can be seen from Figure 3 Recorded Testing of Contaminants that there have been no reported issues with contaminants in the last few years. These tables were taken from Idaho DEQ’s website “Drinking Water Branch”. MVWC’s ID number in the record is: ID7260063. MVWC is in compliance with all drinking water requirements.

Analyte Code	Analyte Name	Method Code	Less than Indicator	Level Type	Reporting Level	Concentration level	Monitoring Period Begin Date	Monitoring Period End Date
4010	COMBINED RADIIUM (-226 & -228)	null	Y	MDL	1.000000000 PCT/L		01-01-2017	12-31-2022
4020	RADIUM-226	null	Y	MDL	1.000000000 PCT/L		01-01-2017	12-31-2022
4030	RADIUM-228	null	Y	MDL	1.000000000 PCT/L		01-01-2017	12-31-2022
Analyte Code	Analyte Name	Method Code	Less than Indicator	Level Type	Reporting Level	Concentration level	Monitoring Period Begin Date	Monitoring Period End Date
1005	ARSENIC	null	N	MRL	0E-9	0.001 MG/L	01-01-2020	12-31-2022
1010	BARIUM	null	N	MRL	0E-9	0.061 MG/L	01-01-2020	12-31-2022
1015	CADMIUM	null	Y	MDL	0E-9		01-01-2020	12-31-2022
1020	CHROMIUM	null	Y	MDL	0E-9		01-01-2020	12-31-2022
1025	FLUORIDE	null	N	MRL	0E-9	0.4 MG/L	01-01-2020	12-31-2022
1035	MERCURY	null	Y	MDL	0E-9		01-01-2020	12-31-2022
1036	NICKEL	null	Y	MDL	0E-9		01-01-2020	12-31-2022
1045	SELENIUM	null	Y	MDL	0E-9		01-01-2020	12-31-2022
1052	SODIUM	null	N	MRL	0E-9	10.6 MG/L	01-01-2020	12-31-2022
1074	ANTIMONY, TOTAL	null	Y	MDL	0E-9		01-01-2020	12-31-2022
1075	BERYLLIUM, TOTAL	null	Y	MDL	0E-9		01-01-2020	12-31-2022
1085	THALLIUM, TOTAL	null	Y	MDL	0E-9		01-01-2020	12-31-2022
Analyte Code	Analyte Name	Method Code	Less than Indicator	Level Type	Reporting Level	Concentration level	Monitoring Period Begin Date	Monitoring Period End Date
1040	NITRATE	null	Y	MDL	0E-9		01-01-2023	12-31-2023
Analyte Code	Analyte Name	Method Code	Less than Indicator	Level Type	Reporting Level	Concentration level	Monitoring Period Begin Date	Monitoring Period End Date
1040	NITRATE	null	Y	MDL	0E-9		01-01-2023	12-31-2023

Figure 3 Recorded Testing of Contaminants

Potential Flooding

For all wells the well casing extends 12” above ground elevation supporting IDAPA rules. If there is a flood of greater magnitude, there would be issues.

Groundwater Analysis

The purpose of this section is to show that the groundwater and geographically related areas have been considered.

Ground Water Levels

As seen in Appendix C:

Well Logs, the static water level for the well currently in use (Well #3) is 20 ft below the ground. As there are no subsurface structures the water elevation was found to be 4840 ft.

Soil Conditions

The soil is an alluvial deposited gravel, it is suitable for building on, and there are no concerns from Aspen Engineering regarding the soil at MVWC for construction purposes.

CHAPTER 8 Capital Improvement Program

Recommended improvements from previous chapters are shown below and summarized in this chapter, along with estimates of costs.

Cost Estimating

Cost estimates for proposed improvements presented are Order-of-Magnitude cost estimates. The American Association of Cost Engineers (AACE) defines Order-of-Magnitude cost estimates as estimates made without detailed engineering data. These estimates may be developed using cost curves, scale-up or scale-down factors, or an approximate ratio. AACE defines the accuracy for this level of estimate as plus 50 percent to minus 30 percent.

The cost estimates presented below have been prepared for guidance in project evaluation and implementation from the information available at the time of the estimate. The final costs of the project will depend on actual labor and material costs, competitive market conditions, final project costs, implementation schedule and other variable factors. As a result, the final project costs will vary from the estimate presented herein. Because of this, project feasibility and funding needs must be carefully reviewed prior to making specific financial decisions to help ensure proper project evaluation and adequate funding.

Drill Water Supply Well

The cost to drill a new well assumes 12-inch diameter open hole production well 240 feet deep. The estimate includes costs for a pilot hole and final production well, and assumes the Company owns the well lot. A 30 percent allowance for contingency, engineering, administration, and legal cost is included in the estimate. The estimated cost to drill a new water supply well is \$23,000.

Backup Power Generator

Natural gas or diesel generated power to run the submersible pump and controller at the pump building will require an 80 to 100 KW generator. Anticipated cost for purchase and installation of the generator including concrete pad and weather enclosure is \$50,000.

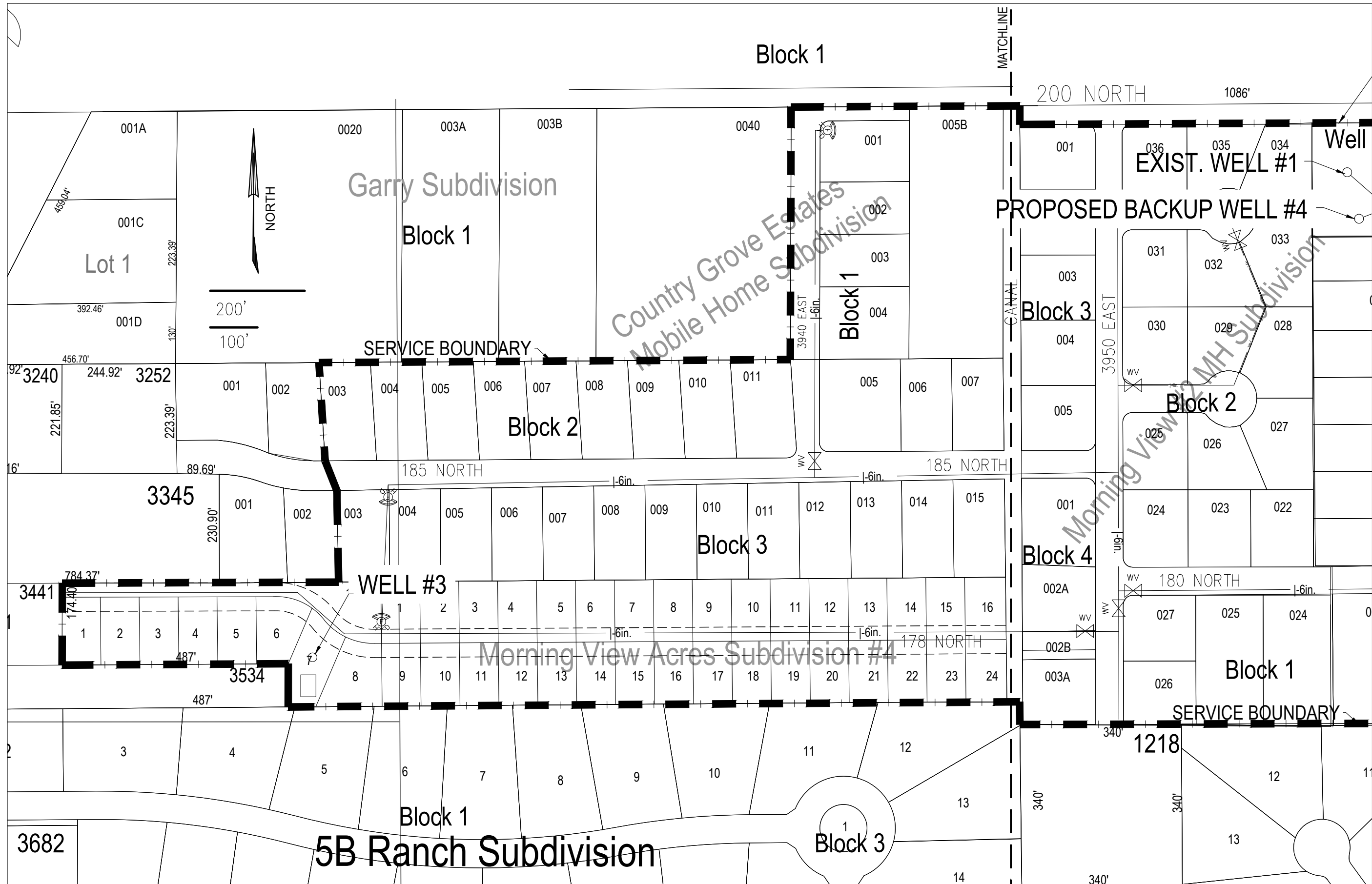
Schedule

The anticipated construction schedule will be based on obtaining adequate funding. The time frame begins when funding is implemented with the following milestones:

- 45-60 days complete design.
- 20-30 days DEQ review of design
- 7-15 days Comment Resolution
- 15-28 days contractor bidding process
- 30-45 days drilling of new well
- 7-10 days well testing (well capacity pumping test)
- 7-10 days set pump/electrical connection

Appendix A:

Maps



Aspen Engineering, Inc.
 743 S CAPITAL AVE.
 Idaho Falls, Idaho 83401
 Phone (208) 542-1911

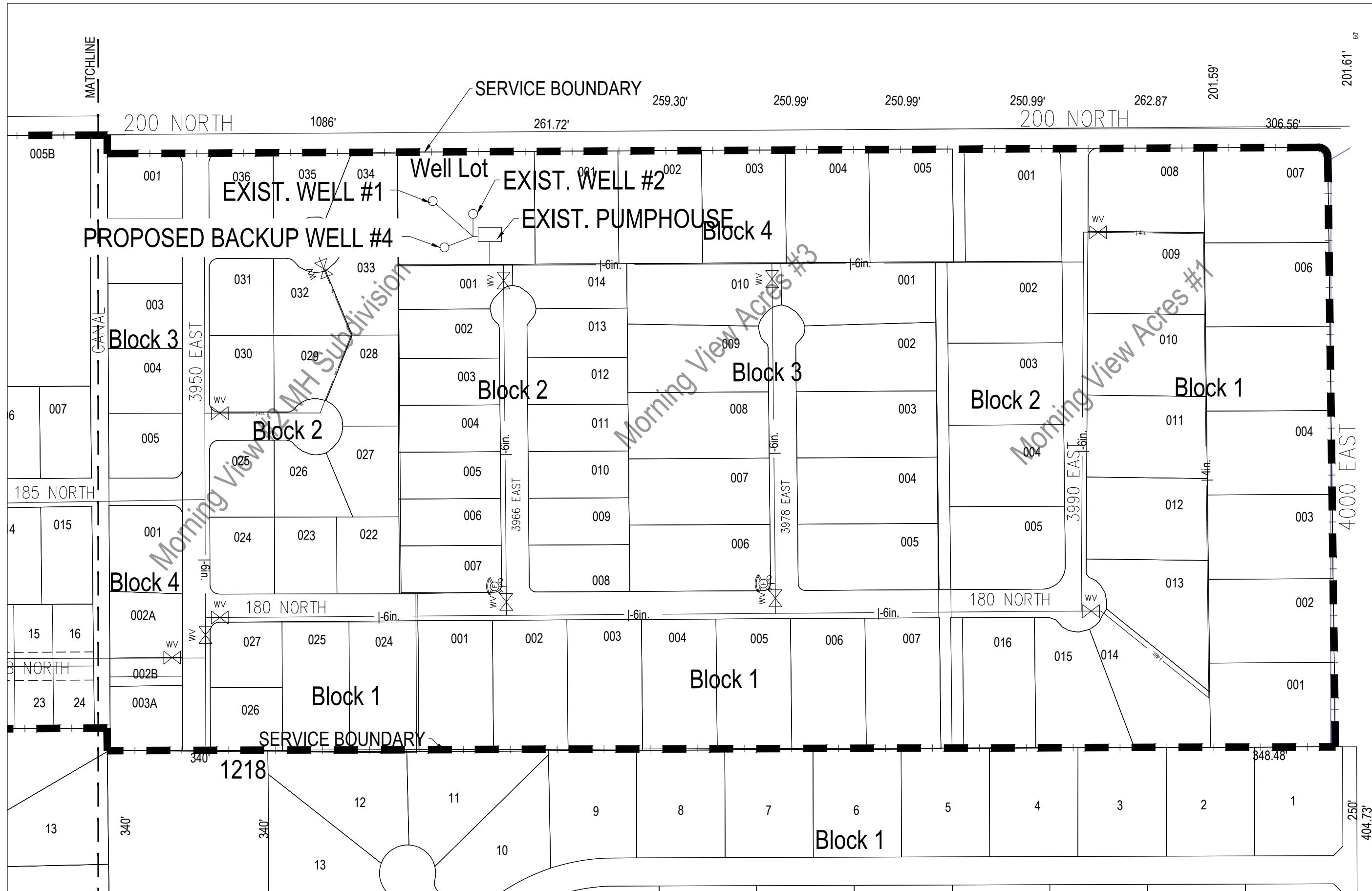


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FALLS WATER
 MORNING VIEW WATER SYSTEM
 JEFFERSON COUNTY IDAHO
 MV WATER SYSTEM

JOB NO.	2023.034
DATE	11/14/23
DRAWN BY	JP
CHECKED BY	JRL
REVISIONS	DATE

SHEET NO.
 1.0
 of 2



Aspen Engineering, Inc.
 743 S CAPITAL AVE.
 Idaho Falls, Idaho 83401
 Phone (208) 542-1911



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FALLS WATER
 MORNING VIEW WATER SYSTEM
 JEFFERSON COUNTY IDAHO
 MV WATER SYSTEM

JOB NO.	2023.034
DATE	11/14/23
DRAWN BY	JRP
CHECKED BY	JRL
REVISIONS	DATE

SHEET NO.
2.0
 of
 2

Appendix B:

Water Right

Water Right Report : 25-7593(License/Active)

Water Right Owners

Owner Type	Name	Address	City	State	Postal Code
Current Owner	FALLS WATER CO INC	2180 N DEBORAH DR	IDAHO FALLS	ID	83401-6223
Original Owner	MORNINGVIEW WATER CO INC	PO BOX 598	RIGBY	ID	83442

Water Right Status

Priority Date : 10/10/1995
 Basis : License
 Status : Active

Water Source

Source	Source Qualifier	Tributary	Tributary Qualifier
GROUND WATER			

Points Of Diversion (Location)

Source	Township	Range	Section	Govt. Lot	QQQ	QQ	Q	County	Diversion Type
GROUND WATER	04N	39E	30	0		NW	NE	JEFFERSON	
GROUND WATER	04N	39E	30	0		NW	NE	JEFFERSON	

Water Uses

Beneficial Use	From	To	Diversion Rate	Volume
IRRIGATION	04/01	10/31	0.46 CFS	92.00 AFA
DOMESTIC	01/01	12/31	0.33 CFS	28.80 AFA
TOTAL			0.79 CFS	120.80 CFS

Places of Use

[Printable View](#)

[Paged View](#)

Place of Use Legal Description : IRRIGATION (JEFFERSON county)

Township	Range	Section	Lot	QQQ	QQ	Q	Acres
04N	39E	30			NE	NE	9
04N	39E	30			NW	NE	14

Place of Use Legal Description : DOMESTIC (JEFFERSON county)

Township	Range	Section	Lot	QQQ	QQ	Q	Acres
04N	39E	30			NE	NE	
04N	39E	30			NW	NE	

Irrigation Totals

Total Acres	Acre Limit
23.00	

Conditions

Code Conditions

- R05 Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District No. 120.

- X35 Rights 25-14199 and 25-7593 when combined shall not exceed a total diversion rate of 0.83 cfs for in-house non-consumptive purposes and 0.46 cfs and 92 afa for the irrigation of 152 lots.

- 132 Domestic use is for 48 homes. Irrigation of lawn, garden and landscaping associated with the home is authorized under the irrigation component of this right.

- X60 Place of use is located within Morningview Subdivision.

- 004 The issuance of this right does not grant any right-of-way or easement across the land of another.

- 048 The use of water under this right shall not give rise to any claim against the holder of a senior water right based upon the theories of forfeiture, abandonment, adverse possession, waiver, equitable estoppel, estoppel by laches or customary preference.

- R64 This right when combined with all other rights shall provide no more than 0.02 cfs per acre nor more than 4.0 afa per acre at the field headgate for irrigation of the place of use.

Dates	Other Information
Licensed Date : 1/31/2012	State or Federal :
Decreed Date :	Water District Number : 120
Permit Proof Due Date : 7/1/1994	Generic Max Rate Per Acre : 0.02
Permit Proof Made Date : 10/10/1995	Generic Max Volume Per Acre : 4
Permit Approved Date : 7/15/1991	Civil Case Number :
Permit Moratorium Expiration Date :	Decree Plaintiff :
Enlargement Use Priority Date :	Decree Defendant :
Enlargement Statute Priority Date :	Swan Falls Trust or Nontrust : T
Application Received Date: 5/14/1991	Swan Falls Dismissed :
Protest Deadline Date:	DLE Act Number :
	Cary Act Number :
	Mitigation Plan: False

Water Right Report : 25-14199(License/Active)

Water Right Owners

Owner Type	Name	Address	City	State	Postal Code
Current Owner	FALLS WATER CO INC	2180 N DEBORAH DR	IDAHO FALLS	ID	83401-6223
Original Owner	MORNINGVIEW WATER CO INC	PO BOX 598	RIGBY	ID	83442

Water Right Status

Priority Date : 9/4/2007
 Basis : License
 Status : Active

Water Source

Source	Source Qualifier	Tributary	Tributary Qualifier
GROUND WATER			

Points Of Diversion (Location)

Source	Township	Range	Section	Govt. Lot	QQQ	QQ	Q	County	Diversion Type
GROUND WATER	04N	39E	30	0		NW	NE	JEFFERSON	
GROUND WATER	04N	39E	30	0		NW	NE	JEFFERSON	
GROUND WATER	04N	39E	30	1		NW	NW	JEFFERSON	

Water Uses

Beneficial Use	From	To	Diversion Rate	Volume
DOMESTIC	01/01	12/31	0.83 CFS	156.00 AFA
TOTAL			0.83 CFS	156.00 CFS

Places of Use

[Printable View](#)

[Paged View](#)

Place of Use Legal Description : DOMESTIC (JEFFERSON county)

Township	Range	Section	Lot	QQQ	QQ	Q	Acres
04N	39E	30			NE	NE	
04N	39E	30			NW	NE	
04N	39E	30			NE	NW	
04N	39E	30	1		NW	NW	

Conditions

Code Conditions

X01	Domestic use is for 130 homes.
X35	Rights 25-14199, 25-14236 and 25-7593 when combined shall not exceed a total diversion rate of 0.83 cfs for in-house non-consumptive purposes for 152 homes, and 0.46 cfs and 92 AFA for the irrigation of 152 lots.
R05	Use of water under this right may be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District No. 120.
213	Upon specific notification of the Department, the right holder shall install and maintain data loggers to record water usage information at the authorized point(s) of diversion in accordance with Department specifications.

- 212 Prior to diversion and use of water under this right, the right holder shall install and maintain acceptable measuring device(s) at the authorized point(s) of diversion, in accordance with Department specifications.

- 070 The irrigation occurring under this domestic use shall not exceed 1/2 acre within each platted subdivision lot upon which a home has been constructed. This right does not provide for irrigation of common areas or for irrigation of lots upon which homes have not been constructed.

- 071 The domestic use authorized under this right shall not exceed 13,000 gallons per day per home.

Dates	Other Information
Licensed Date : 6/25/2020	State or Federal :
Decreed Date :	Water District Number : 120
Permit Proof Due Date : 11/19/2022	Generic Max Rate Per Acre : 0
Permit Proof Made Date : 5/8/2020	Generic Max Volume Per Acre : 0
Permit Approved Date : 1/22/2010	Civil Case Number :
Permit Moratorium Expiration Date :	Decree Plaintiff :
Enlargement Use Priority Date :	Decree Defendant :
Enlargement Statute Priority Date :	Swan Falls Trust or Nontrust : T
Application Received Date: 7/31/2007	Swan Falls Dismissed :
Protest Deadline Date: 9/24/2007	DLE Act Number :
	Cary Act Number :
	Mitigation Plan: False

Water Right Report : 25-14236(License/Active)

Water Right Owners

Owner Type	Name	Address	City	State	Postal Code
Current Owner	FALLS WATER CO INC	2180 N DEBORAH DR	IDAHO FALLS	ID	83401-6223
Original Owner	MORNINGVIEW WATER CO INC	PO BOX 598	RIGBY	ID	83442

Water Right Status

Priority Date : 7/6/2009
 Basis : License
 Status : Active

Water Source

Source	Source Qualifier	Tributary	Tributary Qualifier
GROUND WATER			

Points Of Diversion (Location)

Source	Township	Range	Section	Govt. Lot	QQQ	QQ	Q	County	Diversion Type
GROUND WATER	04N	39E	30	0		NW	NE	JEFFERSON	
GROUND WATER	04N	39E	30	0		NW	NE	JEFFERSON	
GROUND WATER	04N	39E	30	1		NW	NW	JEFFERSON	

Water Uses

Beneficial Use	From	To	Diversion Rate	Volume
DOMESTIC	01/01	12/31	0.25 CFS	12.00 AFA
TOTAL			0.25 CFS	12.00 CFS

Places of Use

[Printable View](#)

[Paged View](#)

Place of Use Legal Description : DOMESTIC (JEFFERSON county)

Township	Range	Section	Lot	QQQ	QQ	Q	Acres
04N	39E	30			NE	NE	
04N	39E	30			NW	NE	
04N	39E	30			NE	NW	
04N	39E	30	1		NW	NW	

Conditions

Code Conditions

- 132 Domestic use is for 10 homes.
 Water rights 25-14236, 25-14199, and 25-7593 shall not exceed a diversion rate of .83 cfs for in-house non consumptive domestic purposes for 152 homes, and .46 cfs, and 92 AFA for the irrigation of 152 lots.
- R05 Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District No. 120.
- 213 Upon specific notification of the Department, the right holder shall install and maintain data loggers to record water usage information at the authorized point(s) of diversion in accordance with Department specifications.

- 212 Prior to diversion and use of water, the right holder shall install and maintain acceptable measuring device(s) at the authorized point(s) of diversion, in accordance with Department specifications.

- 070 The irrigation occurring under this domestic use shall not exceed 1/2 acre within each platted subdivision lot upon which a home has been constructed. This right does not provide for irrigation of common areas or for irrigation of lots upon which homes have not been constructed.

- 071 The domestic use authorized under this right shall not exceed 13,000 gallons per day per home.

Dates	Other Information
Licensed Date : 6/25/2020	State or Federal :
Decreed Date :	Water District Number : 120
Permit Proof Due Date : 11/19/2022	Generic Max Rate Per Acre : 0
Permit Proof Made Date : 5/8/2020	Generic Max Volume Per Acre : 0
Permit Approved Date : 1/22/2010	Civil Case Number :
Permit Moratorium Expiration Date :	Decree Plaintiff :
Enlargement Use Priority Date :	Decree Defendant :
Enlargement Statute Priority Date :	Swan Falls Trust or Nontrust : T
Application Received Date: 6/1/2009	Swan Falls Dismissed :
Protest Deadline Date: 7/6/2009	DLE Act Number :
	Cary Act Number :
	Mitigation Plan: False

Appendix C:

Well Logs

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

USE TYPEWRITER OR
BALLPOINT PEN

RECEIVED
JUN 17 1981
Department of Water Resources
Eastern District Office

1. WELL OWNER
Name Walter Smith
Address Riggs Idaho
Owner's Permit No. _____

7. WATER LEVEL
Static water level 55 feet below land
Flowing? Yes No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: Valve Cap Plug
Temperature _____ OF. Quality _____

2. NATURE OF WORK
 New well Deepened Replacement
 Abandoned (describe method of abandoning) _____

8. WELL TEST DATA none
 Pump Baller Air Other _____
Discharge G.P.M. _____ Pumping Level _____ Hours Pumped _____

3. PROPOSED USE
 Domestic Irrigation Test Municipal
 Industrial Stock Waste Disposal or Injection
 Other _____ (specify type)

9. LITHOLOGIC LOG

Hole Diam.	Depth		Material	Water	
	From	To		Yes	No
10"	0	5	top soil		X
10"	5	15	clay rock		X
12"	15	30	" "		X
12"	30	50	" "		X
10"	50	60	" "	X	
12"	60	85	sand	X	
10"	85	95	sand gravel	X	
10"	95	115	" "	X	
10"	115	130	" "	X	
10"	130	150	" "	X	

4. METHOD DRILLED
 Rotary Air Hydraulic Reverse rotary
 Cable Dug Other _____

5. WELL CONSTRUCTION
Casing schedule: Steel Concrete Other _____
Thickness _____ Diameter _____ From _____ To _____
_____ inches _____ inches _____ feet _____ feet
_____ inches _____ inches _____ feet _____ feet
_____ inches _____ inches _____ feet _____ feet
Was casing drive shoe used? Yes No
Was a packer or seal used? Yes No
Perforated? Yes No
How perforated? Factory Knife Torch
Size of perforation 5/8 inches by 4 inches
Number _____ From _____ To _____
140 perforations _____ feet _____ feet
_____ perforations _____ feet _____ feet
Well screen installed? Yes No
Manufacturer's name _____
Type _____ Model No. _____
Diameter _____ Slot size _____ Set from _____ feet to _____ feet
Diameter _____ Slot size _____ Set from _____ feet to _____ feet
Gravel packed? Yes No Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 18' Material used in seal: Cement grout
 Puddling clay Well cuttings
Sealing procedure used: Slurry pit Temp. surface casing
 Overbore to seal depth
Method of joining casing: Threaded Welded Solvent
Weld _____
 Cemented between strata
Describe access port well seal

6. LOCATION OF WELL
Sketch map location must agree with written location. 25
Subdivision Name Morningstar
Acres
Lot No. _____ Block No. _____
County NE
NE 1/4 Sec. 30, T. 4 N. R. 39 E. 1/4

10. Work started Jan 15-80 finished Jan 20-81

11. DRILLERS CERTIFICATION cb dl
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm Name WAM Firm No. 335
Address Riggs Idaho Date Jan 20-81
Signed by (Firm Official) WAM
and
(Operator) Walter Smith

RECEIVED

JUN 26 1981

Department of Water Resources

Figure 5 Well #2

Form 238-7
6/07
AMD

IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

1. WELL TAG NO. D CO62972
 Drilling Permit No. _____
 Water right or injection well # _____

2. OWNER:
 Name MorningView Water Co. 1/6 Reed Hill
 Address PO Box 2250
 City Idaho Falls State ID Zip 83403

3. WELL LOCATION:
 Twp 4 North or South Rge 39 East or West
 Sec 30 1/4 NW 1/4 NW 1/4
 Gov't Lot _____ County Jefferson
 Lat 43° 39.158 (Deg and Decimal minutes)
 Long 111° 55.199 (Deg and Decimal minutes)
 Address of Well Site 3990 E. 178N
 City Rigby
 Lot _____ Blk _____ Sub Name MorningView Div 4

4. USE:
 Domestic Municipal Monitor Irrigation Thermal Injection
 Other _____

5. TYPE OF WORK:
 New well Replacement well Modify existing well
 Abandonment Other _____

6. DRILL METHOD:
 Air Rotary Mud Rotary Cable Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft)	Placement method/procedure
<u>Bentonite</u>	<u>0'</u>	<u>60'</u>	<u>365 ft</u>	<u>Temporary casing</u>

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing	Liner	Threaded	Welded
<u>12" +2</u>	<u>154'</u>	<u>365'</u>	<u>365</u>	<u>steel</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Was drive shoe used? Y N Shoe Depth(s) _____

9. PERFORATIONS (SCREENS):
 Perforations Y N Method _____
 Manufactured screen Y N Type 304 SS
 Method of installation Pullback

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
<u>156'</u>	<u>176'</u>	<u>0.50</u>		<u>10"</u>	<u>Stainless</u>	

Length of Headpipe 11' Length of Tailpipe _____
 Packer Y N Type Triple K

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft)	Placement method

11. FLOWING ARTESIAN:
 Flowing Artesian? Y N Artesian Pressure (PSIG) _____
 Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:
 Depth first water encountered (ft) 20' Static water level (ft) 20'
 Water temp. (°F) _____ Bottom hole temp. (°F) _____
 Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Pump	Bailer	Air	Flowing artesian
<u>-</u>	<u>TBD/10+</u>	<u>700</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water	
				Y	N
<u>16"</u>	<u>0'</u>	<u>3'</u>	<u>Overburden</u>		<input checked="" type="checkbox"/>
	<u>3'</u>	<u>58'</u>	<u>Gravel & Sediment</u>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>12"</u>	<u>58'</u>	<u>Gravel & Sediment</u>	<input type="checkbox"/>	<input type="checkbox"/>

RECEIVED
 APR 15 2014
 Department of Water Resources
 Eastern Region

Completed Depth (Measurable): 176'
 Date Started: 7/22/14 Date Completed: 8/14/14

14. DRILLER'S CERTIFICATION:
 I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Jay Debus Drilling Co. No. 519
 *Principal Driller John Debus Date _____
 *Driller Ed Penning Date 8/15/14
 *Operator II _____ Date _____
 Operator I _____ Date _____
 * Signature of Principal Driller and rig operator are required

Figure 6 Well #3

Appendix D:

Water Production Data

Well Log 2021			
	Wells 1&2	Well 3	Production Total
January	2,546	1,764,919	1,767,465
February	752,797	813,417	1,566,214
March	954,046	728,733	1,682,779
April	697,188	1,102,376	1,799,564
May	286,326	3,618,754	3,905,080
June	728,547	8,015,190	8,743,737
July	1,029,894	9,395,919	10,425,813
August	517,344	5,723,435	6,240,779
September	1,673	5,799,653	5,801,326
October	576	2,324,773	2,325,349
November	2,300	1,540,377	1,542,677
December	1,890	1,620,276	1,622,166
Totals	4,975,127	42,447,822	47,422,949

Figure 7 2021 Well Log

Well Log 2022			
	Wells 1&2	Well 3	Production Total
January	1,957	1,692,781	1,694,738
February	33,937	1,497,165	1,531,102
March	29,659	1,534,652	1,564,311
April	796,181	954,028	1,750,209
May	2,325	3,761,626	3,763,951
June	1,785	5,935,040	5,936,825
July	1,909	9,821,330	9,823,239
August	1,932	8,724,406	8,726,338
September	1,796	6,420,629	6,422,425
October	2,498	3,061,309	3,063,807
November	1,739	1,648,036	1,649,775
December	1,791	1,690,053	1,691,844
Totals	877,509	46,741,055	47,618,564

Figure 8 2022 Well Log

Morning View Well Log 2023						
	Well 1&2	Well 3	Production Total		Gallons per Acre Foot	Acre Feet of Production
January	1,863	1,714,854	1,716,717	1,716,717	325851	5.27
February	1,691	1,612,758	1,614,449	1,614,449	325851	4.95
March	1,850	1,709,037	1,710,887	1,710,887	325851	5.25
April	1,961	1,758,817	1,760,778	1,760,778	325851	5.40
May	1,322	4,313,492	4,314,814	4,314,814	325851	13.24
June	1,779	5,389,306	5,391,085	5,391,085	325851	16.54
July	1,564	7,451,061	7,452,625	7,452,625	325851	22.87
August	-	-	0	0	325851	-
September	-	-	0	0	325851	-
October	-	-	0	0	325851	-
November	-	-	0	0	325851	-
December	-	-	0	0	325851	-
Totals	12,030	23,949,325	23,961,355	23,961,355		73.53

Figure 9 2023 Well Log