EVANS WATER CORPORATION
WATER MASTER PLAN STUDY

DECEMBER 2021

PROJECT NO. 220126

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ACRONYMS AND ABBREVIATIONS

AC	Asbestos Cement
ACHD	Ada County Highway District
ADD	Average Day Demand
ASD	Average Summer Demand
AWD	Average Winter Demand
BID	Business Improvement District
CCR	Consumer Confidence Report
CIP	Capital Improvement Plan
DEQ	Department of Environmental Quality
DI	Ductile Iron
EDU	Equivalent Dwelling Unit
EID	Environmental Information Document
EPA	Environmental Protection Agency
GPD	Gallons per Day
GPM	Gallons per Minute
HDPE	High Density Polyethylene
HOA	Homeowner's Association
HP	Horsepower
IDAPA	Idaho Administrative Procedure Act
IDSL	Idaho Department of State Lands
IDWR	Idaho Department of Water Resources
IOCs	Inorganic Contaminants
ISPWC	Idaho Standards for Public Works Construction
LF	Linear Feet
LID	Local Improvement District
MDD	Maximum Day Demand
MG	Million Gallons
MGD	Million Gallons per Day
NEMA	National Electrical Manufacturers Association
NRCS	Natural Resource Conservation Service
PHD	Peak Hour Demand
PLCs	Programmable Logic Controller

PRV	Pressure Reducing Valve
PVC	Polyvinyl-Chloride
PZ	Pressure Zone
QLPE	Qualified Licensed Professional Engineer
SCADA	Supervisory Control and Data Acquisition
SOCs	Synthetic Organic Contaminants
SRF	State Revolving Fund
TDH	Total Dynamic Head
USDA-RD	United States Department of Agriculture – Rural Development
USFW	United States Fish and Wildlife Service
USGS	United States Geological Survey
VFD	Variable Frequency Drive
VSWS	Very Small Water System
VOCs	Volatile Organic Contaminants
WMP	Water Master Plan

CHAPTER 1 - INTRODUCTION

In 2021, Evans Water Corporation and Homeowners Association (Corporation) contracted with Keller Associates, Inc. (Keller) to complete a water master plan for the Corporation's water distribution system. The following report presents the findings and recommendations related to the Corporation's potable water system study. This study was commissioned by the Corporation in an effort to assess the water distribution system needs, evaluate if the existing distribution system can meet those needs, and provide a long-term plan to implement improvements so the needs of the Corporation can be met. This study describes the conditions, demands, and problems in the existing system, analyzes the demand data, and provides recommendations for improvements to the water system over the 20-year planning period. The study has been funded in part by the Idaho Department of Environmental Quality (DEQ) Water Drinking Water State Revolving Funds and by the Corporation.

The water master plan report is organized into six chapters. The introduction is included in Chapter 1 followed by a description of the study area and planning criteria in Chapter 2. The existing system description, conditions assessment, hydraulic capacity, and future system conditions are covered in Chapters 3 and 4. Improvement alternatives to address deficiencies identified in Chapters 3 and 4 are discussed in Chapter 5, and recommended improvements and capital improvement plan are included in Chapter 6. Relevant supporting materials can be found in the Appendices.

1.1 WATER SYSTEM HISTORY

The water system was installed during the early 1970s when the two wells were drilled and has served the residential users ever since then. The distribution system was installed around that same time. The Corporation works hard to ensure that the water system complies with drinking water regulations, and several improvements have been implemented since the water system was first installed, such as, constructing a building to house the wells and pressure tank, replacement of the pressure tank, replacing well pumps, leak detection and repair, and other minor maintenance activities. A single fire hydrant was originally installed near the intersection of East Rene Place and North Dicky Drive; however, the local fire marshal reported the water system cannot supply significant fire flow. For this reason, the fire hydrant was removed and replaced with a blow-off valve.

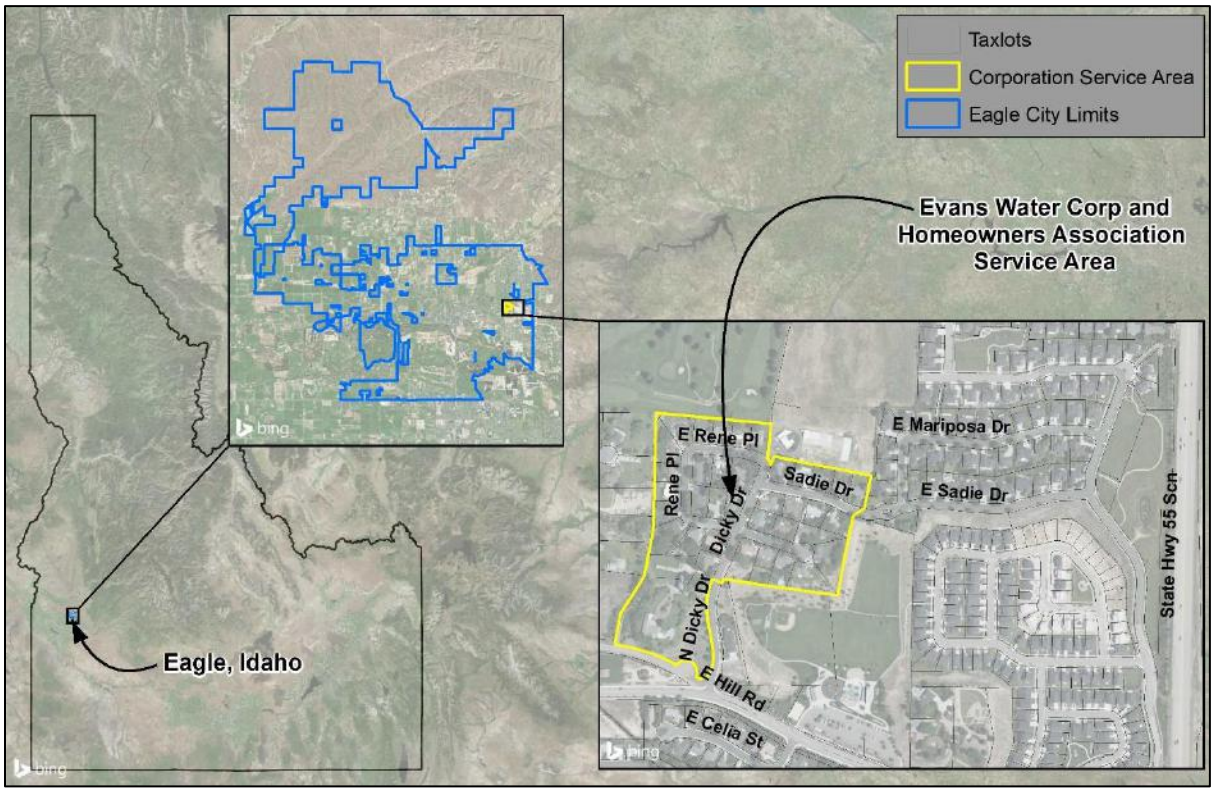
CHAPTER 2 - PROJECT PLANNING

The following sections discuss the existing environmental conditions within the study area. Additionally, the chapter below includes a summary of water usage as well as establishes planning criteria for this study.

2.1 LOCATION AND STUDY AREA

Evans Water Corporation and Homeowners Association is located within the City of Eagle, Idaho. The study area consists of approximately 18.5 acres of residential land use with a total of 37 residential tax lots and a single common lot. Figure 2-1 illustrates the study area.

FIGURE 2-1: EVANS WATER CORPORATION SERVICE AREA



2.2 EXISTING ENVIRONMENTAL CONDITIONS

The section below presents a general overview of the existing environmental conditions within the study area.

2.3.1 PHYSICAL ASPECTS: TOPOGRAPHY, GEOLOGY, AND SOILS

The study area is comprised of relatively flat topography with elevations of about 2,600 feet above sea level. The soils in the study areas are comprised of a Purdam complex according to the Natural Resource Conservation Service (NRCS) web soil survey. The purdam complex is generally characterized by well drained, light brownish-gray silt loam about 10 inches thick. The sub-soil consists of clay and silt loam about 12 inches thick. A detailed description of purdam soils is included in Appendix B.

2.3.2 SURFACE AND GROUNDWATER HYDROLOGY

The study area is located within the Western Snake River Plain. Groundwater within this geographical region is characterized by various categories of aquifers interconnected through underground flow paths. Groundwater levels vary throughout the Western Snake River Plain, but according to the original well logs from 1973 and 1974, the static water level is about 40-45 feet below the land surface; well logs are provided in Appendix B. The Boise River is located approximately one mile south of the study area.

2.3.3 FAUNA, FLORA, AND NATURAL COMMUNITIES

Ada County is home to a wide variety of plants and animal life. The Ada County Observations List by Idaho Fish and Game was used to find species listed as threatened, candidate, and engaged by the United States Fish and Wildlife Service.

- Candidate Species – Greater-Sage Grouse, Yellow-Billed Cuckoo, North American Wolverine
- Threatened Species – Slickspot Peppergrass
- Endangered Species – None

The full observation list of Ada County can be found in Appendix B. These species are not anticipated to be found within the study area where the improvements would be constructed.

2.3.4 HISTORICAL AND CULTURAL RESOURCES

There were no historical or cultural resources listed in the National Register of Historic Places in Idaho within the study area. The closest structures listed are the Eagle Hotel, Jackson Orville and Floy House, which are both over one mile southwest of the study area. It is not anticipated improvements within the study area will impact historical or cultural resources.

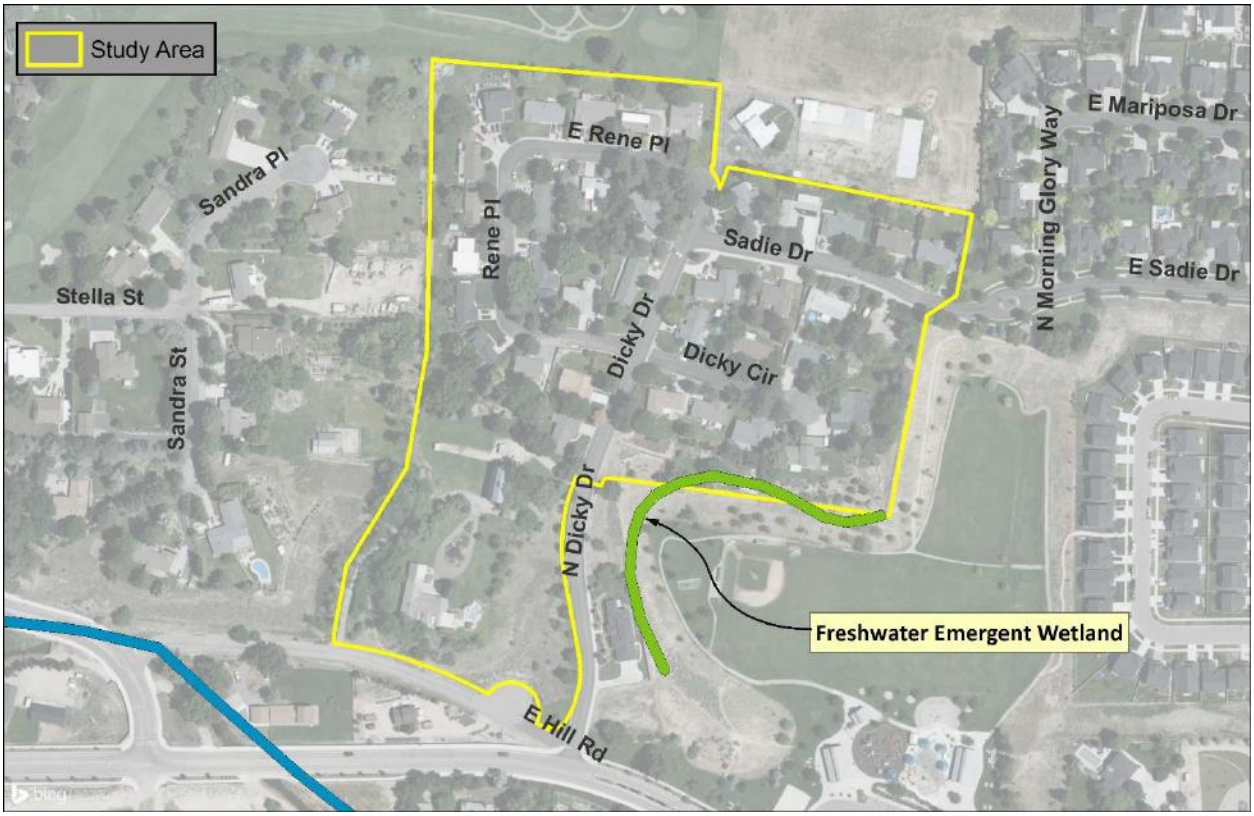
2.3.5 UTILITY USE

The residents within the study area use water from the Evans Water Corporation water system. Further discussion on water production and usage is discussed in Section 2.6. Users are within the Eagle Sewer District and some users are connected to the District while others are connected to individual septic systems. Users receive power from Idaho Power Company.

2.3.6 FLOODPLAINS AND WETLANDS

The study area is located within a mile of the Boise River but is not located with the 100-year or 500-year flood plain. One identified wetland was recorded by the United States Fish and Wildlife Service (USFW), and it is located toward the southern border of the study area. The wetland was identified as a freshwater emergent wetland and is shown below in Figure 2-2. This wetland was identified using the USFWS wetland mapper which identifies wetlands using high-altitude aerial imagery to classify wetlands based on vegetation, visible hydrology, and geography. Detailed on-the-ground delineation of wetlands may result in revisions to the wetland boundaries and should be completed before any construction which may disturb the wetlands.

FIGURE 2-2: FLOODPLAINS AND WETLANDS WITHIN STUDY AREA



2.3.7 WILD AND SCENIC RIVERS

There are no designated wild or scenic rivers within the study area or within the vicinity of the proposed projects.

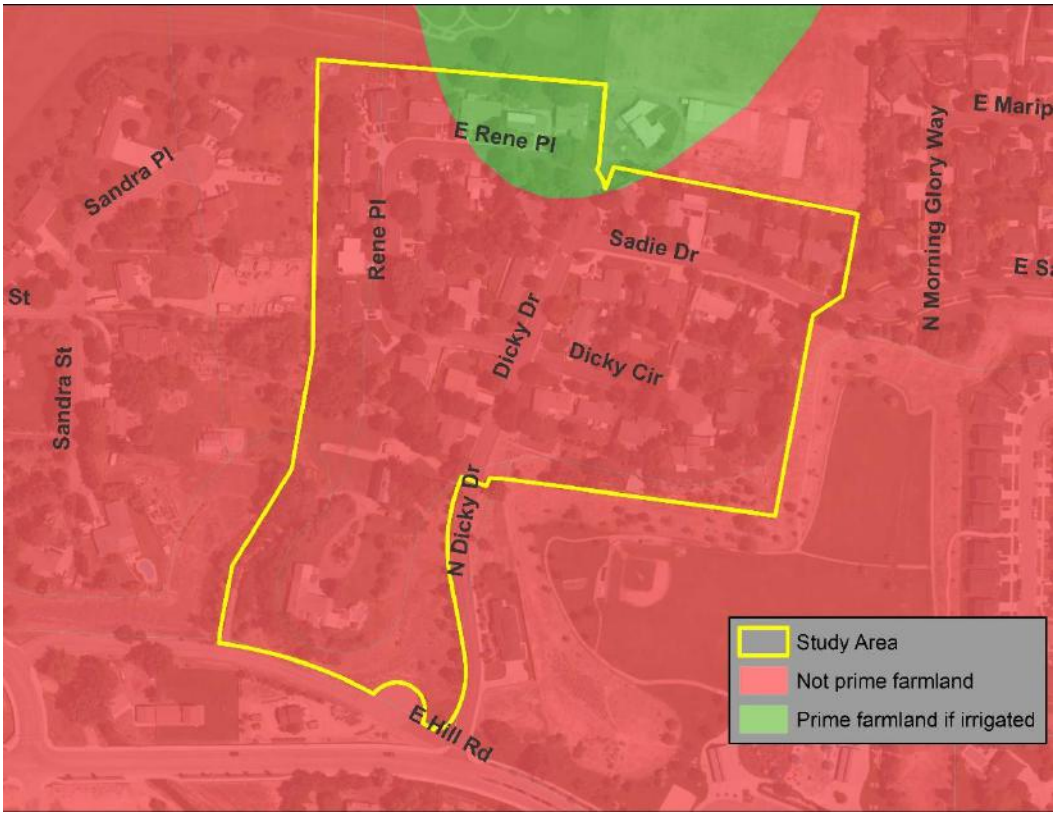
2.3.8 PUBLIC HEALTH AND WATER QUALITY REQUIREMENTS

A single total coliform sample is taken at one of four different sampling locations throughout the distribution system each month. The Corporation has missed one total coliform sample in the last 5 years but there have not been any water quality violations related to the potable water supply for the Corporation. Additional monitoring including nitrates, nitrites, volatile organic contaminants (VOCs), synthetic organic contaminants (SOCs), and uranium is completed as required by the Idaho Department of Environmental Quality (DEQ). The monitoring results are stored onsite on a hard drive and backed up regularly to a cloud-based file location. Monitoring results are provided in Appendix B.

2.3.9 IMPORTANT FARMLANDS PROTECTION

There is a portion of the study area which is designated by NRCS as prime farmland if irrigated as shown in Figure 2-3. The remainder of the study area is designated as not prime farmland.

FIGURE 2-3: PRIME FARMLAND WITHIN STUDY AREA



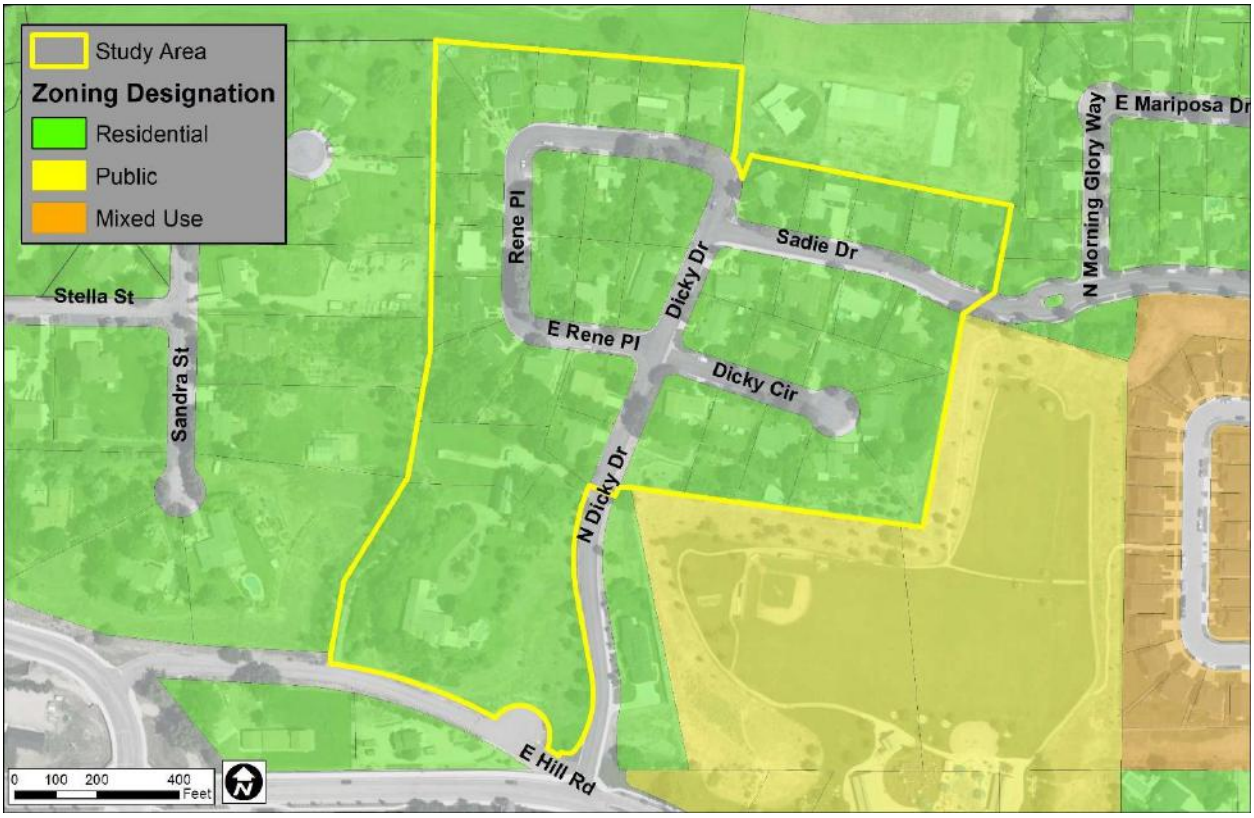
2.3.10 PROXIMITY TO SOLE SOURCE AQUIFER

The study area is not over a sole source aquifer. The nearest sole source aquifer to the study area is the Eastern Snake River Plain Aquifer and is located over 100 miles east.

2.3.11 LAND USE AND DEVELOPMENT

The study area consists of residential land use. Surrounding land use includes public recreational space and additional residential land use. The study area is completely built out; therefore, no growth areas were identified within the study area. The average lot size within the study area is approximately 1/3 acre.

FIGURE 2-4: LAND USE



2.3.12 PRECIPITATION, TEMPERATURE, AND PREVAILING WINDS

The climate for the study area was used from the nearest weather station in Meridian, Idaho (from Western Regional Climate Center Weather Station 105841) from 1911 to 1960. The average maximum temperature historically occurs in July and is 91.2 degrees Fahrenheit. The lowest average temperature occurs in January and is 36.7 degrees Fahrenheit. The annual minimum average temperature is 36.5 degrees Fahrenheit, and the annual maximum average temperature is 63.9 degrees Fahrenheit. The average annual precipitation depth is 11.3 inches, and the average snowfall depth is 18.4 inches.

Prevailing winds were taken from the Boise, Idaho weather station (Station 24131). The annual average prevailing wind direction is southeast at an average speed of 8.7 miles per hour.

2.3.13 AIR QUALITY AND NOISE

The study area has not had any air quality or noise issues identified previously, and there are no anticipated long-term adverse impacts to the air quality and noise levels from any proposed improvements. Proposed improvements may have a temporary local impact on noise and air quality, such as dust during construction. However, best management practices during construction can mitigate against airborne dust during construction.

2.3.14 ENERGY PRODUCTION AND CONSUMPTION

The existing water system utilizes electrical energy for pumping water from the wells and to the water users. The Corporation does not have a supervisory control and data acquisition (SCADA) system to record energy consumption. The City utilizes power from Idaho Power Company.

2.3.15 SOCIO ECOMOMIC PROFILE

The study area is comprised of 37 residential homes and the most recent surveys indicate a service area population of 138 people resulting in about 3.7 persons per household. This is higher than the City of Eagle's average persons per household of 2.66.

The study area is completely built-out and no growth projections were developed in this water master plan. It was assumed the number of users will not change throughout the 20-year study period.

2.3 WATER DEMAND ANALYSIS

Individual water usage is not tracked at each service connection. The well production is typically recorded weekly; however, daily meter readings were recorded from July to September 2021 to provide daily production rates for this study. The average day demand (ADD) was determined using historical production values from the previous 6-years (2019-2021). The average daily production during the maximum weeks was also calculated. The annual average daily production and maximum week production for each year are summarized below in Table 2-1.

TABLE 2-1: HISTORICAL PRODUCTION

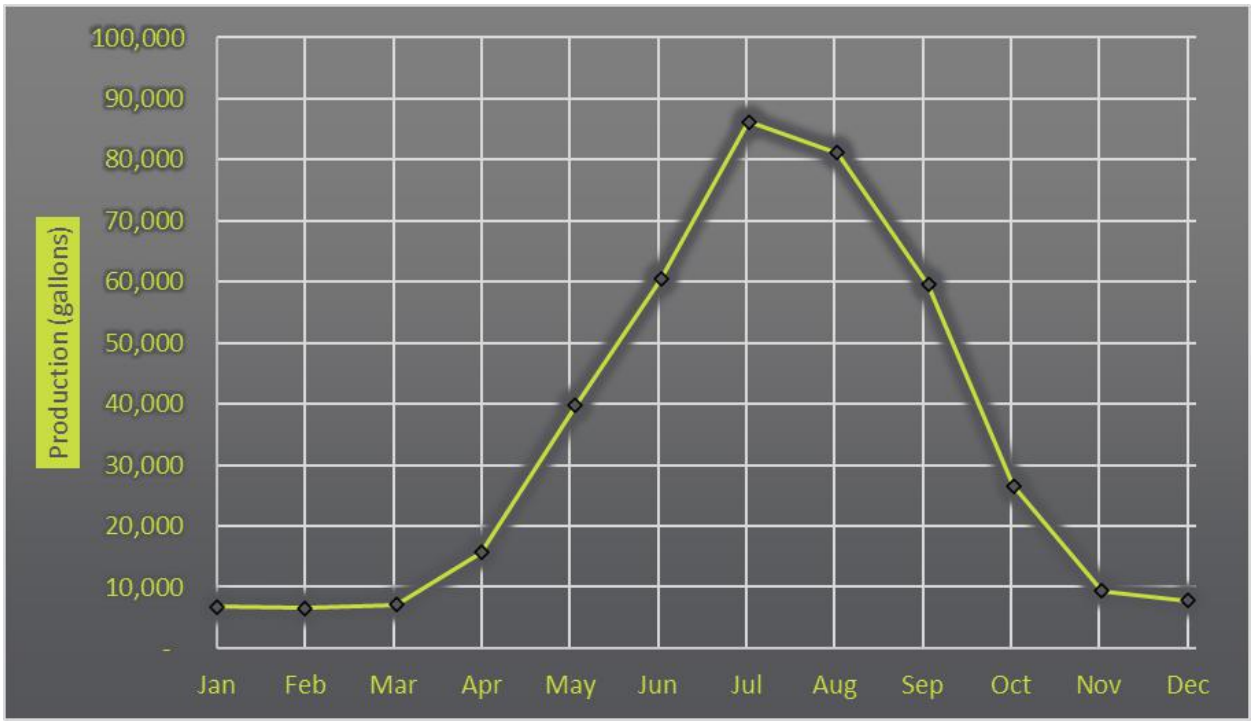
	2016	2017	2018	2019	2020	2021
Annual Average Daily Production (gallons)[1]	34,402	33,984	35,689	31,145	31,108	-
Average Daily Production from Max Week (gallons)[2]	92,457	100,117	99,743	89,143	86,157	104,343
Month of Max Day	July	July	July	August	July	July
Annual Production (MG)	12.76	12.37	12.99	11.34	11.51	-

1) Equal to the annual production divided by number of days in the year.

2) Equal to average daily demand from the maximum week in each year.

Figure 2-5 illustrates the average daily production for each month from 2016 to 2020. The lowest productions are in the winter months when irrigation is not used and the average winter demand (AWD) from January-March and November-December between 2016 to 2021 is about 7,500 gallons per day (gpd). The water demand increases as temperatures rise and irrigation is used starting in May through October. The average summer demand (ASD), which occurs from May to September, is equal to 65,400 gpd.

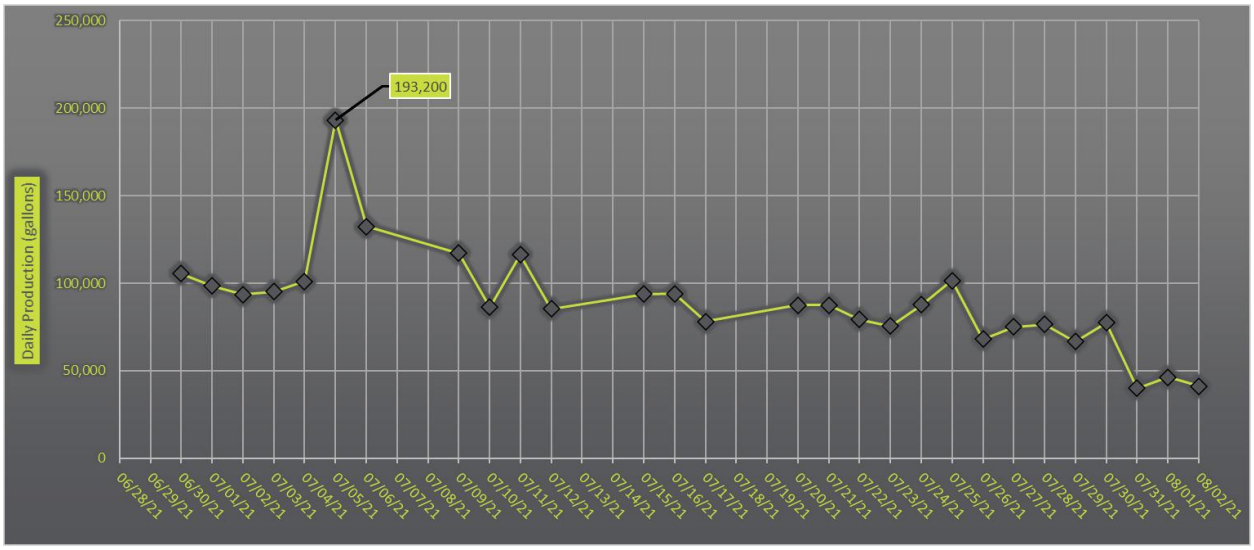
FIGURE 2-5: AVERAGE DAILY PRODUCTION EACH MONTH FROM 2016 TO 2020



Average maximum temperatures from July 2021 were approximately 7% above the historical maximum average temperature. It was assumed that the daily readings from July to August 2021 captured a daily production representative of the maximum day demand (MDD) because of the higher temperatures in July.

The daily water production is shown in Figure 2-6. As seen in the figure, the peak production occurred on July 5th and had a total production volume of 193,200 gallons. This peak day production results in an average pumping rate of 134 gallons per minute (gpm) over 24-hours. The operator also reported that residential sprinkler systems were expelling air on that day, indicating the supply to the system did not meet the demand. A supply and delivery analysis are discussed further in Section 2.7.

FIGURE 2-6: JULY 2021 DAILY PRODUCTION VOLUMES



The water system does not have SCADA to record fluctuations in water production over a 24-hour period, therefore a 24-hour diurnal curve was not able to be developed for the water system. The peak hour demand (PHD) to MDD factor was approximated using typical peaking factors of similar water systems. The peaking factor for smaller water systems varies significantly and can range from less than 1.5 to greater than seven. The Evans Water Corp System's demand consists of a sizable percentage of irrigation demands; the peaking factor was assumed to be on the lower end of the range because irrigation practices tend to flatten out peak hour factors and the system's irrigation schedule discourages simultaneous irrigation use within the system. The peaking factor for this study was assigned based on a peaking factors of similar sized communities of sources. The City of Midvale, Idaho (with approximately 90 service connections that irrigates with potable water similar to Evans Water Corp.) used a MDD to PHD of 1.5. The same peaking factor was assigned for this planning study. A summary of the planning criteria used in this study is provided in Table 2-2.

TABLE 2-2: PLANNING CRITERIA WATER DEMANDS

Planning Criteria[2]	Demand (GPD)[1]	Demand (GPM)[1]	Gallons Per Capita Per Day[3]	Gallons per EDU per Day[4]
ADD	33,000	23	241	898
MDD	193,200	134	1,410	5,260
PHD	289,800	201	2,115	7,890
ASD	65,402	45	477	1,781
AWD	7,514	5	55	205

1) GPD = gallons per day; GPM = gallons per minute

2) ADD = average day deman; MDD = maximum day demand; PHD = peak hour demand; ASD = average summer demand; AWD = average winter demand

3) Uses a service population of 138 people.

4) Assumes 3.7 persons per equivalent dwelling unit (EDU).

2.4 REGULATORY CRITERIA

Planning for the distribution network involves establishing performance standards for pressures and flows throughout the system. The design flows throughout the system are the largest flows reasonably anticipated to occur. Unlike most water systems where design flows result from a fire event during the system's maximum day demand, the Corporations highest flows occur during peak hour demand. The water system does not have any fire hydrants and is not required to provide fire flow.

Standards for system pressures are necessary for the normal daily operation of the water system. The aim of standards for pressure is to provide safe and reliable service to water users under a variety of system conditions. If pressures are too high, damage and leaks can occur within the distribution system and at points of use. If pressures are too low, a variety of issues arise including higher risks of back flow contamination, and low or no water availability. The recommended distribution pressure standards for new connections are listed in Table 2-3 and these pressures are consistent with current DEQ standards.

TABLE 2-3: DISTRIBUTION SYSTEM REQUIREMENTS

System Scenario	Pressure
Peak Hour Demand Event	40 psi (min)
Maximum Intermitent Pressure	100 psi (max)
Operational Pressures without Pressure Regulator[1]	80 psi (max)
1) Pressures >80 psi may be approved on a case by case basis by DEQ.	

2.5 WATER QUALITY REQUIREMENTS

The Safe Drinking Water Act establishes standards for drinking water quality in an effort to ensure public health. These standards limit concentrations of primary contaminants that pose a risk to life and health, such as total coliform, nitrates, and arsenic, and are monitored by the United States Environmental Protection Agency (EPA) and DEQ. In planning for municipal water systems, sufficient elimination of these regulated contaminants is the chief concern – with regular testing and reporting required.

Other contaminants are sometimes found in water systems as well, referred to as nuisance, or secondary, contaminants. These include constituents, such as, hydrogen sulfide, ammonia, iron, and manganese. Where applicable, contaminants have been compared to the National Secondary Drinking Water Regulations as set by the EPA. These non-enforceable guidelines regulate aesthetic water quality parameters.

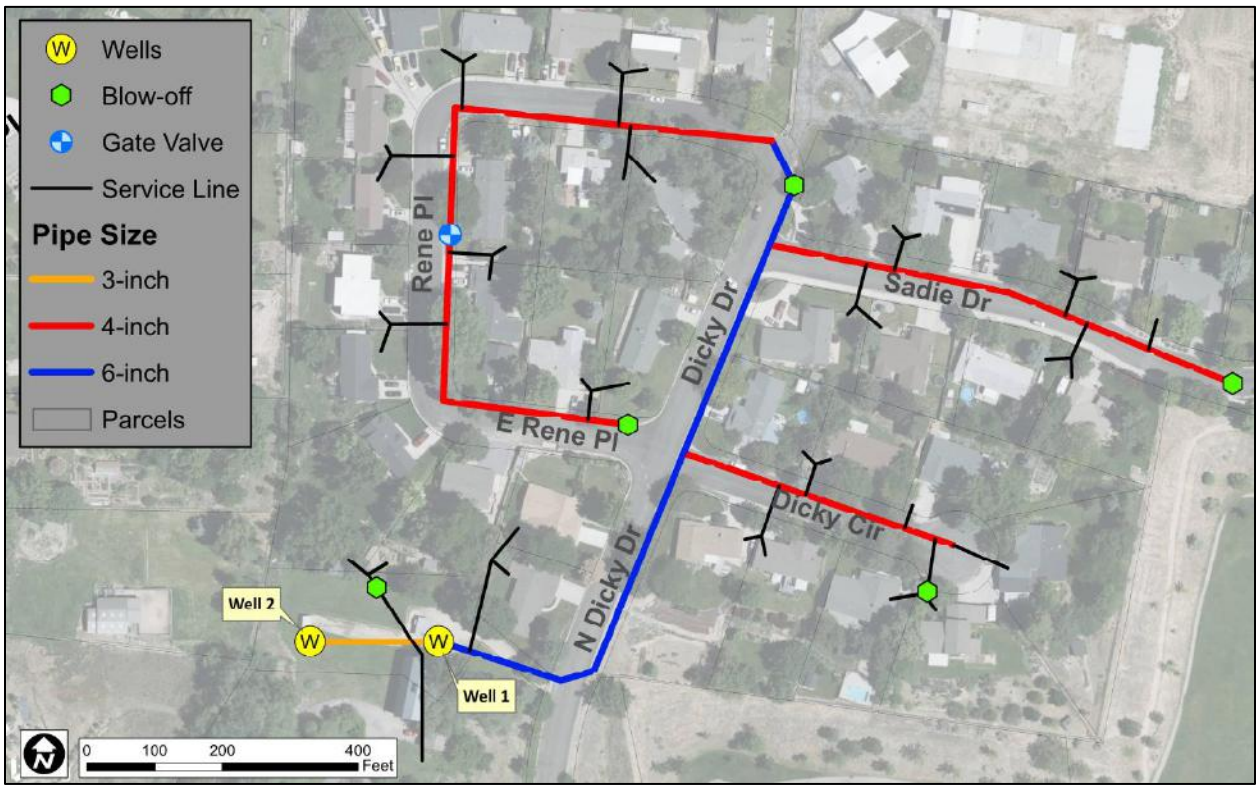
CHAPTER 3 - EXISTING CONDITIONS

The following chapter discusses the general conditions of the water facilities. Information was gathered from the operator and by completing a facility tour of the system.

3.1 EXISTING FACILITIES ASSESSMENT

The section below generally covers an evaluation of the Corporation's water system including the two wells, pressurized tank, and distribution piping. The existing water system was constructed in the 1970s to serve the Evans Subdivision 2 and 3. The water system consists of two potable wells, which are filtered to remove sand and then pumped into a 1,000-gallon pressurized water tank in the Well #1 pump house. No additional treatment processes are used before distribution. The sand filters are set to backwash approximately every 20 hours and the backwashed water drains to an existing ditch at the western property boundary. The water tank is pressurized by an air compressor and water is discharged to the distribution from the tank. The tank has a 6-inch discharge to the potable water system and a 3-inch discharge to the common lot irrigation system. The distribution system consists of approximately 2,600 linear feet (LF) of mainline pipes ranging in size from 3-inch to 6-inch pipes. There are five blow-off valves within the system and one gate valve. A map of the existing water system is shown below and can be found in Figure 1 in Appendix A.

FIGURE 3-1: EXISTING WATER SYSTEM



3.1.1 WELL #1 EXISTING CONDITIONS

Well #1 was drilled in 1973 and was rehabilitated in 1975. The well has a 12-inch steel casing from 0 to 150 feet in depth and a 10-inch casing from 150 to 175 feet in depth according to the original

well log. Also, according to the original well log, the well was drilled to a maximum of 175 feet below the ground surface and a screen was set at this depth, however, the Corporation reported the well depth to be approximately 350 feet deep, which was recorded during a camera inspection of the well hole in 2007. The original pump test from when the well was drilled yielded 150 gallons per minute (gpm) over 64 hours with 3-feet of drawdown, and the static water level was reported to be at 45 feet below ground surface. The well log can be found in Appendix B. The Corporation reported the well pump is installed approximately 40 feet below the static water level.

Well #1 is located in a wood pump house near 321 North Dicky Drive. The property is owned and maintained by the Corporation. The interior of the housing was replaced with cement board walls in 2011. The interior and exterior paint is maintained as needed by the Corporation and the exterior was painted in 2019. The pump house has a single rooftop vent and two windows which can be opened for ventilation. The pump house is also heated with a floorboard heater. The pump house is shown in Figure 3-2 below.

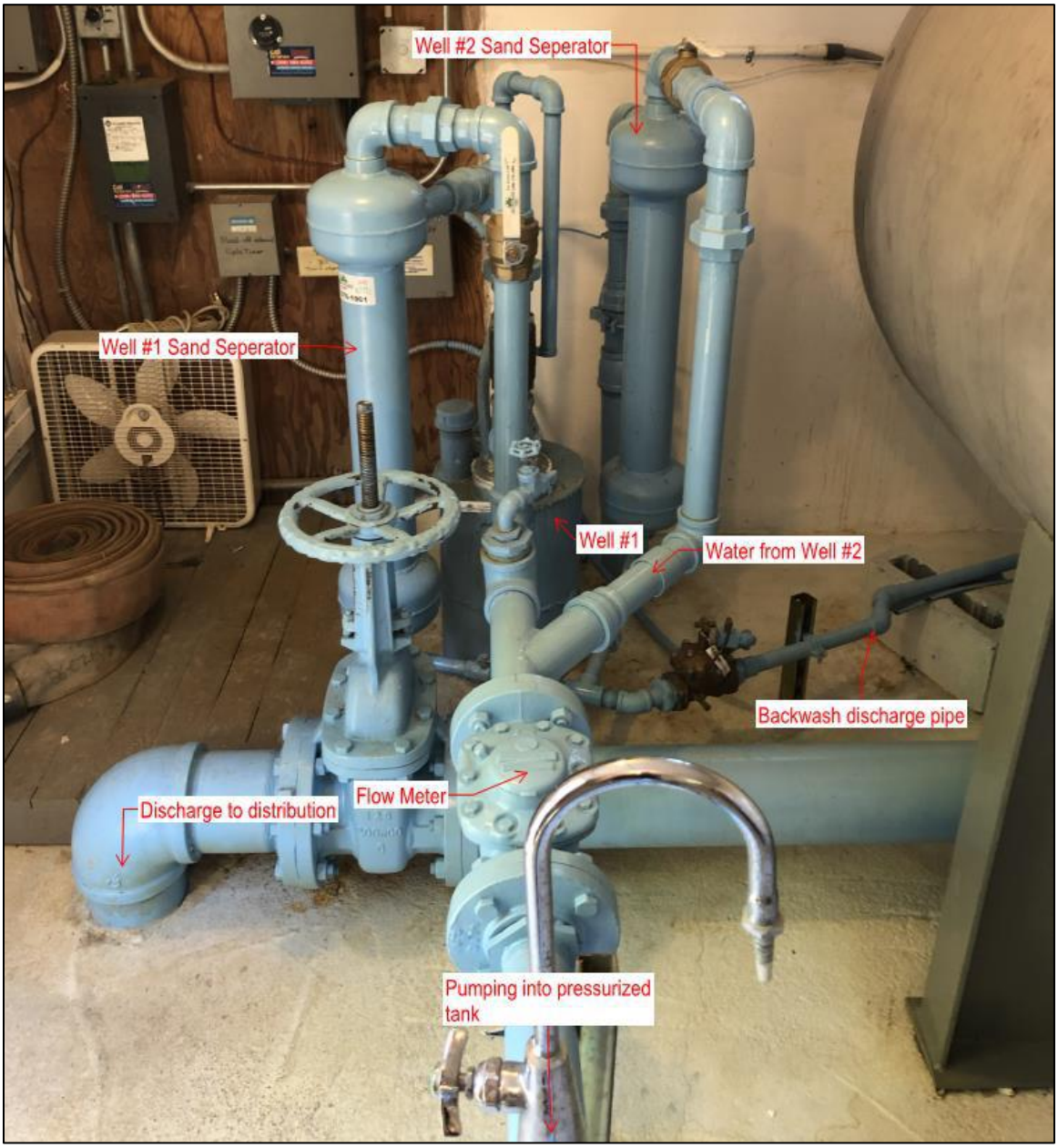
FIGURE 3-2: WELL #1 PUMP HOUSE

The Well #1 pump and motor were replaced in July 2019 with a 6", 7.5 horsepower (hp) submersible pump. The pump has a reported capacity of 100 gpm at 200 feet of total dynamic head (TDH). The Corporation completed a pump test of Well #1 and reported a flow rate of approximately 50 -70 gpm, is lower than expected flow given the pump's design point. Further investigation was completed and a well pump test was conducted in October 2021. The static water level was recorded at 55.2 feet below the ground surface and the well was operated for approximately 10 minutes with 7.6 feet of drawdown. The static and pumping water level are similar to the levels in Well #2. One potential reason for the decreased pump production could be because the TDH of

the pump is higher than the reported design point. With a 65-psi discharge pressure at the pressure tank and with the observed drawdown, the pump is pumping against 213 ft of TDH, which could be resulting in lower flow rates to deliver the necessary TDH. Based on the pump curve, at 213 ft of TDH, the pump should be pumping about 80 gpm. The exact reason for the lower pumping yield from Well #1 should be further investigated and the pump should be pulled and inspected for deficiencies.

This well alternates running with Well #2 and turns on based on water level setpoints in the pressurized tank. Neither Well #1 nor Well #2 have a back-up power source, and it is recommended that the Corporation update the electrical configuration for use with a portable generator or obtain an onsite generator for emergency situations. Additionally, neither well has an option for pumping to waste, therefore it is recommended that the piping be configured to be able to pump to waste. Well #1 piping configuration is shown in Figure 3-3.

FIGURE 3-3: WELL #1 PUMP HOUSE CONFIGURATION



3.1.2 WELL #2 EXISTING CONDITIONS

Well #2 was drilled in 1974 and has a 10-inch casing for the whole depth. Well #2 was originally recorded to be 305 feet deep, however, the Corporation reported the well hole is over 350 feet below the ground surface, which was documented during a camera inspection of the well hole in 2007. The well log reported a yield of 90 gpm over 4 hours with 17 feet of drawdown, and the static water level was reported at 40 feet below the ground surface. The well log can be found in Appendix B.

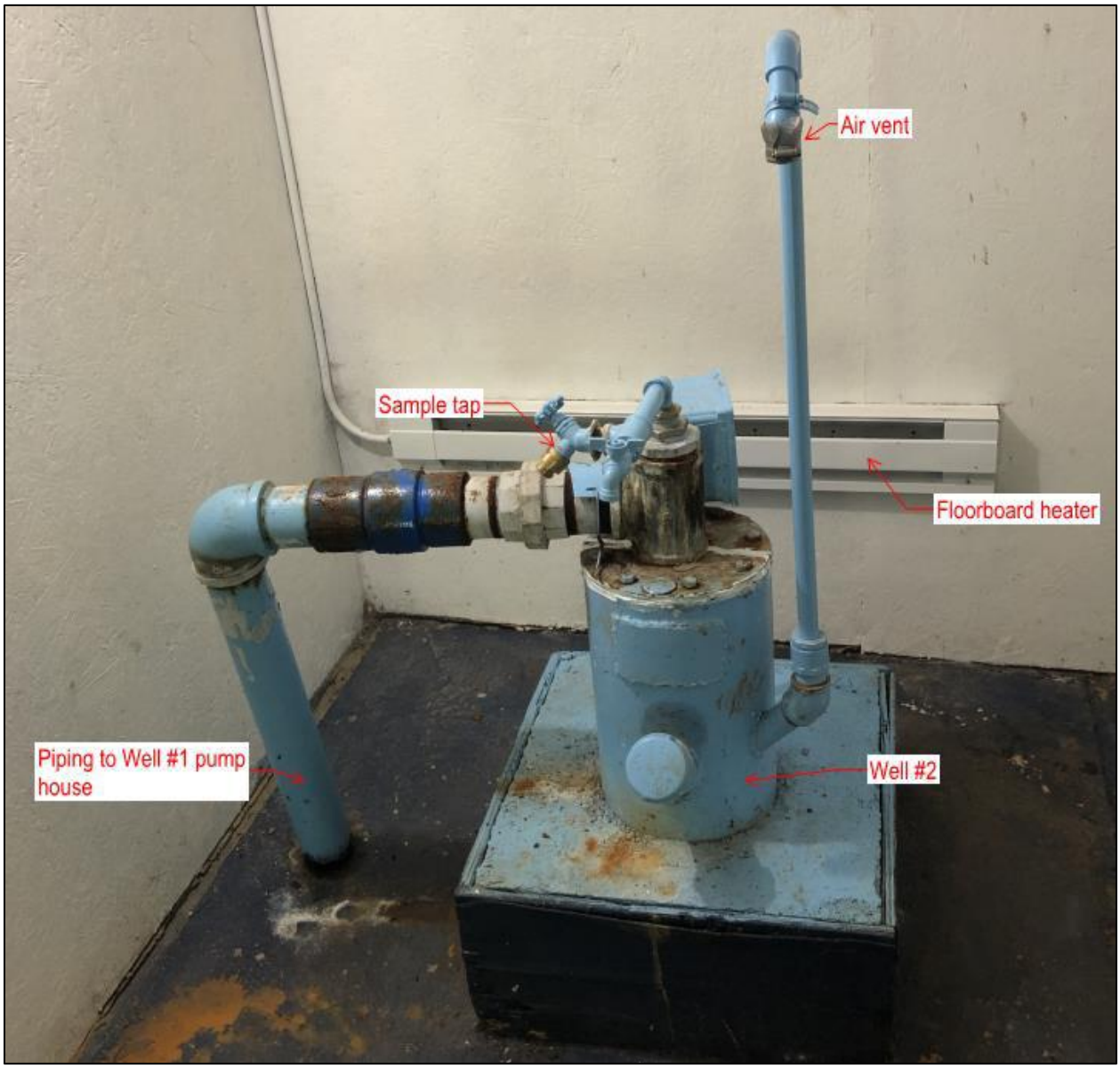
Well #2 is located in a wood pump house approximately 150 feet west of the Well #1 pump house. The pump house has a single vent and is heated by a floorboard heater.

FIGURE 3-4: WELL #2 PUMP HOUSE

The Well #2 pump and motor were last replaced in 2009. The pump has a reported capacity of 100 gpm, which the Corporation confirmed by completing a pump test which showed flows similar to the reported capacity. The well alternates running with Well #1 and turns on based on water level setpoints in the pressurized tank. Power is provided by a connection to Idaho Power and the motor is run by three phase power. The pump will shut off if any power phase is lost to limit heavy wear on the pumps with less than three phases. Well #2 also does not have a back-up power source. Well #2 piping configuration is shown in Figure 3-5.

The well was investigated again in October 2021 with video footage showing that the well casing is in fair condition, however, the pump screens were bent away from the pump and toward the casing walls. It is recommended that this pump be pulled up and repaired or replaced. The pump was reported to be installed approximately 40 feet below the static water level, and below the pump, there is no casing. Pump testing was completed for Well #2 and the static water level was recorded at 47.7 feet below the ground surface. The well was run for approximately 10 minutes and a drawdown of 5.9 feet was observed.

FIGURE 3-5: WELL #2 PIPING CONFIGURATION



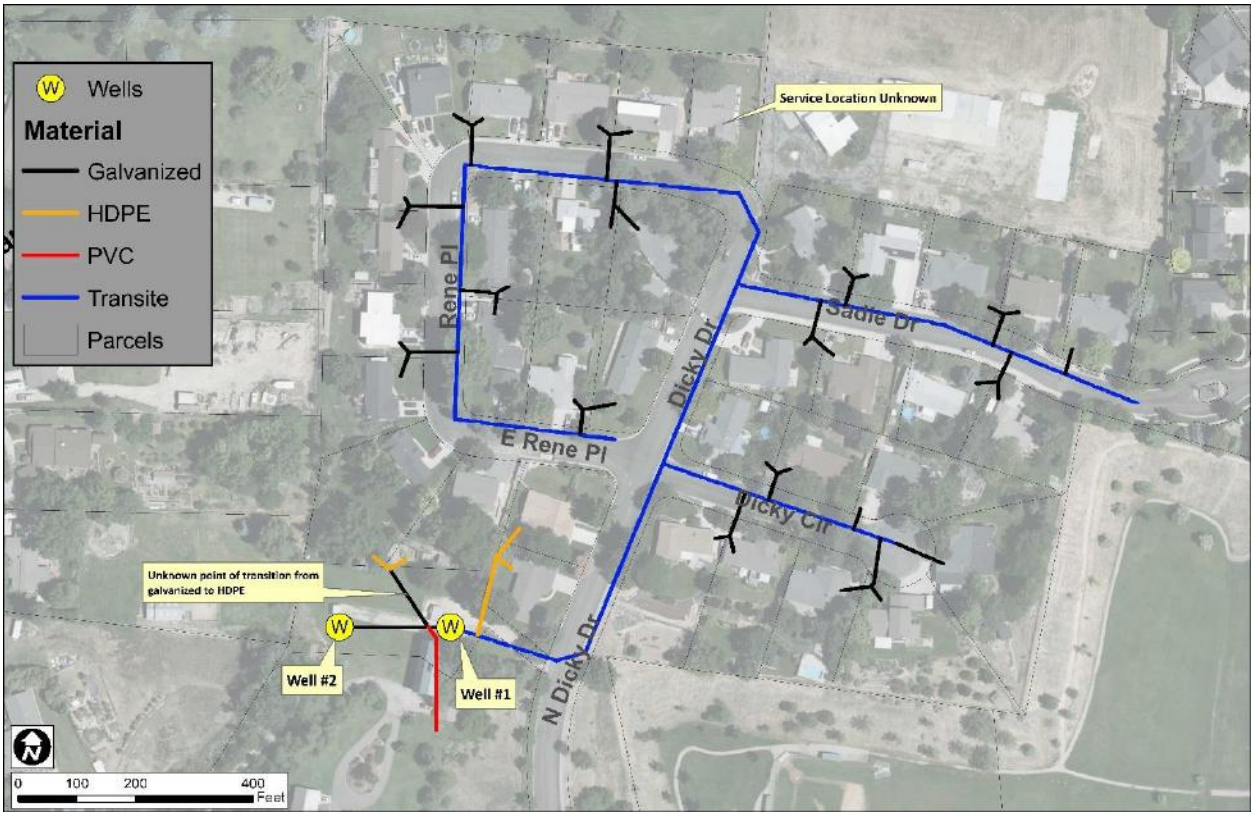
3.1.3 PIPING

The existing distribution system contains approximately 2,600 LF of pipe mainlines ranging in diameter from 3-inches to 6-inches. The majority of the mainlines are made of transite material excluding the mainline from Well #2 to Well #1 which is galvanized steel. The transite pipelines were reported to be in usable condition with no known deficiencies. Transite pipe material has an unknown useful life, but has been observed to last over 75-years if left undisturbed. Deficiencies for transite pipe are typically a result of disturbance such as nearby seismic activity, nearby excavation, or connections to the existing pipelines. The 6-inch main pipeline exits the pump house on the east side and heads toward North Dicky Drive. Additionally, there is a 3-inch pipeline which exits the pump house on the west side and serves a total of three users.

The water service lines consist mostly of galvanized steel pipe. The Corporation recently replaced the service line near Well #1 with high density polyethylene pipe (HDPE) after a leak was discovered. Additionally, the service connected off of the back of the pump house serving the property to the south is made of PVC and the pipes serving the properties to the north are made of galvanized steel pipe to an unknown transition point where it becomes HDPE to the services. The pipe materials are shown in Figure 3-6.

The main deficiency in the Corporations pipe network is the 2-inch galvanized service pipes which are reaching the end of their useful life. Numerous 2-inch galvanized steel service pipes in the system have formed leaks and the Corporation has had to make emergency patch repairs to address the leaks. The Corporation believes that most of the galvanized steel pipe in the system is reaching its useful life and more leaks will occur if not replaced. It is recommended that the Corporation replace the aged service pipes with HDPE in the near future. As noted above, the mainline pipe material is aged transite and cracks easily if disturbed. Extreme care should be taken during the replacement of the service laterals to not damage the existing transite mainlines.

FIGURE 3-6: EXISTING DISTRIBUTION PIPING MATERIAL



3.1.4 STORAGE

There is a single 1,000-gallon pressurized storage tank which serves the users connected to the distribution system. The storage tank is located in Well #1 pump house. Water is pumped into the north end of the tank and the potable water discharge is on the south end. There is a 3-inch discharge to the irrigation system toward the center of the storage tank. The tank is operated at a maximum of 65 psi. There is an automatic air relief at the top of the tank which opens if the pressure exceeds 65 psi. The air relief is plumbed outside the west side of the pump house and a noise muffler was placed on the end to reduce disruption to surrounding residents. The original carbon steel, bladderless storage (pressure) tank from 1973 was replaced in 2017 with a stainless-steel

bladderless tank. The tank is pressurized in combination by Wells #1, #2 and an air compressor. The air compressor is around 10 years old and averages about 40 hours of run time per year. The Corporation reported there are no issues with the air compressor.

3.1.5 PUMP STATION

There are no existing pump stations within the distribution. The only pumping facilities are Well #1 and Well #2.

3.1.6 PRESSURE ZONES

There is a single pressure zone within the service area. Elevations throughout the service area are relatively constant and pressures throughout the system are within the recommended operating range.

3.1.7 ELECTRICAL CONTROLS

The existing control system is set up as a simple relay control system which includes an alternator and several switches which control the pumps turning on and off based on the pressure tank levels. The simplicity of this system benefits the Corporation because most third-party electricians should be able to make repairs and improvements to the system without the need for any specialized training.

It is recommended that the Corporation install an alarm system which would notify the operator if there is a pump failure or low/high pressure at the well house. The alarm system should be set up to contact the operator through the phone if a problem occurs. This requires a landline to be set up at the well house to be able to communicate with the operator. No additional improvements are recommended to the existing system. As the electrical components reach the end of their useful life (10-20 years), they should be replaced with similar components.

3.2 SANITARY SURVEY

DEQ conducted a sanitary survey of the water system in February 2020. The survey revealed several deficiencies in the Corporation's water system. The deficiencies and recommendations are summarized below:

Significant Deficiencies

- Well casing for Well #1 was not properly vented
- Backflow prevention devices were not installed on all threaded hose bibs
- Pressurized air for the hydropneumatics tank is unfiltered
- Hydropneumatics tanks are not protected from contamination
- Existing backflow prevention devices are not tested annually
- Cross connections were observed

Deficiencies

- The hydropneumatics tank cannot be isolated from the system
- The total coliform sampling plan was not followed adequately

Recommendations

- Develop a water loss control program

The Corporation addressed all significant deficiencies identified in the sanitary survey with the exception of testing the backflow devices. The recommended repairs/improvements discussed in the Plan for Action for Significant Deficiencies were addressed as outlined See Appendix B for a detailed description of how the deficiencies were addressed.

The hydropneumatics tank will be configured to be able to be isolated from the system the next time the tank is replaced or if there are material modifications. The total coliform sampling plan has been adjusted and the water system was broken into several zones. Section 2 discusses the sampling locations in detail.

At this time, the Corporation is unable to develop a water loss control program because the water users do not have individual meters, therefore, the unaccounted-for water cannot be calculated. If the Corporation ever proceeds with installing water meters for each of the connections, a water loss control program should be implemented.

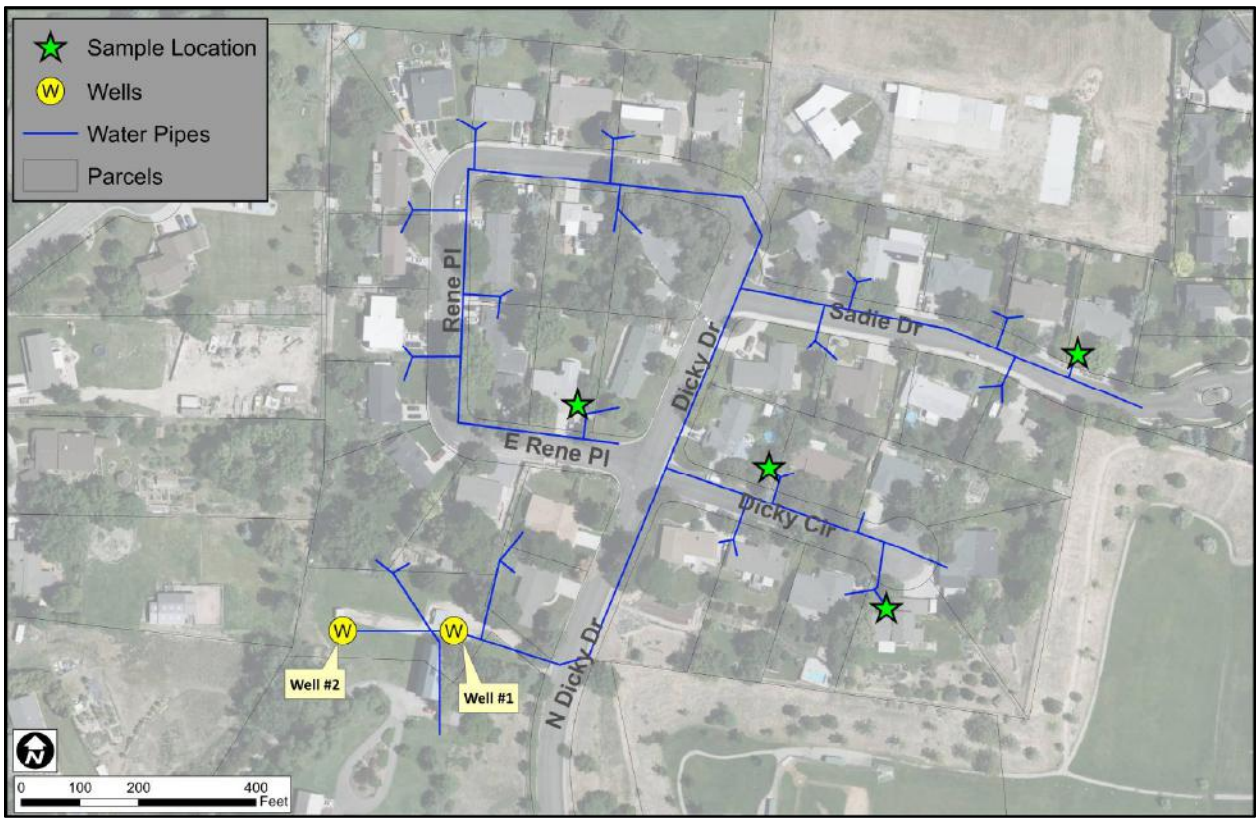
3.3 OPERATIONS AND MAINTENANCE

The water system serves a total of 37 service connections throughout the year and therefore, is classified as a community water system. Community water systems require routine monitoring and operation under a licensed operator. Further classification of the water system depends on the population served and the type of treatment. According to DEQ's water system classification worksheet, the system is classified as a very small water system (VSWS). Operators of a VSWS must meet all the following minimum requirements as stated in Idaho Administrative Procedure Act (IDAPA) 24.05.01:

- Possess a high school diploma or GED
- Document eighty-eight hours of acceptable on-site operating experience at a water system
- Complete an approved six-hour water treatment course or an approved six-hour chlorination course or a combination of said approved courses equaling six hours
- Complete an approved six-hour water distribution course
- Pass the relevant very small water system examination

The water system is currently operated by a single licensed operator. The operator reports and inspects system operations generally once a week unless a deficiency is observed or reported. The total well production, power usage, temperature, compressor run times, and pump run times are recorded each week. As discussed in Section 2.3.8, monthly coliform samples are taken at varying sample locations. The sample locations are shown below in Figure 3-7. Additional operational tasks include flushing the system at each of the blow-offs twice a year, draining and flushing the tank once a year, and exercising the Well #1 gate valve once a year. It is recommended that the Corporation begin training at least one back-up operator to provide redundancy in the staffing.

FIGURE 3-7: TOTAL COLIFORM SAMPLE LOCATIONS



Smaller scale maintenance efforts are generally completed by the single operator, but volunteers within the Corporation may assist with efforts requiring more manpower. Technical maintenance efforts including leak repair, pump maintenance, and piping adjustments. Other mechanical repairs are completed by a third-party contractor.

Maintenance efforts are typically planned and presented during the monthly water system board meetings. A summary of operations and maintenance upgrades in the last 10 years is included below:

- Painted Well Housing (2014)
- New check valves and isolation valves on Well #1 and #2 (2015)
- Replacement of pressurized storage tank (2017)
- Replaced starter on Well #1 pump (2018)
- Run time meters added to Well #1 and #2 pumps (2018)
- Alternator replaced for Well # 1 and #2 (2018)
- Well #1 pump replaced (2019)
- New check valve on Well #2 (2019)
- Painted well house (2019)

- Replaced backwash drain lines (2019)

Additional maintenance activities are recommended at regular intervals to maintain facility components and complete repairs before significant problems arise. A summary of the recommended maintenance activities is included below:

- Inspect the interior and exterior of the pressure tank every 5-10 years
- Pull the well pumps and inspect condition every 3-5 years
- Conduct video-inspection of the well casing every 3-5 years
- Regularly exercise the gate valve on East Rene Place
- Replace aging galvanized steel pipes (including 2" service lines)
- Manually record each well pumping rates once a month

3.4 WATER QUALITY EVALUATION

The Corporation's operator collects routine total coliform samples throughout the distribution system and completes additional water monitoring criteria required by the state. A summary of the required water quality monitoring at the well and in the distribution system is included in Table 2-1. Additionally, the operator should be taking monthly total coliform samples within the sample points in the distribution system. The Corporations consumer confidence report (CCR) is included in Appendix B. The Corporation did not have any violations within the 2020 calendar year.

TABLE 2-1: REQUIRED WATER QUALITY MONITORING

Contaminant	Sample Count	Sample Frequency	Date of Last Sample
Arsenic	1	9 Years	January-2011
Fluroide	1	9 Years	February-2019
Sodium	1	3 Years	February-2019
IOCs Phase 2 and 5 [1]	1	9 Years	July-2017
Nitrates	1	1 Year	August-2020
Nitrites	1	9 Years	December-2018
Gross Alpha, Radon	1	6 Years	July-2017
Combined Radium (-226 & -228)	1	9 Years	July-2017
Radium-228	1	9 Years	July-2017
Combined Uranium	1	6 Years	February-2019
SOCs - Group[2]	1	3 Years	July-2016
VOCs - Group[3]	1	3 Years	July-2016
Asbestos (distribution system)	1	3 Years	January-2020
Lead and Copper (distribution system)	5	3 Years	August-2020

1) IOC = Inorganic contaminents. Full list ofcontaminants shown in Appendix B.
2) SOC = Synthetic organic contaminants. Full list of contaminants shown in Appendix B.
3) VOC = Volatile organic contaminants. Full list of contaminants shown in Appendix B.

3.5 FINANCIAL STATUS

Currently, the water system does not have individual water meters and water users pay a flat monthly rate for operation of the water system and for the homeowner's association fee. The service fees are used for maintaining and operating the water system to the Corporations target level of service. The rates have increased over the years, and as of October 2020, the current monthly rate is $70 per month per household. A summary of the Corporations rate structure over the last 5-years is included in Table 3-2. There are 36 homes within the homeowner's association and a total of 37 water users. This results in an annual income of approximately $33,000. It is recommended that the Corporation continue adjusting the water use fee to account for inflation and higher operations/maintenance costs. Alternative rate structures were evaluated for the water system if the Corporation installed individual water meters on each of the services. These alternatives are discussed in Chapter 5.

TABLE 3-2: HISTORICAL RATE STRUCTURE

Year	Monthly Water Operation[1]	Monthly HOA fee[2]	Total Monthly Income	Annual Income
2016	$45	$5	$1,845	$22,140
2017	$45	$5	$1,845	$22,140
2018	$45	$5	$1,845	$22,140
2019	$45	$5	$1,845	$22,140
2020	$60	$5	$2,400	$28,800
2021	$70	$5	$2,770	$33,240

1) Total of 37 water users connected to the system.

2) Total of 36 homes in the homeowner's association (HOA).

3.6 ASSET MANAGEMENT

The Corporation currently has a base level strategic plan, but no asset management software or system is utilized. An asset management system was developed as a part of this study and includes the typical useful life, remaining life, replacement costs, and depreciate value of each of the assets within the water system. The Corporations asset management system is included in Appendix C.

CHAPTER 4 - CAPACITY AND HYDRAULIC ANALYSIS

The following chapter covers an evaluation of the existing system including the available water supply, firm delivery capacity, and peak hour demand pressures. The planning criteria established in Chapter 2 were used as the basis for this evaluation.

4.1 SUPPLY ANALYSIS

The Corporation diverts water via Wells #1 and #2 under water right number 63-7582. The Corporation can divert a maximum of 0.4 CFS (180 gpm) and a maximum volume of 45 acre-feet annually (Appendix B). The maximum day demand and peak hour demand were compared to the available water rights as shown in Table 4-1. The table shows the Corporation has a surplus of approximately 65,800 gallons per day (gpd) when compared to the maximum day demand, however, there is a deficiency of 21 gpm when compared to the peak hour demand. Since the available water rights are sufficient to meet the maximum day demand, it is not necessary to obtain additional water rights. The corporation should consider implementing an irrigation schedule, which reduces the peak hour demand, or installing system storage to meet the peak hour demands in the summer. Pros and cons of these two alternatives is discussed in Chapter 5.

TABLE 4-1: SUPPLY ANALYSIS

	GPD
Diversion Rate[1]	259,000
MDD	193,200
Surplus/Deficiency[2]	65,800

1) Based on water right number 63-7582.
2) GPD surplus/deficiency based on MDD.

4.2 DELIVERY ANALYSIS

The water system existing and future demands were compared to the pumping capacity of the system. Specifically, the firm capacity was compared to the water demands to incorporate a level of redundancy and to comply with the State of Idaho's facility and design standards for pumping facilities (IDAPA 58.01.08, Section 541). The firm capacity is equal to the capacity of the facility with the largest pump offline. As discussed in Chapter 3, the Corporation has two well pumps, each with the same reported capacity. The peak hour demand was compared to the available pumping delivery because the water system does not have storage to meet peak hour demands. As shown in Table 4-2, there is a deficiency of 100 gpm with one of the wells off. Redundancy should be incorporated into the pumping facilities to meet the peak hour demand with the largest pumps off. Alternatives to address this deficiency are discussed in Chapter 5.

TABLE 4-2: DELIVERY ANALYSIS

	GPM
Well #1 Pump	100
Well #2 Pump	100
Total Capacity	200
Firm Capacity[1]	100
PHD	201
Surplus/Deficiency	-101

1) Firm capacity equal to capacity with largest pump off.

4.3 STORAGE ANALYSIS

The water system does not consist of any water storage with the exception of the 1,000-gallon pressurized storage tank. This tank is only intended to maintain consistent pressure within the system; not to provide operating, equalization, emergency, or fire storage. For this reason, no storage analysis was completed in this study.

4.4 PEAK HOUR DEMAND PRESSURES

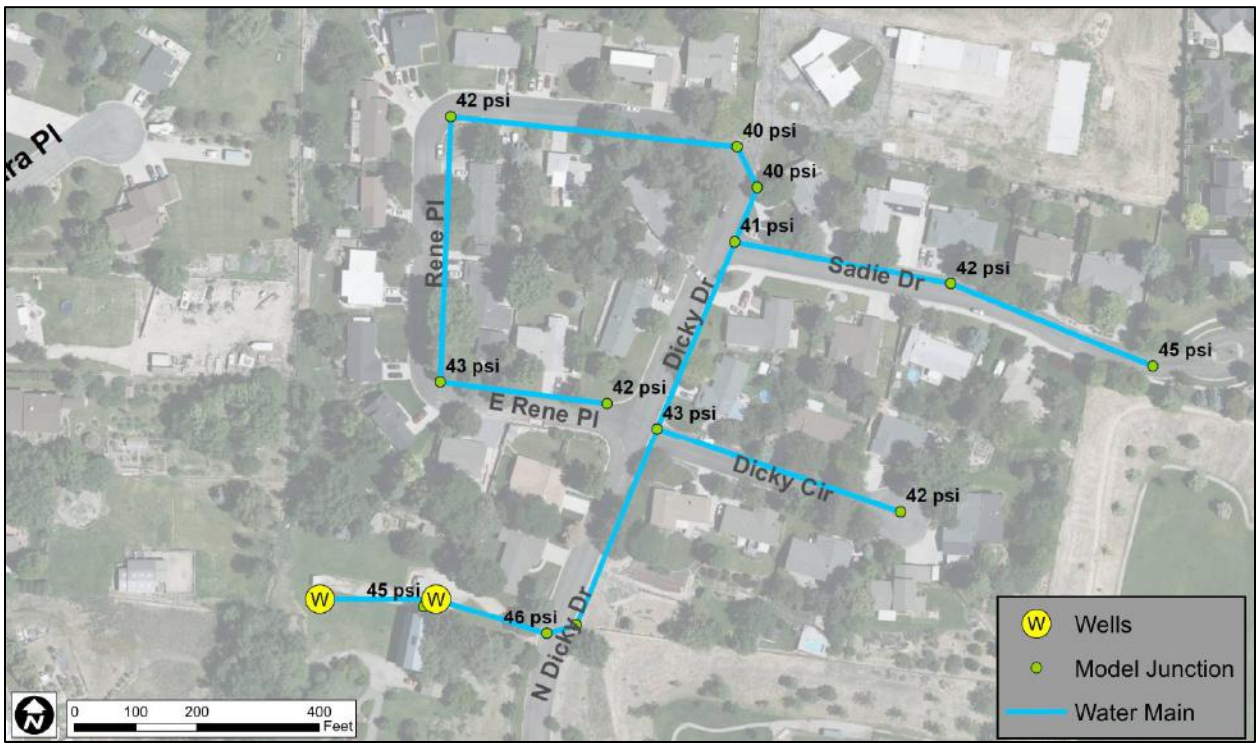
The water system was evaluated under a peak hour demand scenario in order to simulate the "worst case scenario" that the water system will experience. The regulatory criteria defined in Chapter 2 were used to identify deficiencies in the water system pressures during peak hour demand. Pressures below 40 psi or over 80 psi were considered a deficiency in this evaluation unless otherwise noted. The boundary conditions in the model should be noted during the peak hour demand scenario. These boundary conditions are summarized below:

- The pressurized storage tank and air compressor maintain a minimum pressure of 45 psi at the Well #1 pump house
- The firm capacity is modeled (e.g., only one well is on)
- Minor losses are negligible
- Elevations were assigned from Google Earth spot elevations
- Peak hour demands are spread evenly across the model junctions
- Hazen-William's roughness coefficient assumed to equal 110

The results from the peak hour demand scenario are shown in Figure 4-1. As shown in the figure below, the minimum pressures are observed on the north end of the water system where elevations are the highest. The system does not experience much headloss in the main 6-inch pipeline along Dicky Drive and only loses approximately 3-feet (1 psi) of head. The pressures are within the minimum operational requirements of 40 psi; therefore, no deficiencies were identified in the peak hour demand pressures of the system.

Note, a second scenario was run in the model with the maximum pressure of 65 psi at the Well #1 pump house. Operating pressures throughout the system ranged from 66 psi near the well house to 60 psi on the north end of the system. Pressures within the Corporations water system are within the required ranges and no improvements are recommended based on the hydraulic analysis.

FIGURE 4-1: PHD PRESSURES



4.5 MAXIMUM DAY DEMAND PLUS FIRE FLOW

As outlined in Chapter 2, the Corporation is not required to meet any fire flow demands, therefore, no maximum day demand plus fire flow was evaluated for the system.

CHAPTER 5 - ALTERNATIVES ANALYSIS

The following chapter discusses alternatives to address deficiencies identified in the existing water system.

5.1 SUPPLY AND DELIVERY DEFICIENCY

The water system has an existing water supply deficiency of approximately 20 gpm and a delivery deficiency of approximately 100 gpm compared to the system's current peak hour demand. The section below discusses alternatives to mitigate the deficiency in the water supply.

5.1.1 ALTERNATIVE 1 – MORE SUPPLY

The first alternative to address the water system's supply deficiency is to obtain additional water rights from Idaho Department of Water Resources and to increase the pumping capacity of the wells to meet the peak hour demand with the system's firm capacity. This process would likely include additional well yield testing to determine if the wells can provide additional supply, and if it is determined the wells cannot supply additional water, the Corporation would need to drill an additional well and equip with pumping facilities. If the existing wells have sufficient yield, the two well pumps should be upsized to at least 200 gpm capacity each.

5.1.2 ALTERNATIVE 2 – REDUCE PEAK HOUR DEMAND

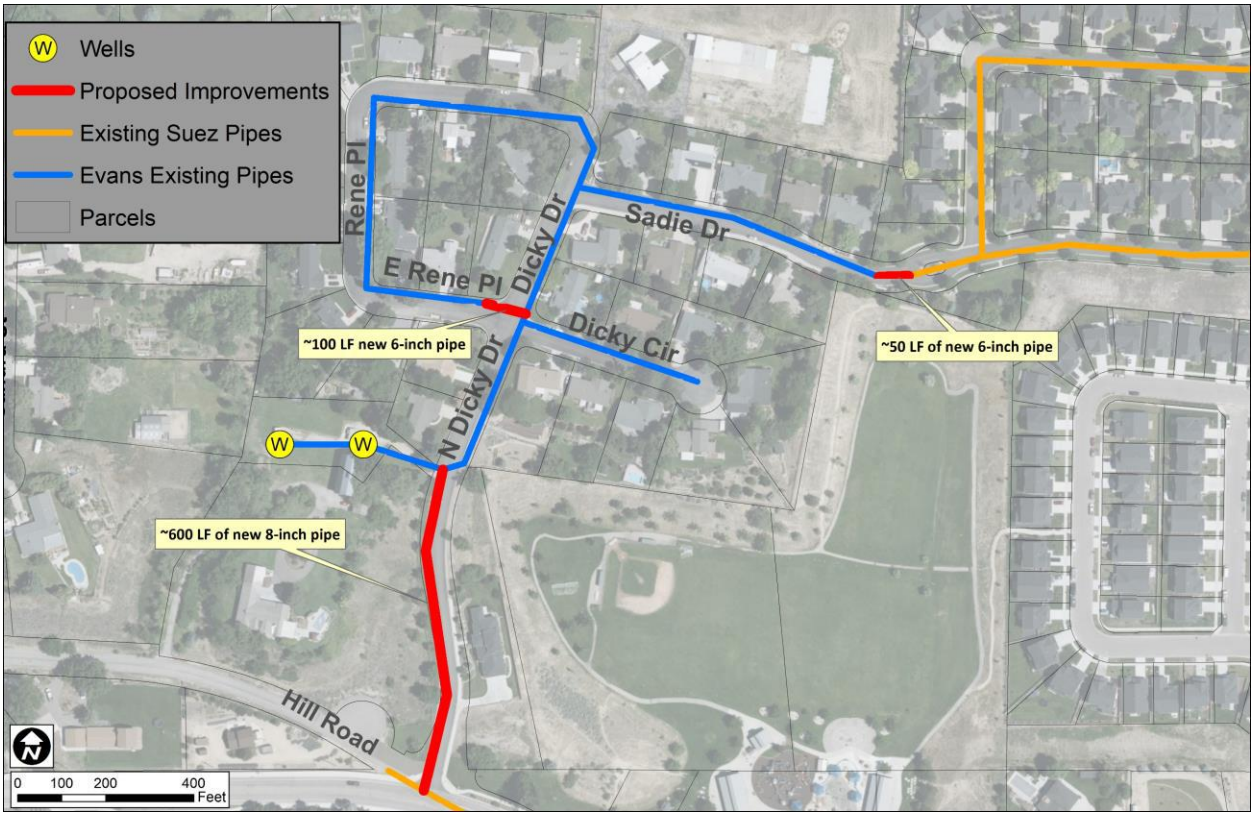
The second alternative considered to address the water system's supply deficiency is to reduce the peak hour demand. The peak hour demand can be reduced by implementing a water irrigation schedule and by educating the water users about water conservation efforts. An irrigation schedule should be developed so that the maximum system demand at any times does not exceed the firm capacity of 100 gpm. Pamphlets can be distributed to the water users implementing a specific irrigation schedule to limit the peak hourly demand to the water system. The pamphlet should also include information regarding typical water conservation efforts such as installing efficient appliances, fixing plumbing leaks, and irrigating strategies to provide the most effective watering while reducing peak hour demands.

5.1.3 ALTERNATIVE 3A AND 3B – INTERCONNECTION

The third alternative considered for this deficiency is to intertie the Evans Water System with a larger system. The nearest water system is the Eagle Water Company, which is currently in the process of being acquired by Suez Water, North America (Suez). Both Eagle Water Company and Suez serve a significantly larger number of water users. These alternatives assume Suez successfully purchases Eagle Water Company and the current Eagle Water Company area becomes part of the Suez water system.

The Corporation could either pursue being acquired by Suez (Alternative 3A) or request an emergency intertie with Suez for additional water supply during supply shortages (Alternative 3B). The Corporation has contacted Suez in the past about being acquired by the Suez water system. A letter from Suez to Evans Water Corporation regarding the interconnection is included in Appendix B. The letter shows that Suez would require a number of system improvements, at the expense of the Corporation, before connecting. The extent of the improvements would include the installation of pipeline along Sadie Drive, Dicky Drive, and Rene Place. See Figure 5-1 for the extent of the improvements. Note, as outlined in the letter, Suez may purchase the Corporations existing well lot and water rights at market value to drill a new well. Additionally, Suez will fund the installation of the 8-inch waterline along North Dicky Drive if the well lot and water rights are sold.

FIGURE 5-1: IMPROVEMENTS TO INTERCONNECT WITH SUEZ WATER SYSTEM



Alternative 3B assumes the Corporation would only intertie at one location along Sadie Drive because it would only serve as an emergency source of water. Suez may also require payment of a connection fee for each customer if this alternative is pursued.

5.1.4 ALTERNATIVE 4 – NO ACTION

A no action alternative was also considered for this deficiency to provide a summary of the consequences if no improvements are implemented. If the peak hour demand is not reduced, and no additional water supply is acquired, the users will experience reduced pressures during high demand periods and possibly signs of air release in sprinklers and faucets. In extreme cases, pumping a well at rates higher than the well yield can result in the aquifer water level dropping and ultimately leading to a lower static water level. The Corporation would have to upgrade the pumps to account for the additional pumping head to provide sufficient pressure at the well house.

5.1.5 ALTERNATIVE COMPARISON

The pros and cons of each of the alternatives discussed above were summarized to identify which alternative provides the Corporation with the most cost-effective, long-term solution. Table 5-1 shows a summary of each of the three alternatives. Detailed costs for each alternative are included in Appendix C.

TABLE 5-1: SUMMARY OF ALTERNATIVES

	Alt 1: Increased Supply	Alt 2: Reduced PHD	Alt 3A: Consolidation with Suez[2]	Alt 3B: Emergency Intertie with Suez[3]
Pros	▶ Increased available water and minimal impact to users ▶ Opportunty to implement VFD and high efficienty motors	▶ Least costly ▶ Implements water conservation practices	▶ No maintenance efforts required by Evans Water Corp ▶ Increased redundancy	▶ Evans retains system autonomy ▶ Increased redundancy
Cons	▶ More Costly ▶ Additional water rights required	▶ Impacts water users ▶ Only effective if enforced	▶ Costly and requires Memorandum of Understanding ▶ Improvements to water system before intertying	▶ Costly and requires Memorandum of Understanding ▶ Improvements to water system before intertying
Environmental Impacts	▶ More supply drawn from aquifer ▶ More energy usage	▶ Minimal	▶ Minimal	▶ Minimal
Opinion of Probable Cost	**$93,000**	**$1,000**	**$226,000**	**$30,000 + Usage Costs**

1) Assumes the existing wells have sufficient yield and no new wells would need to be drilled.
2) Excludes potential payment from Suez for well lot, water rights, and construction of pipeline along North Dickey Drive.
3) Only includes installing pipe along Sadie Drive for interconnection.

As shown in the table, the pros of Alternative 1 results in a minimal impact to the existing water users, however, this alternative is more costly and will likely have a larger environmental impact than Alternative 2. Alternative 2 has the largest operational impact on the existing water users, however, by implementing this alternative, water conservation practices are incorporated into the system which results in long-term water system and environmental benefits. It is also the least costly alternative. Alternative 3A is also more costly than Alternative 2, however, the Corporation would be relieved of operations and maintenance efforts and the system would be better equipped to meet the recommended redundancy requirements. Alternative 3B does not resolve the delivery deficiency alone and would need to be implemented along with either Alternative 1 or Alternative 2. Proceeding with Alternative 3B increases system redundancy in the event of a power outage or other mechanical failure at the Corporations well site. Both Alternatives 3A and 3B would require approval from the Suez.

It is not anticipated that any of the above listed alternatives will have significant impacts to the environmental conditions discussed in Chapter 2, with the exception of Alternative 1, which results in additional supply from the aquifer and increased energy use with larger well pumps.

Based on the evaluation presented above, it is recommended that the Corporation proceed with Alternative 2 because it results in the most cost-effective solution which has long-term benefits to the water system and the environment. If Alternative 2 proves ineffective at decreasing the peak water demands, the Corporation can consider pursuing the other alternatives. More details regarding the preferred alternative are provided in the next chapter.

CHAPTER 6 - CAPITAL IMPROVEMENT PLAN

This section discusses the capital improvement plan (CIP), annual maintenance costs, and additional discussion regarding improvement projects recommended for the water system.

6.1 CAPITAL IMPROVEMENT PLAN

The information gathered throughout this study was used to develop a CIP for the Evans Water Corporation Water System. The CIP projects were categorized into three priority groups. A summary of the criteria used to categorize each of the projects and the recommended implementation timeline is shown below in Table 6-1. A description of each of the proposed projects is shown in the following sections and a summary of the improvements is shown in Table 6-2.

TABLE 6-1: CIP PRIORITIZATION CRITERIA AND IMPLEMENTATION TIMELINE

Priority Number	Criteria	Implementation Timeline
Priority 1	Existing deficiencies observed by the City which directly impact water users	0-5 Years
Priority 2	Does not require immediate action, but should be improved	5-10 Years
Priority 3	Improves the overal operation of the water system but no existing deficiency	10-20 Years

TABLE 6-2: CAPITAL IMPROVEMENT PLAN

Project Identifier	Project Name	Estimated Cost
1A	Replace Galvanized Service Lines[1]	$295,000
1B	Reduce Peak Hour Demand	$1,000
	Priority 1 Improvement Costs	**$296,000**
2A	Emergency Interconnection with Suez	$30,000
2B	Configure Pump to Waste in Well #1 Housing	$14,000
	Priority 2 Improvement Costs	**$14,000**
3A	Install Back-Up Generator (if 2A is not feasible)	$60,000
3B	Install Alarm System	$3,000
3C	Update Water Master Plan	$35,000
	Priority 3 Improvement Costs	**$38,000**
	Capital Improvement Plan Total Costs	**$350,000**

1) Project based on quote from May 2020 inflated to 2021 dollars. Includes additional anticipated project costs.

6.1.1 PRIORITY 1 IMPROVEMENTS

Priority 1 improvements are deficiencies identified by the Corporation and should be implemented within the next 0-5 years.

Replace Existing Galvanize Service Lines: 1A – The Corporation's existing 2-inch galvanized steel service lines are likely reaching the end of their useful life and should be replaced with 2-inch HPDE pipes. The Corporation should consider trenchless pipe installation method such as directional drilling or boring when installing these pipes. Also included in this project should be replacing the 3-inch galvanized pipe from Well #2 to Well #1 and replacing the galvanized piping on the blow-off assemblies. Additional information regarding the service line replacement is discussed in Section 6.3.

Reduce Peak Hour Demand: 1B – The water system is unable to meet the peak hourly demand with its existing firm capacity. An irrigation schedule should be developed to reduce the peak hourly demand and keep the peak hourly demand below 100 gpm. An example irrigation schedule for the water system was developed and is included in Appendix C. In summary, the water system should not have more than three connections utilizing irrigation demands at the same time. This results in each home having an irrigation time of approximately 4 hours every other day. The Corporation can allocate the recommended irrigation demand as desired.

6.1.2 PRIORITY 2 IMPROVEMENTS

Priority 2 improvements are deficiencies which were identified in this study but do not require immediate action within the next 0-5 years. The recommended implementation timeline for Priority 2 projects is within the next 5-10 years. A summary of the projects is included below:

Interconnection with Suez Water: 2A – The Corporation should consider, at a minimum, an interconnection with Suez water to provide additional system redundancy. This project includes installing new pipeline to the connection point and the connection fee.

Configure Pump to Waste in Well #1 housing: 2B – The two wells do not have a designated pump to waste configurations. The Corporation should configure the well piping to discharge to the existing backwash pipeline and install appropriate fittings and valves to pump to waste when needed.

6.1.3 PRIORITY 3 IMPROVEMENTS

Priority 3 improvements are deficiencies which do not require immediate action and should be implemented within the next 10-20 years. These are low priority projects which should be implemented as needed by the Corporation.

Install Back-up Generator: 3A: The Corporation should install a back-up power generator to provide system redundancy in the event of a power outage if Priority project 2A is not completed. The Corporation should install a 20-kW generator with capacity to power a single well pump for 12-hours.

Install Alarm System: 3B – The water system does not have an existing alarm system to notify the operator in the event of a pump failure, low pressures, or low tank level. The Corporation should install an alarm system with a landline to notify the operator when there are problems at the well house.

Water Master Plan Update: 3C – It is recommended that the Corporation update their planning documents every 5 to 10 years because updates to the planning documents allow the Corporation to re-assess needs, priorities, and properly allocate budgets to address system deficiencies.

6.2 ANNUAL OPERATIONS AND MAINTENANCE COSTS

The Corporation develops an annual budget at the beginning of each year. This section summarizes the potential impacts to the system operation and maintenance costs to implement Priority 1 improvements.

CIP Project 1A is not anticipated to significantly affect the existing operations and maintenance costs beyond the capital expenses to replace the services lines, so long as this project can be funded with a suitable low-interest 30-year loan. The project affordability would be significantly less if the service laterals must be replaced on an as-needed basis with cash reserves The annual operations and maintenance cost may be reduced due to decreased costs in leak repairs. CIP Project 1B should not significantly affect the operations and maintenance budget. Some additional time may be required to develop the annual irrigation schedule, distribute pamphlets to the water users, and the irrigation schedule should be enforced by the HOA. However, with these items considered, the annual O&M budget should not be affected significantly. With that said, if the Corporation obtains a loan to fund Priority 1 improvements, the loan repayment will likely require increased annual HOA dues. This is discussed in greater detail in Section 6.8.

A water system asset inventory was developed for the Corporation. This inventory accounts for the major components in the well operation, water system piping, distribution components (valves and blow-offs), and the pressurized storage tank. Based on this inventory, the Corporations water system replacement cost is a total of about $362,000. This value equates to an annual replacement budget of $15,000. The detailed inventory is included in Appendix D.

6.3 PRELIMINARY PROJECT SCHEDULE

Both Priority 1 projects should be implemented as soon as possible. A preliminary project schedule for CIP Project 1A is included below that assumes the Corporation is successful in obtaining DEQ loan funds for project implementation and the Corporation has already secured legal authority to incur debt:

- January 2022 – Apply for DEQ funding
- July 2022 – Execute loan agreement with DEQ
- Summer 2022 – Design of improvements and Environmental Report
- Fall 2022 – Solicit bids for construction and execute contract with Contractor
- Fall/Winter 2022 –Construction

CIP project 1B should begin to be implemented as the irrigation seasons starts in April 2022. Pamphlets should be distributed to the water users and the irrigation schedule should be enforced as determined by the HOA.

6.4 PERMIT REQUIREMENTS

CIP Project 1A, if funded through DEQ, will require design and construction oversight by a licensed professional engineer in Idaho and plan review/approval by DEQ or a Qualified Licensed Professional Engineer (QLPE). Submission of an Environmental Information Document (EID) to DEQ and subsequent environmental clearance is a prerequisite for DEQ funding. In addition, construction work within the right of way of the Ada County Highway District (ACHD) will require right of way permit which is typically secured by the Contractor. It is not anticipated that construction activities will disturb more than one acre.

6.5 SUSTAINABILITY CONSIDERATIONS

Several improvements recommended in this study provide opportunities for the Corporation to implement sustainable infrastructure and practices. Some of these include installing variable frequency drive (VFD) pumps and energy-efficient motors. The Corporation could consider installing VFDs, however, based on the system configuration, VFDs would provide little benefit to the system on a day-to-day basis because the pressure tank minimizes pressure fluctuations in the system. Installing VFDs could provide additional pressure control if the pressure tank failed or must be taken offline, therefore, the Corporation should

consider installing VFDs as needed in the future. Energy-efficient motors should be installed which meet the National Electrical Manufacturers Association (NEMA) premium specifications. Homeowners within the Corporation should also consider the use of water-efficient fixtures which provide savings in water or energy consumption.

When implementing Priority 1A improvements, the Corporation should use trenchless or low-impact construction technology. Specifically directional drilling of the service line replacements could dramatically reduce asphalt repairs, damage to other underground utilities, and ideally reduce overall construction costs. Trenchless construction methods are often cost-effective, have minimal impacts to the existing surfaces, and are efficient ways of installing pipelines.

Additional minor improvements should be implemented including installing energy efficient LED lighting in the well pump houses. As discussed in Chapter 5, interconnections with Suez's water system comes at a large expense to the Corporation. At a minimum the Corporation should continue to consider this intertie for emergency purposes to enhance system redundancy.

A water system asset management system was developed by the Corporation as part of this master planning effort and is to be maintained by the water operators to keep track of service records, inventory of parts, and planned repairs. Implementing an alarm is included as a Priority 3 project because while there is not an existing deficiency in the existing controls, alarms would significantly improve operator awareness and response time. A full SCADA system was considered for this system; however, the system would not provide much additional benefit to the system. A SCADA system could be used to better track system operations and water production and the implementation of a SCADA system can be added as budget allows or as part of an overall electrical and control upgrade to the system.

As discussed in Chapter 3, the water users pay a flat rate for their water usage. In order to measure water usage and use that data as the basis of the monthly water bill, water meters would need to be installed. The cost to install a water meter was estimated to be $2,700 per meter (assuming a 1" meter with no asphalt patching) and an additional cost of $1,500 per meter pit resulting in a total cost of approximately $130,000 dollars for all 37 customers. Once the water meters were installed, a rate structure could be developed that has a base rate charge plus a usage-based charge that would generate sufficient revenue to cover operation, loan repayment, maintenance, and replacement costs.

An alternative to installing water meters that would still charge customers that correlate to water usage is a water rate structure that is based on the acreage of irrigated area per lot. Under this scenario, an irrigation season and non-irrigation season rate structure should be developed. A water rate charge during the irrigation season should be developed that correlates to the acreage of irrigated property for each lot. This alternative requires no capital expense.

We recommend that the Corporation implement the latter alternative to create a rate structure that is based on water usage and encourages conservation. This measure may also reduce the peak water demands which alleviates the water supply and delivery deficiencies. The Corporation should be aware of the reverse effects where users assessed with a higher fee may in-turn use more water because the user is paying more than other users.

6.6 FUNDING OPTIONS

Funding for the recommended system improvements may come from any number of sources. If cash financing is not possible, there are a variety of funding resources in both the private and public sector if projects meet certain criteria. Some of the funding alternatives are discussed below.

6.6.1 CASH FUNDING

The Corporation could consider raising rates to cash finance the improvements. This would require the least total cash outlays for the Corporation; however, the rates would be higher than if they were spread out over a long-term loan, which could be a significant hardship to the community.

6.6.2 IDAHO DEQ (STATE REVOLVING FUND (SRF))

The SRF program is funded by a combination of repayment of loans previously made by DEQ and grant money supplied by EPA. Owners of water systems can apply for SRF funds annually through a competitive application process. Applications are ranked by state officials based on need, sustainability, water quality improvements, and other criteria. Davis-Bacon Wage Act and American Iron and Steel Requirements apply. Applicants may qualify for principal forgiveness or other subsidy programs. DEQ is required to commit a significant percentage of available loan funds to sustainable, energy efficient, and “green” infrastructure improvements. Consequently, elements that meet the “green” infrastructure qualifications may receive priority for funding. Voter approval in a bond election or through judicial confirmation is required for this funding source.

6.6.3 DEPARTMENT OF COMMERCE AND COMMUNITY DEVELOPMENT BLOCK GRANTS

The Department of Commerce offers a number of grant programs for water system improvements. Eligibility for these funds is dependent on economic development. Grants up to $500,000 are available through community programs. Applicants must secure the services of a certified grant administrator to administer grant money and follow other grams requirements. There is an annual application window for applying for these funds.

6.6.4 US DEPARTMENT OF AGRICULTURE-RURAL DEVELOPMENT (USDA-RD)

USDA-RD offers a grant and loan program for improvements to water systems that serve rural communities which is defined as systems that serve less than 10,000 people. Grants up to 45% of the project cost are eligible depending on user rates. Applicants can apply for USDA-RD funds anytime during the year. Funds have many program requirements including the completion of a short-lived asset inventory, approved engineering report, and others. Voter approval in a bond election or through judicial confirmation and interim financing are required with this funding source.

6.6.5 IDAHO BOND BANK

A bond bank is a state level entity which lends money to local governments within the state, with the goal of providing funds for their infrastructure needs and access to the capital markets at competitive interest rates. Under the Idaho Bond Bank program "IBBA", a municipality obtains a loan from the Bond Bank secured by either the municipality's bond or a loan agreement with the Bond Bank. The Bond Bank pools several loans to municipalities into one bond issue. The municipalities then repay the loan, and those repayments are used to repay the revenue bonds. The Bond Bank can obtain better credit ratings, more attractive interest rates, and lower underwriting costs than municipalities could achieve individually. The Bond Bank is able to pledge certain state funds as additional security for its bonds, further reducing interest costs. The Idaho Bond Bank Authority can open doors to municipalities that were previously barred from the capital markets due to the high costs of financing or challenging credit situations.

6.6.6 LOCAL & PRIVATE

In addition to federal and state funding programs, there are local and private funding sources available to communities to fund. Some of these include a Local Improvement District (LID), the municipal bond market with voter approval or judicial confirmation, a Business Improvement District (BID), Urban renewal District, connection fees, development agreements with developers, and others.

6.6.7 SELF FUNDING

The Corporation could consider funding the Priority 1A project from the annual water fees and replace the service laterals as they fail. The Corporation has financial capacity to replace approximately one service lateral every 2-years. This funding method presents significant risk if more than one service lateral needs repaired within a two-year period.

6.7 SERVICE REPLACEMENT STANDARD

The highest priority project is to replace the Corporations existing galvanized service pipelines before additional leaks develop and costly repairs are required by the Corporation. For this reason, a basic construction standard details were developed for the project and documents the material and workmanship for the replacement of a typical water service. The Idaho Standards for Public Works Construction (ISPWC) was utilized as the primary reference for developing this standard. The standard can be found in Appendix D. In summary, the services should be replaced with 2" HDPE pipe from the mainline to the water shutoff valve (generally located at each property line) and connect to the existing service line. The existing galvanized service taps should be removed and plugged with a flexible coupling and stainless steel straps.

6.8 ANNUAL BUDGET CONSIDERATIONS

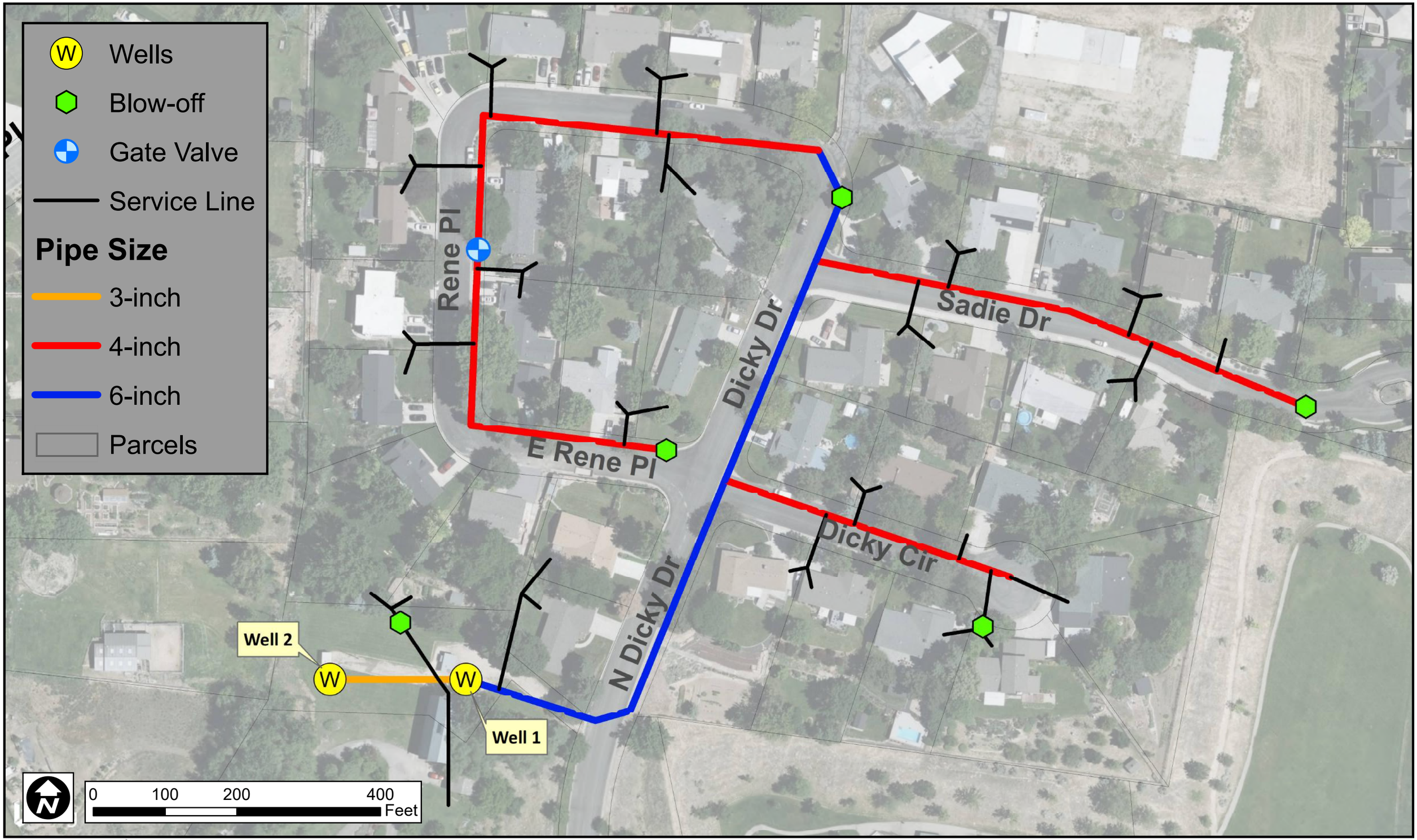
It is likely that the Corporation will be required to secure a loan to implement the Priority 1A improvements since it does not have cash reserves to complete the work and will likely not qualify for other grant funding.

The Corporation is planning to apply for a DEQ low interest loan. Based on loan terms of similar DEQ-funded projects, an interest rate around 2.25% with a term of 30 years is likely. Using these assumptions and a total project cost for Priority 1 improvements of $296,000 an annual principal and interest loan payment of $13,700 would be required. If that loan payment is spread over all 37 connections equally, an additional monthly charge of $31 would need to be assessed to each connection to make the loan payment. The Corporation has proactively increased the water fees by $10 in preparation for this project. The remaining $21 would be on top of any existing HOA fees or dues.

Appendix A

Figures

KELLER ASSOCIATES



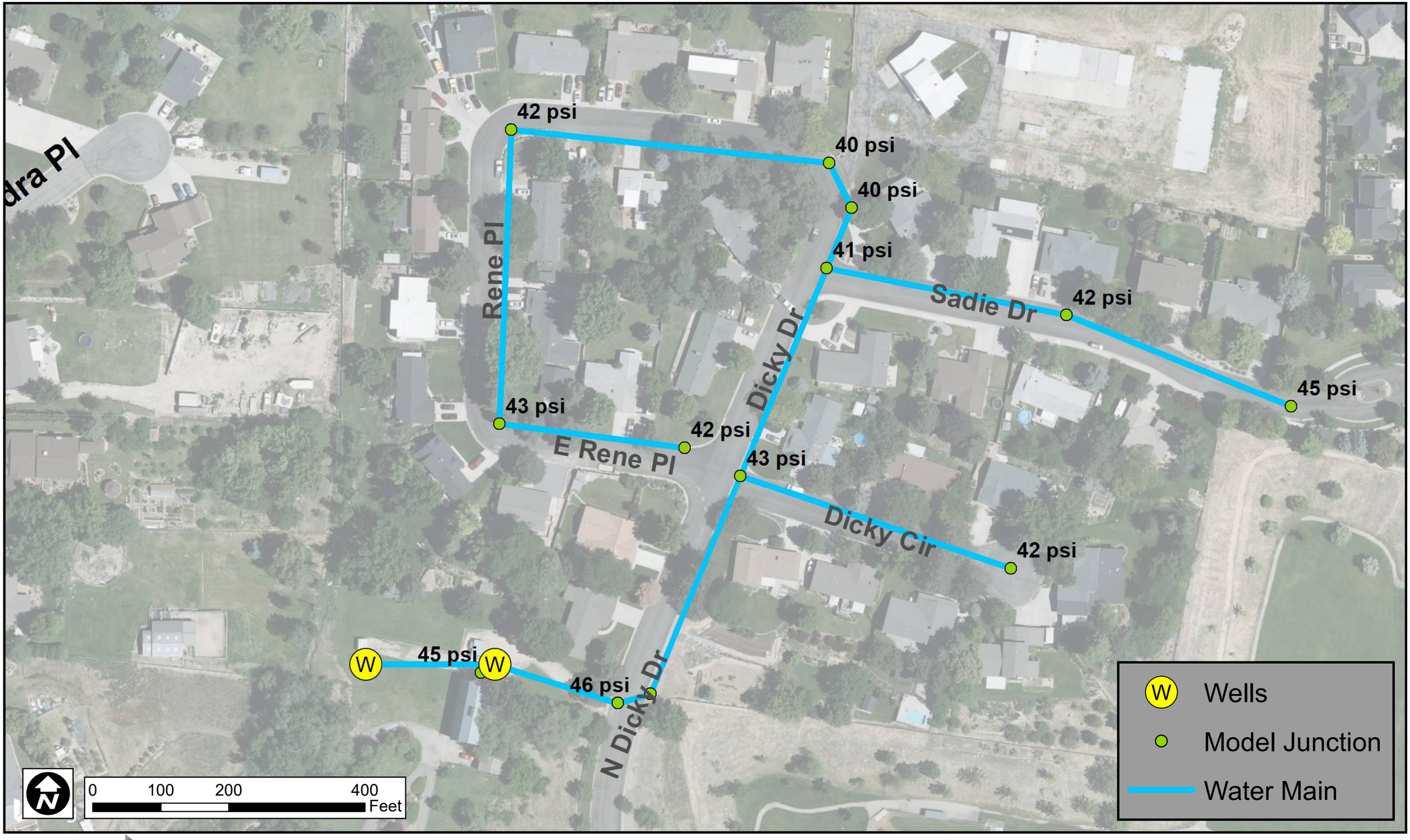
KELLER ASSOCIATES

Water System Map

Water Master Plan

Figure 1

Evans Water Corporation



KELLER ASSOCIATES

PHD Pressures

Water Master Plan

Figure 2

Evans Water Corporation

APPENDIX B

Planning Documents

B.1 – Soil Description
B2 – Ada County Species Observation List
B.3 – Well Boring Logs
B.4 – 2021 Sanitary Survey
B.5 – EPA Contaminant Lists
B.6 – Consumer Confidence Reports
B.7 – Suez Interconnection Letter
B.8 – Water Rights

KELLER ASSOCIATES

Appendix B.1 – Soil Description

About 70 percent of the complex is Power silt loam, and 20 percent is Potratz silt loam. The rest is McCain silt loam, 2 to 4 percent slopes; Rock outcrop; Sebree silty clay loam, 2 to 4 percent slopes; Scism silt loam, 2 to 4 percent slopes; and Trevino extremely stony silt loam, 5 to 20 percent slopes.

The Power soil is very deep and well drained. It formed in loess or silty alluvium that is underlain by basalt. Typically, the surface layer is pale brown silt loam about 6 inches thick. The subsoil is pale brown, yellowish brown, and light yellowish brown silt loam and silty clay loam about 21 inches thick. The substratum is light yellowish brown and very pale brown loam to a depth of 60 inches or more.

Permeability of the Power soil is moderately slow. The root zone extends to a depth of 60 inches or more. The available water capacity is very high. Runoff is medium, and the hazard of erosion is moderate.

The Potratz soil is moderately deep and well drained. It formed in loess that is underlain by basalt. Typically, the surface layer is light brownish gray and pale brown silt loam about 10 inches thick. The subsoil is yellowish brown silt loam about 9 inches thick. The substratum is light gray and white silt loam and loam about 19 inches thick. It is underlain by basalt. Depth to the bedrock ranges from 20 to 40 inches.

Permeability of the Potratz soil is moderate. The root zone extends to a depth of 20 to 40 inches. The available water capacity is high. Runoff is medium, and the hazard of erosion is moderate.

The soils in this complex are used mainly for irrigated crops and pasture. The major crops are field corn, corn silage, sugar beets, wheat, and alfalfa hay. Sweet corn, barley, oats, mint, and potatoes are also grown. In some areas, these soils are used as rangeland and wildlife habitat. In some areas, they are used for residential and urban development.

The hazard of erosion is the major limitation to agriculture on these soils. This limitation should be considered in the management of irrigation water. The depth of the root zone is an additional major limitation to agriculture on the Potratz soil; the bedrock limits the growth of some deep-rooted crops.

Furrow, border, corrugation, and sprinkler irrigation systems can be used on these soils. The border and corrugation systems are well suited to alfalfa, small grains, and pasture. Furrow irrigation is well suited to row crops. Sprinkler irrigation is well suited to most crops.

The potential natural plant community is dominated by bluebunch wheatgrass, Thurber needlegrass, and big sagebrush. If the range deteriorates, bluebunch wheatgrass and Thurber needlegrass decrease and are gradually replaced by cheatgrass and other annuals. Big sagebrush increases.

These soils are best suited to grazing in spring and fall. If the range is in poor condition, it can be reseeded to Siberian wheatgrass, crested wheatgrass, or other suitable grasses. In some years the available moisture is inadequate, and there is a moderate chance of seeding failure. Seedings are most successful late in fall.

The use of the Power soil as sites for residential development is limited by the moderately slow permeability, shrink-swell potential, low strength, and frost action potential. The depth to rock and frost action potential are limitations to this use on the Potratz soil.

This complex is in capability subclass IIe, irrigated, and VIc, nonirrigated.

141—Purdam silt loam, 0 to 2 percent slopes. This soil is moderately deep to a hardpan, and it is well drained. It formed in loess or silty alluvium that is underlain by mixed alluvium. It is on low alluvial terraces. The elevation is 2,600 to 3,100 feet. The average annual precipitation is 10 inches, the average annual temperature is 51 degrees F, and the frost-free period is about 150 days.

Typically, the surface layer is light brownish gray silt loam about 10 inches thick. The subsoil is light brownish gray and pale brown silty clay loam and silt loam about 12 inches thick. The substratum consists of very pale brown silt loam and loam about 15 inches thick; a light yellowish brown, weakly cemented hardpan about 12 inches thick; and, to a depth of 60 inches or more, light gray sandy loam. Depth to the hardpan ranges from 20 to 40 inches.

Included in mapping are small areas of Abo silt loam; Elijah silt loam, 0 to 2 percent slopes; Power silt loam, 0 to 2 percent slopes; and Sebree silty clay loam, 0 to 2 percent slopes. These included soils make up about 10 percent of this map unit.

Permeability is moderately slow above the hardpan and very slow through fractures in the hardpan. The root zone extends to a depth of 20 to 40 inches. The available water capacity is high. Runoff is slow, and the hazard of erosion is slight.

In most areas, this soil is used for irrigated crops and pasture. The major crops are field corn, corn silage, sugar beets, wheat, and alfalfa hay. Sweet corn, barley, oats, mint, and potatoes are also grown. In some areas, this soil is used as rangeland and wildlife habitat. In some areas, it is used for residential and urban development.

The depth of the root zone is the major limitation to agriculture. The hardpan hinders the growth of some deep-rooted crops. It also limits the available water capacity of the soil. This weakly cemented hardpan can be ripped by heavy equipment.

Furrow, border, corrugation, and sprinkler irrigation systems can be used on this soil. The border and corrugation systems are well suited to alfalfa, small grains, and pasture. Furrow irrigation is well suited to row crops. Sprinkler irrigation is well suited to most crops.

The potential natural plant community on this soil is dominated by bluebunch wheatgrass, Thurber needlegrass, and big sagebrush. If the range deteriorates, bluebunch wheatgrass and Thurber needlegrass decrease

and are gradually replaced by cheatgrass and other annuals. Big sagebrush and Sandberg bluegrass increase.

This soil is best suited to grazing in spring and fall. If the range is in poor condition, it can be reseeded to Siberian wheatgrass, crested wheatgrass, or other suitable grasses. Seedings are most successful late in fall. In some years the available moisture is inadequate, and there is a moderate chance of seeding failure.

The use of this soil for residential development is limited mainly by the cemented pan, shrink-swell potential, unstable cutbanks, low strength, and frost action potential.

The use of this soil as septic tank absorption fields is limited by the depth to the hardpan, which restricts the downward movement of the effluent. This limitation can generally be offset by increasing the size of the absorption field. Mound-type absorption areas can be used if space is limited. If effluent is discharged into the coarse-textured alluvium below the hardpan, contamination of nearby water supplies is a hazard.

Digging and trenching are hampered by the hardpan. This hardpan can be penetrated by power equipment. Cutbanks may collapse if excavations extend into the coarse-textured alluvium below the hardpan.

This soil is well suited to use as sites for houses without basements. The construction of houses with basements is hampered by the hardpan.

The low strength, frost action potential, and shrink-swell potential limit the construction of roads and streets. Suitable subgrade material can help offset these limitations.

This map unit is in capability subclass IIs, irrigated, and VIc, nonirrigated.

142—Purdam silt loam, 2 to 4 percent slopes. This soil is moderately deep to a hardpan, and it is well drained. It formed in loess or silty alluvium that is underlain by mixed alluvium. It is on low alluvial terraces. The elevation is 2,600 to 3,100 feet. The average annual precipitation is 11 inches, the average annual temperature is 51 degrees F, and the frost-free period is about 150 days.

Typically, the surface layer is light brownish gray silt loam about 10 inches thick. The subsoil is light brownish gray and pale brown silty clay loam and silt loam about 12 inches thick. The substratum consists of very pale brown silt loam and loam about 15 inches thick; a light yellowish brown, weakly cemented hardpan about 12 inches thick; and, to a depth of 60 inches or more, light gray sandy loam. Depth to the hardpan ranges from 20 to 40 inches.

Included in mapping are small areas of Abo silt loam; Elijah silt loam, 2 to 4 percent slopes; Power silt loam, 2 to 4 percent slopes; and Sebree silty clay loam, 0 to 2 percent slopes. These included soils make up about 10 percent of this map unit.

Permeability is moderately slow above the hardpan and very slow through fractures in the hardpan. The root zone extends to a depth of 20 to 40 inches. The available water capacity is high. Runoff is medium, and the hazard of erosion is moderate.

In most areas, this soil is used for irrigated crops and pasture. The major crops are field corn, corn silage, sugar beets, wheat, and alfalfa hay. Sweet corn, barley, oats, mint, and potatoes are also grown. In some areas, this soil is used as rangeland and wildlife habitat. In some areas, it is used for residential and urban development.

The hazard of erosion and the depth of the root zone are the major limitations to agriculture. The hazard of erosion can be offset through proper management of irrigation water. The hardpan hinders the growth of some deep-rooted crops. It also limits the available water capacity of the soil. This weakly cemented hardpan can be ripped by heavy equipment.

Furrow, border, corrugation, and sprinkler irrigation systems can be used on this soil. The border and corrugation systems are well suited to alfalfa, small grains, and pasture. Furrow irrigation is well suited to row crops. Sprinkler irrigation is well suited to most crops.

The potential natural plant community on this soil is dominated by bluebunch wheatgrass, Thurber needlegrass, and big sagebrush. If the range deteriorates, bluebunch wheatgrass and Thurber needlegrass decrease and are gradually replaced by cheatgrass and other annuals. Big sagebrush and Sandberg bluegrass increase.

This soil is best suited to grazing in spring and fall. If the range is in poor condition, it can be reseeded to Siberian wheatgrass, crested wheatgrass, or other suitable grasses. Seedings are most successful late in fall. In some years the available moisture is inadequate, and there is a moderate chance of seeding failure.

The use of this soil for residential development is limited mainly by the depth to the hardpan, shrink-swell potential, unstable cutbanks, low strength, and frost action potential.

The depth to the hardpan, which restricts the downward movement of the effluent, limits this soil for use as septic tank absorption fields. This limitation can generally be offset by increasing the size of the absorption field. Mound-type absorption areas can be used if space is limited. If effluent is discharged into the coarse-textured alluvium below the hardpan, contamination of nearby water supplies is a hazard.

Digging and trenching are hampered by the hardpan. This hardpan can be penetrated by power equipment. Cutbanks may collapse if excavations extend into the coarse-textured alluvium below the hardpan.

This soil is well suited to use as sites for houses without basements. The construction of houses with basements is hampered by the hardpan.

The low strength, frost action potential, and shrink-swell potential limit the construction of roads and streets. Suitable subgrade material can help offset these limitations.

This map unit is in capability subclass IIe, irrigated, and VIc, nonirrigated.

143—Purdam silt loam, 4 to 8 percent slopes. This soil is moderately deep to a hardpan, and it is well drained. It formed in loess or silty alluvium that is underlain by mixed alluvium. It is on low alluvial terraces. The elevation is 2,600 to 3,100 feet. The average annual precipitation is 11 inches, the average annual temperature is 51 degrees F, and the frost-free period is about 150 days.

Typically, the surface layer is light brownish gray silt loam about 10 inches thick. The subsoil is light brownish gray and pale brown silty clay loam and silt loam about 12 inches thick. The substratum consists of very pale brown silt loam and loam about 15 inches thick; a light yellowish brown, weakly cemented hardpan about 12 inches thick; and, to a depth of 60 inches or more, light gray sandy loam. Depth to the hardpan ranges from 20 to 40 inches.

Included in mapping are small areas of Elijah silt loam, 4 to 8 percent slopes; Power silt loam, 4 to 8 percent slopes; and Sebree silty clay loam, 4 to 8 percent slopes. These included soils make up about 10 percent of this map unit.

Permeability is moderately slow above the hardpan and very slow through fractures in the hardpan. The root zone extends to a depth of 20 to 40 inches. The available water capacity is high. Runoff is moderate, and the hazard of erosion is moderate.

In most areas, this soil is used for irrigated crops and pasture. The major crops are field corn, corn silage, sugar beets, wheat, and alfalfa hay. Sweet corn, barley, oats, mint, and potatoes are also grown. In some areas, this soil is used as rangeland and wildlife habitat. In some areas, it is used for residential and urban development.

The hazard of erosion and the depth of the root zone are the major limitations to agriculture. The hardpan hinders the growth of some deep-rooted crops. It also limits the available water capacity of the soil. This weakly cemented hardpan can be ripped by heavy equipment. The hazard of erosion can be offset through proper management of irrigation water.

Furrow, border, corrugation, and sprinkler irrigation systems can be used on this soil. The border and corrugation systems are well suited to alfalfa, small grains, and pasture. Furrow irrigation is well suited to row crops. Sprinkler irrigation is well suited to most crops.

The potential natural plant community on this soil is dominated by bluebunch wheatgrass, Thurber needlegrass, and big sagebrush. If the range deteriorates, bluebunch wheatgrass and Thurber needlegrass decrease and are gradually replaced by cheatgrass and other annuals. Big sagebrush and Sandberg bluegrass increase.

This soil is best suited to grazing in spring and fall. If the range is in poor condition, it can be reseeded to Siberian wheatgrass, crested wheatgrass, or other suitable grasses. Seedings are most successful late in fall. In some years the available moisture is inadequate, and there is a moderate chance of seeding failure.

The use of this soil for residential development is limited mainly by the depth to the hardpan, hazard of seepage in the lower part of the substratum, shrink-swell potential, unstable cutbanks, low strength, and frost action potential.

The depth to the hardpan, which restricts the downward movement of the effluent, limits this soil for use as septic tank absoprtion fields. This limitation can generally be offset by increasing the size of the absorption field. Mound-type absorption areas can be used if space is limited. If effluent is discharged into the coarse-textured alluvium below the hardpan, contamination of nearby water supplies is a hazard.

Digging and trenching are hampered by the hardpan. This hardpan can be penetrated by power equipment. Cutbanks may collapse if excavations extend into the coarse-textured alluvium below the hardpan.

This soil is well suited to use as sites for houses without basements. The construction of houses with basements is hampered by the hardpan.

The low strength, frost action potential, and shrink-swell potential limit the construction of roads and streets. Suitable subgrade material can help offset these limitations.

This map unit is in capability subclass IIIe, irrigated, and VIe, nonirrigated.

144—Purdam-Power silt loams, 0 to 2 percent slopes. The soils in this complex are on low alluvial terraces. The elevation is 2,600 to 3,100 feet. The average annual precipitation is 11 inches, the average annual temperature is 51 degrees F, and the frost-free period is about 150 days.

About 55 percent of the complex is Purdam silt loam, and 30 percent is Power silt loam. The rest is Abo silt loam; Colthorp silt loam, 0 to 2 percent slopes; Elijah silt loam, 0 to 2 percent slopes; and Sebree silty clay loam, 0 to 2 percent slopes.

The Purdam soil is moderately deep to a hardpan, and it is well drained. It formed in loess or silty alluvium that is underlain by mixed alluvium. Typically, the surface layer is light brownish gray silt loam about 10 inches thick. The subsoil is light brownish gray and pale brown silty clay loam and silt loam about 12 inches thick. The substratum consists of very pale brown silt loam and loam about 15 inches thick; a light yellowish brown, weakly cemented hardpan about 12 inches thick; and, to a depth of 60 inches or more, light gray sandy loam. Depth to the hardpan ranges from 20 to 40 inches.

Permeability of the Purdam soil is moderately slow above the hardpan and very slow through fractures in the hardpan. The root zone extends to a depth of 20 to 40 inches. The available water capacity is high. Runoff is very slow, and the hazard of erosion is slight.

The Power soil is very deep and well drained. It formed in loess or silty alluvium that is underlain by mixed alluvium. Typically, the surface layer is pale brown silt loam about 6 inches thick. The subsoil is pale brown,

yellowish brown, and light yellowish brown silt loam and silty clay loam about 21 inches thick. The substratum is light yellowish brown and very pale brown loam to a depth of 60 inches or more.

Permeability of this Power soil is moderately slow. The root zone extends to a depth of 60 inches or more. The available water capacity is very high. Runoff is very slow, and the hazard of erosion is slight.

In most areas, these soils are used for irrigated crops and pasture. The major crops are field corn, corn silage, sugar beets, wheat, and alfalfa hay. Sweet corn, barley, oats, mint, and potatoes are also grown. In some areas, these soils are used as rangeland and wildlife habitat. In some areas, they are used for residential and urban development.

The depth of the root zone is the major limitation to agriculture on the Purdam soil. The hardpan hinders the growth of some deep-rooted crops. It also limits the available water capacity of the soil. Proper crop selection and irrigation water management are needed to overcome this limitation. The weakly cemented hardpan can be ripped by heavy equipment. There are no major limitations to agriculture on the Power soil.

Furrow, border, corrugation, and sprinkler irrigation systems can be used on these soils. The border and corrugation systems are well suited to alfalfa, small grains, and pasture. Furrow irrigation is well suited to row crops. Sprinkler irrigation is well suited to most crops.

The potential natural plant community is dominated by bluebunch wheatgrass, Thurber needlegrass, and big sagebrush. If the range deteriorates, bluebunch wheatgrass and Thurber needlegrass decrease and are gradually replaced by cheatgrass and other annuals. Big sagebrush increases.

These soils are best suited to grazing in spring and fall. If the range is in poor condition, it can be reseeded to Siberian wheatgrass, crested wheatgrass, or other suitable grasses. In some years the available moisture is inadequate, and there is a moderate chance of seeding failure. Seedings are most successful late in fall.

The use of these soils for residential development is limited by shrink-swell potential, low strength, moderately slow permeability, and frost action potential. The Purdam soil is also limited by the hardpan.

The moderately slow permeability limits these soils for use as septic tank absorption fields. Hardpan is an additional limitation to this use on the Purdam soil. These limitations can generally be offset by increasing the size of the absorption field. Mound-type absorption fields can be used if space is limited. In low density residential areas, ripping the hardpan is another alternative. However, if effluent is discharged into the coarse-textured alluvium below the hardpan, contamination of nearby water supplies is a hazard.

Cutbanks may cave if digging and trenching extend into the coarse-textured alluvium. The hardpan in the Purdam soil hampers digging and trenching.

The Purdam soil is well suited to use as sites for houses without basements. The hardpan is a limitation to the use of this soil as sites for houses with basements. Shrink-swell potential of the subsoil is a limitation to the use of the Power soil as sites for houses with and without basements. Suitable backfill material can minimize the stress on the basement walls that is caused by the shrinking and swelling.

The low strength, frost action potential, and shrink-swell potential limit the construction of roads, driveways, and other paved surfaces. Suitable subgrade material can help offset these limitations. Hardpan is an additional limitation to the construction of paved surfaces on the Purdam soil.

This complex is in capability subclass IIs, irrigated, and VIc, nonirrigated.

145—Purdam-Power silt loams, 2 to 4 percent slopes. The soils in this complex are on low alluvial terraces. The elevation is 2,600 to 3,100 feet. The average annual precipitation is 11 inches, the average annual temperature is 51 degrees F, and the frost-free period is about 150 days.

About 55 percent of the complex is Purdam silt loam, and 30 percent is Power silt loam. The rest is Colthorp silt loam, 2 to 4 percent slopes; Elijah silt loam, 2 to 4 percent slopes; and Sebree silty clay loam, 0 to 2 percent slopes.

The Purdam soil is moderately deep to a hardpan, and it is well drained. It formed in loess or silty alluvium that is underlain by mixed alluvium. Typically, the surface layer is light brownish gray silt loam about 10 inches thick. The subsoil is light brownish gray and pale brown silty clay loam and silt loam about 12 inches thick. The substratum consists of very pale brown silt loam and loam about 15 inches thick; a light yellowish brown, weakly cemented hardpan about 12 inches thick; and, to a depth of 60 inches or more, light gray sandy loam. Depth to the hardpan ranges from 20 to 40 inches.

Permeability of the Purdam soil is moderately slow above the hardpan and very slow through fractures in the hardpan. The root zone extends to a depth of 20 to 40 inches. The available water capacity is high. Runoff is medium, and the hazard of erosion is moderate.

The Power soil is very deep and well drained. It formed in loess or silty alluvium that is underlain by mixed alluvium. Typically, the surface layer is pale brown silt loam about 6 inches thick. The subsoil is pale brown, yellowish brown, and light yellowish brown silt loam and silty clay loam about 21 inches thick. The substratum is light yellowish brown and very pale brown loam to a depth of 60 inches or more.

Permeability of this Power soil is moderately slow. The root zone extends to a depth of 60 inches or more. The available water capacity is very high. Runoff is medium, and the hazard of erosion is moderate.

In most areas, these soils are used for irrigated crops and pasture. The major crops are field corn, corn silage, sugar beets, wheat, and alfalfa hay. Sweet corn, barley, oats, mint, and potatoes are also grown. In some areas,

these soils are used as rangeland and wildlife habitat. In some areas, they are used for residential and urban development.

The depth of the root zone and the hazard of erosion on the Purdam soil are the major limitations to agriculture. The hardpan hinders the growth of some deep-rooted crops. It also limits the available water capacity of the soil. Proper crop selection and irrigation water management are needed to overcome this limitation. The hardpan is weakly cemented and can be ripped by heavy equipment. There are no major limitations to agriculture on the Power soil.

Furrow, border, corrugation, and sprinkler irrigation systems can be used on these soils. The border and corrugation systems are well suited to alfalfa, small grains, and pasture. Furrow irrigation is well suited to row crops. Sprinkler irrigation is well suited to most crops.

The potential natural plant community is dominated by bluebunch wheatgrass, Thurber needlegrass, and big sagebrush. If the range deteriorates, bluebunch wheatgrass and Thurber needlegrass decrease and are gradually replaced by cheatgrass and other annuals. Big sagebrush increases.

These soils are best suited to grazing in spring and fall. If the range is in poor condition, it can be reseeded to Siberian wheatgrass, crested wheatgrass, or other suitable grasses. In some years the available moisture is inadequate, and there is a moderate chance of seeding failure. Seedings are most successful late in fall.

The use of the Purdam soil for residential development is limited by the low strength, moderately slow permeability, unstable cutbanks, shrink-swell potential, frost action potential, and the hardpan.

The moderately slow permeability limits these soils for use as septic tank absorption fields. Hardpan is an additional limitation to this use on the Purdam soil. These limitations can generally be offset by increasing the size of the absorption field. Mound-type absorption fields can be used if space is limited. In low density residental areas, ripping the hardpan is beneficial. However, if effluent is discharged into the coarse-textured alluvium below the hardpan, contamination of nearby water supplies is a hazard.

Cutbanks may cave if digging and trenching operations extend into coarse-textured alluvium. The hardpan in the Purdam soil hampers digging and trenching.

Purdam soils are well suited to use as sites for houses without basements. The depth to the hardpan is a limitation to the use of this soil as sites for houses with basements. The shrink-swell potential of the subsoil is a limitation to the use of the Power soil as sites for houses with and without basements. Suitable backfill material can minimize the stress on the basement walls that is caused by the shrinking and swelling.

The low strength, frost action potential, and shrink-swell potential limit the construction of roads and streets. Suitable subgrade material can help offset these limitations. The hardpan is an additional limitation to the construction of roads and streets on the Purdam soil.

This complex is in capability subclass IIe, irrigated, and VIc, nonirrigated.

146—Purdam-Power silt loams, 4 to 8 percent slopes. The soils in this complex are on low alluvial terraces. The elevation is 2,600 to 3,100 feet. The average annual precipitation is 11 inches, the average annual temperature is 51 degrees F, and the frost-free period is about 150 days.

About 55 percent of the complex is Purdam silt loam, and 30 percent is Power silt loam. The rest is Colthorp silt loam, 4 to 8 percent slopes; Elijah silt loam, 4 to 8 percent slopes; and Sebree silty clay loam, 4 to 8 percent slopes.

The Purdam soil is moderately deep to a hardpan, and it is well drained. It formed in loess or silty alluvium that is underlain by mixed alluvium. Typically, the surface layer is light brownish gray silt loam about 10 inches thick. The subsoil is light brownish gray and pale brown silty clay loam and silt loam about 12 inches thick. The substratum consists of very pale brown silt loam and loam about 15 inches thick; a light yellowish brown, weakly cemented hardpan about 12 inches thick; and, to a depth of 60 inches or more, light gray sandy loam. Depth to the hardpan ranges from 20 to 40 inches.

Permeability of the Purdam soil is moderately slow above the hardpan and very slow through fractures in the hardpan. The root zone extends to a depth of 20 to 40 inches. The available water capacity is high. Runoff is medium, and the hazard of erosion is moderate.

The Power soil is very deep and well drained. It formed in loess or silty alluvium that is underlain by mixed alluvium. Typically, the surface layer is pale brown silt loam about 6 inches thick. The subsoil is pale brown, yellowish brown, and light yellowish brown silt loam and silty clay loam about 21 inches thick. The substratum is light yellowish brown and very pale brown loam to a depth of 60 inches or more.

Permeability of this Power soil is moderately slow. The root zone extends to a depth of 60 inches or more. The available water capacity is very high. Runoff is medium, and the hazard of erosion is moderate.

In most areas, these soils are used for irrigated crops and pasture. The major crops are field corn, corn silage, sugar beets, wheat, and alfalfa hay. Sweet corn, barley, and oats are also grown. In some areas, these soils are used as rangeland and wildlife habitat. In some areas, they are used for residential and urban development.

The depth of the root zone and the hazard of erosion on the Purdam soil are the major limitations to agriculture. The hardpan hinders the growth of some deep-rooted crops. It also limits the available water capacity of the soil. Proper crop selection and irrigation water management are needed to offset this limitation. The weakly cemented hardpan can be ripped by heavy equipment. There are no major limitations to agriculture on the Power soil.

Furrow, border, corrugation, and sprinkler irrigation systems can be used on these soils. The border and

corrugation systems are well suited to alfalfa, small grains, and pasture. Furrow irrigation is well suited to row crops. Sprinkler irrigation is well suited to most crops.

The potential natural plant community is dominated by bluebunch wheatgrass, Thurber needlegrass, and big sagebrush. If the range deteriorates, bluebunch wheatgrass and Thurber needlegrass decrease and are gradually replaced by cheatgrass and other annuals. Big sagebrush increases.

These soils are best suited to grazing in spring and fall. If the range is in poor condition, it can be reseeded to Siberian wheatgrass, crested wheatgrass, or other suitable grasses. In some years the available moisture is inadequate, and there is a moderate chance of seeding failure. Seedings are most successful late in fall.

Depth to hardpan, moderately slow permeability, unstable cutbanks, shrink-swell potential, and frost action potential are limitations to residential development on the Purdam soil. Moderately slow permeability, shrink-swell potential, low strength, and frost action potential are limitations to this use of the Power soil.

This complex is in capability subclass IIIe, irrigated, and VIe, nonirrigated.

147—Purdam-Power-Urban land complex, 0 to 2 percent slopes. The soils and the Urban land in this complex are on low alluvial terraces. The elevation is 2,500 to 3,000 feet. The average annual precipitation is 11 inches, the average annual temperature is 51 degrees F, and the frost-free period is about 150 days.

About 40 percent of the complex is Purdam silt loam, 30 percent is Power silt loam, and 20 percent is Urban land. The rest is Abo silt loam, and Elijah silt loam, 0 to 2 percent slopes.

The Purdam soil is moderately deep to a hardpan. It formed in loess or silty alluvium underlain by mixed alluvium. Typically, the surface layer is light brownish gray silt loam about 10 inches thick. The subsoil is light brownish gray and pale brown silty clay loam and silt loam about 12 inches thick. The substratum consists of very pale brown silt loam and loam about 15 inches thick; a light yellowish brown, weakly cemented hardpan about 12 inches thick; and, to a depth of 60 inches or more, light gray sandy loam. Depth to the hardpan is 20 to 40 inches.

Permeability of this Purdam soil is moderately slow above the hardpan and very slow through fractures in the hardpan. The root zone extends to a depth of 20 to 40 inches. The available water capacity is high. Runoff is very slow, and the hazard of erosion is slight.

The Power soil is very deep and well drained. It formed in loess or silty alluvium that is underlain by mixed alluvium. Typically, the surface layer is pale brown silt loam about 6 inches thick. The subsoil is pale brown, yellowish brown, and light yellowish brown silt loam and silty clay loam about 21 inches thick. The substratum is light yellowish brown and very pale brown loam to a depth of 60 inches or more.

Permeability of this Power soil is moderately slow. The root zone extends to a depth of 60 inches or more. The available water capacity is very high. Runoff is slow, and the hazard of erosion is slight.

Urban land consists of areas that are covered by streets, parking lots, buildings, and other structures that so obscure or alter the soils that identification is not feasible.

The soils in this complex are used mainly for residential development. In some areas they are used for irrigated crops and pasture. The major crops are wheat, barley, oats, and alfalfa hay. Most areas of cropland are 10 acres or less in size.

The use of the soils for residential development is limited primarily by the moderately slow permeability, unstable cutbanks, frost action potential, low strength, and shrink-swell potential. Hardpan is an additional limitation to this use on the Purdam soil.

The moderately slow permeability limits these soils for use as septic tank absorption fields. Hardpan is an additional limitation to this use on the Purdam soil. These limitations can generally be offset by increasing the size of the absorption field. Mound-type absorption fields can be used if space is limited. Ripping the hardpan is another alternative. However, if effluent is discharged into the coarse textured alluvium below the hardpan, contamination of nearby water supplies is a hazard.

Digging and trenching are hampered by the hardpan in the Purdam soil. This hardpan can be penetrated by power equipment. Cutbanks may collapse if excavations extend into the coarse-textured alluvium below the hardpan.

The Purdam soil is well suited to use as sites for houses without basements. The hardpan in this Purdam soil hampers the construction of houses with basements. Shrink-swell potential limits the use of the Power soil as sites for houses with and without basements. Suitable backfill material can minimize the stress on basement walls that is caused by the shrinking and swelling.

The low strength, shrink-swell potential, and frost action potential limit the construction of roads, driveways, and other paved surfaces. Suitable subgrade material can help offset these limitations. Hardpan is an additional limitation to construction on the Purdam soil.

The depth of the root zone is the major limitation to farming on the Purdam soil. The hardpan hinders the growth of some deep-rooted crops. It also limits the available water capacity of the soil. This weakly cemented hardpan can be ripped by heavy equipment. There are no major limitations to farming on the Power soil.

Furrow, border, corrugation, and sprinkler irrigation systems can be used on these soils. The corrugation and border systems are well suited to alfalfa, small grains, and pasture. Furrow irrigation is well suited to row crops. Sprinkler irrigation is well suited to most crops.

This complex is in capability subclass IIs, irrigated.

148—Quincy sand, 2 to 8 percent slopes. This soil is very deep and excessively drained. It formed in mixed

Appendix B.2 – Ada County Species Observation List

Ada County Observations List from Idaho Fish and Game

County	Scientific Name	Common Name	Global Rank	State Rank	Federally Listed	SWAP, SCGN, CWCS	USFSreg1	USFSreg4	BLM	IDAPA State Protection Status	INPS	INPSThreat
Ada	Accipiter cooperii	Cooper's Hawk	G5	S4						idapa-protection-nongame		
Ada	Accipiter gentilis	Northern Goshawk	G5	S4			Sensitive	Sensitive	TYPE 3	idapa-protection-nongame		
Ada	Accipiter striatus	Sharp-shinned Hawk	G5	S5						idapa-protection-nongame		
Ada	Actitis macularia	Spotted Sandpiper	G5	S5B						idapa-protection-nongame		
Ada	Aechmophorus clarkii	Clark's Grebe	G5	S2B		Yes				idapa-protection-nongame		
Ada	Aechmophorus occidentalis	Western Grebe	G5	S2B		Yes				idapa-protection-nongame		
Ada	Agelaius phoeniceus	Red-winged Blackbird	G5	S5B,S3N						idapa-protection-nongame		
Ada	Allium aaseae	Aase's Onion	G3	S3					TYPE 2		Global Priority 3	INPS Threats: 8
Ada	Ambystoma macrodactylum	Long-toed Salamander	G5	S5						idapa-protection-nongame		
Ada	Ambystoma tigrinum	Tiger Salamander	G5	S5						idapa-protection-nongame		
Ada	Amphispiza belli	Sage Sparrow	G5	S4B					TYPE 3	idapa-protection-nongame		
Ada	Amphispiza bilineata	Black-throated Sparrow	G5	S2B					TYPE 4	idapa-protection-nongame		
Ada	Anas acuta	Northern Pintail	G5	S5B,S2N		Yes				idapa-protection-game		
Ada	Antrozous pallidus	Pallid Bat	G5	S1?						idapa-protection-nongame		
Ada	Aquila chrysaetos	Golden Eagle	G5							idapa-protection-nongame		
Ada	Archilochus alexandri	Black-chinned Hummingbird	G5	S5B						idapa-protection-nongame		
Ada	Ardea herodias	Great Blue Heron	G5	S5B,S5N						idapa-protection-nongame		
Ada	Asio flammeus	Short-eared Owl	G5	S4		Yes			TYPE 5	idapa-protection-nongame		
Ada	Aspidoscelis tigris	Western Whiptail	G5	S4						idapa-protection-nongame		
Ada	Astragalus mulfordiae	Mulford's Milkvetch	G2	S2					TYPE 2		Global Priority 2	INPS Threats: 2
Ada	Astragalus purshii var. ophiogenes	Snake River Milkvetch	G5T3	S3					TYPE 5		State Monitor	
Ada	Athene cunicularia hypugaea	Western Burrowing Owl	G4T4	S3S4		Yes			TYPE 5	idapa-protection-nongame		
Ada	Aythya affinis	Lesser Scaup	G5	S3		Yes				idapa-protection-game		
Ada	Bombycilla cedrorum	Cedar Waxwing	G5	S5B,S3N						idapa-protection-nongame		
Ada	Brachylagus idahoensis	Pygmy Rabbit	G4	S2		Yes		Sensitive	TYPE 2	idapa-protection-game		
Ada	Bubo virginianus	Great Horned Owl	G5	S5						idapa-protection-nongame		
Ada	Bucephala islandica	Barrow's Goldeneye	G5	S3B,S3N					TYPE 5	idapa-protection-game		
Ada	Bufo boreas	Western Toad	G4	S4			Sensitive		TYPE 2/TYPE 3	idapa-protection-nongame		
Ada	Bufo woodhousii	Woodhouse's Toad	G5	S2		Yes			TYPE 3	idapa-protection-nongame		
Ada	Buteo jamaicensis	Red-tailed Hawk	G5	S5B,S5N						idapa-protection-nongame		
Ada	Buteo regalis	Ferruginous Hawk	G4	S3B		Yes			TYPE 3	idapa-protection-nongame		
Ada	Buteo swainsoni	Swainson's Hawk	G5	S3B		Yes			TYPE 5	idapa-protection-nongame		
Ada	Calidris mauri	Western Sandpiper	G5	S2N						idapa-protection-nongame		
Ada	Calidris minutilla	Least Sandpiper	G5	S2N						idapa-protection-nongame		
Ada	Capnura anas	A Stonefly				Yes						
Ada	Carduelis pinus	Pine Siskin	G5	S5						idapa-protection-nongame		
Ada	Carduelis psaltria	Lesser Goldfinch	G5	S2B		Yes				idapa-protection-nongame		
Ada	Carduelis tristis	American Goldfinch	G5	S5						idapa-protection-nongame		
Ada	Carpodacus cassinii	Cassin's Finch	G5	S5					TYPE 5	idapa-protection-nongame		
Ada	Carpodacus mexicanus	House Finch	G5	S5						idapa-protection-nongame		
Ada	Catapyrenium congestum	Compact Earth Lichen	G4	S2					TYPE 4		State Sensitive	
Ada	Cathartes aura	Turkey Vulture	G5	S4B						idapa-protection-nongame		
Ada	Catharus guttatus	Hermit Thrush	G5	S5B						idapa-protection-nongame		
Ada	Catharus ustulatus	Swainson's Thrush	G5	S5B						idapa-protection-nongame		
Ada	Catoptrophorus semipalmatus	Willet	G5	S4B						idapa-protection-nongame		
Ada	Centrocercus urophasianus	Greater-Sage Grouse	G4	S2	C	Yes		Sensitive	TYPE 2	idapa-protection-upland-game-bird		
Ada	Certhia americana	Brown Creeper	G5	S5						idapa-protection-nongame		
Ada	Ceryle alcyon	Belted Kingfisher	G5	S5						idapa-protection-nongame		
Ada	Chaenactis stevioides	Desert Pincushion	G5	S2					TYPE 4		State Sensitive	
Ada	Charadrius vociferus	Killdeer	G5	S5B,S3N						idapa-protection-nongame		
Ada	Chondestes grammacus	Lark Sparrow	G5	S5B						idapa-protection-nongame		
Ada	Chordeiles minor	Common Nighthawk	G5	S5B						idapa-protection-nongame		
Ada	Cicindela plutonica	A Tiger Beetle	G3	S3		Yes						
Ada	Circus cyaneus	Northern Harrier	G5	S5B,S5N						idapa-protection-nongame		
Ada	Coccothraustes vespertinus	Evening Grosbeak	G5	S5						idapa-protection-nongame		
Ada	Coccyzus americanus	Yellow-billed Cuckoo	G5	S2B	C	Yes			TYPE 1	idapa-protection-nongame		
Ada	Coccyzus erythropthalmus	Black-billed Cuckoo	G5	S1B						idapa-protection-nongame		
Ada	Colaptes auratus	Northern Flicker	G5	S5						idapa-protection-nongame		
Ada	Coluber constrictor	Racer	G5	S5						idapa-protection-nongame		
Ada	Contopus cooperi	Olive-sided Flycatcher	G4	S4B					TYPE 3	idapa-protection-nongame		
Ada	Contopus sordidulus	Western Wood-Pewee	G5	S5B						idapa-protection-nongame		
Ada	Corvus corax	Common Raven	G5	S5						idapa-protection-nongame		
Ada	Corynorhinus townsendii	Townsend's Big-eared Bat	G4	S3		Yes	Sensitive	Sensitive	TYPE 3	idapa-protection-nongame		
Ada	Crotalus viridis	Prairie Rattlesnake	G5	S5						idapa-protection-nongame		
Ada	Crotaphytus bicinctores	Mojave Black-collared Lizard	G5	S1		Yes			TYPE 3	idapa-protection-nongame		
Ada	Cyanocitta stelleri	Steller's Jay	G5	S5						idapa-protection-nongame		
Ada	Dendragapus obscurus	Blue Grouse	G5	S5					TYPE 5	idapa-protection-game		
Ada	Dendroica coronata	Yellow-rumped Warbler	G5	S5B						idapa-protection-nongame		
Ada	Dendroica petechia	Yellow Warbler	G5	S5B						idapa-protection-nongame		
Ada	Dendroica townsendi	Townsend's Warbler	G5	S4B						idapa-protection-nongame		
Ada	Eatonella nivea	White Eatonella	G4G5	S3					TYPE 4		State Sensitive	
Ada	Empidonax hammondii	Hammond's Flycatcher	G5	S5B					TYPE 3	idapa-protection-nongame		
Ada	Empidonax oberholseri	Dusky Flycatcher	G5	S5B						idapa-protection-nongame		
Ada	Empidonax traillii	Willow Flycatcher	G5	S5B					TYPE 3	idapa-protection-nongame		
Ada	Eptesicus fuscus	Big Brown Bat	G5	S4?						idapa-protection-nongame		
Ada	Eremophila alpestris	Horned Lark	G5	S5						idapa-protection-nongame		
Ada	Eriogonum shockleyi var. packardiae	Packard's Buckwheat	G5T2Q	S2					TYPE 2		Global Priority 2	INPS Threats: 9
Ada	Eumeces skiltonianus	Western Skink	G5	S5						idapa-protection-nongame		
Ada	Euphagus cyanocephalus	Brewer's Blackbird	G5	S5B,S5N					TYPE 5	idapa-protection-nongame		
Ada	Falco columbarius	Merlin	G5	S2B,S2N		Yes				idapa-protection-nongame		
Ada	Falco mexicanus	Prairie Falcon	G5	S5B,S3N					TYPE 3	idapa-protection-nongame		
Ada	Falco peregrinus anatum	Peregrine Falcon	G4T4	S2B		Yes	Sensitive	Sensitive	TYPE 3	idapa-protection-nongame		
Ada	Falco sparverius	American Kestrel	G5	S5B,S5N						idapa-protection-nongame		
Ada	Gambelia wislizenii	Longnose Leopard Lizard	G5	S5						idapa-protection-nongame		
Ada	Gavia immer	Common Loon	G5	S1B,S2N		Yes	Sensitive	Sensitive		idapa-protection-nongame		
Ada	Glyptopleura marginata	White-margined Wax Plant	G4G5	S3					TYPE 4		State Sensitive	
Ada	Gulo gulo luscus	North American Wolverine	G4T4	S2	C	Yes	Sensitive	Sensitive	TYPE 3	idapa-protection-nongame		
Ada	Haliaeetus leucocephalus	Bald Eagle	G5	S3B,S4N		Yes		Threatened	TYPE 1	idapa-protection-nongame		
Ada	Himantopus mexicanus	Black-necked Stilt	G5	S3B		Yes				idapa-protection-nongame		
Ada	Hirundo rustica	Barn Swallow	G5	S5B						idapa-protection-nongame		
Ada	Hypsiglena torquata	Night Snake	G5	S3					TYPE 5	idapa-protection-nongame		
Ada	Icterus bullockii	Bullock's Oriole	G5	S5B						idapa-protection-nongame		
Ada	Ipomopsis polycladon	Spreading Gilia	G4	S2					TYPE 3		State Priority 2	
Ada	Junco hyemalis	Dark-eyed Junco	G5	S5						idapa-protection-nongame		
Ada	Lanius ludovicianus	Loggerhead Shrike	G4	S3					TYPE 3	idapa-protection-nongame		
Ada	Larus argentatus	Herring Gull	G5	S2N						idapa-protection-nongame		
Ada	Larus californicus	California Gull	G5	S2B,S3N		Yes				idapa-protection-nongame		
Ada	Larus delawarensis	Ring-billed Gull	G5	S2S3B,S3N						idapa-protection-nongame		
Ada	Larus pipixcan	Franklin's Gull	G4G5	S2B		Yes				idapa-protection-nongame		
Ada	Lasionycteris noctivagans	Silver-haired Bat	G5	S4?						idapa-protection-nongame		
Ada	Lasiurus cinereus	Hoary Bat	G5	S4?						idapa-protection-nongame		
Ada	Lepidium davisii	Davis' Peppergrass	G3	S3					TYPE 3		Global Priority 3	INPS Threats: 5
Ada	Lepidium papilliferum	Slickspot Peppergrass	G2	S2	T			Threatened	TYPE 1		Global Priority 3	INPS Threats: 2
Ada	Limnodromus scolopaceus	Long-billed Dowitcher	G5	S2N						idapa-protection-nongame		
Ada	Limosa fedoa	Marbled Godwit	G5	S2N						idapa-protection-nongame		
Ada	Lophodytes cucullatus	Hooded Merganser	G5	S2B,S3N		Yes				idapa-protection-game		
Ada	Loxia curvirostra	Red Crossbill	G5	S5						idapa-protection-nongame		
Ada	Masticophis taeniatus	Striped Whipsnake	G5	S4						idapa-protection-nongame		
Ada	Melospiza lincolnii	Lincoln's Sparrow	G5	S5B						idapa-protection-nongame		
Ada	Melospiza melodia	Song Sparrow	G5	S5B,S5N						idapa-protection-nongame		
Ada	Mimus polyglottos	Northern Mockingbird	G5	S1B						idapa-protection-nongame		
Ada	Molothrus ater	Brown-headed Cowbird	G5	S5B						idapa-protection-nongame		
Ada	Myotis ciliolabrum	Western Small-footed Myotis	G5	S4?					TYPE 5	idapa-protection-nongame		
Ada	Myotis evotis	Long-eared Myotis	G5	S3?					TYPE 5	idapa-protection-nongame		
Ada	Myotis lucifugus	Little Brown Myotis	G5	S5						idapa-protection-nongame		
Ada	Myotis volans	Long-legged Myotis	G5	S3?					TYPE 5	idapa-protection-nongame		
Ada	Neotamias minimus	Least Chipmunk	G5	S5						idapa-protection-nongame		
Ada	Nucifraga columbiana	Clark's Nutcracker	G5	S5						idapa-protection-nongame		
Ada	Numenius americanus	Long-billed Curlew	G5	S2B		Yes			TYPE 5	idapa-protection-nongame		
Ada	Oporornis tolmiei	MacGillivray's Warbler	G5	S5B						idapa-protection-nongame		
Ada	Oreortyx pictus	Mountain Quail	G5	S1		Yes	Sensitive	Sensitive	TYPE 3	idapa-protection-game		
Ada	Oreoscoptes montanus	Sage Thrasher	G5	S5B					TYPE 5	idapa-protection-nongame		
Ada	Pandion haliaetus	Osprey	G5	S5B						idapa-protection-nongame		
Ada	Passerculus sandwichensis	Savannah Sparrow	G5	S5B						idapa-protection-nongame		

Ada County Observations List from Idaho Fish and Game

County	Scientific Name	Common Name	Global Rank	State Rank	Federally Listed	SWAP, SCGN, CWCS	USFSreg1	USFSreg4	BLM	IDAPA State Protection Status	INPS	INPSThreat
Ada	Passerella iliaca	Fox Sparrow	G5	S5B						idapa-protection-nongame		
Ada	Passerina amoena	Lazuli Bunting	G5	S5B						idapa-protection-nongame		
Ada	Pediocactus simpsonii	Simpson's Hedgehog Cactus	G4	S3					TYPE 5		State Monitor	
Ada	Petrochelidon pyrrhonota	Cliff Swallow	G5	S5B						idapa-protection-nongame		
Ada	Phalacrocorax auritus	Double-crested Cormorant	G5	S2B						idapa-protection-nongame		
Ada	Phalaenoptilus nuttallii	Common Poorwill	G5	S4B						idapa-protection-nongame		
Ada	Phalaropus tricolor	Wilson's Phalarope	G5	S3B		Yes			TYPE 5	idapa-protection-nongame		
Ada	Pheucticus melanocephalus	Black-headed Grosbeak	G5	S5B						idapa-protection-nongame		
Ada	Phrynosoma douglasii	Short-horned Lizard	G5	S5						idapa-protection-nongame		
Ada	Phrynosoma platyrhinos	Desert Horned Lizard	G5	S4						idapa-protection-nongame		
Ada	Pica hudsonia	Black-billed Magpie	G5	S5						idapa-protection-nongame		
Ada	Picoides dorsalis	Three-toed Woodpecker	G5	S2		Yes		Sensitive		idapa-protection-nongame		
Ada	Picoides villosus	Hairy Woodpecker	G5	S5						idapa-protection-nongame		
Ada	Pipilo maculatus	Spotted Towhee	G5	S5B						idapa-protection-nongame		
Ada	Piranga ludoviciana	Western Tanager	G5	S5B						idapa-protection-nongame		
Ada	Pituophis catenifer	Gopher Snake	G5	S5						idapa-protection-nongame		
Ada	Plegadis chihi	White-faced Ibis	G5	S2B		Yes			TYPE 4	idapa-protection-nongame		
Ada	Podiceps nigricollis	Eared Grebe	G5	S4B						idapa-protection-nongame		
Ada	Podilymbus podiceps	Pied-billed Grebe	G5	S4B,S3N						idapa-protection-nongame		
Ada	Poecile atricapilla	Black-capped Chickadee	G5	S5						idapa-protection-nongame		
Ada	Poecile gambeli	Mountain Chickadee	G5	S5						idapa-protection-nongame		
Ada	Psaltriparus minimus	Bushtit	G5	S4						idapa-protection-nongame		
Ada	Pseudacris regilla	Pacific Chorus Frog	G5	S5						idapa-protection-nongame		
Ada	Quiscalus quiscula	Common Grackle	G5	S2B						idapa-protection-nongame		
Ada	Rallus limicola	Virginia Rail	G5	S5B						idapa-protection-nongame		
Ada	Rana pipiens	Northern Leopard Frog	G5	S2		Yes			TYPE 2	idapa-protection-nongame		
Ada	Recurvirostra americana	American Avocet	G5	S5B		Yes				idapa-protection-nongame		
Ada	Regulus calendula	Ruby-crowned Kinglet	G5	S5B						idapa-protection-nongame		
Ada	Regulus satrapa	Golden-crowned Kinglet	G5	S5						idapa-protection-nongame		
Ada	Rhinocheilus lecontei	Longnose Snake	G5	S2		Yes			TYPE 3	idapa-protection-nongame		
Ada	Sceloporus graciosus	Sagebrush Lizard	G5	S5						idapa-protection-nongame		
Ada	Sceloporus occidentalis	Western Fence Lizard	G5	S4						idapa-protection-nongame		
Ada	Seiurus aurocapillus	Ovenbird	G5	SNA						idapa-protection-nongame		
Ada	Selasphorus rufus	Rufous Hummingbird	G5	S5B						idapa-protection-nongame		
Ada	Sialia currucoides	Mountain Bluebird	G5	S4B						idapa-protection-nongame		
Ada	Sitta canadensis	Red-breasted Nuthatch	G5	S5						idapa-protection-nongame		
Ada	Sitta carolinensis	White-breasted Nuthatch	G5	S4						idapa-protection-nongame		
Ada	Sonora semiannulata	Ground Snake	G5	S2		Yes			TYPE 3	idapa-protection-nongame		
Ada	Sorex merriami	Merriam's Shrew	G5	S2		Yes						
Ada	Spea intermontana	Great Basin Spadefoot	G5	S4						idapa-protection-nongame		
Ada	Spermophilus mollis	Piute Ground Squirrel	G5	S2		Yes			TYPE 3	idapa-protection-nongame		
Ada	Spizella breweri	Brewer's Sparrow	G5	S3B		Yes			TYPE 3	idapa-protection-nongame		
Ada	Spizella passerina	Chipping Sparrow	G5	S5B						idapa-protection-nongame		
Ada	Stellula calliope	Calliope Hummingbird	G5	S5B					TYPE 3	idapa-protection-nongame		
Ada	Sterna caspia	Caspian Tern	G5	S2B		Yes				idapa-protection-nongame		
Ada	Sterna hirundo	Common Tern	G5	S1B						idapa-protection-nongame		
Ada	Strix nebulosa	Great Gray Owl	G5	S3				Sensitive	TYPE 5	idapa-protection-nongame		
Ada	Strix varia	Barred Owl	G5	S4						idapa-protection-nongame		
Ada	Sturnella neglecta	Western Meadowlark	G5	S5B,S3N						idapa-protection-nongame		
Ada	Teucrium canadense var. occidentale	American Wood Sage	G5T5?	S2					TYPE 3		State Priority 1	
Ada	Texosporium sancti-jacobi	Wovenspore Lichen	G2	S2					TYPE 2		Global Priority 2	INPS Threats: 1
Ada	Thamnophis elegans	Western Terrestrial Garter Snake	G5	S5						idapa-protection-nongame		
Ada	Thamnophis sirtalis	Common Garter Snake	G5	S5					TYPE 3	idapa-protection-nongame		
Ada	Thomomys townsendii	Townsend's Pocket Gopher	G4G5	S2		Yes						
Ada	Tringa flavipes	Lesser Yellowlegs	G5	S2N						idapa-protection-nongame		
Ada	Tringa melanoleuca	Greater Yellowlegs	G5	S2N						idapa-protection-nongame		
Ada	Troglodytes aedon	House Wren	G5	S5B						idapa-protection-nongame		
Ada	Turdus migratorius	American Robin	G5	S5B,S3N						idapa-protection-nongame		
Ada	Tyrannus verticalis	Western Kingbird	G5	S5B						idapa-protection-nongame		
Ada	Uta stansburiana	Side-blotched Lizard	G5	S5						idapa-protection-nongame		
Ada	Utacapnia nedia	A Stonefly	G3	S1		Yes						
Ada	Vermivora celata	Orange-crowned Warbler	G5	S5B						idapa-protection-nongame		
Ada	Vermivora ruficapilla	Nashville Warbler	G5	S5B						idapa-protection-nongame		
Ada	Vireo cassinii	Cassin's Vireo	G5	S5B						idapa-protection-nongame		
Ada	Vireo gilvus	Warbling Vireo	G5	S5B						idapa-protection-nongame		
Ada	Vireo olivaceus	Red-eyed Vireo	G5	S5B						idapa-protection-nongame		
Ada	Wilsonia pusilla	Wilson's Warbler	G5	S5B						idapa-protection-nongame		
Ada	Xanthocephalus xanthocephalus	Yellow-headed Blackbird	G5	S5B						idapa-protection-nongame		

Appendix B.3 – Well Boring Logs

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

12-38-73 D WA

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

1. WELL OWNER

Name Evans

Address Eagle

Owner's Permit No. _____

2. NATURE OF WORK

☑ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☐ Domestic ☐ Irrigation ☐ Test

☑ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☑ Cable ☐ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 40 inches Total depth _____ feet

Casing schedule: ☐ Steel ☐ Concrete

Thickness	Diameter	From	To
_____ inches	10 inches	+18 feet	_____ feet
_____ inches	10 inches	_____ feet	_____ feet
_____ inches	12 inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was a packer or seal used? ☑ Yes ☐ No

Perforated? ☐ Yes ☐ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☑ Yes ☐ No

Manufacturer's name JOHNSON

Type STAINLESS STEEL Model No. _____

Diameter 10 Slot size 15 Set from 290 feet to 205 feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☑ No Size of gravel _____

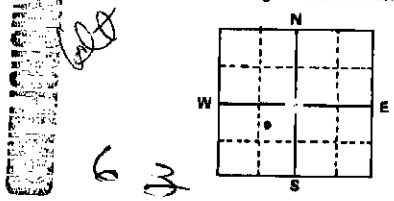
Placed from _____ feet to _____ feet

Surface seal? ☑ Yes ☐ No To what depth 22 feet

Material used in seal ☐ Cement grout ☑ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.



County Ada

NE ¼ SW ¼ Sec. 10, T. 4 N. (N/S), R. 1 (E/W)

7. WATER LEVEL

Static water level 40 feet below land surface

Flowing? ☐ Yes ☑ No G.P.M. flow _____

Temperature _____ ° F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

36195

☑ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
90	17	4 HRS

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
12	+18	40	SAND & GRAVEL		
12	40	58	SAND & GRAVEL	✓	
12	58	66	SAND & GRAVEL		
12	66	75	CLAY		
12	75	84	SAND	✓	
16	84	95	SAND		✓
12	95	115	SAND, GRAVEL		
10	115	124	GRAVEL		
12	124	138	GRAVEL	✓	
12	138	148	SAND		✓
12	148	162	SAND	✓	
12	162	180	SAND & GRAVEL		
12	180	192	GRAVEL	✓	
12	192	198	CLAY		
12	198	215	SAND	✓	
10	215	260	SAND	✓	
10	[illegible]	[illegible]	[illegible]		
10					

10.

Work started [illegible] finished [illegible]

11. DRILLER'S CERTIFICATION

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

Peter Rotelli

Driller's or Firm's Name _____ Number

[illegible] Eagle

Address

Signed By _____ 21 DEC 1973

Date

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE, BLUE, AND PINK COPIES TO THE DEPARTMENT

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

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

36196

1. WELL OWNER

Name Richard Evans

Address RT. I Hill Road.

Owner's Permit No. _____

2. NATURE OF WORK

☑ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

_____

3. PROPOSED USE

☑ Domestic ☐ Irrigation ☐ Test

☐ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☑ Cable ☐ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 12 inches Total depth 175 feet

Casing schedule: ☑ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	12 inches	+ 0 feet	151 feet
.250 inches	10 inches	151 feet	175 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was a packer or seal used? ☐ Yes ☑ No

Perforated? ☑ Yes ☐ No

How perforated? ☑ Factory ☐ Knife ☐ Torch

Size of perforation 3/16 inches by 3 inches

Number		From	To
1000	perforations	0 feet	21 feet
_____	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 _____

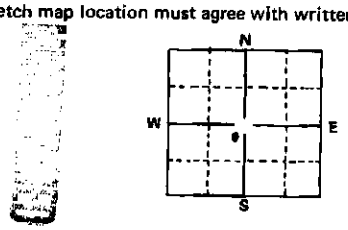
Placed from _____ feet to _____ feet

Surface seal? ☑ Yes ☐ No To what depth 30 feet

Material used in seal ☐ Cement grout ☑ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.



County _____

NE ¼ SW ¼ Sec. 10, T. 4 N/S, R. 1 E/W

7. WATER LEVEL

Static water level 45 feet below land surface

Flowing? ☐ Yes ☑ No G.P.M. flow _____

Temperature _____ ° F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☑ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
150	3 Ft	64

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
12	0	48	Gravel		
12	48	147	Sand Fine	✓	
12	147	153	Clay		✓
10	153	175	Coarse Sand	✓	

10.

Work started _____ finished 6-27-74

11. DRILLER'S CERTIFICATION

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

Chapman Drilling Co. 98
Driller's or Firm's Name Number

2209 Dorothy
Address

Tom Adams 6-27-74
Signed By Date

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE, BLUE, AND PINK COPIES TO THE DEPARTMENT

Appendix B.4 – 2021 Sanitary Survey

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1445 N. Orchard Street, Boise ID 83706
(208) 373-0550

Brad Little, Governor
Jess Byrne, Director

March 8, 2021

By email: twploftus@gmail.com

Evans Water Corp
Attn: Terry Loftus
216 Irene Place
Eagle ID 83616

Subject: Sanitary Survey conducted on February 17, 2021
Evans Water Corp PWS# ID4010055

Dear Mr. Loftus:

On February 17, 2021, the Department of Environmental Quality (DEQ) conducted a Sanitary Survey for Evans Water Corp. Enclosed is a copy of the Sanitary Survey Report (Report) and Photo Log.

Any significant deficiencies identified in the Report are required to be addressed following consultation with DEQ. Consultation and a written corrective action plan are required **within 30 days** regarding any significant deficiencies and/or follow-up requirements identified in this written notification, as required by the "Idaho Rules for Public Drinking Water Systems" (IDAPA 58.01.08). Please follow the four steps identified in the Report to address all significant deficiencies.

Be advised that modifications to Evans Water Corp may require the assistance of an Idaho licensed professional engineer and require DEQ review and approval prior to making water system modifications or installing new components. Please contact DEQ before making modifications.

Thank you for your help in completing the Sanitary Survey. Contact me at (208) 373-0457 or Richard.lee@deq.idaho.gov if you have any questions.

Sincerely,

Richard Lee
Drinking Water Analyst

RL:dr
2021ACA1068

Enclosure(s): Sanitary Survey Report
Photo Log
Field Sheets

Sanitary Survey Report

March 8, 2021
ID4010055
Evans Water Corp

RE: Sanitary Survey conducted on February 17, 2021

A list of findings for Evans Water Corp water system (Evans) has been summarized below. In order to address all significant deficiencies, follow steps 1, 2, 3, and 4.

Step 1: Within 30 days of receiving this notification, submit to the Department of Environmental Quality (DEQ), in writing, a corrective action plan including planned completion dates for each identified significant deficiency.

Step 2: Complete the planned action(s) by the "Planned Completion Date(s)."

Step 3: After completing each planned action, enter an "Actual Completion Date," your initials, and write the "Corrective action taken."

Step 4: Sign your name at the bottom certifying that each corrective action has been corrected by the planned completion date(s) and that Evans has completed the Sanitary Survey response requirements pursuant to the "Idaho Rules for Public Drinking Water Systems" (IDAPA 58.01.08). Send DEQ a copy of the signed paperwork.

Significant Deficiencies

A significant deficiency as identified during a sanitary survey, is any defect in a public water system's (PWS) design, operation, maintenance, or administration, as well as any failure or malfunction of any system component, that DEQ or its agent determines to cause, or have the potential to cause, risk to health or safety, or that could affect the reliable delivery of safe drinking water (IDAPA 58.01.08.003.131). Failure to address significant deficiencies constitutes a violation of IDAPA 58.01.08.302 or 58.01.08.303.

Significant deficiencies may reference IDAPA design standard requirements. IDAPA rule citations for sections 500-549 are primarily requirements during the design or modification stage of a new system or component, and may not be enforceable as part of a sanitary survey. These have been listed to provide reference of what current standards would apply if that particular component were designed, modified, or constructed today. Corrective actions that include material modifications must be approved by DEQ.

Plan of Action for Significant Deficiencies:

Groundwater Source:

#7: The well casing for Well #1 is not properly vented.

- Please caulk all gaps around the vent and wellhead

Planned Completion Date: _____,
Actual Completion Date: _____, Initials_____.
Corrective action taken:

#17: All threaded hose bibs installed in both pumphouses are not equipped with an appropriate backflow prevention device (IDAPA 58.01.08.541.01.n).

- Please install atmospheric vacuum breakers on all spigots in both wellhouses

Planned Completion Date: _____,
Actual Completion Date: _____, Initials_____.
Corrective action taken:

Hydropneumatic Tanks:

#8: The recharge air placed into the hydropneumatic tanks is unfiltered and may not be free from pollutants (IDAPA 58.01.08.547.02.a).

The compressor used to maintain the proper range of air and water in the tank must be oil-free, or food-grade oil for lubrication must be used to protect the drinking water supply from contamination. Filtered recharge air prevents potentially contaminated air from entering the tank.

- Please replace the lubrication oil with food-grade oil

Planned Completion Date: _____,
Actual Completion Date: _____, Initials_____.
Corrective action taken:

#9: Appurtenances installed for operation of the hydropneumatic tanks are not working properly and/or are not protected from contamination (IDAPA 58.01.08.547.02.a).

- Please return the pressure relief piping to its original configuration – downturned and screened, with an appropriate splash plate on the ground. If you need to discuss other issues, such as the need to minimize noise for your neighbors, contact me so we can discuss with the DEQ engineers and determine the best solution.

Planned Completion Date: _____,
Actual Completion Date: _____, Initials_____.
Corrective action taken:

Distribution:

#20: All installed backflow devices and assemblies owned by Evans are not tested annually (IDAPA 58.01.08.552.06.c and 552.07).

Ensuring that all installed backflow devices and assemblies are annually tested can help prevent the likelihood of a backsiphonage or backpressure event.

- Please ensure the backflow preventer is tested at the beginning of this irrigation season

Planned Completion Date: _____,
Actual Completion Date: _____, Initials_____.
Corrective action taken:

#21: Known cross connections exist and/or were observed at Evans (IDAPA 58.01.08.543).

A cross connection may result in the backflow of unwanted non-potable substances back into the PWS through either backsiphonage or backpressure. Examples of distribution system cross connections include submerged blow-offs, direct connections to sewers, water mains in sewers, connections to unapproved sources, or hydrant drain lines to sewers.

- Please reconfigure piping for sprinkler system so that all appurtenances are downstream of the backflow device.

Planned Completion Date: _____,
Actual Completion Date: _____, Initials_____.
Corrective action taken:

I certify, to the best of my knowledge, that all significant deficiencies have been corrected by the agreed upon date(s) and that the corrective action meets the requirements pursuant to IDAPA 58.01.08.

Signature: _____ Date: _____

Deficiencies

Hydropneumatic Tanks:

The hydropneumatic tanks cannot be isolated from the system (IDAPA 58.01.08.547.01.b). Install isolation valves the next time the hydropneumatic tanks are replaced or material modifications occur.

Financial/Managerial

The total coliform sampling plan is not being followed adequately. Please divide Evans into 4 to 5 zones and rotate samples from zone to zone so that overall, sampling is more representative of the whole PWS.

Recommendations

Distribution:

A water loss control program should be put in place and utilized. More than 15% water loss is an indication of either inaccurate meters or excessive leakage. Inaccurate meters result in lost revenue and leaks are potential points for entry of contaminated groundwater. The following is a link to an EPA resource for developing a water loss control program: https://www.epa.gov/sites/production/files/2015-04/documents/epa816f13002.pdf.

INSPECTION NOTES

Survey Date		PWS #
2/17/2020	*(mm/dd/yyyy)*	4010055

One form for **all** additional comments or drawings for the PWS.

Name of Public Water System:

Evans Water Corp

Evans water corporation is a simple water system. Water is supplied via 2 wells, which are operated on alternating days so as to keep them exercised. Each well is equipped with a sand filter which flushes automatically each day. Water goes into a manifold then into a 1000 gallon bladderless pressure tank which has an air compressor to maintain pressure. From there water heads out to distribution.

One potential issue looming are galvanized service lines. They are original, and one house has already had theirs fail. The water system is asking for grant money to replace them.

State of Idaho Public Water System Sanitary Survey

WATER SYSTEM INVENTORY INFORMATION

Survey Date: 2/17/2020 (mm/dd/yyyy) | PWS #: 4010055

Name of Public Water System: **Evans Water Corp**

Groundwater Sources: 2 | # Surface Water Sources: | # Storage Facilities: 0 | Total Storage *(gal)*:

Date of Last Survey:	Health District/ DEQ Region:	Physical Location *(Township, Range, Section)*:	County:
3/1/2016	BRO		Ada

# Service Connections:	Population:	Owner Type:	Legal Entity:	Status:
37	137	Private	Corporation	☑ Approved ☐ Disapproved

Water System Type:
- ☑ Community
- ☐ Nontransient Noncommunity
- ☐ Transient Noncommunity-NC

System Classification: ☐ N/A
Distribution:
Treatment:

Seasonal Systems: ☑ N/A
(Scheduled operating dates)
Date Open:
Date Closed:

Water Purchased From: ☑ N/A
PWS #:
Name:

Water Sold To: ☑ N/A
PWS #:
Name:

Responsible Charge Operator (DO): ☐ No DO
(Identify operator for GW-NC)
☑ Mr. ☐ Ms. Terry Loftus
Mailing Address: 216 Irene Place
City, State, Zip: Eagle, ID 83616
Phone Number: 208-340-6493
E-mail: twploftus@gmail.com

Properly Licensed? ☐ N/A ☐ Yes ☐ No
License Type/Number:
License Type/Number:
Expiration Date:
Emergency Phone:

Others Present During Inspection:
Name: Danielle Terhar
Title: Water Quality Scientist
Name:
Title:
Name:
Title:
Name:
Title:
Name:
Title:

Substitute Responsible Charge Operator (OP):
☐ No OP ☐ N/A - DO available 24/7
☐ Mr. ☐ Ms.
Mailing Address:
City, State, Zip:
Phone Number:
E-mail:

Properly Licensed? ☐ N/A
☐ N/A - GW/ NC ☐ Yes ☐ No
License Type/Number:
License Type/Number:
Expiration Date:
Emergency Phone:

Legal Owner:
☐ Mr. ☐ Ms. Evans Water Corp
Mailing Address: 216 Irene Place
City, State, Zip: Eagle, ID 83616
Phone Number: 208-340-6493 Emergency Phone:
E-mail: twploftus@gmail.com

Survey conducted by:
☑ IDEQ ☐ Health Dept.
Name: Richard Lee
Title: DW Analyst
Phone: 208-373-0457
Email: richard.lee@deq.idaho.gov

General Information

yes	no	n/a	unk	note	
☐	☑	☐	☐	☐	1. Have material modifications been made to the PWS since the last survey?
☐	☐	☑	☐	☐	2. If yes, were plans and specs submitted to and approved by DEQ?
☐	☑			☐	3. Were samples taken during the survey by the inspector?

(If yes, indicate what samples were collected in comments below)

Notes:

Color Key:
- Significant Deficiency
- Deficiency
- Recommendations/ Info Gathering/ Notification

Sanitary Survey Index

Modules used:	#
☐ General Information	
☐ Well Source	
☐ Spring Source	
☐ Storage	
☐ Hydropneumatic Tanks	
☐ Distribution	
☐ Pumping	
☐ Financial - Managerial	
☐ Treatment Application	
☐ Disinfection	
☐ Gas Cl2	
☐ Notes	
☐ Photo Log	
Total Modules	0

WELL SOURCE

A separate form must be completed for **each** well associated to the PWS

Survey Date: 2/17/2020 (mm/dd/yyyy)

PWS #: 4010055

Tag #:	Source Name:	Associated with:
E0006116	Well #1	☑ N/A ☐ Wellfield w/source: ☐ Manifold w/source:

Is this Well Source Treated? ☐ Yes ☐ No

Treatment Processes: ☐ N/A *(Explain the Treatment Train in Notes)*

Physical Location:
From Hill Road, proceed up N Dicky Dr, wellhouse is down first driveway on left. 321 Dickey Drive

Source Activity Status: *(Choice One)*
☑ Active ☐ Inactive ☐ Proposed

Source Availability: *(Choice One)*
☑ Permanent ☐ Seasonal ☐ Interim ☐ Emergency ☐ Other

Latitude (Decimal): 43.697197 ☑ Verified as accurate

Longitude (Decimal): -116.328051 ☑ Verified as accurate

Is there a well log for the source? ☑ Yes ☐ No ☐ Unk EDMS #:2020ACA1062

Readings at the time of inspection:
Pump Capacity (GPM): ☐ Unk
Static Water Depth (FT): ☐ Unk

Is this source seasonal? ☐ Yes ☑ No
Start-up (MM/DD):
Shut Down (MM/DD):

WELL INFORMATION

yes	no	n/a	unk	note		Notes: (Please indicate question number)
☐	☑		☐	☐	1. Are surrounding land uses creating health hazards or increasing the potential for source contamination? *(Setbacks not met, dumping, etc.)* ☐ Significant ☐ Deficiency	
☐	☑		☐	☐	2. Are toxic or hazardous chemicals stored on the well lot? *(pesticides, paint, herbicides, fertilizers, petroleum, etc.)*	
☐	☑		☐	☐	3. Are pesticides, herbicides, or fertilizers applied to the well lot without approval?	
☐	☐	☑	☐	☐	4. If the well is in a pit, is the pit protected from flooding and contamination? *(watertight walls and floor, floor drain, acceptable pit cover, etc.)*	
☑	☐		☐	☐	5. Is the well *(not located in a pump house)* protected from unauthorized access? *(Locking cap, fenced, etc.) (Recommended)*	
☑	☐		☐	☐	6. Is the well protected from flooding? *(casing height >highest flood level, >18" outdoor, >12" indoor, etc.)*	
☐	☑		☐	☑	7. Is the well properly vented? *(24 mesh screen, open downward >18" outdoor or >12" indoor, etc.)*	7. Needs caulked around base
☑	☐		☐	☐	8. Does the well casing and cap prevent contamination and surface water entry?	
☑	☐		☐	☐	9. Is a raw water smooth nosed sample tap provided on the discharge pipe? *(Prior to any treatment)*	
☑	☐		☐	☐	10. Is a working flow meter provided? ____ gallons *(Instant, totaling, nonvolatile memory, installed on discharge pipe, etc.)*	
☑	☐		☐	☐	11. Is a working pressure gauge provided? ____ psi. *(Instant, installed on discharge pipe, etc.)*	
☑	☐		☐	☑	12. Is an adequate pump-to-waste provided? *(Capacity of the well, air gap, prior to the first service connection, etc.)*	12. Can pump to waste via valve at bottom of pressure tank. Will need to shut down system.

PUMP HOUSE *(Only pump houses that contain a Groundwater Source)*

yes	no	n/a	unk	note		
☑	☐		☐	☐	13. Is the well enclosed in a pump house?	
☑	☐	☐	☐	☐	14. Is the pump house protected from contamination? *(Clean, in good repair, etc.)*	
☑	☐	☐	☐	☐	15. Is the pump house protected from unauthorized entry? *(Locked, durable construction, etc.)*	
☑	☐	☐	☐	☐	16. Does the pump house have adequate lighting throughout?	
☐	☑	☐	☐	☑	17. Is adequate backflow protection provided on all threaded taps installed in the pump house?	17. AVB's needed on a few spigots
☐	☑	☐	☐	☐	18. Are there signs of equipment damage due to excess heat, moisture, or corrosion? *(Inadequate ventilation)*	
☐	☑	☐	☐	☐	19. Is there a history of pump house equipment freezing? *(Inadequate heating)*	
☑	☐	☐	☐	☐	20. Is the pump house protected from flooding and surface water entry? *(Floor drain, ground surface graded to lead surface water away, etc.)*	
☐	☑	☐	☐	☐	21. Does the configuration of the floor drain or sump cause a contamination risk? *(connected to other drainage systems, sump <30' from well, etc.)*	

WELL SOURCE

A separate form must be completed for **each** well associated to the PWS

Survey Date: 2/17/2020 (mm/dd/yyyy)

PWS #: 4010055

Tag #:	Source Name:	Associated with:
E0006116	Well #2	☑ N/A ☐ Wellfield w/source: ☐ Manifold w/source:

Is this Well Source Treated? ☐ Yes ☑ No

Treatment Processes: ☐ N/A *(Explain the Treatment Train in Notes)*

Physical Location:
321 Dickey Drive. It is the wellhouse farthest from the street.

Source Activity Status: *(Choice One)*
☑ Active ☐ Inactive ☐ Proposed

Source Availability: *(Choice One)*
☑ Permanent ☐ Seasonal ☐ Interim ☐ Emergency ☐ Other

Latitude (Decimal): 43.69722 ☑ Verified as accurate

Longitude (Decimal): -116.328514 ☑ Verified as accurate

Is there a well log for the source? ☑ Yes ☐ No ☐ Unk EDMS #:2019ACA4742

Readings at the time of inspection:
Pump Capacity (GPM): ☐ Unk
Static Water Depth (FT): ☐ Unk

Is this source seasonal? ☐ Yes ☑ No
Start-up (MM/DD):
Shut Down (MM/DD):

WELL INFORMATION

yes	no	n/a	unk	note		
☐	☑		☐	☐	1.	Are surrounding land uses creating health hazards or increasing the potential for source contamination? *(Setbacks not met, dumping, etc.)* ☐ Significant ☐ Deficiency
☐	☑		☐	☐	2.	Are toxic or hazardous chemicals stored on the well lot? *(pesticides, paint, herbicides, fertilizers, petroleum, etc.)*
☐	☑		☐	☐	3.	Are pesticides, herbicides, or fertilizers applied to the well lot without approval?
☐	☐	☑	☐	☐	4.	If the well is in a pit, is the pit protected from flooding and contamination? *(watertight walls and floor, floor drain, acceptable pit cover, etc.)*
☑	☐		☐	☐	5.	Is the well *(not located in a pump house)* protected from unauthorized access? *(Locking cap, fenced, etc.) (Recommended)*
☑	☐		☐	☐	6.	Is the well protected from flooding? *(casing height >highest flood level, >18" outdoor, >12" indoor, etc.)*
☑	☐		☐	☐	7.	Is the well properly vented? *(24 mesh screen, open downward >18" outdoor or >12" indoor, etc.)*
☑	☐		☐	☐	8.	Does the well casing and cap prevent contamination and surface water entry?
☑	☐		☐	☐	9.	Is a raw water smooth nosed sample tap provided on the discharge pipe? *(Prior to any treatment)*
☑	☐		☐	☐	10.	Is a working flow meter provided? ____ gallons *(Instant, totaling, nonvolatile memory, installed on discharge pipe, etc.)*
☑	☐		☐	☐	11.	Is a working pressure gauge provided? ____ psi. *(Instant, installed on discharge pipe, etc.)*
☑	☐		☐	☑	12.	Is an adequate pump-to-waste provided? *(Capacity of the well, air gap, prior to the first service connection, etc.)*

PUMP HOUSE *(Only pump houses that contain a Groundwater Source)*

yes	no	n/a	unk	note		
☑	☐		☐	☐	13.	Is the well enclosed in a pump house?
☑	☐	☐	☐	☐	14.	Is the pump house protected from contamination? *(Clean, in good repair, etc.)*
☑	☐	☐	☐	☐	15.	Is the pump house protected from unauthorized entry? *(Locked, durable construction, etc.)*
☑	☐	☐	☐	☐	16.	Does the pump house have adequate lighting throughout?
☐	☑	☐	☐	☑	17.	Is adequate backflow protection provided on all threaded taps installed in the pump house?
☐	☑	☐	☐	☐	18.	Are there signs of equipment damage due to excess heat, moisture, or corrosion? *(Inadequate ventilation)*
☐	☑	☐	☐	☐	19.	Is there a history of pump house equipment freezing? *(Inadequate heating)*
☑	☐	☐	☐	☐	20.	Is the pump house protected from flooding and surface water entry? *(Floor drain, ground surface graded to lead surface water away, etc.)*
☐	☑	☐	☐	☐	21.	Does the configuration of the floor drain or sump cause a contamination risk? *(connected to other drainage systems, sump <30' from well, etc.)*

Notes:
(Please indicate question number)

12. Can pump through valve at bottom of pressure tank. Can also install flush valve to threaded coupler at top of wellhead.

17. Needs AVB on spigot

HYDROPNEUMATIC TANKS

One form for **all** Hydropneumatic Tanks.

Survey Date: 2/17/2020 *(mm/dd/yyyy)* | PWS #: 4010055

Tank ID#:	Physical Location:	Brand:	Model:	Bladder:*(yes/no)*	Size:(gal.)	Installation Date:
	In Well #1 wellhouse	Rule Steel	stainless	no	1000	12/6/2017

yes	no	n/a	unk	note	**ALL HYDROPNEUMATIC TANKS**
☐	☑		☐	☐	1. Is the system served by variable speed pumps (VFDs)? *(Recommended)*
☑	☐		☐	☐	2. Is the tank(s) in a structure protected from flooding and unauthorized entry? *(Locked, watertight walls and floor, floor drain, acceptable cover, etc.)*
☐	☑		☐	☐	3. Can the hydropneumatic tank(s) be isolated from the system without depressurizing the distribution system?
☑	☐		☐	☐	4. Do the exterior surfaces appear to be in good condition? *(Coating intact, no corrosion, etc.)*
☑	☐	☐	☐	☐	5. Do the tank supports appear to be structurally sound and adequate?
☑	☐		☐	☑	6. Has the hydropneumatic tank(s) been tested for structural integrity in the past 5 years? *(Recommended)*

yes	no	n/a	unk	note	**Bladder Tanks Only**
☐	☐	☑	☐	☐	7. Has the pre-charge on all bladder tanks been tested in the last year to ensure the air pressure is 5 psi below the low operating pressure for the system?*(Recommended)*

yes	no	n/a	unk	note	**Non-bladder Tanks Only**
☐	☑	☐	☐	☑	8. Is the recharge air protected from contamination? *(free of air compressor oil, clean air filter, etc.)*
☐	☑	☐	☐	☑	9. Are installed appurtenances working properly and protected from contamination? *(access manhole, drain, water sight glass, means to add air, air blow-off, etc.)*

Notes:
(Please indicate question number)

6. brand new in 2017

8. Food grade oil needed
9. Pressure relief valve piping has an upturned muffler installed on it to reduce sound to neighbors. A downturned and screened pipe is needed, with appropriate splash plate underneath it. Being downturned might reduce noise to neighbors enough.

DISTRIBUTION

One form for **all** distribution systems in the PWS.

Survey Date: 2/17/2020 (mm/dd/yyyy)

PWS #: 4010055

Main Line Type of Materials: ☐ Unk
(Select all that apply)
☐ Steel ☐ HDPE (black) ☑ Asbestos/Cement ☐ Copper
☐ PVC ☐ Ductile Iron ☐ Gray Iron ☐ Galvanized
☐ Other:

Main Line Sizes: ☐ Unk
6", 4"

Metered Connections: 37
out of 2

Fire Hydrants: 0

Flushing Hydrants: 3

yes	no	n/a	unk	note	DISTRIBUTION
☑	☐		☐	☐	1. Is a current map of the distribution system available? *(Recommended)* *(Main sizes, locations of valves and hydrants, etc.)*
☑	☐	☐	☐	☐	2. Have public notifications, DEQ notifications, and follow-up actions been followed for any planned or unplanned depressurizations in the past year?
☑	☐		☐	☐	3. Was the pressure observed at a service connection?
					If yes: **50** psi.
					Location: **216 Rene Place**
					Time: ☐ A.M. ☐ P.M.
☑	☐		☐	☐	4. Is a minimum system pressure of 20 psi. maintained at all service connections? *(Including fire flow - Identify pressure complaints in the notes.)*
☑	☐	☐	☐	☐	5. Is a minimum system pressure of 40 psi. maintained during maximum hourly demand conditions? *(PWSs constructed after 7/1/1985 - Excluding fire flow)*
☐	☑		☐	☐	6. Does pressure exceed 100 psi at any service connection?
☑	☐		☐	☐	7. Are valves inspected and exercised regularly? *(Recommended)*
					If yes, how often? **annually**
☐	☑		☐	☐	8. Is there a water loss control program? *(Recommended)*
☐	☑		☐	☐	9. Is the owner/operator aware of any leaking water mains?
☑	☐		☐	☐	10. Is there a water efficiency program? *(Recommended)*
☑	☐	☐	☐	☐	11. Are all dead end mains equipped with a means to flush?
☑	☐	☐	☐	☐	12. Are dead end mains flushed at least semiannually?
☐	☑		☐	☐	13. Are there any materials used that should not be in contact with drinking water? If yes, explain in comments section. (Pipes, sealants, components, etc.)
☐	☑		☐	☐	14. Does the system experience water main freezing?
☐	☑		☐	☐	15. Are there any connections that provide supplemental disinfection and meet the definition of a PWS but are unregulated? *(Recommended)* *(Hospitals, businesses, long-term care facilities, etc.)*
☐	☑		☐	☐	16. Are there any unused subsurface water storage tanks that need to be abandoned? *(Recommended)*
☐	☑		☐	☐	17. Are there any water supply wells that are no longer being used that need to be abandoned? *(Recommended)*

yes	no	n/a	unk	note	Cross Connection Control
☑	☐	☐	☐	☐	18. Is an adequate cross connection control program provided and implemented? *(Community PWS only) (Authority to implement, inspection program, adequate protection, annual testing,ability to discontinue service, 10 days to repair a failed device)*
☑	☐		☐	☐	19. Is the operator trained in cross connection control? *(Recommended)*
☐	☑	☐	☐	☑	20. Are all backflow preventers owned by the PWS tested annually?
☑	☐		☐	☐	21. Are there any known unprotected cross connections? *(Submerged blow-offs, direct connections to storm or sewer drains, connection to unapproved source, uncontrolled fire hydrant use, treatment bypass with raw water, etc.)*
☐	☐	☑	☐	☐	22. Are all non-potable mains, hydrants, and taps easily identified as such?
☑	☐	☐	☐	☐	23. Is the discharge piping on all air valves protected from contamination? *(Prevent surface water entry and backflow, open downward, 24 mesh screen, etc.)*
☐	☐	☑	☐	☐	24. Are bulk water stations provided with backflow protection measures?

Notes:
(Please indicate question number)

20. Operator to check records; tag says last tested in 1997

PUMPING - PG. 1

Survey Date: 2/17/2020 (mm/dd/yyyy) | PWS #: 4010055

One form for **all** Pumps.

PUMPS, PUMP HOUSES, AND CONTROLS

Pump ID#:	Physical Location:	Type of Pump:	Horsepower:	Low (psi) set point	High (psi) set point	Purpose:
1	Well #1	submersible	7 hp	45	60	Meet demand
2	Well #2	submersible	7 hp	45	60	Meet demand

yes	no	n/a	unk	note	**PUMPS**
☑	☐	☐	☐	☐	1. Do pumps cycle < 6 times per hour? *(Recommended)*
☑	☐	☐	☐	☐	2. Are all pumps in good repair? *(excessive noise, vibration, heat, odors, leaks, etc.)*
☑	☐		☐	☐	3. Are spare parts readily available for critical pump components?
☑	☐		☐	☐	4. Is each pump equipped with an accessible check valve? *(on the discharge side before the shut-off valve)*
☑	☐		☐	☐	5. Are isolation valves provided on the discharge side of the pump?
☑	☐		☐	☐	6. Is a working pressure gauge installed on the discharge line?
☑	☐		☐	☐	7. Is a working flow meter provided? *(Required if pump is connected directly to the distribution system)*
☐	☐	☑	☐	☐	8. Is all pump lubrication oil ANSI/NSF 61 approved?
☐	☐	☑	☐	☐	9. Is an air/vacuum relief valve provided for vertical turbine pump(s) and is it protected from contamination? *(Open downward, 24 mesh screen, air gap, etc.)*

yes	no	n/a	unk	note	**PUMP HOUSE** *(Only pump houses that don't contain a Groundwater Source)*
☐	☐	☑	☐	☐	10. Is the pump house protected from contamination? *(Clean, good repair, etc.)*
☐	☐	☑	☐	☐	11. Is the pump house protected from unauthorized entry? *(Locked, durable construction, etc.)*
☐	☐	☑	☐	☐	12. Does the pump house have adequate lighting throughout?
☐	☐	☑	☐	☐	13. Is adequate backflow protection provided on all threaded taps/ hose bibs installed in the pump house?
☐	☐	☑	☐	☐	14. Are there signs of excess heat, moisture, or corrosion damage? *(Inadequate ventilation)*
☐	☐	☑	☐	☐	15. Are there signs or a history of pump house equipment freezing? *(Inadequate heating)*
☐	☐	☑	☐	☐	16. Is the pump house protected from flooding and surface water entry? *(Drained, ground surface graded to lead surface water away, etc.)*
☐	☐	☐	☐	☐	17. Does the floor drain discharge >30 feet from any well?
☐	☐	☑	☐	☐	18. Does an unprotected cross connection exist due to the floor drain connection? *(Connected to sewer, storm drains, etc.)*

Notes:
(Please indicate question number)

PUMPING - PG. 2

SURVEY DATE: 2/17/2020 (mm/dd/yyyy) | PWS #: 4010055

One form for **all** auxiliary power units

Auxiliary Power Units (APU)

APU ID#:	Physical Location:	Type of APU:	Brand:	Model:	Purpose:

yes	no	n/a	unk	note	**AUXILIARY POWER UNIT (APU)**
☐	☐	☑	☐	☐	19. Is the APU tested regularly? *(Recommended)*
☐	☐	☑	☐	☐	20. Is a working automatic power transfer switch provided?

yes	no	n/a	unk	note	***Community Systems Only***
☐	☐	☑	☐	☐	21. Can the community PWS adequately pressurize the distribution system during a power outage?
☐	☐	☑	☐	☐	22. Does the APU power all essential electrical functions in the pump house and the pumping station *(pump, controls, treatment, etc.)* and pressurize the system for a minimum of 8 hours?

☐ Significant ☐ Deficiency

yes	no	n/a	unk	note	***APU on a Well Lot Only***
☐	☐	☑	☐	☐	23. Is the fuel tank above ground or otherwise accessible for leak inspection?
☐	☐	☑	☐	☐	24. Is secondary spill containment provided for all fuel tanks? *(110% of fuel tank volume)*
☐	☐	☑	☐	☐	25. Does a certified operator observe filling of the fuel tank?
☐	☐	☑	☐	☐	26. Is the engine exhaust directly discharged to the outside atmosphere?

COMMENTS:
(Please indicate question number)

FINANCIAL / MANAGERIAL

Survey Date: 2/17/2020 (mm/dd/yyyy) | PWS #: 4010055

One form for **each** survey.

FINANCIAL CAPACITY

yes	no	n/a	unk	note		
☑	☐		☐	☐	1.	Is the PWS current with the payment of drinking water fees?
☑	☐		☐	☐	2.	Is the user charged for drinking water? Fee: $
						If no, identify why in the notes.
☑	☐	☐	☐	☐	3.	Has an independent financial audit of the PWS been conducted, or has the SMART Financial Tool been completed? *(Recommended)*

MANAGERIAL CAPACITY

yes	no	n/a	unk	note		
☑	☐		☐	☐	4.	Does this PWS have a governing body or board of directors?
☑	☐	☐	☐	☐	5.	Does the board meet routinely? Frequency: monthly
				☐	6.	Review the following where applicable:

- ☑ System Classification Worksheet (C & NTNC)
- ☑ PWS Inventory Information
- ☐ Sample Schedules
- ☐ Sample History (TCR and Non-TCR) - Past 5 Years
- ☑ Sample Siting Plan(s)
  - ☑ RTCR ☑ PBCU ☐ DBP ☐ POU
- ☐ Chlorine Residual History - Past 5 years ☐ N/A
- ☐ Violation History - Past 5 years
- ☐ Public Notification - ongoing/currently required
- ☐ Compliance Schedules - pending and overdue
- ☐ Monthly Operating Reports (MORs)
- ☑ Cross Connection Control Plan
- ☐ Special RTCR Monitoring Evaluation (CFR 141.854 (c)(2))
  - Current RTCR schedule: ☐ Monthly ☐ Quarterly
  - Change frequency to: ☐ Monthly ☐ Quarterly ☐ No Change

RECORDS MANAGEMENT

yes	no	n/a	unk	note		
☐	☑		☐	☑	7.	Do all sample siting plan(s) meet the minimum requirements?
☑	☐		☐	☐	8.	Are samples being taken in accordance with the sample siting plan(s)?
☑	☐	☐	☐	☐	9.	Are records retained onsite or nearby for the minimum time required? *(TC-5yr; chem/rad-10yr; violation corrective actions-3yr; sanitary surveys-10yr; waiver, variance, or exemption determinations-5yr; PNs issued-3yr; daily free chlorine residuals-1yr)*
☑	☐	☐	☐	☐	10.	Is there a customer complaint system and ongoing public information program? *(Recommended)*

MANAGERIAL PLANS

yes	no	n/a	unk	note		
☑	☐		☐	☐	11.	Is there a recognized organizational structure and management of the PWS? *(Recommended)*
☑	☐		☐	☐	12.	Is there an overall operation and maintenance manual for the PWS? *(including equipment manuals, as-builts, SOPs, manufacturers' literature, etc)*
☑	☐		☐	☐	13.	Does the PWS have an Asset Management Plan? *(Recommended)*
☐	☐	☑	☐	☐	14.	Does the PWS have an Emergency Response Plan? *(Community PWSs >3300)*

OPERATOR SAFETY

yes	no	n/a	unk	note		
☑	☐	☐	☐	☐	15.	Are all operators trained in safety procedures and equipment?
☐	☑	☐	☐	☐	16.	Does a safety concern exist for personnel and/or visitors? *(PPE, handrails/ guardrails, ladders, non-slip treads, etc.)*
☐	☑		☐	☐	17.	Is there a potential shock hazard because the electrical wiring appears to be inadequately protected?
☑	☐		☐	☐	18.	Are protocols followed for any confined space entry? *(Recommended)*

Notes:
(Please indicate question number)

7. Pb/Cu adequate. TC needs to be redone. Dividing system into 4-5 zones based on pipe layout would be perfect.

Photographic Documentation

Name of Facility: Evans Water Corporation

Inspector(s): Richard Lee

Inspection Date: Tuesday, February 17, 2021

Purpose of Inspection: Sanitary Survey

Table of Photographs:

Photograph 1 :Control panel

Photograph 2 :Well #1 wellhead, valves, and piping. Left of the wellhead is the line from Well #2, which goes through its sand filter and manifolds with Well #1 piping.

Photograph 3 :Well #1 gaps in wellhead

Photograph 4 :Well #1 sand trap and view of where flush lines exit the building

Photograph 5 :Sight glass and pressure gauge on end of pressure tank.

Photograph 6 :Top of pressure tank illustrating pressure relief

Photograph 7 :View of piping downstream of manifold with Well #1, and view of unprotected spigot

Photograph 8 :Air compressor used to maintain system pressure

Photograph 9 :Non-NSF Approved oil being used in the air compressor

Photograph 10 :View of bottom of pressure tank. Piping on right goes into adjacent doghouse for sprinkler system. Piping on left can be used for flush to waste

Photograph 11 :View of left half of pressure tank and associated piping

Photograph 12 :View of right half of pressure tank and associated piping

Photograph 13 :Sprinkler system piping that is just outside of wellhouse. Note filter and its discharge valve is on upstream side of backflow assembly.

Photograph 14 :Pressure relief discharge point. Muffler looking apparatus installed in response to neighbors complaining about noise of original design

Photograph 15 :View of front of Well #1 wellhouse

Photograph 16 :View of back of Well #1 wellhouse

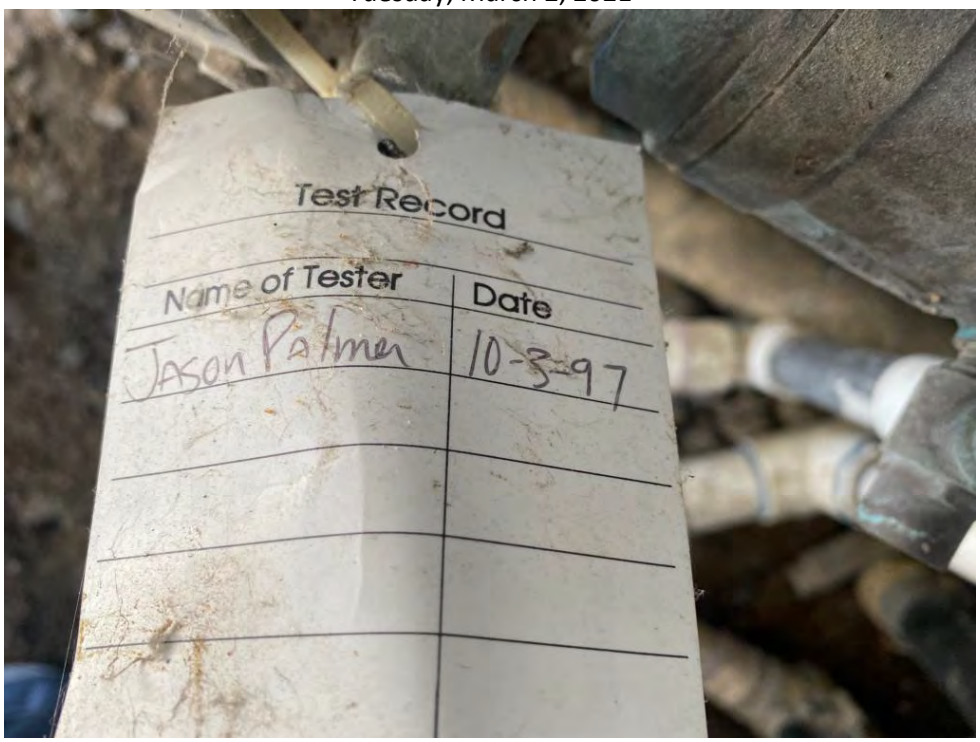
Photograph 17 :Well #2 wellhouse

Photograph 18 :Well #2 wellhead

Photograph 19 :Well #2 sample tap. Threaded tap needs backflow protection.

Photograph 20 : View of typical blow offs for system. One cap houses valve, other cap houses pipe to which directional flushing pipe can be attached

Photograph 21 :Closeup view of cap contents



Photograph 22 :Tag for backflow assembly. Has not been tested since 1997, per paperwork.

From: twploftus@gmail.com
Sent: Friday, November 12, 2021 12:32 PM
To: Trenton Buster
Subject: FW: ID4010055 Evans Water Corp - Sanitary Survey 2021
Attachments: AVB-on-spigot-wellhouse-02.JPG; Caulking-wellhead-well-1--01.JPG; Caulking-wellhead-well-1--02.JPG; irrigation_system-check-valve.jpg; Muffler.JPG; 2021_survey-response--01.pdf; 2021_survey-response--02.pdf; AVB-on-spigot-wellhouse-01.JPG

12 November 2021 12:29 MST

Trenton,
Please find my action and response to the 2021 Sanitary Survey.
I am still waiting to hear back from Palmer Backflow
terry

From: twploftus@gmail.com <twploftus@gmail.com>
Sent: Monday, March 29, 2021 5:26 PM
To: Danielle.Robbins@deq.idaho.gov
Cc: Richard.Lee@deq.idaho.gov
Subject: RE: ID4010055 Evans Water Corp - Sanitary Survey 2021

29 March 2021 17:18 MDT

Danielle,
Please find attached the Plan of Action response for the 17 February 2021 Sanitary Survey for the Evans Water Corporation PWS# ID4010055.
For item #8 the oil in the compressor for the recharge air has been replaced with food grade FG-Elite-150 oil in compliance with code.
All items are documented with the attached images.
Respectfully
Terry W.P. Loftus
Secretary/Treasurer/Operator

From: Danielle.Robbins@deq.idaho.gov <Danielle.Robbins@deq.idaho.gov>
Sent: Tuesday, March 9, 2021 9:56 AM
To: twploftus@gmail.com
Cc: Richard.Lee@deq.idaho.gov
Subject: ID4010055 Evans Water Corp - Sanitary Survey 2021

Mr. Loftus:

Please see the attached Sanitary Survey letter, Report, Photo Log, and Field Sheets from Richard Lee.

Sincerely,

Dani Robbins | Administrative Assistant
Idaho Department of Environmental Quality | Boise Regional Office
1445 North Orchard Street
Boise, Idaho 83706
Office: (208) 373-0177
Email: Danielle.robbins@deq.idaho.gov
http://www.deq.idaho.gov/

Our mission is to protect human health and the quality of Idaho's air, land, and water.

Plan of Action for Significant Deficiencies:

Groundwater Source:

#7: The well casing for Well #1 is not properly vented.

- Please caulk all gaps around the vent and wellhead

Planned Completion Date: 20 FEBRUARY 2021
Actual Completion Date: 20 FEBRUARY 2021 *Initials* TWPL
Corrective action taken:
CAULKED BOTH WELL HEADS TO SEAL FOR PROPER VENTING

#17: All threaded hose bibs installed in both pumphouses are not equipped with an appropriate backflow prevention device (IDAPA 58.01.08.541.01.n).

- Please install atmospheric vacuum breakers on all spigots in both wellhouses

Planned Completion Date: 20 FEBRUARY 2021
Actual Completion Date: 20 FEBRUARY 2021 *Initials* TWPL
Corrective action taken:
ADDED ABP DEVICES TO THREADED SPIGOTS
SEE PHOTO —

Hydropneumatic Tanks:

#8: The recharge air placed into the hydropneumatic tanks is unfiltered and may not be free from pollutants (IDAPA 58.01.08.547.02.a).

The compressor used to maintain the proper range of air and water in the tank must be oil-free, or food-grade oil for lubrication must be used to protect the drinking water supply from contamination. Filtered recharge air prevents potentially contaminated air from entering the tank.

- Please replace the lubrication oil with food-grade oil

Planned Completion Date: 15 March 2021
Actual Completion Date: 15 March 2021 *Initials* TWPL
Corrective action taken:
ORDERED fg-elite-150 oil from B
D&S INDUSTRIAL PRODUCTS
CHANGING OIL ON COMPRESSOR

#9: Appurtenances installed for operation of the hydropneumatic tanks are not working properly and/or are not protected from contamination (IDAPA 58.01.08.547.02.a).

- Please return the pressure relief piping to its original configuration – downturned and screened, with an appropriate splash plate on the ground. If you need to discuss other issues, such as the need to minimize noise for your neighbors, contact me so we can discuss with the DEQ engineers and determine the best solution.

Planned Completion Date: 13March 2021
Actual Completion Date: 13March 2021, *Initials* TWPL
Corrective action taken:
TURNED DOWN the muffler
SEE photo —

Distribution:

#20: All installed backflow devices and assemblies owned by Evans are not tested annually (IDAPA 58.01.08.552.06.c and 552.07).

Ensuring that all installed backflow devices and assemblies are annually tested can help prevent the likelihood of a backsiphonage or backpressure event.

- Please ensure the backflow preventer is tested at the beginning of this irrigation season

Planned Completion Date: START of IRRIGATION SEASON —
Actual Completion Date: TBA, *Initials* TWPL
Corrective action taken:
I have CONTACTED PALMER Backflow to have VALVE TESTED
TO BE SCHEDULED — April timeframe

#21: Known cross connections exist and/or were observed at Evans (IDAPA 58.01.08.543).

A cross connection may result in the backflow of unwanted non-potable substances back into the PWS through either backsiphonage or backpressure. Examples of distribution system cross connections include submerged blow-offs, direct connections to sewers, water mains in sewers, connections to unapproved sources, or hydrant drain lines to sewers.

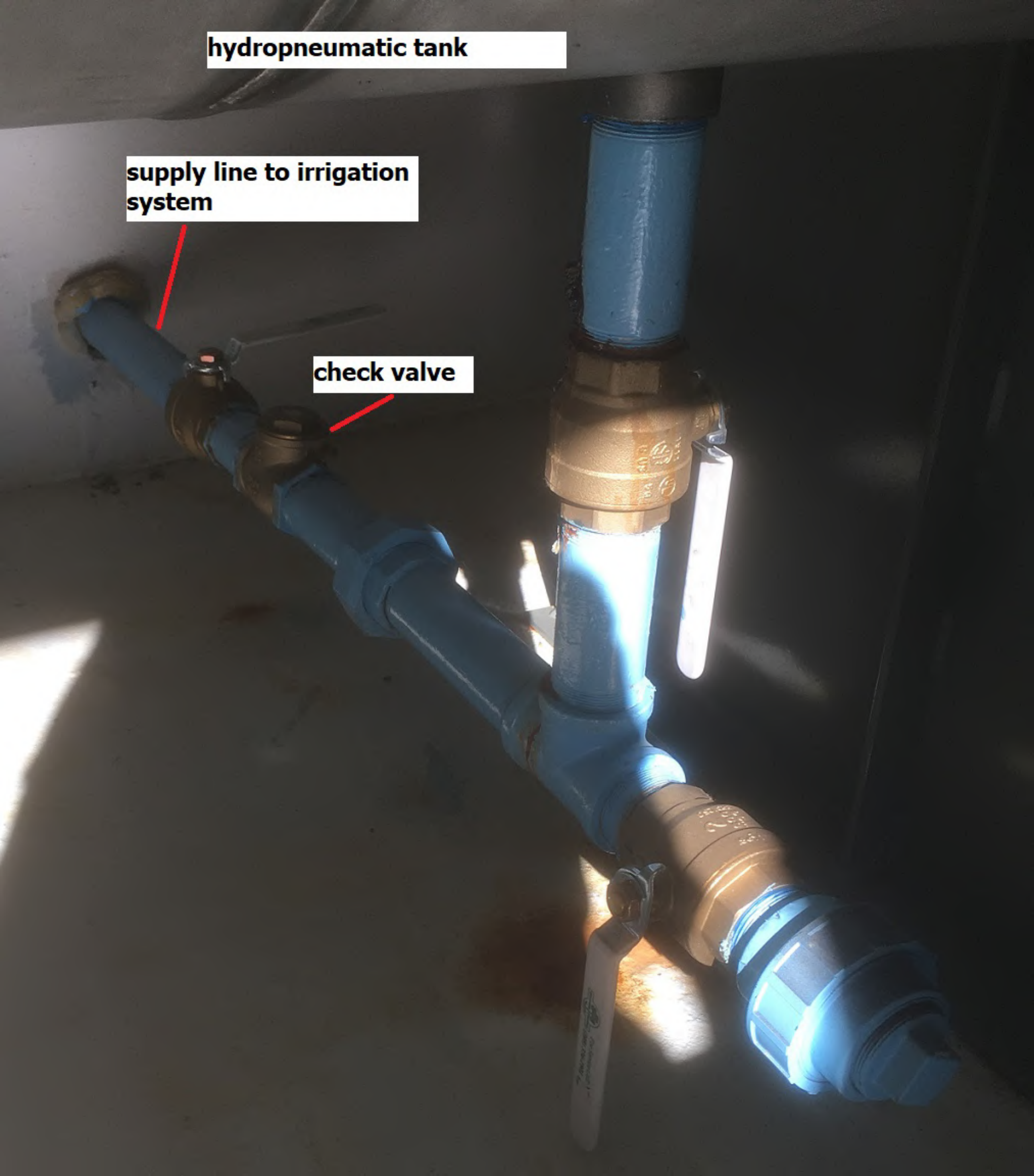
- Please reconfigure piping for sprinkler system so that all appurtenances are downstream of the backflow device.

Planned Completion Date: START of IRRIGATION SEASON
Actual Completion Date: 27March2021, *Initials* TWPL
Corrective action taken:
HAVE CONTACTED CLAIBORNE SPRINKLING to RE-BUILD
THE IRRIGATION → DISCUSSED with RICHARD
SEE Photo check VALVE in well house

I certify, to the best of my knowledge, that all significant deficiencies have been corrected by the agreed upon date(s) and that the corrective action meets the requirements pursuant to IDAPA 58.01.08.

Signature: Terry W Pyle **Date:** 29March 2021


OFF
ON
For Service Call:
(208) 376-1901


hydropneumatic tank
supply line to irrigation system
check valve

Appendix B.5 – EPA Contaminant Lists

Analytes in Analyte Group (ZIOC)

Analyte Code	Analyte Name
1010	BARIUM
1015	CADMIUM
1020	CHROMIUM
1035	MERCURY
1036	NICKEL
1045	SELENIUM
1074	ANTIMONY, TOTAL
1075	BERYLLIUM, TOTAL
1085	THALLIUM, TOTAL

Analytes in Analyte Group (SOCS)

Analyte Code	Analyte Name
2005	ENDRIN
2010	BHC-GAMMA
2015	METHOXYCHLOR
2020	TOXAPHENE
2031	DALAPON
2032	DIQUAT
2033	ENDOTHALL
2034	GLYPHOSATE
2035	DI(2-ETHYLHEXYL) ADIPATE
2036	OXAMYL
2037	SIMAZINE
2039	DI(2-ETHYLHEXYL) PHTHALATE
2040	PICLORAM
2041	DINOSEB
2042	HEXACHLOROCYCLOPENTADIENE
2046	CARBOFURAN
2050	ATRAZINE
2051	LASSO
2065	HEPTACHLOR
2067	HEPTACHLOR EPOXIDE
2105	2,4-D
2110	2,4,5-TP
2274	HEXACHLOROBENZENE
2306	BENZO(A)PYRENE
2326	PENTACHLOROPHENOL
2383	TOTAL POLYCHLORINATED BIPHENYLS (PCB)
2931	1,2-DIBROMO-3-CHLOROPROPANE
2946	ETHYLENE DIBROMIDE
2959	CHLORDANE

Analytes in Analyte Group (VOCS)

Analyte Code	Analyte Name
2378	1,2,4-TRICHLOROBENZENE
2380	CIS-1,2-DICHLOROETHYLENE
2955	XYLENES, TOTAL
2964	DICHLOROMETHANE
2968	O-DICHLOROBENZENE
2969	P-DICHLOROBENZENE
2976	VINYL CHLORIDE
2977	1,1-DICHLOROETHYLENE
2979	TRANS-1,2-DICHLOROETHYLENE
2980	1,2-DICHLOROETHANE
2981	1,1,1-TRICHLOROETHANE
2982	CARBON TETRACHLORIDE
2983	1,2-DICHLOROPROPANE
2984	TRICHLOROETHYLENE
2985	1,1,2-TRICHLOROETHANE
2987	TETRACHLOROETHYLENE
2989	CHLOROBENZENE
2990	BENZENE
2991	TOLUENE
2992	ETHYLBENZENE
2996	STYRENE

Appendix B.6 –Consumer Confidence Reports

Chemical And Radiological Violation History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 0

Monitoring violations are violations that occurred because a system failed to complete a required contaminant sampling (which means the system failed to "monitor" or sample for a contaminant).

MCL (maximum contaminant level) violations are violations that occurred because the level of the completed sampling was higher than allowed, or higher than the MCL (maximum contaminant level).

If the chemical monitoring report shows no results, then the system has no chemical violations for the last (2020) calendar year.

No results were found for the Chemical And Radiological Violation History Report.

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Coliform Violation History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 0

Monitoring violations are violations that occurred because a system failed to complete a required contaminant sampling (which means the system failed to "monitor" or sample for a contaminant).

MCL (maximum contaminant level) violations are violations that occurred because the level of the completed sampling was higher than allowed, or higher than the MCL (maximum contaminant level).

If the coliform monitoring report shows no results, then the system has no coliform violations for the last (2020) calendar year.

No results were found for the Coliform Violation History Report.

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Lead And Copper Violation History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 0

If your system has a violation listed below, it means that your system was required to sample for lead and copper during calendar year 2020, but failed to do so during the appropriate time period. These violations must be reported in the CCR as a failure to monitor.

If the lead and copper monitoring violations report shows no results (Total Records: 0), then the system has no lead and copper monitoring violations for the last (2020) calendar year.

No results were found for the Lead And Copper Violation History Report.

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

DBP Violation History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 0

This report only applies to systems practicing chlorination and/or filtration.

Monitoring violations are violations that occurred because a system failed to complete a required contaminant sampling (which means the system failed to "monitor" or sample for a contaminant).

MCL (maximum contaminant level) violations are violations that occurred because the level of the completed sampling was higher than allowed, or higher than the MCL (maximum contaminant level).

If the DBP monitoring violations report shows no results, then the system has no disinfection byproduct violations for the last (2020) calendar year.

No results were found for the DBP Violation History Report.

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

SWTR and MRDL Violation History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 0

This report only applies to systems practicing chlorination and/or filtration.

Violations listed are either treatment techniques or failure to monitor violations. Violation Type "TT" designates a treatment technique violation; violation type "MON" designates a monitoring violation.

If no records are displayed, the system did not accrue any applicable violations during the previous calendar year.

For your information - definitions of abbreviations found in the "Requirements" column:

EPRD: "entry point residual disinfection" level either not met or not reported.
DSRD: "distribution system residual disinfection" level either not met or not reported.
95PT: "95 percentile" (95%) turbidity level either exceeded or not reported.
MAXT: "maximum turbidity" level either exceeded or not reported.

No results were found for the SWTR and MRDL Violation History Report.

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Sanitary Survey Significant Deficiency Violation History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 0

This report identifies violations generated from unaddressed significant deficiencies and failing to consult with the state to produce a compliance schedule.

If the Sanitary Survey Significant Deficiency violations report shows no results, then the system has no significant deficiency violations for the last (2020) calendar year.

No results were found for the Sanitary Survey Significant Deficiency Violation History Report.

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Public Notification Violation History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 0

This report identifies violations generated from failing to deliver public notification to the public in accordance with the public notification schedule.

If the Public Notification violation history report shows no results, then the system has no public notification violations for the last (2020) calendar year.

No results were found for the Public Notification Violation History Report.

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Chemical And Radiological Sampling History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 49

A PWS is only required to report the most recent detections of any contaminant at each representative sampling location. For example, if nitrate is detected in a sample collected at Well X in 2019, but is not detected at Well X in 2020, then the system is not required to report nitrate for Well X in the 2020 CCR. **Note:** If a contaminant (e.g., nitrate) is listed with a "Y" (meaning "Yes") in the "non-detect" column, this means that sampling results showed a "non-detect" - that is to say, nitrate was not detected.

Required Language. If a system reports a detection, the system must give the major sources of the contaminant. To report this information, go to **Appendix A of the CCR template**, find the contaminant, and copy the information from the *"Major Sources in Drinking Water"* column and place it in your CCR. If the system exceeds the MCL (maximum contaminant level) value of a contaminant, the system must show the potential health effects of the contaminant. To report this information, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Abbreviations used below:
MG/L (mg/L) = milligrams per liter (mg/L = ppm in Appendix A)
UG/L (µg/L) = micrograms per liter (µg/L = ppb in Appendix A)
PIC/L (pCi/L) = picocuries per liter

Contaminant	Date Collected	Facility	Non Detect?	Detected Level	Units	CCR Units
1,1,1-TRICHLOROETHANE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
1,1,2-TRICHLOROETHANE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
1,1-DICHLOROETHYLENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
1,2,4-TRICHLOROBENZENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
1,2-DICHLOROETHANE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
1,2-DICHLOROPROPANE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
ANTIMONY, TOTAL	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
BARIUM	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
BENZENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
BERYLLIUM, TOTAL	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
CADMIUM	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
CARBON TETRACHLORIDE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
CHLOROBENZENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
CHROMIUM	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
CIS-1,2-DICHLOROETHYLENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
COMBINED RADIUM (-226 & -228)	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
COMBINED RADIUM (-226 & -228)	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
COMBINED URANIUM	02/08/2019	MANIFOLD - WELLS #1 & #2	N	6.000	UG/L	6.000
COMBINED URANIUM	07/21/2016	MANIFOLD - WELLS #1 & #2	N	6.000	UG/L	6.000
DICHLOROMETHANE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
ETHYLBENZENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
FLUORIDE	02/08/2019	MANIFOLD - WELLS #1 & #2	N	0.640	MG/L	0.640
FLUORIDE	07/14/2017	MANIFOLD - WELLS #1 & #2	N	0.370	MG/L	0.370
GROSS ALPHA, INCL. RADON & U	07/14/2017	MANIFOLD - WELLS #1 & #2	N	3.900	PCI/L	3.900
MERCURY	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
NICKEL	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
NITRATE	08/05/2020	MANIFOLD - WELLS #1 & #2	N	2.200	MG/L	2.200
NITRATE	02/08/2019	MANIFOLD - WELLS #1 & #2	N	1.300	MG/L	1.300
NITRATE	12/14/2018	MANIFOLD - WELLS #1 & #2	N	1.000	MG/L	1.000
NITRATE	07/14/2017	MANIFOLD - WELLS #1 & #2	N	1.900	MG/L	1.900
NITRATE	06/23/2017	MANIFOLD - WELLS #1 & #2	N	1.300	MG/L	1.300
NITRATE	07/21/2016	MANIFOLD - WELLS #1 & #2	N	1.900	MG/L	1.900
NITRITE	12/14/2018	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
NITRITE	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
O-DICHLOROBENZENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
P-DICHLOROBENZENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
RADIUM-226	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
RADIUM-226	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
RADIUM-228	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
RADIUM-228	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
SELENIUM	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
STYRENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
TETRACHLOROETHYLENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
THALLIUM, TOTAL	07/14/2017	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
TOLUENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000

TRANS-1,2-DICHLOROETHYLENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
TRICHLOROETHYLENE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
VINYL CHLORIDE	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000
XYLENES, TOTAL	07/21/2016	MANIFOLD - WELLS #1 & #2	Y	0.000		0.000

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Coliform Sampling History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 12

Only report coliform results in the CCR if one or more samples tested positive during the 2020 calendar year.

Required Language. If your water system's coliform history for the year included one or more samples present for coliform, you must give the major sources of the contaminant. To report this information, go to **Appendix A of the CCR template**, find the contaminant, and copy the information from the *"Major Sources in Drinking Water"* column and place it in your CCR. If the system has exceeded the MCL (maximum contaminant level) value for coliforms, go to **Appendix A of the CCR template**, find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Coliform Sampling History
Total Records: 12

Contaminant	Date Collected	P=Present A=Absent
COLIFORM (TCR)	12/02/2020	A
COLIFORM (TCR)	11/02/2020	A
COLIFORM (TCR)	10/02/2020	A
COLIFORM (TCR)	09/01/2020	A
COLIFORM (TCR)	08/04/2020	A
COLIFORM (TCR)	07/07/2020	A
COLIFORM (TCR)	06/04/2020	A
COLIFORM (TCR)	05/04/2020	A
COLIFORM (TCR)	04/03/2020	A
COLIFORM (TCR)	03/04/2020	A
COLIFORM (TCR)	02/05/2020	A
COLIFORM (TCR)	01/03/2020	A

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Lead And Copper Sampling History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 6

A public water system is only required to report the most recent 90% percentile detections for lead and copper within the past five years. If a result is listed as zero, it should be assumed the result was actually a non-detect.

Other lead and copper information to be included in the CCR not listed on this page are the number of samples collected from the distribution system, and the highest level of lead or copper that was detected.

Required Language. If there are detections for lead and copper to report, the system must give the major sources of the contaminant. If a system reports a detection, the system must give the major sources of the contaminant. To report this information, go to **Appendix A of the CCR template**, find the contaminant, and copy the information from the *"Major Sources in Drinking Water"* column and place it in your CCR. If the system exceeds the MCL (maximum contaminant level) value of a contaminant, the system must show the potential health effects of the contaminant. To report this information, go to **Appendix A of the CCR template**, find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Abbreviations used below:
MG/L (mg/L) = milligrams per liter (mg/L = ppm in Appendix A)
UG/L (µg/L) = micrograms per liter (µg/L = ppb in Appendix A)

Contaminant	# Samples Collected	90th %ile Result	Units	Date Collected	CCR Units
LEAD SUMMARY	5	0.000	MG/L	08/05/2020	0.000
COPPER SUMMARY	5	0.535	MG/L	08/05/2020	0.535
LEAD SUMMARY	5	0.000	MG/L	06/23/2017	0.000
COPPER SUMMARY	5	0.460	MG/L	06/23/2017	0.460
LEAD SUMMARY	5	0.000	MG/L	09/12/2014	0.000
COPPER SUMMARY	5	0.645	MG/L	09/12/2014	0.645

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

DBP Sampling History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 0

Sampling history is only listed for systems which are practicing chlorination on a full-time basis.

Public water systems that are required to collect one sample for disinfection byproducts once every year, or every three years, are only required to report the most recent detections for disinfection byproducts. If the most recent sampling was a non-detect for the contaminants, then it is not necessary to report any disinfection byproduct sampling. **Note:** If a contaminant is listed with a "Y" (meaning "Yes") in the "non-detect" column, this means that sampling results showed a "non-detect" - that is to say, the contaminant was not detected.

If a public water system collects more than one sample per year, the system must report the average of Total Trihalomethanes and Haloacetic Acids Group 5 over the 2020 calendar year. The highest level detected, and the range for each contaminant must also be reported.

Required Language. If a system reports a detection, the system must give the major sources of the contaminant. To report this information, go to **Appendix A of the CCR template**, find the contaminant, and copy the information from the *"Major Sources in Drinking Water"* column and place it in your CCR. If the system has exceeded the MCL (maximum contaminant level) value of a contaminant, go to **Appendix A of the CCR template**, find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

No results were found for the DBP Sampling History Report.

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

RTCR Sampling History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 0

Only report if your water system was required to comply with one or more Revised Total Coliform Rule (RTCR) Level 1 and/or Level 2 Assessments during the 2017 calendar year.

Required Language: If your water system was required to conduct an RTCR Level 1 or Level 2 Assessment (numbers I-III below), the associated information must be reported in the CCR in accordance with IDAPA 58.01.08.151.

I. If your water system was required to conduct a Level 1 or 2 assessment **not** due to an *E. coli* MCL violation, go to section I below.
II. If your water system was required to conduct a Level 2 assessment **due** to an *E. coli* MCL violation, go to section II below.
III. If your water system detected *E. coli* and **did not** violate the *E. coli* MCL, go to section III below.

I. If your water system was required to conduct a Level 1 or 2 assessment not due to an *E.coli* MCL violation, you must include in the report adverse health affect information and additional information regarding the number of assessments required, the number of assessments completed, the number of corrective actions required and the number of corrective actions completed.

(A) Adverse Health Effects Required Text: Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

(B) Additional Information Required:

a. During the past year we were required to conduct [INSERT NUMBER OF LEVEL 1 ASSESSMENTS] Level 1 assessment(s). [INSERT NUMBER OF LEVEL 1 ASSESSMENTS] Level 1 assessment(s) were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

b. During the past year [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] Level 2 assessments were required to be completed for our water system. [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] Level 2 assessments were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

c. Any system that has failed to complete all the required assessments or correct all identified sanitary defects, is in violation of the treatment technique requirement and must also include one or both of the following statements, as appropriate:

i. During the past year we failed to conduct all of the required assessment(s).

ii. During the past year we failed to correct all identified defects that were found during the assessment.

II. If your water system was required to conduct a Level 2 assessment due to an *E.coli* MCL violation, you must include in the report adverse health affect information and additional information regarding the number of assessments required, the number of assessments completed, the number of corrective actions required and the number of corrective actions completed.

(A) Adverse Health Effects Required Text: *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E. coli* bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

(B) Additional Information Required:

a. We were required to complete a Level 2 assessment because we found *E. coli* in our water system. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

b. Any system that has failed to complete the required assessment or correct all identified sanitary defects, is in violation of the treatment technique requirement and must also include one or both of the following statements, as appropriate:

i. We failed to conduct the required assessment.

ii. We failed to correct all sanitary defects that were identified during the assessment that we conducted.

c. Any system that violated the *E. coli* MCL, the system must include, in addition to the required adverse health effects text [see II.(A) above], one or more of the following statements to describe any noncompliance, as applicable:

i. We had an *E. coli*-positive repeat sample following a total coliform-positive routine sample.

ii. We had a total coliform-positive repeat sample following an *E. coli*-positive routine sample.

iii. We failed to take all required repeat samples following an *E. coli*-positive routine sample.

iv. We failed to test for *E. coli* when any repeat sample tests positive for total coliform.

III. If your water system detected *E. coli* and did not violate the *E. coli* MCL, the system may include, in addition to the required adverse health effects text [See II.(A) above], a statement that explains that although *E. coli* water detected, your system was not in violation of the *E. coli* MCL.

No results were found for the RTCR Sampling History Report.

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Chlorine Maximum Residual Disinfectant Level Sampling History

PWS Number: ID4010055
PWS Name: EVANS WATER CORP
Total Records: 0

Sampling history is only listed for systems which are practicing chlorination on a full-time basis.

Please include in your CCR the highest chlorine residual level detected during the previous calendar year (2020) by your system, as well as the average of all residuals collected during 2020.

Required Language. If the system exceeds the chlorine MCL (maximum contaminant level) value, the system must show the potential health effects of the contaminant. To report this information, go to **Appendix A of the CCR template**, find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

No results were found for the Chlorine Maximum Residual Disinfectant Level Sampling History Report.

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Appendix B.7 – Suez Interconnection Letter

Cathy Cooper, P.E.
Director of Engineering
8248 W. Victory Road
Boise, ID 83702
208-810-0516
cathy.cooper@suez.com

October 23, 2020

Erv Ballou
Evans Water Corporation
433 Rene Place
Eagle, ID 83616
erv.ballou@hotmail.com

Dear Mr. Ballou:

Thank you for contacting SUEZ about your neighborhood's water system in advance of your November Board meeting. We apologize for the delay in responding to your request – we wanted to provide the most up-to-date information possible.

We understand that Evans Water Corporation, serving 37 connections, is seeking an alternative to continuing as a stand-alone water provider, including exploring the possibility of joining SUEZ' service area.

There are a few extenuating circumstances surrounding our ability to fulfill your request. Evans Water Corporation is located within the Eagle Water Company certificated area and approximately one mile west of the existing SUEZ boundary.

In 2018, SUEZ made a joint filing with the Idaho Public Utilities Commission (IPUC) to purchase Eagle Water Company's assets. Associated with that asset purchase filing, Eagle Water Company and SUEZ are in legal proceedings with the City of Eagle.

The outcome of the IPUC filing for SUEZ to purchase Eagle Water Company assets will determine the process for Evans Water Corporation becoming part of SUEZ' system. We have based the alternative (presented here) on the assumption that our purchase of the Eagle Water Company assets is successful and the current Eagle Water Company area becomes part of the SUEZ water system. This is the most straightforward – and least costly – option for Evans Water Corporation. We are optimistic that the asset purchase will be completed in 2021, but there are many unknowns. Nothing is certain.

Process for Evans Water Corporation becoming part of the SUEZ Water System (assumes SUEZ completes purchase of Eagle Water Company Assets)

Evans Water Corporation would be completely within the SUEZ certificated area, therefore no formal IPUC process would be anticipated. Figure 1 shows existing Eagle Water Company pipelines near Evans Water Corporation. **Yellow** are 6-inch diameter mains, **blue** are 8-inch diameter mains, **pink** are 12-inch diameter mains. Fire hydrant locations are also shown.

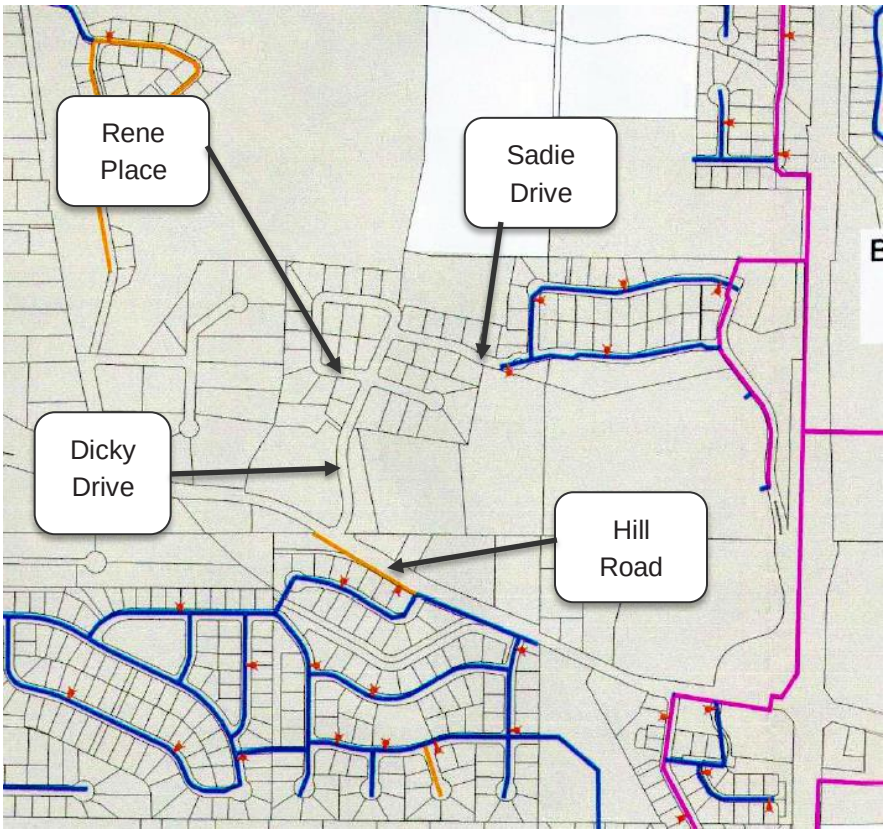


Figure 1 – Existing Eagle Water Company Infrastructure near Evans Water Corporation

The connection would be completed under SUEZ' mainline extension contract. Details of the mainline extension policy can be found in the SUEZ rules and tariffs:

(https://puc.idaho.gov/Fileroom/PublicFiles/WATER/SUZ/General/0tariff/SUEZ%20Water%20Idaho%20Inc.pdf).

This would involve:

1. The SUEZ engineering group would create drawings for the needed improvements and obtain contractor bids from SUEZ-approved pipeline contractors.
2. We anticipate that needed improvements paid for by Evans Water Corporation in accordance with the mainline extension policy would include:
    a. Connecting the existing 6-inch diameter pipeline in Sadie Drive to the existing 8-inch Eagle Water Company main in Sadie Drive.
    b. Connecting the existing 6-inch diameter pipeline in Dicky Drive to the existing Eagle Water Company main in Hill Road with a minimum 8-inch diameter pipeline (approximately 600').
    c. Connecting the existing 4-inch diameter pipeline in the southern portion of Rene Place with the existing 6-inch main in Dicky Drive (approximately 100').
    d. SUEZ will require that the selected contractor pressure test existing pipelines. Any needed repairs to prevent leaks would be required.
    e. We anticipate two new fire hydrants would be required by Eagle Fire District.
3. We anticipate that needed improvements paid for by SUEZ would include:
    a. New service lines to each home.

b. New meter box/meter for each home.
c. Connection to existing "back leg" service line into each home.

4. Once bids are received, SUEZ adds approximately 20% to the contractor cost to cover overheads, inspection fees, and a small contingency. Once full payment of the project costs are received by SUEZ from Evans Water Corporation, construction work can commence. At the conclusion of the project, actual costs are trued up with the amount collected and a refund for any funds collected over the actual costs is issued from SUEZ to Evans Water Corporation.
5. Starting in June 2018, SUEZ was required by the IPUC to start collecting a 21.56-percent contribution tax gross-up that is a pass-through to state and federal taxing authorities. This tax requirement for private water utilities was included in the 2018 Tax Cuts and Jobs Act. SUEZ has recently filed with the IPUC to stop collecting this gross-up tax, but no decision has been issued to date by the IPUC. If the IPUC decision is that SUEZ must keep collecting the tax gross-up, then 21.56-percent will be added to the "Contract costs plus 20-percent overhead, inspection and contingency" and would need to be paid by Evans Water Corporation prior to the project commencing. We anticipate an IPUC ruling on this matter in the next month.
6. **Evans Water Corporation Wells, Well Lot, Water Rights.** SUEZ would not anticipate using the existing two Evans Water Corporation wells. However, SUEZ would be interested in purchasing the well lot to potentially drill a new well. In addition, SUEZ may be interested in purchasing the existing water right. SUEZ would purchase the lot and potentially the water right from Evans Water Corporation for fair market value. Several small water systems that have previously connected to the SUEZ system have used this purchase price to offset main extension costs. If SUEZ were to purchase the well lot, SUEZ would also pay for the cost of the mainline extension to Hill Road as part of the well drilling project.

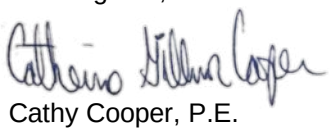
Due to the rapidly changing construction market, we have not provided estimated costs for improvements. Once design drawings are complete, SUEZ can obtain bids on behalf of Evans Water Corporation. This will provide the most reliable cost information.

Summary
Connecting Evans Water Corporation to SUEZ (under this alternative) relies on the completion of SUEZ' Eagle Water Company asset purchase which is not certain and will take time. Evans Water Corporation would need to continue operating as a stand-alone water system until that process is complete. If Evans Water Corporation would like to discuss how other alternatives for connecting could work, I'm happy to talk through those with you.

We have provided our best estimate for necessary improvements to connect the two systems. As the design process progresses, there may be changes to the plan.

We look forward to working with you to address all the details of the project as we move forward. Please let me know if you need any additional information.

Best regards,



Cathy Cooper, P.E.
Director of Engineering

cc: Marshall Thompson, SUEZ Water Idaho General Manager and Vice President
John Lee, Director of Operations
Scott Pierce, Construction Supervisor
Jane Kreller, Communications and Community Outreach Manager

Appendix B.8 – Water Rights

IDAHO DEPARTMENT OF WATER RESOURCES

WATER RIGHT REPORT

11/30/2021

IDAHO DEPARTMENT OF WATER RESOURCES

Water Right Report

WATER RIGHT NO. 63-7582

Owner Type	Name and Address
Current Owner	EVANS WATER CORP PO BOX 403 EAGLE, ID 83616
Original Owner	RICHARD L EVANS

Priority Date: 04/12/1972

Basis: Decreed

Status: Active

Source	Tributary
GROUND WATER	

Beneficial Use	From	To	Diversion Rate	Volume
DOMESTIC	01/01	12/31	0.4 CFS	45 AFA
Total Diversion			0.4 CFS	45 AFA

Location of Point(s) of Diversion:

GROUND WATER	NESW	Sec. 10	Township 04N	Range 01E	ADA County
GROUND WATER	NESW	Sec. 10	Township 04N	Range 01E	ADA County

DOMESTIC Use:

Number of homes: 37

Place(s) of use:

Place of Use Legal Description: DOMESTIC ADA County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
04N	01E	10		NESW										

Conditions of Approval:

1.		THE IRRIGATION OCCURRING UNDER THIS DOMESTIC USE FOR IRRIGATION SHALL NOT EXCEED 1/2 ACRE WITHIN EACH PLATTED SUBDIVISION LOT.
2.	C18	This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.
3.	J01	PROPERTY IS ALSO KNOWN AS LOTS 1-6, BLK 1; LOTS 1-13, BLK 2; EVANS SUBDIVISION NO. 2 AND LOTS 1-12, LOTS 15-19, BLK 3; EVANS SUBDIVISION NO. 3, AND BEGGROW HOME.
4.	X01	DOMESTIC USE IS FOR 37 HOMES AND WELL LOT

Dates:

Licensed Date:

Decreed Date: 02/16/2007

Permit Proof Due Date: 7/1/1977

Permit Proof Made Date: 6/24/1977

Permit Approved Date: 7/21/1972

Permit Moratorium Expiration Date:

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

Water Supply Bank Enrollment Date Accepted:

Water Supply Bank Enrollment Date Removed:

Application Received Date: 04/12/1972

Protest Deadline Date:

Number of Protests: 0

Other Information:

State or Federal: S

Owner Name Connector:

Water District Number: TBD

Generic Max Rate per Acre:

Generic Max Volume per Acre:

Civil Case Number:

Old Case Number:

Decree Plantiff:

Decree Defendant:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

Cary Act Number:

Mitigation Plan: False

APPENDIX C

Supporting Calculations

C.1 – Water Production
C.2 – Well Sounding Results
C.3 – Alternative Cost Estimates
C.4 – Sample Irrigation Schedule
C.5 – Asset Inventory

KELLER ASSOCIATES

Appendix C.1 – Water Production

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

Water Production

Date	time	Water meter reading (gallons)	Production (gallons)	Pressure
01/02/16	09:45 MST	217695600	44,000	60 psi
01/09/16	10:00 MST	217733900	38,300	60 psi
01/16/16	10:30 MST	217769700	35,800	50 psi
01/23/16	11:20 MST	217804200	34,500	54 psi
01/30/16	10:45 MST	217839300	35,100	50 psi
02/06/16	10:30 MST	217875800	36,500	48 psi
02/13/16	09:30 MST	217909800	34,000	50 psi
02/20/16	11:00 MST	217947600	37,800	54 psi
02/27/16	10:45 MST	217981700	34,100	60 psi
03/05/16	10:15 MST	218016000	34,300	50 psi
03/12/16	09:15 MST	218049800	33,800	65 psi
03/19/16	10:45 MDT	218088400	38,600	58 psi
03/26/16	10:00 MDT	218128400	40,000	52 psi
04/02/16	09:45 MDT	218180400	52,000	45 psi
04/09/16	10:00 MDT	218322800	142,400	60 psi
04/16/16	09:15 MDT	218509600	186,800	58 psi
04/23/16	09:15 MDT	218759500	249,900	65 psi
04/30/16	09:00 MDT	218950500	191,000	47 psi
05/07/16	09:15 MDT	219259500	309,000	52 psi
05/14/16	11:25 MDT	219556600	297,100	52 psi
05/21/16	09:00 MDT	219817500	260,900	60 psi
05/28/16	09:00 MDT	220102700	285,200	65 psi
06/04/16	10:30 MDT	220555500	452,800	55 psi
06/11/16	11:00 MDT	221004000	448,500	55 psi
06/18/16	09:45 MDT	221407200	403,200	65 psi
06/25/16	11:10 MDT	221882400	475,200	65 psi
07/02/16	10:45 MDT	222529600	647,200	62 psi
07/16/16	10:15 MDT	223551500	1,021,900	65 psi
07/23/16	10:35 MDT	224118500	567,000	50 psi
07/30/16	11:00 MDT	224752100	633,600	45 psi
08/23/16	16:33 MDT	226641900	1,889,800	45 psi
08/27/16	11:15 MDT	226911900	270,000	65 psi
09/03/16	12:15 MDT	227510600	598,700	55 psi
09/10/16	10:50 MDT	227907500	396,900	55 psi

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

Water Production

Date	time	Water meter reading (gallons)	Production (gallons)	Pressure
09/17/16	11:00 MDT	228295200	387,700	55 psi
09/24/16	10:00 MDT	228621700	326,500	65 psi
10/01/16	11:15 MDT	229009800	388,100	60 psi
10/08/16	10:20 MDT	229275600	265,800	65 psi
10/15/16	10:30 MDT	229541100	265,500	55 psi
10/22/16	09:15 MDT	229640900	99,800	55 psi
10/29/16	11:15 MDT	229722400	81,500	55 psi
11/05/16	09:30 MDT	229783200	60,800	45 psi
11/12/16	11:30 MST	229842000	58,800	50 psi
11/19/16	10:00 MST	229925600	83,600	50 psi
11/26/16	11:15 MST	230067800	142,200	62 psi
12/03/16	09:00 MST	230136500	68,700	55 psi
12/10/16	10:45 MST	230188800	52,300	58 psi
12/17/16	09:30 MST	230305700	116,900	55 psi
12/29/16	15:30 MST	230399300	93,600	70 psi
12/31/16	15:15 MST	230414700	15,400	40 psi
01/07/17	10:00 MST	230463000	48,300	55 psi
01/14/17	10:30 MST	230531200	68,200	65 psi
01/28/17	11:15 MST	230633500	102,300	60 psi
02/04/17	10:45 MST	230683500	50,000	62 psi
02/11/17	10:30 MST	230736900	53,400	60 psi
02/18/17	11:00 MST	230787600	50,700	55 psi
02/25/17	09:45 MST	230837600	50,000	55 psi
03/04/17	09:15 MST	230893700	56,100	54 psi
03/11/17	09:30 MST	230943600	49,900	62 psi
03/18/17	10:00 MDT	230996300	52,700	65 psi
03/25/17	11:00 MDT	231059700	63,400	62 psi
04/01/17	09:50 MDT	231114900	55,200	67 psi
04/08/17	10:25 MDT	231177300	62,400	55 psi
04/15/17	09:17 MDT	231229700	52,400	65 psi
04/22/17	10:00 MDT	231291100	61,400	55 psi
04/29/17	08:00 MDT	231347600	56,500	65 psi
05/06/17	09:00 MDT	231470100	122,500	50 psi
05/13/17	09:20 MDT	231671700	201,600	55 psi

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

Water Production

Date	time	Water meter reading (gallons)	Production (gallons)	Pressure
05/20/17	09:30 MDT	231882400	210,700	47 psi
05/29/17	10:45 MDT	232353400	471,000	52 psi
06/11/17	10:45 MDT	233104900	751,500	62 psi
06/24/17	09:45 MDT	233825800	720,900	65 psi
07/01/17	09:30 MDT	234359900	534,100	65 psi
07/09/17	13:15 MDT	235104000	744,100	60 psi
07/14/17				
07/15/17	09:55 MDT	235704700	600,700	60 psi
07/22/17	10:10 MDT	236380700	676,000	57 psi
07/31/17	17:01 MDT	237236500	855,800	62 psi
08/05/17	11:45 MDT	237704000	467,500	60 psi
08/12/17	10:45 MDT	238324500	620,500	50 psi
08/26/17	10:30 MDT	239495800	1,171,300	55 psi
09/02/17	10:30 MDT	240028400	532,600	65 psi
09/09/17	10:15 MDT	240518200	489,800	60 psi
09/16/17	08:45 MDT	240964200	446,000	52 psi
09/23/17	10:30 MDT	241305400	341,200	52 psi
10/07/17	11:30 MDT	241856000	550,600	57 psi
10/14/17	10:15 MDT	242061500	205,500	65 psi
10/28/17	12:00 MDT	242254700	193,200	55 psi
11/04/17	11:00 MDT	242338000	83,300	55 psi
11/11/17	08:45 MST	242403322	65,322	48 psi
11/18/17	10:00 MST	242464000	60,678	50 psi
11/25/17	09:30 MST	242519500	55,500	52 psi
12/02/17	10:00 MST	242570600	51,100	50 psi
12/09/17	09:00 MST	242631000	60,400	55 psi
12/16/17	09:05 MST	242680900	49,900	50 psi
12/23/17	09:50 MST	242734000	53,100	52 psi
12/30/17	09:30 MST	242784800	50,800	48 psi
01/01/18	16:10 MST	242802100	17,300	52 psi
01/06/18	09:30 MST	242834400	32,300	60 psi
01/13/18	10:20 MST	242891200	56,800	55 psi
01/20/18	10:20 MST	242953200	62,000	47 psi
01/27/18	09:30 MST	243017500	64,300	49 psi

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

Water Production

Date	time	Water meter reading (gallons)	Production (gallons)	Pressure
02/03/18	10:30 MST	243070400	52,900	62 psi
02/10/18	09:45 MST	243127400	57,000	57 psi
02/17/18	10:30 MST	243184100	56,700	50 psi
02/24/18	09:30 MST	243242400	58,300	52 psi
03/03/18	11:00 MST	243301500	59,100	50 psi
03/10/18	09:45 MST	243364800	63,300	50 psi
03/17/18	10:30 MDT	243461700	96,900	62 psi
03/24/18	09:30 MDT	243555100	93,400	60 psi
03/31/18	08:45 MDT	243601000	45,900	58 psi
04/07/18	08:50 MDT	243650000	49,000	48 psi
04/14/18	11:00 MDT	243700400	50,400	55 psi
04/21/18	08:30 MDT	243767800	67,400	65 psi
04/28/18	10:15 MDT	244005000	237,200	69 psi
05/05/18	08:45 MDT	244257200	252,200	65 psi
05/12/18	09:00 MDT	244603600	346,400	50 psi
05/19/18	08:40 MDT	244885100	281,500	65 psi
05/26/18	09:50 MDT	245305800	420,700	50 psi
06/02/18	09:30 MDT	245629400	323,600	55 psi
06/09/18	09:45 MDT	246063100	433,700	55 psi
06/16/18	10:15 MDT	246509500	446,400	47 psi
06/23/18	08:30 MDT	246932300	422,800	55 psi
06/30/18	11:15 MDT	247482000	549,700	60 psi
07/07/18	10:20 MDT	248025600	543,600	55 psi
07/14/18	09:15 MDT	248662500	636,900	60 psi
07/21/18	08:20 MDT	249360700	698,200	46 psi
07/28/18	09:45 MDT	250052600	691,900	60 psi
08/04/18	09:38 MDT	250706500	653,900	62 psi
08/11/18	10:30 MDT	251341200	634,700	65 psi
08/18/18	09:30 MDT	251995400	654,200	65 psi
08/25/18	10:15 MDT	252545900	550,500	65 psi
09/01/18	09:32 MDT	253028100	482,200	65 psi
09/08/18	10:35 MDT	253551700	523,600	62 psi
09/15/18	09:33 MDT	253984900	433,200	65 psi
09/22/18	10:55 MDT	254371300	386,400	62 psi

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

Water Production

Date	time	Water meter reading (gallons)	Production (gallons)	Pressure
09/29/18	10:15 MDT	254668400	297,100	60 psi
10/06/18	10:45 MDT	254934900	266,500	60 psi
10/13/18	10:30 MDT	255065800	130,900	45 psi
10/20/18	10:05 MDT	255199200	133,400	50 psi
10/27/18	10:25 MDT	255315400	116,200	50 psi
11/03/18	09:45 MDT	255379800	64,400	50 psi
11/10/18	08:84 MST	255434500	54,700	62 psi
11/17/18	09:25 MST	255481700	47,200	50 psi
11/24/18	09:45 MST	255528900	47,200	57 psi
12/01/18	10:30 MST	255575000	46,100	65 psi
12/08/18	09:45 MST	255635500	60,500	50 psi
12/15/18	10:00 MST	255679500	44,000	50 psi
12/22/18	10:15 MST	255726200	46,700	65 psi
12/29/18	12:45 MST	255775500	49,300	60 psi
01/01/19	13:47 MST	255797400	21,900	60 psi
01/05/19	10:45 MST	255824400	27,000	60 psi
01/12/19	09:45 MST	255870500	46,100	50 psi
01/19/19	09:50 MST	255918400	47,900	45 psi
01/26/19	10:20 MST	255966300	47,900	50 psi
02/02/19	10:25 MST	256014800	48,500	47 psi
02/09/19	09:30 MST	256060200	45,400	58 psi
02/16/19	09:30 MST	256105200	45,000	50 psi
02/23/19	10:15 MST	256151900	46,700	63 psi
03/02/19	10:05 MST	256196000	44,100	65 psi
03/09/19	09:45 MST	256240500	44,500	65 psi
03/16/19	10:10 MDT	256283400	42,900	62 psi
03/23/19	11:25 MDT	256322200	38,800	50 psi
03/30/19	10:01 MDT	256360300	38,100	55 psi
04/06/19	10:45 MDT	256405700	45,400	55 psi
04/27/19	11:00 MDT	256652500	246,800	62 psi
05/04/19	09:50 MDT	256859700	207,200	62 psi
05/11/19	10:30 MDT	257156400	296,700	65 psi
05/18/19	09:45 MDT	257483600	327,200	50 psi
05/25/19	10:30 MDT	257626300	142,700	47 psi

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

Water Production

Date	time	Water meter reading (gallons)	Production (gallons)	Pressure
06/01/19	11:00 MDT	257802200	175,900	57 psi
06/08/19	09:20 MDT	258110400	308,200	60 psi
06/15/19	10:00 MDT	258515800	405,400	67 psi
06/22/19	09:30 MDT	258976800	461,000	63 psi
06/29/19	09:55 MDT	259538700	561,900	50 psi
07/06/19	11:40 MDT	260109700	571,000	55 psi
07/13/19	09:15 MDT	260687200	577,500	63 psi
07/20/19	10:50 MDT	261306400	619,200	63 psi
07/27/19	10:00 MDT	261919400	613,000	62 psi
08/03/19	10:35 MDT	262543400	624,000	50 psi
08/10/19	09:30 MDT	262997400	454,000	62 psi
08/17/19	11:00 MDT	263479700	482,300	55 psi
08/24/19	09:30 MDT	263971000	491,300	62 psi
08/31/19	09:50 MDT	264509000	538,000	67 psi
09/07/19	09:45 MDT	265060200	551,200	55 psi
09/16/19	10:30 MDT	265573600	513,400	65 psi
09/21/19	10:30 MDT	265722900	149,300	65 psi
09/28/19	10:30 MDT	265975500	252,600	52 psi
10/05/19	13:30 MDT	266221300	245,800	52 psi
10/12/19	10:03 MDT	266452800	231,500	65 psi
10/19/19	10:15 MDT	266582400	129,600	55 psi
10/26/19	09:20 MDT	266663900	81,500	48 psi
11/02/19	13:30 MDT	266719200	55,300	55 psi
11/09/19	09:40 MST	266769900	50,700	62 psi
11/18/19	11:15 MST	266828100	58,200	55 psi
11/23/19	09:15 MST	266849800	21,700	55 psi
12/02/19	15:15 MST	266900350	50,550	60 psi
12/07/19	10:48 MST	266924300	23,950	55 psi
12/14/19	10:45 MST	266960500	36,200	60 psi
12/21/19	11:55 MST	267016600	56,100	50 psi
12/28/19	09:50 MST	267112200	95,600	52 psi
01/01/20	12:30 MST	267157100	44,900	62 psi
01/04/20	10:50 MST	267171900	14,800	60 psi
01/11/20	12:33 MST	267205500	33,600	50 psi

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

Water Production

Date	time	Water meter reading (gallons)	Production (gallons)	Pressure
01/18/20	12:45 MST	267238600	33,100	60 psi
01/25/20	11:45 MST	267269800	31,200	55 psi
02/01/20	10:00 MST	267302800	33,000	62 psi
02/08/20	12:00 MST	267339400	36,600	65 psi
02/15/20	12:00 MST	267374800	35,400	45 psi
02/22/20	11:30 MST	267410300	35,500	62 psi
02/29/20	10:15 MST	267443800	33,500	58 psi
03/07/20	09:25 MST	267479900	36,100	55 psi
03/14/20	09:20 MDT	267519300	39,400	62 psi
03/21/20	09:30 MDT	267563200	43,900	60 psi
03/28/20	11:05 MDT	267611100	47,900	50 psi
04/04/20	10:45 MDT	267655000	43,900	50 psi
04/11/20	09:45 MDT	267718700	63,700	60 psi
04/18/20	16:10 MDT	267863100	144,400	50 psi
04/25/20	09:10 MDT	268073600	210,500	65 psi
05/02/20	09:40 MDT	268360500	286,900	62 psi
05/09/20	09:45 MDT	268686200	325,700	62 psi
05/16/20	14:00 MDT	268973700	287,500	55 psi
05/30/20	11:00 MDT	269501400	527,700	60 psi
06/06/20	14:00 MDT	269896800	395,400	55 psi
06/13/20	14:30 MDT	270183200	286,400	60 psi
07/04/20	13:30 MDT	271185000	1,001,800	60 psi
07/11/20	11:45 MDT	271680200	495,200	63 psi
07/18/20	11:00 MDT	272243900	563,700	65 psi
07/25/20	10:45 MDT	272847000	603,100	65 psi
08/01/20	09:45 MDT	273429100	582,100	62 psi
08/08/20	08:30 MDT	274022600	593,500	62 psi
08/17/20	10:30 MDT	274756400	733,800	65 psi
08/22/20	10:55 MDT	275169600	413,200	50 psi
08/29/20	10:45 MDT	275639600	470,000	60 psi
09/05/20	10:15 MDT	276115000	475,400	60 psi
09/12/20	11:20 MDT	276576700	461,700	50 psi
09/19/20	10:45 MDT	276955500	378,800	55 psi
09/26/20	13:00 MDT	277331300	375,800	65 psi

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

Water Production

Date	time	Water meter reading (gallons)	Production (gallons)	Pressure
10/03/20	19:10 MDT	277649600	318,300	50 psi
10/10/20	12:50 MDT	277930300	280,700	65 psi
10/17/20	10:30 MDT	278072800	142,500	50 psi
10/24/20	10:30 MDT	278169600	96,800	65 psi
10/31/20	10:00 MDT	278221100	51,500	65 psi
11/22/20	13:45 MST	278366900	145,800	50 psi
11/28/20	11:30 MST	278408000	41,100	65 psi
12/05/20	10:50 MST	278449700	41,700	65 psi
12/12/20	10:30 MST	278494200	44,500	50 psi
12/19/20	11:35 MST	278539400	45,200	60 psi
01/01/21	12:10 MST	278622300	82,900	50 psi
01/02/21	10:40 MST	278627700	5,400	55 psi
01/09/21	10:30 MST	278673300	45,600	50 psi
01/16/21	10:40 MST	278720400	47,100	47 psi
01/23/21	11:40 MST	278769700	49,300	50 psi
01/30/21	10:30 MST	278817100	47,400	62 psi
02/06/21	10:15 MST	278866500	49,400	52 psi
02/13/21	14:15 MST	278919800	53,300	57 psi
02/20/21	11:00 MST	278974200	54,400	53 psi
02/27/21	11:00 MST	279029800	55,600	52 psi
03/06/21	10:45 MST	279083100	53,300	60 psi
03/13/21	10:45 MST	279139800	56,700	63 psi
03/20/21	10:45 MDT	279184200	44,400	63 psi
03/29/21	12:15 MDT	279243600	59,400	52 psi
04/03/21	10:45 MDT	279298000	54,400	55 psi
04/10/21	10:20 MDT	279439100	141,100	62 psi
04/17/21	10:00 MDT	279607900	168,800	55 psi
04/24/21	10:15 MDT	279857300	249,400	63 psi
05/01/21	11:30 MDT	280045000	187,700	62 psi
05/08/21	09:45 MDT	280342900	297,900	60 psi
05/15/21	10:46 MDT	280785200	442,300	62 psi
05/22/21	13:40 MDT	281109200	324,000	52 psi
05/29/21	10:30 MDT	281325800	216,600	65 psi
06/05/21	11:00 MDT	281792800	467,000	55 psi

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

Water Production

Date	time	Water meter reading (gallons)	Production (gallons)	Pressure
06/12/21	11:10 MDT	282245800	453,000	65 psi
06/19/21	11:20 MDT	282760600	514,800	65 psi
06/26/21	10:50 MDT	283293400	532,800	57 psi
07/03/21	09:45 MDT	283928000	634,600	60 psi
07/10/21	08:45 MDT	284658400	730,400	55 psi
07/17/21	10:00 MDT	285312400	654,000	65 psi
07/24/21	13:05 MDT	285900800	588,400	62 psi
07/31/21	08:41 MDT	286437700	536,900	63 psi
08/21/21	11:20 MDT	287933300	1,495,600	55 psi

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

2021 Daily Meter Readings

Red = Excluded from Analysis

Date	time	Water meter reading	Pressure	Total Production
06/30/21	9:30	283629600	65	-
07/01/21	9:00	283732800	50	103,200
07/02/21	10:20	283836700	62	103,900
07/03/21	9:45	283928000	60	91,300
07/04/21	10:00	284024100	60	96,100
07/05/21	10:00	284125200	57	101,100
07/06/21	10:00	284318400	65	193,200
07/07/21	-	-	-	-
07/08/21	14:41	284440000	57	121,600
07/09/21	11:15	284553500	60	113,500
07/10/21	8:45	284658400	55	104,900
07/11/21	13:05	284756700	62	98,300
07/12/21	10:15	284857500	62	100,800
07/13/21	-	-	-	-
07/14/21	10:35	285042600	52	-
07/15/21	9:55	285124400	57	81,800
07/16/21	9:40	285217100	62	92,700
07/17/21	10:00	285312400	65	95,300
07/18/21	-	-	-	-
07/19/21	10:05	285484200	62	-
07/20/21	12:45	285571100	47	86,900
07/21/21	10:02	285648900	65	77,800
07/22/21	10:02	285736400	52	87,500
07/23/21	9:30	285814100	50	77,700
07/24/21	13:05	285900800	62	86,700
07/25/21	10:29	285979000	59	78,200
07/26/21	9:53	286077600	62	98,600
07/27/21	10:23	286147000	65	69,400
07/28/21	10:50	286223600	60	76,600
07/29/21	8:45	286293700	60	70,100
07/30/21	9:04	286361300	55	67,600
07/31/21	8:41	286437700	63	76,400
08/01/21	16:45	286490900	45	53,200
08/02/21	10:15	286524600	63	33,700

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

2021 Daily Meter Readings

Red = Excluded from Analysis

Date	time	Water meter reading	Pressure	Total Production
08/03/21	8:45	286565700	55	41,100
08/04/21	15:18	286653300	60	87,600
08/05/21	9:00	287609100	55	955,800
No Readings From 8/6/2021 thru 8/19/2021				
08/20/21	10:50	287854800	60	-
08/21/21	11:20	287933300	55	78,500
08/22/21	11:25	287982400	52	49,100
08/23/21	11:15	288060100	65	77,700
08/24/21	10:10	288116500	50	56,400
08/25/21	12:00	288185800	62	69,300
08/26/21	17:20	288248200	65	62,400
08/27/21	9:55	288308400	60	60,200
08/28/21	10:00	288373300	65	64,900
08/29/21	14:30	288432900	50	59,600
08/30/21	10:45	288502400	50	69,500
08/31/21	9:15	288548900	50	46,500
09/01/21	10:00	288600000	60	51,100
09/02/21	9:30	288656900	55	56,900
09/03/21	10:45	288724200	55	67,300
09/04/21	10:00	288788500	65	64,300
09/05/21	10:45	288852600	47	64,100
09/06/21	10:40	288922700	55	70,100
09/07/21	10:40	288982100	55	59,400
09/08/21	7:30	289048700	67	66,600
09/09/21	10:10	289121100	50	72,400
09/10/21	7:20	289182500	67	61,400
09/11/21	10:30	289226200	67	43,700
09/12/21	2:26	289264500	60	38,300
09/13/21	10:00	289318700	60	54,200
09/14/21	12:55	289381400	65	62,700
09/15/21	10:30	289432300	55	50,900
09/16/21	9:45	289487400	50	55,100
09/17/21	12:00	289556900	65	69,500
09/18/21	11:30	289609200	50	52,300

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

2021 Daily Meter Readings

Red = Excluded from Analysis

Date	time	Water meter reading	Pressure	Total Production
09/19/21	10:30	289645000	58	35,800
09/20/21	10:00	289692300	65	47,300
09/21/21	9:45	289723300	47	31,000
09/22/21	11:00	289779600	50	56,300

Appendix C.2 – Well Sounding Results

Client: Evans Water Corp
Project: Water Master Plan
Project No.: 220126

Well Sounding

	Field Results
Well #1 Static Level (ft below ground)	55.2
Well #2 Static Level (ft below ground)	47.7

Well #1 Run Times	11:10-11:20
Well #1 Pump Rate (gpm)	-
Well #1 Pumping Level (ft below ground)	62.8
Drawdown (ft)	7.6

Well #2 Run Times	10:50 - 11:00
Well #2 Pump Rate (gpm)	-
Well #2 Pumping Level (ft below ground)	53.6
Drawdown (ft)	5.9

Appendix C.3 – Alternative Cost Estimates

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

Alternative Cost Estimates

Prepared By: TJB
Date: Summer 2021

Project Title: Alternative 1 - Increase Pumping Capacity				
General Line Item	Unit	Unit Price	Estimated Quantity	Item Cost
New Pump and Motor (15 hp, 200 gpm)	EA	$25,000	2	$50,000
Electrical Upgrades	LS	$10,000	1	$10,000
			Subtotal (Rounded)	$60,000
Mobilization	-	5%	1	$3,000
Contingency	-	30%	1	$18,000
Design and Construction Engineering	-	20%	1	$12,000
			Total (Rounded)	$93,000

Project Title: Alternative 3A - Consolidation with Suez				
General Line Item	Unit	Unit Price	Estimated Quantity	Item Cost
6-inch PVC Pipe - Excavation, Backfill, Valves, Hydrants, Fittings, Services	LF	$120	150	$18,000
8-inch PVC Pipe - Excavation, Backfill, Valves, Hydrants, Fittings, Services	LF	$130	600	$78,000
1/2 Lane Asphalt Surface Repair	LF	$35	750	$26,250
Connect to Existing Water Main (6" & 8")	EA	$5,000	3	$15,000
			Subtotal (Rounded)	$137,000
Mobilization	-	5%	1	$6,850
Suez Overhead, Inspection, and Contingency		20%	1	$3,000
Contingency	-	30%	1	$41,100
Design and Construction Engineering	-	20%	1	$37,590
			Total (Rounded)	$226,000

Project Title: Alternative 3B - Emergency Intertie with Suez				
General Line Item	Unit	Unit Price	Estimated Quantity	Item Cost
6-inch PVC Pipe - Excavation, Backfill, Valves, Hydrants, Fittings, Services	LF	$120	50	$6,000
1/2 Lane Asphalt Surface Repair	LF	$35	50	$1,750
Connect to Existing Water Main (6" & 8")	EA	$5,000	2	$10,000
			Subtotal (Rounded)	$18,000
Mobilization	-	5%	1	$900
Contingency	-	30%	1	$6,000
Design and Construction Engineering	-	20%	1	$5,000
			Total (Rounded)	$30,000

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

Appendix C.4 – Sample Irrigation Schedule

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

Sample Irrigation Schedule

Parameter	
Number of Homes	37
Average Irrigation Demand per connection (gpm)	17
Average Daily Demand (gpm)[1]	23
Assumed Peak Hour Demand Excluding Irrigation (gpm)[2]	46
Existing Firm Capacity (gpm)	100
Calculated Peak Irrigation Demand (gpm)	54
Max # of Homes to Irrigate at once to not exceed firm capacity	3
# of Irrigation Intervals (every other day)	12.3
Interval Time (hour)	3.9

1) From WMP planning critieria tables.
2) Assumed peaking factor of 2.0.

Appendix C.5 – Asset Inventory

Evans Water Corporation

2021 Water System Assets Inventory

Asset	Typical Useful Life (yrs)	Replacement Cost (2021, $)[3]	Annualized Replacement Cost ($/yr) [1] (automatically calculated)	2021 Remaining Life (yrs)[2]	Value of Depreciation Experienced to Date (automatically calculated)	Depreciated Value (2021)
Well Operation						
Pumps and motors in Well #1 (1 @ 7.5 HP)	15	$10,000	$800	13	$1,333	$8,667
Pumps and motors in Well #2 (1 @ 7.5 HP)	15	$10,000	$800	3	$8,000	$2,000
Well #1 and #2 electricals and controls	20	$7,500	$500	8	$4,500	$3,000
Air Compressor (1 @ 5 hp)	30	$3,252	$200	18	$1,301	$1,951
Pumps and Electrical Cost		**$30,752**	**$2,300**	-	**$15,134**	**$48,804**
Pipes[5]						
Service Laterals (19 total)	50	$171,000	$5,000	0	$171,000	$0
3 - inch pipe (140 ft)	75	$4,900	$1,000	24	$3,332	$1,568
4 - inch Pipe (1,670 feet)	75	$66,800	$2,000	24	$45,424	$21,376
6 - inch Pipe (790 feet)	75	$47,400	$2,000	24	$32,232	$15,168
Pipes Replacement Cost		**$290,100**	**$10,000**	-	**$251,988**	**$38,112**
Blow-Off and Valves						
Blow-Off Assembly (5 total)	50	$22,500	$1,000	0	$22,500	$0
Water Valves (2 total)	50	$7,000	$1,000	0	$7,000	$0
Blow-Off and Valves Costs		**$29,500**	**$2,000**	-	**$29,500**	**$0**
Storage Tanks						
1,000 gallon Stainless Steel Pressure Tank	75	$12,000	$1,000	71	$640	$11,360
Storage Tanks Costs		**$12,000**	**$1,000**	-	**$640**	**$11,360**
ASSET REPLACEMENT COST (ROUNDED)		**$362,000**	**$15,000**	-	**$297,000**	**$98,000**

Notes

1. Assumes a discount rate of 1.5% based on 20-year nominal discount rate (https://www.whitehouse.gov/wp-content/uploads/2020/12/2020_Appendix-C.pdf)

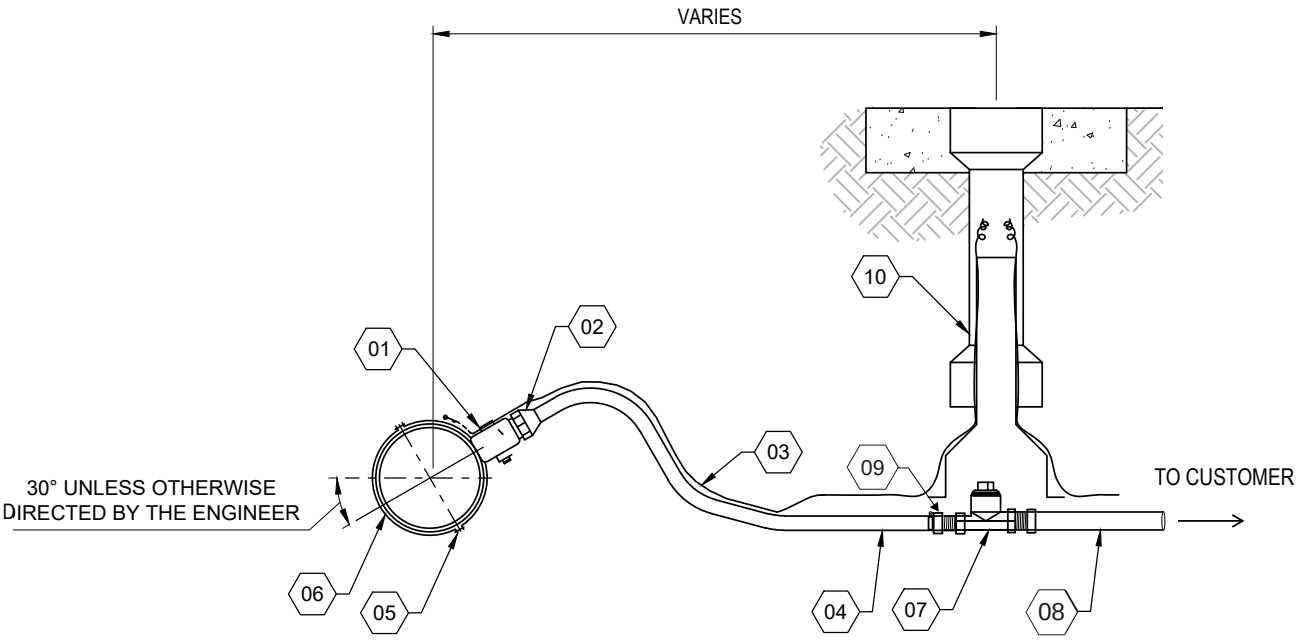
2. Based on reported replacement date. Where installation date is unknown, assumes zero years remaining useful life.

3. Equal to reported replacement costs where recenly replaced and inflated based on Engineering News-Record (ENR) Construction Cost Index.

APPENDIX D

Lateral Replacement Construction Standard

KELLER ASSOCIATES



-- KEYNOTE

01 BALLCORP TYPE F8400 INLET AWWA TAPER-CC X PACK JOINT W/S.S. INSERT; FORD 1 1/2" (F8B1001-6), 2" (FB1001-7)
02 CORPORATION STOP ADAPTER, FORD
03 NO. 12 COPPER FINDER WIRE
04 SERVICE PIPE: ULTRA HIGH MOLECULAR WEIGHT POLYETHELENE PIPE SDR 7, CLASS 200 IN IRON PIPE SIZE (DRISCO PIPE 8600 ULTRA LINE), 2"
05 304 SS SADDLE WITH CC THREAD AND 304 SS NUTS, STUDS AND STRAPS
06 POTABLE WATER MAIN
07 EXISTING 2" BRASS SHUTOFF VALVE
08 EXISTING CUSTOMER WATER SERVICE. PROTECT IN PLACE
09 FIP X PACK JOINT FITTING
10 VALVE BOX AND LID. RETAIN AND PROTECT OR TEMPORARILY REMOVE AND RESET EXISTING.

NOTES:

A. ALL PRODUCTS AS NOTED OR APPROVED SUBSTITUTION.
B. REMOVE EXISTING TAPPING SADDLE AND INSTALL FLEXIBLE PIPE COUPLING WITH STAINLESS STEEL STRAPS TO PLUG EXISTING SERVICE CONNECTION.
C. NO GALVANIZED PIPE OR YELLOW BRASS FITTINGS.
D. NO TAPS WITHIN ONE FOOT OF THE PIPE ENDS.

C7103

WATER SERVICE REPAIR

N.T.S.

SHEET NO. 1
PROJECT NO. 220126
PAGE
NOT TO SCALE
DRAWN: TJB
CHECK:

EVANS WATER CORPORATION - WATER MASTER PLAN

WATER SERVICE REPAIR - DETAIL

NO.	REVISIONS	DATE

KELLER ASSOCIATES
100 E Bower Street, Suite 100
Meridian, Idaho 83642
(208) 288-1992

APPENDIX E

Capital Improvement Plan

KELLER ASSOCIATES

Client: Evans Water Corporation
Project: Water Master Plan
Project No.: 220126

CIP Summary Tables

Project Identifier	Project Name	Estimated Cost
1A	Replace Galvanized Service Lines[1]	$295,000
1B	Reduce Peak Hour Demand	$1,000
	Priority 1 Improvement Costs	**$296,000**
2A	Emergency Interconnection with Suez	$30,000
2B	Configure Pump to Waste in Well #1 Housing	$14,000
	Priority 2 Improvement Costs	**$14,000**
3A	Install Back-Up Generator (if 2A is not feasible)	$60,000
3B	Install Alarm System	$3,000
3C	Update Water Master Plan	$35,000
	Priority 3 Improvement Costs	**$38,000**
	Capital Improvement Plan Total Costs	**$350,000**

1) Project based on quote from May 2020 inflated to 2021 dollars. Includes additional anticipated project costs.

Project Title:	Location:
Evans Water Corporation - Water Master Plan	**Evans Subdivision #2 and #3**

Project Identifier:

1A

Need for Project:

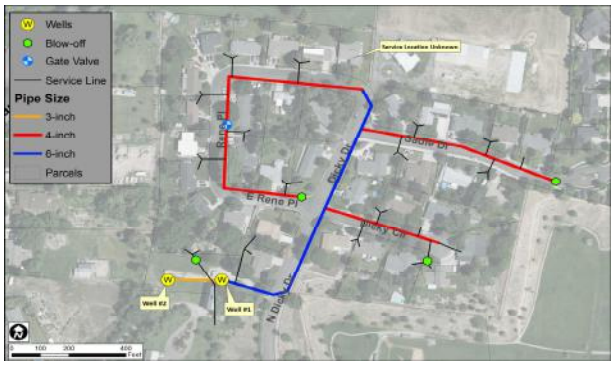
Existing galvanized services lines are failing and need replaced

Objective:

Replace service lines, the pipline from Well #2 to Well #1 line with PVC, and the blow-off assemblies.

Design Considerations:

- Apply for DEQ funidng January 2022
- Consider trenchless pipe installation such as directional drilling



General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2021 Dollars)
Goods and Services					
2-inch HDPE, Service Lateral Replacement	18	EA	$ 9,500	$ 171,000	
6-inch PVC, Transmission Line Replacement	140	LF	$ 60	$ 9,000	
2-inch Blow-Off Rehabilitation	4	EA	$ 1,500	$ 6,000	
2-inch Blow-Off Assembly	1	EA	$ 4,500	$ 5,000	
			Construction Subtotal		***$ 191,000***
Additional Elements (estimated % of above)					
Contingency			30%	$ 58,000	
			Total Construction Subtotal		***$ 249,000***
Plans and Contract Documents					
Engineering Design and Bid Phase Services			10%	$ 25,000	
Permitting			LS	$ 2,000	
Environmental			LS	$ 7,500	
Legal, Administrative, and Funding			1.0%	$ 3,000	
				$ -	
Inflation			3.0%	$ 8,000	
			Total Project Costs (rounded)		**$ 295,000**

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

Project Title:	Location:
Evans Water Corporation - Water Master Plan	**Evans Subdivision #2 and #3**

Project Identifier:

1B

Need for Project:

The system's PHD exceeds the firm capacity of the supply and delivery sources.

Objective:

Reduce the peak hour demand by implementing an irrigation schedule which restricts the peak hour demand to the firm capacity of 100 gpm.

Design Considerations:

- Only effective if enforced strictly

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2021 Dollars)
Goods and Services					
Implement and Enforce Irrigation Schedule (legal and adminstrative support)	1	LS	$ 1,000	$ 1,000	
				Construction Subtotal	***$ 1,000***

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

Project Title:	Location:
Evans Water Corporation - Water Master Plan	**Sadie Drive and Morning Glory Way**

Project Identifier:

2A

Need for Project:

- Install intertie with Suez to provide secondary water source if the Corporations wells are out of service

Objective:

- Increase system redundancy

Design Considerations:

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2021 Dollars)
Goods and Services					
6-inch PVC Pipe - Excavation, Backfill, Valves, Hydrants, Fittings, Services	50	LF	$ 120	$ 6,000	
1/2 Lane Asphalt Surface Repair	50	LF	$ 35	$ 2,000	
Connect to Existing Water Main (6" & 8")	2	EA	$ 5,000	$ 10,000	
				Construction Subtotal	***$ 18,000***
Additional Elements (estimated % of above)					
Mobilization			5%	$ 900	
Contingency			30%	$ 6,000	
				Total Construction Subtotal	***$ 24,000***
Plans and Contract Documents					
Engineering Design and Bid Phase Services			20%	$ 5,000	
				Total Project Costs (rounded)	**$ 30,000**

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

Project Title:	Location:
Evans Water Corporation - Water Master Plan	**Well #1 Pump House**

Project Identifier:

2B

Need for Project:

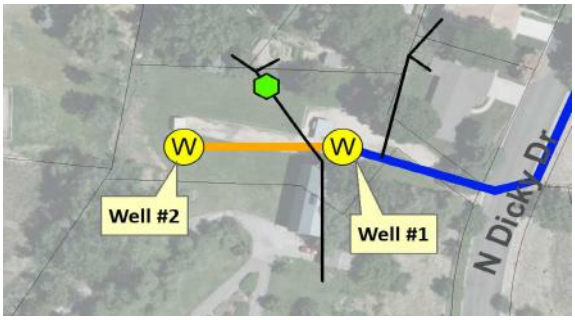
Configure wells to pump to waste. Install necessary fittings, piping, and valves to be able to pump to waste.

Objective:

Improve operations and maintenance activities

Design Considerations:

-



General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2021 Dollars)
Goods and Services					
Bypass Pumping Assembly	1	EA	$ 7,500	$ 8,000	
				Construction Subtotal	$8,000
Additional Elements (estimated % of above)					
Contingency			30%	$ 3,000	
				Total Construction Subtotal	***$ 11,000***
Plans and Contract Documents					
Engineering Design and Bid Phase Services			20%	$ 3,000	
				Total Project Costs (rounded)	**$ 14,000**

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

Project Title:	Location:
Evans Water Corporation - Water Master Plan	**Well #1 Pump House**

Project Identifier:

3A

Need for Project:

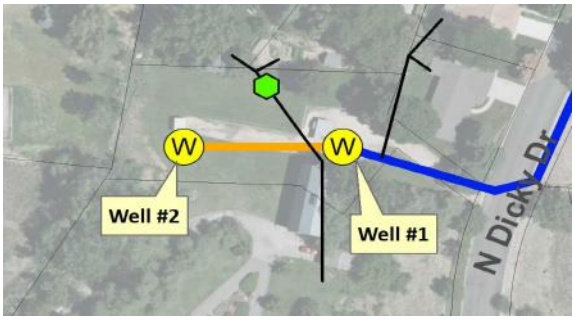
- The Well #1 and #2 do not have a back-up power source

Objective:

- Improve system redundancy

Design Considerations

- Complete if Priority Project 2A is not feasible.



General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2021 Dollars)
Goods and Services					
Back-Up Power Generator (20 kW)	1	EA	$ 25,000	$ 25,000	
Electrical Installation	1	LS	$ 5,000	$ 5,000	
				Construction Subtotal	***$ 30,000***
Additional Elements (estimated % of above)					
Mobilization and Administration			10%	$ 3,000	
Bonding			0.0%	$ -	
Contractor Overhead and Profit			25%	$ 8,000	
Prevailing Wages			0.0%	$ -	
Contingency			30%	$ 9,000	
				Total Construction Subtotal	***$ 50,000***
Plans and Contract Documents					
Engineering Design and Bid Phase Services			20%	$ 10,000	
				Total Project Costs (rounded)	**$ 60,000**

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

Project Title:	Location:
Evans Water Corporation - Water Master Plan	**Well #1 Pump House**

Project Identifier:

3B

Need for Project:

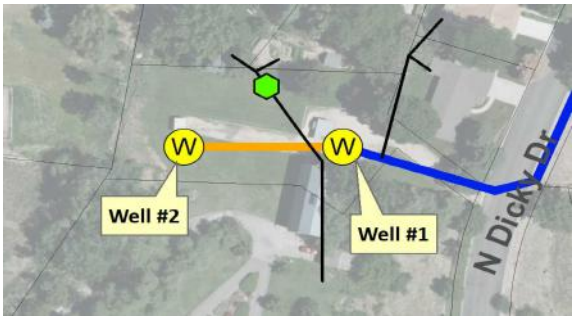
Install alarm system to notify operator of pump failure, low pressure, or low tank level

Objective:

Increase system resiliency and improve operations.

Design Considerations:

-



General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2021 Dollars)
Goods and Services					
Alarm System	1	LS	$ 1,500	$ 2,000	
				Construction Subtotal	***$ 2,000***
Additional Elements (estimated % of above)					
Contingency			30%	$ 1,000	
				Total Construction Subtotal	***$ 3,000***
				Total Project Costs (rounded)	**$ 3,000**

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Project Title:	Location:
Evans Water Corporation - Water Master Plan	**Evans Subdivision #2 and #3**
Project Identifier: **3C** Need for Project: Update water master plan every 5-10 years	

General Line Item	Estimated Quantity	Unit	Unit Price	Item Cost (Rounded)	Total Cost (2021 Dollars)
Goods and Services					
Water Master Plan Update	1	LS	$ 35,000	$ 35,000	
				Project Total	***$ 35,000***

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